Josef Poelt – on his personality and his footprints in the history of lichenology

Hannes Hertel

Abstract: The life history of Josef Poelt is outlined: Childhood in Pöcking; grammar school in Munich, dropped out for military service during World War II; interest in cryptogams aroused by H. Paul; study of natural sciences at University of Munich; PhD in systematic botany in 1950; employment at Botanical Garden Munich and Botanische Staatssammlung München; habilitation in systematic botany in 1959 and afterward lecturer at Munich Universiy; family and children; in 1965 full professor at Berlin Free University and in 1972 at Karl-Franzens-University in Graz; sudden death when emeritus professor in Graz in 1995.

The state of lichenological research at the time when Poelt started his scientific career is drafted. A commented list of lichenologists who published between 1946 and 1959 allows us to get some information about Poelt's early personal contacts. Photos, excerpts from his letters and publications, and a few anecdotes are intended to convey a vivid picture of Josef Poelt. His 31 PhD students at the universities of Munich, Berlin and Graz are listed and pictured. Poelt's huge lichen collections, their status and geographical origin are discussed, and a presentation of his immense and manifold scientific achievements in various fields of lichenology (floristics, taxonomy, morphology, plant geography, ecology, and biology) are presented in some detail, including information on the new families, genera and species he described, and his newly coined scientific terms. Honours which he received, including generic and specific eponyms memorising his name are listed, and last but not least his service to science outside universities is mentioned. Brief biographic notes on relevant contemporaries of Josef Poelt are included in footnotes.

1. Introduction

"*Where would lichenology be today if the last 35 years had not included Josef Poelt?*" This question was posed by William L. Culberson, the outstanding American lichenologist, already thirty years ago (Culberson 1986) – brilliant words to express the influence of Josef Poelt on the development of lichenology in the second half of the 20th century.

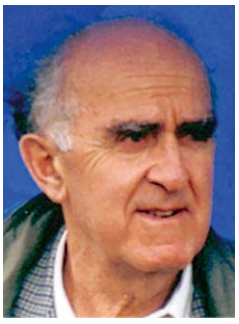


Fig. 1: Josef Poelt in Båstad (Sweden), in September 1992. (Photo: H. Hertel)

Science develops quickly and twenty years – the span since Poelt's death – is a whole generation of scientists. This paper attempts to draw a comprehensive and vivid picture of Josef Poelt, who formed the scientific basis, at least for us older lichenologists of Central Europe.

In contrast to his activities in research (he left us more than 400 scientific papers), we find little or nothing on his life in his publications, for he felt obliged to the old tradition of keeping out personal items from academic work.

It is not my intention to sum up here the information already given in the many obituaries for Josef Poelt[1]. In order to present a multisided picture, I will also include personal remarks I received mainly from his relatives, his younger brother Leonhard and his daughters Julia and Doris, as well as those made in his letters to me, and finally some anecdotes. Poelt himself encouraged to do so when he (in a review of Grummann's "Biographic-bibliographic Handbook" – Poelt (1974a) states: "*In some cases even very personal views as well as faults and quirks were reported of them* [the lichenologists]. *I would have liked to read more such stories, for they often express more than big words do.*" (Translated[2])

I was fortunate to know Josef Poelt for a long time. It was in 1956 when I first met him. He then led an excursion of the "Bavarian Botanical Society", for which he worked as a secretary at that time. In my second semester at university in 1960 I started to listen to Poelt's lessons; "Flechtenkunde" (= Lichenology) was the title of my first one. In 1962 I became Poelt's PhD student in Munich and in 1967 his assistant at the Free University of Berlin. In 1972 Poelt left Berlin for Graz and in 1973 I left Berlin for Munich. We continued to stay in close contact all the time. Nevertheless, there is an asymmetry in my memories when comparing the years before and after 1972.

Twenty years ago – Josef Poelt was in his seventy-first year – he unexpectedly broke down and died quickly from a heart attack, six weeks before the scheduled start of his fourth expedition into the Himalayas with G. and S. Miehe. His quick death, which struck him in a still fully productive period, lets us keep him in our memories as we always saw him: active, highly interested, enthusiastic, imaginative, on cordial terms, and very humorous – not overshadowed by fading physical and mental abilities (as it was the sad fate of colleagues).

---

1 List of obituaries for Josef Poelt: Anonymous (1995), Aptroot & Sipman (1995), Bielczyk (1996), Bresinsky (1995), Brodo (1996), DePriest (1995), Ehrendorfer (1996), Hertel (1995), Hertel & Oberwinkler (1996 – including a publication list), Hertel, Nimis & Vězda (1996), Kandler & Ziegler (1995), Kärnefelt (1995b), Krisai-Greilhuber (1995), Leuckert (1996), Leuckert & Blanz (1996), Lisická (1995), Mayrhofer, Hafellner & Scheuer (1996), Nimis & Tretiach (1995), Scheuer in Scheuer & Poelt † (1995), Vězda (1996). – Short biographies: Frahm & Eggers (2001), Hertel (2012), Kärnefelt et al. (2012), Wagenitz (2009).

2 Poelt 1974a "*Von ihnen* [den Lichenologen] *werden ... in einigen Fällen sogar sehr persönliche Ansichten, ja Fehler und Schrullen mitgeteilt. Man hätte sich mehr solcher Geschichten gewünscht, sagen sie doch oft mehr aus als große Worte*."

With regard to research, this paper is devoted to the lichenologist[3] Josef Poelt (Fig. 2). However, he was an unusually multisided researcher, with an enormous knowledge of organisms of the various branches in the plant kingdom, and with a pronounced interest in the interrelations of taxa, adaption, habitat, association, and occurrence. In the field – even outside Central Europe – he was able to name most of the vascular plants, bryophytes, lichens, higher fungi, rusts, smuts, or mildews. "*To think biologically*" was one of his winged words. In our time of quickly increasing specialization, he was a sort of relic of this rapidly vanishing group of botanists with a very deep, wide, and detailed knowledge of both plants and fungi. His activities as a bryologist, as a mycologist, or as a taxonomist of vascular plants are not in focus here.

Fig. 2: Josef Poelt studying lichens up in the Ötztal Alps in August 1952. (Photo Gertraud Kandler)

Lichenology itself is a wide field, dealing with aspects as different as morphology, anatomy, taxonomy, plant-geography, physiology, ecology, phytosociology, symbiosis-research, phytochemistry, paleontology, bio-indication, or growth. Morphology, anatomy, taxonomy, plant geography, and various aspects of ecology formed the center of Poelt's research activities.

His main tools were hand lens, microscope, and a phenomenal memory. When he started, copying machines, personal computers, or the Internet did not exist, and to some of these modern achievements he never properly warmed. In addition, molecular methods did not begin to flourish until after Poelt's death.

2. A brief glance at the history of lichenology

There are many outlines of the history of lichenology. Krempelhuber (1867) gives a detailed account of the old history (up to 1865). Henssen & Jahns (1974) present a condensed survey leading up to the 1970s, Arvidsson (1999) a survey of lichenology in Sweden during the 19th century, Hawksworth & Seaward (1977) one dealing with the British Isles, or Nimis (1993),

3 Beyond lichenology Poelt published on bryophytes (13 papers); on non-lichenized ascomycetes and basidiomycetes (30 papers including two on Laboulbeniales); on Oomycota (two papers, and various records in some general floristic papers); on Myxomycota (two papers); on pteridophytes (two papers); and on flowering plants (five papers).

who focuses on Italy (this book, Nimis 2018). Hale (1984) gives a further account concentrating on the genus concept in lichenology. There are probably even more such synopses and I do not want to add a new one here. I am going to briefly mention just a few milestones of this long history.

Let me single out only a few persons from the history of lichenology and start with Linnaeus. He was not much interested in "the poor little peasants" (*rustici pauperrimi*), as he called the lichens, which he placed with the bryophytes. In contrast to 7.300 species of vascular plants, he only treated 109 species of lichens, he included almost all in a single genus named *Lichen* (Jørgensen et al. 1994).

His student Erik Acharius (1757–1819) made lichenology bloom (see Jørgensen 1999). He described lichens as an autonomous group, distinct from algae, bryophytes and fungi. He developed a modern terminology, a system based on fruiting bodies, and described many new species, arranged in 40 different genera. We call him "Father of Lichenology". He is commemorated in the "Acharius-Medal", a high distinction, granted by the International Association of Lichenology. Thirty-eight lichenologists have received this medal up to 2014. All these persons got a silver-medal. So far, only a single golden one has been awarded. Josef Poelt received it in 1994 (Kärnefelt 1995a, 1995b), in addition to the silver one he had already got in 1992.

When better microscopes became available at the middle of the 19th century, microscopic characters (especially those of the ascospores), began to play a basic role in lichen taxonomy. Nimis (1993) speaks of the "golden period" of Italian lichenology with pioneers such as Guiseppe DeNotaris, Abramo Massalongo and others (this book, Nimis 2018).

Further eminent lichenologists are Theodor Magnus Fries (son of Elias Magnus Fries, the "Father of Mycology"), who improved Acharius's lichen system and advanced the knowledge of Nordic lichens enormously; William Nylander, who with a very quick pen described more lichens from all over the globe than anybody else (a high extent have meanwhile disappeared in synonymy), and experts of the Alps' lichen flora such as Emanuel Schaerer, Martinus Anzi, Abramo Massalongo, Philipp Hepp and with Ferdinand Arnold leading the way (Arnold became Poelt's role model).

Although striking similarities between lichens and fungi had been observed earlier, it was not until 1866 that the dual nature of lichens was discovered by Anton de Bary and Simon Schwendener.

The 19th and the first half of the 20th century became the period of the large encyclopedias. Thus, in vascular plants more than 100 volumes of "Das Pflanzenreich" [The Plant Kingdom] (edited by A. Engler; started in 1900) appeared. For cryptogams, "Dr. L. Rabenhorst's Flora of Cryptogams of Germany, Austria, and Switzerland" was the largest project. A treatment of a num-

ber of lichen families[4] was included. However, due to World War II this series, still very incomplete, came to an end.

Alexander Zahlbruckner (1907) presented a detailed system of the lichens which included all the genera. He followed the phylogenetic concept of Johannes Reinke and classified lichens in phylogenetically developmental rows (from crustose up to foliose thalli) according to characters of their fruiting bodies. In addition, we owe him the well-known *Catalogus Lichenum Universalis* (1921–1940), a complete register of all hitherto described lichens – ten thick volumes containing all the taxonomic literature of 17.364 species, meticulously listed. His classification system turned out to be still rather artificial, his compilation of the literature, however, has kept its enormous practical value.

Lichen chemistry developed early in the 20th century, mainly through the activities of Wilhelm Zopf (1846–1909), Oswald Hesse (1835–1917), Yashuhiko Asahina (1880–1975) and Shoji Shibata (*1915) – see Huneck & Yoshimura (1996).

In contrast to morphology and anatomy of lichens with quite a number of detailed papers published in earlier years (e.g. Nienburg 1926), research of ultrastructure in lichens did not start before 1960.

Phytosociology, originally devoted to vascular plants, was applied to lichens relatively late (Du Rietz 1921, Klement 1955).

Poelt started publishing on lichens merely five years after World War II. Many lichenologists' careers were at least interrupted by the war, various herbaria destroyed and the world split by the Iron Curtain, which reduced scientific communication between East and West. Let us now have a closer look at the 1950s, because Poelt published his first paper on lichens in 1950, and thus his lichenological career began.

4 Families treated in Rabenhorst's Flora of Cryptogams of Germany, Austria and Switzerland: Acarosporaceae, Arthoniaceae, Caliciaceae, Cladoniaceae, Collemaceae, Coenogoniaceae, Cypheliaceae, Dermatocarpaceae, Ephebaceae, Epigloeaceae, Moriolaceae, Mycoporaceae, Parmeliaceae, Pertusariaceae, Physciaceae [not including crustose genera, as *Buellia*, *Rinodina*], Pyrenopsidaceae, Pyrenulaceae, Sphaerophoraceae, Teloschistaceae [not including crustose genera, as *Caloplaca*], Thelocarpaceae, Umbilicariaceae, and Usneaceae. – Note that such giant families as Lecanoraceae, Lecideaceae, or Verrucariaceae, which include a great part of the Central European lichens, remain untreated.

When Poelt took over the editorship of "Progress in Botany[5]" in 1955, he had to cover a gap in reporting of fourteen years. Therefore he gave a readable overview of lichenological activities in the decade after the end of the war (Poelt 1955d).

Back then, there was a lack of available textbooks on lichens in German; Poelt used Smith (1921) and especially des Abbayes (1951). Modern handbooks, as those of Hale (1967) and Henssen & Jahns (1974), followed much later.

Poelt himself described the status of taxonomic and floristic knowledge at that time (Poelt 1962) in accurate words (translated[6]): "*Systematic-floristic lichenology in Europe is in a rather chaotic state because no complete and up-to-date lichen flora exists for any of the larger naturally or geographically defined areas. Most of the published floras are outdated, incomplete, defective or combine these features alternately. Only for very few smaller areas[7] (Torne Lappmark, North-Western Germany, Mark Brandenburg) do suitable floras exist.*"

In the years immediately following the war, new activities became noticeable. In the period between 1946 and 1959 quite a number of revisions appeared, e.g.[8] on *Buellia*, *Cetraria*, *Lecanora*, *Placopsis*, *Rinodina*, on Ca-

5 "Fortschritte der Botanik" (later "Progress in Botany"), is a series of annual volumes with reviews of invited authors on recent literature. Under the title "Systematik der Flechten" Poelt reported on lichens eleven times between 1955 and 1974; under the title "Systematik der Moose" there are 8 issues on bryophytes between 1955 and 1968 and four more reports on pteridophytes between 1956 and 1961 (under the titles "Systematik der Pteridophyten" and later "Systematik der Farnpflanzen"). – For bibliographic details see Hertel & Oberwinkler 1996).

6 Poelt 1962 p. 301: "*Die systematisch-floristische Lichenologie unseres Erdteils befindet sich in einem ziemlich chaotischen Zustand. Kein größerer natürlicher oder geographischer Raum besitzt eine vollständige und moderne Flora. Die meisten Florenwerke sind veraltet oder unvollständig oder fehlerhaft oder kombinieren diese Eigenschaften wechselweise. Nur wenige kleine Landschaftseinheiten (z.B. Torne Lappmark, NW-Deutschland, Mark Brandenburg) verfügen über wirklich brauchbare Floren.*"

7 The mentioned floras are those of Magnusson (1952), Erichsen (1957), and Hillmann & Grummann (1957).

8 For the period 1946–1959, I traced the following monographs dealing with: *Acarospora* (Magnusson 1956), *Buellia* (Central America, and for the West Indies: Imshaug 1955a, 1955b), *Candelariella* (Hakulinen 1954), *Cetraria* (Soviet Union: Rassadina 1950), *Collema* (Europe: Degelius 1954), *Laurera* (Letrouit-Galinou 1956, 1958), *Lecanora* (species with a lobate thallus: Poelt 1958), *Placopsis* (Lamb 1947), *Pyxine* (North and Central America: Imshaug 1957), *Rinodina* (the non-saxicolous species mainly in Europe and Siberia: Magnusson 1947), *Rhizocarpon* (yellow species of Europe: Runemark 1956), *Thelocarpon* (in Britain: Salisbury 1953), Caliciaceae (Central Europe:

liciaceae, Umbilicariaceae, or – a most famous one – on the huge and taxonomically highly diverse group of foliicolous lichens (Santesson 1952).

The 1950s were also a decade of controversial discussion about the correct names of the mycobiont of the lichens. When the lichen's name is e.g. *Icmadophila*, and its photobiont is determined as *Coccomyxa*, what should the name of the mycobiont be? Ciferri & Tomaselli (e.g. 1952) tried (eventually unsuccessfully) to spread extra names for all the mycobionts, like *Icmadophilomyces*.

The question of who Josef Poelt's contemporaries were in the years around 1950 when he started his career as a young lichenologist is difficult to answer. Poelt's early correspondence is not preserved. The following table (Table 1) gives a survey of those lichenologists who published floristically and taxonomically on lichens within the period from 1946 to 1959, regardless of the fact whether or not they were in contact with Poelt.

This table should help to reconstruct Josef Poelt's early contacts to other lichenologists. As sources I used his private guest book, the visitors' books of the herbarium in Munich (both presumably incomplete), publication lists (including Almborn, Santesson and Tomin, who act as co-authors of the new species, but not as co-authors of the publications in which these descriptions are included[9]), and the eponyms created by Poelt. I heard a nice story about his earliest contact with Peter James: In spring 1957, a British soldier in uniform came to the Botanical Institute in Munich and aroused some anxious interest among the small number of staff, for they had no explanation for the presence of the military there. This soldier was Peter James, who was stationed with the 12th Royal Signals Squadron in Bavaria (Wolseley et al. 2015) at that time and who was looking for Josef Poelt – the start of a long friendship.

Nádvorník 1940), Lecideaceae (frutescent species: Lamb 1954), Physciaceae (Czechoslovakia: Nádvorník 1947), Umbilicariaceae (Western Hemisphere: Llano 1950), Verrucariaceae (Czechoslovakia: Servít 1954), and the Foliicolous Lichens (Santesson 1952).

9 *Caloplaca bonae-spei* Almb. & Poelt (Poelt & Pelleter 1984), *Xanthoria borealis* R. Sant. & Poelt (Poelt & Petutschnig 1992), *Lecanora chlorophthalma* Poelt & Tomin (Poelt 1958), *Rhizocarpon furfurosum* H.Magn. & Poelt (Poelt 1955c).

Table 1: Survey of some lichenologists who published in the period from 1946 to 1959; arranged in chronological order according to the year of their first lichenological publication. Lichenologists whose active publication-period ended before 1946 and those who began to publish after 1959 are not enclosed in the list. Entries in the visitor's book of Botanische Staatssammlung are given for the period 1956 (when that book was set up) to 1965 (when POELT left Munich for Berlin). The existence of eponyms (listed in the chapter "POELT, author of new taxa") created by POELT is indicated as "Epo". Lichenologists mentioned by POELT in the "Acknowledgements" of his early papers are marked with an asterisk.

First paper	Name	State	Visitor's Book (M)	POELT's Guest-book	POELT's Co-author	POELT's epo-nyms
1899	HAVAAS, J.	Norway				
1903	HÄYRÉN, E. F.	Finland				
1904	HERRE, A. W.	USA				
1905	Bouly DE LESDAIN., M.-J.	France				
1910	KEISSLER, K. v.	Austria				
1911	LETTAU, G.	Germany				
1913	SUZA, J.	Czech Repub.				
1914	DU RIETZ, E.	Sweden				
1915	MAGNUSSON, A. H. *	Sweden	12.5.56		co	2 Epo
	MOREAU, F.	France				
	SZATALA, Ö.	Hungary				
1916	EVANS, A.W.	U.S.A.				
1917	RÄSÄNEN, V.	Finland				
	SCHADE, A.	Germany	3.1.57, 13.6.58			
	WATSON, W.	U.K.				
1918	TOMIN, M. P.	Soviet Union			co	
1921	FREY, E.	Switzerland	26.6.62	1962	co	3 Epo
1922	SAVICZ, V. P.	Soviet Union				
1923	ERICHSEN, C. F. E.	Germany				
1924	DES ABBAYES, H.	France				
	CHOISY, M.	France				
	MOTYKA, J. *	Poland				
	OXNER, A. N.	Soviet Union				
	WERNER, R.-G.	France				
1925	Asahina, Y.	Japan				

First paper	Name	State	Visitor's Book (M)	Poelt's Guest-book	Poelt's Co-author	Poelt's epo-nyms
1926	Dodge, C. W.	USA				
	Servít, M. *	Czech Repub.				
1928	Fóriss, F.	Hungary				
	Kušan, F.	Jugoslavia				
1929	Rassadina, K. A.	Soviet Union				
1930	Degelius, G. *	Sweden		27.6.69		1 Epo
	Mattick, F.	Germany	4.4.57, 28.6.62	25.6.62		
	Sbarbaro, C. *	Italy				
1931	Ahlner, S. *	Sweden				
	Černohorský, Z.	Czech Repub.				
	Grummann, V. J. *	Germany	11.9.64		co	
	Klement, O. *	Germany	4.7.63	3.7.63		
	Nádvorník, J.	Czech Repub.				
1932	Lettau, G.	Germany				
	Sato, M.	Japan				
1933	Thomson, J. W.	USA				
1934	Hasselrot, T. E.	Sweden				
1935	Almborn, O. *	Sweden	19.8.57	9.6.69	co	
	Ciferri, R.	Italy				
	Schindler, H.	Germany		15./16.2.82		
1936	Groenhart, P.	Netherlands				
	Lamb, I. M.	U.S.A.				
	Wade, A. E.	U.K.				
1937	Dahl, E.	Norway				
	Duvigneaud, P.	Belgium				
	Tobolewski, Z.	Poland				
1938	Gelting, P.	Denmark				
	Steiner, M.	Germany	3.10.58	4-times	+	1 Epo
1939	Nearing, G. G.	USA				
	Santesson, R.	Sweden				1 Epo
	Tavares, C. das Neves	Portugal	26.8.56		co	
1940	Dix, W. L.	USA				

First paper	Name	State	Visitor's Book (M)	Poelt's Guest-book	Poelt's Co-author	Poelt's epo-nyms
1941	Christiansen, M. S.	Denmark				
	Llano, G. A.	USA				
	Tschermak-Woess, E.	Austria		19.7.74, 22.10.94	co	1 Epo
1942	Maas Geesteranus, R. A.	Netherlands				
1945	Sowter, F. A.	U.K.				
	Tomaselli, R.	Italy				
1947	Makarevich, M. F.	Soviet Union				
	Rondon, Y. *	France				
1948	Awasthi, D. D.	India	19.8.63	19.8.63		
	Lange, O. L. *	Germany		3-times		
	Ozenda, P.	France	10.8.61	8.8.61		
	Plessl, A.	Austria				
1949	Eyerdam, W. J.	USA				
	Hakulinen, R.	Finland				
	Müller, Th.	Germany				
1950	Codoreanu, V.	Romania				
	Doppelbaur, H. *	Germany		29.12.61	co	
	Grassi, M.	Argentina				
	Hale, M. E.	USA	16.9.61	15.9.61, 23.10.63		1 Epo
	Krog, H.	Norway		13.10.75		
	Imshaug, H.	USA	10.7.64	15.12.66		
	Runemark, H.	Sweden				
	Vězda, A.	Czech Repub.		18-times	co	1 Epo
1951	Culberson, W. L.	USA	21.3.62	21.3.62		1 Epo
1952	Barchalov, Sch. O.	Soviet Union				
	Behr, O. *	Germany				
	Bertsch, K. *	Germany				
	Kofler, L.	France				1 Epo
	Kurokawa, S.	Japan	16.9.61	15.0.61		

First paper	Name	State	Visitor's Book (M)	Poelt's Guest-book	Poelt's Co-author	Poelt's epo-nyms
1953	Clauzade, G. *	France	24.8.58, 3.8.62	4.8.62	co	
	Letrouit-Galinou, M. A.	France				
	Rudolph, E. D.	USA				
	Rydzak, J.	Poland				
	Salisbury, G.	U.K.				
	Shafeev, N. G. *	Soviet Union				
1955	Weber, W. A.	USA				
1956	Ahti, T.	Finland		12.11.62, 17.5.69		
	Culberson, C. F.	USA		21.3.62		
	Gallé, L.	Hungary				
	Laundon, J. R.	U.K.				
	Trass, H.	Estonia				
	Verseghy, K.	Hungary		22.9.87		
1957	Nakanishi, M.	Japan				
1958	Ahmadjian, V.	USA				
	Anderson, R. A.	USA				
	Galun, M.	Israel				
	James, P. W.	U.K.	3.57	5.3.79, 21.3.85	co	1 Epo
	Swinscow, T. D. V.	U.K.				
	Yoshimura, I.	Japan				
1959	Duncan, U. K.	U.K.				
	Golubkova, N. S.	Soviet Union				
	Henssen, A. *	Germany		27.5.65, 23.12.68 8.10.69, 30.9.79		1 Epo
	Lambinon, J.	Belgium				
	Mitchell, M. E. *	Ireland	27.2.62	8.1.62		
	Nowak, J. *	Poland				

3. Josef Poelt's life history

3.1. From birth to military service during the war

3.1.1. Origin and birth

Josef Poelt was very strongly attached to his Bavarian home. Those who were with him on a field trip surely heard him yodelling to himself in a low voice when he was in a happy state of mind. A glance at his origin seems appropriate to understand his deep rooting in and great love of his homeland. It does not come as a surprise that *Lecanora bavarica* is the name of one of the first new species he described (Poelt 1952).

Pöcking – Josef's place of birth – is a village in the Pleistocene-formed alpine foothills, some 40 km south-west of Munich. The small village was first documented in the record books almost 860 years ago (Leonhard Poelt 1994)! A good impression of the appearance of the village and its surrounding landscape is given by the picture (Fig. 3). Although it is a historic and flowery painting, it mirrors the beauty of the landscape.

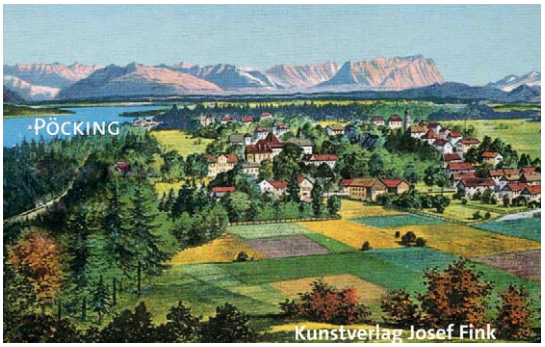


Fig. 3: Painting of the historical village of Pöcking looking out south towards the Alps. Above the church's steeple the Wetterstein Mts (with Mt. Zugspitze) are visible. To the left: Lake Starnberg. (From Ott 2005)

The "Gasthof zur Post" – the house in which Poelt and his siblings were born – is situated on the historical postal route from Tyrol via Mittenwald, Garmisch, Weilheim to Munich. It is an old former post office, which then offered horse-changing beside overnight stays and food. It was bought in 1803 by Josef's great-great-grandparents (and it is still owned and managed as an inn and hotel by the Poelt family). A roughly 150 years old photo (Fig. 4) shows this impressive building. With regard to architecture, little had changed up the year when Josef Poelt was born (Fig. 5), and even today one can still recognize it easily.

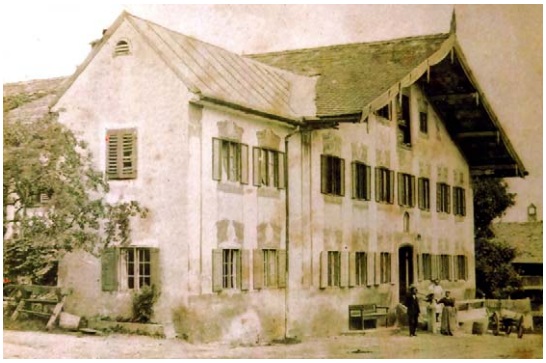


Fig. 4: The "Gasthof zur Post" in Pöcking. The oldest known photo; 1865/1872. (Archives of Leonhard Poelt)

Josef's parents Clemens POELT (1885–1960) and Maria POELT nee REFF (1894–1972) (Fig. 6) had four children. Josef (*1924) was their third child. His siblings are Marianne (*1918), Clemens (*1922; he lost his life very early on the battlefield in Russia), and Leonhard (*1929) (Fig. 7).

Fig. 5: Main entrance to the "Gasthof zur Post"; around the time of Josef POELTS's birth. POELT's family is standing at the entrance. The child sitting on the railing is Josef's elder brother Clemens. (Archives of Leonhard POELT)

Fig. 6: Josef POELT's parents: Maria POELT (nee REFF) and Clemens POELT. (Archives of Leonhard POELT)

Fig. 7: Josef POELT and his siblings; around 1929. From left to right: Leonhard (*1929), Josef (*1924), Clemens (*1922), a cousin, Marianne (*1918). (Archives of Leonhard POELT)

3.1.2. Years at school

Josef suffered heavily from bronchial asthma in his youth. He often had to stay inside when his friends and siblings were playing outside (this was when he began to draw and paint flowers and animals). Because of his poor health at that time he did not seem up to the hard and exhausting work of a farmer and innkeeper. The parish priest advised to send him to a grammar school, hoping that Josef may became a priest. After finishing primary school in Pöcking, Josef started to attend the "*Humanistisches Gymnasium München-Pasing*" (gram-

mar school) in 1936. Here, however, Josef's interests shifted from the ‚Creator' on to the ‚Creation'. His good knowledge of Latin, which he acquired there, later proved to be useful in Josef's botanical studies[10] and became a decisive advantage for learning other languages. He understood English and French, and some basic Italian and Swedish.

During his years at school, Josef was already interested in plants and developed a reasonable knowledge of the flowers of his vicinity. Maybe the village priest, Vinzenz Hamp (see later under "H. Paul", and in Hertel & Schreiber 1988), also an expert in flowering plants, was helpful in this respect. Josef's idea of his future was to become a forester.

3.1.3. Military service during World War II

The Second World War reached its climax in 1943 and finishing grammar school regularly was no longer allowed for Josef – like for most other students of his age. The young boys were needed at the front. In February 1943, two years before the final examination ("Abitur") was scheduled, and nine months after his elder brother's death at war in Russia, Josef and his classmates were drafted (Fig. 8). So his youth came to an abrupt end.

