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Theodor Kotschy in Iran, 1841–1843. Botanical collections and an early printed vegetation profile

H. Walter Lack

Abstract

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In 1841–1843 Theodor Kotschy travelled extensively in Iran and collected vast amounts of plant specimens. Edmond Boissier undertook the determinations of the material and validated numerous names new to science, often exclusively based on Kotschy's specimens. Subsequently Rudolf Friedrich Hohenacker arranged for the distribution of this material in two exsiccata series, which are today available for consultation in numerous herbaria. Kotschy's unknown botanical field book kept in the archive of the Herbarium Haussknecht in Jena is analysed for the first time and so is an exceedingly rare, printed vegetation profile published by Hohenacker in 1846, which summarizes Kotschy's pertinent sketches done in the field in southwestern Iran in 1842. Both documents are set into the context of their time and are shown to echo earlier works by Alexander von Humboldt done in tropical America. In addition, extensive information on Kotschy's travels in Iran is presented from Ludwig Ritter von Köchel's report as well as from archival material kept in the Herbarium Haussknecht and the Naturhistorisches Museum in Vienna.

Keywords

Theodor Kotschy – Iran – Botanical collections – Exsiccata series – Vegetation profile

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Introduction

For good reason [Carl Georg] Theodor Kotschy (1813–1866) is regarded today as the most important collector of natural history objects active in the mid-nineteenth century in the Near East and in Sudan. It has been estimated that he brought home the breath-taking number of more than 300,000 permanently preserved plant (and algal) specimens (ANONYMOUS, 1866; RECHINGER, 1960), while another estimate gave double that number (KOTSCHY, 1868), a figure recently regarded as plausible (RIEDL-DORN, 1998, 2001). In contrast very little is known about Kotschy's living plant specimens sent home as seeds etc. and at least occasionally cultivated in the Vienna Botanical Garden (e.g. *Arabis carduchorum* Boiss.; see VITEK et al., 2018). His mycological, zoological, palaeontological, mineralogical and geological gatherings are explicitly excluded from this paper.

In addition to quantity, the quality of Kotschy's botanical collections has been highly appreciated by the botanical community (e.g. SCHWEINFURTH, 1868; RECHINGER, 1960) and the consistently perfect labelling has been similarly praised (RECHINGER, 1960). Unfortunately no in-depth study of Kotschy's life and achievements is available, and therefore his publications and the well-informed, albeit slightly hagiographical and partly romantic obituary written by his youngest brother Oscar (KOTSCHY, 1868) continue to be the main source of information. More recent publications (e.g. RIEDL-DORN, 1998, 1999, 2001; KESHAVARZI & LEIMKUGEL, 2012) deal only with selected aspects of Kotschy's manifold activities and are not free from errors.

Kotschy's most important collecting tour lasted for no less than eight years. It began in Vienna on 20 December 1835 (RUSSEGER, 1841–1849) and came to an end in that city on 16 December 1843 (KOTSCHY, 1868). During the first years Kotschy travelled as a member of the expedition lead by the geologist and miner Joseph Russegger (1802–1863) in what in current political topography are Egypt, Ethiopia, Greece, Italy, Lebanon, South Sudan, Sudan, Syria and Turkey (RUSSEGER, 1841–1849; for Ethiopia see FRIIS, 2009). In order to do more collecting in Sudan, Kotschy separated from Russegger in Alexandria in August 1838 (KÖCHEL, 1844), returned to Khartoum and later headed back to Alexandria from where he departed for Cyprus with his servant Hussein Bechnessi in September 1840 (KOTSCHY, 1859, 1868). What followed was an overland tour across the Ottoman Empire from Beirut to Basra on the Persian Gulf where he arrived in late 1841, passing through what is now Iraq, Lebanon, Syria and Turkey (KOTSCHY, 1868).

Whereas RUSSEGER (1841–1849) published on more than two thousand pages a proper report, Kotschy refrained from doing the same for his separate travels undertaken after his separation from Russegger. All Kotschy gave in print was (1) a detailed report on his two ascents of Mount Demavend [Mt. Damavand, 5609 m], a potentially active volcano and the

highest in Asia, reaching its summit on 1 August 1843 as the first westerner (KOTSCHY, 1859) and (2) an extensive description of his movements in the surrounding of Tehran and his subsequent expedition to the Elburz [Alborz] mountains (KOTSCHY, 1861a), both undertaken in 1843. The latter paper includes a map showing the collecting localities as well as two panoramic views of the mountains ranges north of Tehran (see below). Kotschy's two texts enable the reader to follow these short travels so very closely that listing his collection sites and compiling a gazetteer seems superfluous. A third publication (KOTSCHY, 1861b) is basically an extract of Kotschy's second paper (KOTSCHY, 1861a).

The subject of this paper is Kotschy's stay of two years in Iran, then ruled over by Mohammad Shah Qajar (1808–1848) [the former consistently used the exonym Persia, the endonym Iran is used throughout this text]. During this period Kotschy was often in financial difficulties, in particular when based in Tehran. Expatriates helped him out, among them Alexander Friedrich Graf Medem (1803–1859), the Russian Envoy, who gave him 10 ducats per month so that he could continue to collect in 1843 (KOTSCHY, 1868). A report of Kotschy's financial problems is said to have reached Vienna via the Duke of Württemberg (ANONYMOUS, 1866); this was probably Paul Wilhelm von Württemberg (1797–1860), a nephew of Friedrich I, King of Württemberg (1754–1816), though recently doubts have been expressed regarding this interpretation (WÖRZ, 2016). In the end the Staatskanzlei [state chancellery] in Vienna got involved with Clemens Wenzel Prince Metternich (1773–1859), Chancellor of the Austrian Empire and foreign minister, being displeased when he learnt that the Persian authorities had detained Kotschy because of an outstanding debt of 500 tomans (KADLETZ-SCHÖFFEL, 1992). In the end financial assistance was organized by Carl Alexander Freiherr von Hügel (1795–1870) (KÖCHEL, 1844; KOTSCHY, 1868; DOLEZAL, 1972), a former diplomate, world traveller and gentleman of private means then based in Hietzing near Vienna. With the sums made available, Kotschy and his servant Hussein were finally able to leave Tehran.

