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The early botanical exploration of Albania (1839–1945)

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Abstract: The botanical exploration of Albania in its modern sense started in the mid-nineteenth century with the collections and publications of A. Grisebach, E. Weiss and C. Grimus von Grimburg, who followed the road from Prizren to Shkoder or were active in the hinterland of the harbours on the Adriatic Sea. In the late nineteenth and early twentieth centuries, A. Baldacci, N. Košanin and I. Dörfner laid the foundations of the floristic knowledge of Albania, focusing their attention on northern Albania and the coastal regions. A considerable amount of collecting was undertaken during the First World War by people commissioned by or active for the foreign powers occupying the country, with the major results published by A. Hayek in Vienna and S. Jávorka in Budapest. In the interwar period, F. Markgraf concentrated his floristic research on central Albania, although his work remained uncompleted. Even during the Second World War, collecting and publishing on the flora of Albania did not come to a stop. However, in the mid-twentieth century considerable areas of Albania remained totally unknown botanically, in particular in the southern part of the country. This contribution gives a detailed and critical overview of the botanical exploration of Albania from 1839 until 1945 with emphasis on the collecting routes, the widely scattered herbarium record and the interdependence of field work and the political (and military) situation in the country.

Key words: Albania, Baldacci, botanical exploration, Dörfner, endemics, Grisebach, Hayek, herbarium record, itineraries, Jávorka, Markgraf, serpentinophytes, toponyms

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Introduction

Albania is one of the floristically richest countries of Europe, especially with respect to its limited surface area of only 28 748 square kilometres. The occurrence of native stands of *Pancreatium maritimum* L. on the Adriatic coast at a distance of less than fifty kilometres from native stands of *Soldanella alpina* L. on Qafa e Shtogut in the Albanian Alps [Alpet Shqiptare] exemplifies this fact. This is reflected by vegetation zones ranging from the Mediterranean Orno-Quercetum subzone along the coast, the Ostryo-Carpinion adriaticum subzone further inland, to the alpine Seslerietalia zone on the highest peaks of the country (Horvat & al. 1974). Albania is

among the most mountainous countries in Europe with a flora of c. 4000 taxa of vascular plants occurring in the wild. Among these are exceedingly rare species, e.g. *Astragalus austranii* Bald., a very local endemic of Mt. Tomor and Mt. Gradeci, the subject of a somewhat sensationalistic paper (Tan & al. 2015), and *Wulfenia baldaccii* Degen. The former species has been rarely collected and only at considerable intervals, in 1892 (Baldacci 1895), 1924 (Markgraf 1931b) and 1961 (Meyer 2011), but it was never forgotten. On the basis of molecular data, the latter species has been shown to belong to the same clade as *W. carinthiaca* Wulfen, disjunctly distributed in the southeastern Alps and the southeastern Dinaric Mountains (Surina & al. 2014). Recorded exclusively from

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Albania and Kosovo, *Forsythia europaea* Degen & Bald. is the only representative of this Asian genus in Europe. Other species with a small distribution area, such as *Solenanthus albanicus* (Degen & Bald.) Degen & Bald., have been reported only from Albania and Greece. *Dioscorea balcanica* Košanin, first collected in Albania, is together with *D. communis* (L.) Chaddick & Wilkin (\equiv *Tamus communis* L.) the only representative of this genus on the Balkan Peninsula, otherwise found only in Kosovo and Montenegro (Anon. 2018+).

Over the last few years, four important works on the flora of Albania have been published: an excursion flora (Pils 2016), the first volume of an illustrated Flora (Vangjeli 2017), a distribution atlas (Barina 2017a) and an annotated checklist (Barina & al. 2018), all exclusively focused on vascular plants. However, there are discrepancies: the occurrence of a remarkable proportion of taxa has never been confirmed, because no voucher specimens are known to exist (8.1 %), or are without even locality data (10.4 %), but are listed only in synthetic works like *Flora europaea* (Barina & al. 2018). Additionally, taxa new to the flora of Albania continue to be recorded, some very recently, e.g. *Peucedanum stridii* Hartvig (Barina & al. 2018; under the homotypic name *Dichoropetalum stridii* (Hartvig) Pimenov & Kljuykov; Meço & al. 2018) and *Helianthemum jonium* Lacaita (Meço & al. 2019).

In contrast to the modern, albeit still imperfect floristic records, the botanical exploration of Albania has been studied up until now only in a fragmentary way. An overview for the period from 1839 to 1923 has been published (Baldacci 1925), although without reference to the herbarium record and including field work undertaken and collections made in regions outside present-day Albania, i.e. Montenegro and North Macedonia. A short and quite incomplete overview covering the period from c. 1840 to c. 2000 exists (Barnes & Hoda 2001), and so does a brief introduction to the topic included in the distribution atlas (Barina & al. 2017). In addition, studies on the contribution of collectors and researchers based in Austria and Germany (Lack 2017), as well as those based in Hungary (Barina & Pifkó 2019), have appeared, albeit in non-botanical contexts and in non-botanical publications. The present contribution attempts to fill this gap in our knowledge and offers an in-depth analysis of the sequence of events from the beginnings of the botanical exploration of Albania in 1839 until the end of the Second World War in 1945. In a sense, this year marks the start of the botanical explorations of Albania by Albanians. Because the post-war period has recently been covered in some detail (Barina 2017b), it seems superfluous to cover this ground again.

In the present paper, there is a focus on three aspects of the botanical exploration of Albania: (1) the movements of the botanists involved (for maps with travel routes see Appendix 3); (2) the herbarium record distributed widely among several institutions (see Appendix 4); (3) the interdependence of the activities of collectors in the field on the one side and the political (and military)

realities in Albania on the other, a topic so far not dealt with adequately. No other country in Europe is known to the authors in which such a large amount of pioneer botanical exploration took place during wartime conditions, in particular during the First World War. The geographical and historical approach outlined above seems advisable, because Albania is known for several endemics growing on serpentine, sometimes very locally, and the precise localization of older toponyms in Turkish, Albanian, Serbian, Bulgarian and Italian is a nightmare (see Appendix 5 and 6 in Supplemental content online). By contrast, the extensive literature on the plant geography of Albania (e.g. Baldacci 1897a, 1898; Markgraf 1927, 1932) and on economic plants cultivated in this country, e.g. *Oryza sativa* L. (Baldacci 1921), is explicitly excluded from this contribution. For the sequence of events, a timeline has also been included (Appendix 1).

In addition, data from the rich archival records kept in Bologna, Jena and Vienna are included as well as information on selected herbarium specimens conserved in B, BEOU, BP, G, GOET, HBG, K, L, MPU, P, U, W, WAG and WU (herbarium codes according to Thiers 2017+).

Albania – an ambiguous toponym

Within the Indo-European languages, Albanian forms an independent and very distinct branch. Because it is so easy to recognize, for centuries the albanophone territory was simply called “Albania”. Pre-1910 travellers as a rule referred to Albania in this wide sense, with the consequence that the regions they visited can only be more precisely localized with the help of the toponyms, often in Turkish (then the official language), mentioned in the respective travel reports. Even after independence, the term Albania continued to be used in its wide sense, with e.g. the *Prodromus florum peninsulae balcanicae* (Hayek 1924–1933) including surprisingly non-albanophone regions east of the present state of Albania, effectively the defunct vilayet Albania. This was a projected but never realized province of the Ottoman Empire that was to comprise the Kosovo, Scutari, Manastir and Janina vilayets. In the Balkan Peninsula, Albanian is spoken today in several countries: as the official language in Albania and Kosovo, as a co-language in Montenegro and North Macedonia and as a recognized minority language in Croatia and Serbia. In addition, Albanian is also spoken in parts of Bosnia-Herzegovina, Greece and Turkey, but in these three countries it enjoys no official status. This paper is exclusively focused on Albania in its modern sense and the botanical collectors active in this country. Unless explicitly mentioned, the term Albania is used in this modern circumscription here. For the period before independence (see below), the term Albania is given in quotation marks. Botanical collectors who referred to “Albania” in its wide sense and who could be shown to have worked exclusively in regions that do not belong to modern Al-

bania are listed in Appendix 2 together with further notes. However, it should be noted that several expeditions relevant for the botanical exploration of Albania started outside this country and sometimes also ended again outside this country. In such cases, only the Albanian part is analysed in this contribution.

Current names of toponyms are given in square brackets; unless they belong to Albania, the name of the respective country is added. When necessary, current plant names are added in parentheses, given in agreement with the annotated checklist (Barina & al. 2018). Unless otherwise indicated, distributional data are based on the Euro+Med PlantBase (Euro+Med 2006+), supplemented by information taken from Lista endema Jugoistočne Evrope (Anon. 2018+).

Biographical information has been taken from the standard literature. Notes on job positions etc. exclusively refer to the time of the respective excursion, collection or publication, e.g. K. H. Rechinger was a volunteer at the Natural History Museum in Vienna when collecting in 1933 in the Bertiscus [Prokletije], not the First Director of this institution, a position he attained only many years later.

First records

The territory that today constitutes the Republic of Albania [Republika e Shqipërisë] belonged for centuries to the Ottoman Empire, with Istanbul as its political, administrative and economic centre. Comprising vast territories in Europe, Asia and Africa, the Ottoman Empire was clearly a multi-ethnic and multi-religious structure where many languages were spoken. These observations also applied to the provinces near its western border, i.e. the vilayet Albania (see above), of which parts form modern Albania. Seen from the centres of political power at the time, i.e. Istanbul, Venice and Vienna, these were remote, under-developed and dangerous regions with difficult access and were barely considered worth exploring. Therefore, it is hardly surprising that the botanical exploration of this area started extremely late and was done by foreigners, not by people native to the area.

The first botany-minded traveller in what is now Albania was John Hawkins (1761–1841), a man of considerable private fortune with a broad spectrum of interests, in particular in geology and mineralogy (Lack with Mabberley 1999). During his two extensive tours in the European part of the Ottoman Empire, he was the first to observe natural stands of *Aesculus hippocastanum* L., a record published in the *Prodromus florum graecae* (Sibthorp & Smith 1806–1809), and occasionally collected seeds (Lack with Mabberley 1999). These were later raised in England and one progeny produced specimens of *Asperula arcadiensis* Sims, a plant restricted in distribution to the Peloponnese, new to science and of some horticultural interest (Lack with Mabberley 1999). Because of the state

of war between Britain and France in April 1798 and being in fear of the French navy, which controlled the sea surrounding the Ionian Islands, Hawkins decided to return from Patras to London over land. Consequently he crossed the territory of modern Albania from Zeravino [Delvina] via Kusura [Këlcyrë] to Durazzo [Durrës] (Lack with Mabberley 1999). Riding with his servant off-road through mountainous country and in too much of a rush to reach the ship that would take him from Durrës to Trieste, Hawkins apparently was unable to collect plants and to make records of the flora he had seen; the unpublished recollections of the servant, one James Thoburn (fl. 1791–1803), are the only source available for this part of the trip (Lack with Mabberley 1999).

It has rightly been argued that François Pouqueville (1770–1838), the French consul at Yanya [Ioannina, Greece] from 1805 to 1815 and a prominent architect of Philhellenism, was the first to mention in print plants from what is now Albania (Baldacci 1927a, 1927b). However, all he did was to provide several French (and a few Greek and Albanian) plant names in his travel report *Voyage de la Grèce* which appeared in Paris in 1827, e.g. noting “Le grand genévier et l’if sont communs dans les vallées de la moyenne Albanie [the common juniper (*Juniperus* cf. *communis* L.) and the yew (*Taxus baccata* L.) are common in the valleys of central Albania]” (Pouqueville 1827). However, no herbarium specimens collected by Pouqueville are known to exist, and it is unclear to which region Pouqueville’s “moyenne Albanie” refers.

The first to collect plant material that is still preserved today in a herbarium, and who was active in what is now Albania, was Ami Boué (1794–1881), another widely travelled gentleman of private means, a geologist and geographer based in Vienna. Among his specimens kept in G and P (Lanjouw & Stafleu 1954), there is material of *Abies alba* Mill. annotated “Près de la Cime des Monts Kiapha [qafa] Mala qui s’elevent à 3300 pieds dans le pays des Albanais Myrdites entre Prisrend [Prizren, Kosovo] & Scutari [Shkodër]” (P01635373). This toponym occurs in Boué’s monumental description of the Balkan Peninsula *La Turquie d’Europe* (Boué 1840: 347) and in his work on road connections within the European part of the Ottoman Empire (Boué 1854: 325) for a locality near Spass [Spas]. However, neither of the two books is a proper travelogue nor a report that was sent to Paris (Boué 1838), but were instead summaries of the knowledge collected by its author and consequently do not enable the reader to trace Boué’s movements. However, Boué’s autobiography contains details on his route in “Albania” in 1838 and briefly describes his travels from Gouzimie [Gusinje, Montenegro] via Scutari, Tirana, Elbassani [Elbasani], Berat [Berati], Tepedelen [Tepelena] to Janina [Ioannina, Greece] (Boué 1879: 149–150). This confirms the locality information given on the labels of specimens. The chapter “Végétation de la Turquie d’Europe” (Boué 1840: 408–476) contains many scientific names of plants, but only imprecise geographical information like

“Hte. Albanie [Haute Albanie]”. Judging from the note “Ipek” [Peja, Kosovo] added to a few of Boué’s specimens kept in P and annotated “Haute Albanie”, these apparently originate from localities that do not belong to modern-day Albania.

Although August Grisebach (1814–1879), *Privatdozent* at Göttingen University, spent only a few days in what is now Albania, he is rightly regarded as the first to contribute to the botanical exploration of this country because he published plant descriptions and not just lists of plant names like Pouqueville and Boué (Lack 2017). Back home in Göttingen, he produced a detailed travelogue (Grisebach 1841), which makes excellent reading and contains the information that he departed from Prisdren [Prizren, Kosovo] on 26 July 1839 and arrived on 29 July 1839 in Scutari. Grisebach left the Ottoman Empire and entered quarantine in Lastva [Petrovac nad moru, Montenegro], the first village in the Austrian Empire, on 1 August 1839 (Grisebach 1841). Because of the violent uprisings against the Ottoman authorities that had taken place in Shkodër and its surroundings in 1833 and 1835 (Pollo 1984), the whole area was regarded as unsafe. This was the reason why arrangements had been made for Grisebach and his Greek servant Dimitri Bernados to be accompanied by an escort of several Turkish soldiers, a privilege granted by the local authorities because of his ferman [decree] issued by the Ottoman ambassador in Vienna (Grisebach 1841). It was also in Shkodër that Grisebach witnessed the public execution of a boy described as less than fifteen years old, of Montenegrin origin and said to have shot dead a Turkish soldier taking revenge for another killing (Grisebach 1841).

On his expedition, Grisebach had collected copious herbarium material, which he subsequently determined and published in his *Spicilegium florum rumelicarum et bithynicarum* (Grisebach 1843–1846), a seminal work on the flora of the Balkan Peninsula. During the few days that he spent in Albania, Grisebach managed to collect material of two species that he regarded as new to science and which have stood the test of time, i.e. *Gypsophila spargulifolia* Griseb. (“in m. Puka [Pukë]”, GOET005978; Fig. 1) and *Veronica scardica* Griseb. (“pr. confluentiam utriusque Drini” [near Kukës], GOET) (Strid 2000). By contrast, *Pinguicula albanica* Griseb. (“pr. Chan X”, GOET) is regarded as conspecific with *P. hirtiflora* Ten. (Shuka & al. 2007; Barina & al. 2019).