Fig. 8: Josef Poelt as a soldier. Undated (probably 1943). (Archives of Leonhard Poelt)

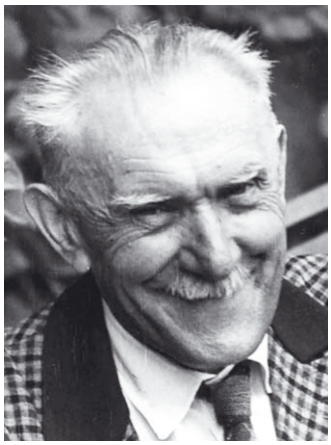
Supposedly due to his grades in mathematics, Josef was put into a call-measuring unit of the artillery, where on the basis of muzzle flash and firing bang the position of the adverse artillery was calculated. He was stationed in the Soviet Union first,

10 Poelt was proud of his knowledge in Latin and he often sneered at us "*Narrow-gauge* Latin scholars" as he would humorously name us students. Years later, when I asked him in Berlin to help me understand parts of a rather complicated Latin text (by S. Almquist), Josef took a quick look at Almquist's text, nodded and said: "*Really, that's a better Latin!*" The following course of the conservation may be an example of how Josef Poelt would change the discussions's direction, when he would not like to answer or discuss a certain question. Almquist's Latin was indeed a sophisticated one. Poelt put Almquist's reprint aside and abruptly changed the subject, asking me: "*Have you analysed that strange Lecidea specimen, which I showed you yesterday*?" (I never got that text fully translated.) Poelt would often be upset about grammatical errors he was faced with in published Latin diagnoses written by colleagues. As to his knowledge of Greek, I remember him mentioning with a chuckle to his student Walter Jülich, who worked on the genus *Athelia*, that he should not use this genus's name for his daughter (in these years another assistant of our institute used plant names as first names of his children, *Melica*, *Luzula*, *Ulex*). A dictionary disclosed the background to us: Greek: *a* = without, *thēlē* = *mamma*, *teat.*

but after a serious icterus and a long stay in hospital he was sent to the Danish island of Bornholm to calibrate the trajectories of the German V-2 rockets starting at Peenemünde. "*This disease most likely saved my life; otherwise I would probably have lost my life at Stalingrad*" he told his family. Josef hardly ever reported about his experiences in the war to us students. In the immediate family he told (according to his daughter Julia) that his heart problems (which caused his sudden death in 1995) may have originated from extreme over-exertion during a forced march while he was suffering from a fever). To us, he only mentioned that he was happy that he never had to shoot at humans. And he told about the flowers he noticed, e.g. peculiar dwarf forms of *Achillea millefolium* in Bornholm and about the interesting steppe-vegetation he observed from the perspective of dugouts in Ukraine.

3.2. From war captivity to studies at university and to early employment

3.2.1. Years immediately after war captivity



When in 1945, after a short war captivity by the British, Josef returned to Pöcking healthy, he and his brother Leonhard there soon came into contact with a humble, almost seventy years old excellent scientist, who gave Josef's life a decisive impetus: It was Hermann Paul[11] (Fig. 9), a retired botanist from Munich, whom the war had brought to Pöcking. Paul enormously stimulated Josef's interests and enhanced his botanical knowledge and he, an excellent expert in vascular plants, bryophytes and phytpathogenic fungi (especially rust fungi), was the person who got Josef highly interested in cryptogams.

Fig. 9: Hermann Paul in the 1950s in Pfronten during a visit of Adolf and Annemarie Schröppel. (Photo without annotations, sent by Jörg Schröppel)

11 Hermann Paul (1876–1964) (see Poelt 1964a, Frahm & Eggers 2001) did his PhD in 1903 with a paper on "*The biology of rhizoids of mosses*" under A. Engler in Berlin. In 1904 he got a permanent position at the "Royal Bavarian Institute for the Cultivation of Boglands". He was also very active and dedicated outside his job (e.g. he was President of the Bavarian Botanical Society for years). Paul's numerous papers on mosses (especially on *Sphagnum*), on rusts, vascular plants, on bogland vegetation, on pollen analysis, vegetation history and on nature conservation as well were listed by Poelt (1964a). During an air raid in 1943 Paul's apartment in Munich was destroyed and it was Vincent Hamp (1907–1991), a priest in Pöcking [later a professor for Old Testament exegesis at the University of Munich] and besides a botanist and a member of the Bavarian Botanical Society, who gave Paul accommodation in the rectory of the church in Pöcking.

As the university in Munich was heavily war-ravaged, it took some time to make it useable for at least a makeshift reopening. In the meantime Josef worked with his parents at his home in Pöcking. In summer 1946 Josef had to complete a special course, obligatory for all the students without a regular school-leaving certificate ("Abitur"). At the end of the year 1946 Josef was finally able to begin his university education.

3.2.2. Devotion to lichenology

It is noticeable, that as to their devotion to studying lichens of all groups, Josef Poelt and Ferdinand Arnold (who became a shining example to Poelt) show similarities. Both already had a rather good floristic knowledge of vascular plants and bryophytes when they started to study lichens in detail. I guess both quickly realized that the general level of knowledge was especially poor as to the lichens, or in other words, that a fascinating rich field of research was still to be attended to.

Josef Poelt tells about his first steps in lichenology in his first lichenological paper (Poelt 1950). There he mentions that it was Hermann Paul who taught him the first lichens and it was Oscar Klement[12] (Fig. 10) who "*in äußerst liebenswürdiger Weise*" (most kindly – such a superlative is unique in Poelt's publications) determined resp. revised all the lichen species treated in that paper. The paper deals with 150 species of lichens from Bavaria, which Poelt collec-

Fig. 10: Maria Klement (author of the poem "Flechtenklage") and her husband Oscar, in Kreuzthal-Eisenbach, 1970. (Photo: O.L. Lange)

12 For Oscar Klement's (1897–1980) eventful life-story see Lange (1983). Beside his many floristic papers his "Prodromus of the Middle European lichen associations" (Klement 1955) merits recognition. Without his time-consuming editorial work on Grummann's incompletely left manuscript of his "Handbook" (Grummann 1974), this very important reference book on lichenologists would perhaps have remained unpublished. He was very humorous, generous (sometimes a bit too generous, when identifying lichens of critical groups) and sparkling with enthusiasm. His willingness to help others e.g. in the determination of lichens was unprecedented. He helped many of the later well-known lichenologists start into lichenology, e.g. O.L. Lange, M. Steiner, H. Ullrich, as well as J. Poelt. In 1959 Klement received the honorary doctorate of the University of Bonn. Those who understand German, should definitely read the affectionately humorous poem by his wife Maria Klement telling about her ‚lichen-crazy' husband Oscar (published in Lange 1983).

ted between 1947 and 1949 at various localities in the nearby Northern Alps, their foothills, as well as at places north of the Danube River.

Fig. 11: Lichenologists meet in Uppsala. Back row, from left to right: Maas Geesteranus, Almborn, Degelius. Middle row: Santesson, Dahl, Tavares, Mattick, Grummann. Sitting: Magnusson and des abbayes. (Photo by O.L. Lange)

Poelt got an extraordinary promotion of his interests and skills during a trip to Sweden in 1951, which in my opinion a Swedish scholarship had enabled him to undertake. The journey led him up to Torne Lappmark in the North. In Lund, Gothenburg, Stockholm, and Uppsala he met all the famous Swedish lichenologists of that period (Fig. 11), as e.g. Ove Almborn, Gunnar Degelius, Einar DuRietz, Adolf Hugo Magnusson, and Rolf Santesson. With an abundant load of new ideas, interesting collections and literature and not least with having made many new friends, he returned to Munich.

A further major advancement in his lichenological career came in 1954 when Poelt got the permanent position of a keeper of cryptogams at the Botanische Staatssammlung München. Here a tremendous amount of work waited to be done – after it had been quiet around this herbarium through almost a decade (including its exile 1943–1946 to some bomb-protected places in easternmost Bavaria and the adjacent Austrian province of Salzburg). A major part of the lichen herbarium was Ferdinand Arnold's huge collection (probably some 100,000 specimens – Hertel & Schreiber 1988). Poelt quite soon recognized that Arnold's lichens, as well as his fundamental opus written in a kind of condensed telegraphic style "*Lichenologische Ausflüge in Tirol*" (Hertel 1997) were an immense source of information which could not be estimated enough, especially as to the crustose lichens in the Alps. Poelt often said: "Arnold was the teacher of mine in lichenology". In retrospect I may say this is really true! Ferdinand Arnold would have been very pleased with his student Josef Poelt and his advancement of the knowledge of the lichen flora of the Alps.

3.2.3. University courses and employment at Botanical Garden and Staatssammlung[13]

The first years immediately after the end of the war were a time of severe hardship, but they were also marked by great pioneering spirit and joy and relief about the end of the war. Because of the multitude of buildings destroyed, there was a great shortage of housing. Students, as e.g. Josef Poelt, Hermann Merxmüller[14], Otto Kandler[15] or Hubert Ziegler[16] (all in Fig. 12), as well as members of the institute's staff, lived in rooms on the uppermost floor of the Botanical Institute at that

Fig. 12: Early friends (in Rome, May 26, 1952): From left to right: O. Kandler, Hans Christian Friedrich (later conservator at the Botanical Garden in Munich), J. Poelt, Helmut Roessler (later conservator at Botanische Staatssammlung), Walter Wiedmann (later secondary school-teacher), H. Merxmüller, H. Ziegler. – Kandler, Poelt, Merxmüller, and Ziegler later held eminent chairs at universities. (Photo received from H. Roessler)

13 Due to a turbulent history (see Hertel & Schreiber 1988) the Botanical Garden, the Herbarium (Botanische Staatssammlung München) and the Botanical Institutes of the University, still united in the 19th century, were assigned to different institutions. Today Botanical Garden and Staatssammlung are separate institutions under the administration of "The Natural History Collections of the State of Bavaria" (Naturwissenschaftliche Sammlungen Bayerns) and are not a part of the university.

14 Hermann Merxmüller (1920–1988 – for details see Grau 1988) was an outstanding connoisseur of vascular plants and one of the most eminent plant taxonomists who held the chair of Systematic Botany at the University of Munich. In addition, he was director of the Herbarium (Botanische Staatssammlung) and the Botanical Garden, and a close friend of Josef Poelt. He published, together with Poelt, an early paper on the floral history of the Alps (Merxmüller & Poelt 1954).

15 Otto Kandler (*1920 – for details see: Schleifer 2011) (Fig. 16). He, too, was a close friend of Josef Poelt (Josef was best man at Otto and Gertraud Kandler's wedding). He, his future wife Gertraud and Georg Schöfer (Fig. 16) undertook, together with Josef Poelt, the memorable long trip (supported by the Deutscher Alpenverein [Poelt 1953]) through high mountains of the Oetz Valley (Tyrol) in 1952, from where so many lichen samples in the herbarium of Munich originate. There is also a joint paper on the recolonization of the city of Munich by lichens (Kandler & Poelt 1984).

16 Hubert Ziegler (1924–2009 – for details see Lüttge 2009) was a later highly decorated plant scientist with a very broad approach in general. He held the chairs of Botany at the Technical Universities of Darmstadt and later Munich (1970 until his retirement in1992). Together with O.L. Lange he is the author of various papers on photosynthesis in lichens and a paper on heavy metal content in lichens of the Acarosporetum sinopicae (Lange & Ziegler 1963).

time – an early realisation of the later so popular flat-sharing communities (Fig. 13). Many anecdotes were told about the time there (but POELT was never the main character). Most of the students living in the Botanical Institute then were graduate students of Karl SUESSENGUTH[17] (Fig. 14), who was the only lecturer at the Botanical Institute[18] during the wartime. Most likely some time around 1947 POELT asked SUESSENGUTH for a topic for a PhD thesis and suggested "*The Bryophyte vegetation of the Lake of Starnberg area*", a topic which SUESSENGUTH accepted. This selection of topic illustrates PAUL's influence. POELT received his doctorate in 1950.

In 1951 POELT was employed as an assistant at the Botanical Garden in Munich. The position of curator of the cryptogamic herbarium – POELT's

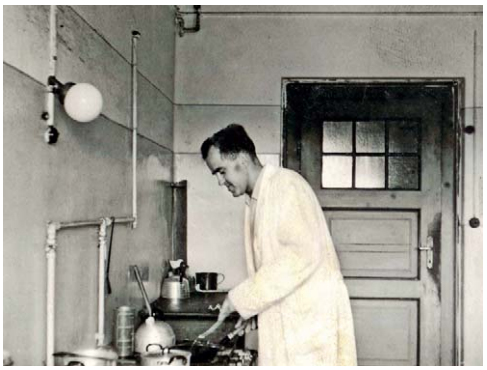


Fig. 13: Josef POELT cooking in a converted office room of the Botanical Institute in Munich around 1947 (the time, when many PhD students lived there). (From the estate of J. POELT)

Fig. 14: Karl SUESSENGUTH, the doctoral adviser of J. POELT. (Photo without annotations, from an album sent by Jörg SCHRÖPPEL)

17 Karl SUESSENGUTH (1893–1955 – for details see MERXMÜLLER 1955) studied botany and received his PhD in Munich under von GOEBEL. After his tenure in 1922, he became conservator at the herbarium and in 1927 eventually professor at the university. By the end of the war, he was head of the Botanical Institute and the herbarium. In 1943 he arranged (frightened by the extermination of the famous herbarium of Berlin-Dahlem in 1942) the displacement of the large Munich herbarium to an apparently safe place and as early as in 1946, the safe return. SUESSENGUTH supervised 25 doctoral theses. In the year 1950 alone six candidates finished their thesis: Otto KANDLER ["Entwicklungs- und stoffwechselphysiologische Untersuchungen an pflanzlichen Organ- und Gewebekulturen"], Johann KARL ["Die Vegetation der Kreuzspitzgruppe in den Ammergauer Alpen"], Hermann MERXMÜLLER ["Untersuchungen zur Sippengliederung und Arealbildung in den Alpen"], Josef POELT ["Die Moosvegetation des Starnberger-See-Gebietes"], Hubert ZIEGLER ["Inversion phototropischer Reaktionen und photodynamischer Effekt"], and Heinz ZÖTTL ["Die Vegetationsentwicklung auf Felsschutt in der alpinen und subalpinen Stufe des Wettersteingebirges"]. SUESSENGUTH left his students the choice of their subjects of research.

18 In 1948 Otto RENNER (1883–1960 – for details see MÄGDEFRAU 1961) came back to Munich as a full professor in Systematic Botany. Decades earlier, he had done his PhD in Munich under L. RADLKOFER in 1906 and in 1913 he became there an adjunct professor. Between 1920 und 1948 he taught as a full professor at the University of Jena. Hans DOPPELBAUR (1959) was one of his Ph.D. students.

desired position – was inexistent at that time. During the chaos of the war and after the death of the previous curator of cryptogams (Karl von Schoenau, 1885–1944), this position had been allocated to another institution. In 1954 Poelt eventually took over the reinstalled position of an assistant (later he became curator) at the herbarium (Botanische Staatssammlung), being responsible for the cryptogamic collections.

The years of working at the Botanical Garden in Munich had great influence on Poelt. It allowed him to enlarge his taxonomic knowledge of foreign vascular plants considerably (a great advantage during his later expeditions to the Himalayas) and created (or deepened) a profound interest in the cultivation of plants. Later his guests at his Berlin home had to admire e.g. dark flowering *Iris* species of the *Oncocyclus*-group in the tiny plot of a private garden in front of his house and later in this much larger garden in Graz he proudly presented unusual herbs, shrubs and trees, as e.g. the North-American "paw-paw" (*Asimina triloba,* Annonaceae) or rare Caucasian species of *Paeonia*, which he successfully brought to flowering and fruiting.

In 1959, he qualified as a lecturer at universities ("Habilitation") and was promoted to head curator and head of the cryptogamic herbarium at the Botanische Staatssammlung München. For his further career as a university teacher see chapter 3.4. After his habilitation he married Christa Meilhamer in May 1959 (see chapter 3.3).

In autumn 1962 Poelt undertook an expedition to the Mt Everest region in Eastern Nepal (for details see chapter 4.2.4.4).

3.2.4. Colleagues and friends in early life

In those years the Bayerische Botanische Gesellschaft (Bavarian Botanical Society) was a haunt for all people interested in the diversity of plants and flora. Here and among the students who studied Botany, Josef Poelt soon got more closely acquainted and made friends with various persons of his age, as e.g. Hans Doppelbaur, Otto Kandler, Hermann Merxmüller, Georg Schöfer, Adolf and Annemarie Schröppel or Hubert Ziegler.

It is now too late to find out when this friendship with Adolf Schröppel[19] (Fig. 15) and his wife Annemarie began. I guess it was around 1950, when

19 Adolf Schröppel (1906–1988). He was trained as a pharmacist in Schweinfurt and continued his studies at the University of Munich (1929–1932) having Botany and Geology as his special subjects. In 1939 he worked as a pharmacist in Füssen (Allgäu), but his career was interrupted by war service and captivity. After the war he started as a pharmacist in Pfronten (Allgäu). He and his wife Annemarie became members of the Bavarian Botanical Society very early after the end of the war. Certainly already in these early years close relations between Josef Poelt and the Schröppels started. Schröp-

Josef Poelt spent several weeks in the Allgäu region (most likely with the Schröppels) to cure – as we meanwhile know – his bronchial asthma. Hubert Ziegler told me with regard to this aspect of Poelt's life that he and other friends of Josef's at university were puzzling about what (obviously embarrassing) disease he wanted to get cured there. It was one of Poelt's strange idiosyncrasies not to talk about personal diseases.

Fig. 15: Hans Doppelbaur, Adolf Schröppel, and Josef Poelt, in the 1950s, on a peak in the Northern Alps. (Photo, without annotations, from the estate of J. Poelt)

Poelt was very often in the field with the Schröppels; hundreds of joint collections recall these excursions. After Adolf Schröppel's death his private herbarium was split; specimens collected in Bavaria went to Munich (M), those from Austria to Graz (GZU).

Josef Poelt's friend Hans Doppelbaur (Fig. 15) (1927–1970 – see Klement 1971, Bresinsky 1972) deserves special mentioning[20], for he stood together

---

pel's home in Pfronten soon became a meeting place for many other botanists, including Hermann Paul, Oscar Klement, and Karl Suessenguth. Adolf Schröppel's interests were manifold and he developed into one of the adepts for the region of the eastern Allgäu. For his obituary see Eschelmüller (1989).

20 Hans Doppelbaur and Josef Poelt had a similar fate as to war service and captivity. Both studied almost at the same time at Munich University. Doppelbaur was a PhD student of Otto Renner, while Poelt was one of Karl Suessenguth. Doppelbaur's interest in lichens was initiated by Oscar Klement; he started publishing in the same year as Poelt (Doppelbaur 1950). Doppelbaur's goal was to become a grammar school teacher. Therefore he needed the two state examinations, while Poelt aimed at a university career directly. Having reached his diplomas in 1953 resp. 1955, Doppelbaur started his career as a teacher in the city of Günzburg. Parallel to his service at school (!), he continued his lichenological studies, working under the supervision of Otto Renner on his thesis: "*Anatomy and ontogeny of some endolithic pyrenocarpous lichens*". He used a time-consuming sophisticated method to get the limestone in between structures of lichen fungus and its algae replaced by paraffin and then sectioned the paraffin-blocks with a microtome. He became an excellent microscopist. How intricate and costly his investigations were can be seen in the acknowledgement of his dissertation: "*Der Arbeit liegen große Schnittserien zugrunde. Der Bedarf an Chemikalien und Gerät (allein 25 kg Objektträger) konnte nur mit einer Sachbeihilfe der Deutschen Forschungsgemeinschaft gedeckt werden.*" (= My work is based on a large series of serial sections. The demand of chemicals and equipment (solely the amount of microscopic slides was 25 kg) could only be met with a research grant ..). Microscopes and microtome he bought at his own costs, for he had to work (far from the infrastructure of the Botanical

with Josef Poelt at the very beginning of research on lichenicolous lichens – a research which became one of Poelt's main fields. Unfortunately Doppelbaur's life ended tragically by suicide at the deathbed of his beloved wife Hanna, also a biologist, when she died of cancer.

Fig. 16: O. Kandler, G. Schöfer and J. Poelt in the Ötztal Alps in 1952. (Photo Gertraud Kandler)

Georg Schöfer (1924–1954; see Hertel 1980) (Fig. 16) was another close friend of Josef Poelt, although not a lichenologist. Poelt dedicated to "*his dear and unforgettable friend and mountaineering comrade*" (Poelt 1955a) the lichen species *Caloplaca schoeferi*. Schöfer was a student of Otto Renner in Munich and did his PhD research on "The polymorphism of indigene species of the genus *Viola*" – Schöfer 1954). He was an experienced mountaineer who encouraged and joined Poelt in various ascents in the Alps (e.g. those ascents which brought about Poelt's famous paper on Wetterstein [Poelt 1955a]). He died very young of Crimean fever (brucellosis), a highly contagious zoonosis, contracted by drinking unpasteurized milk at a time when appropriate antibiotics were not available.

3.3. Family and children

In the mid 1950s a young student, Elisabeth Christa Meilhamer (*1937), started her studies in Biology at the University of Munich.

As she was interested in fungi, it was recommended to her to ask "Dr Josef Poelt, the specialist in cryptogams at the Botanische Staatssammlung". Anyway, this was the story I was once told by Erich Albertshofer, one of our old staff members. In June 1957, on an excursion of the Bavarian Botanical Soci-

---

Institute in Munich) at his home in the small city of Günzburg (some 150 km WNW of Munich). His insight into the morphological structure and ontogenetic development of saxicolous pyrenocarpous lichens (Doppelbaur 1959) are unreached, even up to now. At the time when Doppelbaur intensely studied morphological structures using stained serial microtome sections a close cooperation between him and Poelt originated, resulting in the first paper on parasitic lichens (Poelt & Doppelbaur 1956). Later Doppelbaur's interest shifted to phytpathogenic fungi, especially rust fungi. Together with his wife he systematically mapped them in the wide area of Bavarian Swabia. Their very rich collections are now in M (Hertel & Schreiber 1988). When H. Doppelbaur's screening was less successful because all the supervised host plants remained uninfected, his angry cry during field trips, "*What a healthy region!*" became a winged word in between us students at that time.

ety, I saw her for the first time. Josef and Christa seemed to be already friends then. Her name found its way into lichenological literature after she had discovered the rare Nordic basidiolichen *Clavulinopsis septentrionalis* (= *Multiclavula corynoides*) in the Alps in 1958 (Poelt 1959, 1975a[21]). They married in May 1959 (Fig. 17) after Josef's habilitation.

Fig. 17: Christa and Josef Poelt during an excursion to Austria, on June 26, 1963. (Photo: Elsa Kusel)

We students saw her relatively often then, either when we were invited to their home[22] in "Waidbrucker Strasse" in Munich by the Poelts, or on student excursions, where Christa sometimes accompanied her husband (Fig. 18). She loved mountaineering. Screening herbarium specimens for labels showing "*Ch. & J. Poelt*" as collectors brought to light some of their common regions of travel[23]: Greece (May 1959 – surely their honeymoon), Graz (October 1960), Southern Spain and Portugal (March-April 1961), Liguria (La Spezia region, Florence in Italy, April 1962), and Mallorca (April 1964).

Fig. 18: Josef and Christa Poelt with their first-born daughter Julia. Munich 1960. (Archives of Leonhard Poelt)

Their first daughter Julia (Fig. 19) was born in June 1960 in Munich, and she was just two years old when her father left Munich in August 1962 for an expedition to Nepal, scheduled for about three months[24]. *"No*

21 The impersonal formulation in Poelt 1975a "*the sharp eyes of a miss C. Meilhamer*" [without a supplement like "…, my future wife"] corresponds with the already mentioned old tradition of excluding personal events from scientific papers.

22 The house in Waidbrucker Street belonged to Christa Poelt's parents Anna and Andreas Meilhamer. After Christa and Josef Poelt's wedding, the parents moved to the first floor and left the ground floor to the young couple.

23 That proved to be a time-consuming, but safe method to reconstruct Poelt's itineraries, for he always collected! We students could observe that on several trips, if his usual equipment was just not available, and if the plant to be collected was small, Poelt would open his wallet and use his passport or bank notes as a micro plant press.

24 About the course of time of this journey nothing is published. Poelt's statements in letters and personal documents vary considerably. On the labels of most of his collections (as cited e.g. in Hertel 1977 or Poelt & Hinteregger 1993) Poelt usually mentioned, as date of collecting, the month and the year only (e.g. "9.1962" or "10.1962" or even "9./10.1962"). Collecting dates in August ("8.1962") exist but are rare. I have seen a few labels with an exact date (those dates lying in the period of time between September 22 [in Lobuche, where he was already in the remotest part he reached during this journey]

news is good news!" was a slogan which should reassure the family, who was without contact to him during that time. When Josef Poelt came home after the successful expedition, little Julia did not recognize her meanwhile densely bearded father for a while.

When Josef Poelt began his professorship in October 1965 in Berlin, he started looking for suitable accommodation for his family. During these months he lived in a guest house of the university, while his family remained in their apartment in Munich. Finding a new home was not easy, but eventually he could buy a newly erected house at the "Fichteberg" (a very tiny hill amidst this otherwise flat region, used by driving schools for practising ‚starting the car on a slope'), in some five minutes' walking distance of his workplace. He moved into this new home at the end of the year 1966. Not until April could the whole family permanently live together in Berlin.

During the first months of 1967, when I came to Berlin as Poelt's assistant, I was also looking for an apartment for my family. During this time Poelt kindly offered me to stay in a guest room in his new house and so I came into close family contact. In these days I experienced Josef as a very loving father and husband and I learned that he was a great lover of folk music and had a large collection of such records. Josef's family, however, had to share his time with his immense duties as a professor at university, director of an institute and as a restless scientist. Marginally it may be noted, that Roman Herzog became Poelt's next door neighbour in the street [25].

I remember that after dinner, usually taken around 7 p.m. at his home, Josef would go back to the institute for another hour or two. His wife often, and not rarely rather unexpectedly because Josef was rather spontaneous, had to host guests, but I felt she appreciated this as a welcome change. The Poelts were very hospitable, as many colleagues from all over the world will possibly remember.

In 1968 their second daughter Doris was born in Berlin. But the nice and carefree time did not last long, because Christa was not much longer in perfect health. In summer 1970 she, Josef and Julia had holidays on the Greek island

---

and October 17 [in Bhandar, at his 10th collecting locality, according to his list and map in Poelt 1977a. Note that he had to use the same outward and return route.

25 At the University's guest house the newly appointed Professor Poelt met the simultaneously newly appointed Roman Herzog (*1934), professor of Constitutional Law and Politics. Poelt pointed out to him, that the house next door to him in Schmidt-Ott-Street was still for sale and Herzog and his family moved there. In the years 1965–1969, when Herzog was professor in Berlin, there was close contact between the two ‚Bavarian' families. Many years later (1994–1999) Herzog acted as President of the Federal Republic of Germany.

of Kerkyra – this was her last holiday abroad within her family.

Fig. 19: Christa Poelt with her parents Anton and Maria Meilhamer (in centre), Ilse Eckardt (wife of Theo Eckardt, Josef's colleague in Berlin), as well as Doris and Julia Poelt. Munich; July 8, 1972. (Photo: Theo Eckardt? – From the estate of J. Poelt.)

In September 1970, when Julia had to change from elementary to grammar school, the family decided that Julia should attend a grammar school in Munich instead of Berlin. I guess that at that time Josef had already put his feelers out for leaving Berlin. In 1971 he was appointed to a professorship at the University of Graz. From September 1970 up to summer 1974 not only Julia, but also her mother and her sister Doris spent most of their time with Christa's parents, Anna and Andreas Meilhamer, in Munich (Fig. 20).

When Josef took over his new position as a full professor at the University of Graz in March 1971, another long period of waiting for suitable new accommodation for his family began. His family remained at Munich, while he lived for more than three years in a small room next to his office at the Botanical Institute (see later).

Finally, in summer 1974 the family was reunited in their new house at the Obere Teichstrasse in Graz. However, Christa Poelt was already seriously ill. Her mother Anna[26] moved to Graz after the death of her husband, Andreas Meilhamer, in October 1974. After a long period of suffering, Christa Poelt died on July 7th 1976 of chronical colitis. An appreciation[27] at the end of a paper (Poelt 1977a) makes us feel Josef's love for his wife and his way of enduring the hard fate – by working. Their grandmother's love, care, and affection helped the family, especially the children, to overcome the loss of their mother and the problems of acclimatization to the new environment in Graz. Josef devoted the new species *Pertusaria christae* to his wife.

26 Anna Meilhamer did the housekeeping in Graz with an interruption in 1982 (when she had a cancer surgery) up to 1983. She died in October 1983 in Rosenheim after another cancer treatment.

27 Poelt 1977a, p. 458: "*Ich schließe diese Arbeit vorläufig ab und widme meinen Anteil daran meiner gestern verstorbenen Frau Christa Poelt, die mir durch ihr allzu kurzes und Jahre hindurch von Krankheit gezeichnetes Leben bis zum letzten Tage gut war.*" (Translated: "*I am finishing this series* ["Flechten des Himalaya"] *for the time being and dedicate the parts of mine to my wife Christa, who died yesterday and who was good to me up to the last days of her too short life, which for many years was overshadowed by disease.*")

In February 1980 Josef suffered from serious heart problems. As usual in cases of disease, there was no hint about these problems in any of his letters to me. On 10 February 1980, he had an artificial heart valve implanted. I believe this is the exact date of the surgery, because (judging from their titles, quite evidently) two surgeons and two hospital nurses signed his guest book with their best wishes on the "*decennial valve-anniversary*" on 10 February 1990. I will never forget Josef's letter of 17 Feb 1980, written in the rehabilitation centre of Bad Tatzmannsdorf (Burgenland) in a slightly shaky handwriting: Three lines refer to his situation and fifty more are comments on a manuscript that I had sent him before his heart attack. The three lines read as follows: "*Today I have started to write. A bit shaky in fact, but it is still a progress. Things are improving slowly, but all in all it will take months until everything is the way it was before."* (Translated[28]). Josef improved quickly and as early as in August of the same year he led an excursion to Swedish Lapland, which included a lot of walking and mountaineering.

How Josef managed his household at home hardly penetrated to the outside world. So I will include two of the very few citations from his letters with regard to this aspect: "*Apart from this I do not know much to tell about. I have been doing a lot of work and as my mother-in-law is in Munich presently and will presumably stay there until the end of October I am busy with the household from morning to night. Accordingly I have little time to think about the lapse of time, but maybe that's a good thing.*" (24 Sept 1982)[29]. "*Life without grandma is running smoothly now, and indeed it has to. The microwave oven has already proved to be of value. My mornings have lost some of their hustle and much has become much simpler. I have tried, whenever possible, to prepare more of a roast etc. in order to accumulate a stock of food in the freezer. It is a fine thing when you then only need to press the button.*" (27 Dec 1983)[30].

---

28 [From a letter from J. Poelt, 17 Feb 1980, to H. Hertel] "*Heut hab ich begonnen zu schreiben. Etwas zittrig zwar – aber es ist doch ein Fortschritt. Es geht langsam aufwärts, und insgesamt wird es Monate dauern, bis alles so ist, wie es war.*"

29 [From a letter from J. Poelt, 24 Sept 1982, to H. Hertel] "*Ansonsten weiß ich nicht viel. Hab viel gewerkelt, und nachdem die Schwiegermutter derzeit noch und wohl mindestens bis Ende Oktober in München ist, bin ich auch mit dem Haushalt von früh bis spät ausgelastet. Zum Nachdenken über die Zeitläufte habe ich entsprechend wenig Zeit, aber vielleicht ist das gut so*."