Very little is known about this return trip undertaken in late 1843. Kotschy passed a second time through the Ottoman Empire, then reigned over by sultan Abdulmejid I (1823–1861), travelling in what in current political topography are Hungary, Romania and Turkey (KOTSCHY, 1868). Judging by the late season – he departed from Tehran on 10 October 1843 – it seems unlikely that substantial plant collecting was undertaken during the final part of Kotschy's travels. In a sense the present contribution supplements an earlier paper (EDMONDSON & LACK, 2006) focused on Kotschy's itinerary in southern Iran in 1841–1842. It was mainly based on information from herbarium labels and did not deal with Kotschy's movements in 1843. In addition, neither the distribution of his botanical collections nor their determination by Edmond Boissier

(1810–1885) have been dealt with previously. Kotschy's field book and an exceedingly rare vegetation profile published by Rudolf Friedrich Hohenacker (1798–1874), based on Kotschy's botanical findings in southern Iran, are also analysed here for the first time and set into the context of their time.

Ludwig Ritter von Köchel's published report on Kotschy's travel

Soon after Kotschy's return a report was published on 9 February 1844 in the newspaper *Allgemeine Zeitung, mit allerhöchsten Privilegien* (KÖCHEL, 1844). Surprisingly this did not appear in Vienna but in Augsburg, then Kingdom of Bavaria, and it did not have Kotschy as its author, but Ludwig Ritter von Köchel (1800–1871). This text is of special interest since it is explicitly stated to have been based on the written reports of the traveller. Furthermore it had never been analysed before and has a remarkable background.

All aficionados of Mozart know Ludwig Ritter von Köchel (1800–1871), the author of the chronologically arranged catalogue of Mozart's numerous works, which as a rule are mentioned today in programs of concerts with their KV number, standing for Köchel Verzeichnis. However, before embarking on this mammoth project in 1851, Köchel had studied law at Vienna University and had been for about fifteen years a private tutor to Albrecht (1817–1895), Karl Ferdinand (1818–1874), Friedrich (1821–1847) and Wilhelm (1827–1894), Archdukes of Austria (KONRAD, 1998). They were the sons of Carl (1771–1847), Archduke of Austria-Teschen, and nephews of Francis I, Emperor of Austria (1768–1835). It is not known when Köchel started to collect plants, but later he became the botanical mentor for e.g. August Neilreich (ADLER et al., 2001) and upon his death he left his herbarium comprising some 13,000 specimens to his former grammar school, the Piaristengymnasium in Krems. This collection has been reported as lost (KONRAD, 1998). However, according to the VIRTUAL HERBARIA (2020) plant material collected by Köchel survives in GJO, GZU, W (received with Herbarium Neilreich and Herbarium Archduke Rainer; E. Vitek, pers. comm.) and WU; in addition, a few Köchel specimens ended up in B (LACK, 1980). Kotschy seems to have met Köchel in c. 1834 when the former attended the Imperial Royal Protestant Seminary in Vienna, than he entered the circle of botanists based in that city, among them Johann Philip Emanuel Pohl (1782–1834), back from his travels in Brazil, and Stefan Endlicher (1804–1849) (KOTSCHY, 1868). The former was curator at the Brazilian Museum, the latter at that time an intern at the Imperial Court Library, both in Vienna (RIEDL-DORN, 2019). In Kotschy's field book, Köchel's name is also mentioned several times, which proves that they had come into contact early on, almost certainly before Kotschy left Vienna in late 1835.

Twenty years after his return from Tehran, Kotschy published a paper containing recommendations and practical hints for collectors of natural history objects in the Near East (KOTSCHY, 1864). In our context one aspect is particular relevant – the distinction between “*Tagebuch*” [diary] to be added to every evening and “*Notizbuch*” [field book]. Concerning the latter Kotschy wrote: “*jeder eingelegten Pflanzenart ist eine fortlaufende Nummer beizulegen und dieselbe im Notizbuche einzutragen mit den nöthigen Bemerkungen über Standort, Farbe der Blume u.s.w.*” [a running number has to be attached to each plant species collected and the number written down in the field book with the necessary notes on the locality, colour of the flower etc.]. Since Kotschy often specifically mentioned his experiences in Iran and since he did not visit that country a second time, additional colourful insights into his travels 1841–1843 can be gathered in this text (KOTSCHY, 1864). Among them we find the strong advice to ask the Iranian government via a diplomatic representation in Tehran for a travel document with the seal of the Shah attached containing the royal permission “*allerlei wilde Tiere schiessen, aufbewahren, Fische fangen, Käfer sammeln, Kräuter ausgraben, trocknen und Steine mitnehmen zu dürfen. In allen Teilen des Reichs sei ihm jede Achtung und Zuvorkommenheit, Gastfreundschaft und Beihilfe zu leisten. Niemand habe das Recht, in seinen Arbeiten irgend welcher Art ihn zu belästigen, und er dürfe Abbildungen sowie Beschreibungen von allen Landestheilen entwerfen*” [to shoot all sorts of wild animals and keep them, catch fish, collect beetles, dig up herbs and dry them and take with him stones. In all parts of the empire every kind of courtesy and respect, hospitality and assistance has to be offered to him. Nobody has the right, to harass him in any way in his activities and he is permitted to draft illustrations and descriptions of all parts of the country] (KOTSCHY, 1864: 274). Precisely such a document written in Farsi (Fig. 1) was found among Kotschy's miscellaneous travel documents kept in the archive of the Naturhistorisches Museum [NHM] in Vienna.