The remoteness of Albania is best illustrated by the fact that almost three decades had to pass until someone with botanical knowledge entered the country again and then probably only for a few hours. This was Eduard Weiss (1837–1870), a physician in the Austrian navy based in Trieste, who visited the port towns of Durazzo and Aulona [Vlorë] in September 1865 and subsequently published a short list of his findings (Weiss 1866). Carl Ritter Grimus von Grimburg (1839–1917), a pharmacist based in St. Pölten [Austro-Hungarian monarchy] (Anon. 1871), undertook an excursion from Antivari [Bar, Mon-

tenegro] to Scutari in June 1871 and also reported his observations (Grimus 1871). Both did not proceed into the interior of the country and their papers do not report any taxa new to science. A few specimens collected by Grimus have survived, among them *Trifolium bocconeii* Savi from Scutari (W1966-5092), and there is further material in WU. When a summary of the fragmentary botanical knowledge was published with the title *Catalogus cormophytorum et anthophytorum Serbiae, Bosniae, Hercegovinae, Montis Scodri Albaniae hucusque cognitorum* (Ascherson & Kanitz 1877), the authors included in error all the findings reported by Grimus (1871) as referring to Albania; instead a considerable number of these originated from the southern tip of what is now Montenegro (Barina & al. 2013).

The earliest records from southern Albania are due to one Nikolas Chodzes, a resident of Kestoration [Qestorat] (Heldreich 1880), who sent plants collected in 1878 to Theodor von Heldreich (1822–1902), the director of the Botanical Garden of Athens University (Halácsy 1902; Baytop & Tan 2008). The latter had a list of 70 plant names published in Berlin (Heldreich 1880); the respective specimens may be kept in the herbarium of Athens University (ATHU) (A. Strid, pers. comm., 15 Jun 2020).

The first botanist active in the Albanian Alps was Ignaz [Ignacy] Ritter von Szyszyłowicz [Szyszyłowicz] (1857–1910), then an assistant at the K. K. Naturhistorisches Hof-Museum [Imperial Royal Natural History Court Museum] in Vienna (W). During his visit to Montenegro in 1886, he also climbed a few mountains partly belonging today to Albania, i.e. Skrobotushë, Mt. Mojan, Mt. Vilë and Mt. Rupa Konska (Barina & al. 2017). Together with Günther Beck Ritter von Mannagetta und Lerchenau (1856–1931), his superior at the museum, Szyszyłowicz published his results (Beck & Szyszyłowicz 1889).

Several specimens collected in 1890 in gardens in Scutari labelled “Raccolta Albania P. Fracchioni” are kept in TIR, among them a specimen of *Chimonanthus praecox* Link annotated “Lule dimrit” [winter flower]. Pater Alessandro Fracchioni (1866–1940) from Piacenza was a Jesuit known for a natural history cabinet he founded in Shkodër (Peters 2010).

Eduard Formánek (1845–1900), a teacher at the First Czech Gymnasium in Brno, travelled and collected extensively over several years on the Balkan Peninsula, but visited Albania only once, in 1894 (Křívá & Holubec 2010). However, the pertinent account (Formánek 1895) also covers his findings made in that year on the island of Corfu and in “Epirus”. As a consequence, only his records marked “A.” standing for Albania are relevant here. Unfortunately, many of the localities given by Formánek are impossible to interpret. An extensive commentary on Formánek’s publications helps to understand his work and offers a revision of several of his determinations (Vandas 1909). According to an unpublished note by Ignaz Dörfler (1866–1955; see below) Formánek stayed for a brief interval in S. Giovanni di Medua [Shëngjin]

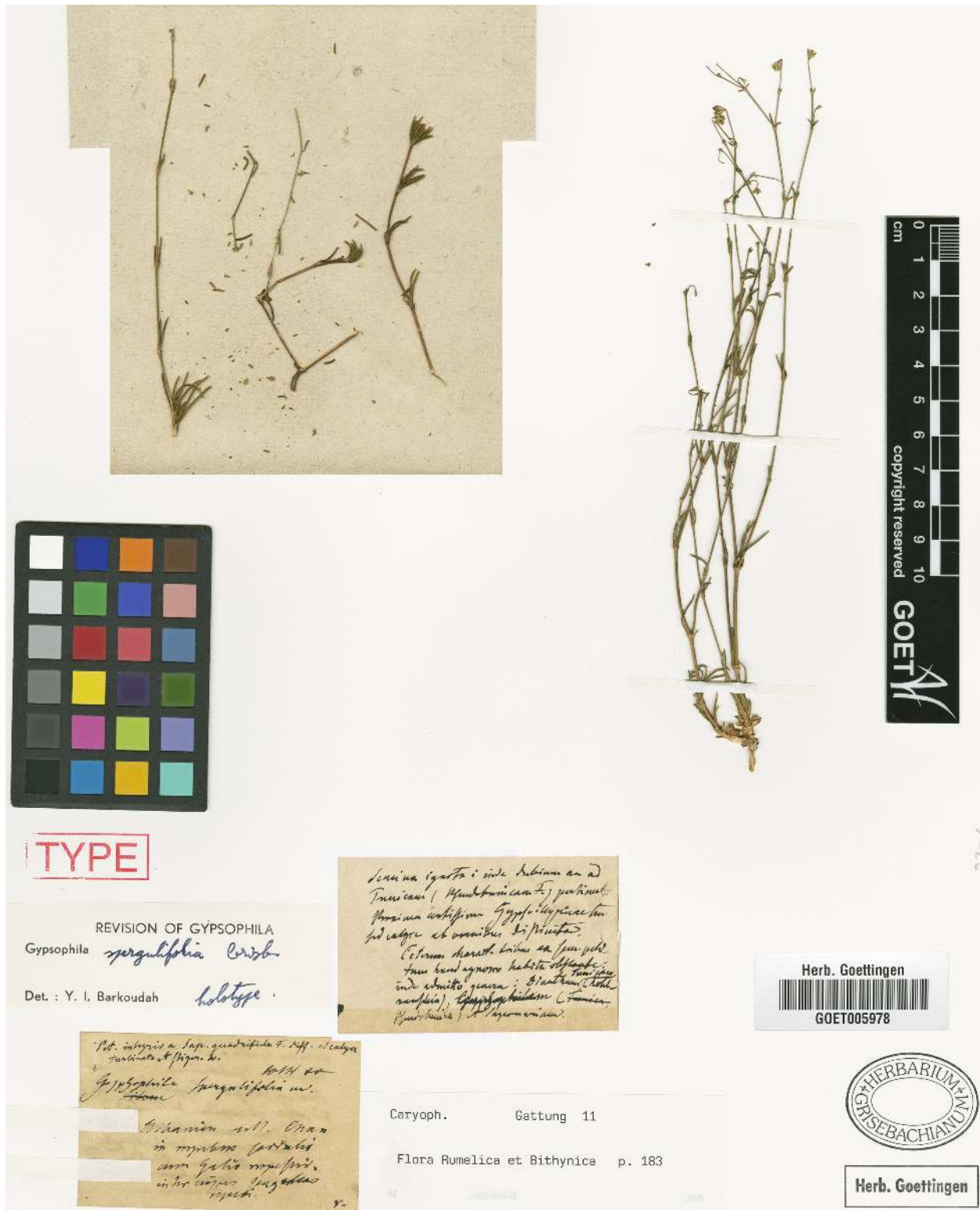


Fig. 1. *Gypsophila spergulifolia* Griseb. – Holotype (fide Barkoudah 1962: 61): “Albanien [...]”, A. Grisebach s.n. (GOET005978). – Albrecht von Haller Institute of Plant Sciences, Universität Göttingen.

and continued to Durazzo, Kavaja [Kavajë], Pale [Bisht i Pallës], Mt. Bares and Maneze [in Qarku i Durrësit] (Unpubl. 1, see Unpublished sources).

Max Šoštarić (1872–1938), a student at Vienna University (Exner 2005), visited “Albania” twice: in 1896 he

circled Lake Ochrid, continued to Dibra [Debar, North Macedonia] and visited the Korab Mountains (Unpubl. 1); in 1897 he began his tour in Durazzo and stayed in the central part of western “Albania” (Unpubl. 1). The results of the first expeditions were belatedly published (Beck

1904). Judging from the localities listed in the introduction – Kalkandelen [Tetovo, North Macedonia], Ohrida [Ohrid, North Macedonia], Resnja [Resen, North Macedonia] and Ūsküb [Skopje, North Macedonia] – the plant material was not collected in Albania in the modern sense (see Appendix 2). According to Dörfler (Unpubl. 1), the second tour yielded no botanical results.

For botanists based in Belgrade, the capital of the Kingdom of Serbia, a visit to “Albania” was also of interest. In 1902, Lujo Adamović (1864–1935), director of the Botanical Garden Jevremovac in this city (Tadić & Janković 1985; Jasprica & Kovačić 2001), is said to have visited Scutari (Unpubl. 1), three years later he stayed for a short period in Durazzo and Valona [Vlorë] (Unpubl. 1). While no collections are known from these visits, the material collected by Jordan Petrović (fl. 1908), a student of Nedeljko Košanin (1874–1934), on Mount Korab in 1908 has been published (Košanin 1909). Judging from this paper Petrović only collected a few specimens on the western, i.e. Albanian, side of this mountain massif. According to a letter sent by Košanin to Dörfler and referred to by the latter (Unpubl. 1), Petrović did not reach the peak because of lack of necessary equipment, although he claimed to have done so.

On his way to or from Corfu in April 1912, Karl Rechinger (1867–1952), then Kustos-Adjunct [assistant curator] at the Imperial Royal Natural History Court Museum in Vienna (Janchen 1933), is reported to have stopped at Sta. Quaranta [Saranda], Valona and Durazzo (Unpubl. 1). Whereas some of his photographs taken in Corfu have been published (Rechinger 1914), this was not the case for the specimens collected during his stops in the three harbours. Because Karl Rechinger’s herbarium was sold to G, it is likely that the material is kept in this institution.

Rechinger, Szyszlowicz and Beck, all three members of staff of the Imperial Royal Natural History Court Museum in Vienna and members of the Imperial Household, were occupied with the determination of specimens collected in “Albania”, a country which then did not yet exist on the political landscape. Simultaneously, just across Vienna’s Ringstrasse at Ballhausplatz 2, three ministers of foreign affairs, much nearer to the Emperor and significantly higher up in the hierarchy, were occupied with a problem of quite a different magnitude – the so-called Albanian question. Their equivalents from Paris to St. Petersburg also had this issue on their agenda, which led to a substantial historical literature (e.g. Leon 1970 for the Greek perspective; Sotirovic 2015 for the Serbian and Montenegrin perspective; Sette 2018 for the Italian perspective). Because of the wide-reaching consequences of the failure to solve the Albanian question by consent, it seems necessary to pause for a moment and explain the complexities of the political situation.

The Congress of Berlin of 1878 had brought a new political order to the Balkan Peninsula: the Principalities of Bulgaria, Montenegro and Serbia had become independent, Bosnia-Herzegovina was put under Austro-Hungari-

an administration, while the rest of the region (except for the young and still small Kingdom of Greece) remained part of the politically weak Ottoman Empire. At the same time, the concept of autonomy for the albanophone regions within the Ottoman Empire, put forward by the League of Prizren, was rejected. For all parties involved, it was evident that a further disintegration of the Ottoman Empire would result in another change of the political order, with one scenario being the enlargement of the Austro-Hungarian Empire, Bulgaria, Greece, Montenegro and Serbia. When it became evident that the Kingdom of Italy intended to gain political influence on the Balkan Peninsula, the situation became even more complex. For several reasons, among them the fear that further territorial gains of Serbia and Montenegro would change the delicate political equilibrium unfavourably, the foreign ministers in Vienna and Rome bound by the Triple Alliance did everything to prevent Serbia from reaching the Adriatic. Instead, the creation of an independent Albania, a newly formed state, was preferred by them, a concept opposed by others, notably Serbia and its ally, Russia. Basically this was the Albanian question, which became a key issue on the political agenda when the harmony between Vienna and Rome started to fade and Italy contemplated gaining control over the Strait of Otranto and thereby over the Adriatic. An admittedly minor figure contributing to this political change in Rome was Antonio Baldacci.

Antonio Baldacci

Although Antonio Baldacci (1867–1950) dedicated several years of his life to the botanical exploration of Albania, it would be totally inappropriate to consider him merely a botanist. For good reasons, he has been characterized as “geografo e botanico, cultore di studi etnografici, politici e socio-economici, collaboratore scientifico di numerose riviste ed istituti culturali, incarico di missioni diplomatiche” [geographer and botanist, scholar of ethnographic, political and socio-economic studies, scientific collaborator of many journals and cultural institutions, in charge of diplomatic missions] (Martucci & Nicoli 2013). For good reasons, the epithets “semi-diplomatico” [half diplomat] (Martelloni 2013) and “botanist-diplomat” [botanist-diplomat] (Aliu 2017) have been added to his profile. The title given to the inventory of Baldacci’s extensive archive “Una passione balcanica tra affari, botanica e politica coloniale” [A Balkan passion between business, botany and colonial politics] (Bollini 2005) adds a further dimension to Baldacci’s activities. A prolific writer with an impressive list of publications on a broad spectrum of topics (Lodi 1952), Baldacci also acted as an advisor on Balkan matters to several Italian ministers for foreign affairs, among them Emilio Marchese Visconti-Venosta (1829–1914) (Sotirovic 2015). In this function, Baldacci argued as early as 1897, fifteen years before Albania became an independent state, for a more active role of Italy in the countries

on the eastern shores of the Adriatic Sea (Skendi 1967) as summarized in the slogan “il mare adriatico dev’essere mare italiano [the Adriatic Sea should be an Italian Sea]”. He thus became one of the architects for the political and military expansionism of Italy on the eastern coast of the Adriatic Sea (Martelloni 2014), with all its consequences leading in the end to the annexation of Albania to the Italian Empire in 1939. Another element of Baldacci’s political activities was his plea for Italian schools in “Albania” to be financed by the Società Dante Alighieri (Basciani 2012: 95). Baldacci’s many expeditions to Albania, then belonging to the Ottoman Empire and partly still *terra incognita* when he first set out in 1888, had complex motives, with botany being only one of them.

Importantly, Baldacci did not restrict his movements to Albania as we understand it today, but he also travelled in regions that now belong to Greece and Montenegro. His many-fold economic and political activities during his at least fourteen visits in the latter country have been admirably analysed (Burzanović 2008), while no such summaries exist for Greece and Albania. A synopsis of Baldacci’s publications on the flora of Montenegro has also been published (Pulević 1980). Apart from his own publications (see below), the most valuable and possibly also the most reliable source of information on Baldacci’s activities and movements in Albania is an anonymous biographical note (Anon. 1938) published in the exceedingly rare Albanian journal *L. E. K. A.* (Kamsi 2008), the acronym standing for “Lidhje – Edukatë – Kulturë – Argtim”. Additionally a vast amount of information on this subject is available in the Baldacci archive conserved in the Biblioteca dell’Archiginnasio di Bologna, which also contains an Italian translation of the biographical note in Albanian (Bollini 2005: 228, 433).

Little is known about Baldacci’s first visit to “Albania”, which took place in 1888 (Baldacci 1925). He arrived in Vallona [Vlorë], inspected the hinterland, continued to Santi Quaranta (Saranda), but was incarcerated by the Ottoman authorities in Delvino [Delpinë]. Thanks to the intervention of Francesco Crispi (1818–1901), then Italian Prime Minister and a member of an Arbëresh family in Sicily, mediated by Giorgio Millelire, the Italian consul in Prevesa [Preveza, Greece], Baldacci became free after a few days and was transferred to the latter town (Baldacci 1925; Bollini 2015). In 1889, a second visit to “Albania” followed with a stay in Vallona (Baldacci 1925) and a first exploration of the island of Saseno [Sazani] (Baldacci 1893), which was to play a strategic role during the First World War (see below). On the latter tour, Baldacci was accompanied by one Bertrand. The plants collected during the two excursions, regarded for good reason as “viaggi di assaggio [testing trips]” by Baldacci, were distributed under the denomination “Iter botanicum in peninsula balcanica” (Baldacci 1925).

No less than ten expeditions were undertaken by Baldacci followed by the subsequent distribution of the collected plants under the denomination “Iter albanicum”.