30 [From a letter from J. Poelt, 27 Dec 1983, to H. Hertel] "*Das Leben ohne unsere Oma hat sich eingespielt. Es muss gehen. Der Mikrowellenherd hat sich schon sehr bewährt. Dem Morgen ist für mich manche Hektik genommen, und vieles geht wahrlich einfacher. Ich habe versucht, wo immer möglich, etwas mehr an Braten zu machen usw., damit die Reserven in der Truhe sich anhäufen. Es ist dann eine feine Sache, wenn man nur auf den Knopf zu drücken braucht.*"

In the years after Christa's death, Josef made a number of trips with his daughters, e.g. to Ireland (1978, joined by the grandmother), to Samos in Greece (1984), Israel (1988), Morocco (1989), Egypt (1990), Rome (1991), and Jordan (1992). Josef was very attached to his daughters. In January 1982, he wrote: *"The fact that Julia comes to visit only every now and then these days – that's the course of things, but it hurts. Dotti livens the place up, boredom is out of the question."* (translated[31]).

After graduating from high school in Graz, Julia first began to study Natural Sciences at the local university. The career prospects were very poor at that time. Julia did not finish her studies in Biology. She moved to Munich and became a scientific librarian.

Josef Poelt's 60th birthday was celebrated in Graz and in Pöcking with his family (therefore this event is included here in the "Family's chapter"). Josef invited his former PhD students, his academic "foster children", as well as his academic grandchildren from the Munich school together with their spouses to this party at the "Gasthof zur Post" in Pöcking. Beside the Poelt family and some other friends, there came together: Wolfgang Braun, Peter Döbbeler, Gerhard Eigler, Burghard Hein, Hannes and Inge Hertel, Klaus Kalb, Ingo Nuss, Franz and Bärbel Oberwinkler, Gerhard Rambold, Thomas und Erika Schauer, Adolf Schwab, Dagmar Triebel, Volkmar Wirth, and Helmut Wunder. In this merry crowd (Fig. 21) Franz Oberwinkler presented the Festschrift (Hertel & Oberwinkler 1984) to Josef – not yet bound by the bookbinder – as it was the unfortunate fate of many festschrifts.

Fig. 20: Franz Oberwinkler presents the Festschrift dedicated to Josef Poelt, during the celebration of Josef's 60th birthday. Gasthof zur Post, Pöcking; November 2, 1984. (Photo: H. Hertel.)

3.4. Professional career

This chapter will target at Poelt's activities in teaching. Poelt started teaching very early, when he lectured and led excursions at the Bavarian Botanical Society. In the "Local Club News" (Vereinsnachrichten) of the Bavarian

31 [From a letter from J. Poelt, 12 Jan "1981" (erroneously of 12 Jan 1982), to H. Hertel] "*Daß die Julia jetzt nur noch hie und da zu Besuch kommt – das ist der Lauf der Dinge, aber mir tuts weh. Die Dotti bringt Leben in die Bude. Von Langeweile ist nicht die Rede.*"

Botanical Society excursions were listed without the names of the persons who led the trip. As to the lectures, we can read that in the early post-war years Josef Poelt gave lectures such as: "On Myxomycetes" (1949); "Fungi as Parasites on Insects" (1950); "Lichens and their Habitats" (1952); "Types of Distribution in the Local Lichen Flora" (1953). Those activities in various associations accompanied all his further life. But now I am going to concentrate on his teaching at universities.

His success as an inspiring teacher is best reflected in the large number of students who worked under his guidance on smaller or larger scientific projects. I did not manage to present a list of the numerous students involved in smaller projects (as the "*teacher's graduation theses*" or "*diploma theses*"). The results of these smaller projects most often flow into joint publications of a candidate with Poelt. The lists of doctoral theses, however, are hopefully complete.

Fieldwork was very important in Poelt's scientific training, and he offered many excursions. The most important ones I have tried to capture.

Poelt was a very sociable person and he usually took part in students' parties within the institutes, e.g. the legendary carnival balls at the Botanical Institute in his early years in Munich. He was a passionate dancer.

He regularly invited all students who worked under his guidance to his home; as can be seen in his guest book.

Two extraordinary events, both of which happened in Berlin, are special memories for me. The first event was a joint visit of our institute's team to the Beatles-cartoon "The Yellow Submarine", and we could persuade Poelt to join us. However, he did not get "really very enthusiastic". He told us that this was one out of the three or four times he had been in a cinema to see a film. The second event was during his last months in Berlin, too, when we invited him to go bowling. That time he had much more fun.

3.4.1. Ludwig Maximilians University in Munich

After his habilitation in 1959 Poelt started to offer a series of special lectures[32] and courses on lichens, bryophytes, fungi, on plant geography, vegetation science, and floral ecology, as well as excursions at university and soon he gathered a group of interested students around him. During these years in Mu-

32 The main lecture: "Systematic Botany I" (Cryptogames) was given by K. Mägdefrau (up to 1960, when he took over the chair in Systematic Botany at the University of Tübingen). "Systematic Botany II" (Spermatophyta) was taught by H. Merxmüller; the central practical course ("Großpraktikum") was run by the staff of the department of Plant Physiology.

Fig. 21: Poelt's PhD students at the University Munich. 1: Helmut Linhard; 2: Wolfgang Braun; 3: Franz Oberwinkler; 4: Thomas Schauer; 5: Hannes Hertel; 6: Gerhard Eigler; 7: Hilde Baumgärtner. (Photos: 1, 3–7 H. Hertel; 2: provided by W. Braun)

nich Poelt had seven PhD students and some students working on smaller projects, e.g. Michael Boidol (see Boidol & Poelt 1963), or Helmut Wunder (see Poelt & Wunder 1967). Portraits of Poelt's PhD students can be seen in Fig. 22. As Poelt did his own PhD thesis on phytosociology once, it is no surprise that two of his first PhD students, namely Helmut Linhard ("The natural vegetation at the mouth region of the river Isar" – Linhard 1964) and Wolfgang Braun ("The lime-influenced minerogenous peat-lands in the foreland of the Alps in Bavaria" – Braun 1968), worked on such topics too. But he soon got a number of students interested in cryptogams. With Franz Oberwinkler ("Primitive basidiomycetes – Revision of some groups of basidiomycetes with plastic basidia" – Oberwinkler 1965) he won a student whom he stimulated to study primitive basidiomycetes – a group for which he had already started *‚No.1'* of a series of contributions (Poelt 1960). Later Oberwinkler became a university teacher and the founder of an internationally best-known and highly active centre of mycological research in Tübingen. Almost at the same time Thomas Schauer ("Oceanic lichens in the Northern Alps" – Schauer 1965 – a topic for which Poelt was surely motivated by Degelius's famous dissertation [1935]) started Poelt's school of lichenologists with a plant-geographical, flo-

ristic study (that includes an extreme amount of fieldwork) and so did I (after a year's intermezzo in phytosociology of subalpine boglands) with a taxonomic project on crustose saxicolous lichens ("Revision of calciphilous groups in the genus *Lecidea*" – Hertel 1967). Gerhard Eigler worked a bit in the shadows, for he did his PhD thesis parallel to his regular job as a grammar school teacher. He worked at home and at the Botanical Institute during school holidays only. He presented a well-done general survey of *Lecanora* ("Features for a classification of the genus *Lecanora"* – Eigler 1969), a paper, which later Hafellner appreciated by creating a new genus *Eiglera* and naming a new family Eigleraceae after him. With the assistance of Eigler, Poelt extended his research methods into chemotaxonomy. Eigler analysed the lichen acids of various *Lecanora* species using paper-chromatography and he did this as a guest at the Pharmaceutical Institute of Munich University (Eigler & Poelt 1965). Hilde Baumgärtner presented another taxonomic paper "Revision of the genus *Toninia* in Europe" (unpublished thesis of 1967[33]). She had proved her talent in graphic documentation of morphological and anatomical structures before (Poelt & Baumgärtner 1964).

We PhD students experienced Poelt in Munich as a very intensive carer, most interested in a good progress of our studies. He came to us students almost every day, looking at our records[34], asking about and discussing problems. He gave us the direction of the project, but gave us free hand to carry it out. We had a great teacher!

There were a lot of small excursions which Poelt organized for students. Many took them into the Bavarian or Tyrolean Alps (a remarkable one to Mt Parseierspitze, with 3036 m the highest summit of the Northern Alps, in August 1964), and his famous excursions to Southern Tyrol almost every year in November, when it turned out that there were still some unspent funds for field trips left in the budgets of the Botanical institutes. The annual great "Institute's excursion" (for one or two weeks), was organized and led by H. Merxmüller, the head of the institute. Poelt usually took part in it.

33 Twelve years later Baumgärtner finally published her revision of *Toninia*. This privately printed booklet, however, differs in content and volume considerably from the original version once accepted by Poelt.

34 Because Poelt would look at any notes lying on our tables (including coarse hand written ones which were not yet intended for his critical eyes), we started to hide those notes, when we heard him coming. Franz Oberwinkler wrote his notes in stenography and Poelt, who could not read it, was not pleased at all about that. "*Do you think you will be able to do the transcript of this later?*" he asked.

3.4.2. Free University in Berlin

In 1964 Poelt was appointed to the chair of Systematic Botany and Plant Geography of the Free University[35] of Berlin. On October 10th, 1965, he assumed office as a full professor there and took over his new duties. Some weeks later he was additionally appointed to the chair of Systematic Botany of Innsbruck University (Austria), an appointment that he had to reject.

In his first months in Berlin Poelt lived in a guest house of the university, as already reported. When Poelt took over directorship of the *Institute of Systematic Botany and Plant Geography*, there was no building to house that institution. The staff of Systematic Botany had to work in the cellar of an old building in Grunewald Street 35, bought by the university and used by various departments, as Geography or Psychology. For courses, rooms of the Botanical Museum, and for lectures various rooms of the nearby Botanical Museum and the institutes of Plant Physiology and Zoology had to be used. The former director of this young institute (Institute of Systematic Botany and Plant Geography is already mentioned in the university's calendar of winter semester 1949/1950) was Theo Eckardt[36], director of the Botanical Museum and Botanical Garden Berlin-Dahlem, and a full professor of Systematic Botany. Between him and Poelt as well as between both families a close friendship quickly developed. In teaching, Eckardt continued to take over the general lecture on vascular plants so that Poelt could focus more intensely on cryptogams. In the year 1971 eventually the promised new (still referred to as "provisional") institute building (composed of large prefabricated elements) was erected on the premises of the Botanical Garden, along Altenstein Street. (After a structural extension it is still the home of the Institute of Systematic Botany and Plant Geography.)

---

35 In 1945, after the political splitting of Berlin into two parts, hermetically separated by the "Berlin Wall" in 1961, the *Botanical Garden and Museum in Dahlem* belonged to the Western sector, while the old *Humboldt University* was situated in the eastern part of the city. In Western Berlin a new university was therefore founded in 1948, the *Free University of Berlin*.

36 Theo Eckardt (1910–1977) studied Botany in Munich and followed his mentor Wilhelm Troll to Halle/Saale, where he received his PhD with a study on the morphology, ontogeny and taxonomic significance of the pseudo-monomerous gynoecium. World War II interrupted his scientific career. In 1940 he became a soldier. In 1944 he was taken captive of war by the Red Army and not released until September 1949. In 1959 he became a curator at the Botanical Museum Berlin-Dahlem and a full professor at the Free University of Berlin and director of the Institute for Systematic Botany and Plant Geography. In 1964, Eckardt – in addition to his duties at university – was elected head of the Botanical Museum and Botanical Garden Berlin-Dahlem. He became a professor emeritus in 1976, but died from a heart attack only some months later. (Obituaries, e.g. Markgraf 1977).

At that time Western Berlin was an island in the communist German Democratic Republic. Poelt early used the possibility to go to Eastern Berlin for a day (with his passport of the Federal Republic of Germany) with a permit. There he would (secretly) meet colleagues from the East (usually in a café or in a museum), who took turns coming from various places of the German Democratic Republic to East Berlin (such as e.g. Siegfried Huneck). In addition, Poelt used appropriate events for visiting colleagues, e.g. at the Universities of Halle and Jena. Therefore he did a lot to keep contact to isolated botanists in Eastern Germany.

Poelt's appointment to the chair in Berlin went along with by new positions for technical and scientific staff. Poelt tried to expand the methods of research, adding ultrastructure and chemotaxonomy, by hiring suitable employees. As an employee for chemotaxonomy he won Christian Leuckert, who had acquired a lot of experience in the analysis of natural compounds in flowering plants[37]. As to ultrastructure Poelt recruited Ursula Geissler as an employee, who was talented and experienced in the study of diatoms. Because intense technical teething problems in the preparation hampered the start into ultrastructural studies of lichens, the newly acquired Transmission Electron Microscope eventually did not benefit lichenological, but algological research. Geissler became a well-known algologist (see the festschrift dedicated to her by Jahn et al. 1997), but her field of activities was not what Poelt's interest was focused on.

There was only a very small herbarium at the Institute of Systematic Botany and Plant-Geography, covering recently collected vascular plants of Western Berlin, mainly the rich ruderal flora of the rubble mountains. The lichen herbarium of the Botanical Museum in Berlin-Dahlem – once famous – was poor, too, because its main part had been destroyed during World War II. Therefore Poelt did his best to quickly assemble a private lichen herbarium, which he named "Vergleichsherbar" (comparative herbarium). At the beginning it consisted of small duplicates of significant collections of his previous years, which he separated from the original material in M with official allowance. (This Vergleichsherbar with some 14,000 specimens is now at GZU in Graz).

Access to literature was good in Berlin, especially via the library of the Botanical Museum. Moreover, the Institute purchased the library of Johannes Vitus Grummann after his death in 1967.

Fieldwork in those years – except for within the city itself – meant crossing the German Democratic Republic. Going by car on one of the two transit rou-

37 Leuckert did his PhD at the Free University of Berlin in 1964 with the paper: "Das Lignanglykosid Arctiin als chemotaxonomisches Merkmal in der Familie der Compositae." For further details see the obituary of Hertel (2011).

tes was – as I know from my own experience – bothersome because of many harassments and time-consuming border controls. Therefore most of Poelt's students in Berlin worked on taxonomic instead of floristic topics (the enterprising Arthur Buschardt was an exception).

However, Poelt also did some fieldwork on lichens within the closely guarded borders of Western Berlin (Grummann & Poelt 1972). I accompanied Poelt on some of these Sundays' excursions. Berlin at that time was almost a lichen desert. *Lecanora conizaeoides* was widespread, but *Hypogymnia physodes* a rarity, only known in form of a few poorly developed thalli from five localities in the forests. The saxicolous lichen flora was a bit richer. A real highlight was *Candelariella heidelbergensis*, which Poelt detected in a few small thalli on the concrete wall of a bridge's end. However, it was not just any bridge, it was the politically famous Glienicker Bridge (for it served as a place of the exchange of prominent spies between East and West), strictly guarded and permanently closed to any traffic, leading from Western Berlin to Potsdam in the German Democratic Republic. Poelt discovered the lichen when we were waiting for the bus which had its terminal stop nearby. "*We must have at least a few apothecia of it!*" Josef said in low voice and stood with legs apart in front of me to protect me from the watchful eyes of the nearby German border guard. And we got a few poor fragments of the *Candelariella* – it was its third record at that time.

Poelt's PhD students in Berlin worked in mycological or lichenological fields. As to the lichens, there were doctoral theses by: Brigitte Hannemann ("On the structure of accessory organs in lichens" – Hannemann 1973), Helmut Wunder ("Revision of black-fruited saxicolous species of *Caloplaca*" – Wunder 1974), and Arthur Buschardt ("On the lichen flora of dry valley in the Alps" – Buschardt 1979). Doctoral theses in mycological direction were done on basidiomycetes by Walter Jülich ("Monograph of the Athelieae" – Jülich 1972), in ecological direction by Ingo Nuss ("On the ecology of polypores" – Nuss 1975), and on ascomycetes by Burghard Hein ("Revision of the genus *Laetinaevia*" – Hein 1976). In listing Poelt's students I had – as already mentioned – to confine myself to the PhD students. As an exception, I have to mention Peter Döbbeler , who started his studies in bryicolous fungi under Poelt in Berlin, followed him to Graz and eventually finished his doctorate in Munich (see later). Portraits of these Berlin PhD students are in Fig. 22.

Every year Poelt organized large excursions for his students. They went to Lechtaler Alps and Southern Tyrol (1966), Swedish Lapland (1967), Tunisia (1968), Eastern Alps (1969), Western Alps and southern France (1970), Greece: Attika, Peloponnesus (1971) – all real highlights for the participants and rich as to new lichenological discoveries.

Poelt's years in Western Berlin were politically very turbulent years, shaped by student riots, campaigning against war in Vietnam and for more

democratic instead of hierarchic structures at the universities. A lot of reorganisation of university structure took place, e.g. decisions, taken before by single persons such as directors, now had to be taken by groups (mirroring all kinds of employees like lecturers, scientific assistants, technical personnel and students). A flurry of meetings and a heavily increasing bureaucracy originated – not to the liking of POELT. In addition, there was the constant feeling of living in a cage in the western part of Berlin.

Fig. 22: POELT's PhD students at the Free University of Berlin: 1: Walter JÜLICH; 2: Ingo NUSS; 3: Burghard HEIN; 4: Brigitte HANNEMANN; 5: Helmut WUNDER; 6: Arthur BUSCHARDT. (Photos: H. HERTEL)

So POELT put out his feelers for an adequate position at another university, and he got a call from the Austrian university of Graz, as successor of F. EHRENDORFER.

3.4.3. Karl-Franzens-University in Graz

In 1971, POELT was appointed to the chair of Systematic Botany at the University of Graz (Austria) and took over his duties as a full professor at the Institute of Systematic Botany [renamed later in "Botanical Institute"] in the summer semester 1972. POELT was employed as director of the Institute ("*Institutsvorstand*") up to January 1991. He got an Austrian passport in addition to his German one – sometimes an advantage, as he told us winkingly. I am sure

he was very happy about this new start at a university very near to or almost within the Alps, where he could spend his weekends, if free, on fieldwork.

It was again difficult to find suitable accommodation for his family. During more than three years he lived – like a hermit – most provisionally in a small, sparingly furnished adjoining room to his large office at the Botanical Institute (but with a door down direct to the herbarium). He would take lunch in a popular and well frequented inn ("Schuberthof") nearby, often together with Peter Döbbeler. Finally, his new house (at Obere Teichstraße) with a fine garden was ready for the family to move in[38] and his wife and daughters could relocate from Munich to Graz. The distance between his new home and the Botanical Institute was about 3 km – a 35 minutes' walking distance. Since his days at Berlin, Josef was accustomed to having lunch at home, and for a while he would walk home for lunch and afterwards return to the institute. Later he bought a small moped ("Mofa"), and finally a car,[39] after he had completed training and passed the test for a driver's licence. Poelt was obviously embarrassed to attend a driving school at his advanced age (at a time when young people were trying to acquire the licence already at the age of 18) and he tried to keep it secret at the Botanical Institute. I was told that his staff began to wonder little by little about his frequent and unusual absence. When rumours appeared about the reasons for his absence he finally broke his silence. But he did not really enjoy driving a car on his own – perhaps because of eye problems[40]).

In contrast to Berlin, Poelt took over an institute with a famous and long tradition in Graz (see Teppner 1997). But – as the majority of these institutions worldwide – it was geared to research on higher plants. Poelt recognized the necessity to enlarge the space for herbarium and laboratories and fought constantly for the renovation of the old building, finally with success.

A number of important building projects fell within the years of his directorship, as the enlargement of the herbarium room by installing an inserted ceiling, an extension of the wide-span attic into many new office premises, as well as planning and construction of the remarkable and meanwhile famous greenhouses (which opened on June 25th 1995). In the realisation of both pro-

38 In Poelt's guest book there is the following entry: "*Am 10.IV.[1974] erste Ordnung und die erste Flasche Wein in den eigenen vier Wänden nach mehr als 2 Jahren*" [= On April 10th first arrangements and the first bottle of wine in the privacy of our own home after more than two years] – signed: J. Poelt, Peter Döbbeler.

39 "*That's all for today. Now I have to start with my Rolls Royce – lunch is waiting* [at home]" Poelt humorously wrote in a letter to H. Hertel from 3 March 1976.

40 Poelt suffered from a congenital axial contortion of his left eye.

jects Poelt played a decisive role. Poelt made Graz the centre of globally important cryptogamic research, especially lichenology, which it is still today.

In Graz Josef Poelt also suffered from a heavy burden of teaching. But thus he was soon surrounded by a fast growing group of students, working in fields of mycology, lichenology, and bryology. Many students pursued lower degrees (comparable to Bachelor's or Master's degrees). Here only his successful PhD students will be listed.

Portraits of Poelt's PhD students working mycologically can be seen in Fig. 23. They are: Jeannette-Catherine Fritz-Schroeder 1975 ("*Ramularia*, a genus of imperfect phytopathogenous fungi" – unpublished, but see Poelt & Fritz-Schroeder 1983); Paula Remler ("Ascomycetes growing on Ericaceae in the Eastern Alps" – Remler 1979); Dietmar Kores 1984 ("Ascomycetes on Poaceae in the Eastern Alps; a first attempt of an inventory" – unpublished); Helene Hager 1985 ("Ascomycetes on Apiaceae in the Eastern Alps; a first attempt of an inventory" – unpublished); Christian Scheuer ("Ascomycetes colonizing Cyperaceae and Juncaceae in the Eastern Alps; a first attempt of an inventory" – Scheuer 1988); Heinz Schweiger 1985 ("Coprophilous as-

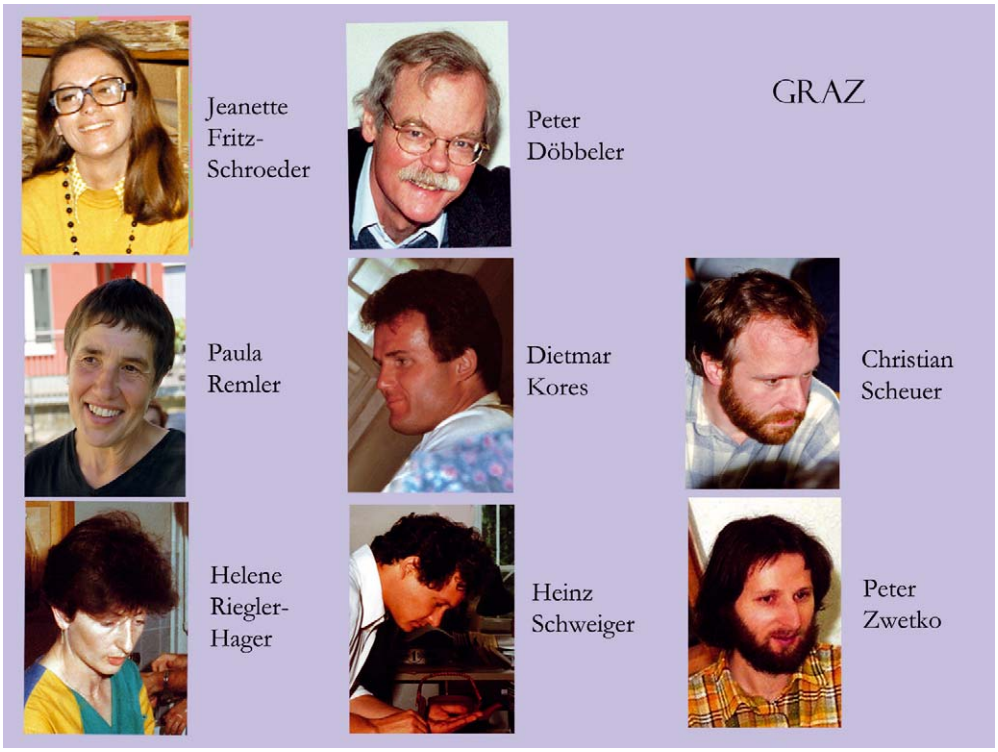


Fig. 23: Poelt's mycologically working PhD students at the University of Graz: 1: Jeanette-Catharine Fritz-Schroeder; 2: Peter Döbbeler; 3: Paula Remler; 4: Dietmar Kores; 5: Helene Riegler-Hager; 6: Heinz Schweiger; 7: Christian Scheuer; 8: Peter Zwetko. (Photos: No. 2 by H. Hertel; no. 3 by P. Remler; all others sent by colleagues in Graz)

comycetes in southern Austria (Steiermark, Kärnten) and adjacent regions" – unpublished); Peter Zwetko ("Uredinales on *Carex* in the Eastern Alps" – Zwetko 1993). Peter Döbbeler ("Bryicolous ascomycetes" – Döbbeler 1978) is placed here for he did the main part of his thesis research in Graz. Josef Hafellner will be found under the "lichenologists", although his investigations included various non-lichenized ascomycetes. Portraits of Poelt's PhD students working lichenologically can be seen in Fig. 24. They are: Gerda Zehetleitner ("Studies on some parasitic species of the lichen genus *Verrucaria*" – Zehetleitner 1978); Josef Hafellner ("Revision of *Karschia*, a collective genus in between lichenized and not-lichenized ascomycetes" – Hafellner 1979); Helmut Mayrhofer ("The saxicolous species of the lichen genera *Rinodina* and *Rinodinella* in the Old World" – Mayrhofer 1984); Michaela Mayrhofer ("The saxicolous species of the lichen genus *Lecania* in Europe" – Mayrhofer, M. 1987, 1988); Erika Hinteregger ("Crustose lichens on species of *Rhododendron* in the Eastern Alps" – Hinteregger 1994); Werner Petutschnig 1992 ("Dependency of lichens on rock types in the National Park Nockberge in Kärnten, Austria" – unpublished).

Portraits of Poelt's PhD students working bryologically can be seen in Fig. 24. They are: Rudolf Stipacek 1979 ("Revision of the European species of the moss genus *Schistidium* with special reference to Central Europe" – unpublished); Adolf Schriebl 1983 ("Experimental taxonomic studies in the moss genus *Polytrichum* in Europe" – Schriebl 1991); Evelin Fischer-Wellenborn (nee Fritz) 1996 ("Mosses in boglands of Carinthia" – After Poelt's death Prof. Dr. R. Krisai, University of Salzburg, supervised this thesis); Michael Suanjak 1997 ("The colonisation of clay embankments within forests by bryophytes and discomycetes" – After Poelt's death Prof. Dr. R. Krisai, University of Salzburg, supervised this thesis).

Teaching biology in the field, too, was Poelt's pronounced concern and he led many excursions. Here is a list of regions of his major student excursions:

Slovenia and Croatia (1973), Serbia and Montenegro (1974), Italian Alps (Bergamaskan Alps, 1975), Makedonia (1977), Tuscany (1978), Austrian Alps (Kreuzeck region 1978), Southern Italy (1979), Swedish Lapland (1980), Tunisia (1982), Spain (1983), Italy (Southern Tyrol 1984), Mallorca (1985), Sardinia (1986), Austrian Alps (Nockberge 1987), Sicily (1988), Italy (Southern Tyrol 1989), and Sweden (Bohuslän 1990).

Poelt was never able to warm to the use of a computer. He typed his manuscripts and letters (if not hand-written) on a typewriter, just as his labels (with many carbon copies for the duplicates).

Only in personal contact and in letters did Poelt complain about the excessive bureaucracy that he experienced. "*... since I was scarcely engaged with organisms but with paper only for long days, ...*", he wrote 8 Nov 1976 (trans-

Fig. 24: POELT's lichenologically and bryologically working PhD students at the University of Graz: – Lichenologists: 1: Gerda ZEHETLEITNER; 2: Josef HAFELLNER; 3: Helmut MAYRHOFER; 4: Michaela MAYRHOFER; 5: Erika HINTEREGGER; 6: Werner PETUTSCHNIG. (Photo 1–6 by H. HERTEL, no. 7 by W. OBERMAYER.) – Bryologists: 1: Rudolf STIPACEK; 2: Adolf SCHRIEBEL; 3: Evelin FISCHER-WELLENBORN; 4: Michael SUANJAK. (Photos: sent by colleagues in Graz)

lated); "*Otherwise, a lot of obligations, tests, lectures; lichenology runs on the back burner*" (letter 9 Mar, 1983; translated); or "*Otherwise, I'm full of hatred towards the current university system here these days. Nothing like* "*Papierl*" [Bavarian: derogatory for papers, little documents], *chatter, bureaucracy and other crap.*" (Letter of 4 Feb 1983; translated[41]).

A highlight in POELT's years at Graz surely was the celebration of his 70th birthday in October 1994. There was a colloquium with the speakers Per MAGNUS JØRGENSEN ("*Josef POELT – persönlich*"), Pier Luigi NIMIS ("*Flechten und Monumente*"), Emil MÜLLER ("*Eigenartige alpine Pilze*"), Siegfried HUNECK ("*Flechten – Naturstoffchemiker par excellence*") and Georg and Sabine MIEHE ("*Epiphyten als Klimazeiger im Gebirge*"). More than 60 participants came

41 [From a letter by J. POELT, 4 Feb 1986, to H. HERTEL] "*Ansonsten stecke ich heute voller Haß gegen den derzeitigen Unibetrieb hier. Nichts wie Papierl, Geschwätz, Bürokratismus und sonstiger Mist.*"

from nine countries (Austria, Czech Republic, Germany, Italy, Norway, Romania, Slovakia, Sweden, and Switzerland); some impressions of this colloquium is given by Kärnefelt (1995a), who presented Josef, on behalf of the International Association of Lichenology, with the Acharius medal in gold at the meeting.

4. Josef Poelt's tracks in the history of lichenology

Josef Poelt left countless and deep marks in the recent history of lichenology. He gave lichenology in Central Europe a powerful drive and a great many stimuli in the second half of the 20th century. The obvious tracks he left are his collections, his enormous amount of publications, a great number of new taxa, and the new scientific terms he coined. Less palpable may be the generations of young academics he trained and influenced with his ideas and his way of thinking. They enlarge his scientific impact, especially if they, in turn, became academic teachers, too. Other kinds of scientific services, as his participation in various scientific societies and boards of journals, doubtlessly had influence on science as well, perhaps in a less obvious way. However, Poelt's charisma, his personality, his humour, and his cordiality, which enabled him to spread his ideas and his influence, are the marks he left in our personal memories.

4.1. His collections

Josef was a very sharp-eyed, skilful and precise observer, and this is reflected in his collections. I have examined hundreds of undetermined saxicolous alpine lichens of other collectors in other herbaria and was astonished about the usually minute amount of lichens bound to special ecological niches, as e.g. lichenicolous lichens, lichens growing in overhanging, rain-protected rock faces, or lichens typical of pebbles on windswept, wintrily saddles not protected from snow – those collectors don't seem to have looked at lichens of such ecological niches and their inhabitants in a target-oriented manner. Poelt always did so.