The archival record

KOTSCHY (1859, 1861a)'s papers contain so much detail that Kotschy must have had his diary at hand when writing the texts sixteen years after he had climbed Mount Damavand and fourteen years after he had visited the Elburz Mountains. In addition, Kotschy's biography (see KOTSCHY, 1868) includes several quotations which apparently have been taken verbatim from this very diary. However, so far this diary has not been traced and seems to have been lost. Consequently the claim that Kotschy's diaries had already been lost in transit arranged by the Imperial Russian Mission in Tehran and directed to Vienna in late 1843 (FENZL, 1867; RECHINGER, 1960) does not seem well founded.

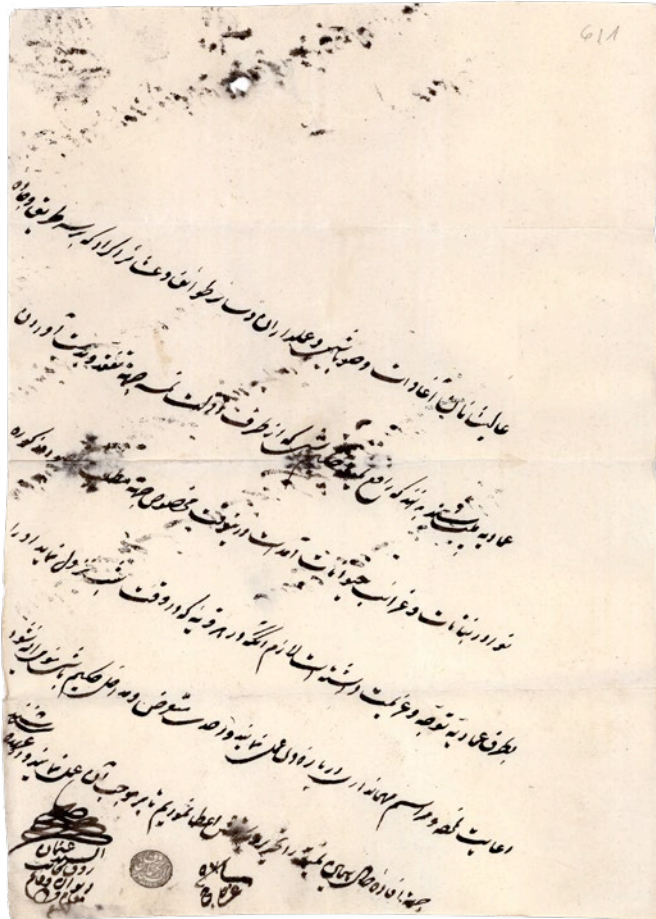


Fig. 1. – Order of the government of Mohammad Shah to support the work of Theodor Kotschy in Iran issued by the scribe Al-Seyed Osman, servant of the helm, c. 1843.
 “The excellencies, guardians, Kurd tribes on the way to Emadieh (name of a palace in Kermanshah); the holder of this letter, the German physician, on order of government will collect plants and animals on his way towards Emadieh. You will be pleased to host him in any village [offering him] accommodation overnight, respect [him] as a guest, and nobody should make trouble him on his way. For his comfort we prepared this order to be respected and applied”.
 [Translated from Farsi by M. Akhani] © Archiv, Naturhistorisches Museum, Vienna]

However, miscellaneous archival material referring to Kotschy’s travels in Iran exists in at least two institutions: the Herbarium Haussknecht in Jena (JE) and the NHM in Vienna.

The archival record in Jena

“Von Cypern 1840 Syrien, Kurdistan, Mesopotamien Kerek und Süd Persien 1841 botanisch”

The most remarkable object deposited at JE is a manuscript annotated on the cover with the title given above. It contains an amalgam of miscellaneous notes, almost exclusively in

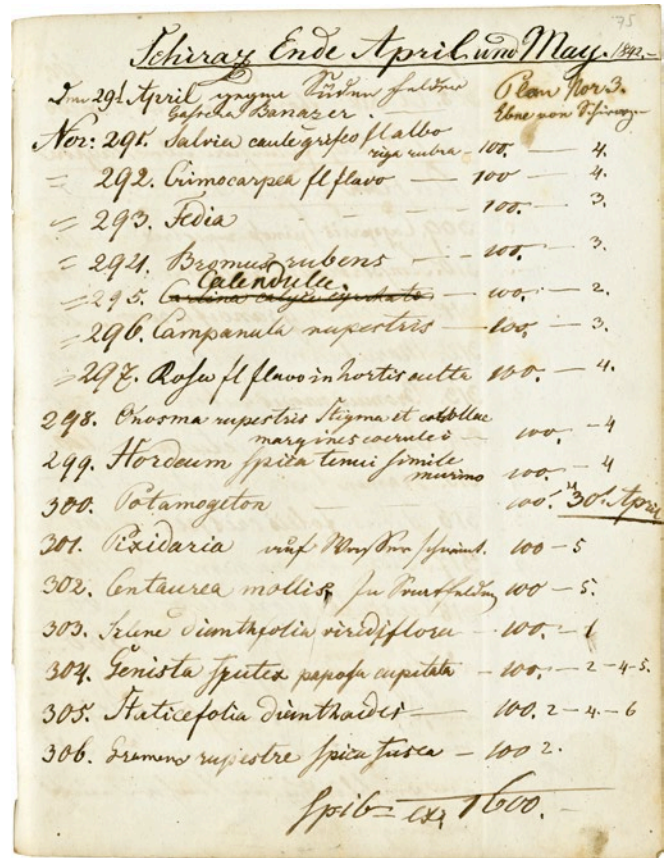


Fig. 2. – Theodor Kotschy’s botanical field book, 1840–1842. [f.75v; © Archiv, Herbarium Haussknecht, Jena]