However, only six expeditions included visits to regions belonging to Albania in the modern sense (Barina & al. 2017), i.e. those undertaken in 1892 (Iter albanicum), 1894 (Iter albanicum alterum), 1896 (Iter albanicum (epiroticum) quartum), 1897 (Iter albanicum quintum), 1900 (Iter albanicum septimum) and 1901 (Iter albanicum octavum). Of these six expeditions, only those of the years 1892 and 1894 were exclusively directed to Albania; the four others included either visits to present-day Montenegro or to present-day Greece. On his Iter albanicum quintum, Baldacci was accompanied by Kurt Hassert (1868–1947), geographer and *Privatdozent* at Leipzig University (Brogiato 2009). Baldacci returned again to Albania in 1902, together with an Italian delegation, repeating the tour he undertook during the two previous years. There were, however, no indications that plants were collected on this occasion. In the years 1895 and 1899, Baldacci travelled in regions of the Ottoman Empire that later became parts of Greece; in 1898 he travelled in Montenegro.

Because Albania, in particular the interior of the country, was then still largely *terra incognita*, Baldacci had every reason to publish extensively on his travels and findings. He did so in four groups of publications: (1) papers on single expeditions (e.g. Baldacci 1896b, 1896–1897, 1897, 1900a, 1903, 1904, 1914, 1915a, 1915b); (2) a book entitled “Itinerari albanesi” summarizing his Albanian travels arranged in chronological order (Baldacci 1917) including chapters that are reprinted from the first group of publications; (3) papers dealing only with his botanical collections (Baldacci 1894b, 1896a, 1899, 1901); (4) papers focused on plant geography (e.g. Baldacci 1897a). Baldacci’s papers listed under (1) contain very many scientific names for plants, but no descriptions. For the interpretation of the route taken by Baldacci, the four detailed maps included in “Itinerari albanesi” (Baldacci 1917) are particularly helpful (see Appendix 3).

Because a rough outline of Baldacci’s movements in Albania is available (Barina & al. 2017), no attempt is made here to analyse his day-to-day activities again. However, one incident stands out. During his Iter albanicum (epiroticum) quartum in 1896, Baldacci experienced an armed attack by Albanians, was for a second time incarcerated by the Ottoman authorities, probably in Scutari, and was then deported from the Ottoman Empire (Burzanović 2008). According to Lazar Mijušković (1867–1936), the Montenegrin Consul in Scutari, the incident had been staged by his colleague Theodor Anton Ippen (1861–1935), the Austro-Hungarian Consul General in this town (Burzanović 2008). This makes sense: Baldacci belonged to the Italo-Albanian circles who wished to reduce the influence of the Austro-Hungarian monarchy in this part of the Ottoman Empire, with the goal of loosening the ties with Istanbul and developing new and stronger ties with Rome (Burzanović 2008). One year later and having just completed his next expedition in Scutari on 13 August 1897, Baldacci was again incarcerated for four days by the local police in San Giovanni

di Medua [Shëngjin] before being given permission to leave the Ottoman Empire (Baldacci 1897b; Fida 2011). A few months after this detention, Baldacci expressed his political convictions concerning Albania in a document dated 27 October 1897 addressed to Visconti-Venosta, which comprised the idea of a Montenegrin-Albanian principality to include the northern part of “Albania” (Burzanović 2008). In recognition for his services, Baldacci received the Order of the Crown of Italy (Anon. 1938). Many years later, in 1931, Baldacci was made the Albanian honorary consul general in Bologna (Jesné 2019), a position abolished in 1939 when Albania became part of the Italian Empire.

Due to his excellent contacts to the upper echelons of the political system in Italy, Baldacci was able to continue his expeditions to “Albania” after these incidents, but his plant collecting ceased after the *Iter albanicum octavum* in 1901. There is clear evidence that Baldacci later returned several times to Albania, but in order to fulfil various commissions for Italian institutions. In April 1914, Antonino Marchese di San Giuliano (1852–1914), the Italian Foreign Minister at the time, sent Baldacci to Albania to help the new Albanian government to organize the public service for forestry and mines and, in September 1916, Camillo Corsi (1860–1921), the Italian Minister for the Navy at the time, made Baldacci a consultant and coordinator for special information based in Vallona (Bollini 2017: 415), then already occupied by Italian forces. However, even before 1902, Baldacci had produced reports apparently ordered by various bodies, e.g. on the coastal forests of northern “Albania” for the Italian Ministry for Agriculture, Industry and Commerce (Baldacci 1907).

The determination of the plant material collected by Baldacci in Albania was done in collaboration with two botanists – Árpád Degen (1866–1934) in Budapest and Eugen [Jenő] von Halácsy (1842–1913) in Vienna. When publishing his first paper on a specimen collected by Baldacci in Albania, Degen was working as a general practitioner in Budapest (Lengyel 1936), as indeed also was Halácsy in Vienna (Degen 1914). Later, the former was appointed director of the Royal Hungarian Seed Testing Station and made *Privatdozent* at Budapest University (Lengyel 1936), while Halácsy became head physician of an insurance company (Degen 1914). Letters by Degen and Halácsy sent to Baldacci with appended botanical drawings, kept in the Biblioteca dell’Archiginnasio in Bologna (Unpubl. 2), indicate that a considerable part of the taxonomic analysis was done by the former two colleagues, with e.g. Degen writing on 8 October 1895 “In questa lettera trovate la lista dei determinazioni [In this letter you will find the list of determinations]”. Further lists of plant determinations in Degen’s hand (Unpubl. 3) confirm this note. A much smaller number of Baldacci’s specimens was named and published by Carl [Karl] Fritsch (1864–1934), in 1894 *Privatdozent* at Vienna University and Adjunkt [adjunct] to its Botanic Garden and Museum, later full professor of botany at Graz University

(Knoll 1934). However, the titles of his pertinent papers explicitly refer to Serbia and, partly, to Serbia, Bosnia and Herzegovina, but not to Albania (Fritsch 1894, 1895a, 1895b, 1910, 1911, 1915, 1916).

In several cases, Baldacci was the second author of names new to science, e.g. in *Forsythia europaea* Degen & Bald. (Degen 1897a), while in a few other cases he is the only author, e.g. in *Astragalus autranii* Bald. (Baldacci 1895). However, some of the spectacular novelties first collected by Baldacci in Albania had their names published by others without the former’s direct participation, e.g. *Achillea baldaccii* Degen (Degen 1895), *Crepis baldaccii* Hal. (Halácsy 1892), which was the first taxonomic novelty based on Baldacci’s material from Albania, and *Wulfenia baldaccii* Degen (Degen 1897a). Two taxa based by Degen on Baldacci’s collections were made better known by the former through brief publications that appeared independently from scientific journals (Degen 1896, 1897b). The copy of the latter treatise (Degen 1897b), kept in the Biblioteca dell’Archiginnasio in Bologna, surprisingly contains type material (Unpubl. 4). However, Baldacci also misinterpreted some of his specimens: the best known case is a twig of a *Cistus* species collected by him on Mount Suceli on 1 July 1897, i.e. *Iter albanicum quintum*, *Baldacci 102* (G00177707, G00177708). Although found at considerable altitude, he regarded this material as *Cistus monspeliensis* L. and published it under that name (Baldacci 1901; Greuter 1975). Duplicate material of *Baldacci 102* was interpreted by Wilhelm Grosser (1869–1942) as the hybrid *C. monspeliensis* × *C. villosus* L. (Grosser 1903). More than a quarter of a century after Baldacci, Friedrich Markgraf (1907–1987, see below) collected a specimen belonging to the same taxon at Çermenika, Teke Balim Sultan i Epër near Martanesh, 1512 m, on 9 June 1924 (*Markgraf 536*, B†) (Greuter 1975). He considered it as new to science, described it under the name *C. nowackianus*, but refrained from publication (Greuter 1975). In 1936, the name *C. sintenisii* Litard. was given to the hybrid *C. monspeliensis* × *C. villosus* (Demoly 1996), which has priority over the newer *C. albanicus* E. F. Warb. ex Heywood (Authier 2014). The latter name was published only after the death of Edmund Frederic Warburg (1908–1966), curator of the Druce Herbarium of Oxford University (Desmond 1994), and in the context of *Flora europaea* (Heywood 1968); although incorrect, it is at present still in use (Euro+Med 2006+; Barina & al. 2018). What Baldacci had first collected is now understood to be a clearly circumscribed serpentinophyte occurring also in adjacent Greece (Greuter 1975).

Then, as today, the finding of *Forsythia europaea* (Fig. 2), the only representative of the genus in Europe and another strictly serpentinophilous species, is regarded as Baldacci’s major achievement. The rarest species first collected by Baldacci is *Astragalus autranii* (Fig. 3), as yet known only from Mt. Tomor and Mt. Gradeci (see above) and considered to belong either to the monotypic

section *A. sect. Baldaccia* Sytin & Podlech (Podlech & Sytin 2002; Podlech & Zarre 2013) or alternatively to *A. sect. Hololeuce* Bunge (Tan & al. 2015).

Starting from 1889, Baldacci was *libero docente* for botany, since 1901 additionally also for geography at Bologna University (Bollini 2005: 19), both unpaid positions. In order to refinance a proportion of his travel expenses, he sold his duplicates. For some of his expeditions, the distribution lists are available, e.g. the material collected during the *Iter albanicum alterum* was sold to no fewer than nineteen customers, with the largest sets going to Emmanuel Drake del Castillo (1855–1904) in Paris, Oreste Mattiolo (1856–1947) in Bologna, Degen in Budapest and Eugène John Benjamin Autran (1855–1912) in Geneva (Unpubl. 5). Smaller sets went to Fritsch and Beck in Vienna, William Turner Thiselton-Dyer (1842–1928) at Kew, Alexander Theodorowicz Batalin (1847–1896) in Saint Petersburg, and a tiny number of duplicates to Halácsy in Vienna (Unpubl. 5). For the expedition undertaken in the year 1897, information is also available on the institutions that supported Baldacci with funds. These were the Ministero della Pubblica Istruzione [Ministry for Education], the Ministero dell’Agricoltura, Industria e Commercio [Ministry for Agriculture, Industry and Commerce], the Società Geografica Italiana [Italian Geographical Society], all in Rome, and the City of Bologna (Unpubl. 5).

The Balkan wars and independence for Albania

The annexation of Bosnia and Hercegovina in 1908, a unilateral action of the Austro-Hungarian monarchy poorly managed by Lexa Freiherr von Aehrenthal (1854–1912), the minister of foreign affairs, and the diplomats on the Ballhausplatz, changed the delicate balance of power on the Balkan Peninsula. It led to what became known as the Bosnian Crisis and permanently damaged the relations of the Austro-Hungarian monarchy with Russia, Serbia and Italy. In order to strengthen its political position on the Balkan Peninsula, the Austro-Hungarian monarchy continued to deliberately support the albanophone population of the Ottoman Empire by way of a “Kulturprotektorat” [cultural protectorate] as a counterweight to Serbian expansionism (Deusch 2009; Toleva 2012). The Albanian revolts of the years 1910, 1911 and 1912 added to the instability in the region. When the First Balkan War between the kingdoms of Bulgaria, Greece, Montenegro and Serbia on the one side and the Ottoman Empire on the other broke out in September 1912, the political leaders in “Albania” were more concerned about the military actions of Serbia, Montenegro and Greece, the Christian powers, than about the weak Ottoman forces stationed on their lands (Elsie 2010). It has been rightly stated that, for the Great Powers, Albania became the “chief bone of contention” (Clark 2012). While the Austro-Hungarian monarchy, in particular the new minister for foreign affairs Leopold

Graf Berchtold (1863–1942), remained stubbornly committed to the creation of an independent Albania, the Serbian government was determined to secure a swathe of Ottoman territory connecting the country’s heartland with the Adriatic coast (Clarke 2012). As a consequence, Serbian and Montenegrin troops occupied northern “Albania” in November 1912, where they remained despite protests from the Great Powers, while Greek troops did the same in the south. On 28 November 1912, a declaration of independence for Albania took place in Vlorë, one of the few towns not occupied by the Christian powers. It was applauded by Berchtold and increased the political tensions. Although accepted by the Conference of Ambassadors of the Great Powers meeting in London on 16 December 1912, this declaration was ignored by the neighbouring states, who refrained from pulling back their troops.

It was under these special circumstances that Nedeljko Košanin (see above), an officer of the Serbian army and *Privatdozent* at Belgrade University (Vouk 1934; Janković & Tatić 1985; Sarić 1997), was stationed from 7 June to 28 August 1913 in northern Albania (Košanin 1913). During this stay, one of his soldiers brought him a specimen of what Košanin subsequently described as *Dioscorea balcanica* Košanin, a species new to science (see above). A later publication contains the note that the soldier was unable to dig up the underground plant part with his short bayonet (Košanin 1914a). The lectotype gathered at “Kosa Bistriku Hasita” [Mount Pashtrik] (Fig. 4) formed part of Košanin’s “Kriegsherbar [war herbarium]” and is today kept in BEOU (Vukojičić & al. 2014). Košanin’s stay in northeastern Albania is further substantiated by a detailed vegetation map included in a subsequent publication (Košanin 1914b). According to herbarium material in BEOU and BP, another botanist based in Beograd, Jordan Petrović (see above), was also collecting in now internationally recognized Albania in spring and summer 1913 at Brut, Klisura Sije [S part of Gjallica] as well as in the Gjallica and Pashtrik mountains.

It had been agreed among the Great Powers that the newly created Albanian state would be a principality and, pressurized by the Austro-Hungarian monarchy, Wilhelm Prinz zu Wied-Neuwied (1876–1945) became its first sovereign. Totally ignorant of Balkan affairs, he arrived on 7 March 1914 in Durrës, the provisional capital of the country (Christian 2010). In spring of that year, the “Fünfte Universitätsreise” [The fifth university tour], a trip organized for members of Vienna University, had Crete and Egypt as its destination (Mylonaki 2004). During a one-day stop in the harbour of Durrës, six participants, among them August Edler von Hayek (1871–1928), *Privatdozent* at Vienna University and city physician (Hayek 1917; Dolezal 1969), collected material of about one hundred plant species. Also belonging to this party were Friedrich Karl Max Vierhapper (1876–1932), another *Privatdozent* at Vienna University and teacher at a pedagogical institute in Vienna (Speta & al. 2019), Robert Eberstaller (1886–1919; Teppner 2015), Karl Höfler

