

# Plant collectors in Anatolia (Turkey)

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**Abstract.** The specimen citations in Davis's *Flora of Turkey* are provided with collector name, specimen number and locality, occasionally accompanied by other data. Those included in Boissier's *Flora Orientalis* are comparatively brief. A survey of these citations reveals that some collectors have visited Anatolia (Turkey) more frequently and collected more intensely. They were European researchers active during the 18<sup>th</sup> to 20<sup>th</sup> centuries. Turkish botanists participated in expeditions during the 20<sup>th</sup> century and collected assiduously thereafter for the herbaria of their universities. These collectors are no longer alive, but their collections have been vital to the preparation of the *Flora of Turkey* in Edinburgh. I wanted to know more about them and their contributions to the Turkish flora. Using references other than the two basic floras mentioned above, I have selected 25 collectors: J.P. de Tournefort, J. Sibthorp and G.A. Olivier accompanied by J.G. Bruguère from the 18<sup>th</sup> century; P.M.R. Aucher-Éloy, K.T. Kotschy, P.E. Boissier, F.W. Noë, T. von Heldreich, B. Balansa, E. Bourgeau, C. Haussknecht, P. Sintenis, G.V. Aznavour, J.N. Bornmüller and W. Siehe from the 19<sup>th</sup> century; O. Schwarz, K. Krause, E.K. Balls, A. Huber-Morath, P.H. Davis, K. Karamanoğlu, H. Demiriz, T. Baytop, C. Tobey and F. Sorger from the 20<sup>th</sup> century.

**Key words:** collectors, collections, flora, Turkey

## Introduction

From the 16<sup>th</sup> century on, West European researchers, abandoning ancient treatises, began to rely more and more on their own observations and experiments. Some naturalists went abroad, to see for themselves the unknown lands. On returning to their home country, they published books on their travels, in which they described and named, as far as they could, the material they had collected – plants, animals, minerals, etc. Travellers with a keen interest in botany other than their own profession, recorded in their writings plants known or unknown to them. All these travel books relating to Anatolia, though lacking in accuracy as regards description or identification, contribute to the first references concerning Anatolian plants.

The first naturalist to venture out to Anatolia was P. Belon (1517–1564), who visited the East Mediterranean Ottoman lands, including Anatolia (Asia Minor)

during the years 1546–1549. He provided lists of native plants, described trees and animals and included their illustrations in his book (Belon 1588; Deschamps 1887; Delaunay 1923; Baytop, A. 2004m).

In 1555, O.G. de Busbecq (1522–1592), ambassador to the Ottoman Empire, and W. Quackelbeen (1527–1561), the young physician of the delegation, travelled from Istanbul to Amasya to have an audience with the Sultan who was temporarily encamped in Amasya. They noted some useful plants encountered on their way. Both men are remembered for introducing to cultivation many Turkish bulbous plants and other ornamentals. *The Turkish Letters of Busbecq* is well known. The notebook of Quackelbeen is unfortunately lost. Hans Dernschwam (1494–1568) who accompanied the diplomatic cortège of Busbecq as an independent traveller, was interested in ancient inscriptions and recorded in his journal many fruits, vegetables and some native plants (Babinger 1923;

Forster 1927; Yalçın 1939; Opsomer 1961, 1970; Önen 1992; Baytop, A. 2004c).

Leonhart. Rauwolff (1535–1596), a German physician, visited Syria and Iraq between 1573–1576 and returned with a collection of pressed plant specimens. He crossed South-East Anatolia in 1574 on the way from Aleppo to Baghdad and returned the same way in 1575. Whether he collected Anatolian specimens from the border areas is unknown (Rauwolff 1582/1977; Anonymous 1977; Baytop, A. 2004j).

In the 17<sup>th</sup> century, Evliya Çelebi (1611–1682?), educated in the Ottoman Serai, travelled throughout Anatolia from 1630 onwards in the service of the Ottoman State. He was a nature lover and recorded in his travel book, the *Seyahatname*, trees, decorative and medicinal plants, fruits, vegetables, cereals that he had observed during his journeys, providing their original Turkish names and uses (Danışman 1969–1971; Baytop, A. 2004e).

Also in the 17<sup>th</sup> century, G. Wheler (1650–1724) and J. Spon (1647–1685), both with an interest in archaeological antiquities, came to Anatolia in 1675. Wheler, who was also interested in botany, has added to his own publication many plant names and illustrations. He collected seeds and fruits and sent them to R. Morison (1620–1683), professor at Oxford. His book has been translated into French (Wheler 1723; Baytop, A. 2004g).

In the early 18<sup>th</sup> century, botany began to develop as a pure science. Many European botanists collected their own material. They went abroad, collected and returned to their country with vast amounts of material. They studied, described and named them with precision. In this way, many novelties accumulated in European herbaria. In need of ever more interesting new material, plant collecting became a kind of trade. Professional collectors went exploring the yet unvisited regions and obtained more and more material for taxonomists, collectors and herbaria, both private and public. The period of scientific publishing and of flora writing began.

Early in the 18<sup>th</sup> century, J.P. de Tournefort (1656–1708), a French professor of botany, came to the Levant in 1700–1702 and visited the Aegean Islands,

Anatolia and the western parts of Georgia and Armenia. He returned to Paris with a rich collection of unknown plants.

At the end of the same century, J. Sibthorp (1758–1796), professor of botany at Oxford, came twice to the East Mediterranean, the first time in 1786–1787 and again in 1794–1795. It was during his first trip that he visited West Anatolia. He visited Istanbul and Uludağ on both occasions.

Guillaume A. Olivier (1756–1814) and J.G. Bruguère (1750–1798), naturalists and physicians, travelled between 1792 and 1798 in the East Mediterranean, including Anatolia. Olivier related his expeditions in his beautifully illustrated *Voyage dans l'Empire Othoman, l'Égypte et la Perse* (in three volumes and an Atlas) where new species were described.

In the 19<sup>th</sup> century, Anatolia became more explored. P.M.R. Aucher-Éloy, educated as a pharmacist, chose Istanbul as the base for his expeditions in the Near-East. He collected passionately between 1830 and 1838 in Anatolia and the neighbouring lands. He died exhausted at Djulfa (Iran).

Karl T. Kotschy (1813–1866) was an Austrian botanist who had been in Anatolia seven times, between 1836 and 1862. He explored mainly South, South-East and East Anatolia. His book relating his 1853 expedition to the Cilician Taurus is a detailed account of his travels above the Cilician Gate.

Pierre E. Boissier (1810–1885) was a Swiss botanist from Geneva, the author of *Flora Orientalis*. In 1842 he visited the mountains of West Anatolia and travelled to Istanbul and Uludağ. In 1846, he was in Antakya (South Anatolia) for a short period.

Friedrich W. Noë (1798–1858) was a German pharmacist and general practitioner, director of the Botanical Garden of the Imperial School of Medicine in Istanbul between 1844 and 1848. He collected mainly in Istanbul and East Anatolia.

Theodor von Heldreich (1822–1902), the German botanist, visited Anatolia on at least six separate occasions between 1845 and 1852. He collected mainly in South Anatolia.

Benjamin Balansa (1825–1891), a French collector, botanized extensively in West, Central, South and North-East Anatolia between 1854 and 1866.

Eugène Bourgeau (1813–1877), a French collector, visited Anatolia twice. In 1860 he explored the region Antalya-Elmalı in the South and in 1862, the region Gümüşhane-Bayburt in the North-East.

Carl Haussknecht (1838–1903), a German pharmacist and botanist, came twice to Anatolia in 1865 and 1867, and collected from the South-East.

Paul Sintenis (1847–1907), a German pharmacist and plant collector, came six times to Anatolia between 1883 and 1894. He collected extensively in North-West Anatolia (mainly Troas and Mt Ida), South-East Anatolia, central and eastern regions of North Anatolia and from East-Central Anatolia.

Georges V. Aznavour (1861–1920), an amateur botanist from Istanbul, prepared rich collections from the area from 1885 on.

Joseph N. Bornmüller (1862–1948), a German botanist, plant collector and curator of Herb. Haussknecht (Jena), botanized between 1886 and 1929 in Inner and West Anatolia.

Walter Siehe (1859–1928), a German engineer, settled in 1897 at Findıkpınar (South Anatolia) where he stayed approximately 25 years. From 1889 to 1919, he botanized annually in the mountains of Adana and neighbouring regions, sent plant specimens to European herbaria, and exported bulbs to growers in Europe.

In the 20<sup>th</sup> century, botanical expeditions to Anatolia intensified when P.H. Davis from Edinburgh decided to write a flora of Turkey. The project received the support and enthusiasm of young botanists from Turkey and abroad. A. Huber-Morath and P.H. Davis increased their visits to Turkey and collected extensively.

Otto Schwarz (1900–1983) came as a botanist from Germany to the Plant Protection Institute at Bornova (Izmir). He stayed from 1931 to 1934 and collected much in the provinces of Izmir, Manisa, Aydın and Muğla. He returned again to Turkey in 1938 to botan-

ize in West Anatolia. A set of his specimens has been deposited in the Institute where he had worked.

Kurt Krause (1883–1963), German professor of botany and director of the botanical department of the Higher Agricultural Institute at Ankara from 1933 to 1939, collected mainly in Central, West, South and North-East Anatolia. He botanized considerably in Ankara and Istanbul. He had carried out at least seven expeditions to Anatolia in earlier years, between 1914 and 1932.

Edward K. Balls (1892–1984) was an English horticulturist and hunter of wild plants with the aim of introducing them to his country as garden ornamentals. He made three consecutive visits to Anatolia between 1933 and 1935, collecting in Central, South, North-East and western parts of East Anatolia.

Arthur Huber-Morath (1901–1990), a Swiss economist and dedicated botanist, made sixteen expeditions to Turkey from 1935 to 1969. With his collections of ca. 30 000 specimens, he has contributed greatly to the raw material of Davis's *Flora of Turkey*.

Peter H. Davis (1918–1992), professor of taxonomic botany at Edinburgh and chief editor of *Flora of Turkey and the East Aegean Islands*, made eleven expeditions to Turkey from 1938 to 1966. He visited Anatolia for the last time in 1982. His Turkish collections number ca. 28 500 specimens with several sets of duplicates.

Kamil Karamanoğlu (1920–1976), professor of botany, biology and pharmaceutical botany in the Faculty of Pharmacy at Ankara University, has made collections from 61 provinces between 1942 and 1970. He collected together with P.H. Davis in 1947 and 1949.

Hüsnü Demiriz (1920–1999), professor of systematic botany in Istanbul University, collected ca. 10 000 from various parts of Anatolia between 1943 and 1988. He is the author of *An Annotated Bibliography of Turkish Flora and Vegetation* (Demiriz 1993).

Turhan Baytop (1920–2002), pharmacist, professor of pharmacognosy and history of pharmacy at Istanbul University, collected ca. 10 750 specimens from Anatolia. Geophytes account for ca. 2200 of them. He is co-author with B. Mathew for the publication *Bulbous Plants of Turkey*, 1984.

Carl Tobey (1918–1991) was an American teacher of English at Samsun. He came to Samsun in 1955 and lived there till the end of his life. He collected between 1964 and 1969 from the North Anatolian provinces, mainly from Samsun and surrounding areas. He sent all his material to P.H. Davis at Edinburgh.

Friederike Sorger (1914–2001) was an Austrian botanist and collected ca. 18 000 specimens during 29 visits to Turkey between 1962 and 1988. Her material is deposited at Linz (Austria).

Following the brief survey above, I have paid more attention to the botanists and collectors who came to Turkey in the 18<sup>th</sup> to 20<sup>th</sup> centuries. During this period, collectors came to Anatolia more frequently in view of the valuable material available. Demands from major European herbaria increased. Taxonomists extended their investigations over a broader and more varied range of material. Both collectors and botanists have contributed to the advancement of our knowledge of the Turkish flora, which culminated in the preparation and publication of the *Flora of Turkey* by P.H. Davis in the second half of the 20<sup>th</sup> century, together with its two supplements (Davis 1965–1985; Davis & al. 1988; Güner & al. 2000).

*Flora of Turkey* is based on specimen study. The specimens examined are cited according to their occurrence and distribution in the provinces but in a restricted number. From these citations, one knows the name of the collector and the locality where the specimen is gathered. If these citations provide a date together with a specimen number, then we have the opportunity to trace an itinerary and to calculate approximately the number of specimens collected. A survey of the specimen citations in the *Flora of Turkey* has been helpful for obtaining details concerning the collectors and their collections.

A second flora which I have consulted for specimen citations is Boissier's *Flora Orientalis* (Boissier 1867–1884; Buser 1888) published a century before the *Flora of Turkey*. Although brief, the citations have provided useful information for some collectors who came to Anatolia before 1888.

The European botanists began to explore the Anatolian flora at the beginning of the 18<sup>th</sup> century. Josef P.

de Tournefort was the first botanist who returned from his Anatolian expedition of 1700–1702 with a rich collection of unknown plants. Many botanists and naturalists followed him. All their collections are essential raw material for the *Flora of Turkey* project, their value is considerable. By consulting the 11 volumes of *Flora of Turkey*, the 6 volumes of *Flora Orientalis* and other relevant sources, I have compiled information on the main collectors in Anatolia between the 18<sup>th</sup> and 20<sup>th</sup> centuries. The present study covers 25 of them. They are treated below in chronological order, according to the date they first arrived in Anatolia.