Kotschy’s hand, and was evidently written in the field, with a few pages water-stained. This manuscript clearly represents his botanical field book for the second part of his travels (folio [f.]49recto[r]–100verso[v], 109v–136r documenting his movements in Iran in the years 1841–1842). Not a single page refers to Kotschy’s travels in 1843. As a rule the entries with the individual collection numbers arranged 1(f.49r)–800(f.99v) consist of a preliminary determination, often accompanied by a brief description in Latin and the number of specimens collected (Fig. 2), which perfectly agree with Kotschy’s recommendations concerning the “Notizbuch”. They form the backbone of the field book. However, there are also lists of preliminary determination without collecting numbers (e.g. 73r) which seem to refer to species of which only a small number of duplicates have been collected; Kotschy annotated such lists with the words “nicht volle Zahl” [not full number]. They may be the basis of the *hors série* numbers (EDMONDSON & LACK, 2006).

In addition, an amalgam of locality data, observations on various aspects of his travels, such as the dates for some of his movements, notes on repeated spells of bad health of Kotschy and his assistants as well as several brief personal reflexions are intermixed, all in German. This complex material is often difficult to decipher but offers good insights into the realities

Archduke Carl and his younger brother Archduke Johann among the recipients of herbarium duplicates seems to underline Kotschy's reliance on the apparently excellent contacts of Köchel at the imperial court. When Kotschy was back in Vienna Köchel clearly enjoyed a somewhat privileged position among his contacts and this may have been the reason, why the former made his travel notes available to the latter. The most impressive aspect of "*Pflanzen Vertheilung*" is the number of specimens to be distributed: Kotschy's calculation is 17,989, i.e. on average 94 specimens per collection number, which clearly meant plant collecting *en masse*. This is confirmed by Kotschy who reported having collected eleven species, each with 50 specimens, in a period of only two hours while ascending Mount Damavand on 22 June 1843 (KOTSCHY, 1859), needless to say with the help of his assistants. At the second attempt to ascend this mountain which took place on 1 August 1843, when the peak was finally reached, his assistants' names are given as Hussein Bechnessi from Wadi Halfa (today Sudan), the Armenian Avet Ibrahim from Shiraz, and three Iranians (KOTSCHY, 1859).

The archival record in Vienna

The archive of the NHM in Vienna keeps a miscellany of Kotschy's travel documents, in particular his passport issued for his travels via Trieste to Egypt and Syria in Vienna on 29 December 1835 (Fig. 4). Because of its annotations by several authorities, in particular consulates, police offices and a quarantine station, this is an outstanding document and a mine of information for precise dates of Kotschy's movements, which confirm in every detail Köchel's report. As a rule Imperial Royal Consuls and Vice-Consuls, i.e. authorities representing the Austrian Empire, added annotations to the document; however, in Baghdad and Karak [Kharg], then under British occupation (KOTSCHY, 1868), this was done by British residents, and in Tehran and Trabzon by the secretary of the Imperial Russian Mission to the court of the Shah and the Imperial Russian consul general respectively. As an example when re-entering the Ottoman Empire Kotschy and his servant Hussein had to undergo quarantine testified by the authorities in Trabzon on 7 November 1843 (Fig. 5), and the same procedure took place when entering the Kingdom of Hungary, then part of the Austrian Empire, at Alt-Orsova [Orşova] on 5 December 1843. The latter document contains the only so-far known physical description of Kotschy.

Lastly, another document conserved in JE apparently originated from the HNC in Vienna. It is entitled: "*Botanische Abtheilung. Pflanzen aus Süd Persien gesammelt durch Kotschy, Anno 1842*", was written in an unknown hand, with a few corrections added by Kotschy, and lists the collection numbers 1–1072 with their determinations and locality data.

The transfer of Kotschy's botanical specimens to Europe and their distribution

Very little is known about the transfer of Kotschy's botanical materials to Europe, apart from the note that the servant Ali was sent with the collections from Shiraz to Baghdad (KÖCHEL, 1844); his return seems to have taken place in October 1842, probably before Kotschy and his party had left for Tehran. This assumption is corroborated by the "*Kistenverzeichniss*" [List of boxes] dated April 1842 and kept in JE. Kotschy notes in this document "*Kiste Nor. 7. 8. Reiseverein 18000 Ex Pflanzen, Ausbeute des März. Von Schiraz mit Ali abgesandt*" [Boxes No. 7. 8. Reiseverein. 18000 specimens, of March. Sent together with Ali from Shiraz]. According to this list, box 6 was sent to the HNC in Vienna. It is not known for certain whether this box ever arrived, in any case it had not reached Vienna when Köchel's report appeared in February 1844.

It remains unknown if Kotschy's plan for the distribution of duplicates sent to Köchel was ever put into effect. However, it seems helpful to briefly reflect on the list of projected recipients. Two were members of the reigning family, i.e. Carl, Archduke of Austria-Teschen, and Johann, Archduke of Austria, two more were closely connected with them – Köchel with Archduke Carl and Johann Zahlbruckner (1782–1851) with Archduke Johann, who employed him as his private secretary. Stefan Endlicher was full professor of botany at Vienna University and director of its botanical garden (RIEDL-DORN, 2019). 'Reichenbach' almost certainly refers to Heinrich Gottlieb Ludwig Reichenbach (1793–1879) in Dresden. Three more projected recipients had been of help during Kotschy's travels: Colonel Davies in Kerek (KOTSCHY, 1868), Colonel Dundas Robertson in Baghdad (KÖCHEL, 1844) and William Tylour Thomson (1813–1883), secretary to the British Envoy in Tehran (TAYLOR THOMSON, 1838; KOTSCHY, 1859). The only institutional recipient listed was the HNC in Vienna which was to receive seven sets according to Kotschy's plan.