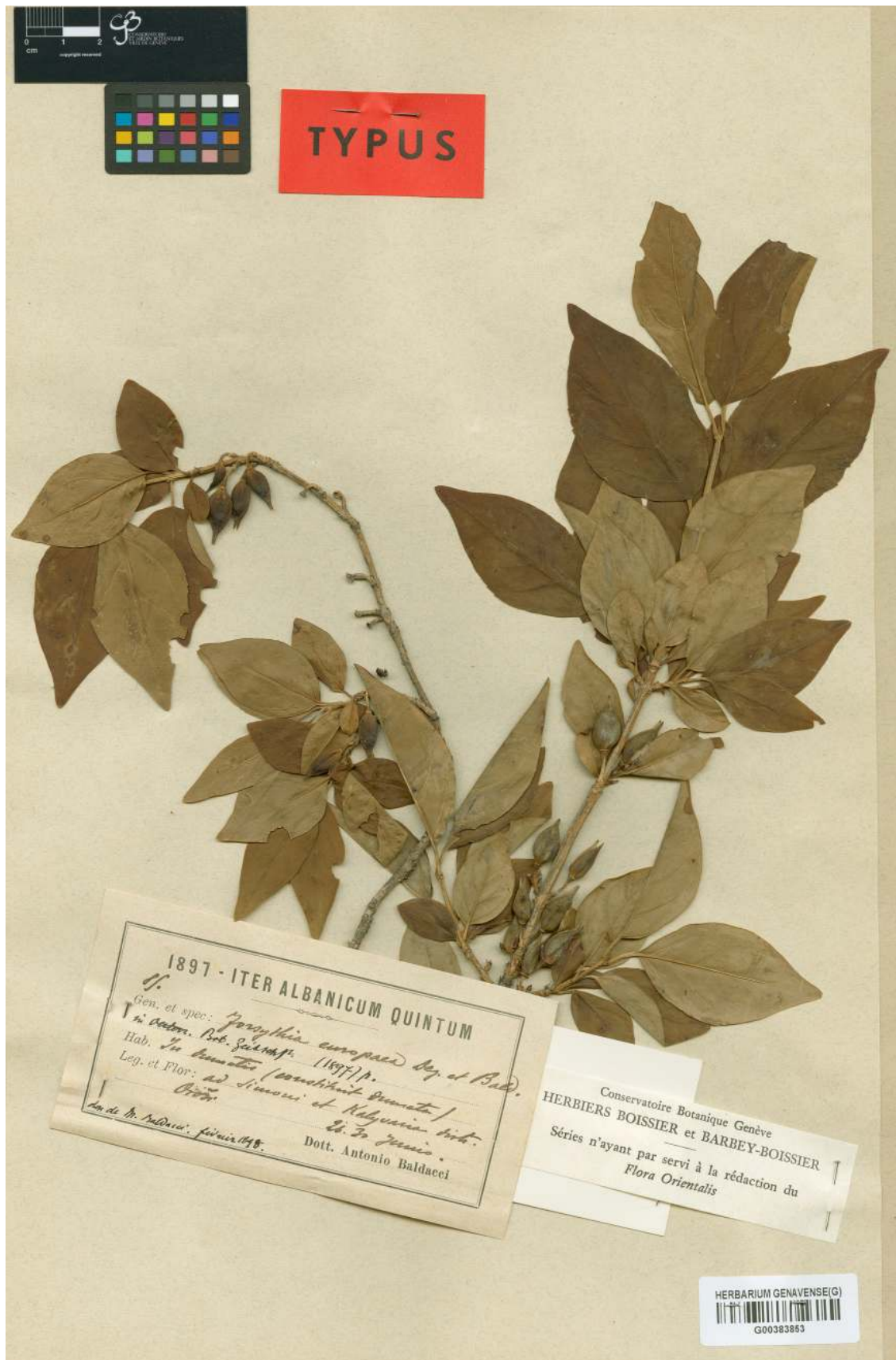


Fig. 2A. *Forsythia europaea* Degen & Bald. – Isotype: Albania, “In dumetis (constituit dumeta) ad Simoni et Kalyvaria distr. Oroši”, [Jun] 1897, A. Baldacci 85 (G00383853 sheet 1). – Herbar Boissier-Barbey, Conservatoire et Jardin botaniques de la Ville de Genève.

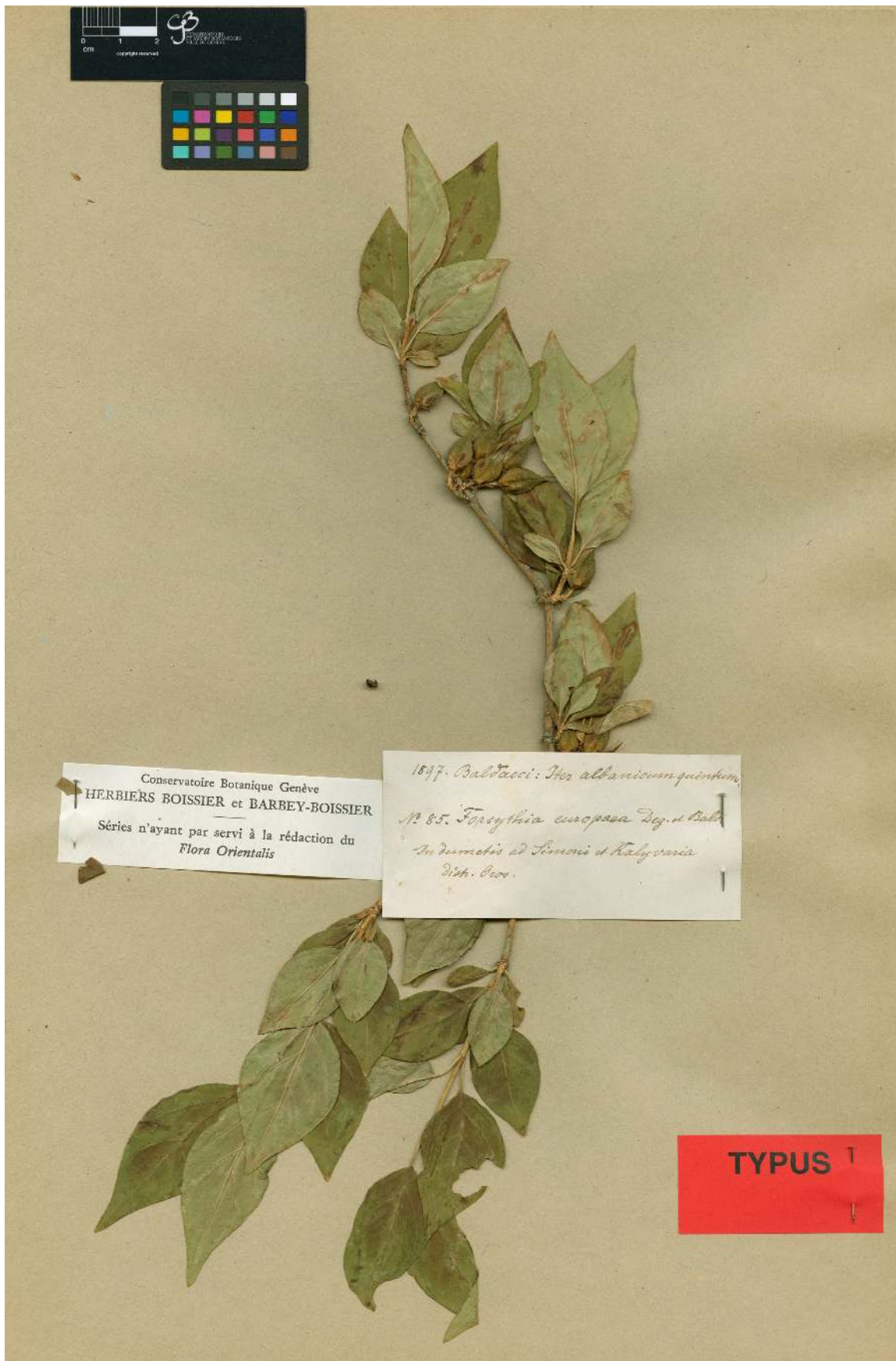


Fig. 2B. *Forsythia europaea* Degen & Bald. – Isotype: A. Baldacci 85 (G00383853 sheet 2). – Herbarium Boissier-Barbey, Conservatoire et Jardin botaniques de la Ville de Genève.

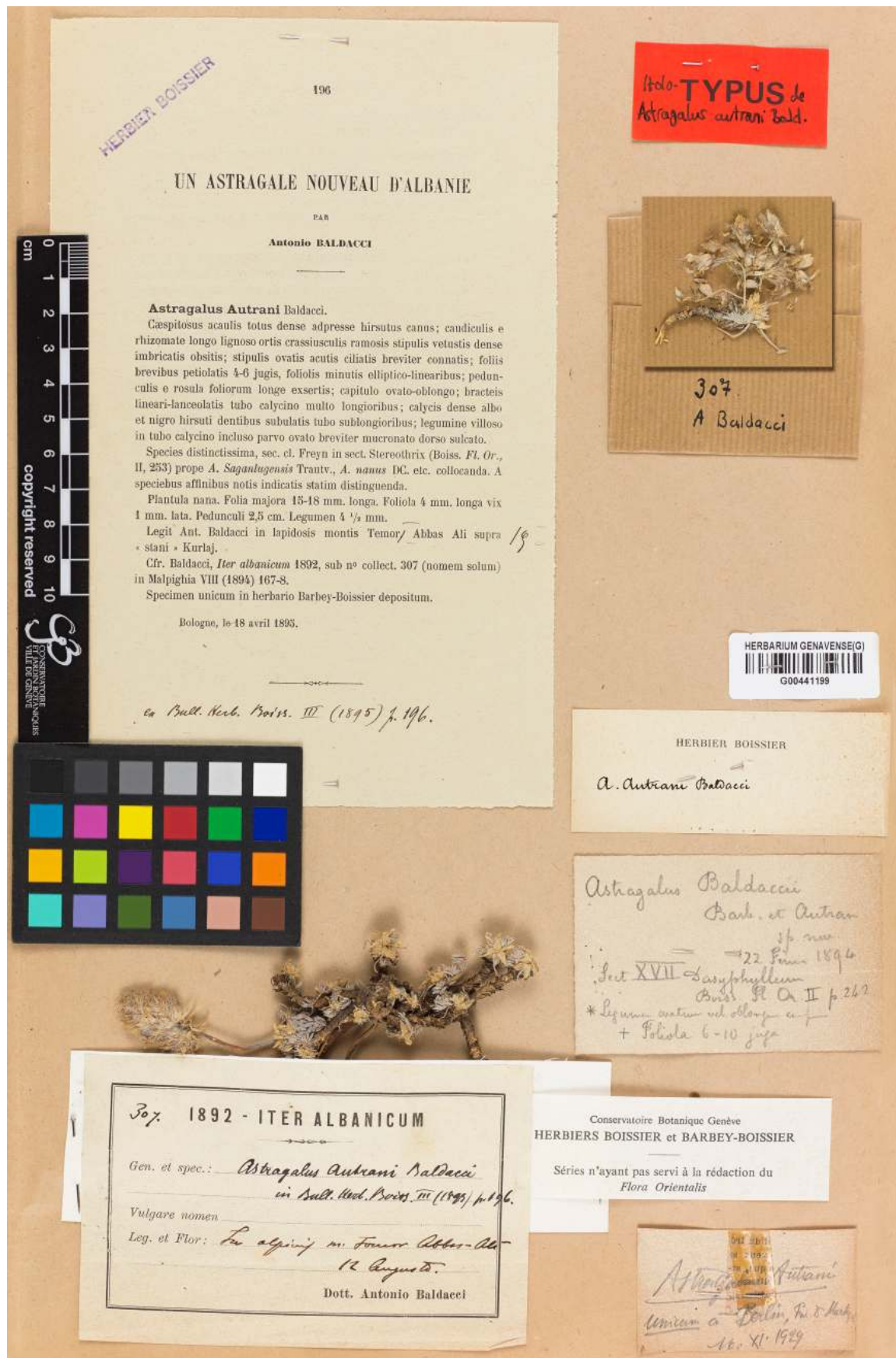


Fig. 3. *Astragalus autranii* Bald. – Holotype: Albania, “In alpinis m. Tomor Abbas-Ali”, 12 Aug 1892, A. Baldacci 307 (G00441199). – Herbarium Boissier-Barbey, Conservatoire et Jardin botaniques de la Ville de Genève.



Fig. 4. *Dioscorea balcanica* Koš. – Lectotype (designated by Vukojičić & al. 2014: 105): Albania, “Kosa Bistrika Hasita [Bistrika Hasit ridge]”, 1200 m, “stene u retkoj gori [rocks in thinned forest]”, 17 Jul [19]13, N. Košanin s.n. (BEOU 16714). – Institut za botaniku, Univerzitet u Beogradu.

(1893–1973) and Fritz Wettstein, Ritter von Westerheimb (1895–1945). The latter two were students at Vienna University. Subsequently, their specimens were labelled “Reise der Universität Wien nach Albanien, Kreta und Ägypten 1914”, determined and belatedly published (Hayek 1924). The most remarkable finding was the spring-flowering *Allium chamaemoly* L., collected by Fritz Wettstein. Annotated “am Mali Durzit bei Durazzo, 14. 4. 1914” (W), this species was not found again for many years in Albania and is now known only from Kavajë.

The circumstances under which Ignaz Dörfler (see above) travelled and collected in the following year were similarly unconventional. The Treaty of London signed on 30 May 1913 stipulated the borders of the newly created state of Albania to be fixed by an international commission on the basis of ethnic principles. It was to be formed by representatives of the Great Powers, i.e. the Austro-Hungarian monarchy, the Deutsches Reich, France, Great Britain, Italy and Russia. However, the outbreak of the Second Balkan War, which began only four weeks after the signature of the Treaty of London, and the Austro-Hungarian ultimatum against Serbia of 18 October 1913, because of the latter’s continued occupation of Albanian territory leading to the so-called October Crisis, overshadowed the work of the international commission and made deep conflicts apparent. A “nordalbanische Grenzdelimitierungskommission [commission to delimit the border in northern Albania]” was charged with fixing the border between the Kingdom of Montenegro and the Principality of Albania and consisted of six high-ranking military officers representing the six powers, which were often in dissent (Löhr 2012). Protected by soldiers, they resumed work in April 1914 in Scutari, but found themselves in a hostile environment marked by civil unrest and by Montenegrin forces occupying a strip of land attributed to Albania by the Treaty of London (Löhr 2012).

Meanwhile, in Vienna, the Kaiserliche Akademie der Wissenschaften [Imperial Academy of Sciences] had formed an Albania Commission, which included among its members Franz Steindachner (1834–1919), director of the Imperial Royal Natural History Court Museum, Richard Wettstein, Ritter von Westerheimb (1863–1931), professor of botany at Vienna University, director of its Botanic Garden and Museum and Fritz Wettstein’s father, and Friedrich Becke (1855–1931), professor of mineralogy at Vienna University and Secretary General of the academy (Unpubl. 1). The Commission projected among others a zoological-botanical expedition to northeastern Albania, and the presidency of the academy formally asked the Ballhausplatz for protection for the participants as early as 20 March 1914. For zoology, the arachnologist Arnold Penther (1865–1931), curator at the Imperial Royal Natural History Court Museum (Kühnelt 1978), was selected, and for botany Ignaz Dörfler (1866–1950), a passionate plant collector, manager and editor of exsiccata works, who was also based in Vienna (Lack 2017; Vogt & al. 2018; Speta & al. 2019). The latter, an apparently eco-

nomically successful merchant of herbarium material who called himself “Heuhändler” [hay merchant] (Unpubl. 6), was clearly a substitute for Hayek, who had previously applied for 8000 crowns from the Albania Commission (Gostentschnigg 2018), a proposal that had apparently found no support. Right from the beginning, it was made clear to Dörfler that the botanical material should go to Hayek for further procedure (Gostentschnigg 2018).

Four expedition reports complementing each other have been published (Dörfler 1914a, 1914b; Penther 1914; Hayek 1917). Although probably sanitized, they document the exceptional circumstances under which the commission and the two attached naturalists moved within a hostile environment. No reliable maps were available, weather conditions often proved adverse and progress was slow because of the necessity to find out what the ethnicity of each hamlet was in order to be able to attribute it either to Montenegro or Albania. Armed conflicts between different tribes over grazing grounds resulted in Montenegrin troops occupying the Vermoš [Vermosh] area in June 1914, which added to the complexity of the situation (Löhr 2012). Although protected by soldiers, Dörfler is reported to have been stopped three times by hostile locals and was apparently unable to continue with his collecting (Penther 1914). Collaboration with the Austro-Hungarian representative in the commission also proved difficult and horses were a constant cause of worry (Gostentschnigg 2018).