## Plant collectors in Anatolia during the 18<sup>th</sup> to 20<sup>th</sup> centuries

### Joseph Pitton de Tournefort (1656–1708)

(Fontenelle 1717; Tournefort 1717; Wagenitz 1962; Baytop, A. 2004i)

Joseph P. de Tournefort was professor of botany in Jardin du Roi, Paris, a member of Académie Royale des Sciences and professor of medicine in Collège de France. He developed a system of plant classification based on corolla characters and devised the modern concept of a genus. He explored the East Mediterranean between 1700–1702, accompanied by Andreas von Gundelheimer (1668–1715), a German physician interested in plants, and Claude Aubriet (1651–1742), a French flower painter in Jardin du Roi. He began his expedition from Paris on 9 March 1700. After visiting the Aegean Islands, he arrived in Constantinople. Here he embarked on 16 April 1701, arriving in Trabzon on 23 May, a sea voyage lasting 38 days. From Trabzon, he went to Erzurum, then to Tiflis, Erevan, Mt Ararat and Kars, returning to Erzurum. He travelled in Tokat, Ankara, Bursa and Izmir. He visited Mt Sipylus, Efes and Kuşadası. He left Izmir on 13 April 1702 to return to Paris. There he examined his material, described 1356 taxa and named 25 new genera. He published them in *Corollarium Institutionum Rei Herbariae*, 1703. His *Relation d'un Voyage du Levant* was published posthumously in 1717 in two volumes in Paris, in three volumes in Lyon, and translated into English under the title *Voyage into the Levant*, 1718. It contains 152 illustrations prepared by C. Aubriet, 50 of them depicting new plant species with their phrase names inscribed. The Anatolian collection of Tournefort is kept in the Muséum National d'Histoire Naturelle, Paris (P). The street where he suf-



ferred an accident leading to his death, commemorates him: Rue Tournefort (V<sup>e</sup> arrondissement).

### John Sibthorp (1758–1796)

(Walpole 1817, 1818, 1820; Stearn 1960, 1967; Bruce 1970; Meikle 1977; Lack w/ Mabberley 1999; Baytop, A. 2006b)

John Sibthorp was a young professor of botany at Oxford. As physician, he was interested to recollect the plants recorded in the first century by Dioscorides of Anazarba (South Anatolia) and to find others which may have some medicinal properties. He had plans to write a Greek flora. He came twice to the East Mediterranean. In his first visit (1786–1787), he collected in Greece, the Aegean Islands, West Anatolia and Cyprus, accompanied by the young Austrian artist Ferdinand Bauer (1760–1826). For the second visit (1794–1795), he travelled mainly in Greece. He died early in 1796 before setting in order his rich material; however, he left a bequest for a work on the Greek flora to be prepared. James E. Smith (1759–1828) was appointed to this task. He carried out Sibthorp's instructions and wrote in two octavo volumes *Florae Graecae Prodromus*, which were published between 1806 and 1816. He then started to prepare *Flora Graeca*, which finally consisted of ten folio volumes containing 996 coloured plates prepared by F. Bauer. He published the first 6 volumes but died shortly after. The remaining volumes were produced by J. Lindley (1799–1865). The completion of this immense task took much longer than anticipated, from 1806 to 1840. Sibthorp's wish was successfully accomplished, even though it was 44 years after his death.

Little is known about the travels of Sibthorp in West Anatolia. He arrived at Izmir in 1786 and reached Istanbul in the autumn. He was twice in Istanbul, first from autumn 1786 to early spring 1787, then from May to September 1794. In 1786 he climbed Uludağ, reaching the summit. He briefly visited the Marmara coast of Çanakkale in March 1787 and in September 1794. According to the specimens cited in *Flora of Turkey* and in *Flora Orientalis*, he has collected from Bithynia, Phrygia, Caria, Lycia, Olympus bithyniae and Mt Sipylus. We do not know his exact dates of collections in these areas, but it is clear that he was there during his first travel, i.e., in 1786 and in spring 1787. He climbed Uludağ twice, both in 1786 and 1794.

*Flora of Turkey* cites no more than 50 Turkish specimens collected by Sibthorp, of which 36 are types. In *Flora Orientalis*, we find nearly 290 of his specimens

from Anatolia. During his travels Sibthorp visited the Bazaar and the drugshops in Istanbul. He prepared a list of the Latin names of the medicinal and useful plants which were sold there. The list records 38 plants with their local uses.

### Guillaume Antoine Olivier (1756–1814) and Jean Guillaume Bruguière (1750–1798)

(Olivier 1801, 1804, 1807; Baytop, A. 2004h)

Guillaume A. Olivier, physician-naturalist and entomologist, and Jean G. Bruguière, physician-naturalist, were both French scientists interested in plants and in Crustacea. They travelled between 1792 and 1798 in the Aegean Islands, Anatolia, Egypt, West Syria, Iraq, Iran, Cyprus and Greece. In Turkey, they visited Istanbul and North-West Anatolia. They journeyed from Birecik to Nusaybin and from Gilindere to Istanbul via Konya-Afyon-Kütahya. On his return to Paris, Olivier wrote his *Voyage dans l'Empire Othoman, l'Egypte et la Perse* (first published in three volumes and an Atlas in 1801, 1804 and 1807). He wrote the book alone, as Bruguière had died in Ancona on his way back to France at the end of six difficult years of hardship and travel.

During his sojourn in the Levant, Olivier visited Istanbul three times. He arrived first on 22 May 1793 and lived there until 26 October. His second visit lasted from 14 July to 30 August 1795, the third from 17 October 1797 to 30 May 1798. He had thus the opportunity to make numerous observations on the flora and fauna of the region. On his way to Egypt, he collected along the coasts from Gemlik to Çeşme (North-West Anatolia) between 28 November 1793 and 10 April 1794. His third collection from Anatolia was made on the journey from Gilindere to Istanbul, via Konya, Akşehir, Afyon and Kütahya, between 18 September and 17 October 1797 when he was returning to Istanbul from Cyprus.

The rich collections of Olivier are housed in Paris (P). They have been studied mostly by French and Swiss botanists including Ventenat, de Candolle, Boissier, Spach and others who have described many new species based on Olivier's material. Olivier himself named and described five species which were first published and illustrated in his travel book. One of them is *Quercus infectoria* Olivier, the gall-yielding oak he saw in the Trojan plain during the winter of 1794. The others are *Q. libani* Olivier, *Astra-*

*galus verus* Olivier, *Populus euphratica* Olivier and *Amygdalus arabica* Olivier. The use of Latin for the descriptions of the new species accompanied by illustrations, provides the travel book of Olivier with a botanical-taxonomical value, besides being a detailed narration of a voyage to the underexplored East Mediterranean lands.

The book is beautifully illustrated and with geographical maps. The plates are by Redouté, Meunier, Turpin, etc. It has been translated to German (1802–1808), to Dutch (1811–1813), incompletely to English (1801) and Turkish (1977).

Étienne P. Ventenat (1757–1808) named a genus after Olivier in 1801, *Oliveria* Vent. (*Umbelliferae*). Jean-Baptiste A.P.M. de Lamarck (1744–1829) named in 1798 a genus after Bruguière, *Bruguiera* Lam. (*Rhizophoraceae*). *Oliveria bruguieri* Jaub. & Spach commemorates both collaborators but the name is now a synonym of *O. decumbens* Vent. According to *Flora of Turkey*, it is known from only one locality in Turkey, in C7 Urfa at the Syrian frontier. According to *Flora Orientalis*, there are ca. 50 species with their epithets attributed to Olivier and 5 species named after Bruguière.

### **Pierre Martin Rémi Aucher-Éloy (1793–1838)**

(Jaubert 1843; Lanjouw & Stafleu 1954: 45; Ghazanfer 1996; Baytop, A. 2005)

Pierre M.R. Aucher-Éloy was a French pharmacist educated in Orléans and later Paris. He had a passion for collecting and settled in Istanbul in 1830 with the aim of preparing a *Herbier d'Orient*. Using Istanbul as the base for his expeditions, he explored the following areas between 1830 and 1838: in 1830, Egypt, Sinai, West Syria, Cyprus, Cos; in 1832, Izmir, Rhodes, coasts of West Anatolia; in 1833, Istanbul, Bursa, Uludağ; in 1834, Iznik, Ankara, Kayseri, Adana, Halep, Gaziantep, Malatya, Erzurum, Trabzon; in 1835, Bursa, Kütahya, Mt Taurus, Adana, Halep, Baghdad, Ispahan, Teheran, Tabriz, Trabzon; in 1836, Izmir, Chios, Syra, Athens, Thessaly, Athos; in 1837–1838, North-East Anatolia, Erzurum, foot of Mt Ararat, Tabriz, Gilan, southern coasts of the Caspian sea, Laristan, Muscat, Shiraz, Ispahan. Exhausted and ill from his travels, he died at Djulfa (near Ispahan) on 6<sup>th</sup> October 1838.

Aucher-Éloy collected from many mountains of Anatolia including Uludağ (Bursa), Kaz dağı (Balıkesir), Manisa dağı (Manisa), Bozdağ (Izmir), Baba dağı (Denizli), Akdağ (Antalya), Toros dağları (Adana), Amanus dağı

and Yayla dağı (Hatay), Keşiş dağı and Munzur dağı (Erzincan), Ağrı dağı (Iğdır) and Akdağ (Malatya).

He sold his collections to the herbarium of the Muséum National d'Histoire Naturelle in Paris (P) from where they were distributed to other major herbaria. He was financially supported in his travels by owners of private collections and by scientific researchers.

In Paris, Aucher-Éloy's material had been identified by H.F. Jaubert (1798–1874) and by E. Spach (1801–1879). In Geneva, it was mainly E. Boissier (1810–1885) and A.P. de Candolle (1778–1841) who described the new species of Aucher-Éloy. George Bentham (1800–1884) has examined his specimens of Labiatae and described the species he identified as new. In 1837 de Candolle named a genus after him, *Auchera* DC. (*Compositae*), now treated as a synonym of *Cousinia* Cass.

According to Lanjouw & Stafleu (1954) the herbarium in Paris (P) houses 3856 Turkish specimens of Aucher-Éloy. As stated by Jaubert, 3687 specimens were sent from Paris to Geneva (G) between 1830 and 1839. *Flora Orientalis* cites 2687 of his specimens. *Flora of Turkey* cites 418 Anatolian specimens of Aucher-Éloy, of which 303 are types. Ghazanfer (1966) wrote that up to 1837 the entire plant collection of Aucher-Éloy in Paris totalled more than 3800 specimens and that the collection of his last excursion comprised ca. 2000. The total number of Aucher-Éloy specimens from the Orient may thus be ca. 6000.

The collections of Aucher-Éloy from the Near-East are distributed in 11 herbaria, one of which is in the United States. His Turkish specimens are housed in FI, G, K?, LE, MO, OXF, F, TCD. With his rich collections from the Near-East and ca. 300 type specimens from Anatolia, Aucher-Éloy has contributed much to our knowledge of the flora of Turkey and the Near-East.

### **Karl Georg Theodor Kotschy (1813–1866)**

(Kotschy 1858; Fenzl 1867; Rechinger 1960; Chaudhri & al. 1972: 382; Speta 1994; Baytop, A. 2006c)

Karl G.T. Kotschy was an Austrian botanist who collected much in the Near-East. In his youth he was educated to be a clergyman but his passion for travelling and for plant collecting made him both a keen collector and botanist.

His first expedition to the Near-East lasted 8 years, from 1835 to 1843. He accompanied an engineer who wanted to visit the mines in the Cilician Taurus and in

Upper Egypt. They landed in Cairo and went first to the Taurus mountains by way of Syria, Antakya and Adana. They returned to Egypt and went to the Upper Nile. Back in Cairo, Kotschy visited Cyprus and Syria, and came to Iraq via Aleppo, explored West Iran, travelled to Teheran from whence he returned to Vienna in 1843 by the route Erzurum, Trabzon and Istanbul. During this long expedition, Kotschy collected in Anatolia from Antakya, Adana, İçel, the Cilician Taurus (Bulghar Dagħ) in 1836; from Gaziantep, Urfa, Siverek, Karacadağ, Diyarbakır and Mardin in 1841; from Erzurum and Trabzon in 1843.

In Vienna, he put his collections in order and distributed sets to 'requiring' herbaria. According to F. Speta (1994), he brought back more than 300 000 plant specimens from this first expedition as well as other material.

In June 1853, Kotschy returned to the Taurus and botanized there till early October. In 1856, he was in Hatay. In 1859, he collected mainly in İçel, Adana, Hatay, Niğde, Kayseri, Erzincan, Urfa, Mardin, Diyarbakır, Sirt, Bitlis, Muş, Bingöl, Erzurum, Van, Gümüşhane and Trabzon. In 1862, he explored Mt Amanus and caught malaria in Iskenderun. He died in Vienna from a bronchial disorder at the age of 53 in 1866. Between 1836 and 1862, Kotschy was in Anatolia seven times and had botanized in the South (İçel, Adana, Hatay), in eastern Inner Anatolia, in the South-East and the East. He has also collected from Istanbul and Izmir.