A little story may illustrate Poelt's intensive searching for lichens. During the International Lichen Excursion to the Alps in summer 1973 a group of more than twenty lichenologists (including e.g. O. Almborn, I. Brodo, E. Dahl, D. Galloway, P. James, H. Krog, J. Laundon, M.-A. Letrouit-Galinou, R. Santesson, M. Steiner, O. Vitikainen, I. Yoshimura) were following a narrow alpine path which crossed a steep slope. The path was quite often flanked by big, lichen-covered boulders. All the participants were forced to go in single file. Josef, who first led the long row, was at its end eventually, screening carefully the rock-faces covered with crustose lichens with his lens, square inch by square inch, almost touching the rock with his face. From time to time he made the group stop with the call "*Hello! Have you seen that?*" and

presented an interesting species, which had been overlooked by all the preceding colleagues. POELT had a very good knowledge and a keen sense of all the different lichen associations, of the different rock types and their specific lichen flora. He tried to detect those taxa which he expected might grow in that specific ecological niche. His targeted search was often successful.

POELT had collected herbarium specimens since 1946. First, his area for excursions was the southern part of Bavaria. With improved travel options it expanded continuously. The map (Fig. 25) gives a survey of POELT's collecting areas. It is based on published records, on his collecting lists (preserved in GZU, covering mainly the excursions in his years at Graz), on remarks in his letters and on proven herbarium specimens in M.

Alpine lichens were at the centre of his attention all the time and the number of his excursions to the Alps is countless.

Fig. 25: Josef POELT's collecting localities. The symbols do not indicate the amount of samples collected at each locality. (Orig.)

As arctic-alpine distribution is common among the lichens in the Alps, POELT very early intended to visit and study the flora of Nordic countries. He did field work in Swedish Lapland in 1951, 1967 and 1980. In addition, he was a guest of the Finnish Subarctic Research Station Kevo (69°45'N) in 1965. During his visit there, POELT joined a Finish group for a one-day trip to Varanger Fjord at Barents Sea in the upper north-east of Norway, a famous place for arctic elements in Scandinavia. When he later told us about the fascinating arctic lichens he saw there, he would always complain about the "too short time" he had for collecting, caused by the "too many" and "much too long,

time-wasting tea stops", on the long route from Kevo up to Varanger. Decades later, it was Hans Ullrich who inspired him to visit arctic regions in Western Greenland with him twice, in 1982 and in 1983 (Fig. 26).

Through his expedition to Nepal, as early as in 1962, Poelt came into very close contact with the monsoon-affected, quite different alpine flora of the eastern Himalayas. And years later he gladly took the opportunity to participate in two more expeditions to the high mountains of Asia (1986 Nepal: Langtang (Fig. 27) and 1991 Pakistan: Karakorum), organized by Georg and Sabine Miehe.

When studying the lichens which Poelt brought home from Nepal, we usually do not take into account all the difficulties encountered in collecting in remote, monsoon-affected regions. Let me quote from a letter, dated (6 Oct 1986[42] – after Poelt's fieldwork in the Langtang region of Nepal): "*The difficulty there is not to find things, but to collect them, to dry them and bring them to Europe. The weather was like what you would expect a monsoon to be. For days we had the*

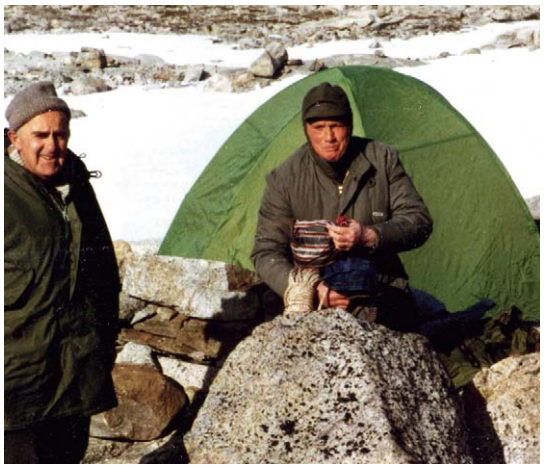


Fig. 26: Josef Poelt (left) and Hans Ullrich in front of their tent in the region of Maarmorilik in western Greenland in 1983. (From the estate of J. Poelt)

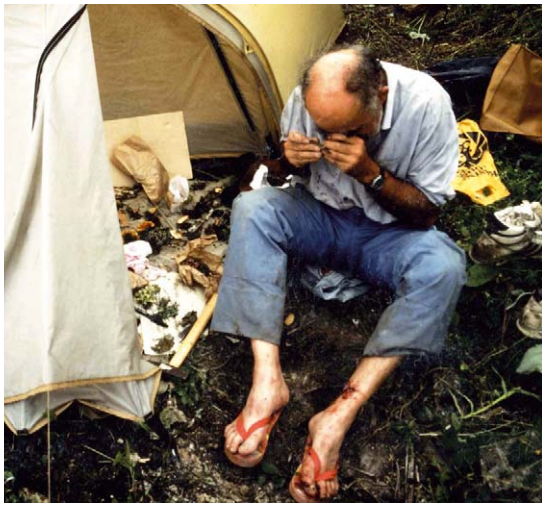


Fig. 27: Josef Poelt preparing his collections outside his tent at "Camp Sangsa, 3000 m", between "Kangri and Sherpa", Nepal, Langtang, August 29, 1987. (Photo by Sabine or Georg Miehe. From the estate of Josef Poelt)

42 [From a letter from J. Poelt, 6 Oct 1986, to H. Hertel] "*Die Schwierigkeit dort ist nicht, Dinge zu finden, sondern sie zu sammeln, trocknen und dann nach Europa zu bringen. Das Wetter entsprach dem Monsun. Tagelang hatte man das Gefühl, es würde überhaupt nichts trocken. So blieb nichts übrig, als Papier und die vollen, feuchten Kryptotüten über dem Feuer zu trocknen. Da überlegt man sich, große Mengen mitzuznehmen. Und die Steine machen Probleme wegen ihres Gewichts. Alles muß getragen werden.*"

feeling that really nothing would become dry. We had no choice but to dry all the paper and the full, wet crypto bags over an open fire. In such a situation you reason whether to collect large amounts. And the stones cause problems because of their weight, you have to carry everything."

Poelt visited selected localities in eastern USA (Michigan, Tennessee, Florida, 1977) and some in British Columbia (1994) during field trips organized in connection with congresses. In Arizona and adjacent Mexico, he was in the field with Tom Nash and in the Rocky Mountains National Park (Colorado) 1977 with Roger Anderson and William Weber. Under the guidance of Franz Oberwinkler (in Merida, Venezuela, at that time) he visited many sites in tropical and Andean Venezuela (1969), and many others in Costa Rica in 1990, guided by Peter Döbbeler (in San José, Costa Rica, at that time). In 1979, he was in Brazil for some days doing fieldwork with Klaus Kalb and Gerhard Gottsberger, whereupon he took a flight to Chile and spent some days there with Oscar Matthei and Roberto Rodríguez (Concepción).

In January 1989, Poelt had the opportunity to get an impression of the subantarctic flora. He took part in an excursion to Tierra del Fuego in southernmost Argentina. The trip was actually organized by Pier Luigi Nimis, who had been appointed new director of the Department of Botany in Trieste immediately before and had to cancel his participation. Teuvo Ahti then led the small group. Beside Josef Poelt, Nora Scutari, Laura Ruiz and Soili Stenroos took part.

I was told that the late, very widely travelled Gunnar Degelius – at least in later years – travelled with relatively small luggage, because he limited his collecting mainly to the groups he worked on. Poelt, in that way, was quite the opposite. He also brought home vascular plants from everywhere (e.g. from Nepal-Langtang 600 collections (as mentioned in a letter from 6 Oct 1986). Apologetically he commented: "*We have in our herbarium little or nothing of these groups.*" He was also aware that for many plant groups illustrative material for the lectures was rare or missing in Graz. A nice story, which I was told by his daughter Julia, illustrates this. The family of four (father, grandmother, daughters) were on holiday in Ireland in summer 1978. They stayed in a hotel somewhere at the windswept coast of the Dingle Peninsula and could share two bathrooms with others. In reality they could use only one of them, for the other one (certainly to the hotel staff's astonishment) served as a drying room for the many large specimens of seaweed which Josef had collected (of course beside hundreds of lichens).

After an excursion, Poelt would stop all possible obligations and quickly start to work through his collections. He roughly determined the material, as far as it was possible in the short period of time, and put the specimens loosely on cards with a few notes. On a small table a high mountain of specimens would soon rise. Often many days had passed before the specimens got en-

closed in paper-capsules and accompanied by labels. Unfortunately, Poelt never used collecting numbers (his Nepal specimens of 1962 are an exception), a circumstance which often makes it difficult to cite his collections unmistakably. In later years he often added his herbarium numbers (but only to the fully determined specimens).

In obituaries for various famous lichenologists we can read how crowded with boxes and specimens their studies were. Boistel (1967; in a translation by W. Culberson) draws an impressive picture of William Nylander, Holzner (1902) did this for Ferdinand Arnold. And here is Josef Poelt with his own words: "*The orogenic folding of the Alps in my room is going on and on. Heaps of boxes are piled on heaps of other boxes, threatening to crush me. Well, I do not want to become a herbarium specimen myself.*" (Letter of 12 Jan 1981. Translated[43]).

Poelt's original collections are well preserved in Munich (M) and Graz (GZU). They are irreplaceable treasures for further studies! Some specimens may already be documents of meanwhile locally extinct organisms. Many collections are from places difficult to access or from areas where collecting is meanwhile forbidden or impossible for safety reasons. Public authorities would often like to know the commercial value of a plant collection. This amounts to at least the collection's replacement value. Many of Poelt's collections could not get replaced any more. It is not possible yet to quote reliable numbers of Poelt's lichen herbarium specimens in the mentioned herbaria. Very uncertain estimates are 30,000–45,000 specimens for GZU (W. Obermayer in lit.) and 20,000–30,000 specimens for M.

4.1.1. Poelt's lichen exsiccatae series

The large lichen herbarium in Munich with its some 300,000 specimens is very rich in exsiccatae (Hertel 1982). All the sets in Munich are not kept in their original fascicle arrangements. Instead, all specimens were inserted into the general herbarium under the names given to the taxa. Therefore, when looking through the folders of a certain species in this herbarium, the visitor will also find, apart from all the individual collections, the corresponding exsiccatae specimens, both filed in geographical order.

Thus Poelt became familiar with exsiccatae early, namely already at the beginning of his career and he soon recognized their high scientific value. In 1956, he started his own exsiccatae series: Lichenes Alpium, a series de-

43 [From a letter from J. Poelt, 12 Jan1981, to H. Hertel] "*Dabei geht die orogenetische Alpenfaltung in meinem Zimmer immer weiter, Schachtelhaufen türmt sich auf Schachtelhaufen und droht mich zu erdrücken. Nun, selber möchte ich keine Herbarprobe werden.*"

voted to the lichen flora of the Alps. His activities were supported by friends, students, and colleagues, to a great extent by Adolf and Annemarie Schröppel, Maximilian Steiner, Hans Ullrich and Thomas Schauer. Up to 1961, eight fascicles (nos. 1–160) were published under the authorship of Poelt and from 1963 to 1967 five additional fascicles (nos. 161–260) were issued under the extended authorship "Poelt & M. Steiner". After Poelt had left Munich, H. Hertel continued this series. The number of distributed sets was growing steadily from 20 up to 35.

Plantae Graecenses Lichenes. During his years at Graz, Poelt issued a compound exsiccatae, called "Plantae Graecenses", consisting of five segments: Spermatophyta, Pteridophyta, Bryophyta, Fungi, and Lichens. In the lichen-segment, 560 collections of lichens from all over the world, but mainly from the Alps, were issued from 1975 to 1993. Twelve complete and four almost complete sets beside some incomplete ones were distributed (Ch. Scheuer and W. Obermayer in lit.).

Lichenotheca Afghanica. From some expedition-like journeys, which Maximilian Steiner did together with his son-in-law Dieter Podlech in Afghanistan, he brought home a large collection of lichens. Some collection was comprehensive enough for getting issued in an exsiccatae, published as Lichenotheca Afghanica by Steiner & Poelt (1986b, 1987, 1988). Fourteen complete and four incomplete sets were distributed (Ch. Scheuer and W. Obermayer in lit.).

4.2. Results in research

Poelt's main scientific tools were hand lens, stereo lens and light microscope. He was very interested in using additional modern methods in research, especially those of chemo-taxonomy, but he did not practise these methods himself. He was a good microscopist, however not as excellent as e.g. H. Doppelbaur. He never used serial sections and any other than the usual standard dyeing techniques. His enormous aptitude, however, was his very sharp power of observation, his colossal memory and his enormous knowledge in all the fields of botany. He memorized all the features and morphologic characters as well as the ecological behaviour of thousands of organisms.

Among Poelt's some 400 publications (listed in Hertel & Oberwinkler 1996) there are 300 devoted to lichens or contain a clear reference to lichens. With some exceptions all his papers are written in German; only 19 papers are in English and two in Italian. Poelt often stressed that only in our native language would we be able to express subtle details in the high precision required. He often saw the sense of his original words not transported precisely enough in translations of his manuscripts he received. Poelt was a master of his language. He was a quick worker who accepted minor weaknesses and

some degree of imperfection[44] to get results published in a sensible period of time.

Many of Poelt's papers are written in co-authorship; I counted 96 different co-authors. He published quite a number of papers with some authors, e.g. nine papers with Vězda and with Hafellner, Huneck, and Leuckert seven papers each. The sequence of the authors' names in a paper follows his estimation of the scientific weight of the contribution. Poelt abhorred taking authors on board only as a favour, or putting the director's name automatically in front.

A word as to figures included in Poelt's papers. Although most of his scientific papers are well illustrated, only a smaller part contains drawings by Poelt himself. Detailed drawings by him can be seen especially in his early papers, e.g. with fine true-to-life drawings of thalli of lobate *Lecanora* species (Poelt 1958). Later, he asked his co-authors, students or sometimes employed artists (Annemarie Gröger at the Institute of Systematic Botany and Plant Geography in Berlin) for the illustrations. Very accurate drawings in Poelt's papers were for instance accomplished by Franz Oberwinkler or Josef Hafellner.

A special case is the beautiful volume of sheets devoted to European fungi by Caspari, Poelt & Jahn (1963). All these coloured sheets are works of art by Claus Caspari [all the precise drawings of microscopic details in the accompanying booklet were done by F. Oberwinkler]. Poelt usually collected the fresh material of the objects and – I could observe that several times – was a very critical corrector and he often asked Caspari for changes of details until he accepted the plate.

Poelt usually mentions the illustrator's names in the introductory chapters of his papers. However, even colleagues like me, to whom he had a close relationship, did not know how artistically talented Josef was. It was a great surprise for me, when in 2014 Josef's brother Leonhard showed me two beautiful watercolours done by Josef during his years at school. One presents a buffalo lying on the ground, the other one is a portrait of his older brother Clemens. Leonhard Poelt also remembers fine paintings of flowering plants done by his

44 Poelt commented on his key to the parasitic species of *Rhizocarpon* (Poelt 1990b) in a letter to me (19 July 1990) as follows: "*Strictly speaking, no one should dare to publish a paper like the one I have enclosed here, because it calls for additions and improvements from start to finish. But if you only have those manuscripts printed which seem to be absolutely well done and complete, we will find only papers on the spore-wall-surface of three species of* Lecidea *or on the lichens found on a single tombstone, etc. in the future.*" (Original: "*Genau genommen dürfte man ein solches Manuskript wie das beiliegende überhaupt nicht publizieren, weil es hinten und vorne nach Ergänzungen und Verbesserungen schreit, aber wenn man nur noch das drucken läßt, was vollkommen fertig zu sein scheint, dann werden wir in Zukunft Arbeiten haben über die Sporenoberflächen dreier Lecideen oder über den Flechtenbewuchs eines Grabsteins usw.*").

brother. Unfortunately these could not be traced. I guess that Josef later avoided using his artistic talent for reasons of labour economics. He preferred to use the great amount of time needed for perfect illustration for research work instead – as long as he had somebody whom he could ask for or to whom he could delegate the illustration work. Photography was not Poelt's thing at all, although in later years he used a camera here and there to take pictures of plants (not with overwhelming results).

It is difficult to assign all Poelt's publications to branches, as taxonomy, morphology, biology, for many touch more than one field simultaneously. Here, I arrange Poelt's papers into the chapters: (a) Keys to lichens of Europe, (b) Lichens as parasites and cyanotrophs, (c) Floristics, (d) Taxonomy, (e) Morphology and Anatomy, (f) Plant Geography, and (g) Ecology and Biology.

4.2.1. Keys for European lichens

The background of Poelt's attempt to produce keys for European lichens was the immense difficulty in naming his collections, especially those of crustose lichens and those from alpine areas. To prepare these keys, Poelt used all the traceable (often difficult to obtain) literature, revisions, monographs, and lichen floras and last but not least the very rich and well-sorted lichen herbarium at Munich in order to study and compare specimens and understand their variability. To study as many of all these species as possible in the field, too, was Poelt's greatest concern.

Floras for large areas, as for the whole of Europe, did not exist at all. The geographically widest scope of a lichen flora was the well-known but not completed Dr. L. Rabenhorsts Kryptogamen-Flora von Deutschland, Österreich und der Schweiz (Dr. L. Rabenhorst's Cryptogamic Flora of Germany, Austria, and Switzerland). The flora of the very same area (Central Europe) was also treated in two thick volumes dedicated to lichens in Migula's Cryptogamic Flora (Migula 1929, 1931). As I know from experience, Migula's keys usually did not work at all. He based his keys – at least for the little known taxa, which are the majority – on the characters which are mentioned in the species' original (and usually not at all exhaustive) descriptions.

Poelt's most widely known papers are his four so called "Key-books": "The Macrolichens[45] of Europe" (Poelt 1962), the "Keys for European Lichens." (Poelt 1969), and two additional volumes: "Supplement I" (Poelt & Vězda 1977) and "Supplement II" (Poelt & Vězda 1981). The generic concept he used in his first key-book (1962) was for the most part that of Zahl-

45 Poelt uses the term "Höhere Flechten" (macrolichens) here in a very wide sense, also including minutely lobulated crustose lichens, as *Dimelaena oreina*, *Rhizocarpon effiguratum*, or *Sporastatia testudinea*.

BRUCKNER and a key to the 103 treated genera did not seem necessary. Some 10 percent of the 1034 treated species (not counting the many subspecific taxa) were marked as "*only once or few times collected*". This high amount of critical taxa reflects the low level of floristic exploration and mirrors in addition the unsatisfactory knowledge of so many genera. POELT, instead of omitting unclear taxa, would include them, in order to draw attention to these taxa. POELT finished this first European key book just before he started his expedition into the Himalayas in autumn 1962.

Meanwhile POELT had moved to Berlin. Seven years after his "Key to the Macrolichens of Europe" he presented his famous "Key for European Lichens" (Bestimmungsschlüssel europäischer Flechten[46]), which also includes some treatments of further authors, as VĚZDA (*Belonia*, *Gyalecta*, *Gyalectina*, *Pachyphiale*, *Thelopsis*) and LAMB (*Stereocaulon*).

While POELT succeeded in keying out a11 the macrolichens reported to occur in Europe in his keys of 1962, such completeness was totally unreachable as soon as crustose lichens were included. Monographic treatments did not exist at all for most of the giant crustose genera (*Buellia*, *Caloplaca*, *Lecanora*, *Lecidea*, *Verrucaria* and many others). However, when briefly browsing through POELT's thick book, keys will nevertheless be found for many of these little-known difficult genera as well, e.g. for *Caloplaca*. It was POELT's tactics to insert partial keys for some better-known species groups – e.g. the squamulous species of *Lecidea* – and then key out all the big rest "*thallus crustose, never squamulous*" as "*not treated*". For example, with his key of 1969 the following groups can be determined within *Caloplaca*: (a) the species growing on detritus or on mosses, (b) the species colonizing bark or wood, (c) the saxicolous species with an effigurate-lobate thallus, and (d) the lichenicolous species. However, all these groups together amount to only a small part of the huge genus *Caloplaca*.

Because the number of the treated genera (in comparison to the "Macrolichens" of 1962) has nearly tripled to 290 and an increasing number of little known small genera (owing to the growing rejection of artificially circumscribed genera) was included, a general key to all these genera was included, besides a key for the photobionts and an extensive glossary. How difficult it was to construct such a key to the meanwhile more natural and not so easily discribed genera becomes visible in a letter from POELT, which I received Dec 22, 1979. POELT wrote: "*Meanwhile I have revised the key for the discocarpous crustose lichens once more. Now I am slowly starting to dislike going ahead with it. If you think the matter over, you will come to the conclusion that you must*

46 Note POELT's grammatically carefully chosen title: "Bestimmungsschlüssel europäischer Flechten". The similar-sounding title "Bestimmungsschlüssel der Flechten Europas" would express that all the lichens of Europe were treated.

not publish these keys, because there is always something which is not quite correct." (Translated[47].) Lichenologists experienced in the construction of capacious keys may follow Poelt's point of view. The difficulties arise from a high variability of diagnostic characters in many genera (e.g. non-septate ascospores may occur very rarely beside the polardiblastic ones in *Caloplaca*). If you want to take into account all those rare exceptions in almost all genera, extremely ramified, long and confusing keys (where one and the same taxon is keyed out at several places) are the result. It is almost impossible to produce a hopefully complete generic key.

Poelt's keys, which soon became indispensable tools for other lichenologists, are a distillation of a large amount of published information, which is often scattered. It is re-checked with his own knowledge of morphology, variability, ecology and distribution of the species, and often checked by comparing herbarium specimens.

In summer 1974, Josef Poelt eventually came into direct personal contact with Antonin Vězda (later he called him "Toni"), when Vězda finally got permission to cross the Iron Curtain between Czechoslovakia (he lived in Brno) and neutral Austria. Poelt (1995a) gave a sensitive description of his first meeting with Vězda. A close friendship and an intense cooperation began. In Poelt's guestbook there are 18 entries by Antonin Vězda, covering a period of more than 100 days all in all, which he spent in Poelt's house in Graz. The supplementary volumes to the "Bestimmungsschlüssel europäischer Flechten" (Poelt & Vězda 1977, 1981) were one of the scientific results of this close cooperation. When lying in hospital after a cardiac valve surgery, Poelt gave some insight to the arduous work on these keys in a letter (17 Feb 1980): *"Unfortunately, I have not been able to finish my key book completely. Everything takes its time. Peter* [Döbbeler] *is reading through all these texts critically. This will enforce improvements on me and therefore cause additional work. Antonin* [Vězda] *is also revising these drafts. There is no end, especially to* Fuscidea*. But we are taking a break right now. [To write] such a book is a great effort, not easily recognizable by others."* (Translated[48]).

47 [From a letter from J. Poelt, 22 Dec 1979, to H. Hertel] "*Inzwischen habe ich den Gattungsschlüssel für die discocarpen Krusten nochmals überarbeitet. Jetzt mag ich langsam nicht mehr. Nimmt mans sehr genau, darf man sowas nie publizieren, weil immer irgendwas nicht stimmt.*"

48 [From a letter from J. Poelt, 17 Feb 1980, to H. Hertel] "*Mit dem Schlüsselbuch bin ich leider nicht mehr ganz fertig geworden. Es dauert halt alles seine Zeit. Der Peter* [Döbbeler] *sieht alles durch und das gibt Verbesserungen, auch zusätzliche Arbeit. Antonin* [Vězda] *sieht die Entwürfe durch. Besonders* Fuscidea *endet nicht. Aber im Moment ist Pause. Ein solches Buch ist schon ein Schinder, dem man das nicht ansieht.*"

These key books became a big hit and helped the publisher, Jörg Cramer, as he told us, to finance other monographs which were not so easy to sell.

Although published in German language, these key-collections stimulated floristic activities in a wide area. "*So many lichens have a broad, circumpolar distribution, that Poelt's monumental European Keys have been a lasting value to we North Americans so lacking in identification guides dealing with our own flora*" Brodo (1996) wrote.

4.2.2. Lichens as parasites and cyanotrophy

Although this subject might just as well be filed under "Taxonomy" or "Biology", I decided to have it here as a chapter of its own, for at least the "parasitic lichens" were Poelt's favourite subject, on which he published 17 papers in the four decades between 1956 and 1995.

Beside the lichenicolous lichens Poelt also initiated research on bryicolous lichens and later he broke new ground in lichen symbiosis together with H. Mayrhofer, introducing "Cyanotrophy".

4.2.2.1. Lichenicolous lichens

Lichens living obligatorily on other lichens are a broad field, to which general interest was drawn in lichenology for the first time by Poelt. Only a few of these organisms were mentioned or described earlier by e.g. Nylander and H. Magnusson. But their strange way of life was not particularly appreciated. The very first paper dedicated to parasitic lichens (as Poelt used to call them) – a general synopsis with a strong emphasis on biology – was that of Poelt & Doppelbaur (1956). There, they distinguish different biological groups of parasites: facultative parasites ("Gelegenheitsparasiten"), parasites in youth ("Jugendparasiten" – starting their life as parasites but later becoming independent from the host), and holoparasites ("Vollparasiten"). Furthermore, they distinguish, as is usual in classification of phytpathogenic fungi, between necrotrophic (killing their hosts), and biotrophic parasites (not causing serious damage to their hosts). Necrotrophic parasites are rather unspecific as to their substrate, while the biotrophic ones usually show a high rate of host-specificity. Poelt showed that there is also adelphoparasitism (parasite and host are closely related to each other) among the lichens. Examples are *Acarospora epithallina* in its host *A. hilaris* (Poelt & Steiner 1971), *Caloplaca adelphoparasitica* in its host *C. cretensis* (Nimis & al. 1994), *Caloplaca sororicida* in its host *C. transcaspica* (Poelt & Hinteregger 1993) and *Rhizocarpon fratricida* in its host *Rh. geographicum* (Nimis & Poelt 1987).

Poelt developed a very sharp eye for this kind of parasitism and he discovered a high number of lichenicolous species, especially in the genera *Rhizocarpon* and *Caloplaca* (Poelt & Steiner 1971). In *Rhizocarpon*, five parasitic

species were known in the 1950s; later Poelt keyed 28 parasitic species (Poelt 1990b)! It is of interest that we find two papers dealing with parasitic lichens among Poelt's latest publications: a paper by Poelt, Zhurbenko, and Matzer (1996) dedicated to a species of *Lecanora* invading *Umbilicaria*, and another paper on an additional new lichenicolous species of *Rhizocarpon* (Poelt & Obermayer 1995). This was, as Walter Obermayer told me, Josef Poelt's very last paper; the manuscript was found sticking in his typewriter when his office was opened after his death.

Many of these parasites show a reduction of their thallus. In some parasitic species of *Caloplaca* and *Rhizocarpon* this thallus reduction is finally exhaustive; no thallus at all is developed. However, in most species of the genus *Caloplaca* photobiont cells occur in the interior of their ascocarps (lecanorine exciple); these species may still be called "lichens". In contrast to this reduction series in *Caloplaca*, a similar process in the genus *Rhizocarpon* (whose ascocarps never contain photobionts) led to photobiont-free organisms, referred to by Poelt as "delichenized lichens", which *per definition* are lichenicolous "fungi". The other way round: *Lecidea insidiosa*, described as a lichenicolous fungus on *Lecanora varia* by Th. Fries, was later treated as a mere synonym of *Nesolechia vitellinaria* by Keissler (1930) in his monograph on lichen-parasites and thus was forgotten. Poelt (1974e) observed that this organism damages the plectenchyma of the host and presumably takes over part of the host-algae to build its own thallus, first inside, then outside of the host thallus. *Lecidea insidiosa* therefore is a lichen. Another peculiar "transition type" between lichenicolous lichens and lichenicolous fungi turned out to be the former parasite *Leciographa muscigenae*, which emerged as an endoparasitic lichen: *Buellia pulverulenta* (Hafellner & Poelt 1980).

Those investigations also lead to a large and heterogeneous group of fungi, which has been known for a long time, the lichenicolous fungi, early monographed by Vouaux (1912–1914) and Keissler (1930). The lichenicolous fungi soon got a permanent place in Poelt's school at Graz. Especially his former student Josef Hafellner takes a leading role in the exploration of this group in Graz.

4.2.2.2. Bryicolous lichens

Lichens colonising living bryophytes are a phenomenon which had never before been perceived by lichenologists or by bryologists [not in focus here: lichens unspecifically overgrowing bryophytes or colonising decaying mosses and detritus]. Poelt's interest was very early drawn to bryicolous lichens and they were already mentioned in his joint paper with Doppelbaur on parasitic lichens in 1956. Poelt & Döbbeler (1975a) then presented a further example of the small group of bryicolous lichens which can be seen with the naked eye: *Puttea margaritella* (syn. *Lecidea margaritella*), a lichen colonizing *Ptilidium*

pulcherrimum. Later Poelt (1985b) presents 23 species of these usually rare bryicolous lichens and gives an insight into cellular contact between lichen and moss using TEM-photos of *Strigula stigmatella* (contributed by Oberwinkler).

When searching for these often very tiny bryicolous lichens, Poelt detected e.g. *Pachyascus lapponicus* (Poelt & Hertel 1968), and extremely tiny, supposedly indeterminable non-lichenized microfungi on bryophytes. These fungi had been largely neglected thus far, in spite of Racovitza's paper (1959). Still at Berlin, Poelt made his student Peter Döbbeler look more closely for these minute fungi. In the following decades Döbbeler opened a door to a fascinating, unexpectedly rich new world of ignored organisms with his studies of these bryicolous fungi. Some of these fungi proved to be lichenized. Poelt & Döbbeler (1975b) treated four species of the genus *Micarea* (all new to science) and five species of the genus *Vezdaea* (three new to science), which are at least in their young stages bryicolous. Other bryicolous lichens are *Absconditella celata* (Döbbeler & Poelt 1977), *Lopadium hepaticicola* (Döbbeler et al. 1985), *Bryostigma leucodontis* (Poelt & Döbbeler 1979), a lichen later found to colonize various other substrates [Coppins 1989; he transferred it to the genus *Arthonia*], or *Arthopyrenia endobrya* (Döbbeler & Poelt 1981), a lichen which forms an intracellular thallus inside its host.