Judging from the itinerary (map: Hayek 1917: 128), it is clear that Dörfler moved in (1) what is now Montenegro, a fact explicitly specified in his brief report to the Academy (Dörfler 1914a, 1914b), also in (2) what is now Albania, in particular in the Vermoš region, and in (3) what is now North Macedonia. The work of the commission and the explorations undertaken by Penther and Dörfler came to an abrupt end on 28 or 29 July 1914: when staying in Goranica [Koreniza, North Macedonia], the news of the Austro-Hungarian ultimatum against Serbia reached the commission (Penther 1914). Although it had not completed the job it was asked to fulfil, the commission dissolved quickly and all participants as well as Dörfler and Penther hurried back home. In agreement with the instructions received from the academy, the botanical collections were handed over to Hayek, who published his results in *Denkschriften der Kaiserlichen Akademie der Wissenschaften in Wien* (Hayek 1917). This expedition yielded several species new to science, among them *Petasites doerfleri* Hayek, *Polygala doerfleri* Hayek, *Stachys beckeana* Dörfl. & Hayek and the widespread *Alchemilla heterophylla* Roth. (Fig. 5), the latter described only 25 years after it was first collected in the Vermoš region (Rothmaler 1939).

The First World War

From its start, Berchtold’s concept of an independent Albania was a fragile one and it collapsed when the First World War started. Despite repeated protests from the



Fig. 5. *Alchemilla heterophylla* Rothm. – Syntype: Albania, “In Flussbetschotter auf der Hochebene Vermos”, c. 1100 m, 4 Jun 1914, I. Dörfler 229 (W 1927-0013279). – Naturhistorisches Museum Wien.

Great Powers, Serbian and Montenegrin troops had never pulled out of Albania and Greek troops also remained in southern Albania and on the island of Sazani. The short reign of Wied – who for good reason was called “prince de vide” [prince of the void], a pun for “Wied”, by the French press – came to an end and he left his country on 3 September 1914, just a few weeks after the First World War had started. Chaos continued: in late October 1914 Italian troops landed on Sazani and subsequently French and Bulgarian troops occupied other parts of “independent Albania”. However, by far the largest part of the country fell under the control of troops of the Dual Monarchy and the Deutsches Reich, a consequence of their joint Balkan offensive of November 1915 (Opfer-Klinger 2014). It brought Serbia and Montenegro to their knees and led to the annihilation of their armies. Those who survived fled across Albania to the Adriatic coast and were evacuated by the Italian navy. All this caused tremendous losses, known in Serbian historiography as “albanska golgota [Albanian Golgotha]”, and forced Petar I Karadorđević (1844–1921), King of Serbia, his father-in-law Nikola I Petrović-Njegoš (1841–1921), King of Montenegro, and their governments into exile. Meanwhile, Italian troops had landed in Vlorë, and one person who was soon to join them was Baldacci, but he was then clearly on a mission that had nothing to do with botany (see above).

In March 1916, Dörfler, who had been appointed Hilfskraft [technical aid] at the Department of Botany at Vienna University (Vogt & al. 2018), applied to the Albania Commission for funds to finance a second expedition (Gostentschnigg 2018). These were granted, apparently under conditions similar to those for his first expedition as far as the botanical collections were concerned. On 20 April 1916, Franz Conrad von Hötzendorf (1852–1925), the supreme commander of the Imperial and Royal Forces, issued a formal order requesting support for the expeditions sent out by the Imperial Academy of Sciences to the Balkan Peninsula, which he signed with his own hand (Unpubl. 1). Conrad paid attention to detail: as a condition, the escorts had to be able to speak German and, at least for half of the party, Serbo-Croatian and they were instructed to carry arms, each civilian participant permitted to carry one pistol, and if necessary suitable interpreters for Albanian were to be provided (Unpubl. 1). Dörfler arrived on 20 May 1916 in Škodra [Shkodër] and explored the mountains of northern Albania for a second time (Dörfler 1916a, 1916b). His caravan consisted of a corporal, an interpreter, an escort team of two infantrymen, four horse guides and eight packhorses. Travel conditions were extremely poor: Dörfler was faced with an outbreak of cholera, a shortage of food for men and horses, horses dying or becoming unusable and local guides not being prepared to lead the party even when offered a substantial salary. The return tour from Kula Lums [Kulla ë Lumës] to Shkodër almost turned into a disaster for Dörfler’s party, which was substantially reduced because of illness. Heavy autumn rains had made the miserable roads dangerous, a horse fell

into the Drin river and was washed away, but at least the bulk of the collections was saved (Dörfler 1916a, 1916b). Dörfler’s two expeditions were quickly made known in Albania: *Posta e Shqypniës* published two short papers in German, the first by Wettstein, the second anonymously, although probably also from his pen. The former contribution (Wettstein 1917) focused on ornamental plants native to Albania; it reported that Dörfler had studied the distribution of *Forsythia europaea* during his travels in 1914 and introduced *Wulfenia baldaccii* into cultivation, which was apparently first cultivated in the Botanic Garden of Vienna University (see below). The second paper (Anon. 1917) summarized Dörfler’s previous collecting tours on the Balkan Peninsula in general and is of limited interest here.

Apparently, Dörfler was not discouraged by the experiences that he encountered during his second expedition to Albania and must have applied to the Imperial Academy of Sciences for funds for another tour. Once again, 6000 crowns were made available to him (Unpubl. 1). In 1918, the northern parts of the country were still occupied by troops of the Austro-Hungarian monarchy and the Deutsches Reich, but shortage of all sorts was already felt in Vienna. In preparation for a third expedition Dörfler applied to the academy for canned food, rice and oatmeal and wrote to Wettstein asking for sheep wool for stockings to be knitted by his daughters, suggesting to the former that this material might be available at a military depot (Unpubl. 1). Much less is known about the following tour because, in contrast to the first two expeditions, no report appeared in any of the publications of the academy. All we know is a brief summary of Dörfler’s movements in the introduction to the taxonomic treatment (Hayek 1924). However, there is no doubt that the supreme command must have sanctioned the tour and supported it. An unpublished letter sent by Dörfler on 9 May 1918 from Kula Lums to Richard Wettstein in Vienna indicates that the former’s caravan had a similar composition, although this time it included two carriages (Unpubl. 7). Transport from Belgrade to Kula Lums had been tedious and slow, horses were the limiting factor and inflation so high that Dörfler had to apply via Wettstein for extra funds from the academy (Unpubl. 7).

A few weeks after his arrival in Kula Lums, Dörfler met Jenő Béla Kümmerle (1876–1931; Moesz 1933) from Budapest “mit einem Binkel Löschpapier unterm Arm” [with a bundle of blotting paper under his arm] (Unpubl. 9). This was a surprise to him (Unpubl. 9), because he might have supposed that he was the only botanist in the field: on his way to Prizren, Dörfler had stopped in Budapest, met Degen, asked him if somebody from Hungary was likely to be travelling to Albania and was told that no such intention existed. Apparently to Dörfler’s displeasure, Kümmerle repeated the former’s tour to Mount Korab following that unexpected meeting (Unpubl. 9; for competition during fieldwork see below). Over the subsequent three months, Dörfler collected in northeastern Albania, in part following the itinerary of the tour undertaken two years before. This time, the return journey offered another unpleasant sur-

prise: excessive cost for having the 26 boxes full of plant material (total weight 1525 kg) transported from Verizović [Ferizaj, Kosovo] to Belgrade. This was done by the Royal Prussian Railways, which were operating the line (Unpubl. 1), and it may be hypothesized that Dörfler's papers issued by an Austro-Hungarian authority for free transport were not acceptable to the Prussian Railways. From Belgrade, the boxes were sent on a Danube steamer to Vienna (Unpubl. 1). On all three expeditions, Dörfler had collected very substantial sets of duplicates. After publication (Hayek 1917, 1924), the two most complete sets were given to the herbarium of Wettstein's institute, i.e. WU, and the Natural History Museum (W). Further sets ended up in several other collections (Vogt & al. 2018), although details are rarely known. However, there is evidence that Dörfler offered an incomplete set to Joseph Bornmüller (1862–1948, see below) in Weimar for 120 gold marks in 1924 (Unpubl. 8) and kept another incomplete set in his private herbarium, which was sold by his daughters to Münster University and is now kept in B (Vogt & al. 2018).

Despite the difficulties encountered during the third expedition, Dörfler seems to have regarded his travels in Albania and the botanical field work documented in two photographs (Dörfler 1928) as the highlights of his long life. In any case, he kept in his flat in Vienna's Barichgasse 36 a life-size figure of an armed Albanian in traditional costume including the obligatory fez (Speta & al. 2019: Abb. 7.3). According to information collected from his descendants, this costume had been worn by Dörfler while in Albania (E. Speta, Linz, pers. comm., 2016).

In January 1918, Penther and Hans Zerny (1887–1945), an entomologist and assistant at the Imperial Royal Court Natural History Museum in Vienna (Pittoni 1948), had also asked the Albania Commission for funds to travel to Albania. This was granted and led to a stay of twelve weeks in "Albania" (Pittoni 1948) together with Karl Predota (1873–1962), a commercial collector of lepidoptera (Reisser 1962). Fluent in Czech, German, Hungarian and Serbian, Predota turned out to be a particularly valuable member of the small team (Gostentschnigg 2018). Apart from zoological material, 530 plant specimens were gathered by Zerny (Hayek 1924). Of these, a substantial part was collected in what is now North Macedonia, the rest in northwestern Albania. The material was published together with Dörfler's collections from his second and third expedition and the specimens gathered by members of the Fünfte Universitätsreise (Hayek 1924). Zerny's specimens are kept in W, among them type material of *Asyneuma comosiforme* Hayek & Janch., a chasmophyte from a gorge near Bicaaj, which Dörfler had missed, and a specimen of *Knautia midzorensis* Formánek collected on 12 July 1918 in subalpine meadows on the western slopes of Mount Pashtrik (Fig. 7). The latter species was previously known only from a single locality in Serbia.

On his second and third expeditions, Dörfler was lucky enough to collect material of species that turned out to be new to science and he described a few of them

within weeks after his arrival in Vienna in 1918 (Dörfler 1918; extract: Anon. 1918). One of them was *Ranunculus wettsteinii* Dörfl. (Fig. 6), recently shown to be probably an allopolyploid derived from *R. montenegrinus* (Halácsy) Lindtner and *R. parnassifolius* L. (Cires & al. 2013). Richard Wettstein, Dörfler's superior at the Botanical Garden and Museum of Vienna University, contributed to the latter's paper (Dörfler 1918) the description of *Moltkia doerfleri* Wettst. (\equiv *Paramoltkia doerfleri* (Wettst.) Greuter & Burdet), a rare chasmophyte restricted in distribution to Albania and Kosovo. Only a few weeks after the validation of the name, another paper on this plant appeared (Wettstein 1918), which tried to elucidate its taxonomic position. When Dörfler's complete collection was studied, further novelties were published (Hayek 1921, 1924), among them e.g. *Minuartia doerfleri* Hayek (\equiv *Cherleria doerfleri* (Hayek) A. J. Moore & Dillenb.), outside Albania as yet known only from a single locality in NE Greece (Vogt & al. 2018). Finding *Wulfenia baldaccii* at Čafa Stogut (qafa e Shtogut) a second time must have been another highlight for Dörfler because it was the confirmation of Baldacci's discovery in 1897 and increased awareness and interest for this rarity (e.g. Hayek 1927).

The equivalent of the two Imperial Royal Court Museums in Vienna, i.e. the K. K. Naturhistorisches Hof-Museum and the K. K. Kunsthistorisches Hof-Museum [Imperial Royal Art Court History Museum], was the Magyar Nemzeti Múzeum [Hungarian National Museum] in Budapest. During the First World War, three members of its staff developed activities in the part of Albania occupied by the Central Powers (i.e. the Dual Monarchy, the Deutsches Reich and Bulgaria, although not the Ottoman Empire) that were similar to those of Dörfler and Zerny in Vienna. They and others were supported by the Magyar Tudományos Akadémia [Hungarian Academy of Sciences] in Budapest, the equivalent to the Imperial Academy of Sciences in Vienna. In 1914, Gróf Pál Teleki (1879–1941), professor of geography and corresponding member of the Hungarian Academy of Sciences (Ablonczy 2006), initiated the creation of a Balkan Commission within this academy which promoted the exploration of the Balkan Peninsula (Gostentschnigg 2018). In October 1916, this was followed by the creation of an Orient Commission, which had among its founding members Teleki, Degen and Franz Nopcsa Baron von Felső-Szilvás [Nopcsa Ferenc, báró felsőszilvási] (1877–1933), a prominent palaeontologist and albanologist (Gostentschnigg 2018). Echoing the approach of the sister academy in Vienna, the Hungarian prime minister was petitioned to ask the supreme command for support (Gostentschnigg 2018). The broad spectrum of topics covered by the expeditions to occupied territories on the Balkan Peninsula, which were to be organized by the Balkan Commission, included botany.

The first Hungarian plant collector active in Albania was József Andrasovszky (1889–1943), a plant pathologist who explored the mountains of northwestern Albania in 1917 (Barina & Pifkó 2019). His specimens were



Fig. 6. *Ranunculus wettsteinii* Dörf. – Syntype: Albania, “Distrikt Kalis. Korabgebiet. In Schutthalden des Cüseli”, c. 2350 m, 5 Jul 1918, I. Dörfler 760 (B 10 9004106). – Botanischer Garten und Botanisches Museum Berlin, Freie Universität Berlin.



Fig. 7. *Knautia midzorensis* Form. – Albania, “subalpine Wiesen am Westabhang des Pashtrik”, 1500–1600 m, 12 Jul 1918, H. Zerny s.n. (W0102122 [1957-20625]). – Naturhistorisches Museum Wien.

determined by Sándor Jávorka (1883–1961), an assistant at the Hungarian National Museum (Zólyomi 1962), with several novelties published subsequently (Jávorka 1919, 1920, 1921a, 1921b, 1922). Simultaneously with Andrasovszky, although apparently separately, Ernő Csiki (1875–1954), a coleopterist from the Hungarian National Museum (Székessy 1954), visited northwestern Albania and brought back some fifty specimens to Budapest (Barina & Pifkó 2019). Andrasovszky's and Csiki's collections are kept in BP (Pifkó 2004). More substantial were the collections gathered in 1918 by Csiki, Jávorka and Kümmerle (see above), the latter also a member of staff of the Hungarian National Museum (Barina & Pifkó 2019). Teleki organized travel permits, while the Royal Ministry for Religion and Public Education in Budapest covered the expenses (Anon. 1926). The arrangements concerning support by the military authorities, such as escorts and packhorses, seem to have been similar to those provided for Dörfler, with a single exception: Csiki, Jávorka and Kümmerle travelled and worked in uniform (Anon. 1926). However, the three collectors faced more serious problems, like coming under direct fire from Komitadji while spending the night in tents (Kümmele 1926a). These rebel bands had crossed over from areas under Bulgarian occupation and, when retreating, set dry Alpine meadows on fire (Kümmerle 1926a). During night-time, gunfire was regularly provided by the escorts in order to prevent sudden raids against horses (Kümmerle 1926a). Collecting conditions were highly unconventional for twentieth century Europe and remained so for several years in this region: according to information collected by Dörfler (Unpubl. 10), Karel Vandas (1861–1923), professor at the Technical Highschool in Brno (Křiva & Holubec 2010) and author of the commentary on Formánek's publications (Vandas 1909), was five years later attacked by Komitadji, shot, and died of his injuries in a Skopje hospital.

However, compared to Dörfler's expeditions, the stay of the three Hungarian collectors in Albania was a much shorter one: Csiki and Kümmerle, who travelled together, collected from 26 June to 29 July 1918 in northern Albania (Kümmerle 1926a). Due to the slow acquisition of the military permits, Jávorka set out from Gjakova [Kosovo] only on 19 August 1918, collected in the northernmost part of Albania and returned the following month to Budapest (Jávorka 1926a). On this tour, Jávorka collected above Tropoja a fruiting crucifer that turned out to be new to science and was described by him as *Lunaria telekiana* Jáv. (Jávorka 1920). Nothing underlines the still-unmapped nature of Albania's borders better than his thinking this locality belonged to the newly formed Kingdom of Serbs, Croats and Slovenes (S. H. S.) (Jávorka 1920), whereas as a matter of fact it is situated in Albania. Jávorka's name and taxon (Fig. 8) has stood the test of time and is now known also from Kosovo and Montenegro (Lakušić & al. 2012).