His collections are widely distributed in 71 herbaria located in 22 countries. The Turkish specimens seem to be in only 15 European herbaria. The number of Kotschy's Anatolian specimens cited in *Flora of Turkey* is nearly 800 of which 335 are type specimens. Boissier records nearly 1400 Turkish specimens of Kotschy in *Flora Orientalis*. With his rich material Kotschy greatly assisted botanists carrying out research on the Turkish flora, among them E. Fenzl (1808–1879) from Vienna and E. Boissier (1810–1885) from Geneva. Boissier named Kotschy's new species either alone or together with him. Kotschy himself described only a few species belonging mainly to *Quercus*, his favourite genus; most of them were later relegated to synonymy. Kotschy gave the bulbs and the rhizomes he had gathered to H.W. Schott (1794–1862), a specialist on the *Aroideae* and director of the garden at Schönbrunn near Vienna. Schott grew them in cultivation and described the new species either alone or jointly with Kotschy, between 1854 and 1860.

Between 1858 and 1865, Kotschy made 14 or more publications relating to his expeditions. One of them is *Reise in den cilicischen Taurus über Tarsus*, 1858, in which he related in 443 pages every detail of his exploration of Bulghar Dagħ (Bolkar dağ), a journey starting in Mersin on 15 June 1853 and ending there on 8 October of the same year. He is the author of *Die Eichen Europas und des Orients*, 1862.

### **Pierre Edmond Boissier (1810–1885)**

(Lasègue 1845; Christ 1888; Barbey 1890; Bornmüller 1908; Anonymous 1937, 1985; Rechinger 1969; Mermood 1980; Perry 1982; Baytop, A. 2004d, k)

Pierre E. Boissier was a botanist from Geneva, well known for his investigations on the flora of Spain and the flora of the Orient. In 1837, he visited southern Spain and collected *ca.* 100 000 specimens representing *ca.* 1800 species. In 1839 and 1845 he published *Voyage botanique dans le midi de l'Espagne pendant l'année 1837* in two volumes. Boissier described in this work 395 species, 10 new genera and 80 new species. He decided to visit the Levant after receiving in 1841, a plant collection from Wilhelm von Spruner (1805–1874), a German military surgeon based at Athens.

In spring 1842, he came to Greece and travelled to West Anatolia. He landed at Izmir in mid-May, visited the surrounding area and went to the South. He arrived at the Meander valley (Menderes vadisi), where he explored Mt Mesogis (Aydın dağları), went to Gheyra (Geyre), climbed Mt Cadmus (Baba dağı), visited Laodicea (Eskihisar) and Hierapolis (Pamukkale). He returned to Izmir along the Hermus valley (Gediz vadisi), collecting from Tmolus (Bozdağ), Sardes (Salihli), Birge, Cassaba (Turgutlu) and Mt Sipylus (Manisa dağı) before reaching Bornova and then Izmir. The West Anatolian expedition lasted 40 days. From Izmir, Boissier sailed to Istanbul. He visited Belgrad forest, went to Bursa and set up camp on Sobran yaylası (Sarı yayla) on Mt Olympus (Uludağ) for a week. He left Istanbul on 29 August for Constantza (Köstence) and returned to Geneva via Vienna and Munich. According to *Flora of Turkey*, Boissier has described 176 new species from South-West Anatolia and 30 new species from Uludağ.

In winter 1846, Boissier came again to the Levant and botanized there till spring 1847. He collected from Egypt, Sinai, Lebanon, Palestine, West Syria, spent a few days at the foot of Mt Cassius (Akra dağı, Yayla dağı) and in Antakya (Turkey). According to *Flora of*

Turkey, Boissier has discovered 32 new species from this part of Turkey. M. Mermood (1980) has published the itineraries of E. Boissier in Greece and Turkey in 1842, and in Egypt, Sinai, Israel, Lebanon and Syria in 1846.

Boissier built up a rich herbarium which comprised 877 packets of dried plants, each of dimensions 50 × 30 × 30 cm. After his death in 1885 it was cared for by his son-in-law, the botanist William Barbey (1842–1914). After Barbey's death, his heirs delivered it, together with Barbey's own collection, to the Botanical Institute of the University of Geneva in 1918. It was transferred to the Conservatoire Botanique (G) in 1954 where it is now registered as G-BOIS.

A bust of Boissier was erected in 1887 in the Botanical Garden at Geneva. A list of his publications was prepared by H. Christ (1833–1933) from Basel and published in the *Supplementum of Flora Orientalis*. A genus in *Gramineae* has been dedicated in 1837 to Boissier by C.F. Hochstetter (1787–1860) – *Boissiera* Hochst., which is later included in the genus *Bromus* L. Many species have been named after Boissier. *Boissiera* is also the journal published by the Conservatoire et Jardin Botaniques de Genève. A cultivar of *Syringa vulgaris* (*Oleaceae*), with deep purple single flowers, bears his name: *Syringa vulgaris* 'Edmond Boissier'.

Boissier's *Flora Orientalis* laid the foundation for a Flora covering a large area of the Near-East, extending from the Balkans and Egypt and stretching to Turkistan. His six volumes record *ca.* 4740 vascular species for the Turkish flora, i.e., approximately half the number of species known today. The eleventh volume (2000) of *Flora of Turkey* estimates the total number of vascular plants in Turkey in 1998 as *ca.* 9222. *Flora Orientalis* is based on examination of specimens which are briefly cited, with collector's name followed occasionally by specimen number. These citations have also been helpful in providing information concerning the collectors.

### Friedrich Wilhelm Noë (1798–1858)

(Grisebach 1843–1845; Lechler 1845; Rigler 1852; Anonymous 1853; Birand 1952; Vegter 1983: 599; Baytop, T. 1985, 1991, 1992, 2001, 2002; Baytop, A. in press, d)

Friedrich W. Noë was a German plant collector, pharmacist and general practitioner. He was born in 1798 near Berlin and died in Istanbul in 1858. He directed from 1841 to 1844 a pharmacy in Fiume (Italy, actually Rijeka, Croatia) where he also acted as director of

the Botanical Garden and Museum. In 1844 he was appointed director of the Botanical Garden of the Imperial School of Medicine founded in Istanbul in 1839. He reorganized the garden and with the specimens collected from Istanbul, established within the school the first Ottoman herbarium referred to as "Herbier de l'École Impériale de Médecine de Galata-Sérai." He distributed duplicates to European herbaria. Pierre E. Boissier from Geneva was especially interested in his specimens. He identified them and cited them in *Flora Orientalis*. Peter H. Davis from Edinburgh revised Noë's Turkish collections and cited them in his *Flora of Turkey*.

Noë was also making meteorological measurements at his home at Kalyoncu Kulluğu (Beyoğlu, Péra). He had the misfortune to see the School and the Garden, his home and his meteorological apparatus destroyed in the fire of Beyoğlu in 1848.

Shortly after his arrival in Istanbul, Noë began collecting and sending his specimens abroad. An announcement signed by W. Lechler in the botanical journal *Flora*, dated 23 August 1845, states that Dr W. Noë has sent his first specimens collected from the Orient and identified by E. Boissier. They were in packets of 200 150 and 100 sheets to be sold at 20, 15 and 10 florins (Rheinish). The announcement ended with a list of species names.

According to specimens cited in *Flora of Turkey*, Noë collected in Turkey between 1844 and 1852. Most of the Istanbul specimens are dated April to August 1844. There are a few dated 1845 and 1846. One specimen from Ankara bears 1844 as date. He climbed Uludağ (Bursa) in September 1844 and again in 1846. His Anatolian specimens are collected from May to August 1852 and originate from Tokat, Sivas, Harput, Bakırmaden, Diyarbakır and Van. One undated specimen comes from the Central Anatolian salt lake steppe.

During his travel to the East between 1849 and 1852 he accompanied in his role as physician and naturalist, Mehmet Emin Derviş Pasha (1817–1879) who was charged with mapping the boundaries of the Ottoman and Iranian lands. An 1853 announcement in an Austrian journal indicates that, as Noë had to deposit his Anatolian material in the Herbarium of the Imperial School, he decided to visit the same lands again in 1854 in the company of his son. Thus, he would be able to recollect specimens and distribute them in Europe. Did he realize this travel? I do not know, but I have not traced in *Flora of Turkey* any specimens of Noë dated 1854.



The number of Noë's Turkish specimens cited in *Flora of Turkey* is 80, including 36 types. Most of the types come from Van, Harput, Bakırmaden, Sivas and the Central Anatolian salt lake area. Two are from Istanbul, one from Bursa and one from Uludağ. The types from Istanbul are the following: *Lathyrus undulatus* Boiss. (vol. 3: 351) and *Agrostis castellana* Reut. & Boiss. subsp. *byzantina* (Boiss.) Hackel (vol. 9: 350).

In *Flora Orientalis*, Boissier cites 150 specimens of Noë, of which 75 are from Turkey. This number and the localities are in accordance with those provided in *Flora of Turkey*. By referring to *Flora Orientalis*, we learn that Noë had visited Izmit.

In a catalogue compiled in 1952 by H. Birand (1904–1972) and deposited in Ankara (ANK), 57 specimens of Noë are listed, two of them from Bursa, collected in September 1844. All the others are from Istanbul, collected from April to August 1844.

As a plant collector, Noë has visited Turkey, Iraq and Iran in the Near-East. In Europe he collected in the Balkan Peninsula (Yugoslavia, Greece, Bulgaria) and from other countries such as Germany, Austria, Hungary, Switzerland and Italy. His Turkish collections exist in 19 herbaria distributed in 11 countries. In Turkey, ANK has ca. 60 of his specimens.

The relatively low number of Noë's specimens cited in *Flora of Turkey* suggests that Noë's Turkish collection is quite a modest one. His specimens were identified by E. Boissier, who described ca. 20 new taxa, naming them after Noë and using his name in the specific epithets. Some of these names are now treated as synonyms.

In 1849 Noë's name was given by A. Moquin-Tandon (1804–1869), professor of botany at Montpellier, to a genus of *Chenopodiaceae*, *Noaea*. Two species of *Noaea* are native in Inner and East Anatolia, but are not Turkish endemics: the annual *N. minuta* Boiss. & Balansa and the perennial *N. mucronata* (Forssk.) Aschers. & Schweinf. (vol. 2: 335, 336). The genus *Noëa*, described later in 1859 by Boissier & Balansa is identical to *Noaea* Moq.

A list of Noë's plants collected from Istanbul is provided on the first page of the second volume of *Spicilegium Florae rumelicae et bithynicae*, 1845, of A.H.R. Grisebach (1814–1879). A similar list, with the addition of the plants from Uludağ, exists in L. Rigler's (1815–1862) publication, *Die Türkei und deren Bewohner*, 1852.

### Theodor von Heldreich (1822–1902)

(Halácsy 1902; Lanjouw & Stafleu 1957: 266; Baytop & Tan 2008)

Theodor von Heldreich was a distinguished German botanist, educated in Geneva, curator of the de Candolle herbarium, then of P.B. Webb's. He was director of the Botanical Gardens in Athens, from 1851 till his death in 1902. Boissier, interested in the flora of the Near-East and intending to prepare *Flora Orientalis* in Geneva, made acquaintance with Heldreich who was collecting throughout Greece. He encouraged him to explore also the western and southern parts of Anatolia. Heldreich realized his first visit to Anatolia in 1845. Examination of the citations of Heldreich's specimens accepted in *Flora of Turkey* has provided the following notes about his expeditions.

From March to May 1845, Heldreich explored the region of Antalya. From May to August, he visited Burdur, Isparta, Eğridir, Beyşehir, Konya and Niğde. He must have returned to Antalya, as there are specimens collected from Antalya and Geyik dağı in July. He visited Tahtalı dağı and Bey dağı in May. He collected on Karadağ in June and July. He explored Davras dağı from May to August. He was on Anamas dağı in August. The type specimen of *Verbascum cilicium*, collected on 27 September (Heldreich 1260), seems to be one of the later numbers of the 1845 expedition. We presume that Heldreich probably collected more than 1300 specimens (with several sets of duplicates) during his first Anatolian expedition.

From scattered references in *Flora of Turkey*, there is evidence that, after 1845, Heldreich came again to Anatolia. In 1846 (Antalya, Isparta, Konya), 1847 (Konya), 1849 (Isparta, Antalya), 1851 and 1852 (Izmir). Heldreich has visited Uludağ, as indicated by an undated specimen which bears the highest Anatolian number *Heldreich* 2533. There is a specimen citation without date and number from Trabzon. Has Heldreich been in North-East Anatolia? The high specimen number 2533 suggests that the Anatolian collections of Heldreich may comprise ca. 3000 numbers.

In *Flora Orientalis*, Boissier cited 676 Anatolian specimens of Heldreich. They are mainly from the South, including Pamphylia, Lycia, Pisidia, Isaurica, Lycaonia and Cilicia. Two monocot specimens revealed that Heldreich has visited Istanbul. Two specimens indicated that he has been in Troas.

Heldreich collected the type specimens of 196 new taxa from Anatolia. The type specimens number 207,

if we include syntypes and lectotypes. They are from 7 provinces and collected during the expedition of 1845 covering Antalya, Burdur, Isparta, Karaman, Konya, Niğde and Izmir. The non-type specimens of Heldreich cited in *Flora of Turkey* are 280.

According to *Flora of Turkey*, Heldreich's Turkish specimens are distributed in the following herbaria: B, MH, CGE, E, FI, G, GH, GOET, H, JE, K, LE, LIV, LIVU, M, MO, OXF, P, PR, TO, UPS, W, WU, Hb. Hub.-Mor. We have to add to the above list BORD, LY, LZ, TCD, WAG, where Heldreich's West Anatolian material collected in 1846 and 1851 can also be found.