4.2.2.3. Cyanotrophy

Poelt & Mayrhofer (1988) demonstrate that cephalodia are not the only type of symbiotic coexistence between lichens using green algae as main photobionts and cyanobacteria. Apart from some rare exceptions, photobionts of lichens belong either to Chlorophyta or to Cyanobacteria. A small number of lichens (some 400) contain cyanobacteria, which are capable of nitrogen fixation, in addition to green algae at certain sites of the thallus – structures known as cephalodia. Poelt noticed in the field that a number of green-algae-bearing lichens (of various taxonomic groups) show a strong affinity to growing in close contact to cyanolichens or to free living mats of cyanobacteria. Poelt & Mayrhofer studied some twenty taxa of such "syn-symbioses", for which they coined the term "cyanotrophic". Beside obligatory cyanotrophic lichens, as *Caloplaca cyanotropha*, which is constantly found on mats of cyanobacteria, there is a large variety of facultative cyanotrophic lichens. *Candelariella placodizans* is an example. This somewhat nitrophilous arctic lichen grows without contact to cyanobacteria e.g. on rocks influenced by manuring birds, whereas on sites poor in nitrogen it is constantly found on top of *Stigonema* mats.

4.2.3. Floristics

Poelt travelled widely; however, his centre of interest was the Holarctic Region, especially its alpine areas, and the Alps themselves even more. A large number of Poelt's publications treat lichens of Central Europe. Although Germany, Austria, and Switzerland are floristically better-known regions, their lichen floras proved to be explored rather incompletely up to the 1950s. This becomes apparent from the high number of Poelt's new records he was able to add to the checklists. He and his co-workers even discovered new additions to the lichen-flora of Europe (beside the considerable number of taxa he described as new), as the "Asian-African" *Anaptychia ulotrichoides* (Poelt & Wunder 1970) in Southern Spain, the "Greenland" *Acarospora tuberculata* in Southern Tyrol (Poelt 1957), the "Siberian" *Rinodina mucronulata* (Poelt 1957) in Austria, or the "North American" *Sarcogyne similis* (Poelt & Vězda 1974) in Greece.

Beside the 10 issues of his series "Mitteleuropäische Flechten" (1953–1975), at least a few of his other papers should be mentioned here. He published on the lichens of the Bohemian Forest (Poelt 1972a), of the Wetterstein Mountain's summit regions[49] (Poelt 1955a – 75 lichen species beside Verrucariales), of various regions of Austria (e.g. Poelt & Hafellner 1981, Poelt 1994a [with 37 new records for Styria and 25 for Austria]). Examples of papers on lichens of Nordic Countries are: Poelt & Buschardt (1978; Norway) and Hansen & Poelt (1987; Greenland). As to Mediterranean regions, there is the detailed and very rich catalogue of the lichens of Sardinia (Nimis & Poelt 1987). A very large number of species recorded of Italy, Greece, Spain and other Mediterranean countries are mentioned in other papers. As to Asia, he contributed in a short paper to the high-alpine flora [4700 m alt.!] of the Caucasus (Poelt 1968), of the Karakorum (Poelt 1961b), Tajikistan (Huneck & Poelt 1977), Afghanistan (Poelt & Wirth 1968, Steiner & Poelt 1986a, 1986b, 1987, 1988), Korea (Huneck et al. 1989), Mongolian People's Repub-

49 Tourists visiting Garmisch-Partenkirchen, a village situated at the foot of the Wetterstein Mts, can see that this part of the Bavarian Alps consists of steep and rugged limestone and dolomite mountains, often with very sharp ridges; quite a number of them rather difficult to climb. Josef Poelt collected along these peaks and ridges, which often form the border between Germany and Austria. Six new lichens from these peaks and ridges were described, however, Poelt never mentioned where exactly the specimen had grown on the ridge or peak, on the German or the Austrian side. Vitus Grummann, preparing his Catalogus Lichenum Germaniae (1963), wanted to know the exact site. For Poelt this was a bit of a hair-splitting question and he sent Grummann the answer that these ridges are often sharp as a knife and possibly the Austrian-German border may have directly crossed the thallus of the lichen in question. The meticulous Vitus Grummann was offended, and I (a PhD student) received all his future letters with questions for Poelt ("Would you be so kind, as to ask Dr. Poelt …..").

lic (Huneck et al. 1984 and 1987) and finally the Himalayas, whose alpine-belt lichen-flora proved to be more different from that of the Alps than expected[50] (see later for more details). And there is even a paper on new records for North America (Poelt 1971).

Poelt's plans for a "Catalogus Lichenum Florae Austriae"

In a very high percentage of Poelt's floristic papers, as well as in his numerous revisions of various taxa, he reported on lichens from Austria. Since his days as a student, the nearby Austrian regions, such as the mountains in the surroundings of Ötztal, Inntal, or Lechtal, or the ranges of Hohe Tauern, Totes Gebirge, or Samnaun (all situated in the northern provinces of Austria: Salzburg, Tyrol, and Vorarlberg) were destinations of his excursions. Seven of his floristic papers are dedicated exclusively to the flora of Austria. I did not count the number of lichen species Poelt added to the checklist of lichens for Austria, but this is doubtlessly a very high number. Thirty of Poelt's new lichen species alone are based upon type-specimens collected in Austria (most often collected by himself). Since he lived in Graz, his numerous weekends' day fieldtrips used to have localities in the nearby mountains of Styria as their destination. "*I must climb a mountain at least every fortnight*" Brodo (1996) cited Poelt. Many of the lichenologists or botanists who came to Graz to see the herbarium and to discuss problems with him, will remember such one-day excursion; for Poelt would usually take his visitors to some interesting sites. Many of these guests' names got documented on labels of Poelt's collections, for he would usually add their names to his name as collectors. Trying to catalogue Poelt's fieldtrips in Austria (using his hand-written relevant but incomplete documentation preserved in GZU) I counted some 180 excursions, but I am sure this list is still rather incomplete, because his own written documentation is a poor fragment when it comes to his pre-Graz fieldtrips between 1947 and 1971.

It does not come as a surprise that, step by step, Poelt developed the idea to compile – not a lichen-flora, Poelt was never so naïve – but as a precursor, a critical, documented catalogue of the lichens of Austria. However, this threatened to become a very time-consuming job, for lichenological research in Austria, resp. in the Austrian-Hungarian Monarchy, comprises at least two centuries, and hundreds of papers and a countless number of critical records

50 [From a letter from J. Poelt, 6 Oct 1986, to H. Hertel] "*My former impression has been confirmed again; the lichen flora there* [in the Himalayas] *is much more divergent from that of our Alps, as I had originally assumed. Widely similar is only the flora under overhanging rocks.*" [= "*Mein alter Eindruck hat sich wieder bestätigt: die Flora ist dort viel verschiedener von unserer alpinen Flechtenflora, als ich ursprünglich glaubte. Weitgehend ähnlich sind nur die Überhangbewohner.*"]

had to be checked, evaluated and critically reviewed. Poelt's idea was to produce a volume on lichens of the "Catalogus Florae Austriae". He had already collected relevant experience, for he acted as the author of a volume dedicated to Uredinales (Poelt 1985a) of that Catalogus. In several of his letters Josef wrote to me that he hoped to find enough time for this project after his retirement. At the end of 1987, this plan – meanwhile in teamwork with Roman Türk in Salzburg (who had already published many floristic papers on lichens of Austria, including detailed surveys on the lichens of some Austrian provinces) – took on contour, and he started to send selected drafts of sample pages for critical statements to some colleagues, like me, for example. In Graz they keep a folder with manuscripts on roughly 150 genera (partly first drafts, partly almost completed treatments) prepared by Poelt for this catalogue, and computerized once by Mario Matzer (Hafellner and Obermayer in lit.). Although a torso and often outdated as to the generic taxonomy, the manuscript is nevertheless of high lichenological interest because it includes many of the field observations that Josef Poelt had accumulated over almost five decades on the biology and other aspects of lichen species occurring in the Alps. However, Poelt's life ended before this great project could be accomplished. After all, he witnessed the completion of a bibliography of the lichens and lichenicolous fungi in Austria (Türk & Poelt 1993). This valuable bibliography is based on the records cited in some 700 papers, reporting on 357 genera and 2280 taxa (including various subspecific ones) of lichens and lichenicolous fungi found to occur in Austria, with critical remarks here and there. Poelt would certainly be pleased if he could see the further development of his ideas and plans for a lichen flora of Austria: Hafellner & Türk (2001) published a very informative checklist and Türk & Hafellner (2010) a large supplementary volume of 1993's "Bibliography".

4.2.4. Taxonomy

The chapter "Special Taxonomy" involves a short review of the main taxonomic groups Poelt revised, a chapter on chemotaxonomic projects Poelt stimulated, and a chapter titled "General Taxonomy" with some general synopses and taxonomic reflections. The "Lichens of the Himalayas" are added as fourth chapter. Most of Poelt's papers I have summarized here are predominantly revisions of genera, although some more floristically oriented publications are included. The lichens of the mountains in central and eastern Asia were a core theme in Poelt's research and his papers dealing with that region should be treated here as a thematic unit.

4.2.4.1. Special taxonomy

Poelt developed a deep interest in various groups of lichens, even if Candelariaceae, Lecanoraceae, Lecideaceae, Physciaceae, Teloschistaceae and Umbilicariaceae were his favourite families.

Candelariaceae: This is a small family first described in 1954 (Hakulinen), comprising the small genus *Candelaria* with only a single species in Europe, the genus *Candelina* described by Poelt (1974d) with three species in subtropical/tropical America and South Africa and the widespread genus *Candelariella* with probably 50 species, which overlap in variability and are difficult to describe clearly (Poelt & Vězda 1977, who keyed 26 species for Europe). Poelt (often with co-authors, as Nimis, Oberwinkler, Reddi and Vězda) described 12 new species in Candelariaceae.

Lecanoraceae: *Lecanora*: Its taxonomic situation is similar to that later established for *Caloplaca*, perhaps with the difference that *Lecanora* (in the description of Zahlbruckner) proves to be far more heterogeneous than *Caloplaca*. Here, Poelt started with a revision of the widespread species of the *Lecanora subfusca*-group (Poelt 1952), stimulated by the key presented by Magnusson (1931). While his revision dealt with the species of Germany only, his monograph of *Lecanora* species with lobate thalli (Poelt 1958 – his professorial dissertation [Habilitationsschrift]) covered the species of the whole Holarctic region. Here, he accepted 86 species in four genera – including the new genus *Squamarina* Poelt. In later studies (Poelt 1966a, Poelt & Grube 1993) he enlarged the number of species known from the Himalayas considerably. Papers on the *Lecanora contractula*-group (Poelt 1983a), the *Lecanora rupicola*-group (Leuckert & Poelt 1989), and the very difficult *Lecanora dispersa*-group (Poelt & Leuckert 1995[51]) followed. Quite a number of taxa earlier enclosed in *Lecanora* were treated as genera of their own, including new genera, as *Arctopeltis* (Poelt 1983a) and *Bryonora* (Poelt 1983b).

Lecideaceae: Within the old system of Zahlbruckner, Poelt's special interest was directed at the genera *Lecidea*, *Rhizocarpon* and *Toninia*. He published mainly on two groups within *Lecidea* according to its old description: the *Lecidea goniophila*-group (today the genus *Lecidella* in Lecanoraceae) and

51 Poelt's paper on the *Lecanora dispersa*-group on calciferous substrate in the eastern Alps was his latest monographic work – a preliminary revision, as he already stressed in the paper's title ("Eine Vorstudie"). *Lecanora dispersa* sensu ampl. is one of the worst understood groups of crustose lichens in the Alps. I admired Josef for his energy and patience, when he was working through these seemingly endless numbers of rather similar looking samples arranged under "*Lecanora dispersa*" at Botanische Staatssammlung München. And I was again surprised about his perfect memory, when he was searching for some collections of his from the 1950s of which he was certain they were there. ("I do remember this collection! It must be here!")

Zahlbruckner's subgenus *Psora* (which later turned out to be a highly heterogeneous taxon). Encouraged by Magnusson's (1945) treatment of the *Lecidea goniophila*-group, Poelt restudied these common, variable and widespread lichens for Central Europe (Poelt 1961a). In 1969 Poelt presented a revised key of "*Lecidea* subgen. *Lecidella*" and in 1981 Poelt & Vězda finally presented a third key of the European species of *Lecidella*, which, at least for the (not monographed) corticolous species, is still a preliminary attempt. A first key to the European members of *Psora* is included in his key to the macrolichens (Poelt 1962), and a revised version is given in Poelt (1969). Meanwhile one of Poelt's academic grandchildren, Gotthard Schneider (1979) presented a monograph in which he accepts more than a dozen unrelated genera beside *Psora* s.str. Some of these genera, as *Astroplaca*, *Hypocenomyce*, *Phyllopsora*, *Psora*, *Psorinia*, *Psorula*, *Schaereria* and *Trapeliopsis* were keyed in Poelt & Vězda 1981. [The treatments by Timdal 1984a, 1984b, 1986 followed in later years]. Poelt published a number of small papers on species of *Lecidea* (sensu lato), including some new species as *Lecidea fissuriseda*, *L. percutiens*, *L. polytrichinella*, *L. verruca*, or *Lecidella vorax*, but he soon left this special field of research more or less to me. As to the genus *Rhizocarpon* his main interest was aimed at the parasitic species (many of them described by him); see under "4.2.2.1. Lichenicolous lichens". In his keys to the macrolichens (Poelt 1962), Poelt included a very first key to the genus *Toninia* in Europe, including 44 species, and presented a revised edition in 1969. His student Hilde Baumgärtner finished a monograph of *Toninia* in 1967, however, her publication did not become available until twelve years later (Baumgärtner 1979).

Physciaceae: In his key to the macrolichens of Europe Poelt (1962) specified 66 taxa in the genus *Physcia*, a fourth in the rank of a variety. Bearing in mind that Poelt would often use the rank "variety" (not exactly following the canon) to draw attention to unclear taxonomic units, this means that even in the supposedly well-known genus *Physcia* there were many open questions. Physciaceae soon became another centre of his interest. So he offered a paper on the taxonomy of the family (Poelt 1965a) – a family, which excluded crustose taxa (following still Zahlbruckner's system at that time) in those early years. Based on characters as the (meanwhile more intensely studied) ascospore types, the structure of the upper cortex, in addition to the classical characters, Poelt accepted the genera *Anaptychia*, *Dirinaria*, *Heterodermia*, *Physcia*, *Physciopsis*, *Pyxine* and *Tornabenia,* and separated the *Physcia pulverulenta*-group as a new genus *Physconia* (which he monographed immediately after (Poelt 1966b). Thirteen years later a remarkable new synopsis of the Physciaceae was published by Josef Hafellner, Helmut Mayrhofer and Josef Poelt (Hafellner et al. 1979). They accepted 21 genera including *Dermiscellum* Hafellner, H. Mayrhofer & Poelt, *Phaeorrhiza* H. Mayrhofer & Poelt, and *Rinodinella* H. Mayrhofer & Poelt as new ones. It is of interest that the classical feature for separating the genera *Buellia* and *Rinodina*, the

type of exciple (biatorine versus lecanorine), then turned out to be less important. Simultaneously a monograph of the saxicolous species of *Rinodina* in Europe (51 species treated) was published (Mayrhofer & Poelt 1979). [Later this monograph was significantly expanded by Mayrhofer 1984, then treating 95 saxicolous species of the Old World]. The genus *Buellia*, in contrast, did not find the same attention. *Buellia epigaea* turned out to be a complex of five different species (Poelt & Sulzer 1974). Quite a strong new impulse came when Poelt encouraged his student Josef Hafellner to study the genus *Karschia*, an extremely heterogeneous taxon, as a pre-examination (Hafellner & Poelt 1976) attested, in seemingly close proximity to *Buellia*. Hafellner's remarkable thesis paper (Hafellner 1979) led to a better understanding of the taxonomy of these *Buellia*-like, lichenized and non-lichenized fungi and finally also to the development of a large additional branch of cryptogamic research at Graz: the study of lichenicolous fungi.

Teloschistaceae: Beside writing various papers on the genera *Xanthoria* (e.g. Poelt & Tavares 1968, Kondratyuk & Poelt 1997), *Fulgensia* (Poelt 1965b, Follmann & Poelt 1981, Poelt & Hinteregger 1993) and the monotypic Himalayan genus *Ioplaca* (Poelt 1976b, Poelt & Hinteregger 1993), Poelt was particularly interested in the mammoth genus *Caloplaca*. Because this genus was too large for monographing within a few years (if not to speak of decades), Poelt revised several smaller artificially described units. He started with the group which develops lobate thalli (Poelt 1954), followed by alpine species using detritus as substrate (Poelt 1955b), followed by species developing dwarf-fruticose thalli (Poelt & Pelleter 1984), and species with plurilocular instead of bilocular ascospores (Hafellner & Poelt 1979). He delegated the puzzling group with black instead of yellow to red apothecia to his student Helmut Wunder (Wunder 1974) as a project for his PhD thesis. Regional revisions of the whole genus were done for Greenland (Hansen, Poelt & Søchting 1987), an area relatively poor in species. The impressive treatment of the Caloplacas from the Himalayas (Poelt & Hinteregger 1993) with 104 species accepted, is modestly titled a "contribution", not a revision (see also chapter 4.2.4.4).

Umbilicariaceae: This is an attractive group for mountain-climbing lichenologists, for many of the *Umbilicaria* species colonize exposed rocks in alpine habitats. Eduard Frey and Hans Ullrich were both very experienced in rock climbing and they may have deepened Poelt's interest in this family. In August 1961 two rope teams, Hans Ullrich with Thomas Schauer, and Josef Poelt with Adolf Schröppel and a mountain guide reached the top of a difficult to climb, high and exposed peak in the Austrian Alps: the Watzespitze (3533 m) on different routes. There a lichenological highlight was *Umbilica-*

ria virginis,[52] a lichen confined to the nival belt. Poelt had mapped its distribution in the Alps before (Merxmüller & Poelt 1954). Up to his death, Eduard Frey was considered the famous specialist for the *Umbilicaria*, he had on loan all the specimens Poelt collected in Nepal. However, a final treatment of this Himalayan material did not take place until after his death (Poelt 1976a). Besides, there is a paper on the *Umbilicaria hirsuta*-group (Codogno et al. 1989) and on the *U. vellea*-group in North America (Poelt & Nash 1993). The startling discovery of often species-specific thalloconidia on the lower side of thalli of *Umbilicaria* species (Hasenhüttl & Poelt 1978) is pointed out in chapter 4.2.5.3.

4.2.4.2. Chemotaxonomy

Early in his career Poelt was interested in lichen chemistry; however, he did not use chemo-taxonomical methods himself. As already mentioned, he prompted his student Gerhard Eigler to analyse lichen compounds of *Lecanora* species (Eigler & Poelt 1965) when he was still at Munich.

In Berlin Poelt recruited Christian Leuckert as chemo-taxonomist. Leuckert soon established a well-working laboratory for lichen-chemotaxonomy and introduced various methods for the identification of lichen compounds, including lichen mass spectrometry (see Leuckert 1984). (He proved to be a masterful organizer to keep the highly sensitive and expensive mass-spectrometer for so many years running successfully.) He became a professor at the Free University early and supervised some 70 lichen-chemical research projects. Bernd Hanko (1983), Johannes Knoph (1990) and Heidi Kümmerling (1991) did their PhD studies under his guidance. Many of his published results were the product of a kind of symbiosis between him and Poelt or me. One of us supervised the taxonomic part and Leuckert the chemical part of the investigations. (By the way, Leuckert acted also to a very large extent as a kind of technical manager for the whole institution in many respects, e.g. in all this time-consuming organisation work connected with the construction of the new building of the Institute of Systematic Botany and Plant Geography, which was ready for moving into in summer 1970; he was Poelt's right hand in administration). Among the various joint papers with Leuckert and Poelt, I cite some studies in species-groups of the following genera: *Pertusaria* (Leuckert, Poelt & Schulz 1970), *Parmelia* (Leuckert, Poelt, Schultz & Schwarz 1975) or *Rhizoplaca* (Leuckert, Poelt, Hähnel 1977). *Lecanora sphalera* from Montenegro described by Poelt & Leuckert (1976) is one of

52 *Umbilicaria virginis* from the very top of Mt Jungfrau (4158 m) in Switzerland was described in 1842 by the Swiss priest and lichenologist Ludwig Emanuel Schaerer. It was collected by Louis Agassiz and Èdouard Désor – thus, a translation of the lichen's name as "virgin's navel" („*Jungfrau*" means *virgin* in German) is nonsense.

the so-called chemo-species. Differing from *Lecanora admontensis* only chemically (having xanthones instead of usnic acid as pigment), it was the reason for a discussion on the acceptance of "chemically based species". [See also under "Plant Geography".]

4.2.4.3. General taxonomy

Several of Poelt's papers deal with taxonomy in general, as e.g. "Lichen taxonomy and its present problems" (Poelt 1964b), "Homologies and Analogies in the Evolution of Lichens" (Poelt 1990a), or "Ecology and diversity in lichens" (Poelt 1993).

One of Poelt's latest papers where he pictures different types of lichen species should be pointed out (Poelt 1994b). Poelt emphasizes that lichens are often exposed to harsh ecological conditions and therefore develop a very high amount of modifiability and variability. Besides the "stable sexual species" and the "apomictic species" (which have lost the ability to produce functioning ascospores), Poelt's third group, the "genetically variable sexual species" deserves special attention. Careful observers in the field may remember having sometimes seen mosaics of small thalli on rock surface, all of the very same species, but differing to a small extent in colour or size or in general appearance. These "morphotypes" usually do not differ in significant anatomic or chemical characters. This phenomenon was observed e.g. in *Bellemerea*, *Fuscidea*, *Lecanora*, and *Lecidea* species, as well as in *Graphis scripta*. In a paper on *Sporastatia testudinea*, which occurs in high altitude regions of Asia (Grube & Poelt 1993), this phenomenon comes into focus again. The authors suggest the existence of various genetically slightly different forms, which hybridize among themselves and generate hybrids, which later dissociate again.

4.2.4.4. Lichens of the Himalayas

After his expedition to Nepal in 1962, the lichens of the Himalayas became an additional centre of Poelt's research and remained so up to his death (note that he died six weeks before joining another expedition to the Himalayas with Georg and Sabine Miehe). It was the Munich zoologist Walter Hellmich[53], who most likely stimulated, directly or indirectly, Poelt to go on an expedition to the Mount Everest Region in eastern Nepal in late summer and

53 Prof. Dr. Walter Hellmich (1906–1974) had been working as a scientist at the section Herpetology in the Zoological State Collection in Munich since 1934. He became head of that section in 1948 and remained so up to his retirement in 1971. Since the early 1960s Hellmich had been interested in the Himalayas and he created and managed the "Forschungsunternehmen Nepal-Himalaya" and its publication series "Khumbu Himal" (Gruber 1992). In 1959 Hellmich was elected general director of the *Nepal Research*

autumn 1962, as part of the "Forschungsunternehmen Nepal Himalaya", a project which HELLMICH had launched.

POELT arrived at Kathmandu around mid or late August 1962. His expedition was quite a venture in those pre-tourism years before modern transport and communication facilities could assist expeditions. From the city of Kathmandu up to *Gorak Shep* (5200 m), POELT's highest and most remote collecting locality close to Mt Everest (itinerary in POELT 1977a), all the movement was on foot. POELT hired native carriers and some sherpas ("*my faithful Sherpas and carriers, on whom I could rely at all times*" – POELT 1977a), but was not accompanied by any other Europeans or by a native scientist. He had to use the same route back to Kathmandu. His expedition was very successful and he returned home – probably in late October – healthy and with some 3,500 collections, the majority lichens (POELT 1977a).

After the arrival of his collections in Munich he immediately started with their determination. He tried to win specialists for the study of various parts of his collections, and found J. BYSTREK (for *Alectoria*), H. DES ABBAYES (for *Cladonia*), W.L. CULBERSON (for *Cetraria* – results never published), E. FREY (for *Lasallia* and *Umbilicaria*), H. HERTEL (for *Lecidea*), H.M. JAHNS (for *Baeomyces*), S. KUROKAWA (for *Anaptychia*), I.M. LAMB (for *Stereocaulon*), M. MITCHELL (for *Leptogium* sect. *Mallotium*) and A. SCHMIDT (for *Chaenotheca* and *Coniocybe*). Many additional groups were studied by POELT himself, as *Candelaria* and *Candelariella* (together with the Indian student B.V. REDDI), *Dermatocarpon*, *Dimerella* (with A. VĚZDA), the lobate species of *Lecanora*, *Ochrolechia*, *Pachyphiale* (with A. VĚZDA), *Physcia*, *Physciopsis*, *Physconia* and *Solorina*. Finally, the genera *Caloplaca*, *Fulgensia* and *Ioplaca* were revised by POELT & HINTEREGGER (1993). Most of the resulting papers were published in the series "Khumbu Himal – Ergebnisse des Forschungsunternehmens Nepal Himalaya".

Years later Josef POELT seized the chance to join an expedition organized by Georg and Sabine MIEHE[54] into the Langtang region in Nepal from August 26 to September 20, 1986. Afterwards (October 6, 1986) POELT wrote in a letter: "*Anyway, I am happy to have seen the Himalayas again, to have collected valuable specimens, to have brought home beautiful impressions, and of course to have returned in good health. Some people there* [in Nepal], *were*

Centre in Kathmandu. POELT honoured him by describing *Lecanora hellmichiana* (POELT 1966a).

54 Georg MIEHE (*1952) is professor of Physical Geography and Bio-Geography at the University of Marburg. Many expeditions led him and his wife Dr. Sabine MIEHE into alpine regions mainly of Asia. The couple was honoured by the new genus *Sagema* POELT & GRUBE [**Sa**(bine) **Ge**(org) **M**(iehe)], and the new species *Protoparmelia gesamia* POELT & Grube.

astonished that such an old fool [like me] *climbed up to such altitudes in the mountains, in regions where there is no help for days in case of accidents*". [Free translation[55]]. Some early lichenological results of this expedition can be seen in Poelt (1990c).

A third expedition, again with the Miehes, led into the Karakorum (Pakistan, Balistan) in September 1991, with collecting areas in the Haramosh Range, Deosai-Plains, and the Rakaposhi Range. There is no summarizing report on the lichens of this tour, but the large number of collections of the genus *Caloplaca* were included in the revision of Poelt & Hinteregger (1993).

For some other publications on lichens of Asian regions see chapter 4.2.3.

Poelt was not the first to publish on a larger scale on the lichen flora of the Himalayas. Dharani Dhar Awasthi[56] – named "*Father of the Indian lichenology*" – did intensive fieldwork in the Himalayas and published continuously on lichens of that area beginning in 1952. Except for material and publication exchange no really closer teamwork was established between him and Poelt, although he visited Poelt in Munich on August 19, 1963, a year after Poelt's first expedition to Nepal.

Poelt pointed out very insistently during various personal talks on the lichens of the Himalayas how extremely incomplete our present knowledge of the Himalayan lichens still is (and most likely will be for further decades), for many regions of this fiercely rugged orographic mountain system are extremely difficult to access. Poelt stressed that our present knowledge is based on only a few random spot checks of the lichen flora along some trails of the native people. To leave those paths is often dangerous or impossible without the equipment of a rock climber, assisted, of course, by a well-trained companion, as a safeguard (and not to forget the monsoon).

---

55 [From a letter by J. Poelt, 6 Oct 1986, to H. Hertel] "*Jedenfalls bin ich glücklich, den Himalaya noch einmal gesehen, und wertvolles Material gesammelt und schöne Eindrücke mitgebracht zu haben und schließlich wieder gut heimgekommen zu sein. Einige Leute dort haben offensichtlich den Eindruck, daß es ganz ungewöhnlich sei, daß so ein alter Depp noch so hoch in die Berge geht, in einer Gegend, in der es bei Unfällen für Tage keine Hilfe gibt.*"

56 Dharani Dhar Awasthi (1922–2011 – see: Upreti 2012a, 2012b) studied for his PhD at the University of Lucknow, India in 1952 and received a PhD a second time when he stayed from 1960 to 1963 at the University of Colorado in Boulder (USA), with William A. Weber as an excellent teacher in lichenology. Later he became the leading lichenologist in India and received the Acharius medal in 1992. He met Poelt at his home in Munich on August 19th, 1963, according to Poelt's private guestbook. Poelt, on the other hand, included specimens collected by Awasthi in his revisions.

It is very pleasant to see that research in the lichen flora of the alpine regions of eastern Asia is still an active branch of lichenology in Graz, due to efforts of Walter Obermayer, a former PhD student of Josef Hafellner, and thus an academic grandchild of Josef Poelt.

4.2.5. Morphology and anatomy

In lichen morphology Poelt was especially interested in structures of taxonomic significance, as appendicular thallus structures, cortical structures of thalli, ascocarp types and structures in service of sexual and asexual propagation. He was not only interested in the description and classification of morphological structures; he always wanted to understand their ecological significance. For his study of sclerenchymatic tissues of taxonomically unrelated lichens which colonize harsh habitats, see later.

Last but not least, we owe Poelt a general treatment of the morphology of lichens (Poelt 1986) and an account of the systematic evaluation of morphological characters (Poelt 1974c).

Poelt also coined a number of morphological/anatomical terms (see Mitchell 2014) as blastidium (Poelt 1980b), epipsamma (Poelt 1969), paracephalodium (Poelt & Mayrhofer 1988), parasoredium (Codogno, Poelt & Puntillo 1989), phenocortex (Poelt 1989c), phyllidium (Poelt 1974c), schizidium (Poelt 1965b), thalloconidium (Hasenhüttl & Poelt 1978) and thlassidium (Poelt 1986).

There are no detailed morphological and not many anatomical studies by Poelt himself, but he was very interested in these topics and motivated students several times to work in those fields (e.g. Poelt & Baumgärtner 1964, Hannemann 1973, Hasenhüttl & Poelt 1978).

4.2.5.1. Appendicular structures

One of his early papers was dedicated to the root-like, thick structures ("*Rhizinenstränge*") in some placodial lichens (Poelt & Baumgärtner 1964). Poelt's PhD student Brigitte Hannemann turned to this issue again later and studied all the accessory organs which Poelt named "*Anhangsorgane*" and offered a detailed and well-illustrated account of all these structures with morphological definitions (Hannemann 1973). The subtle glass-cilia, typical of some species of Physciaceae, were studied (including its ultrastructure) by Peveling & Poelt (1974).

4.2.5.2. Structures serving sexual propagation

Ascocarps: For a long time it was distinguished between biatorine (no algal cells in the exciple) and lecanorine (with algal cells in the exciple) apothecia.

Lecanorine excipula were often interpreted as having originated phylogenetically from an enclosure of the apothecium's margin by the thallus of the lichen. In contrast, Poelt & Wunder (1967) showed that in various species of *Caloplaca* algal cells subsequently invade biatorine excipula and make them lecanorine – soon a controversially discussed topic[57].