The flowering plants collected by Andrasovszky, Csiki, Kümmerle and Jávorka were published by the lat-

ter (Jávorka 1926b), taking into consideration his own preliminary papers, such as that containing the validation of the name *Draba korabensis* Kümmerle & Degen ex Jáv. (Jávorka 1921a). This small crucifer is also a good example to illustrate the inevitable competition between Andrasovszky, Dörfler and Kümmerle while doing field work on the same mountains in northwestern Albania in the summers of the years 1917 and 1918. All three collected material of this very species, but it was *Kümmerle s.n.* (HBG-50613, K000697159, K000697160, MPU373712) that was selected as the type for the name *D. korabensis* (Jávorka 1921a), a taxon well documented for Albania (Barina & al. 2018). The specimen *Dörfler* 769 (B 10 0241482), mistaken by his collector in the field for *D. doerfleri* Wettst. (Unpubl. 9), a plant he had discovered and first collected eighteen years before in Mount Ljubitrn [Ljuboten, Kosovo/North Macedonia], was later correctly determined as *D. korabensis* (Hayek 1924). The former is not known to occur in Albania (Barina & al. 2018). The pteridophytes gathered by the four collectors from Budapest in Albania were published by Kümmerle (Kümmerle 1926b), who had previously produced preliminary papers on this subject (Kümmerle 1916, 1922).

In the part of Albania occupied by the Central Powers (except the Ottoman Empire), plant collecting also took place by others in uniform. The highest in rank was Colonel Josef Schneider (1877–1938), based since 1916 in Albania and head of the Austro-Hungarian military administration for Albania in Skutari [Shkodër] from July to October 1918 (Broucek 1993; Bredel 2019). Because of his botanical interests, he was nicknamed “Wurzelsepp”, a funny but untranslatable expression, literally “a collector of roots and herbs named Sepp, i.e. Josef” with the connotation of being a somewhat strange figure. In contrast to the plant collectors supported by the academy in Vienna and the ministry in Budapest, Schneider was active in central Albania in places like Durrës, Elbasan, Fier, Kruja, Ljusna [Lushnja], Mamuras and Tirana, where previously little collecting had been done. His herbarium is recorded to have comprised 26 627 specimens (Broucek 1993), with a significant proportion collected while stationed in Albania. Schneider's specimens, which remained unpublished and were only rarely referred to later (e.g. Ronniger 1928), are kept in W. Lower in rank were two officers also based in Scutari: Erwin Janchen-Michel, Ritter von Westerland (1882–1970), another *Privatdozent* at Vienna University, (Wendelberger 1972; Speta & al. 2019), and one lieutenant Karl Junkmann from Komotau [Komotov, Czech Republic]. They collected independently and mainly in the surroundings of Shkodër, Janchen in September and October 1916 also much further south, in places like Fushë Krujë and Zejmen. Janchen published both collections (Janchen 1916, 1919). It is not known if Junkmann's material is preserved; Janchen's specimens are kept in WU.

Plant collecting also took place in the regions of Albania occupied by Italy. Apparently in spring 1915,



Fig. 8. *Lunaria telekiana* Jáv. – Albania, “tractus Alpium borealium Albaniae: in saxosis silvaticis ad faucem vallis Valbona prope pag. Bajram Curri (Kolgecaj),” c. 500 m, 30 Jun 1955, S. Jávorka & J. Ujhelyi s.n. (BP 71282). – Magyar Természettudományi Múzeum, Budapest.



Fig. 9. *Aesculus hippocastanum* L. – Albania, “Gur i Topit (Quellgebiet des Shkumins), Tresova, Schlucht südl. der Devollbrücke, Sandstein”, 700 m, 28 Jun 1928, F. Markgraf 1513 (B 10 0216554). – Botanischer Garten und Botanisches Museum Berlin, Freie Universität Berlin.

one Alberto Piroli, a captain of the Bersaglieri, collected in the surroundings of Vallona. Renato Pampanini (1875–1949), then *libero docente* at Florence University (Negri 1958), determined and published this material (Pampanini 1916). Baldacci, who recorded having stayed in Albania several times during the First World War (Baldacci 1917: Avvertenza), was gathering the autumn and winter flora in the hinterland of Vallona (Baldacci & Béguinot 1918). In parallel with the creation of an Italian Protectorate over the southwestern part of Albania, a French Protectorate was created over the southeastern part of Albania with Korça [Korçë] as the capital, which naturally created friction between the two allies. Named République de Korça or Republika Autonome e Korçë, it also comprised small regions belonging today to northwestern Greece and southwestern North Macedonia. From 1917 until 1920, the geologist Jacques Bourcart (1891–1965), assistant physician and later attached to the French military administration in South Albania (Papa 2000), collected plants mainly around Lake Ochrid (Rodriguez 1923). Localities in Albania include Alarup, Guri e Topit, Mal Moravë, Mai Thatë, Moglicë, Opar, Pishkupat, Pogradec and Tushemisht. The specimens were determined and published by one Rodriguez in Paris (Rodriguez 1923) and later largely redetermined by Markgraf (see below). Bourcart served under General Louis Félix Marie Franchet d'Espèrey (1856–1942) (Guilcher 1966), head of the Armée de l'Orient, who drove the armies of the Austro-Hungarian Empire and the Deutsches Reich back to the Hungarian border in 1918. The collections by Baldacci, Bourcart and Piroli did not comprise specimens of species new to science.

The interwar period

Although large parts of Albania had been occupied during the First World War for an extended period of time by the armies of the Central Powers (except the Ottoman Empire), Italy and France, the Albanian government had remained neutral. Albania therefore belonged to the non-belligerent countries and was not represented at the peace conferences in Paris by an official delegation. Although attempts were made to divide the country among the old contravenes, in the end Albania was recognized by its neighbours, i.e. the Kingdoms of Greece, Italy and the newly formed Kingdom of the Serbs, Croats and Slovenes, and became a member of the League of Nations. Albania had to accept a single territorial loss: as a consequence of the Tirana agreement of 2 August 1920, the island of Sazani was ceded to Italy. Having been explicitly mentioned in Art. 6–7 of the secret Treaty of London of 26 April 1915, which had made Italy change sides during the First World War, this tiny island continued to be of strategic importance for Italy. Baldacci's earlier botanical exploration on the island (see above) was continued by the forester Lionello del Guerra; his specimens

were published by Adriano Fiori (1865–1950), professor at the Istituto Superiore Forestale in Florence (Negri 1953) and resulted in another plant list (Fiori 1928).

Albania, still an extremely poor, backward country with a largely illiterate population remained politically unstable. Nominally still a principality with an absentee prince, it first became a parliamentary democracy before president Ahmet Zogu (1895–1961), who was also prime minister at the time, crowned himself King Zogu I of Albania on 1 December 1928. Security remained poor, but Albania became an interesting destination for intrepid travellers. Of those focused on the botanical exploration of the still incompletely known country, the most important researcher was clearly Friedrich Markgraf (1907–1987), from 1921 assistant at the Botanic Garden and Botanical Museum Berlin-Dahlem of Berlin University. For good reasons it has been stated in a eulogy (Eckardt 1967) that Albania was the focal point of his scientific work.

During the First World War, Markgraf had been stationed in Tepe-Tschiflik near Port Lagos [Xanthi, Greece]; he published a short note on his miscellaneous botanical explorations (Markgraf 1920) and learned Bulgarian (Unpubl. 10). The first impressions of the Balkan flora seem to have whetted his appetite for Albania. He got acquainted with Gegh Albanian (Unpubl. 10) and in 1924 departed from Berlin together with a student, Herbert Louis (1900–1985). On part of his expedition, Markgraf was accompanied by Ernst Nowak [Nowack] (1891–1946), *Privatdozent* at the Montanistische Hochschule [Mining Academy] Leoben in Styria and head of the Albanian Geological Service, who had served during the First World War as a war geologist in the Austro-Hungarian army (Trauth 1951; Onuzi 2005). The general circumstances for the expedition were unfavourable: the June revolt against Fan Loni (1882–1965), prime minister, bishop of Korçë and head of an autocephalic Albanian Orthodox Church founded by him, caused civil unrest, but Markgraf's party was left unharmed. However, Markgraf was arrested for unknown reasons on his return to Tirana in July 1924, but was released shortly afterward (Markgraf 1925b).

Having realized that central Albania was still unexplored, Markgraf's expedition of 1924 concentrated largely on this area (Anon. 1925). In contrast to earlier explorers of the flora of Albania, Markgraf's interests were much broader and included plant geography, ecology and vegetation science, with a paper on the vegetation of central Albania becoming subsequently his *Habilitationsschrift* (Markgraf 1927). This includes also a list of the plant material collected by Markgraf and his party in 1924. Before that, Markgraf had published miscellaneous travel impressions (Markgraf 1925a, 1925b) and the descriptions of a few plants he regarded as new to science (Markgraf 1926). Of these, *Orobancha nowackiana* Markgr. and *Stachys albanica* Markgr. have stood the test of time (Barina & al. 2018). Fascinated by the country

and its flora (see e.g. Markgraf's enthusiastic letter of 6 June 1924 to J. Bornmüller written in Elbasani; extract published in Lack 2017), Markgraf returned to Albania in 1928. This time he was accompanied by the apothecary Walter Pieper, who had written his PhD thesis under the supervision of Ludwig Diels (1874–1945), professor of botany at Berlin University and director general of the Botanic Garden and Botanical Museum Berlin-Dahlem (Mildbraed 1948). The study area chosen was again central Albania, but this time the two travellers continued further south as well as further north visiting also the high mountains on the border with the Kingdom of S. H. S. Repeated hailstorms, late snow in the mountains, lack of drinking water for man and animals with melted snow as the only alternative, and inimical behaviour from the local people in the Selita and Lurja mountains were realities Markgraf and Pieper had to cope with (Markgraf 1931b). The plants collected in 1928 were published in the *Denkschriften der Akademie der Wissenschaften in Wien* (Markgraf 1931b), in which Hayek had made Dörfler's collections known a few years earlier. In addition, notes appeared on Albanian plant names (Markgraf & Weigand 1927) and on the forests of Albania (Markgraf 1931a); more important is *Pflanzengeographie von Albanien* (Markgraf 1932), the first monograph of the plant geography of Albania. Of general interest and clearly addressed to a much broader audience is another independent publication from Markgraf's pen entitled *In Albaniens Bergen* [In Albania's mountains] (Markgraf 1930b). This is clearly no travelogue, because the author combined impressions received on both expeditions, and it contains the reproduction of a photograph documenting Markgraf's party with tents and collecting equipment (Markgraf 1930b: fig. 29). A paper on *Forsythia europaea* Degen (Markgraf 1930a) exemplified Markgraf's in-depth approach to Balkan endemics, which he might have also intended for other taxa. However, of these only a brief note on *Dioscorea balcanica* appeared (Markgraf 1935). It is unknown why Markgraf discontinued his Albanian studies and resumed them again only during the Second World War. For the fate of his herbarium specimens and associated materials, see below.

Three years after Markgraf's first expedition, Bruno Schütt (1878–1956), curator of the herbarium at the Überseemuseum Bremen (BREM), collected in Albania for the first time and returned in the years 1928, 1929, 1933 and 1935 (Barina & al. 2016). Like Dörfler and others before him, he focused his activities on northern Albania and collected a total of 4593 specimens there, all kept in BREM (Barina & al. 2016). Schütt produced a manuscript "Die Pflanzenwelt von Nordalbanien, Montenegro und des westlichen Šar-Gebirges", which has remained unpublished and is kept in BREM. He refrained from publishing his novelties, with the exception of two taxa in *Hieracium* L. (Schütt 1932), and only a short travel report (Schütt 1936) appeared. The name of a single form he regarded as new to science was published posthumously (Schütt

1964). From Schütt's unpublished manuscript, all his itineraries have been meticulously reconstructed and the identity of his specimens checked (Barina & al. 2016). Among the plants first collected by Schütt during these tours we find *Alchemilla connivens* Buser and *Waldsteinia geoides* Willd. (Barina & al. 2016).

From 3 to 11 June 1931, two botanists followed Grisebach's route across northern Albania, albeit in the inverse direction, i.e. from west to east. These were Joseph Bornmüller (see above), curator at the herbarium Haussknecht in Weimar (Wagenitz 1960; Casper & al. 1997), and Karl Friedrich Keydel (1865–1937), an urologist based in Dresden (Schubert & Scholz 2009). The primary purpose of this tour was to collect living material, in particular of saxifrages, for Keydel's private alpine garden in Rathen an der Elbe in Saxony as well as desiderata for Markgraf in Berlin, among them living material of *Halacsya sendtneri* (Boiss.) Dörfl. and *Trifolium wettsteinii* Dörfl. & Hayek (Unpubl. 11). According to the travel account (Keydel 1933), it was an Albanian called Gehlosi who showed the two travellers stands of *Wulfenia baldaccii*, albeit not yet in flower (Keydel 1934: Tab. 1). Small world: he was the very same Albanian shepherd who had earlier guided Markgraf. Later, Çup Gnodzi, previously Markgraf's Albanian guide and on parts of the route a police escort, accompanied the two botanists on their trip to the Yugoslav border (Keydel 1934). During the First World War, the stone bridges from the Ottoman period had been blown up and had not yet been rebuilt; progress across fords was therefore slow and Keydel was appalled by the state of health of patients who sought his advice (Keydel 1934). A list of the plants gathered during this brief visit was subsequently published (Bornmüller 1933). Much less is known about the tour of a German-Italian group that visited the country in 1937 escorted by Albanian soldiers (Anon. 1937). One of the participants was Heinz Brücher (1915–1991), a student at Tübingen University, whose collections arrived on Bornmüller's desk in Weimar, among them a specimen of *Wulfenia baldaccii* from the Thoria Pass near Boga [Bogë] (B 10 1068065).

It would be utterly wrong to suppose that only botanists from Germany were active in Albania during the interwar period. British, Czech, Austrian, Yugoslav and Russian plant hunters also collected in this country and had their findings published. One of those particularly interested in alpinism was Paul Leon Giuseppi (1881–1947), a fellow of the Royal College of Surgeons, passionate plant hunter and joint founder of the Alpine Garden Society (Desmond 1994), who visited Albania in the years 1929 (Giuseppi 1929) and 1930. A few years later he and his travel companion, one S. G. Fiedler, published reminiscences of their tours (Giuseppi 1938, 1941; Fiedler 1941), which indicate how thoroughly they enjoyed their search for rarities. Giuseppi's material was published by William B. Turrill (1890–1961), curator at the Royal Botanic Gardens, Kew (Desmond 1994). This paper

contained the validation of the name *Scilla albanica* Turritt (Turritt 1932), a late-flowering species restricted to serpentine soils in northern Albania (Barina & al. 2015), and seems to be the first scientific publication on the flora of Albania that appeared in Britain. It was quickly followed by a paper on plants collected in central Albania by one Mrs. R. V. Pennington, a resident of the Tirana district (Chaytor & Turritt 1934). Much more substantial were the results of two botanical expeditions to the rather unexplored southern part of Albania undertaken in 1933 and 1935. The participants were Arthur Hugh Garfit Alston (1902–1958), assistant keeper at the British Museum (Natural History) in London (Bell 1959), and Noel Yvri Sandwith (1901–1965), botanist at the Royal Botanic Gardens, Kew (Brenan 1966). Their results appeared in print when the Second World War had already started (Alston & Sandwith 1940) and even resulted in a note in the highly prestigious journal *Nature* (Anon. 1941). One of their trophies was *Brachypodium serpentini* C. E. Hubb. (*Festucopsis serpentini* (C. E. Hubb.) Melderis), another serpentine endemic. Little is known about the specimens collected before 1938 in Albania by Ian Hepburn (1902–1974), second master of Oundle School in Oundle, Northamptonshire (Walters 1975), which are mentioned in passing in the annual report of the accessions to the herbarium of the Royal Botanic Gardens, Kew (Anon. 1939).