Boissier examined the collections of Heldreich. When describing new taxa, he accepted Heldreich as co-author. Approximately 140 Anatolian taxa have as authors "Boiss. & Heldr.". When Boissier had to name them alone, he never failed to use Heldreich's name as epithet. In *Flora of Turkey*, we have found the epithets *heldreichii*, *heldreichianus* -a -um in 18 Anatolian taxa names. Boissier dedicated a genus in honour of Heldreich in 1841, the genus *Heldreichia* (*Brassicaceae*). It is represented in Turkey by 4 species, with the fourth species, *H. atalayi* Kit Tan, described in 1986.

### Benjamin Balansa (1825–1891)

(Astre 1947; Lanjouw & Stafleu 1954; 51; Texier 1995; Baytop & Nicolas 2006)

Benjamin Balansa was a French traveller and naturalist attached to the Muséum National d'Histoire Naturelle, Paris. As explorer, botanist, collector, cultivator, producer of vegetable drugs, he has dedicated more than 40 years of his life to scientific travel, far from his homeland. In 1847–1848 and 1850–1853, he was in Algeria. In 1854–1855 and in 1856, he came twice to Anatolia. In 1857, he was in Izmir with his family where he lived till 1866. In 1866–1867, he was again in Algeria and Morocco. In 1867, he went to New Caledonia and to the Loyalty islands. In 1874, he settled with his family in Paraguay and stayed there until 1884. In 1885–1889, he was in Tonkin and Java. He died in Hanoi in 1891.

Boissier has examined the Anatolian collections of Balansa. He described most of the new taxa together with him. *Flora Orientalis* cites 2858 of his specimens. Lanjouw & Stafleu (1954), states that the Conservatoire Botanique de Genève (G) holds 2600, and that the Muséum National d'Histoire Naturelle (P) has 2854 specimens of his collections. The citations of Balansa's specimens in *Flora of Turkey* have enabled to

trace his itinerary in Anatolia. In April 1854, Balansa came to Izmir, collecting in Bornova, Buca, Çeşme, Kadifekale, İkikardeş dağı, Pınarbaşı, Tahtalı dağı and Yamanlar. In June, he was on Manisa dağı. In July-August, he visited Bozdağ and Nif dağı. The highest specimen number for this first collection is 515. It would not be wrong to say that he had gathered ca. 600 specimens during his first expedition.

In March 1855, he went to Mersin. In May-September, he collected from Gülek boğazı, Toros dağı, Ali dağı and Masmılı dağı before returning to Mersin. As his specimens were numbered consecutively following on from those of Izmir's and the highest specimen number is 1095, we can estimate the total of the 1855 journey to be ca. 600 as well.

In June 1856, Balansa travelled to Tarsus, Kamışlı, Çamardı (Bereketli), Develi (Karahisar) and Kayseri. In June-July, he collected on Erciyas dağı (Kayseri), Aslan dağı, Dede dağı, Karamas dağı, Yılandağı, and returned the same way. The highest specimen number is 1120 and indicates that Balansa has probably gathered ca. 1200 specimens in 1856.

In May-August 1857, Balansa was in Uşak. He visited the villages Yaşamışlar, Yaparlar, Ezeler, Kayagöl and Kayaağıl, collected on Bulgaz dağı, Murat dağı and Şaphane dağı. The highest specimen number is 1337, thus his collections may be ca. 1400.

In April 1866, Balansa came to Izmir. In June-August, he was in North-East Anatolia. He botanized in Trabzon and mainly from Cimil in Rize. A specimen cited in *Flora Orientalis* revealed he had visited Batum (Georgia). The highest specimen number is 1462. We may conclude that Balansa returned to Izmir with a collection of ca. 1500 specimens.

In *Flora of Turkey*, a specimen of Balansa is cited from Izmir, dated 31 August 1866 and numbered as 1540 so before finally returning to France in the autumn, he may have gathered ca. 100 numbers from Izmir. Balansa's explorations in West, Central, South and North-East Anatolia between 1854 and 1866 have provided him with a rich collection of ca. 6000 plant specimens.

The eleven volumes of *Flora of Turkey* cite ca. 1500 specimens of Balansa, 345 of them being types (including syntypes). The types are distributed in the following herbaria: BM, C, E, FR, G, GH, GOET, JE, K, L, LE, LY, MPU, OXF, P, PRC, S, TL, W, Hb. Hub.-Mor. According to Lanjouw & Stafleu (1954), other herbaria also hold Anatolian material collected by Balansa:

B, BORD, BP, CN, FI, GB, GE, HEID, LAU, MANCH, MO, NCY, NTM, RO, WAG.

Balansa is commemorated by the epithets *balansae* in many species names, and with the names of two genera: *Balansaea* Boiss. & Reuter (*Umbelliferae*, Spain), now referred to *Chaerophyllum* L., and *Balansaephytum* Drake (*Urticaceae*, Tonkin), now *Conocephalus* Blume.

Balansa wrote at least eight scientific papers dealing with Anatolian plants between 1854 and 1874. Three of them are related to *Gramineae*.

### Eugène Bourgeau (1813–1874)

(Cosson 1866; Lanjouw & Stafleu 1954: 89-90; Wagenitz 1982; Baytop, A. 2006a)

Eugène Bourgeau was a traveller and collector belonging to the Association Botanique Française d'Exploration in Paris and later to the Muséum National d'Histoire Naturelle. He was previously educated as a naturalist by Nicolas Charles Seringe (1776–1858), the director of the Botanical Garden at Lyon. He participated in the excursions of the botanist Alexis Jordan (1814–1897). He went to Paris and became the curator of the herbarium of Philip Barker Webb (1793–1854). Webb was a wealthy English amateur botanist who was living in Paris. He owned a herbarium with ca. 300 000 specimens, which was transferred after his death to the University of Florence (FI). In 1845 and 1846, Bourgeau collected in the Canary Islands. Between 1847 and 1854, he collected annually in Spain. In 1856, he was in Algeria. Invited to England, he participated as a botanical collector in the British Expedition of 1857–1859 to North America. His collections from this expedition are deposited at Kew. In 1860, Bourgeau came to South Anatolia and botanized in Antalya-Elmalı. In 1862, he was in Gümüşhane-Bayburt (North-East Anatolia). In 1866, he went to Mexico. In 1870, he was on Rhodes.

Ernest Cosson (1815–1889), the French botanist, wrote that up to 1866 Bourgeau had collected and distributed ca. 12 000 specimens, that he has been twice in Anatolia and brought back ca. 700 specimens from each of his two expeditions there. The number of Bourgeau's Anatolian specimens cited in *Flora Orientalis* is 1195. In *Flora of Turkey* the highest number on the specimens from South Anatolia is ca. 665 and from North-East Anatolia, it is ca. 779. It would seem that Bourgeau's Anatolian collection comprises ca. 1500 specimens. *Flora of Turkey* has cited ca. 500 of them.

According to dated citations in *Flora of Turkey* Bourgeau began to collect in Antalya in April 1860. He was in Elmalı from mid-May to early July. He has been in Anamur, but the specimen verifying this is undated. In mid-May 1862, Bourgeau arrived in Gümüşhane from Trabzon. He collected till the end of July in Gümüşhane and Bayburt. One specimen from Ispir is dated July 1862. The specimens from Trabzon and Tortum are undated.

There is some misunderstanding concerning the actual year of the second expedition of Bourgeau. Cosson (1866) states it as 1862. In *Flora Orientalis*, vol. 1, the date is 1863. In *Flora of Turkey*, this date is 1862 on the specimen citations, except on one which is dated 25.07.1863 (vol.7: 311). In Wagenitz (1982), the date is 1861/62. Lanjouw & Stafleu (1954) provides the years 1860, 1862–63 and 1866. In face of such diversity, this question remains to be verified by some other means.

According to *Flora of Turkey*, Bourgeau has collected from Anatolia the type specimens of 79 new taxa, of which 52 are from the South and 57 from the North-East. Also cited in the *Flora* are other type specimens which Bourgeau had collected from Spain and Rhodes. The Anatolian collections of Bourgeau are distributed in the following herbaria: B, BM, BRSL, C, CN, COL, E, FI, G, GB, GOET, HUI, JE, K, L, LD, LE, LY, MANCH, MPU, P, S, UPS, W, WU and Z.

Boissier described 45 new species based on Bourgeau's material and used the epithet *bourgaei* for seven of them. In 1849, Cosson named a new genus after him: *Bourgaea* Cosson (*Compositae*), which is later treated as a synonym of *Cynara* L. In the British North America Expedition of 1857–1859, his name is given to a mountain in the vicinity of Banff – Mt Bourgeau.

### Heinrich Carl Haussknecht (1838–1903)

(Kiepert 1868; Hergt 1903; Marbach 1939; Lanjouw & Stafleu 1957: 261; Strid 2006; Baytop, A. 2007–2008b)

Heinrich C. Haussknecht, Hofrat Prof., was a distinguished German botanist. He founded a rich herbarium and library at Weimar. He kept them in a private building that he named Herbarium Haussknecht and made it available for consultation by researchers. He was educated as a pharmacist but his devotion to botany surpassed his professional obligations. After receiving his diploma of pharmacy in May 1864 in Breslau he began his first visit to the East Mediterranean in the autumn of the same year. He visited Syria, Mesopota-

mia and the Upper Euphrates in South-East Anatolia. He returned to Geneva in spring 1866 and gave his collections to Boissier who was his patron. Encouraged by Boissier, he made his second expedition to the Near-East in the autumn of the same year. He travelled to West Iran via Mesopotamia, stayed in Teheran for some days and then went to Caucasia. He was much appreciated in Iran by the Shah who decorated him with a medal. He returned to Weimar in 1869 and sent his collections to Boissier. As a reward for his successful activities, the Grand Duke of Saxony accorded him the title of *Professor*. He concentrated on systematic botany and founded in 1883 the journal *Thüringische Botanische Verein*. In summer 1885, he visited Greece and botanized with Theodor von Heldreich. He published the results of his expeditions in the journal of the society he had founded. The Grand Duke of Saxony conferred on him the title of Hofrat.

I examined the citations of Haussknecht's Turkish specimens in *Flora of Turkey* which are ca. 550 in number. It is a pity that most of them were cited without date and number. Among them are 146 type specimens (including syntypes and lectotypes), representing 135 new taxa. In addition there are 52 non-Anatolian types that Haussknecht had collected from Greece, Syria, Iraq and Iran. We learned that he came twice to Anatolia in 1865 and 1867, that his specimens are from the provinces of Hatay, Gaziantep, Maraş, Adıyaman, Malatya, Elazığ, Diyarbakır, Urfa and Mardin, that he visited Pamukkale (Denizli) in 1867 and Istanbul on an unknown date.

Kiepert (1868) partly reproduced in his communication, two letters of Haussknecht dated 1867 and relating to the voyage he began in October 1866. They were addressed to H. Kiepert, geographer and cartographer in Berlin and to J.H.R. Göppert, botanist and palaeontologist in Breslau. From this source we learn that Haussknecht came to Gaziantep from Halep, visited Suf dağı, Birecik, Saruç (Suruç), Havran, Urfa, Maraş, Zeytin (Süleymanlı), Berit dağı, Yarpuz, Elbistan, Besne, Adıyaman, Akdağ, Harput and Diyarbakır before returning to Halep. In his letter of 28 August, he noted the districts he has visited as Kilis, Gaziantep, Gavur dağı, Maraş, Urfa, Viranşehir, Terek (Derik), Koçhisar, Mardin and Habur. From Habur, he went to Süleymaniye (N Iraq) and continued from there to Iran.

Boissier's *Flora Orientalis* is the main record for citations of Haussknecht's Anatolian material. I counted ca. 1300 Turkish specimens. This number should be

somewhat higher but many localities were not precise enough to decide if they are within the present borders of Turkey, Syria or Iraq. In any case, it will not be wrong to say that Haussknecht's Anatolian collections comprise ca. 2000 specimens.

According to *Flora of Turkey*, 34 new Turkish taxa bear as specific or infraspecific epithets, the name of Haussknecht. Half of them are named by Boissier. In 1872 Boissier also named a new genus in his honour: *Haussknechtia* Boiss. (*Umbelliferae*), based on a specimen collected by him in South-West Iran. The genus is monotypic and endemic to Iran, the species is *H. elymaitica* Boiss.

According to Lanjouw & Stafleu (1957) and *Flora of Turkey*, the Anatolian specimens of Haussknecht are distributed in 12 herbaria of 6 European countries: B, JE (Germany), W (Austria), CN, LY, P (France), BM, E, K (United Kingdom), G, Z (Switzerland) and LE (Russia).

#### **Paul Ernst Emil Sintenis (1847–1907)**

(Cullen 1963; Vegter 1986: 899–900; Holmgren & al. 1990: 548; Baytop, A. 2004a)

Paul E.E. Sintenis was a German pharmacist, educated at Görlitz and later at Breslau. After practising his profession, he decided to become a plant collector. His passion for collecting led him to Cyprus in 1880; to Istria, Dalmatia, North Italy in 1881; to Puerto Rico in 1884–1887; to Macedonia, Thessalia, Thasos in 1891; to Greece in 1896; to Iran in 1900–1901. He made six expeditions to Anatolia between 1883 and 1894.