Asci: Poelt followed the publications of the light microscopically based studies of ascus apical structures of the so called "French School" (M. Chadefaud, M.-A. Letrouit-Galinou, M.C. Favre) with great interest. "*These structures*" Poelt (1965c) wrote "*are likely to become quite significant for classification. However, they are often very difficult to detect and subject to strong changes in their ontogeny. For a general taxonomic exploitation we should wait for more thorough investigation.*"([58]Translated.) Later Hafellner (1984) presented such an investigation in a detailed and indicatory paper, partially based on A. Bellemère's TEM-studies.

Hafellner (1984) proved that indeed ascus apical structures are taxonomically most valuable characters, useful for at least characterizing families. Poelt & Hafellner (1975) had demonstrated an unusual (and apparently irregular) case of variability within the genus *Thelocarpon* before. Here they observed a series of reductions, starting with species whose asci have a well-developed apical apparatus and leading to species with a completely deficient one. This feature occurred parallel with the transition from open to closed ascocarps (where a targeted launch of spores does not seem to be useful).

Ascospore-types: They have played an increasingly important role in the classification within the family Physciaceae since the time of Massalongo. Poelt (1965a) complained about the unsatisfactory state of still imprecise investigations of the ascospores in Buelliaceae and Physciaceae (both families were considered separate at that time) and presented a system of eight spore types. He also pointed out the structure of the spore walls and the ontogenetic differences between young, fully developed and overripe ascospores as well as the changes in appearance of the spore wall after treatment with KOH. Afterwards, Poelt & Mayrhofer (1979) significantly improved our knowledge

57 Soon after the publication of this study, Poelt gave me a letter from a Viennese colleague for reading, in which she contradicted his ideas in ribald words: "It is very deplorable", she wrote, "that the German professors are now overburdened to such an extent that they do not find any time for looking at the papers of their students". This would be the only explanation for her, she continued, to understand the fact that such nonsense was published.

58 From Poelt 1965c: 328–329: "*... Schlauchpforten, dürften für die Systematik noch recht wichtig werden; sie sind aber oft sehr schwierig auszumachen und dazu in der Ontogenie starken Veränderungen unterworfen, so daß man für eine durchgehende systematische Verwertung Untersuchungen an einem breiteren Material abwarten sollte*."

of the structure of the ascospores (in *Rinodina*). This system of spore-types, further improved over time, became a central character in classification, at least in the genus *Rinodina* (H. Mayrhofer 1984).

4.2.5.3. Structures serving asexual propagation

As a close observer Poelt discovered many more different types of vegetative diaspores in lichens than previously known and eventually he re-discovered thalloconidia, an unexpected type of diaspore of the lichen's mycobiont.

New types of lichenized asexual diaspores:

Asexual diaspores in lichens, as soredia and isidia, were considered, at least since Bitter (1901), as useful features for separating species. DuRietz (1924) presented a detailed historic account and described (referring partially to some earlier studies) ten morphological types of soralia and six types of isidia, a classification scheme that Poelt adopted in his earlier keys (Poelt 1969). It should be noted that Poelt's interest in asexual diaspores arose during his monographic studies of species groups in e.g. the genera *Fulgensia*, *Hypogymnia*, *Parmelia* or *Xanthoria*, where he studied hundreds of specimens in various stages of development, both in the field and in the herbarium. In the course of time, Poelt came upon various additional unnamed types of asexual diaspores, especially when he focused on their ontogenetic development (Poelt 1995b). In basidiolichens Poelt & Obermayer (1990b) came upon lichenized bulbils as diaspores. Poelt added to the already known list of types: blastidia, dactylidia (renaming Krog & Swinscow's [1979] "dactyls"), phyllidia, schizidia and thlasidia (renaming Vězda's [1979] "pseudoisidia") – new terms already mentioned before. In the last-mentioned paper Poelt described, but did not name, a number of further types that do not exactly fit in with the previous system. He wrote: "*These examples show that even in a few genera of foliose lichens there are many different types of vegetative diaspores. Many others exist, also in crustose lichens. .... Probably two different systems of terminology must be developed. A simple system, to be used in keys, and a more complex one for taxonomical and biological research*" (Poelt 1995b). Poelt's early death prevented an establishment of those systems.

Asexual diaspores of the mycobiont

Besides pycnospores (originally sexual structures, which may often act as diaspores in lichens), little was known of asexual diaspores of the mycobionts. The paper of Hasenhüttl & Poelt (1978) on structures for which they used the term "*Brutkörner*" was a surprise for the lichenological community. Minks (1900) and Frey (1929) had discovered these structures earlier, but without evaluating their significance; Henssen & Jahns (1974) mentioned them only very briefly. Hasenhüttl & Poelt found minute, single- or multi-celled,

dark, thick-walled structures on the lower side of *Umbilicaria* species. The authors could make these structures germinate – *thalloconidia* (originally named "brood grains" ["Brutkörner"]). Not only a fascinating new type of diaspores had been detected, but also valuable additional morphological characters had been found because these structures turned out to often have a species-specific appearance. Hasenhüttl & Poelt's rediscovery was the starting point of further discoveries of thalloconidia in other groups of lichens, e.g. Poelt & Obermayer (1990a).

4.2.5.4. Other topics

Poelt emphasized the role of reduction in the evolution of lichens (Poelt 1987a), which usually correlates with adaptions to changing ecological conditions. He saw reduction for instance in rhizines, thallus cortex (in parasitic lichens), excipular structures (in aspicilioid lichens), in paraphyses or in the number of spores per ascus (Poelt 1987a). Even the lecideoid ascocarp, he believed, may be the result of reduction.

A thick strand of sclerenchymatic tissue in the centre of the medulla is a well-known character of the genus *Usnea*, where it serves for tensile strength. Poelt (1983c) describes another type of sclerenchymatic tissues in the thalli of the three monotypic and unrelated genera: *Almbornia*, *Seirophora* and *Speerschneidera*. Here he interprets these structures as features for the storage of water.

In an attempt to seek out concordant alterations of anatomical characters in pairs of related lichen species which live under ecological conditions as different as possible, Poelt & Romauch (1977) compared the thalli of effigurate crustaceous lichens, one colonizing typical inland habitats, whereas the other one is colonizing coastal rocks. All the species of the second group develop strongly agglutinated hyphae, a conspicuously interrupted algal layer and a rather dense medulla.

4.2.6. Plant geography

Distribution maps – most often included in monographs and revisions – are part of many of Poelt's papers. Poelt and his co-workers consistently used one-to-one dot maps. As examples, I want to mention studies on *Lecanora* subgen. *Placodium* in the Himalayas (Poelt & Grube 1993), on the *Lecanora rupicola*-group (Leuckert & Poelt 1989), the *Protoparmelia atriseda* complex (Poelt & Leuckert 1991), the genera *Bryonora* (Poelt 1983b), *Rinodinella* (Mayrhofer & Poelt 1978) or *Xanthoria* and *Teloschistes* in the Himalayas (Poelt & Petutschnig 1992). Poelt & Krüger (1970) presented a paper entirely dedicated to the distribution of species of the genus *Squamarina*.

Poelt, grown up in a region heavily glaciated during the Ice Age, was familiar with the famous local glacial relics in flowering plants of his home, such as e.g. *Betula nana*, *Carex microglochin*, or *Saxifraga hirculus*. He soon got interested in the influence of the Pleistocene glaciation on the distribution of lichens, too (Merxmüller & Poelt 1954, Poelt 1963). Many alpine lichens doubtlessly survived the Pleistocene in situ on nunataks, as today's species-rich lichen flora in the nival belt shows (Poelt 1968, Hertel & Schuhwerk 2010). Poelt also came upon Pleistocene relics at lower elevations, as *Gypsoplaca macrophylla* (Poelt & Gärtner 1992). He was convinced that even some less sensitive species might have survived in protected and climatically favoured places in the Alps. Many elements of the tertiary flora, however, survived only far outside in tropical and subtropical, some in Mediterranean regions, as it is well known of flowering plants. Poelt came upon a number of lichens which seemed morphologically almost identical, except for their mode of dispersal, and named these "species pairs" (e.g. Poelt 1972b). Each of these pairs, e.g. *Candelaria fibrosa* / *C. concolor*; *Candelariella senior* / *C. medians*; *Parmeliopsis placoradia* / *P. aleurites*; or *Caloplaca etesiae* / *C. verruculifera* consist of what Poelt named a "primary species", which distributes by ascospores, and which is restricted to warm temperate regions ("refuge areas") today, and of a "secondary species", which distributes exclusively by asexual diaspores and which colonizes the (since roughly 10,000 years) ice-free Pleistocene-formed regions in Europe today. Poelt's theory of the species-pairs was not supported later. It was rejected several times (e.g. Lohtander et al. 1998).

In numerous lichen species (of very diverse families) so-called "chemical strains" became known (taxa, differing only in their composition of lichen compounds). Leuckert & Poelt (1978) demonstrated that chemical strains of various species are not randomly distributed in Europe, but often follow a north-south gradient. The chemically most impoverished races are usually confined to the cold-temperate north of Europe and to alpine sites in European mountain ranges.

While we are confronted with an increasing number of papers on neophytes in higher plants today, little or nothing was known about neophytic lichens. In the very inconspicuous cortical crustose lichen *Anisomeridium nyssaegenum* (a lichen known to occur in North America), Poelt & Türk (1994) suppose a neophyte in Austria and Southern Germany. They argue that in the 19th century *Anisomeridium nyssaegenum* was missing in southern Bavaria, where it is rather common and spreading today (Wirth et al. 2013). It seems inconceivable – so their conclusion – that the extremely sharp-eyed Ferdinand Arnold, who for decades meticulously scrutinized the lichen-flora of the large region around Munich in the second half of the 19th century, overlooked this lichen.

In the tropics, living leaves of trees, shrubs and perennial pteridophytes are a well-known substrate for lichens. These foliicolous lichens, a large and taxonomically highly diverse group, were monographed in a brilliant way by Santesson (1952) and the neotropical ones were also very well outlined by Lücking (2008). Only two obligate foliicolous lichens mentioned in Santesson's monograph occur in Central Europe, where they colonize needles of *Abies* and *Picea.* These two species have meanwhile become extremely rare. It is again a striking illustration of Poelt's and Vězda's phenomenal talent in observation, that additional foliicolous lichens were reported to occur in Central Europe. Poelt & Vězda (1992) found four foliicolous lichen species, including a new one, growing in a protected damp ravine in southern Styria (Austria) on needles of young trees of *Abies*. Poelt (1993) stressed the fact, that such an occurrence is instable, for these lichens would not grow in the canopy due to the long-term reduced air humidity there. That means, the population will disappear when the colonized trees become older and no suitable young trees exist in the neighbourhood.

For a long time a further group of lichens was regarded as of exclusively tropical distribution, a group in which Poelt became very interested: the basidiolichens. While the vast majority of all lichens have ascomycetes as mycobionts, a few use basidiomycetes. The large foliose tropical macrolichens of the genera *Cora* and *Dictyonema* (in Thelephoraceae) are the ones which have been best known since the 19th century. Two European basidiomycetes often seen in contact with algae turned out to be non-lichenized. *Odontia bicolor* (= *Resinicium bicolor*, Polyporales) proved to be a fungus only sporadically overgrown by algae (Poelt & Jülich 1969) and *Athelia arachnoidea* (syn. *Athelia epiphylla* auct., Aphyllophorales) is a necrotrophic fungal parasite of algae and lichens (Poelt & Jülich 1969).

Clear evidence of extra-tropical basidiolichens was first given by Geitler (1955) and Gams (1962). Geitler proved that *Clavaria mucida* (= *Multiclavula mucida*, Clavariaceae) is doubtlessly lichenized and Gams came upon a close symbiotic relationship between the green crusts of *Botrydina* and *Coriscium* (considered as sterile lichens all the time) with agarics of the genus *Omphalina* (Tricholomataceae). Poelt & Oberwinkler (1964) presented a precise survey of the anatomy of both "thalli" and the basidiocarps of these unusual lichens. Poelt (1975a) drew general attention to these organisms in the Alps and he induced Franz Oberwinkler (1970, 1984) to have a closer look at the basidiolichens, their morphology, ultrastructure and their relationship, with remarkable results (this book, Oberwinkler & Bauer 2018).

4.2.7. Ecology and biology

Poelt was particularly interested in substrate specificity and ecological behaviour of lichens, in unusual types of nutrition, such as parasitism and cy-

anotrophy, changes in appearance of crustose lichens undergone after snail's feeding and regeneration, and in ephemeral growth of lichens. His report of the existence of dioecious lichens is also included here.

4.2.7.1. Substrate specificity and ecological behaviour

Ferdinand Arnold – we remember that Poelt called him his *teacher of lichenology* – carefully mentioned on his labels – as Hertel (1997) emphasised – the type of the substrate at the very first position, that is, before the name of the locality, e.g. "*Augitporphyr im Walde bei Razzes*" (= [on] augite-porphyry in the forest near Razzes), or "*Glimmerschiefer am großen Rettenstein ....*" (= [on] mica-schist rocks at Mt Grosser Rettenstein ..), or "*Sandstein der Campiler Schichten ober dem Rollepaß*" =([on] sandstone [of the Triassic stratigraphic layer named] Campiler Schichten above Passo di Rolle). I am sure, this and Poelt's own experience during his PhD work in vegetation science caused Poelt to always look carefully at the substrate of lichens.

Thus, he discovered lichens on some rather unexpected substrates, e.g. on decaying *Sphagnum* cushions in raised bogs (*Absconditella sphagnorum* – Vězda & Poelt in Vězda 1965); on dead leaves of the sedge *Cladium mariscus* (*Micarea hemipoliella* – Poelt 1977b), or on leaflets of the moss *Andreaea* (*Pachyascus lapponicus* – Poelt & Hertel 1968).

Poelt unravelled *Psora saviczii* (Poelt et al. 1995) – described as occurring on solonetz soils in Ukraine – as a more widespread lichen bound to gypsum soils, and added new lichen names to the list of taxa which are known to be bound to serpentine rock, as *Rinodina serpentini* (Mayrhofer & Poelt 1979) and *Squamarina serpentini* (Poelt 1975b). He reported on lichens which are spezialised colonizers of very hard quarzitic rocks (*Lecanora picea*, *Lecidea praeruptorum* [Ullrich & Poelt 1968]). Together with E. Hinteregger and H. Mayrhofer (Hinteregger et al. 1989), he studied the species *Lecanora* and *Rinodina* which are more or less bound to twigs of the two small *Rhododendron* species in the Alps.

Poelt (1993) illuminated the strange distribution of *Caloplaca paulii*, which was known from records in the Alps, Greenland, Pamir and Karakorum. He realized that this species requires (a) a special type of siliceous rock with a high calcium carbonate content, (b) a subcontinental climate, and (c) alpine to high-alpine situation.

Rocks with a high content of heavy metals are rare substrates colonised by chalkophilous lichens. Led by his interest in bryophytes, Poelt early visited the famous slope "Schwarze Wand" (Austria, Salzburg: Großarl), known for the occurrence of the rare "copper mosses" *Mielichhoferia nitida* and *Merceya ligulata.* Poelt reported two new taxa of copper-tolerant lichens from

this locality: *Rhizocarpon furfurosum* H. Magn. & Poelt and *Haematomma ventosum* var. *cuprigenum* Poelt (both Poelt 1955c).

The rich (and colourful) lichen flora on various 400-year-old ore slags in the Harz Mountains was documented early by Ullrich & Klement (1960). Because of an imperfect smelting technique in mediaeval times these old "trash piles" turned out to be still rich enough in heavy metals to get successfully re-smelted meanwhile. Except for tiny remnants these ore slags have completely disappeared in the meantime. Ullrich made Poelt familiar with this ore slag vegetation and they both published on chalkophilous species of the genus *Lecanora* (Poelt & Ullrich 1964).

The discovery of *Lecanora vinetorum* Poelt & Huneck was a sensation in the field of heavy-metal-tolerant lichens. This inconspicuous species colonizes wooden frames in vinyards of the Hocheppan region of South Tyrol (Italy), which are so often and intensely sprayed with copper-compounds that the wood turns blue. They get sprayed up to twelve times a year to get the downy mildew *Plasmopara viticola* under control. In the thalli of *Lecanora vinetorum*, Poelt & Huneck (1968) found copper in a concentration of up to 5000 ppm!

Another less conspicuous type of substrate in which Poelt soon became very interested were siliceous rocks which contain a small amount of carbonate, as e.g. radiolarite (Poelt named these rock-types "Kieselkalk") or types of little calciferous sandstone. These rock types are usually rare in the alpine belt and possess a highly significant lichen flora, with e.g. *Lecanora diaboli*, *L. freyi*, *Lecidea speirodes*, *Sarcogyne cretacea*, *Squamarina nivalis* or *Stenhammarella turgida* (four of the species mentioned were described as new by Poelt [1958 and 1964c]).

Authors of regional floras often take over ecological designations of species from other published sources. This transfer may cause misleading statements, which is the core message of Poelt's paper "*Ecological law of relative habitat constancy*" (Poelt 1987b). Here, he demonstrates for selected examples that widespread species do not show the same ecological behaviour throughout their whole range of distribution. The ecological niches of species usually become narrower in regions where they have to suffer from more extreme conditions.

4.2.7.2. Dioecious lichens

Little is known about the sexuality of the (very difficult to cultivate) lichens and much less of the extremely slowly growing saxicolous, crustose, alpine lichens. Most of those lichens form pycnidia, which develop tiny spore-like structures, the pycnospores. In crustose lichens pycnidia are, if at all, difficult to detect, because these little structures are usually sunken into the thallus.

The pycnospores are quite likely to function either as spermatia or in other (as we believe derived) cases perhaps as asexual conidia. Poelt never studied the anatomy, ontogeny and biology of pycnidia in a wider context. However, he commented on an interesting observation (Poelt 1980a), which made him feel confident that pycnospores as sexual organs act in *Lecidea verruca*. He observed in this tiny lichenicolous lichen growing on thalli of *Aspicilia* two types of thalli, first normal-sized ones, bearing only apothecia and secondly much smaller ones (1–3 mm in diam.), bearing exclusively spermogonia. Poelt found no evidence that these spermogonia-bearing tiny thalli would later evolve into larger thalli which produce apothecia. So he interpreted these two thallus types as male and female thalli and called *Lecidea verruca* a "dioecious lichen". Poelt's result needs further confirmation.

4.2.7.3. Teratology by animal feeding

Poelt signalized the great importance of this phenomenon in his paper on the "Systematic evaluation of morphological characters" (Poelt 1974c). He had an excellent experience in and knowledge of all these abnormalities found in (mostly) snail-eroded lichen thalli and ascocarps and in their regenerating products. "*Taxonomists studying some species in* Caloplaca" – he underlined (1974c: 110) – "w*ould be hard put to define the* "typical" *(undamaged) appearance. Specimens preserved in herbaria have almost always been collected in the damaged state, and one may be forced to include damage in the description as the normal state of the population.*" We students owe him a perfect training to recognise these teratological alterations, which misled so many lichenologists to describe superfluous, teratologically based taxa. The deciphering of the curious *Clauzadea cyclisca* (A. Massal.) V. Wirth with its small apothecia arranged in more or less circular groups as a teratological growth type of *Clauzadea chondrodes* caused by animal feeding – this deciphering by an academic grandchild of Josef Poelt, Barbara Meyer (Meyer 2002), is a good example of how effective Poelt spread this knowledge, which is still too litttle considered.

Lichens, as (usually) very long living organisms, and especially those occurring in eutrophic sites with often high air humidity at night (when lichen thalli are soft and snails active), often suffer from animal feeding to an extreme extent, especially by small snails. Only fresh feeding damage is easy to recognise as radula tracks can be seen. Whole populations may be altered concordantly by snails' feeding, and Poelt told that it was sometimes (especially in lowland populations of *Caloplaca*) difficult to detect "normally" developed specimens on such sites. Schade (1933, 1956) had pointed out snails' feeding previously, but his papers received too little attention. In some dissertations of Poelt's students (Hertel 1967, Wunder 1974) further comments are given on this subject.

4.2.7.4. Ephemeral lichens

Most lichens grow slowly or extremely slowly and therefore are very long-living organisms (with the exception of the tiny foliicolous lichens). For some specimens of arctic crustose lichens an age of several thousand years was extrapolated. Various studies on the growth rate of lichens were done by Roland Beschel (Beschel 1957), who compared the size of the largest thalli of selected lichen species (as e.g. *Rhizocarpon geographicum*) colonizing rocks on different historically dated glaciers moraines, or by Eduard Frey (Frey 1959), who examined selected lichen sites in the Swiss National Park by regularly taking photos over decades, or by Mason Hale, who in short intervals (weeks) took close-up photos of single lobes of lichens in nature (Hale 1970). To Poelt & Vězda (1990), however, we owe insight into the opposite side of the scale of lichen growth, the short living lichens. Although Meyer (1825) observed that "*Parmelia terrigena*"[59] had a very short life span, the existence of ephemeral lichens was almost forgotten. Poelt & Vězda present a synopsis on quite a number of these poorly competitive, tiny and often very inconspicuous, (in lower elevations) usually winter-annual organisms and drew attention to this taxonomically very heterogeneous group.

4.3. Poelt's new taxa

4.3.1. General classification and new families

Poelt dedicated a special paper to the definition of "taxonomic ranks" and proposed a classification system for the lichenized fungi as well (Poelt 1974b), a system very similar to that of Henssen & Jahns (1974) presented in their famous textbook (Poelt pointed out help and suggestions of A. Henssen in his paper). Within the Ascolichens, he accepted nine orders: Arthoniales, Dothideales, Verrucariales, Pyrenulales, Caliciales, Ostropales, Graphidales and Lecanorales. He further subdivided the Lecanorales (more or less the Lecanoromycetes of today) into nine suborders: Lichineae, Peltigerineae, families with blue-green symbiont (classification not settled), Lecanorineae, Cladoniineae, Umbilicariineae, Acarosporineae, Pertusariineae, Buelliineae and a remaining group of unclear relationship.

Poelt also proposed a number of new families (which he often marked as "ad interim", in order to underline his still preliminary definition, however, thus he made its publication invalid according to the now called „International Code of Nomenclature for algae, fungi, and plants"). These new families are:

59 *Parmelia terrigena* (nomen nudum) is probably *Aphanopsis coenosa* (Poelt & Vězda 1990).

Arthroraphidaceae Poelt (1974b), nom. inval.; validated by Poelt & Hafellner 1976]

Aspiciliaceae Poelt (1974b), nom. inval.

Huiliaceae Poelt & Vězda (1981), nom. inval.

Hypogymniaceae Poelt (1974b), nom. inval.; validated by Elix 1979

Lithographaceae Poelt (1974b), nom. inval.

Pachyascaceae Poelt (1974b), nom. inval.; validated by Kirk et al. 2001

Phlyctidaceae Poelt (1974b), nom. inval.; validated by J.C. David & D. Hawksw. Systema Ascomycetum **10**: 15 (1991)

Protothelenellaceae Vězda, Mayrhofer & Poelt in Mayrhofer & Poelt (1985)

Stenhammarellaceae Poelt (1974b), nom. inval.

Solorinellaceae Vězda & Poelt (1990)

Thrombiaceae Poelt & Vězda (1981), nom. inval.; validated by J.C. David & D. Hawksw., Systema Ascomycetum **10**: 16 (1991)

Vezdaeaceae Poelt & Vězda (1981), nom. inval.; validated by J.C. David & D. Hawksw., Systema Ascomycetum **10**: 16 (1991)

The generic system he used was a moderately modern one throughout. He did not follow the latest ideas if he was not convinced of their reliability. This may be seen from his gradually changing acceptance of the many new genera which were separated from the giant genus *Parmelia*.

4.3.2. New genera

Poelt was involved in the description of 24 new genera. Without co-authors, he described the genera: *Arctopeltis*, *Bryonora*, *Candelina*, *Ioplaca*, *Physconia*, *Seirophora* and *Squamarina*; together with P. Döbbeler: *Bryochiton*, *Bryopelta*, *Bryostigma*, *Myxophora* and *Racovitziella*; together with M. Grube: *Sagema*; together with J. Hafellner: *Apatoplaca*; together with J. Hafellner and H. Mayrhofer: *Dermiscellum*; together with H. Hertel: *Pachyascus*; together with D. Hawksworth: *Hastifera*, *Lichingoldia* and *Woessia*; together with H. Mayrhofer: *Phaeorrhiza* and *Rinodinella*; together with A. Vězda: *Bullatina* and *Caleniopsis*; and together with W. Tschermak-Woess: *Vezdaea* (a most remarkable, very peculiar, primitively structured genus – Tschermak-Woess & Poelt 1976).

4.3.3. New species

Poelt described (predominantly with co-authors) 280 taxa in species-rank. A bit more than a fourth (73) he described alone, the remaining 207 species with co-authors (particularly frequent among them: E. Hinteregger [30 times], P. Döbbeler [28 times], A. Vězda [25 times], H. Mayrhofer [19 times] and P. L. Nimis [16 times]). Of these new species 236 were lichenized, the rest belongs to non-lichenized Ascomycetes (33 species; with the exception of *Laboulbenia buehlmannii* and *Polystigma caulicola* [Phyllachoraceae] exclusively bryicolous fungi, described in cooperation with P. Döbbeler), Basidiomycetes (6 species; *Aecidium*, *Puccinia*, *Uromyces*), mosses (2 species of *Schistidium*), Myzetozoa (2 species) and Oomycota (1 species – *Peronospora*).

He collected more than half of his new species himself.

The geographic origin of Poelt's new lichen species mirrors his main areas of fieldwork and research. Roughly 34 % came from the high mountains of Eastern Asia (Himalayas, Karakorum and Hindukush), 31 % from the Alps, from the European Mediterranean region 17 %, and from Northern Europe and the Arctic 6 % of the new species.

These new lichen species belong to various different families and genera, with the genera *Caloplaca* (57 new species), *Lecanora* (33 new species) and *Rhizocarpon* (14 new species, all lichenicolous!) on top of the list.

Poelt was imaginative in the naming of taxa. Here are some examples of epithets: *adelphoparasitica* (being a parasite of one's brother), *aphrodites* (after the Greek goddess of beauty, who is said to have emerged from the sea cliffs off the coast of Cyprus where the lichen occurs), *caelivicina* (adjacent to the sky, because the taxon was collected at very high altitudes), *chrysocardia* (with a golden heart, because of the yellow-coloured medulla), *diaboli* (of the devil – but named after the *Val Diavolo* in the Swiss National Park, where Frey collected it first), *kakurgon* (evil doer), *lypera* (sad, because of the gloomy coloration), *magni-filii* (son of Magnus, latinisation of Magnusson), *nunatakkorum* (from Inuit *nunataq*, an exposed ice-free peak standing out against permanent ice-fields in Greenland – often used for alpine summits not glaciated during Pleistocene), *tschomolongmae* (after the Sherpas' name for Mt Everest), or *yeti* (after the legendary mythical creature from the Himalayas).

He honoured quite a number of friends, colleagues and collectors by creating eponyms, as:

S. Ahmad (*Caloplaca ahmadiana* Poelt & Hinter.),

F. Arnold (*Porina arnoldii* Poelt & Vězda, *Rinodina arnoldii* H. Mayrhofer & Poelt),

C.F. Culberson and W.L. Culberson (*Gyalidea culbersoniana* Vězda & Poelt),

G. Degelius (*Squamarina degelii* Poelt),

W. B. Dickoré (*Caloplaca dickoreana* Poelt & Hinter.),

P. Döbbeler (*Protothelenella petri* H. Mayrhofer & Poelt),

E. Frey (*Conotrema freyi* Vězda & Poelt, *Umbilicaria freyi* Codogno, Poelt & Puntillo),

A. Gisler (*Lecanora gisleri* Poelt & Ullrich),

M. E. Hale (*Parmelia masonii* Essl. & Poelt),

W. Hellmich (*Lecanora hellmichiana* Poelt),

A. Henssen (*Gyalecta hensseniae* Hafellner, Poelt & Vězda),

P. W. James (*Cheiromycina petri* D. Hawksw. & Poelt),

L. Kofler (*Parmelia koflerae* Clauzade & Poelt),

A. H. Magnusson (*Caloplaca magni-filii* Poelt, *Squamarina magnussonii* Frey & Poelt),

G. Miehe and S. Miehe (*Protoblastenia gesamia* Poelt & Grube; *gesamia* = *Ge*org + *Sa*bine + *Mi*ehe),

A. Oxner (*Xanthoria alfredii* S.Y. Kondr. & Poelt),

H. Paul (*Caloplaca paulii* Poelt),

A. Racovitza (*Racovitzella* Döbbeler & Poelt),

O. Renner (*Rhizocarpon renneri* Poelt),

F. Resende (*Xanthoria resendei* Poelt & C. Tav.),

H. Roemer (*Anaptychia roemeri* Poelt),

G. Schöfer (*Caloplaca schoeferi* Poelt),

A. Schröppel (*Aecidium schroeppelianum* H.K.G. Paul & Poelt),

M. Steiner (*Toninia steineri* Poelt & Vězda),

E. A. Vainio (*Caloplaca vainioi* Hafellner & Poelt nom. nov.),

A. Vězda (*Chromatochlamys vezdae* H. Mayrhofer & Poelt),

C. Wetmore (*Caloplaca wetmorei* Nimis, Poelt & Tretiach), and last but not least his wife Christa:

Christa Poelt (*Pertusaria christae* Dibben & Poelt).

4.4. Josef Poelt's young academics

"*He did not hold back what he thought of the scientific content of the submitted manuscripts. But he said it with his very personal touch of Bavarian humour that did not offend the respective authors.*" With these telling words Krisai-Greilhuber (1995) emphasized one of the characteristics that made Poelt so popular. He had a clear, open and warm style of dealing with other people. He spoke to them neither patronizingly nor in a spezialized terminology difficult to understand, but he did speak at eye level with his students, always trying to get them interested.

His enormous knowledge and his ability to impart it drew interest and enthusiasm among students. In Germany supervisors of PhD theses are called "Doctor's father". Poelt really deserved this designation. Of his altogether 31 PhD students he supervised (for details see the chapters "Munich", "Berlin", "Graz") four became academics (Döbbeler, Hafellner, Hertel, H. Mayrhofer, Oberwinkler), who supervised on their part together more than 80 PhD students (for the most part mycologists and academic relatives of Franz Oberwinkler), quasi Poelt's academic grandchildren. Several of these academic grandchildren have meanwhile become academic teachers as well, in the field of lichenology: Martin Grube, Walter Obermayer, Christian Printzen and Gerhard Rambold. It is a very pronounced track which Poelt left in the history of lichenology.