The "Reiseverein", Rudolf Friedrich Hohenacker and Edmond Boissier

Judging from Kotschy's "*Pflanzen Vertheilung*" by far the largest set of duplicates, often one hundred specimens per collection number, was intended to go to the "*Reiseverein*". This was a joint-stock company based in Esslingen, then in the Kingdom of Württemberg, founded to support collecting expeditions undertaken by naturalists (WÖRZ, 2016). An idealistic undertaking with no economic aims the "*Esslinger Botanischer Reiseverein*" was at the same time a vehicle for distributing large quantities of herbarium materials, which are kept today by many botanical institutions worldwide (WÖRZ, 2016). Founded by Ernst Gottlieb Steudel (1783–1856) and Christian Ferdinand Hochstetter (1787–1860) in 1825, the



Fig. 4. – Theodor Kotschy's passport, issued 29 December 1835. [recto; © Archiv, Naturhistorisches Museum, Vienna]

company found itself in an organisational and financial crisis twenty years later (WÖRZ, 2016). Therefore it seems plausible to assume that Kotschy's collections were passed on by the "Reiseverein" to Hohenacker, who was at that time also based in Esslingen, for further procedure.

Hohenacker, described in his biography as missionary, physician and botanist (BAUER, 1969), is best known among plant taxonomists for his two enumerations of plants grown in areas now belonging to the Republic of Azerbaijan (HOHENACKER, 1833, 1838); they were both published in Moscow. However, at the end of his missionary activities Hohenacker settled down in Württemberg in 1841 and began editing exsiccata works, i.e. buying large quantities of herbarium specimens, having them determined and selling them at his own risk. In a letter to one *Missionsinspektor* Hoffmann dated 7 October 1842, Hohenacker reports having bought two consignments of plants from the area of Aleppo, Mosul and Kurdistan (BAUER, 1969), which he intends to be determined by a competent

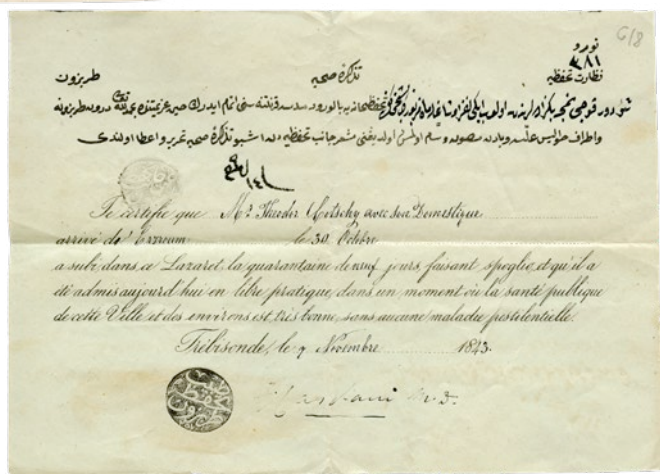


Fig. 5. – Theodor Kotschy's certificate for having passed through quarantine in Trébisonde [Trabzun], 7 November 1843. [© Archiv, Naturhistorisches Museum, Vienna]

botanist and sold. Clearly this statement refers to Kotschy's botanical collections made in 1841.

For good reason Hohenacker selected Boissier, a gentleman of private means based in Geneva (GRENON, 2011; JACQUEMOUD, 2011), to undertake the determination of the plant material. The latter must have received a set of duplicates and subsequently communicated his determinations to Hohenacker. Immensely qualified to do this job, BOISSIER (1843–1846) validated many new names based on Kotschy's specimens, often choosing as epithet 'kotschy', e. g. *Aegilops*

kotschy Boiss. (Fig. 6). According to HOHENACKER (1845) only the *Caryophyllaceae* were determined by Eduard Fenzl (1808–1879), who was then curator at the HNC in Vienna (DESCHKA, 1958) and basically the same arrangement applied to the *Plantae persiae borealis*. Importantly it appears that Kotschy had no share in the validation of the new names published by Boissier. When two decades later BOISSIER (1867–1888) started his monumental work on *Flora orientalis* he decided to cite again the numerous specimens collected by Kotschy on his travels in Iran which made them well known to readers of his magnum opus. Significantly BOISSIER (1888: 440–453) lists Kotschy's specimens from his travels in Iran on no less than eight pages of the index to numbers cited.

The rather limited algal material collected by Kotschy on the Persian Gulf was determined and published by Endlicher and Karl Moriz Diesing (1800–1867), the latter also based at the HNC in Vienna (ENDLICHER & DIESING, 1845). Nothing is known about the printing of the labels for the exsiccata series, but it is safe to assume that this was handled by Hohenacker, possibly at Esslingen.

Ephemera are best understood as transitory written or printed matter not meant to be retained or preserved. When exsiccata works are distributed, the herbarium specimens are often not only accompanied by printed labels but also by miscellaneous informative materials like introductory matter, lists of contents, price lists etc. not meant to be permanently preserved. This description applies to four pages of printed matter (HOHENACKER, 1845).

Hohenacker named this first exsiccata series *Plantae Persiae australis* and offered them for sale in October 1845 (ANONYMOUS, 1845) for 17 guilders for each centuria, and the second exsiccata series *Plantae Persiae borealis* in September 1847 (HOHENACKER, 1847) for 15 guilders per centuria. The first series had been collected by Kotschy in 1842, the second in 1843, both start with no. 1. The first series has been shown to be arranged chronologically (EDMONDSON & LACK, 2006) and follows the entries in the field book. It seems likely that the second series also followed this model. Herbarium W had already acquired a set of *Plantae persiae australis* comprising 1609 specimens one year before, i.e. in 1844, and a set of *Plantae persiae borealis* comprising 1150 specimens in 1847, in both cases from a dealer in natural history materials (E. Vitek, pers. comm.).