In July 1934 three assistants at Prague University, Karel Hrubý (1910–1962; Löve 1963), V. Jirásek and T. Martinec, went on a botanical excursion to Albania that resulted in a publication by Josef Rohlena (1874–1944), a retired teacher at a gymnasium in Prague and specialist on the flora of Montenegro (Pulević 1980, 2005; Kučera 2009). They crossed the country from Bazar Shjak [Shijak] via Tirana, Elbasani and Prenjs [Përrenjas] to Struga [North Macedonia] and visited among others the Kraba [Krrabë] mountains (Rohlena 1937). Although the material was not mentioned in a paper on the Balkan collections kept in Czech herbaria (Křivka & Holubec 2010), at least a few specimens are kept in PRC.

Even though Albania was on paper a constitutional monarchy, King Zogu I effectively possessed dictatorial power. However, his kingdom remained decades behind all other Balkan countries, the peasantry largely practised subsistence agriculture and Europe's highest birth rate went in parallel with Europe's highest infant mortality rate. Local rebellions caused political instability, and no less than 55 attempts to assassinate Zogu I have been reported (Vickers 2014). At the same time, the Italian government did everything to intimidate Albania, a country that depended largely on Mussolini to the point that even the Albanian National Bank had its seat in Italy (Basciani 2013). Neither a university nor an academy of sciences existed in the country, neither a natural history museum nor a botanical garden. In short, in the thirties and forties Albania was what some would now call a developing country.

Nevertheless, during the interwar period, two Austrians also intended to visit Albania. One of them was Karl Heinz Rechinger (1907–1999), volunteer at the Department of Botany of the Natural History Museum in Vienna (Lack 2001) and Karl Rechinger's son (see above), who was accompanied by a party including Jozef Scheffer (1903–1949), a paediatrician living in Bratislava (Lack 2001; Letz 2016). However, because of concerns over security in the country (K. H. Rechinger, pers. comm., c. 1981), the Albanian authorities refused them entry at Gusinje in 1933 (Rechinger 1935). This had the consequence of the respective accounts on the flora of “Bertiscus (Nordalbanische Alpen)” (Rechinger 1935, 1938) exclusively referring to what is now North Macedonia and Montenegro. More fortunate was Fritz Lemperg (?–1945), physician in Hatzendorf near Fehring in Styria and like Keydel owner of a private alpine garden (Kriechbaum 1970; Ster 2006). Judging from herbarium specimens kept at GZU and W, he managed to travel to Albania in the years 1934 and 1936 and to collect plant material. K. H. Rechinger named and published Lemperg's miscellaneous herbarium specimens that were gathered during these tours (Rechinger 1939). A brief report on Lemperg's first tour appeared in a horticultural journal (Lemperg 1934). Vojtech [also Vojtel] Lindtner (1904–1965), a volunteer at the Botanical Garden Jevremovac in Belgrade (Mayer & Petkovšek 1966), collected a small number of specimens in southern Albania in 1937 (Barina & al. 2017). In the following summer Lindtner and Lemperg were back in Albania for a mountain tour to Gjallica, Maja e Qukapecit, Nemerçkë, Lunxherie and Tomor. Many of the plants collected on this occasion were included in K. H. Rechinger's paper cited above; two specimens gathered in that year were later published in Sofia by Boris T. Achtaoff (1885–1959) with Lindtner as second author (Achtaoff & Lindtner 1940). July 1938 was also the time for Schütt's penultimate visit to Albania and it is very likely that he collected *Knautia dipsacifolia* Kreutzer and *Soldanella hungarica* Simonk. during this tour for the first time in this country (Barina & al. 2016).

Pavle I. Černjavski (1892–1969), a Russian refugee and later head of the Department of Botany at the Muzej Srpskego semlje [Museum of the Serbian land] in Belgrade (Janković & Tatić 2001; Dinić 2012), had started to collect in the surroundings of Lake Ohrid in 1934 (Černjavski 1943). In 1938, he continued his work and also visited the region between Pogradec and Darha in Albania (Černjavski 1943), gathering among others two specimens of *Erysimum calycinum* Griseb. between Sesi [Theth] and Kiri [Kir] (Polatschek 2013).

When Germany occupied and annexed first Austria and subsequently the predominantly German-speaking parts of Czechoslovakia without consulting Italy, Mussolini decided to do the same with Albania, even though the country was *de facto* already an Italian Protectorate. The *Anschluss* of Austria to Germany was followed by a kind of second *Anschluss* of Albania to Italy, although

under totally different circumstances (Fischer 1999). An ultimatum was sent from Rome to Tirana on 7 April 1939, but was not accepted. On the same day, Zogu I, his wife, the two-days-old crown prince Leka, the government and many officers went into exile in Greece. On 8 April, the Italian army invaded the country, and a puppet government was quickly installed in Tirana. Vittorio Emanuele III, King of Italy, now became also King of Albania, and the Italian Empire had finally got its long-desired foothold on the Balkan Peninsula. This was the scenario under which Schütt returned to Albania in 1939, while Černjavski visited Lake Ohrid again in 1939 and spring 1940; it is possible that the latter also collected in Albania during these occasions (Černjavski 1943).

During the interwar period, Baldacci had continuously published on a broad spectrum of Balkan topics, in particular politics, geography and ethnography, while only a small number of papers dealt with the plant life of Albania (Lodi 1952). Some of these refer to the Balkan endemics *Wulfenia baldaccii* (Baldacci 1935, 1936a), *Aesculus hippocastanum* L. (Baldacci 1936b) and *Forsythia europaea* (Baldacci 1937), others to agriculture and forestry. All this proves Baldacci's continuous interest in Albania. The annexation of the country by Italy must have been the culmination of his political dreams. With his function as Honorary General Consul defunct, he was commissioned to act as *consulente culturale* [council for cultural affairs] for the Italian general lieutenantancy in Tirana (Bollini 2005: 416), then headed by Francesco Jacomoni di San Savino (1893–1973). Judging from stamps in Baldacci's passport, he visited Albania in April 1940 (Bollini 2005: 425).

The Second World War

Albanian territory eventually became a theatre of war in January 1941. On 28 October 1940, Italy had issued an ultimatum to Greece demanding the cession of Greek territory. Even before the ultimatum had expired, the Italian army invaded Greece which led to the so-called Italo-Greek War. The Greek army managed to stop the invaders and drove them back into Albanian territory, with the result that in January 1941 the front line was at a pass near Klisura [Këlcyrë]. Taking into consideration that British armed forces might land on the Balkan Peninsula to support the Greek army, Germany decided to embark on Operation Marita, i.e. the German invasion of Greece, which began on 6 April 1941. It ended with the defeat of the Greek army and the occupation of Greece by German, Italian and Bulgarian armies by 9 June 1941, while Albania remained part of the Italian Empire. This was the military scenario when a group of four botanists left Berlin for Saloniki [Thessaloniki, Greece], then occupied by the German army, on 30 June 1941 (Markgraf 1942). The party was led by Hans Stubbe (1902–1989), *Privatdozent* at Berlin University, and comprised Rudolf Freisleben

(1906–1943), *Privatdozent* at Halle University, Walter Hoffman (1910–1974), from the Kaiser Wilhelm Institute for plant breeding in Müncheberg, all three geneticists (Maier 2008; Karafyllis 2019), and Markgraf (Markgraf 1942). The tour was organized by the Reichsforschungsrat [Research Council of the Deutsches Reich] in collaboration with the Supreme Commands of both Germany and Italy (Markgraf 1942). Like Csiki, Kümmerle and Jávorka (see above), the four researchers travelled in uniform and were accompanied by military escorts (Maier 2008). Stubbe and his team entered Albania near Korçë, continued to Lake Ohrid and travelled all over the country, in particular in the south and southeast (Markgraf 1942). Judging from the travel report, the focus was on economic plants, Markgraf recorded having collected c. 1000 herbarium specimens and c. 500 seed samples (Markgraf 1942). The team travelled in three cars and a lorry, quite an advancement on the three donkeys and one mule bought by Markgraf for his second expedition in 1928 (Markgraf 1931b), and comprised a total of 19 persons (Maier 2008). Stubbe and his collaborators left Albania on the road to Prizren in September 1941.

There are no indications that Baldacci visited Albania again after his brief stint in Tirana in 1940, but he continued to publish articles on the country and even proposed the establishment of a national park in the bilingual, i.e. Italian-Albanian, journal *Drini* (Baldacci 1942). This he did in the hope of protecting nature and to create a zone for the propagation of wild species that are useful in non-commercial agriculture (Masciali 2014; Tagliarini 2014).

Meanwhile, Markgraf in Berlin must have prepared a manuscript on the southern limit of the Central European vegetation of the Balkan Peninsula ready for the press (Markgraf 1943). When it appeared in March 1943, a disaster had happened in his home institution. During the night of 1 to 2 March about four fifths of the herbarium of the Botanic Garden and Botanical Museum Berlin-Dahlem (BGBM) was reduced to ash as a consequence of an allied air attack with incendiary bombs (Pilger 1953). This was a heavy blow for all interested in the flora of Albania. Not only were most of the collections brought together by Markgraf from his three expeditions and Dörfler's collections purchased by the BGBM (Unpubl. 9) lost forever, but also Markgraf's unpublished card catalogue (Eckardt 1967), his travel notes and an unpublished vegetation map sketched by Nopcsa (Markgraf 1930a). Markgraf's card catalogue must have been the skeleton outline for a Flora of Albania that Markgraf might have planned to write. Having finished and edited the last volume of the *Conspectus florum peninsulae balcanicae* after the death of Hayek, Markgraf would have been singularly qualified for this job. Further evidence of Markgraf's studies on the flora of Albania are detailed distribution maps of *Wulfenia baldaccii* and *W. carinthiaca* for Albania and Montenegro, which appeared in another publication (Baldacci 1935). After what would later be called the Dahlem catastrophe, Markgraf published three papers on the flora of Albania

that deal with *Festucopsis serpentini* (Markgraf 1949a), altitudinal zonation (Markgraf 1949b) and the plant geography of the country (Markgraf 1970); a fourth one was a progress report on the *Flora europaea* project (Markgraf 1963). Of these, the second was based on state-of-the-art technology, i.e. aerial photography of the vegetation in Albania taken by the German air force, supplemented with images taken by the Italian army (Markgraf 1949b). In Berlin, only a tiny number of collections gathered by Markgraf in Albania survived, among them a specimen of *Aesculus hippocastanum* L. from Tresova (B 10 0216554; Fig. 9) and of *Colchicum pieperianum* Markgr. (= *C. macedonicum* Košanin; B 10 0467947). Before 1943, Markgraf had sent miscellaneous duplicates of his collections to Albania, almost certainly to Kolë Papparisto (1914–1980), then a teacher for natural history at the Shkolla Normale in Elbasani (Topuzi 2008). When after the end of the Second World War the herbarium of Tirana University (TIR) was founded, Markgraf's duplicates were integrated into the nascent collection (Lack 2017) and several of them are still extant.

Belgrade had been occupied by the German Army in April 1941 and Petar II Karadorđević (1923–1970), King of Yugoslavia, and the government of Yugoslavia were in exile in London when the Kraljevska Srpska Akademija Nauka i Umetnosti [Royal Serbian Academy of Sciences and Arts] published the *Prilog za florističko poznavanje šire okoline Ohridskog jezera* (Černjavski 1943). This was the first comprehensive list of the flora of the surroundings of Lake Ohrid, which also included records from the Albanian shore and localities south of the lake. For example, a specimen of *Saxifraga grisebachii* Degen & Dörf. (= *S. federici-augusti* subsp. *grisebachii* (Degen & Dörf.) D. A. Webb) was collected in the Moruva mountains [east of Korçë] (Micevski & Mayer 1970). In addition, a few specimens collected by Hepburn (see above) were also included in the *Prilog*.

The armistice signed in Cassibile on 3 September 1943 between Italy on the one side and the United States and Britain on the other led to the surrender of Italian forces including those stationed in Albania. As a consequence, German troops occupied those regions of the Balkan Peninsula that had formerly been under Italian control, including Albania, and installed Quisling governments that were opposed by several Albanian resistant groups. This was the military situation when the ornithologist Franz Höpflinger (1913–1983), teacher at a gymnasium in Graz (Anon. 2020), was stationed as a soldier wearing a German uniform in Skutari from April until September 1944. During his free time, he collected plants in northern Albania (Puka, Renci, Shiroka, Skutari, Tarabosh [Taraboshi]) and published his determinations several years after the end of the Second World War (Höpflinger 1964).

The Dahlem catastrophe was followed by another catastrophe, although definitely smaller in scale. Several weeks after the unconditional surrender of Germany in Reims on 7 May 1945 and repeated in Berlin-Karlshorst

on 8 May 1945, the herbarium material evacuated by the Department of Botany of the Natural History Museum in Vienna to Oberhöflein Castle in Lower Austria was also destroyed by fire. However, in this case, approximately only one fifth of the total collection was lost (Riedl 1981), among them the petaloid monocotyledons (orchids excepted). The only botanist who presented a paper on the flora of Albania in the year 1945 was Baldacci, aged 77. He did so before the Reale Accademia delle Scienze dell'Istituto di Bologna on 5 February 1945, a day when bombs were falling on the city of Bologna. Endemism was Baldacci's topic and, unsurprisingly, he concentrated on the plants endemic to Albania (Baldacci 1946).

Specimens cultivated in botanical gardens

Tracing evidence for plants of known geographical provenance cultivated in gardens is a tedious job, in particular when references in the literature are lacking or incomplete and when no dated and fully annotated herbarium specimens are available.

The first tree endemic to the Balkan Peninsula cultivated outside its native habitat was *Aesculus hippocastanum* L., first recorded in a letter by Willem Quackelbeen (1527–1561), physician to Augier Ghislin de Busbecq (1522–1592), to Pietro Andrea Mattioli (1501–1578), physician in ordinary to Archduke Ferdinand. The latter was the second son of Emperor Ferdinand I (1503–1564) and regent in Prague (Lack 2000). Dated 26 July 1557 and written in Istanbul where Busbecq was stationed as the Emperor's orator at the Porte, the letter mentions the horse chestnut tree with its Turkish name translated into Latin and its use for treating coughing horses (Lack 2000). The recipient of this letter informed his colleague Ulisse Aldrovandi (1522–1605) in Bologna about Quackelbeen's finding and specifically mentioned, among others, the "ampliss. folium pentaphylli" [the very large leaf consisting of five leaflets]. This indicates that Mattioli had either received a branch of the horse chestnut tree or an image of it (Lack 2000). Because this tree does not grow naturally in Istanbul and the movements of Busbecq and his circle were extremely restricted in this city, it is very likely that Quackelbeen's source was a cultivated horse chestnut tree (Lack 2000). Nothing is known as to how and when seeds of *Aesculus hippocastanum* arrived in the capital of the Ottoman Empire, but one fact is clear: a major road of the Ottoman Empire crossed the native range of the horse chestnut. This is the Via Egnatia, the continuation of the Via Appia from Rome to Brindisi, and it leads from the eastern shore of the Adriatic Sea to Istanbul (Elsie 2010). In Albania, the two branches of the Via Egnatia, one starting in Durrës, the other in the ancient city of Apollonia [near the present day town of Fier] combine at Rrogozhina, a village south of Kavajë, and continue via the Shumbin valley, Peqin, Elbasani, Babja, Qukës to Ochrid in present-day North

Macedonia (Elsie 2010). Judging from the present and potential distribution of *Aesculus hippocastanum* on the Balkan Peninsula (Walas & al. 2018) and the course of the Via Egnatia, it seems plausible to assume that seeds were transported by humans on the Via Egnatia either from present-day Albania and/or present-day North Macedonia to Istanbul. Such a transfer would be no surprise, considering the long tradition of migration of people within the Ottoman Empire in general and from the periphery to the capital in particular. There is another fact: Albanians had lived in Istanbul for centuries and among them in the eighteenth century were “gardeners who were cultivating the vegetables sold in Istanbul markets” (Faroqhi 2015). It may be hypothesized that seeds of the horse chestnut from natural stands in present-day Albania or North Macedonia could have been brought to Istanbul prior to the sixteenth century and were first recorded by Quackelbeen. Admittedly, natural stands of the horse chestnut are also well known from localities in present-day Greece (Avtzis & al. 2007) and present-day Bulgaria (Peev & al. 1993), but they are much further away from the principal road that runs across the Balkan Peninsula to Istanbul. The later transfer from this city to Central Europe has been elucidated elsewhere (Lack 2000).