5. Honours

Josef Poelt received a great deal of honours during his lifetime. I am not sure whether the following list is complete.

Josef Poelt was an Honorary Member of the following societies:

- Bayerische Botanische Gesellschaft
- Botanical Society of America
- Botanischer Verein von Berlin und Brandenburg
- Česká Botanická Společnost (Czech Botanical Society)
- Mycological Society of America
- Regensburgische Botanische Gesellschaft (the world's oldest botanical society)
- Schweizer Vereinigung für Bryologie und Lichenologie
- Società Lichenologica Italiana

The Linnaean Society of London elected Josef Poelt as a foreign member. This is a high distinction because this society draws members from all branches of natural sciences, and the number of foreign members is limited to 50.

Josef Poelt was a corresponding member of the Austrian Academy of Science and of the Bavarian Academy of Science.

He served as president of the 4th International Mycological Congress in Regensburg, 28 August – September 3, 1990.

Last but not least, the International Association for Lichenology honoured him, as already mentioned in chapter 2, with the Acharius Medals in silver and later in gold.

6. Eponyms

Eponyms should permanently remind of eminent researchers. Linnaeus considered it a duty to create such names ("*Nomina generica ad Botanici bene meriti memoriam conservandam constructa, sancta servo*". – Linnaeus 1737). A lot of taxa are named after Josef Poelt, and he never showed displeasure, as Friedrich Markgraf (1948–1958 at the Botanical Gardens in Munich, finally its director) once did, when confronted with *Moehringia markgrafii* Merxm. & Guterm., a small sandwort, endemic to the Alpi Bresciane. Markgraf's displeasure – Poelt once told this story – originated in the German name, which "his" species would bear in future, "Markgraf's Nabelmiere" [Nabel = navel; Miere = sandwort].

The following genera comprise Poelt's name (see Hertel 2012):

Josefpoeltia S.Y. Kondr. & Kärnefelt

Melanotopelia Lumbsch & Mangold

Poeltia Grolle

Poeltia Petr. (nom. inval.)

Poeltiaria Hertel

Poeltidea Hertel & Hafellner

Poeltiella Petr. (nom. nov.)

Poeltinula Hafellner

Topelia P.M. Jørg. & Vězda

Topeliopsis Kantvilas & Vězda

The number of epithets bearing Poelt's name is large. These species belong to quite different groups of organisms: Lichens, non-lichenized fungi, algae, bryophytes, vascular plants and slime-moulds.

Lichens

Alectoria poeltii Bystrek (syn.: *Bryopogon poeltii*, *Bryoria poeltii*)

Bahionora poeltii Kalb

Buellia poeltii T. Schauer (syn.: *Tetramelas poeltii*)

Collema poeltii Degel. (syn.: *Lathagrium poeltii*)

Fulgensia poeltii Llimona

Fuscidea poeltii Fryday

Gyalideopsis poeltii Vězda (syn.: *Lithogyalideopsis poeltii*)

Involucrocarpon poeltii Servít (syn.: *Verrucaria poeltii*)

Lecania poeltii van den Boom, Alonso & Egea

Lecanora poeltiana Clauzade & C.Roux

Lecidea poeltii Hertel

Melanelia poeltii Essl. (syn.: *Melanohalea poeltii*)

Pannaria poeltii P.M. Jørg. (syn. *Fuscopannaria poeltii*)

Paraparmelia poeltii T. Nash, Elix & J. Johnst. (syn.: *Xanthoparmelia poeltii*)

Physcia poeltii Frey (syn.: *Phaeophyscia poeltii*)

Rinodina poeltiana Giralt & Obermayer

Rinodina poeltii H. Mayrhofer

Squamarina poeltii Vänskä

Thelotrema poeltii Patw. & C.R. Kulk.

Toninia poeltiana S.Y. Kondr., L. Lökös & J.-S.Hur.

Toninia poeltii Timdal

Trichothelium poeltii Lücking

Verrucaria poeltiana Clauzade & C. Roux (syn.: *Verruculopsis poeltiana*)

Xanthoria poeltii S.Y. Kondr. & Kärnefelt (syn.: *Gallowayella poeltii*, *Oxneria poeltii*, *Xanthomendoza poeltii*)

Non-lichenized fungi of various relationships

Athelia poeltii Jülich

Bourdotia poeltii Oberw.
Bovistella poeltii Kreisel
Erysiphe poeltii U. Braun
Lichenodiplis poeltii S.Y. Kondr. & D. Hawksw.
Lichenopuccinia poeltii D. Hawksw. & Hafellner
Naeviella poeltiana Scheuer
Phellinus poeltii Ryvarden (syn.: *Pseudoinonotus poeltii*)
Punctillum poeltii Döbbeler (syn.: *Hypobryon poeltii*)
Schroeteria poeltii Vánky
Velutipila poeltii D. Hawksw.

Algae

Penium poeltianum K. Först. (Desmidiales)

Bryophytes

Hepatics:
Brachyolejeunea poeltii Mizut. & Grolle
Corynotheca poeltii Ochyra (syn.: *Clavitheca poeltii*)
Jungermannia poeltii Amakawa
Nardia poeltii Váña
Plagiochila poeltii Inoue & Grolle
Mosses:
Schistidium poeltii H. Blom

Flowering Plants

Androcymbidium poeltianum U. Müll.-Doblies & D. Müll.-Doblies (Colchicaceae)
Centaurea poeltiana Puntillo
Cirsium poeltii Petr.

Mycetozoa

Arcyria poeltii Nann.-Bremek. & Yamam.

7. Various

7.1. Services for scientific societies and journals

Poelt was active in the committees of various botanical associations, as an editor or a member of editorial boards of botanical journals.

Immediately after the society's re-admission by the US Military Government on October 3, 1946, Poelt became a member of the Bayerische Botanische Gesellschaft. From as early as the end of 1952, he served as a secretary ("Schriftführer") and from 1958 to 1965 (when he moved to Berlin), he was the chairman ("1. Vorsitzender"). In 1965 he was elected Honorary Member.

As to Bryologisch-lichenologische Arbeitsgemeinschaft für Mitteleuropa, Poelt was head of the committee which founded this association in 1968 in Berlin. For years he was the main editor of the association's journal "*Herzogia*". I do remember vividly the production of the early volumes of Herzogia at the Institute of Systematic Botany and Plant Geography. The clean copies for photo reproduction were typed by the secretary, using a modern electric typewriter. The headings of the articles with titles and authors were printed by the publisher Jörg Cramer, sent to Berlin, then cut out and glued onto the corresponding page. This allowed a quick publication. Almost two decades before, Josef Poelt had already witnessed a very similar birth of a scientific journal: "*Mitteilungen der Botanischen Staatssammlung München*", edited by K. Suessenguth and produced in the very same way (although without printed headings and typed with an old mechanic typewriter) from April 1950 onwards. Between 1950 and 1990, Poelt published 23 articles in that journal.

Poelt acted as chairman of the Deutsche Botanische Gesellschaft for a year during his years at Berlin.

Naturwissenschaftlicher Verein für Steiermark: Soon after his arrival in Graz, Poelt became active in this society, acted as a member of the board between 1957 and 1977 and served as its chairman from 1979 to 1983.

Poelt served as editor or as a member of the editorial board of other journals, as "Nova Hedwigia" (Poelt was on the editorial board from 1966 to 1995), "Plant Systematics and Evolution" where he acted as associate editor from 1974 up to his death ("*He was one of our active editors and reviewed manuscripts dealing with cryptogamic botany and thereby helped furthering these organisms in our journal*" – Krisai-Greilhuber 1995).

For "Fortschritte der Botanik (Progress in Botany)" he served for many years (1955–1974) as the author of the section "Lichenes" (beside the sections "Pteridophytes" and "Bryophytes"). It was a time-consuming, but also rewarding work. In retrospect he wrote in a letter (1 Mar 1980): "*There is one advantage to doing the work for* "*Fortschritte*". *You teach yourself to recognize*

more quickly whether there is apart from mass also brain in a publication." (Translated[60]). In eleven issues of the journal he reported about remarkable new papers in the field of lichenology.

Last but not least, a few lines on POELT's many informative and readable reviews he published in various journals. He always expressed critical remarks in carefully selected words, in order not to hurt an author. And he always recognized the difficulties and circumstances under which a paper was written. In POELT's review of H. TRASS's and T. RANDLANE's book on the macrolichens of Estonia (POELT 1995c) we can read: "*A very thankworthy book which deserves highest kudos, even if one can only surmise all the difficulties with which the development of this book had to fight´.*" (Translated[61]). POELT's review of MURATI's lichen flora of Slovenia, Croatia, Vojvodina, Bosnia and Herzegovina, Serbia, Montenegro, Kosovo and Makedonia, volume 2 (POELT 1994c) is mentioned as an additional example. *"It would be easy to point out critically a few obvious shortcomings here. However, in the judgement of the reviewer admiration overweighs. It is a miracle that the author of the flora succeeded in completing his work in the midst of these horrible events. And this miracle should help not to lose hope for a better future in those countries of South Eastern Europe, which are shaken by hatred and distress*." (Translated[62].)

7.2. POELT author of obituaries

POELT wrote some sensitive obituaries for beloved ones: Hermann MERXMÜLLER 1920–1988 (KANDLER & POELT 1988, POELT 1989b), Hermann PAUL 1876–1964 (POELT 1964a), Helga PITTONI 1924–1994 (POELT 1996b), Maximilian STEINER 1904–1988 (POELT 1989a), Carlos das Neves TAVARES 1914–1972 (POELT 1974f) and Felix WIDDER 1892–1974 (POELT 1975c).

For his friend Antonin VĚZDA (POELT 1995a), who survived him by thirteen years he did not compose an obituary, but an appreciation.

---

60 [From a letter by J. POELT, 1 Mar 1980, to H. HERTEL] "*Einen Vorteil hat das* Fortschritte *bearbeiten. Man erzieht sich selber rascher zu spannen, ob in einer Arbeit neben Masse auch Hirn zu finden ist*."

61 [POELT 1995c] "*Ein sehr dankenswertes Buch, dem man größte Anerkennung zollen muß, auch wenn man die Schwierigkeiten nur ahnen kann, mit denen die Entwicklung des Buches zu kämpfen hatte.*"

62 [POELT 1994c] "*Es wäre leicht, dem Buch nicht wenige offensichtliche Mängel anzukreiden. Beim Ref. überwiegt die Bewunderung. Es ist ein Wunder, dass es der Verfasser der Flora fertig brachte, inmitten des grausigen Geschehens das Werk abzuschließen. Und dieses Wunder sollte helfen, die Hoffnung auf eine bessere Zukunft in den von Hass und Not geschüttelten Ländern Südost-Europas nicht aufzugeben.*"

Not an obituary, but another paper in honour of the Bavarian amateur-lichenologists, as Ferdinand Arnold and August von Krempelhuber, was published by Poelt in 1991. In this paper he also tries to explain the term "*amateur*". The old definition for amateurs as persons who are not professionally but incidentally pursuing a particular activity does no longer work today, Poelt states, in writing: "*Those who are employed at universities today wear their energy out mainly for lectures, examinations and the diverse demands of democracy and bureaucracy. There is hardly any of the professors and assistants who does not feel as an amateur, being involved with science only along the way during long months.*" (Translated[63].)

8. Outlook

Poelt's main interest was the exploration of the alpine lichen flora. He was increasingly aware that he could only approximate to this goal to some extent. His vast experience in the field continuously confronted him with new questions. In personal conversations he often expressed his discontent with checklists, which were in his opinion not edited critically enough (those of Santesson [1984, 1993] or Nimis [1993] he regarded as role models). Towards the end of his life, he watched with great concern that colleagues started to overestimate the state of our knowledge of lichen species. In a letter he wrote: "*Incidentally I have made up my mind to point out more and more how many things are still obscure. Many papers create the impression that everything is clear and for writing checklists we have nothing else to do than just go in the field and make a note of all the* [supposedly] *accurately defined species into a booklet.*" (Translated[64]).

Josef Poelt was the most significant lichenologist, at least in the second half of the 20th century. Other outstanding lichenologists might have outdone him in special fields, but nobody has promoted lichenology so extensively. The number of his high honours and awards testifies to that.

It is nice to see that many of the projects Poelt started continue today, as the lichen-volume of *Catalogus Florae Austriae* or the investigation of the

63 [Poelt 1991: 528] "*Wer heute etwa an der Universität tätig ist, verschleißt seine Energien zur Hauptsache für Vorlesungen, Prüfungen und die mannigfachen Anforderungen von Demo- und Bürokratie. Kaum einer von den Professoren und Assistenten, der sich in seiner langen Monate hindurch nebenher gepflegten Wissenschaft nicht als Amateur vorgekommen ist.*"

64 [From a letter by J. Poelt, 18 Aug 1990, to H. Hertel] "*Im übrigen habe ich mir vorgenommen, immer mehr darauf hinzuweisen, wieviele Dinge noch unklar sind. Bei vielen Arbeiten meint man, alles sei klar, um Florenlisten zu machen, müsse man nur ins Gelände gehen und die klar definierten Arten in ein Bücherl schreiben.*"

lichen flora of the Himalayas. The fact that the lichen herbaria in Munich and Graz remained or became centers of cryptogam research has various causes – a central one is connected with Josef Poelt. "*Where would lichenology be today if the last 35 years had not included Josef Poelt?* This question asked by W. L. Culberson, cited in the introduction, is unanswerable. However, the history of lichenology would have taken a very different course – in any case, not such a quick one, not as colored, and with quite different geographical focuses.

9. Acknowledgements

For information and or photos, I have to thank Dr. Gertraud Kandler (Munich), Prof. Dr. Elsa Kusel (Vienna; she also took the photo in Hertel & Oberwinkler 1996 p. 329, which erroneously was attributed to H. Doppelbaur), Prof. Dr. Teuvo Ahti (Helsinki), Dr. Andreas Beck (München), Prof. Dr. Paul Blanz (Graz), Prof. Dr. Andreas Bresinsky (Regensburg), Dr. habil. Peter Döbbeler (Munich), Dr. Jeannette Fritz (Graz), Prof. Dr. Martin Grube (Graz), Prof. Dr. Josef Hafellner (Graz), Prof. Dr. Per Magnus Jørgensen (Bergen), Prof. Dr. R. Krisai (Salzburg), Prof. Dr. Otto Ludwig Lange (Würzburg), Prof. Dr. Helmut Mayrhofer (Graz), Dr. Walter Obermayer (Graz), Dr. Christian Scheuer (Graz), Dr. Adolf Schriebl (Graz), Dr. H. Sipman (Berlin), Prof. Dr. William A. Weber (Boulder, Colorado). Without the kind help of Leonhard Poelt (Pöcking), Josef's younger brother, who kindly answered all my numerous questions and willingly allowed to have insight into his magnificent and extensive hand-written family archives (including its multitude of photos), the chapters on Poelt's early years at Pöcking and about his family could not have been written in detail. A deeper insight into the situation of Josef Poelt's own family, from the children's point of view, I owe to Julia Poelt (Munich) and Doris Poelt (Graz). They also allowed me to study Josef's famous guest book with its more than thousand signatures, as well as a box full of (unfortunately usually unlabeled) old photos, which their father once received.

For the time-consuming linguistic proofreading and the improvements I am highly indebted to Mrs Iris Blanz (Graz). For various remarks, notes and improvements of the manuscript I warmly want to thank my friends Dr. habil. Peter Döbbeler and Prof. Dr. Franz Oberwinkler.

10. References

Abbayes, H. des 1951: Traité de lichénologie. — Encycl. Biol. **41**, 217 pp. — Paris: Lechevalier.

Anonymous 1995: On the evening of June 3rd, 1995, Dr. Josef Poelt, Professor Emeritus, died at the age of 70. — Bryologist **98**: 434.

Aptroot, A. & Sipman, H. 1995: In memoriam Dr. Josef Poelt. — Buxbaumiella **37**: 4–5.

Arvidsson, L. 1999: A survey of lichenology in Sweden during the 19th century. — Acta Univ. Upsal., Symb. Bot. Upsal. **32** (2): 23–60.

Baumgärtner, H. 1979: Revision der europäischen Arten der Gattung *Toninia* (Massal.) ampl. Th. Fr. — München: Inaug.-Dissertation.

Beschel, R. 1957: Lichenometrie im Gletschervorfeld. — Jahrb. Ver. Schutz Alpenpflanzen und -tiere **22**: 164–185.

Bielczyk, U. 1996: Wspomnienie posmiertne Prof. Dr. Josef Poelt (17.10.1924–3.6.1995). — Fragm. Flor. Geobot., Ser. Polonica **3**: 413–415.

Bitter, G. 1901: Zur Morphologie und Systematik von *Parmelia*, Untergattung *Hypogymnia*. — Hedwigia **40**: 171–273 + 2 Tafeln.

Boidol, M. & Poelt, J. 1963: Zur Kenntnis der Blütenbrände von Cyperaceen in Südbayern. — Ber. Bayer. Bot. Ges. **36**:13–23.

Boistel, A. 1967: In Dr. Nylander's study. (From a biographic essay translated by William Louis Culberson.) — Bryologist **70**: 396.

Braun, W. 1968: Die Kalkflachmoore und ihre wichtigsten Kontaktgesellschaften im bayerischen Alpenvorland. — Dissert. Bot. **1**.

Bresinsky, A. 1972: In memoriam Dr. Hans Doppelbaur und Dr. Hanna Doppelbaur. — Ber. Bayer. Bot. Ges. **43**: 149–152.

Bresinsky, A. 1995: Josef Poelt 1924–1995. — Hoppea, Denkschr. Regensburg. Bot. Ges. **56**: 583–586.

Brodo, I.M. 1996: Josef Poelt: a North American Perspective. — Bryologist **99**: 349–351.

Buschardt, A. 1979: Zur Flechtenflora der inneralpinen Trockentäler unter besonderer Berücksichtigung des Vinschgaus. — Biblioth. Lichenol. **10**: 1–419.

Caspari, C., Poelt, J. & Jahn, H. 1963: Mitteleuropäische Pilze. 180 Tafeln in 6–8-farbigem Offsetdruck von Claus Caspari. Ausgewählt und bearbeitet von Prof. Dr. J. Poelt und Dr. Hermann Jahn. — Sammlung naturkundlicher Tafeln. — Hamburg: Kronen-Verlag E. Cramer, 2. Aufl. [Begleitheft:] 72 S. + 180 Farbtafeln.

Ciferri, R. & Tomaselli, R. 1952: Saggio di una sistematica microlichenologica. — Atti Ist. Bot. Lab. Crittog. Univ. Pavia, ser. 5, **10**: 25–84.

Codogno, M., Poelt, J. & Puntillo, D. 1989: *Umbilicaria freyi* spec. nova und der Formenkreis von *Umbilicaria hirsuta* in Europa (Lichenes, Umbilicariaceae). — Plant Syst. Evol. **165**: 55–69.

Coppins, B.J. 1989: Notes on the Arthoniaceae in the British Isles. — Lichenologist **21**: 195–216.

Culberson, W.L. 1986: [Review] H. Hertel and F. Oberwinkler (Editors). Beiträge zur Lichenologie. (Nova Hedwigia Beiheft **79**). — Bryologist **89**: 86.

Degelius, G. 1935: Das ozeanische Element der Strauch- und Laubflechten-Flora von Skandinavien. — Acta Phytogeogr. Suecica **VII**: 1–411.

Degelius, G. 1954: The lichen genus *Collema* in Europe: Morphology, Taxonomy, Ecology. — Symb. Bot. Upsal. **13** (2): 1–499 + 27 plates.

DePriest, P. 1995: Josef Poelt (1924–1995). — Amer. Soc. Plant Taxonomists Newsletter **9** (3): 84.

Döbbeler, P. 1978: Moosbewohnende Ascomyceten I. Die pyrenocarpen, den Gametophyten besiedelnden Arten. — Mitt. Bot. Staatssamml. München **14**: 1–360.

Döbbeler, P. & Poelt, J. 1977: *Absconditella celata* spec. nov., eine Flechtenart aus Lappland. — Herzogia **4**: 363–366.

Döbbeler, P. & Poelt, J. 1981: *Arthopyrenia endobrya,* spec. nov., eine hepaticole Flechte mit intrazellulärem Thallus aus Brasilien. — Plant Syst. Evol. **138**: 275–281.

Döbbeler, P., Poelt, J. & Vězda, A. 1985: *Lopadium hepaticola* spec. nov. ein moosparasitisches echtes *Lopadium* von der Südhalbkugel. — Herzogia **7**: 81–91.

Doppelbaur, H. 1950: Zwei neue Flechtenformen. — Ber. Naturforsch. Ges. Augsburg **3**: 62–64.

Doppelbaur, H. 1959: Studien zur Anatomie und Entwicklungsgeschichte einiger endolithischen pyrenocarpen Flechten [sic!]. — Planta **53**: 246–292.

DuRietz, G.E. 1921: Zur methodologischen Grundlage der modernen Pflanzensoziologie. Akademische Abhandlung zur Erlangung der Doktorwürde. — Wien: Adolf Holzhausen.

DuRietz, G.E. 1924: Die Soredien und Isidien der Flechten. — Svensk Bot. Tidskr. **18**: 371–396.

Ehrendorfer, F. 1996: Josef Poelt. — Almanach Österr. Akad. Wissensch. 1995/1996, **146**: 407–413.

Eigler, G. 1969: Studien zur Gliederung der Flechtengattung *Lecanora*. — Dissert. Bot. **4**: 1–226.

Eigler, G. & Poelt, J. 1965: Flechtenstoffe und Systematik der lobaten Arten der Flechtengattung *Lecanora* in der Holarktis. — Öster. Bot. Zeitschr. **112**: 285–294.

Elix, J.A. 1979: A taxonomic revision of the lichen genus *Hypogymnia* in Australasia. – Brunonia **2**: 175–245.

Erichsen, C.F.E. 1957: Flechtenflora von Nordwestdeutschland. — Stuttgart: Gustav Fischer.

Eschelmüller, A. 1989: Den Naturwissenschaften gehörte seine große Liebe. Zum Tode von Adolf Schröppel. — Mitt. Naturwiss. Arbeitskreises Volkshochschule Kempten (Allgäu) **29**(1): 1–3.

Follmann, G. & Poelt, J. 1981: Zur Kenntnis der Flechtenflora und Flechtenvegetation der Kanarischen Inseln. V. Eine neue Bodenflechte aus dem Verwandtschaftskreis von *Fulgensia desertorum* (Tom.) Poelt und das Diploschistetum albescentis Klem. — Philippia **4**: 370–378.

Frahm, J.-P. & Eggers, J. 2001: Lexikon deutschsprachiger Bryologen. — Norderstedt: Books on Demand GmbH.

Frey, E. 1929: Beiträge zur Biologie, Morphologie und Systematik der Umbilicariaceen. — Hedwigia **69**: 219–252.

Frey, E. 1959: Die Flechtenflora und -vegetation des Nationalparks im Unterengadin. II. Teil: Die Entwicklung der Flechtenvegetation auf photogrammetrisch kontrollierten Flächen. — Ergebnisse der wissenschaftlichen Untersuchungen des schweizerischen Nationalparks, Neue Folge, **6**: 239–319 + 80 Bilder.

Gams, H. 1962: Die Halbflechten *Botrydina* und *Coriscium* als Basidiolichenen. — Österr. Bot. Z. **109**: 376–380.

Geitler, L. 1955: *Clavaria mucida*, eine extratropische Basidiolichene. — Biol. Zentralbl. **74**: 145–159.

Grau, J. 1988: Hermann Merxmüller (1920–1988) Nachruf. — Mitt. Bot. Staatssamml. München **26**: XVII–LII.

Grube, M. & Poelt, J. 1993: Beiträge zur Kenntnis der Flechtenflora des Himalaya X. *Sporastatia testudinea*, ihre Variabilität, ihre Ökologie und ihre Parasiten in Hochasien. — Fragm. Flor. Geobot. Suppl. **2**(1): 113–122.

Gruber, U. 1992: Die Sektion Herpetologie (Lurche und Kriechtiere) der Zoologischen Staatssammlung München. — Spixiana, Suppl. **17**: 126–132.

Grummann, V.J. 1963: Catalogus Lichenum Germaniae. Ein systematisch-floristischer Katalog der Flechten Deutschlands. — Stuttgart: Gustav Fischer.

Grummann, V.J. 1974: Biographisch-bibliographisches Handbuch der Lichenologie. — Lehre: J. Cramer.

Grummann, V.J. & Poelt, J. 1972: Das Naturschutzgebiet Pfaueninsel in Berlin-Wannsee. V. Die Flechtenflora mit einer Übersicht über die in den Jahren 1966–1971 im Raum von Berlin (West) beobachteten Flechtenarten. — Sitzungsber. Ges. Naturf. Freunde Berlin (N.F.) **12**: 85–105.

Hafellner, J. 1979: *Karschia*. Revision einer Sammelgattung an der Grenze von lichenisierten und nichtlichenisierten Ascomyceten. — Beih. Nova Hedwigia **62**: 1–248.

Hafellner, J. 1984: Studien in Richtung einer natürlicheren Gliederung der Sammelfamilien Lecanoraceae und Lecideaceae. — In Hertel, H. & Oberwinkler, F. (eds.): Beiträge zur Lichenologie. Festschrift J. Poelt. — Beih. Nova Hedwigia **79**: 241–371. Vaduz: J. Cramer.

Hafellner, J. & Poelt, J. 1976: Die Gattung *Karschia* – Bindeglied zwischen bitunicaten Ascomyceten und lecanoralen Flechtenpilzen? — Plant Syst. Evol. **126**: 243–254.

Hafellner, J. & Poelt, J. 1979: Die Arten der Gattung *Caloplaca* mit pluriloculären Sporen (*Meroplacis, Triophthalmidium, Xanthocarpia*). — J. Hattori Bot. Lab. **46**: 1–41.

Hafellner, J. & Poelt, J. 1980: Der "Flechtenparasit" *Buellia pulverulenta* – eine bleibend interne parasitische Flechte. — Phyton (Horn, Austria) **20**: 129–133.

Hafellner, J. & Türk, R. 2001: Die lichenisierten Pilze Österreichs – eine Checkliste der bisher nachgewiesenen Arten mit Verbreitungsangaben. — Stapfia **76**: 3–167.

Hafellner, J., Mayrhofer, H. & Poelt, J. 1979: Die Gattungen der Flechtenfamilie Physciaceae. — Herzogia **5**: 39–79.

Hakulinen, R. 1954: Die Flechtengattung *Candelariella* Müll. Argoviensis, mit besonderer Berücksichtigung ihres Auftretens und ihrer Verbreitung in Fennoskandien. — Ann. Bot. Soc. Zool.-Bot. Fenn. ‚Vanamo' **27** (3): 1–127.

Hale, M.E. 1967: The Biology of Lichens. Contemporary Biology. — London: Edward Arnold Ltd.

Hale, M.E. 1970: Single-lobe growth-rate patterns in the lichen *Parmelia caperata*. — Bryologist **73**: 72–81.

Hale, M.E. 1984: An historical review of the genus concept in lichenology. — In Hertel, H. & Oberwinkler, F. (eds.): Beiträge zur Lichenologie. Festschrift J. Poelt. — Beih. Nova Hedwigia **79**: 241–371.

Hanko, B. 1983: Die Chemotypen der Flechtengattung *Pertusaria* in Europa. — Biblioth. Lichenol. **19**: 1–341.

Hannemann, B. 1973: Anhangsorgane der Flechten ihre Strukturen und ihre systematische Verteilung. — Biblioth. Lichenol. **1**: 1–196.

Hansen, E.S. & Poelt, J. 1987: New or interesting Greenland lichens IV. — Mycotaxon **30**: 69–80.

Hansen. E.S., Poelt, J. & Søchting, U. 1987: Die Flechtengattung *Caloplaca* in Grönland. — Meddel. Grønland, Biosci. **25**: 1–52.

Hasenhüttl, G. & Poelt, J. 1978: Über die Brutkörner bei der Flechtengattung *Umbilicaria*. — Ber. Deutsch. Bot. Ges. **91**: 275–296.

Hawksworth, D.L. & Seaward, M.R.D. 1977: Lichenology in the British Isles 1568–1975. — Richmond: Richmond Publishing Co.

Hein, B. 1976: Revision der Gattung *Laetinaevia* Nannf. (Ascomycetes) und Neuordnung der Naevioideae. — Beih. Willdenowia **9**: 1–136.

Henssen, A. & Jahns, H.M. 1974: Lichenes. Eine Einführung in die Flechtenkunde. — Stuttgart: Georg Thieme.

Hertel, H. 1967: Revision einiger calciphiler Formenkreise der Flechtengattung *Lecidea*. — Beih. Nova Hedwigia **24**: 1–155 + 18 Tafeln.

Hertel, H. 1977: Gesteinsbewohnende Arten der Sammelgattung *Lecidea* (Lichenes) aus Zentral-, Ost- und Südasien. Eine erste Übersicht. — Khumbu Himal **6**: 145–378.

Hertel, H. 1980: Index collectorum lichenum herbarii Monacensis. Ein Sammler-Verzeichnis des Flechtenherbars der Botanischen Staatssammlung München. — Mitt. Bot. Staatssamml. München **16**: 333–462.

Hertel, H. 1982: Die Exsiccatenwerke des Flechtenherbars der Botanischen Staatssammlung. — Mitt. Bot. Staatssamml. München **18**: 297–340.

Hertel, H. 1995: Josef Poelt – sein Leben als Lichenologe. — Herzogia **11**: V–XIV.

Hertel, H. 1997: Kommentiertes Ortsnamenverzeichnis zu F. Arnolds Lichenologischen Ausflügen in Tirol. — Sendtnera **4**: 95–167.

Hertel, H. 2011: Prof. Dr. Christian Leuckert (27.3.1930–27.1.2011). — Herzogia **24**: 19–31.

Hertel, H. 2012: Gattungseponyme bei Flechten und lichenicolen Pilzen. — Biblioth. Lichenol. **107**: 1–157.

Hertel, H. & Oberwinkler, F. (eds.) 1984: Beiträge zur Lichenologie. Festschrift J. Poelt. — Beih. Nova Hedwigia **79**: 1–900. — Vaduz: J. Cramer.

Hertel, H. & Oberwinkler, F. 1996: Josef Poelt 1924–1995. Ein Nachruf. — Ber. Bayer. Bot. Ges. **66/67**: 327–348.