In 1883, he visited Çanakkale, Troas, Mt Ida (Kaz dağı) and Assos. He also crossed over to the European side and collected from Gabatepe, Çaydere and Eceabat. In 1888, he came to South Anatolia. He landed at Mersin towards the end of February, travelled eastwards up to Mardin collecting in the provinces of İçel, Hatay, Gaziantep, Urfa, Adıyaman, Diyarbakır and Siirt, returning by the same way and leaving Turkey from either Iskenderun or Mersin in mid-August, with a collection of at least 1464 specimens according to Cullen (1963).

In 1889, he made a third expedition to Anatolia. He arrived at Trabzon in the beginning of April, collected from Trabzon, Gümüşhane, Erzincan, Malatya and Elazığ, and returned from Trabzon in mid-August with a collection of at least 1726 specimens (Cullen 1963). In 1890, he came again to Trabzon, visited Gümüşhane, Erzincan and Elazığ, but concentrated his collecting in Erzincan, mainly in the vicinity of



Kemaliye. He returned to Trabzon at the end of August. The specimen numbers run from *ca.* 2069 to *ca.* 3492 (Cullen 1963). In April 1892, he landed at Inebolu (North Anatolia), went up to Tosya via Küre and Kastamonu, and returned to Inebolu with collections numbering from 3660 to 5349 (Cullen 1963). In 1894, he made his sixth and final expedition to North-East Anatolia. He landed at Trabzon, came to Gümüşhane from where he returned with a rich collection of nearly 2300 specimens (Cullen 1963).

In all, the Anatolian collection of Sintenis may be estimated as *ca.* 10 000 specimens. The citation in *Flora of Turkey* of 4 specimens from Istanbul proved that Sintenis arrived at and departed from that city for his expeditions 1889 to 1894. A specimen from Izmir, which is erroneously dated in the *Flora* with the year 1800, reveals that Sintenis has been in Izmir on his way to Cyprus in 1880 or to Mersin in 1888.

Sintenis did not describe plants. He placed his material at the disposal of German botanists who identified, named and described them. These botanists were mainly J.F. Freyn (1845–1903), J.F.N. Bornmüller, H.C. Haussknecht and P.F.A. Ascherson (1834–1913). Freyn often added Sintenis's name to his own when naming a new species.

Sintenis collected a great number of duplicates from a great number of plants. His sets are widely distributed in many herbaria. According to Vegter (1986) and Holmgren & al. (1990), 78 herbaria located in 27 countries on 4 continents hold his collections. Turkish specimens are to be found in 37 herbaria of 19 countries (Vegter 1986). The Herbarium of the Faculty of Science of Ankara University (ANK) is among them (Vegter 1986). It holds 30 Anatolian specimens of Sintenis. His original collection is at Lund and contains *ca.* 100 000 specimens (Vegter 1986).

The number of Sintenis's Anatolian specimens cited in *Flora of Turkey* is *ca.* 2900, of which 240 are type specimens representing 213 new taxa. More than 50 taxa bear the epithet *sintenisii*, but nearly half of them are now relegated to synonymy.

### Georges Vincent Aznavour (1861–1920)

(Lanjouw & Staffleu 1954: 46; Baytop, A. 1961, 2004n, in press, c; Demiriz 1964, 1993; Burdet 1982; Baytop, T. 2002: 20–22, 40–43, 56–57, 63–73.

Georges V. Aznavour was an amateur botanist with a rich herbarium from the Istanbul area. Born in Is-

tanbul, he lived and died in Istanbul. According to H. Demiriz (1964), he came from an old Catholic Armenian family, Georgian in origin. Although delicate in health, as 'registrar' of a commercial pharmaceutical company (Aznavour Sons), he often had opportunities to collect plants. His herbarium, deposited in Conservatoire Botanique de Genève (G), was of great help to P.H. Davis in the preparation of *Flora of Turkey* (1965–1988). Many of Aznavour's specimens are cited in this *Flora*.

Aznavour's specimens are cited with localities and dates (day, month and year), but they are not numbered. Thus the *Flora* cannot specify the actual number of specimens collected. Demiriz (1964) writes that his family estimates this number to be 20 000, whereas an article in *Magyar Botanikai Lapok*, 1920, states it as 15 000.

In the nine volumes of *Flora of Turkey* (Davis 1965–1985) and its two supplements (Davis & al. 1988; Güner & al. 2000), 1601 specimens of Aznavour have been cited. They have been collected from the province of Istanbul from 1885 until his death. Among them, there are 32 types (including syntypes and lectotypes), which represent 20 new taxa. In addition to his Istanbul specimens, *Flora of Turkey* cites the following Anatolian plants attributed to him as collector: A2(A) Bursa (vol. 9: 609 and 610), A3 Bolu (vol. 7: 150), A5 Samsun (vol. 8: 418), A6 Tokat (vol. 7: 392 and vol. 9: 528), C5 Konya (vol. 7: 489). Whether these specimens were collected by Aznavour himself or whether they have been sent to him for identification is unclear.

Aznavour identified his material himself. When in doubt, he corresponded with botanists such as J. Bornmüller, A. von Degen (1866–1934) and B.V.D. Post (1871–1960). He expressed his gratitude by dedicating new species to them. He also named new taxa after his botanical friends such as J. Manissadjian (1868–1942), a teacher in the Anatolian College of Merzifon, D. Tchitouny who prepared a "Herbier artistique" with the plants he collected in 1901–1908 from Van and its vicinities, F.X. Lobry, a clergyman at the Saint-Benoît French Lyceum in Istanbul. Aznavour is commemorated by at least 5 taxa which bear the epithet *aznavourii*.

Between 1897 and 1913 Aznavour published 12 articles concerning his plants from Istanbul. In these articles he enumerated the plants he had collected, and named his new taxa. He described a total of 22 species, 3 subspecies, 35 varieties, 8 subvarieties, 12 forms

and 1 monstrosity, indicating that he had studied his material very carefully. Furthermore, he described the plants sent to him from Anatolia and from the island of Syra in the seven articles he published between 1902 and 1918. These 19 articles, all in French, are listed in Demiriz's *An Annotated Bibliography of Turkish Flora and Vegetation* (Demiriz 1993). Aznavour published his papers in *Bull. Soc. Bot. France*, *Bull. Herb. Boiss.*, *Mag. Bot. Lap.* or *Feddes Repert.*

Based on his Istanbul collections, Aznavour wrote a flora named *Prodrome de la flore de Constantinople*. But he did not have the opportunity for it to be printed. Some years after his death, through the intermediation of Dr Bertram Post, teacher in the American College of Istanbul, all documents belonging to Aznavour, including his plant collection and the manuscript, came to the college. Assisted by his wife, Post prepared *La Flore du Bosphore et des environs* based on Aznavour's manuscript and printed it in 16 pages. The first sheets were translated to Turkish by Mehpare Başarman (later M. Heilbronn, 1908–1993), associate professor at the Department of Botany, Faculty of Science, and published by Istanbul University. But the Turkish translation was never completed and the original sheets in French have never been distributed or left the printing house.

The original collection of Aznavour is now kept at Geneva (G). It is recorded that the Austrian Lyceum in Istanbul holds ca. 400 specimens (Baytop, T. 2002) and that the Saint-Benoît French Lyceum ca. 500 (Demiriz 1964). According to Lanjouw and Stafleu (1954), his specimens are distributed in the following herbaria: BP (Budapest, Hungary), G (Geneva, Switzerland), GB (Göteborg, Sweden), GH (Gray Herbarium, USA), LY (Lyon, France), MANCH (Manchester, England), NH (Durban, South Africa), W (Vienna, Austria). The same authors point out that the original collection is in the Robert College Herbarium in Rumelihisar (Istanbul), but this is actually incorrect as it is kept in Geneva.

### Joseph Nicolaus Bornmüller, (1862–1948)

(Schwarz 1938; Wisniewski 1938; Bornmüller 1940–1941; Birand 1952; Lanjouw & Stafleu 1954: 87; Wagenitz 1960; Holmgren & al. 1990; Demiriz 1993; Strid 2006; Baytop, A. 2009b)

Joseph N. Bornmüller, Prof. Dr rer.nat.h.c., was a German botanist, traveller and collector, who had botanized much in Inner and Western Anatolia between

1886 and 1929. He studied at the Postdam-Wildpark Gardening Institute. He settled at Weimar and collaborated closely with Carl Haussknecht. He became the curator of Herbarium Haussknecht from its foundation in 1886 until 1938, and was elected president of the Thüringische Botanische Verein (founded by Haussknecht in 1883) after the death of the founder in 1903. In 1918, the Grand Duke of Saxony conferred on him the title of *Professor*. In 1942, he was awarded with the Goethe medal. In 1943, Jena University honoured him with the title of *Dr rer. nat. h.c.*

Established at Weimar, he decided to concentrate his researches on the flora of the Near-East, following Haussknecht who had visited, in 1864–1866 and 1866–1869, Syria, Mesopotamia, South-East Anatolia, North Iraq and Iran. He made his first expedition in 1886 and crossed Serbia to eastern Bulgaria, continuing to Anatolia where he climbed Uludağ (Bursa). In 1887 and 1888, he became inspector of the Belgrade Botanic Garden and made collections in Serbia. In 1889 and 1890, he explored Amasya and the adjacent provinces thoroughly. In 1891, he travelled in Greece. In 1892 and 1893, he collected from Inner and East Anatolia on his way to Iran and Mesopotamia. In 1897, he visited Syria and Palestine. In 1899, he collected extensively on Uludağ (Bursa) and Sultan Dağları (Afyon, Konya). In 1902, he visited Mt Elbruz in Iran. In 1906, he came to Izmir, Manisa and Aydın. In 1908, he went to Egypt; in 1910 to Lebanon and Antilebanon; in 1911 to Dalmatia; in 1912 to Romania; in 1917 and 1918 to Serbia and Macedonia; in 1926 to Greece and the Aegean Islands. In 1929, he returned to Anatolia, collecting in Bilecik, Çankırı and Ankara. In 1932, he was in Yugoslavia; in 1933 in Tripoli and Cyrenaica (North Africa). He had also travelled in other European countries such as Germany, Austria, Switzerland, Italy, Norway, Madeira and the Canary islands. He participated in 1933 in the Russian expedition to East Turkestan in Central Asia. He made thus nearly 20 voyages to the Near-East and the Balkans, between 1886 and 1933.

The citations of Bornmüller's specimens in the eleven volumes of *Flora of Turkey*, yield further information on his Anatolian travels. I counted 1733 Turkish specimens of Bornmüller cited in these volumes. Among them are 189 types, representing 161 new taxa. The types were collected from Inner and West Anatolia, in the following provinces: Ankara, Çankırı, Kastamonu, Amasya, Tokat, Yozgat, Sivas, Kayseri,

Niğde, Malatya, Konya, Bilecik, Bursa, Manisa, Izmir and Aydın.

Bornmüller first came to Anatolia in September 1886 to visit Uludağ (Bursa), at the end of the journey he had made through Serbia and East Bulgaria. I have not traced in the *Flora* any Anatolian specimen of Bornmüller dated 1887 and 1888, although Lanjow and Stafleu (1954) states he has collected from Anatolia in these years; it is in my opinion, doubtful.

In 1889 and 1890, Bornmüller was in Inner Anatolia. Based at Amasya, he explored during May-August 1889, the provinces of Amasya (Merzifon, Akdağ, Sana dağı, Lokman dağı, Abacı dağı, Kırklar dağı ...), Tokat (Zile, Akdağ, Çamlıbel, Artova, Sulusaray ...), Yozgat (Akdağ, Akdağmadeni ...), Sivas (Akdağ, Karababa dağı, Yıldız dağı ...), and Samsun (the southern region). In 1890, from May to July, he collected in Amasya, Kastamonu, Çorum, Samsun, Tokat, Yozgat, Sivas and Kayseri.

1891–1893 are the years of his Anatolian-Persian expedition. He started on his travels to the East late in 1891. Crossing Anatolia and North Iraq, he arrived in Iran from where he returned with rich collections. In 1891, a few specimens were collected by him from Sivas (Divriği, Delidağ), Ankara (İdris dağı) and Tokat. In 1892, *ca.* 50 specimens from Ankara (Elma dağı, İdris dağı ...), one specimen from Kastamonu, two from Sivas (Zara, Divriği) and one from Amasya are cited in the *Flora*. In 1893, he collected extensively in Sivas (Dumluca dağı, Göl dağı, Delidağ, Hornobil dağı, Çamlıbel, Zara ...), and from Tokat, Erzinçan, Ankara, Kayseri, Malatya and Gaziantep. In 1899, Bornmüller came again to Amasya and Inner Anatolia. From Amasya, following the way Bilecik-Yenişehir-Mudanya, he arrives at Bursa and Uludağ. He continued to Afyon and Konya and explored Sultan dağları. In the *Flora*, the specimens from Mudanya to Bursa are numbered 4219–5687, those from Uludağ 4001–5700 and those from Sultandağları 4004–5692. Why were these three collections made in succession not numbered consecutively as previously? Had Bornmüller arranged the specimens in systematic order before numbering them? I believe so.

In 1906, Bornmüller visited Izmir, Manisa and Aydın in West Anatolia. In 1910 and 1911, on his way to and from Lebanon, he was in Istanbul.