The vegetation profile

In this ephemeron a vegetation profile is mentioned which was probably intended as a kind of supplement for the purchasers of the exsiccata series. HOHENACKER (1846) is a lithograph in large format printed in Esslingen. It is exceedingly rare. Only three copies are known to exist in Berlin (Staatsbibliothek Preussischer Kulturbesitz), Jena (archive of JE) and

St. Louis (MO Library). This illustration (Fig. 7) consists of two elements: (1) a transect from the Persian Gulf to the high mountains northeast of Shiraz with numerous plant names and collection numbers added and (2) a small map of south-western Iran in the right hand upper corner. Hohenacker's transect is clearly a synthesis of eight pen-and-ink drawings prepared by Kotschy, all conserved in the archive of JE. The present author is not aware of a single vegetation profile published during the first half of the nineteenth century for any part of the Near East.

Two aspects of Kotschy's drawings and Hohenacker's lithograph need to be stressed: firstly Kotschy's collection numbers are included enabling the purchaser of the exsiccata series to quickly spot the locality and its height above sea level where the respective specimen had been gathered (Fig. 7); and secondly, the vegetation zones, like "*Niedrige Astragali*" [low growing species of *Astragalus*], are given in the left-hand column, while the estimated altitudes are given in the second column from the left and in the right-hand column.

The concept of vegetation profile is intimately linked with Alexander Freiherr von Humboldt (1769–1859), who in 1807 had published a transect of the northern Andes (HUMBOLDT, 1807) (for the date of publication see FIEDLER & LEITNER, 2000). This very coloured copper engraving became iconic for a new branch of science, plant geography, although it should be noted that similar height profiles had been simultaneously produced by Francisco José de Caldas (1768–1816), also for the northern Andes (e.g. BLEICHMAR, 2017). Ten years later Humboldt had similar transects of the vegetation of Mount Chimborazo in Ecuador, Mount Popocatepetl in Mexico, Mont-Blanc on the French-Italian border, and Monte Perdido in Spain published in the first volume of the *Nova genera et species plantarum* (HUMBOLDT, 1817), also forming part of the *Voyage*.

Although Hohenacker's printed profile based on Kotschy's sketches is of a decidedly inferior typographical quality when compared to Humboldt's coloured copper engravings, its message – the integration of geographical and botanical information – is identical. Kotschy could well have seen and studied Humboldt's vegetation profiles – when he was a student of twenty-one years he had met Humboldt in Berlin in 1832 (KOTSCHY, 1868) and could have wished to make use of his approach when he encountered in southern Iran ten years later chains of high mountains reaching in Kuh-e Dena an altitude of 4409 m. This may be regarded as speculative, but there is a hard fact: Kotschy's name is listed twice in Humboldt's address book with his entries made between c. 1835 and 1859, noting "*Kotschy (Dr) Nubien Persien Demarwand*" (SB: Nachl. 480, 2: f.72r). Humboldt's early influence on Kotschy is furthermore corroborated by the latter's field book which echoes in many aspects the well-known *Journal Botanique* which contains the botanical observations noted down by Aimé Bonpland