The introduction of *Forsythia europaea* into cultivation is much better documented. Specimens first flowered in the nursery of Otto Froebel in Zürich (Froebel 1903; Froebel & Wittmack 1905), while according to Adolf Engler (1844–1930), professor of botany at Berlin University and director of the Botanic Garden and Botanical Museum Berlin-Dahlem (Diels 1931), at the same time another specimen in Berlin had not yet flowered (Froebel 1903). On 19 September 1908, Degen collected a specimen of this species in his private garden in Budapest (P04255148), raised “e seminibus in Albania pr. Scutari lectis [from seeds collected in Albania near Shkodër]”. These were probably received from Baldacci because Degen never visited “Albania”. Dörfler’s material cultivated in the Botanic Garden of Vienna University had first been mentioned in two papers in *Posta e Shqypniës* (Wettstein 1917; Anon. 1917; for background information on this journal see Elsie 2005 and Shpati 2017). Among Dörfler’s living material we find also *Centaurea kosaninii* Hayek, *Ranunculus wettsteinii* and *Moltkia doerfleri* (Hayek 1920). Judging from herbarium specimens kept in WU, the latter species continued to be cultivated for many years in this garden (Lack 2017).

Giuseppi, Keydel and Lemperg collected material in Albania for their private alpine gardens in Felixstowe near Ipswich in Suffolk (Desmond 1994), Rathen an der Elbe in Saxony and in Hatzendorf near Fehring in Styria, respectively (see above). Giuseppi’s material may have included living bulbs of the June- to summer-flowering *Scilla albanica* (see above), but for this no evidence has been found (Barina & al. 2015). After having purchased the house Lautensackgasse 6 in the fourteenth district of Vienna, Dörfler started a private garden next to it in

c. 1934 and transferred into it several of the plants from Albania previously cultivated in the Botanic Garden of Vienna University, among them *Forsythia europaea* and *Moltkia doerfleri* (Vogt & al. 2018). The cultivation of these rarities in the four private gardens mentioned above has long been discontinued.

In an unpublished letter of 16 May 1931, Markgraf told Bornmüller that specimens of *Aristolochia macedonica* Bornm. (= *A. pallida* Willd.), *Dioscorea balcanica*, *Fritillaria macedonica* Bornm. and *Wulfenia baldaccii*, all collected by the former in Albania, were being cultivated in the Botanic Garden Berlin-Dahlem (Unpubl. 11). Judging from a herbarium specimen of *D. balcanica* collected by Diels in June 1944 in this garden, the species was at that time still in cultivation (B 10 0715941), while an image of a specimen of *Wulfenia baldaccii* cultivated in this garden had appeared in an earlier publication (Baldacci 1935: fig. 2). Fortunately, the plant geography section of the Botanic Garden Berlin-Dahlem was not destroyed during the final days of the Second World War by tanks and trenches. As a consequence, some endemics from the Balkan Peninsula still in cultivation, among them *D. balcanica*, *Forsythia europaea* and *Moltkia doerfleri*, may well be material that had been planted before the Second World War, either the same plants or their descendants. The seed material collected during Markgraf’s third expedition to Albania might have been raised in the Botanic Garden Berlin-Dahlem (Markgraf 1942) and at the Tutenhof near Korneuburg (Lack 2017), but because of the war approaching its end, no results were ever published. Even a connoisseur like Markgraf had moments of surprise in a botanical garden: in 1945, he found *Cistus sintenisii* in cultivation in the Munich Botanic Garden, surprisingly labelled with his unpublished name *C. nowackianus* (Greuter 1975). Markgraf hypothesized that the accession may have come from Giuseppe in England (Greuter 1975).

In the thirties, Schütt’s material collected in Albania was grown in the old botanic garden in Bremen (Baldacci 1935). This garden was moved to another site shortly afterward and the cultivation of his accessions was apparently discontinued. By contrast, the Royal Botanic Gardens, Kew never changed its site and it was there that *Festucopsis serpentini* was cultivated in 1935 from an accession collected by Alston and Sandwith in 1933. Subsequently, herbarium specimens of this garden material collected in 1940 were widely distributed (B 10 1068050, B 10 1068051, L1223672, L1223673, P02659131, P03628999, U1492603, WAG1176988).

Specimens illustrated in botanical publications

No botanical collector active in Albania is known to have been accompanied by a professional illustrator, and consequently a pictorial record of the plants of this country documented in situ does not exist. However, several bota-

nists, among them Baldacci, Dörfler und Markgraf, had cameras with them when engaged in fieldwork, but they are not known to have published photographs of plants. Giuseppi seems to be the only exception: he arranged for photographs of *Trollius europaeus* L. and *Viola kosaninii* Hayek taken in the field (for the latter species cf. e.g. Stevanović & Tan 2000) to be included in one of his papers (Giuseppi 1938). However, no locality information was included and the value of his photographs for science is therefore limited.

By contrast, several images of herbarium specimens collected in Albania, or details of them, have been prepared by different hands, either as conventional pen-and-ink drawings or as photographs. These were subsequently integrated into publications making use of the graphical techniques available at the time. Wettstein's paper on *Moltkia doerfleri* (Wettstein 1918) may act as an example. It is accompanied by text figures showing flower parts and seeds, all based on anonymous pen-and-ink drawings, and a plate, the latter a photolithograph prepared by Max Jaffé (1845–1939) or his workshop in Vienna. The basis for this print was an anonymous photograph of an otherwise undocumented herbarium specimen collected in Albania by Dörfler in 1918 (B 10 0009055).

Epilogue

Looking at the pre-1945 collecting sites in Albania (Fig. 10), very substantial white patches are visible, in particular in the central and southern regions of the country. Apart from geographical gaps, there were also gaps in temporal representation – the spring and autumn flora of Albania was still heavily under-collected by 1945.

Several reasons may be put forward to explain why no Flora, checklist or conspectus was available for Albania until the early sixties. Difficulty of access and lack of security for the collectors come to mind, but there is also another aspect: Albania, effectively Berchtold's desired child, was a latecomer onto the stage of Balkan politics. Its political future remained in doubt during the first three decades after its foundation, and detailed plans on the division of Albania between Yugoslavia and Italy persisted for a long time. By contrast, Montenegro and Greece, Albania's northern and southern neighbours, possessed a much older historical background combined with stronger political identities and affiliations to external powers that resulted in greater interest in the two countries. Only what is now North Macedonia, Albania's eastern neighbour, and in a sense also the most northern parts of Greece had a similar fate – they were part of the Ottoman Empire until the Second Balkan War. By 1945, at the end of the period covered in this paper, a conspectus existed for the floras of Montenegro (Rohlena 1942) and Greece (Halásy 1902–1912), but not for Albania nor for what would later become North Macedonia. The history of the botanical exploration of the Balkan Peninsula in general

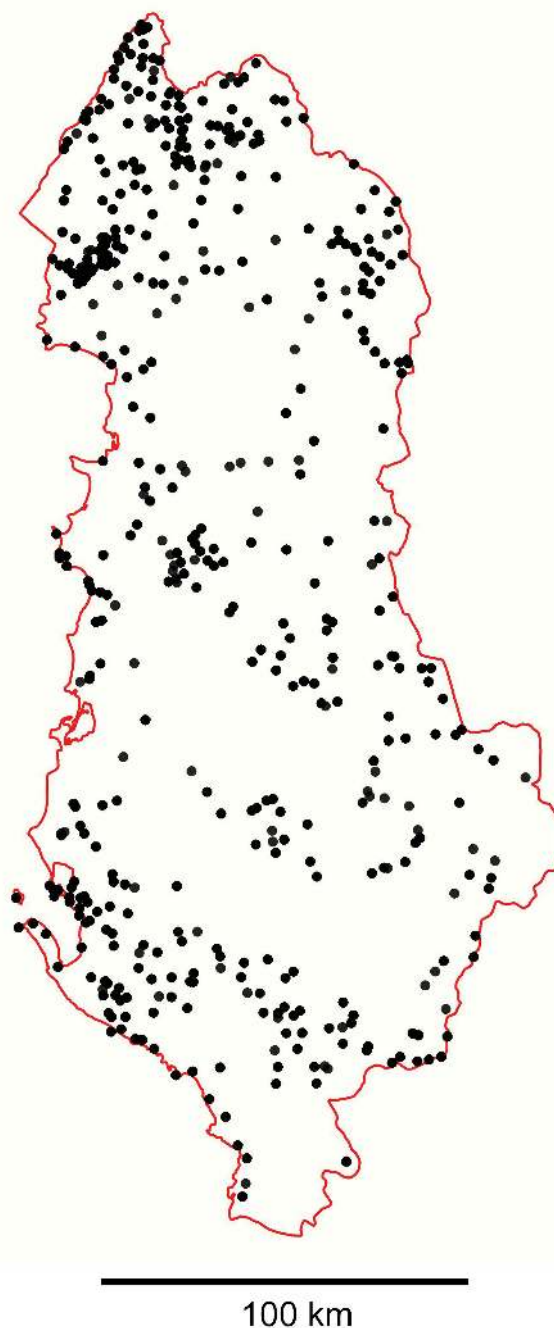


Fig. 10. Map showing pre-1945 collecting sites in Albania.

and of Albania in particular mirrors the complex political situation with its oscillations between periods that were favourable and those that were unfavourable for plant collecting and research.

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Notes

Unless otherwise cited, background information on the history of Albania is taken from *Historical dictionary of Albania* (Elsie 2010) and from Texts and documents of Albanian history (<http://albanianhistory.net/>).

The translations of Baldacci's texts into Albanian are explicitly excluded from the bibliography. They are available at the National Library of Albania [Biblioteka Kombëtare e Shqipërisë] in Tirana (<https://www.bksh.al/>).

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Appendix 1

Timeline for the botanical exploration of Albania.

1838 Boué	1919 Bourcart
1839 Grisebach	1920 Bourcart
1865 Weiss	1924 Markgraf
1871 Grimus	1927 Schütt
1878 Chodzes	1928 Markgraf; Schütt
1892 Baldacci	1929 Schütt
1894 Baldacci	1931 Bornmüller & Keydel
1896 Baldacci	1933 Schütt
1897 Baldacci	1934 Hrubý, Jirásek & Martinec; Lemperg
1900 Baldacci	1935 Schütt
1901 Baldacci	1936 Lemperg
1908 Petrović	1937 Brücher
1912 K. Rechinger	1938 Černjavski; Lemperg & Lindtner; Schütt
1913 Košanin	1939 Černjavski; Schütt
1914 Dörfler	1940 Černjavski
1915 Piroli	1941 Freisleben, Hoffman, Markgraf & Stubbe
1916 Baldacci; Dörfler; Janchen	1944 Höpflinger
1917 Andrasovszky; Baldacci; Csiki; Schneider	
1918 Bourcart; Csiki & Kümmerle; Dörfler; Jávorka; Schneider; Zerny	

Appendix 2

Annotated list of collectors erroneously thought to have collected in Albania in its current sense.

Name of collector **Year of travel** **Note**

Behr		Collected only on the eastern side of Mts. Galicica, Jablanica, Korab, Pashtrik
Dimonie		Pachschwöll & al. 2019
Dörfler	1890	Wettstein 1892
Dörfler	1893	Degen & Dörfler 1897
Rechinger	1933	Rechinger 1938
Šoštarić	1896	Beck 1904

Appendix 3

List of geographical maps with travel routes of plant collectors active in Albania added.

Name of collector	Year of travel	Reference
Baldacci	1892	Baldacci 1917: t. 1
Baldacci	1894	Baldacci 1917: t. 1
Baldacci	1896	Baldacci 1917: t. 2
Baldacci	1897	Baldacci 1917: t. 3
Baldacci	1900	Baldacci 1917: t. 4.
Baldacci	1901	Baldacci 1917: t. 4.
Dörfler	1914	Hayek 1917: 128
Dörfler	1916	Hayek 1924: 102
Dörfler	1918	Hayek 1924: 102
Kümmerle	1918	Kümmerle 1926a: 37; Barina & Pifkó 2019: 280
Jávorka	1918	Jávorka 1926a: 86; Barina & Pifkó 2019: 280
Markgraf	1924	Markgraf 1927: Abb. 20
Schütt	1927, 1928, 1929, 1933, 1935, 1938, 1939	Barina & al. 2016: 4
Markgraf	1928	Markgraf 1931b: plate without number
Černjavski	1934, 1935, 1938, 1939, 1940	Černjavski 1943

Appendix 4

Annotated list of botanical collectors in Albania (1839–1945) and the repositories of their herbarium material with standard herbarium codes (according to Thiers 2017+). Data from Index Herbariorum (Lanjouw & Stafleu 1954, 1957; Chaudhri & al. 1972; Vegter 1976, 1983, 1986, 1988); following semicolon additional information with pertinent sources.

° according to JACQ database (<https://www.jacq.org/>)

°° according to JSTOR database (<https://plants.jstor.org/>)

* according to Sweden's Virtual Herbarium (<http://herbarium.emg.umu.se/>)

** according to Catalogue des Herbiers de Genève (<http://www.ville-ge.ch/musinfo/bd/cjb/chg/>)

Alston BM, K; W	Hrubý – ; PRC°
Andrasovszky BM, DE	Janchen WU; GZU°
Baldacci B, BM, BP, GE, K, LAU, LE, M, P, PR, TU, W; BOLO°°, BR°°, E°°, F°°, FI°°, G**°, GB°°, GZU°, HBG°°, JE°, MACH°°, PI°°, PRC°, TO°°, WU°	Jávorka A, B, BP, H, LE, TBI, W; WU° Košanin B; BEOU (Vukojičić & al. 2014), BP (Barina & al. 2017), GB*
Bertrand –	Kümmerle A, GB, W; GZO°, HBG, K, MPU, W°
Bornmüller JE; B°	Lempert B, E, GB, GH, GZU, K, LAU, PR, W
Boué G, P	Lindtner – ; BEO, SOM, W (Barina & al. 2017)
Bourcart – ; P	Markgraf B, BP; TIR (Lack 2017), W°
Černjavski – ; BEOU (Polatschek 2013)	Pennington K
Csiki BP	Penther – ; W
Dörfler A, B, BM, BP, E, GB, GH, K, LAU, M, S, W, WU; BRNU°, GJO°, PRC°, SARA (Shuka & al. 2007), US	Petrović – ; BEOU (Košanin 1909)
Formánek BRNM	Rechinger, K. – ; G
Grimus – ; W, WU	Sandwith K; S*, W°
Grisebach B, FI, G, GOET, K, L, MA;	Schneider – ; W
Hepburn – ; K (Anon. 1939)	Schütt B, BREM; G**, U
Höfler – ; W	Szyszlłowicz PRC, W
Höpflinger – ; GJO°, GZU°, W°	Wettstein, F. – ; W
	Zerny W; B°

Supplemental content online

See <https://doi.org/10.3372/wi.50.50304>

Appendix 5

Toponyms used in botanical works and on herbarium labels referring to Albania in its modern sense with their precise geographical location.

Appendix 6

Toponyms used in botanical works referring to “Albania” that fall outside the limits of Albania in its modern sense.

Willdenowia

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