In 1929, he returned to Inner Anatolia, visiting mainly Bilecik, Çankırı and Ankara, collecting along the Çakmaklıdere valley and on Ilgaz dağı. In the *Flo-*

*ra*, *ca.* 130 specimens of Bornmüller are cited from Çankırı, with the numbers 13081 to 14722. His Ankara specimens, *ca.* 50 in number, are mainly from Kavaklıdere, Çankaya, Çubuk, Dikmen, Kayaş and Kalecik and numbered 13344 to 14794. He collected a new hybrid of *Moltkia* (*Boraginaceae*) from Çankaya that he named later in 1931 after Mustafa Kemal Paşa (Atatürk, 1881–1938), the Founder and the President of the Republic of Turkey: *Moltkia x kemalpushii*. His expeditions of 1899, 1906 and 1929 provided a total of *ca.* 15000 specimens.

In summary, according to the specimens cited in *Flora of Turkey*, Bornmüller has botanized at least 11 times in Anatolia in the years 1886, 1889, 1890, 1891, 1892, 1893, 1899, 1906, 1910, 1911 and 1929. The expeditions of 1889, 1890, 1899, 1906 and 1929 were especially concentrated on Anatolia. Three specimens from Aladağ (Niğde), dated 1938 and numbered 308, 416, 817, attributed to Bornmüller, belong in reality to H. Ellenberg who collected them in his expedition of 1938 to the Cilician Taurus.

The Turkish collections of Bornmüller probably comprise *ca.* 20000 specimens. They exist in 36 herbaria in 17 countries, including the herbarium of the Faculty of Science of Ankara University (ANK). Bornmüller was an active researcher. He wrote between 1889 and 1941 at least 87 publications related to the Turkish flora. He is commemorated by the genus *Bornmuellera* Hausskn., which is represented in Turkey by 4 endemic species. At least 25 Turkish species have been named after him.

### Walter Erdmann Siehe (1859–1928)

(Birand 1952; Baytop & Mathew 1984; Vegter 1986: 891; Demiriz 1993; Baytop, T. 2001; Baytop, A. 2009a)

Walter E. Siehe was a German engineer interested in plants. He had studied gardening between 1878 and 1880 in Koeniglichen Gaertnerlehranstalt, followed by studies at the University of Berlin and the University of Jena. He came to Adana as an engineer engaged in the construction of the Anatolian-Baghdad Railways. In 1897 he bought a piece of land at Findıkpınar (İçel) where he lived for *ca.* 25 years. He botanized nearly each year in Adana, İçel, Konya, Niğde, Kayseri and Sivas, and collected plant specimens which he sold to European herbaria. He gathered wild bulbs, grew them in his garden and exported them to European nurseries. His garden was renowned for its fruit

(mainly apple) trees. Turhan Baytop, interested in his life and activities, went to Fındıklı in 1981. He talked with persons who have known him, visited his garden, learned the address of his daughter in Germany, had correspondence with her and wrote the results of his investigations in his two books dated 1984 and 2001 (Baytop & Mathew 1984; Baytop, T. 2001).

The specimens cited in *Flora of Turkey*, which are ca. 740 in number, are mostly provided with date and number. Thus it was possible to estimate to some extent where, when and how many specimens he had gathered. Siehe collected in İçel, Adana, Niğde, Konya, Kayseri and Sivas. He had visited Bolkar dağı, Mazmılı dağı, Demirkazık tepesi, Erciyaş dağı and Akdağ (Sivas). He might have been on Amanus dağı (Hatay), at Gölbaşı (Maraş), at Alemdağ (Istanbul). The years of his collections are 1889 to 1891, 1894 to 1898, 1903, 1904, 1906 to 1914 and 1919. Collections from 1919 may have been the last, as his home and garden were devastated in 1920 and Siehe was obliged to return to work for the railway company until his death in Adana in 1928. Following his specimen numbering, we estimate he collected not less than 8000 specimens between 1889–1919.

Siehe collected the type specimens of 66 new Anatolian taxa. They are from Adana, İçel, Niğde, Konya and Kayseri. He is co-author for the names of 14 taxa. August von Hayek (1871–1928), C. Haussknecht, J. Bornmüller have all been interested in his specimens. Hayek published in 1914 *Plantae Sieheanae*, enumerating Siehe's specimens. Ten taxa names bear the epithet *sieheanus*, -a, -um.

According to *Flora of Turkey* and to Vegter (1986), the Anatolian specimens of Siehe are distributed in the following 20 herbaria: B, BATU, BG, BM, BR, BREM, E, G, GB, GE, JE, K, LD, LE, OXF, P, PRC, W, WU, Z. According to the catalogue of H. Birand (1904–1972), the Herbarium of the Faculty of Science of Ankara University (ANK) also holds specimens collected by Siehe (Birand 1952). Demiriz (1993) listed 22 papers of Siehe published between 1897 and 1929, related to Turkish bulbs, trees and shrubs.

### Otto Schwarz (1900–1983)

(Schwarz 1944; Birand 1952; Demiriz 1969, 1993; Klotz 1983; Vegter 1986: 862; Göven 2007; Baytop, A. 2008a)

Otto Schwarz, Prof. Dr, was a well known German botanist. He was director of the Systematic Botany Depart-

ment in Jena University, director of the Botanical Garden and the rector of the University. In his youth, he was invited as botanist to the 'Plant Protection Institute' at Bornova (Izmir), a new institute founded in 1931, under the name 'Garbi Anadolu Emraz ve Haşarat Mücadele İstasyonu'. Its name was changed as from 1969 to 'Bornova Ziraî Mücadele Araştırma Enstitüsü'. He stayed 3 years at Bornova, collected in Izmir and the adjacent provinces and returned to Germany in 1934. In 1946, he became assistant in the Friedrich Schiller University in Jena. He was curator of Herbarium Haussknecht, and later its director. He excelled in his career, becoming professor and rector of the University.

His specimens cited in the *Flora of Turkey* are ca. 145. Almost all are numbered but very few bore collecting dates. It has thus not been possible to obtain from the *Flora* detailed information about his travels and collections. He collected in Turkey in 1932, 1933, 1934 and 1938. The specimens dated 1932 to 1934 are from Izmir, Manisa, Aydın, Muğla, Eskişehir, Ankara and Adana. Those dated 1938 are from Muğla and Antalya, collected in July-August. The specimens of Eskişehir, Ankara and Adana are undated.

In an article where he described two new species of *Papaver*, Schwarz (1944) relates his visit of 1938 to Anatolia as follows: he came to Izmir at the end of May, visited Muğla and Köyceğiz, collected on Sandras dağı, Akdağ, Çaldağ, Pırnas dağı, Tekepınar dağı and travelled from Denizli to Uşak. In autumn, he was on Murat dağı. He offered a set of his collections to the Bornova Institute where he had worked. He advised the researchers who came collecting in Turkey to deposit duplicates of their specimens in the Turkish institutes with which they had collaborated.

In the 1952 catalogue of H. Birand, which enumerates the identified Turkish specimens held in ANK, there is among Schwarz's specimens, one which is collected in October 1931, and another one collected on December 1934. Thus it will not be incorrect to state that he was in Bornova from late 1931 to late 1934.

Schwarz identified most of his own material himself. According to *Flora of Turkey*, he is the collector of 26 Anatolian type specimens. Most were described by him; they originate from Izmir, Manisa, Muğla and Antalya, all in South-West Anatolia.

Schwarz's type specimens as cited in *Flora of Turkey* are found in B, JE and K. According to Vegter (1986) there are Turkish specimens of Schwarz in ANK, B,



EGE and JE. We have been informed by the director of the Plant Protection Institute at Bornova that its herbarium holds more than 140 specimens (Göven 2007). Demiriz (1969) declares that the collections of Schwarz from Izmir, Bornova, Yamanlar, Narlıköy, Çıplakdağ, İkikardeş dağı and Nif dağı comprise ca. 800 specimens. The Turkish material of Schwarz is thus found in B, JE, K and in 3 Turkish herbaria, ANK, EGE, Hb. Plant Protection Institute at Bornova. Schwarz published not less than 27 papers between 1934 and 1975, dealing with Turkish plants (Demiriz 1993).

### Kurt Krause (1883–1969)

(Krause 1926, 1928, 1929; Birand 1952; Chaudhri & al. 1972: 386; Baytop, A. 2007–2008a)

Kurt Krause, Prof. Dr, was a German botanist from Berlin. Between 1933 and 1939 he was professor of botany and director of the botanical department of the Higher Agricultural Institute (Yüksek Ziraat Enstitüsü) attached to the Ministry of Agriculture at Ankara. He travelled in Turkey, collected plant specimens and founded the 'Herbarium Turcicum' in his department. He also wrote several books.

His first interest was the flora of Caucasia. He visited this region in June-September 1912, but later, preferred to explore Anatolia. In May-June 1914, he travelled in West and Central Anatolia, and in the Cilician Taurus. Between 1925 and 1928, he made four successive visits to Turkey from May to July. In 1931, he visited Central and North Anatolia and went to Trabzon. He was again in Turkey from May to July 1932. When appointed director of the department of botany at Ankara, he came to Turkey on 1st May 1933 and held this post until July 1939. During this period, he continued to botanize, mainly with his assistants and sometimes with his students. His chief assistant was Hikmet Birand (1904–1972).

His collections amount to ca. 5600 specimens which are kept in Ankara (ANK). Krause gave sets of duplicates to the Botanical Museum at Berlin. The Berlin material was destroyed during the Second World War, following an air attack in March 1943. However, some sets exist in the United States (in A and UC).

The few specimens cited in *Flora of Turkey* provide little information about his Anatolian travels. According to the *Flora*, he collected in Istanbul, Izmir, Aydın, from many provinces in Central Anatolia, from Samsun, Giresun, Gümüşhane in North Anatolia and from

İçel in South Anatolia. The highest specimen number recorded in the *Flora* was 5487.

The 478 specimens listed in the catalogue of Birand (1952) and the three articles by Krause titled *Beitrag zur Flora Kleinasien* (1926, 1927, 1928) have been more helpful in providing information on his expeditions and collected material. Krause had a special interest in the flora of Ankara and his specimens from the area amount to ca. 230. In 1934 he published *Zur Flora von Ankara (Ankara'nın florası)* and in 1937, an enlarged second edition. He also had an interest in the flora of Istanbul where he collected a great deal, in Yuşa tepesi, Anadolukavağı, Çubuklu, Anadoluhisarı, Alemdağı, Kayışdağı, Bulgurlu, Pendik, Rumelikavağı, Belgrad ormanı, etc. The catalogue of Birand (1952) lists ca. 95 specimens from Istanbul and from his three articles, there are 70. Karl H. Rechinger f. (1906–1998), referred to Krause's publications when preparing his *Enumeratio Florae Constantinopolitanae* (1938).

Birand's catalogue (1952) and Krause's three articles (1926, 1927, 1928) give the following information. In June-July 1914, Krause made his way from Istanbul, Eskişehir, Kütahya, Akşehir, Konya, Ereğli, Gülek boğazı, Pozantı, Konya, Karaman, Uşak, Izmir, Bilecik, before returning to Istanbul. In April-May 1925, starting from Istanbul, he visited Efes, Sardes, Bergama, Didim, Samsun dağı and Söke. In May-July 1926, he visited Trabzon, Giresun, Samsun and North-East Anatolia, In June-July 1927 and in June-September 1928, Krause was again in Turkey. In May 1931, he went from Istanbul to Izmir and travelled to Afyon, Eskişehir, Ankara, Sivas, Tokat, Amasya and Samsun, returning to Istanbul, and in August he visited Uludağ. In summary, during his seven visits to Turkey between 1914 and 1932, Krause had collected from Central, West, South, North and North-East Anatolia. The highest specimen number for these collections is 4190. Later, when occupied in Ankara between 1933 and 1939, his collecting was restricted to the same regions he had explored earlier.

According to *Flora of Turkey*, five taxa bear the epithet *krausei* or *krauseanum*. These are: *Astragalus krausei* Širj. (collector and specimen number unknown), *Ononis krausei* Širj. (type specimen unknown), *Onobrychis krausei* Širj. (coll. Krause), *Verbascum krauseanum* Murb. (coll. Krause), *Aristolochia krausei* P.H. Davis (coll. T. Uslu).

Between 1913 and 1946, Krause published 33 articles dealing with the Turkish flora, mostly written

in German and published in German periodicals. He wrote five books while in Ankara (1934–1939), two of them being the editions of *Flora von Ankara*.

### Edward Kent Balls (1892–1984)

(Balls 1935–1936, 1936; Birand 1952; Lanjouw & Stafleu 1954: 52; Elliott 1985; Baytop, A. 2008b)

Edward K. Balls was an English horticulturist and collected native plants from other lands so as to introduce them to his country as garden ornamentals. He went to Iran in 1932. He came three times to Anatolia between 1933 and 1935. Later he collected in Morocco, Greece and Mexico. He was in South America in 1939. He worked at Rancho Santa Ana Botanic Garden (California) until his retirement.

*Flora of Turkey* cites 965 Anatolian specimens of Balls, including 20 type specimens representing 19 new taxa. Most of the citations, although provided with number and altitude, lack numbers linked with dates so some itineraries could not be easily traced. In *Flora of Turkey* the highest collecting number is 2403 so it is likely that Balls has collected at least 2400 specimens from Turkey between 1933 and 1935.