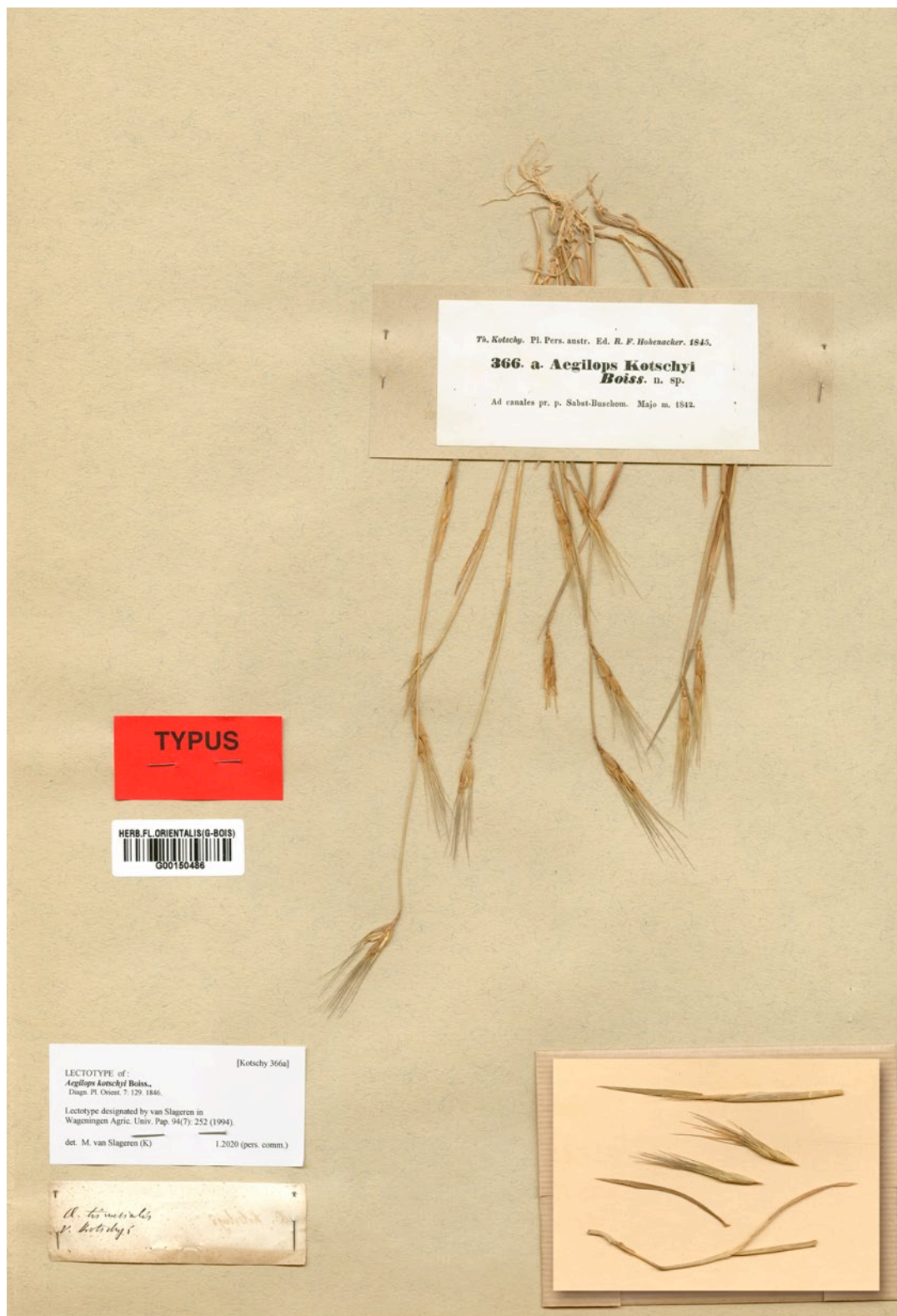


Fig. 6. – Lectotype of *Aegilops kotschy* Boiss. (G-BOIS). Specimen collected in Iran, near Sabst-Buschom [Kuh-e Sabz Pushan] in May 1842 by Theodor Kotschy.
[Kotschy 366a] [G00150486; © Conservatoire et Jardin botaniques, Genève]

(1773–1838) and Humboldt during their joint travels in tropical Latin America in 1799–1804 (e.g. LACK, 2004).

In 1853, ten years after his return from Tehran, Kotschy departed from Vienna for another collecting tour, this time focusing his attention on the Taurus Mountains [Toros Dağları] in present day Turkey. Five years later he published a proper travelogue (KOTSCHY, 1858), which he significantly dedicated to Humboldt and which contained another panoramic view called “*Höhentableau des cilicischen Taurus*” [Profile of the heights of the Taurus Mountains] with localities of no less than 300 species indicated. Though without collection numbers, this lithograph is clearly modelled on Hohenacker’s print of the flora and vegetation in southwestern Iran (HOHENACKER, 1846). Similarly, Kotschy’s report on his expedition to the Elburz Mountains in 1843 (KOTSCHY, 1861b) also contains, integrated into the map, two panoramic views of this chain of mountains with localities of 122 species. However, in both cases no height profile was included.

Epilogue

Although Kotschy was not the first plant collector active in what is now Iran, because of the quantity and quality of the specimens gathered he stands out from the others which make him the most important early botanical explorer of this area. The value of his material has been substantially increased by several taxonomists, in particular Boissier, who selected many of Kotschy’s specimens as type material and based their scientific names often exclusively on them. Due to the extremely high number of duplicates distributed quickly by Hohenacker Kotschy’s collections from Iran are today available for consultation in many herbaria with extensive sets in the Conservatoire Botanique in Geneva and the NHM in Vienna. More important, perhaps, is another fact: Kotschy effectively founded the tradition of studying the flora of Iran in the NHM in Vienna, which lead, among others, to the well-known *Flora Iranica* appearing in a total of 181 instalments from 1963 to 2015, i.e. over a period of 52 years, in Graz and Vienna.

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Unpublished sources

- SB: Staatsbibliothek zu Berlin, Handschriftenabteilung: Alexander von Humboldt, *Adressbuch, c. 1835–1859*. Shelf mark: Nachl. 480,2.
- JE: Herbarium Haussknecht, Jena: Archiv-Theodor Kotschy, *Von Cypren 1840 Syrien, Kurdistan, Mesopotamien Kerek und Süd Persien 1841 botanisch*; Archiv-Theodor Kotschy, *Kisten-Verzeichnis, 6 August 1844*; Archiv-Theodor Kotschy, *Pflanzen Vertheilung, 12 April 1842*; Archiv-Theodor Kotschy, *Botanische Abtheilung, undated*.
- NHM: Naturhistorisches Museum Wien: AfW-Theodor Kotschy-6/1, *Osmanisches Reisedokument*; AfW-Theodor Kotschy-6/3, *Österreichischer Reisepass, Wien 29 Dez. 1835*; AfW-Theodor Kotschy-6/5, *Kontumazbestätigung, Trébizonde, 7.XI. 1843*.