More details on the collections of Balls is provided in the catalogue of Birand (1952), published in Ankara. In April–May 1933, Balls was in İçel, Adana, Tarsus and the Cilician Taurus. In May, he made his way through Ankara, Kırşehir, Kayseri, Sivas, Hafik, Zara, Tokat, Reşadiye, Suşehri, Refahiye, Erzincan, Gümüşhane and Zigana. In May–August, he was in North-East Anatolia (Trabzon, Rize, Bayburt, Gümüşhane). In August, he was in Mardin, Urfa and Gaziantep. In April–September 1934, he explored East Anatolia travelling from İçel to Rize: İçel, Adana, Gaziantep, Maraş, Malatya, Niğde, Kayseri, Sivas, Zara, Hafik, Suşehri, Erzincan, Gümüşhane, Bayburt, Trabzon and Rize. In February–March 1935, he was at Ankara and left for Istanbul in March. In April–May, he travelled in Ankara, Adana, Gaziantep, Maraş, Malatya and Urfa, returning to Istanbul in June. In the catalogue, the highest collecting number is listed as 2392 confirming that he returned with no less than 2400 specimens from his three journeys in Turkey.

A third source of information is a series of six articles (1935–1936) written by Balls himself in which he mentions *ca.* hundred Turkish plants he had tried to introduce to England's damp climate. He had visited Bürücek (Adana), Ahır dağı (Maraş), Berit dağı

(Malatya), Kop dağı (Gümüşhane), Cevizlik (Maçka, Trabzon), Hamsiköy, Maşurah, Karakaban, Maden dağı, Soğuksu, Haldezan dağı (Trabzon) and Erciyas dağı (Kayseri). The highest collecting number is 2409 and this number is in accordance with that obtained from the other two sources. Balls also published two articles in the same journal concerning his Turkish travels in 1934 and 1935.

In summary, Balls came to Anatolia in 1933, 1934 and 1935, collecting from spring to autumn. He visited Central Anatolia, central part of South Anatolia, western part of East Anatolia and North-East Anatolia. He was accompanied by the amateur botanist Dr W. Balfour Gourlay on his first two trips, and by the zoologist Ch. Bird on the third. His collections comprise *ca.* 2400 specimens.

Lanjouw & Stafleu (1954) states that the herbarium at Kew (K) holds 2570 Anatolian specimens of Balls and the following herbaria have the number of specimens in parentheses ANK (2000), A (115), B (90), BM, E, LAU, MD and S (a total of 328). According to *Flora of Turkey*, Balls has collected the type specimens of 19 new taxa. They are kept at E, K, BM, B, S. Half of them were described during the preparation of P.H. Davis's *Flora of Turkey* project. Two species have been named in his honour: *Verbascum ballsianum* Murb. and *Salvia ballsiana* (Rech. f.) Hedge.

### Arthur Huber-Morath (1901–1990)

(Lanjouw & Stafleu 1957: 290; Becherer 1971a, b; Anonymous 1972; Renz 1981; Huber-Morath 1982; Heitz & al. 1990a, b, c, d; Tan & Hedge 1991; Baytop, A. 2004b)

Arthur Huber-Morath, Dr rer. pol., Dr Phil.h.c., was a Swiss economist with a commercial company in Basel. A deep interest in plants sustained since his youth, made him a keen plant collector and floristic researcher. He studied economics in Bern where he obtained his Dr rer. pol. degree, collected plants and had a private herbarium and library on the upper floor of his home in Salinenstrasse, where he worked till his last days.

Before exploring Anatolia, he had collected in Switzerland, Italy, Tunisia, Spain and Morocco. He first came to Anatolia in 1935, inspired by Dr Heinrich Reese (1874–1951). He made 16 expeditions to Turkey, between 1935 and 1969.

In 1982 Huber-Morath published the itineraries of his Anatolian travels. He preferred to botanize between mid-May and mid-July, each trip lasting from

10 days to a month. In his first visit of 1935, he collected only from Izmir and Manisa; in the second of 1938, starting from Izmir, he went further afield to Denizli, Muğla, Antalya, Isparta and Afyon. In 1948, ten years later, he travelled from Bilecik to Antalya returning by way of Isparta and Afyon. In 1949, he went from Ankara to Diyarbakır and Van. In 1950, he collected from Antalya and adjacent regions up to Mersin. In 1951 he was in South-East and East Anatolia. In 1953 he made his way from Kayseri, Adana, Gaziantep, Maraş, Sivas to Erzincan. In 1954, he botanized in West Anatolia. In 1955, he went from Ankara to Trabzon. In 1956, he collected from Central, South and South-East Anatolia. In 1958, he made his way from Ankara to North-East Anatolia. In 1959, he went from Ankara to Adana, Erzurum, Rize and Kars. In 1962, he was in the South-West; in 1964, in the West and the South, in Bolu and Çankırı; in 1967, in the West and in 1969, in South-West Anatolia.

He was often accompanied on his travels by Heinrich Reese, Jany Renz (1907–1949), Charles Simon (1908–1987) or Hugo Schiechtel, all plant lovers; or by Friedrich Markgraf (1897–1987), T.R. Dudley (b. 1936) both professional botanists; or by Turkish botanists as Hikmet Birand, Hüsnü Demiriz, Mehpare Heilbronn and Ahmet Attila (1914–2008), the latter being chief-gardener at Istanbul University.

His collections comprise ca. 30 000 specimens. It is now deposited in the Conservatoire Botanique de Genève (G-Hb. Hub.-Mor.). Lanjouw & Stafleu (1957) noted that the following three herbaria ANK, B, LD, also hold his material. There are no specimens of Huber-Morath in ISTE. He was always willing to identify our specimens sent to him (862 from ISTE) and returned them with determinavit labels, but he never volunteered an exchange of material. His rich collections were extremely useful to P.H. Davis, who was then preparing his *Flora of Turkey*.

Becherer (1971b) published a list of the 507 species, subspecies, hybrids and new combinations attributed to Huber-Morath, alone or as co-author. Heitz & al. (1990d) have included in the list those taxa published after 1971 and up to 1988. Twenty two taxa bear the epithet *huber-morathii*. His scientific publications between 1925 and 1988 total 86 and it is of interest to note that his thesis was the only publication not related to botany. He has written 65 papers related to the Turkish flora. Huber-Morath was especially interested in *Boraginaceae*, *Caryophyllaceae*, *Compositae*, *Labi-*

*tae*, *Leguminosae* and *Scrophulariaceae*. His favorite genera were *Verbascum*, *Achillea*, *Alkanna*, *Cousinia*, *Phlomis* and *Trigonella*. He prepared in three basic floras the accounts of the following genera: twelve genera in *Flora of Turkey* (*Gypsophila*, *Bolanthus*, *Ankyroptalum*, *Ononis*, *Trigonella*, *Ebenus*, *Achillea*, *Cousinia*, *Alkanna*, *Verbascum*, *Phlomis*, *Sideritis*); two genera in *Flora Iranica* (*Achillea*, *Verbascum*); one genus in *Nouvelle Flore du Liban et de la Syrie* (*Verbascum*).

His extensive contributions to the Turkish flora were recognised by the following awards: (1) The title of Dr Phil. h.c. offered by the Philosophisch-Wissenschaftliche Fakultät in Basel in 1972. (2) The dedication by P.H. Davis of the *Flora of Turkey* vol. 5 to him in 1975. (3) Silver Medal of the Second International Symposium of the Problems of Balkan Flora and Vegetation, held in Istanbul between 3–10<sup>th</sup> July 1978.

#### **Peter Hadland Davis (1918–1992)**

Davis 1955, 1958; Coode 1964; Davis & Jones 1969; Tan & Elias 1989; Holmgren & al. 1990: 522; Stuart 1992; Tan & Smith 1992; Baytop, A. 2004f, l)

Peter H. Davis, Prof., BSc., PhD., DSc., F.L.S., F.R.S.E., was professor of taxonomic botany at the University of Edinburgh, Scotland. He is renowned worldwide for *Flora of Turkey and the East Aegean Islands*, published in nine volumes (1965–1985) and a Supplement in 1988 (volume 10). He edited them assisted by two researchers. The second supplement (volume 11), was dedicated to his memory and appeared in 2000. It was edited by Turkish botanists and published in Edinburgh like the previous volumes.

Davis emphasized the importance of specimen examination and based his Flora on this principle. Between 1938 and 1966, he made 11 expeditions to Turkey. In addition to the 28 500 specimens gathered, he obtained specimens on loan from many herbaria rich in Turkish material. He cited in the *Flora* the specimens examined. Although restricted in number and in condensed form, the specimen citations are of great value, as they provide information concerning exploration and the material collected, especially if both collecting date and number are jointly listed.

Davis first collected in South-West Anatolia in 1938, at the age of 20, when he came to the East Mediterranean. He graduated from the University of Edinburgh in 1949, was appointed lecturer in 1950, and received his PhD degree in 1952. He then came to

Turkey more frequently to collect plants. In 1961, he decided to write a Flora of Turkey supported by the Science Research Council, UK. He settled with two research assistants and a secretary on the upper floor of an annex to the Royal Botanic Garden in Inverleith Row and devoted all his time to the study of the Turkish flora punctuated by his strong interest in paintings and ceramics especially Wemyss Ware. He received a Personal Chair as Professor of Plant Taxonomy in 1979 and a Fellowship in 1980.

Four articles entitled Turkish itineraries I–IV (1955, 1958, 1964, 1969) relate in detail the Anatolian expeditions of Davis and some of his collaborators. They are summarized below:

- 19–26 June 1938: SW Anatolia
- 03 July – 14 September 1947: Ankara, SW Anatolia, S Anatolia, Konya, Uludağ (with K. Bilger).
- 05 July – 03 September 1949: SW Anatolia, S Anatolia, Amanus, Konya (partly with K. Bilger, partly with A. Attila).
- 16–27 August 1950: SW Anatolia, W Anatolia (with V.H. Heywood).
- 04 June – 04 September 1952: C. Anatolia, Antitaurus, NE Anatolia (partly with J.G. Dodds, partly with R. Çetik).
- 04 June – 08 September 1954: central part of N Anatolia, C Anatolia, SE Anatolia, E Anatolia (partly with O. Polunin).
- 17 March – 21 April 1956: W and S Anatolia.
- 20 March – 8 September 1957: Ankara, Istanbul, Adana, Hatay, Diyarbakır, Gaziantep, Urfa, Mardin, E and NE Anatolia, C and NW Anatolia (with I.C. Hedge).
- 30 June – 14 August 1962: NW Anatolia, European Turkey (partly with M.J.E. Coode, partly with F. Yaltrık).
- 8 – 26 April 1965: SW Anatolia (with Mrs A. Phillips).
- 18 April – 11 August 1966: European Turkey, NW Anatolia, C, SE, E and NE Anatolia (with Lady D. Lygon).

He made a last visit to Turkey in August 1982. He came to Ankara, held a symposium on 3 August in the Faculty of Science of Ankara University and, accompanied by the botanists of Ankara, he botanized for ten days in the vicinity of Sivas. This was his second lecture in Turkey. He had given his first lecture in the Faculty of Pharmacy of Istanbul University on 21 April 1966.

Davis deposited his specimens at E and gave sets of duplicates to K and BM. According to Holmgren & al. (1990), his specimens are in ABD, ANK, ISTE, ISTO, RIY, RNG, RSA, ULT. Davis's collection in ISTE number 794 specimens, which were sent to ISTE between 1969 and 1985 as gift or exchange.

According to the eleven volumes (1965–2000) of *Flora of Turkey*, Davis has described from Anatolia 228 new taxa and made 110 combinations. The total number of taxa which bear his name as epithets is 50. A list of his 124 articles and books published between 1933 and 1988 was prepared by Tan & Elias (1989). About half of his publications deal directly with the Turkish flora.

His outstanding contributions to the Turkish flora have been recognised by the following awards: (1) Certificate of Merit from the Turkish Government in 1973; (2) Silver Medal of the Second International Symposium of the Problems of Balkan Flora and Vegetation, Istanbul, 3–10 July 1978; (3) Silver Medal of Honour of Istanbul University, on the occasion of the completion of the *Flora of Turkey*, Edinburgh, 26 September 1988; (4) Silver Medal OPTIMA at the 6<sup>th</sup> OPTIMA Meeting, Delfi 10–16 September 1989, together with Kit Tan and R. Mill, for having produced the Supplement of the *Flora of Turkey*.

Davis dedicated three volumes of his *Flora* to four of his colleagues who assisted his project by sending him much material: volume five to A. Huber-Morath; volume eight to A. and T. Baytop; volume nine to F. Sorger. He dedicated volume ten (the first Supplement) to all past research assistants of the *Flora* project. The second Supplement (volume 11) which appeared in 2000 is dedicated to the memory of P.H. Davis by its four editors: A. Güner, N. Özhatay, T. Ekim and K.H.C. Başer. Davis left a legacy to the Sibbald Trust of the Royal Botanic Garden Edinburgh where he wrote the *Flora of Turkey* (1998) and an even larger legacy to the University of Edinburgh to support taxonomy in the Mediterranean area.

### **Kamil Karamanoğlu (1920–1976)**

(Davis 1955; Chaudhri & al. 1972: 342; Baytop, A. 2007b)

Kamil Karamanoğlu, Prof. Dr, was professor of biology and pharmaceutical botany, director of department and dean of the Faculty of Pharmacy in Ankara University. The Faculty was founded in 1960 and was the first faculty of pharmacy in Turkey. His family name was originally Bilger but he changed it to Karamanoğlu of his own accord in 1955/1956.