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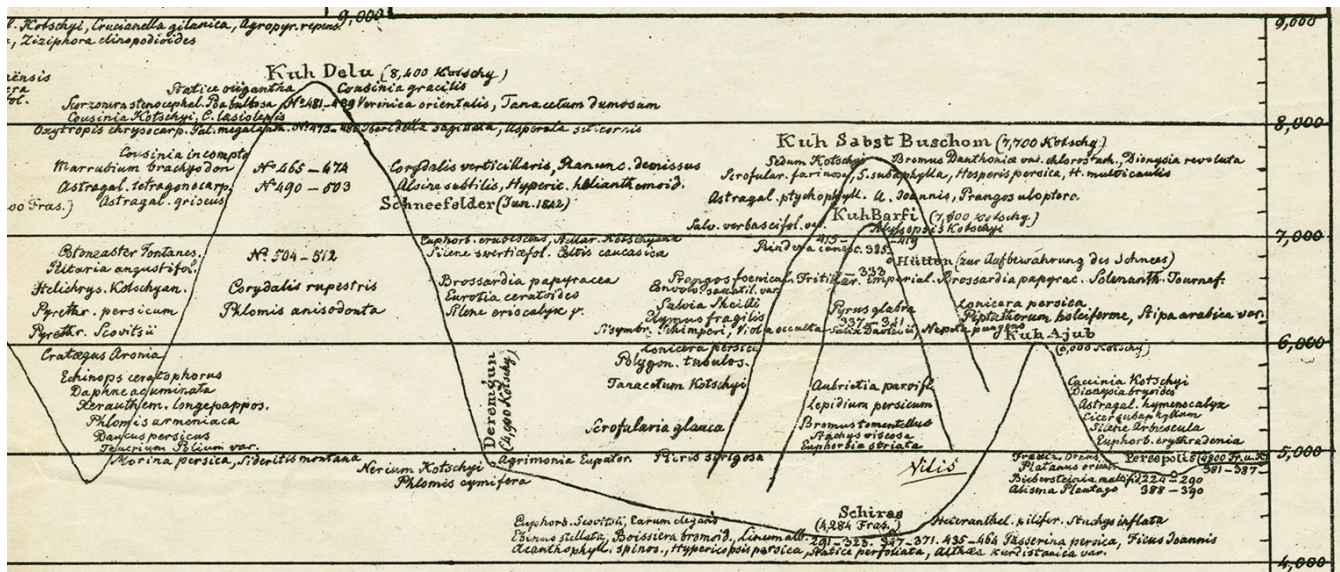
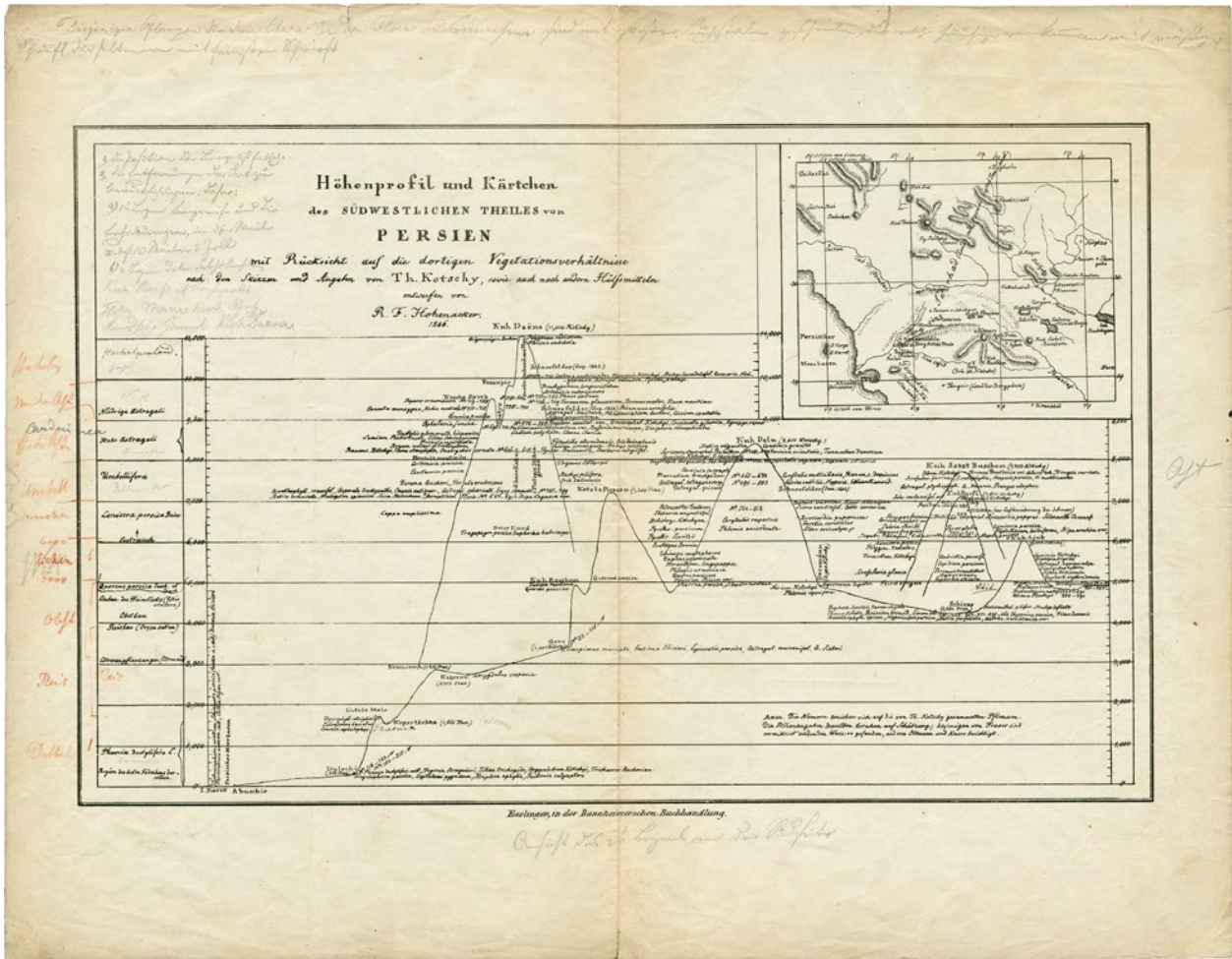


Fig. 7. – Rudolf Friedrich Hohenacker, Höhenprofil und Kärtchen des südwestlichen Theiles von Persien. Esslingen, 1846. (Annotation in unknown hand). Detail of the Höhenprofil is shown below. [© Archiv, Herbarium Haussknecht, Jena]

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