Karamanoğlu was interested in plant collecting, identifying and revising genera. *Flora of Turkey* cites 239 of his specimens. They were collected in 44 provinces between 1947 and 1966. Tuğrul Körüklü (pers.



com. 2005) informed me that his collection in ANK numbered 1897 registered specimens, that there are many others awaiting registration, that 1942 and 1970 must be added to the years of collection and that his specimens are collected from 61 provinces. The herbaria which hold Turkish specimens of Karamanoğlu are the following: AEF, ANK, E, GOET, ISTE, ISTF, K and Hb. Hub.-Mor. (Chaudri & al. 1972).

In 1947 and 1949 Karamanoğlu accompanied P.H. Davis on two expeditions to South-West Anatolia. In 1947, he collected with him on Bozdağ, Sandras dağı, Baba dağı, Girdev dağı, Tahtalıdağ, Akdağ, Ge-yik dağı and Uludağ; and in 1949, on Tahtalıdağ, Teke dağı, Çalbalıdağ, Bozburun dağı, Dedegöl dağı (Davis 1955).

He is collector of two type specimens and co-collector of 14 types. Three species have been named after him: *Origanum bilgeri* P.H. Davis (coll. P.H. Davis), *Sideritis bilgerana* P.H. Davis (coll. P.H. Davis), *Allium karamanoglui* Koyuncu & Kollmann (coll. M. Koyuncu).

### Hüsnü Demiriz (1920–1999)

(Demiriz 1993; Çırpıcı & al. unpubl.; Baytop, T. 1999; Baytop, A. in press, a)

Hüsnü Demiriz, Prof. Dr, was professor of systematic botany. He was educated in the German School in Istanbul, then in the Higher Agricultural Institute of Ankara, from where he graduated in 1946. He began his academic career in 1949 as assistant in the Department of Pharmacobotany and Genetics of Istanbul University. He acted successively as professor of botany and director of department there. He taught botany at the Atatürk University at Erzurum (1968–1969), then in Dicle University at Diyarbakır where he also acted as dean (1974–1977). He returned to Istanbul University and retired in 1988.

Demiriz participated in many national and international congresses, represented the country as national advisor in international projects. He organized international meetings in Turkey. His researches were in systematic botany, plant geography, Turkish flora and bibliography. Between 1943 and 1977 he collected in 42 provinces of Turkey, from North-West, South, South-East and East Anatolia. His collections comprise more than 10 000 specimens housed in ISTF, the herbarium of the Faculty of Science, Istanbul University. The Herbarium of the Faculty of Science of Dicle University at Diyarbakır (DUF) has ca. 1500 specimens of Demiriz, and that of the Atatürk University at

Erzurum (ATA) has 157. Çırpıcı & al. (2000) have prepared a list of his publications between 1943 and 1972. He was very meticulous in his work, especially concerning herbaria and libraries.

The *Flora* cites 340 of his specimens, 10 of them being types collected from 8 provinces. He is the co-author of 3 new taxa names: *Anemone pavonina* Lam. var. *alba* Dane & Demiriz, *Asplenium obovatum* Viv. var. *protobillotii* Demiriz, Viane & Reichert, *A. obovatum* Viv. var. *deltoideum* Demiriz, Viane & Reichert. The following 7 taxa are named in his honour: *Verbascum demirizianum* Hub.-Mor. (coll. H. Demiriz), *Centaurea demirizii* Wagenitz (coll. H. Demiriz), *Aethionema demirizii* Davis & Hedge (coll. H. Demiriz), *Isatis demiriziana* Mısırdalı (coll. H. Mısırdalı), *Ornithogalum demirizianum* Malyer & Koyuncu (coll. H. Malyer & M. Öğütveren), *Lamium demirizii* A. Khokhr. (coll. A.P. Khokhrjakov & al.), *Astragalus demirizii* R. Kramer & Podlech (coll. H. Kramer).

His specimens are kept in AEF, ANK, ATA, B, BSB-VO, DUF, E, ESSE, ISTF, LE, MHA, MN, MSB and Hb. Hub.-Mor. He is the author of *An Annotated Bibliography of Turkish Flora and Vegetation*, 1993, which includes notes on 5000 publications related to the Turkish flora. His publications from 1942 to 1990 are listed in Çırpıcı & al. (2000).

### Turhan Baytop (1920–2002)

(Baytop & Mathew 1984; The Daily Telegraph 2002; Günergun 2002; Baytop, A. in press, b)

Turhan Baytop, Prof., Dr Pharm., Dr h.c., was professor of pharmacognosy and history of pharmacy in the Faculty of Pharmacy, Istanbul University. He has been director of the Department of Pharmacognosy and dean of the Faculty. He was a pharmacist and naturalist, with a deep interest in and passion for bulbous plants. He graduated from the School of Pharmacy in 1945, and became assistant in the Department of Pharmacognosy, where he carried out research on native medicinal plants and travelled throughout the country to learn about Turkish plants. His collections became the foundation of a herbarium in the Department of Pharmacognosy, which later became the Herbarium of the Faculty (ISTE). His expeditions from 1949 to 2000 are listed in his book entitled *Fifty Years in Anatolian Mountains (Anadolu Dağlarında 50 Yıl, 2000, 2001)*. According to ISTE's documentation, his collections comprise 10 750 specimens which are rich in *Liliaceae*, *Iridaceae*, *Ama-*

ryllidaceae, Araceae, Orchidaceae, Cyclamen, etc... Geophytes alone amount for ca. 2200 of them. He collected bulbs in order to grow them in his garden in Istanbul. In 1984 he published *The Bulbous Plants of Turkey*, in collaboration with B. Mathew from Kew.

*Flora of Turkey* cites in its eleven volumes, ca. 950 specimens collected by T. Baytop. Thirty two of them are type specimens, collected by him between 1956 and 1981, from Asiatic Istanbul, European Turkey, various provinces of the West, Central, East and South Anatolia. Twenty three types are geophytes and ca. half of them belong to *Crocus*, his favourite genus. His name is commemorated by seven epithets. His original collections are in ISTE with duplicates existing in E, EGE, G, K, ISTF and Herbarium Hub.-Mor.

The aim of his travels was not unique. He wanted to know about wild plants used as food or medicine or for other purposes. He was also interested in poisonous plants. His field knowledge was immensely helpful to him when preparing his book *Therapy with Medicinal Plants in Turkey (Türkiye'de Bitkiler ile Tedavi)*, 1984, 1999).

Another topic in which he had been deeply interested in since his student days, was the history of pharmacy in Turkey. He collected ancient pharmaceutical objects and related publications, wrote books about the old pharmacies and the development of the pharmaceutical industry in Turkey, etc... He never forgot to have his camera with him during his travels, hence he owned a rich collection of slides available to illustrate his books.

Turhan Baytop is the recipient of the OPTIMA Silver Medal 1986, Istanbul; TÜBİTAK Golden Plate 1988, Ankara; ECO Gold Medal 1992, Teheran; Dr h.c. degree 1998, Eskişehir.

### Carl Tobey (1918–1991)

(Cullen 1967; Vegter 1988:1027; Turkish Daily News 1991; Baytop, A. 2007a)

Carl Tobey was an American teacher of the English language who came from New York to Samsun in 1955 to stay for a year but lived there till the end of his life. He graduated in 1940 from the University of Princeton, Department of History. He was fond of riding and sailing. Interested in aviation, he became a pilot during the Second World War. He then went to Paris to teach aviation. In 1955, he came to Istanbul as a volunteer for peace and education. He was happy to transfer to Samsun, where he began to work as a teacher of

English in Maarif College of Samsun (Samsun Maarif Koleji) later called Anadolu High School of Samsun (Samsun Anadolu Lisesi). At the end of the year, he returned to America, but came back to Samsun and stayed there till his death. He is buried in Samsun. Carl Tobey was well adapted to Turkish life. He liked his students, made many friends, learned to play bağlama (a Turkish musical instrument), smoked narghile (a kind of tobacco pipe), played backgammon (tric-trac) and knew gardening. He made botanical excursions around Samsun and the neighbouring provinces and sent his plant collections to P.H. Davis in Edinburgh who was then preparing the *Flora of Turkey*.

There are ca. 1140 of his specimens cited in *Flora of Turkey*, collected from 14 northern provinces, ranging from Zonguldak to Erzurum, i.e., Zonguldak, Kastamonu, Sinop, Samsun, Ordu, Giresun, Trabzon, Çorum, Amasya, Tokat, Sivas, Gümüşhane, Bayburt and Erzurum. The majority are from Samsun and its vicinity. They were collected from 1964 to 1967, and in 1969. All the citations have numbers but only a few are dated, and the specimens are not numbered consecutively. The altitude is always provided.

Vegter (1988) writes that Tobey began to collect from 1963 on and that his specimens are kept in E and ISTO. Cullen (1967) notes that Tobey collected in 1963–1966 from Samsun, Sinop, Ladik, Ordu, Giresun and Sivas and that his specimens are housed in E and ISTO. In the herbarium of the Faculty of Pharmacy of Istanbul University (ISTE), there are 57 specimens of Tobey collected in 1964, 1965 and 1967. ISTO holds 982 of his specimens. No specimens from Tobey exist in the Herbarium of the Biology Department of the Ondokuz Mayıs University (OMUB) at Samsun, founded in 1982. We can infer that Tobey's specimens were collected between 1963–1967 and 1969. They are deposited at E and K in the United Kingdom, and ISTE and ISTO in Turkey.

*Flora of Turkey* does not give any indication about the extent of his collections, as dates and numbers are not jointly provided and specimen numbers are not in running order. This information can be available by consulting the specimens kept at Edinburgh. Tobey collected the types of 7 new taxa: *Papaver commutatatum* Fisch. & C.A. Mey. subsp. *euxinum* Kadereit, *Alchemilla orduensis* Pawl., *Crataegus orientalis* Pall. ex M. Bieb. var. *obtusata* Browicz, *Doronicum tobeyi* J.R. Edm., *Taraxacum bellidifforme* Soest, *Onosma subulifolium* Riedl and *Alopecurus anatolicus* Doğan. Two species have been

named after him: *Doronicum tobeyi* J.R. Edm. (coll. *Tobeyi*) and *Salvia tobeyi* Hedge (coll. *Sintenis*).

### Friederike Sorger (1914–2001)

(Speta 1994, 2002; Çolak 2004; Baytop, A. in press, e)

Friederike Sorger, PhD, was an Austrian botanist and plant collector. Born and educated in Vienna, she moved to Linz in 1947 and lived there till 1972. She obtained her PhD degree in 1944 in Vienna, where she was active between 1940 and 1945 as a teacher of natural history and physics in a private school. At Linz she was a director of her brother's commercial firm and she returned to Vienna in 1972 as director of its affiliated company in Vienna, retiring in 1975. Sorger was an indefatigable collector and visited Anatolia 29 times between 1962 and 1988, preparing a collection of 18 000 specimens that she eventually deposited in the herbarium (LI) of the Ober-Österreichisches Landesmuseum (Speta 1994). Her material was at the disposal of P.H. Davis for the *Flora of Turkey* project. In appreciation, Davis dedicated the ninth volume of the *Flora* to her. In the nine volumes (1965–1985) of *Flora of Turkey* and its two supplements (1988 and 2000), I counted 2095 specimens of Sorger collected from 60 provinces between 1960 and 1985. No specimens of 1972, 1975 and 1979 are cited but this absence may be explained by the citation of records from other collectors. I have found only one specimen citation (vol. 8: 448) from 1960, and one (vol. 4: 218) from 1961. All itineraries of her Anatolian visits have been listed by Speta (1994). Sorger collected 66 type specimens from 20 Turkish provinces between 1963 and 1984. Approximately half of them have been identified and described by Kit Tan, with Sorger as co-author. 13 taxa bear the epithet *sorgerae*, and one the epithet *fridericae*. Sorger sent her material for identification to specialists who have contributed to the *Flora of Turkey*, P.H. Davis, A. Huber-Morath, M.A. Fischer, F. Ehrendorfer and Kit Tan being at the top. In her publications, she always provides full acknowledgement to these specialists and expresses her gratitude.

Sorger's publications are all related to Turkish flora. A group of them enumerates the new taxa to be added to the already published volumes of *Flora of Turkey*, with their distributions; these form the series *Beiträge zur Flora der Türkei I-VII* (1971–1987). Another group presents many Turkish plants with colour photographs such as *Blumen der Türkei* (1994: 103–271),

*Einige Endemiten aus der türkischen Pflanzenwelt im Bild* (1998), *Pflanzen einiger Salzsteppen der Türkei im Bild* (2000). A.H. Çolak, has translated the last three books to Turkish, compiled the translations with the inclusion of an Turkish article, a list of botanical terms and a list of Latin words with their equivalents in Turkish. These formed a volume he then named *Flowers of Turkey (Türkiye Çiçekleri, 2004)*. He considered it as the enlarged second edition of Sorger's *Blumen der Türkei*. In two earlier articles published in 1968 and 1971, Sorger relates her botanical observations about the Anatolian mountains she has visited.

According to Speta (1994), the collections of Sorger are housed in LI (18 000 specimens) and W (15 000 specimens). From the specimen citations in the *Flora of Turkey*, her specimens are also at E, SZU, WU, RSA and Hb. Hub.-Mor.

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