Hertel, H. & Schreiber, A. 1988: Die Botanische Staatssammlung München 1813–1988. Eine Übersicht über die Sammlungsbestände. — Mitt. Bot. Staatssamml. München **26**: 81–512.

Hertel, H. & Schuhwerk, F. 2010: On saxicolous lecideoid lichens growing in the European Alps at high altitudes. — In Hafellner, J., Kärnefelt, I. & Wirth, V. (eds.): Diversity and Ecology of Lichens in Polar or Mountain Ecosystems. — Biblioth. Lichenol. **104**: 161–239.

Hertel, H., Nimis, P.L. & Vězda, A. 1996: A tribute to Josef Poelt (1924–1995). — Lichenologist **28**: 183–187.

Hillmann, J. & Grummann, V. 1957: Kryptogamenflora der Mark Brandenburg und angrenzender Gebiete. Band VIII: Flechten. — Berlin-Nikolassee: Gebrüder Borntraeger.

Hinteregger, E. 1994: Krustenflechten auf *Rhododendron*-Arten (*Rh. ferrugineum* und *Rh. hirsutum*) der Ostalpen unter besonderer Berücksichtigung einiger Arten der Gattung *Biatora*. — Biblioth. Lichenol. **55**: 1–256.

Hinteregger, E., Mayrhofer, H. & Poelt, J. 1989: Die Flechten der Alpenrosen (*Rhododendron ferrugineum* und *Rh. hirsutum*) in den Ostalpen. I. Einige Arten der Gattungen *Lecanora* und *Rinodina*. — Verh. Naturwiss. Ver. Steiermark **119**: 83–102.

Holzner, G. 1902: Dr. Ferdinand Arnold, Ehrenmitglied der Bayerischen Botanischen Gesellschaft. — Ber. Bayer. Bot. Ges. **8**: 16–24 + 1 Tafel.

Huneck, S. & Poelt, J. 1977: Beitrag zur Flechtenflora von Tadshikistan. — Herzogia **4**: 403–407.

Huneck, S. & Yoshimura, I. 1996: Identification of Lichen Substances. — Berlin, Heidelberg, New York: Springer.

Huneck, S., Poelt, J., Ahti, T., Vitikainen, O. & Cogt, U. 1984: Zur Verbreitung und Chemie von Flechten der Mongolischen Volksrepublik. Ergebnisse der Mongolisch-Deutschen Biologischen Expeditionen seit 1962, Nr. 128. — Erforsch. Biol. Ress. Mongol. Volksrepublik, Halle (Saale), pp. 51–62. — Wiss. Beitr. Univ. Halle-Wittenberg 1984/59 (P 21).

Huneck, S., Poelt, J., Ahti, T., Vitikainen, O. & Cogt, U. 1987: Zur Verbreitung und Chemie von Flechten der Mongolischen Volksrepublik. II. Ergebnisse der Mongolisch-Deutschen Biologischen Expeditionen seit 1962, Nr. 177. — Nova Hedwigia **44**: 189–213.

Huneck, S., Ri Jong Dzä, Ahti, T. & Poelt, J. 1989: Zur Kenntnis der Flechtenflora von Korea. — Herzogia **8**: 177–185.

Imshaug, H.A. 1955a: The lichen genus *Buellia* in Central America. — Bryologist **58**: 277–287.

Imshaug, H.A. 1955b: The lichen genus *Buellia* in the West Indies. — Farlowia **4**: 473–512.

Imshaug, H.A. 1957: The lichen genus *Pyxine* in North and Middle America. — Transact. Amer. Micrscop. Soc. **76**: 246–269.

Jahn, R., Meyer, B. & Preissig, H.R. (eds.) 1997: Microalgae. Aspects of Diversity and Systematics. Volume dedicated to Ursula Geissler. – Nova Hedwigia **65**: 1–452.

Jørgensen, P.M. 1999: The shaping of early lichenology: Linnaeus and his pupils. — Acta Univ. Upsal., Symb. Bot. Upsal. **32** (2): 11–21.

Jørgensen, P.M., James, P.W. & Jarvis, C.E. 1994: Linnaean lichen names and their typification. — Bot. J. Linn. Soc. **115**: 261–405.

Jülich, W. 1972: Monographie der Athelieae (Corticiaceae, Basidiomycetes). — Beih. Willdenowia **7**: 1–283.

Kärnefelt, I. 1995a: Josef Poelt's 70th birthday. — Int. Lichenol. Newsletter **28**(1): 6–10.

Kärnefelt, I. 1995b: The science he left for us. — Int. Lichenol. Newsletter **28**(3): 62–63.

Kärnefelt, I., Scholz, P., Seaward, M.R.D. & Thell, A. 2012: Lichenology in Germany: past, present and future. — Schlechtendalia **23**: 1–90.

Kandler, O. & Poelt, J. 1984: Wiederbesiedelung der Innenstadt von München durch Flechten. — Naturwiss. Rundschau (Stuttgart) **37**(3): 90–95.

Kandler, O. & Poelt, J. 1988: Hermann Merxmüller 30.8.1920–8.2.1988. — Jahrb. Bayer. Akad. Wissensch. **1988**: 1–4.

Kandler, O. & Ziegler, H. 1995: Josef Poelt 17.10.1924–3.6.1995. — Jahrb. Bayer. Akad. Wiss. **1995**: 1–3.

Keissler, K. von 1930: Die Flechtenparasiten. – In: Dr. L. Rabenhorst's Kryptogamen-Flora von Deutschland, Österreich und der Schweiz. 2 Auflage, Band **8**. — Leipzig: E. Kummer.

Kirk, P.M., Cannon, P.F., David, J.C. & Stalpers, J.A. (eds.) 2001: Ainsworth & Bisby's Dictionary of the Fungi, 9th edition. — Wallingford: CAB International.

Klement, O. 1955: Prodromus der mitteleuropäischen Flechtengesellschaften. — Feddes Repert., Beih. **135**: 5–194. (Beiträge zur Vegetationskunde)

Klement, O. 1971: In memoriam Oberstudienrat Dr. Hans Walter Doppelbaur. — Mitt. Naturwiss. Arbeitskr. Kempten (Allgäu) **15** (1): 1–4.

Knoph, J.-G. 1990: Untersuchungen an gesteinsbewohnenden xanthonhaltigen Sippen der Flechtengattung *Lecidella* (Lecanoraceae, Lecanorales) unter besonderer Berücksichtigung von außereuropäischen Proben exclusive Amerika. — Biblioth. Lichenol. **36**: 1–183.

Kondratyuk, S. & Poelt, J. 1997: On two new Asian *Xanthoria* species (Teloschistaceae, lichenized Ascomycotina). — Lichenologist **29**: 173–190.

Krempelhuber, A. von 1867: Geschichte und Litteratur der Lichenologie von den ältesten Zeiten bis zum Schlusse des Jahres 1865. — München: Eigenverlag.

Krisai-Greilhuber, I. 1995: Obituary: Prof. Dr. Josef Poelt. — Plant Syst. Evol. **198**: 151–153.

Krog, H. & Swinscow, T.D.W. 1979: *Parmelia* subgenus *Hypotrachyna* in East Africa. — Norw. J. Bot. **26**: 11–43.

Kümmerling, H. 1991: Zur Kenntnis der Flechtenflora des Hohen Meißner und in seinem Vorland (Hessen) unter besonderer Berücksichtigung chemischer Merkmale. — Biblioth. Lichenol. **41**: 1–315.

Lamb, I.M. 1947: A monograph of the lichen genus *Placopsis* Nyl. — Lilloa **13**: 151–288.

Lamb, I.M. 1954: Studies in frutescent Lecideaceae (lichenized discomycetes). — Rhodora **56** (666): 105–129, **56** (667): 137–153.

Lange, O.L. 1983: Oscar Klement 1987 bis 1980. — Ber. Deutsch. Bot. Ges. **96**: 577–589.

Lange, O.L. & Ziegler, H. 1963: Der Schwermetallgehalt von Flechten aus dem Acarosporetum sinopicae auf Erzschlackenhalden des Harzes. I. Eisen und Kupfer. — Mitteil. Florist.-soziol. Arbeitsgemeinschaft, N.F. **10**: 156–183.

Letrouit-Galinou, M.-A. 1956: Revision monographique du genre *Laurera* (Lichens, Trypéthéliacées). — Rev. Bryol. Lichénol. **26**: 207–264.

Letrouit-Galinou, M.-A. 1958: Revision monographique du genre *Laurera* (Lichens, Trypéthéliacées) Supplement I. — Rev. Bryol. Lichénol. **27**: 66–73

Leuckert, Ch. 1984: Die Identifizierung von Flechtenstoffen im Rahmen chemotaxonomischer Routineanalysen. — In Hertel, H. & Oberwinkler, F. (eds.): Beitrage zur Lichenologie. Festschrift J. Poelt. — Beih. Nova Hedwigia **79**: 739–774. — Vaduz: J. Cramer.

Leuckert, Ch. 1996: Josef Poelt (1924–1995). — Verh. Bot. Ver. Berlin Brandenburg **129**: 307–309.

Leuckert, Ch. & Blanz, P. 1996: Josef Poelt 1924–1995. Ein Nachruf. — Nova Hedwigia **62**: I–V.

Leuckert, Ch. & Poelt, J. 1978: Über Nord-Süd-Gradienten von Chemotypen europäischer Flechten. — Plant Syst. Evol. **130**: 53–77.

Leuckert, Ch. & Poelt, J. 1989: Studien über die *Lecanora rupicola*-Gruppe in Europa (Lecanoraceae). — Nova Hedwigia **49**: 121–167.

Leuckert, Ch., Poelt, J. & Schulz, G. 1970: Chemotaxonomische Probleme in der Flechtengattung *Pertusaria.* — Ber. Deutsch. Bot. Ges., Vorträge Gesamtgebiet der Botanik (N.F.) **4**: 45–60.

Leuckert, Ch., Poelt, J., Schultz, I. & Schwarz, B. 1975: Chemotaxonomie und stammesgeschichtliche Differenzierung des Formenkreises von *Parmelia prolixa* in Europa (Lichenes, Parmeliaceae). — Decheniana **127**: 1–36.

Leuckert, Ch., Poelt, J. & Hähnel, G. 1977 ("1976"): Zur Chemotaxonomie der eurasischen Arten der Flechtengattung *Rhizoplaca*. — Nova Hedwigia **28**: 71–129.

Linhard, H. 1964: Die natürliche Vegetation im Mündungsgebiet der Isar und ihre Standortverhältnisse. — Ber. Naturwiss. Ver. Landshut **24**: 1–73, Anhang 1–56 + Vegetationskarte.

Linnaeus, C. 1737: Critica Botanica: In qua Nomina Plantarum Generica, Specifica & Variantia examini Subjiciuntur, Selectiora Confirmatur, Indigna Rejiciuntur: Simulque Doctrina circa Denominationem Plantarum Traditur, seu, Fundamentorum Botanicorum pars IV. Accedit Johannis Browallii de Necessitate Historiae Naturalis Discursus. Jugduni Batavorum (Leiden): Conradum Wishoff.

Lisická, E. 1995: Dr. Josef Poelt, professor emeritus passed away. — Czech Mycology **48**: 175–176.

Llano, G.L. 1950: A monograph of the lichen family Umbilicariaceae in the Western Hemisphere. Navexos P-831. — Washington, D.C.: Office of Naval Research, Department of the Navy.

Lohtander, K., Myllys, L., Sundin, R., Källersjö, M. & Tehler, A. 1998: The species pair concept in the lichen *Dendrographa leucophaea* (Arthoniales): Analyses based on ITS sequences. — Bryologist **101**: 404–411.

Lücking, R. 2008: Foliicolous Lichenized Fungi. — Fl. Neotrop. Monogr. **103**. — Bronx, New York: Organization for Flora Neotropica and The New York Botanical Garden Press.

Lüttge, U.E. 2009: In memoriam Professor Dr. Dr. h.c. mult Hubert Ziegler. — Trees **23**: 439–440.

Mägdefrau, K. 1961: Otto Renner. Ein Nachruf. — Ber. Bayer. Bot. Ges. **34**: 103–113.

Magnusson, A.H. 1931: Beiträge zur Kenntnis der Flechtengruppe *Lecanora subfusca*. — Meddel. Göteborgs Bot. Trädgård **7**: 65–87.

Magnusson, A.H. 1945: Contribution to the taxonomy of the *Lecidea goniophila* group. — Meddel. Göteborgs Bot. Trädgård **16**: 125–134.

Magnusson, A.H. 1947: Studies in non-saxicolous species of *Rinodina* mainly from Europe and Siberia. — Acta Horti Gothob. **17**: 191–338.

Magnusson, A.H. 1952: Lichens from Torne Lappmark. — Ark. Bot. **2** (2): 45–249.

Magnusson, A.H. 1956: A second supplement to the monograph of *Acarospora* with keys. — Göteborgs Kungl. Vetensk.-Vitterh.-Samhälles Handl., sjatte foljden, ser. B, **6** (17): 1–34.

Markgraf, F. 1977: Theo Eckardt †. — Bot. Jahrb., Syst. **98** (1): I–IX.

Mayrhofer, H. 1984: Die saxicolen Arten der Flechtengattungen *Rinodina* und *Rinodinella* in der Alten Welt. — J. Hattori Bot. Lab. **55**: 327–493.

Mayrhofer, H. & Poelt, J. 1978: *Rinodinella* – eine neue Gattung der Flechtenfamilie Physciaceae. — Hoppea, Denkschr. Regensburg. Bot. Ges. **37**: 89–105.

Mayrhofer, H. & Poelt, J. 1979: Die saxicolen Arten der Flechtengattung *Rinodina* in Europa. — Biblioth. Lichenol. **12**: 1–186.

Mayrhofer, H. & Poelt, J. 1985: Die Flechtengattung *Microglaena* sensu Zahlbruckner in Europa. — Herzogia **7**: 13–79.

Mayrhofer, H., Hafellner, J. & Scheuer, Ch. 1996: Josef Poelt (1924–1995). — Mitt. Naturwiss. Ver. Steiermark **126**: 11–15.

Mayrhofer, M. 1987: Studien über die saxicolen Arten der Flechtengattung *Lecania* in Europa. I. *Halecania* gen. nov. — Herzogia **7**: 381–406.

Mayrhofer, M. 1988: Studien über die saxicolen Arten der Flechtengattung *Lecania* in Europa. II. *Lecania* s.str. — Biblioth. Lichenol. **28**: 1–133.

Merxmüller, H. 1955: Karl Suessenguth. Nachruf. — Ber. Bayer. Bot. Ges., Vereinsnachrichten; Nachtrag zum Band **30**: XIX–XXI.

Merxmüller, H. & Poelt, J. 1954: Beiträge zur Florengeschichte der Alpen. — Ber. Bayer. Bot. Ges. **30**: 91–101.

Meyer, B. 2002: Die Flechtengattung *Clauzadea*. — Sendtnera **8**: 85–154.

Meyer, G.F.W. 1825: Nebenstudien meiner Beschäftigung im Gebiete der Pflanzenkunde. [Erster Theil]: Die Entwicklung, Metamorphose und Fortpflanzung der Flechten in Anwendung auf ihre systematische Anordnung und zur Nachweisung des allgemeinen Ganges der Formbildung in den unteren Ordnungen cryptogamischer Gewächse. — Goettingen: Vandenhoeck und Ruprecht.

Migula, W. 1929: Kryptogamen-Flora von Deutschland, Deutsch-Österreich und der Schweiz im Anschluß an Thomés Flora von Deutschland. Band **IV**: Flechten, 1.Teil. — Berlin-Lichterfelde: H. Bernmühler.

Migula, W. 1931: Kryptogamen-Flora von Deutschland, Deutsch-Österreich und der Schweiz im Anschluß an Thomés Flora von Deutschland. Band **IV**: Flechten, 2.Teil. — Berlin-Lichterfelde: H. Bernmühler.

Minks, A. 1900: Analysis der Flechtengattung *Umbilicaria*. Zugleich ein lichenologischer Beitrag zur Kenntniss der Entstehung und des Begriffes der naturwissenschaftlichen Art. — Mém. Herb. Boissier **22**, 77 pages, 1 plate.

Mitchell, M.E. 2014: De Bary's legacy: The emergence of differing perspectives on lichen symbiosis. — Huntia **15**: 5–22.

Nádvorník, J. 1940: Systematische Übersicht der mitteleuropäischen Arten der Flechtenfamilie Caliciaceae. I. — Studia Bot. **5**: 6–40.

Nádvorník, J. 1947: Physciaceae Tchécoslovaquie. — Studia Bot. Čech. **8**: 69–124.

Nienburg, W. 1926: Anatomie der Flechten. – In Linsbauer, K. (ed.): Handbuch der Pflanzenanatomie, II. Abt. 1.Teil: Thallophyten, Band **VI**. — Berlin: Bornträger.

Nimis, P.L. 1993: The Lichens of Italy. An annotated catalogue. — Mus. Region. Sci. Nat. Monografie **XII**. — Italy, Torino.

Nimis, P.L. 2018: The 'Golden Period' of Italian lichenology and its importance in modern times. — Biosyst. Ecol. Ser. **34**: 659–671. — Wien: Verlag der ÖAW.

Nimis, P.L. & Poelt, J. 1987: The lichens and lichenicolous fungi of Sardinia (Italy). With contributions of O. Breuss (Wien), W. Brunnbauer (Wien), P. Clerc (Bern), J. Hafellner (Graz), H. Hertel (München), P.W. James (London), M. Mayrhofer, H. Mayrhofer (Graz), Ch. Leuckert (Berlin), Ch. Scheidegger (Bern), A. Vězda (Brno). — Studia Geobot. (Trieste) **7**, suppl. **1**: 1–269.

Nimis, P.L. & Tretiach, M. 1995: Un addio a Josef Poelt. — Notiz. Soc. Lichenol. Ital. **8**: 7–8.

Nimis, P.L., Poelt, J., Tretiach, M., Ottonello, D., Puntillo, D. & Vězda, A. 1994: Contribution to lichen floristics in Italy VII. – The Lichens of Marettimo (Egadi Islands, Sicily). — Bull. Soc. Linn. Provence **45**: 247–262.

Nuss, I. 1975: Zur Ökologie der Porlinge. Untersuchungen über die Sporulation einiger Porlinge und die an ihnen gefundenen Käferarten. — Bibl. Mycol. **46**.

Oberwinkler, F. 1965: Primitive Basidiomyceten. Revision einiger Formenkreise mit plastischen Basidien — Sydowia, Ann. Mycol. **19**: 1–72 + 21 Tafeln.

Oberwinkler, F. 1970: Die Gattungen der Basidiolichenen. — Vorträge aus dem Gesamtgebiet der Botanik, N.F. [Deutsche Bot. Ges.] **4**: 139–169.

Oberwinkler, F. 1984: Fungus-alga interactions in basidiolichens. — In Hertel, H. & Oberwinkler, F. (eds.): Beitrage zur Lichenologie. Festschrift J. Poelt. — Beih. Nova Hedwigia **79**: 739–774. Vaduz: J. Cramer.

Oberwinkler, F. & Bauer, R. 2018: Ultrastructure in basidiomycetes – requirement for function. — Biosyst. Ecol. Ser. **34**: 381–418. — Wien: Verlag der ÖAW.

Ott, L. (ed.) 2005: Milli und Sterz. Geschichten aus Bauerndörfern am Starnberger See. — Lindenberg im Allgäu: Kunstverlag Josef Fink.

Peveling, E. & Poelt, J. 1974: Glaszilien in der Flechtenfamilie Physciaceae, ihre Ultrastruktur und die Unterschiede gegenüber Rhizinen. — Nova Hedwigia **25**: 639–649.

Poelt, J. 1950: Beiträge zur Flechtenflora Bayerns. — Ber. Bayer. Bot. Ges. **28**: 276–279.

Poelt, J. 1952: Die *Lecanora subfusca*-Gruppe in Deutschland. — Ber. Bayer. Bot. Ges. **29**: 58–69.

Poelt, J. 1953: Mitteleuropäische Flechten I. — Mitt. Bot. Staatssamml. München **1**: 230–238.

Poelt, J. 1954: Die gelappten Arten der Flechtengattung *Caloplaca* in Europa mit besonderer Berücksichtigung Mitteleuropas. — Mitt. Bot. Staatssamml. München **2**: 11–31.

Poelt, J. 1955a: Die Gipfelvegetation und -flora des Wettersteingebirges. — Feddes Repert. **58**: 157–179.

Poelt, J. 1955b: Mitteleuropäische Flechten III. — Mitt. Bot. Staatssamml. München **2**: 46–56.

Poelt, J. 1955c: Flechten der Schwarzen Wand in der Großarl. — Verh. Zool.-Bot. Ges. Wien **95**: 107–113.

Poelt, J. 1955d: Systematik der Flechten. — Fortschr. Bot. **17**: 220–238.

Poelt, J. 1957: Mitteleuropäische Flechten IV. — Mitt. Bot. Staatssamml. München **2**: 273–283.

Poelt, J. 1958: Die lobaten Arten der Flechtengattung *Lecanora* Ach. sensu ampl. in der Holarktis. — Mitt. Bot. Staatssamml. München **2**: 411–589.

Poelt, J. 1959: Eine Basidiolichene in den Hochalpen. — Planta **52**: 600–605.

Poelt, J. 1960: Niedere Basidiomyceten in Südbayern I. — Ber. Bayer. Bot. Ges. **33**: 92–97.

Poelt, J. 1961a: Die mitteleuropäischen Arten der *Lecidea-goniophila*-Gruppe. — Ber. Bayer. Bot. Ges. **34**: 82–91.

Poelt, J. 1961b: Flechten aus dem NW-Karakorum im Rahmen der Deutschen Karakorum-Expedition 1959 von F. Lobbichler und Dr. J. Schneider gesammelt. — Mitt. Bot. Staatssamml. München **4**: 83–94.

Poelt, J. 1962: Bestimmungsschlüssel der höheren Flechten von Europa. — Mitt. Bot. Staatssamml. München **4**: 301–570.

Poelt, J. 1963: Flechtenflora und Eiszeit in Europa. — Phyton (Horn, Austria) **10**: 206–215.

Poelt, J. 1964a: Hermann Paul. Ein Nachruf. — Ber. Bayer. Bot. Ges. **37**: 69–76.

Poelt, J. 1964b: Die Systematik der Flechten und ihre heutigen Probleme. — Ber. Deutsch. Bot. Ges. **77**, Sondernr. **1**, Generalversammlungsheft: (118)–(123).

Poelt, J. 1964c: Mitteleuropäische Flechten VIII. — Mitt. Bot. Staatssamml. München **5**: 247–265.

Poelt, J. 1965a: Zur Systematik der Flechtenfamilie Physciaceae. — Nova Hedwigia **9**: 21–32.

Poelt, J. 1965b: Über einige Artengruppen der Flechtengattungen *Caloplaca* und *Fulgensia*. — Mitt. Bot. Staatssamml. München **5**: 571–607.

Poelt, J. 1965c: Systematik der Flechten, Bericht über die Jahre 1963 und 1964 mit einigen Nachträgen. — Fortschr. Bot. **27**: 328–340.

Poelt, J. 1966a: Die lobaten Arten der Sammelgattung *Lecanora* (Lichenes, Lecanoraceae) (Flechten des Himalaya 1). — Khumbu Himal **1** (3): 187–202.

Poelt, J. 1966b: Zur Kenntnis der Flechtengattung *Physconia* in der Alten Welt und ihrer Beziehung zur Gattung *Anaptychia*. — Nova Hedwigia **12**: 107–135.

Poelt, J. 1968: Über einige Flechten der hochnivalen Stufe des Elbrus (Kaukasus) gesammelt von E. Albertshofer. — Mitt. Bot. Staatssamml. München **7**: 263–269.

Poelt, J. 1969: Bestimmungsschlüssel europäischer Flechten. — Lehre: J. Cramer.

Poelt, J. 1971: Über einige für Nordamerika neue Flechten. — Bryologist **74**: 154–158.

Poelt, J. 1972a: Ein zweiter Beitrag zur Flechtenflora des Bayerisch-Böhmischen Waldes bayerischen Anteils. — Hoppea **30**: 111–143.

Poelt, J. 1972b: Die taxonomische Behandlung von Artenpaaren bei den Flechten. — Bot. Notiser **125**: 77–81.

Poelt, J. 1974a: [Review] Grummann, V., 1974: Biographisch-bibliographisches Handbuch der Lichenologie. — Herzogia **3**: 494–496.

Poelt, J. 1974b ("1973"): [Appendix A] Classification. – In Ahmadjian, V., Hale, M.E. (eds.): The Lichens, pp. 599–632. — New York, London: Academic Press.

Poelt, J. 1974c ("1973"): [Chapter 3] Systematic Evaluation of Morphological Characters. — In Ahmadjian, V. & Hale, M.E. (eds.): The Lichens, pp. 91–115. — New York, London: Academic Press.

Poelt, J. 1974d: Zur Kenntnis der Flechtenfamilie Candelariaceae. Ein Beitrag mit besonderer Berücksichtigung einiger südamerikanischer Arten. — Phyton (Horn, Austria) **16**: 189–210.

Poelt, J. 1974e: Die parasitische Flechte *Lecidea insidiosa* und ihre Biologie. — Plant Syst. Evol. **123**: 25–34.

Poelt, J. 1974f: Carlos das Neves Tavares 1914–1972 – der Lichenologe. — Portugaliae Acta Biol. **12B**: I–VIII.

Poelt, J. 1975a: Basidienflechten – eine in den Alpen lange übersehene Flechtengruppe. — Jahrb. Ver. Schutz Alpenpflanzen und -tiere **40**: 81–92 + 4 Tafeln.

Poelt, J. 1975b: *Squamarina serpentini* species nova (Lichenes, Lecanoraceae) aus Serbien. — Herzogia **3**: 425–432.

Poelt, J. 1975c: Felix J. Widder † 5.9.1974. — Phyton (Horn, Austria) **17**: 3–22.

Poelt, J. 1976a: Die Gattung *Umbilicaria* (Umbilicariaceae). (Flechten des Himalaya 14). — Khumbu Himal **6**: 397–435.

Poelt, J. 1976b: *Ioplaca* gen. nov. Teloschistacearum. (Flechten des Himalaya 16). — Khumbu Himal **6**: 443–446.

Poelt, J. 1977a: Flechten des Himalaya 17. Ergänzungen und Versuch einer Zusammenfassung. — Khumbu Himal **6**: 447–458.

Poelt, J. 1977b: Die Flechte *Micarea hemipoliella* auf dem Schneidried *Cladium mariscus*. — Herzogia **4**: 409–413.

Poelt, J. 1980a: Eine diözische Flechte. — Plant Syst. Evol. **135**: 81–87.

Poelt, J. 1980b: *Physcia opuntiella* spec. nov. und die Lebensform der Sprossenden Flechten. — Flora (Jena) **169**: 23–31.

Poelt, J. 1983a: Über den Formenkreis der Flechte *Lecanora contractula*. — Internat. J. Mycol. Lichenol. **1**: 143–160.

Poelt, J. 1983b: *Bryonora,* eine neue Gattung der Lecanoraceae. — Nova Hedwigia **38**: 73–111.

Poelt, J. 1983c: Musterbeispiele analoger Lagerdifferenzierungen bei Flechten: *Almbornia, Speerschneidera, Seirophora* gen. nov. — Flora (Jena) **174**: 439–445.

Poelt, J. 1985a: Catalogus Florae Austriae, III. Teil: Thallophyten (Algen und Pilze), Heft 1: Uredinales. — Wien: Verlag Öster. Akad. Wiss.

Poelt, J. 1985b: Über auf Moosen parasitierende Flechten. — Sydowia, Ann. Mycol. Ser. II **38**: 241–254.

Poelt, J. 1986: Morphologie der Flechten, Fortschritte und Probleme. — Ber. Deutsch. Bot. Ges. **99**: 3–29.

Poelt, J. 1987a: On reductions of morphological structures in lichens. — Biblioth. Lichenol. **25**: 35–45.

Poelt, J. 1987b: Das Gesetz der relativen Standortkonstanz bei den Flechten. — Bot. Jahrb. Syst. **108**: 363–371.

Poelt, J. 1988: Elisabeth Tschermak-Woess und die Flechten. — Plant Syst. Evol. **158**: 77–79.

Poelt, J. 1989a: Maximilian Steiner 1904–1988. Ein Nachruf. — Ber. Bayer. Bot. Ges. **60**: 219–223.

Poelt, J. 1989b: Hermann Merxmüller 1920–1988. — Hoppea, Denkschr. Regensburg. Bot. Ges. **47**: 511–515.

Poelt, J. 1989c: Die Entstehung einer Strauchflechte aus einem Formenkreis krustiger Verwandter. — Flora **183**: 65–72.

Poelt, J. 1990a: Homologies and Analogies in the Evolution of Lichens. – In Hawksworth, D.L. (ed.): Frontiers in Mycology, pp. 85–97. — Wallingford: CAB International.

Poelt, J. 1990b: Parasitische Arten der Flechtengattung *Rhizocarpon*: eine weitere Übersicht. — Mitt. Bot. Staatssamml. München **29**: 515–538.

Poelt, J. 1990c: Zur Liste der Flechten des Langtang-Gebietes. — In Miehe, G. (ed.): Langtang Himal – Flora und Vegetation als Klimazeiger und -zeugen im Himalaya. A Prodromus of the Vegetation Ecology of the Himalayas. — Dissert. Bot. **158**: 434–439.

Poelt, J. 1991: Lichenologie und Lichenologen in Bayern – eine Reverenz vor den Amateuren. Festvortrag aus Anlaß des 90.Geburtstages unseres Ehrenvorsitzenden Otto Mergenthaler am 1. Dezember 1988. — Hoppea, Denkschr. Regensburg. Bot. Ges. **50**: 527–536.

Poelt, J. 1993: Ökologie und Diversität bei Flechten. — In: Rundgespräche der Kommission für Ökologie, Bd. **6** "Dynamik von Flora und Fauna – Artenvielfalt und ihre Erhaltung", pp. 49–53. — München: F. Pfeil.

Poelt, J. 1994a: Bemerkenswerte Flechtenfunde aus Österreich, insbesondere der Steiermark. — Mitt. Naturwiss. Ver. Steiermark **124**: 91–111.

Poelt, J. 1994b: Different species types in lichenized ascomycetes. — In Hawksworth, D.L. (ed.): Ascomycete Systematics: Problems and Perspectives in the Nineties, pp. 273–278. — New York: Plenum Press.

Poelt, J. 1994c: [Review of] Murati, M., 1993. Flora na lischaite, na Slovenija, Chrvatska, Vojvodina, Bosnia i Cherzogovina, Srbija, Crna Gora, Kosovo i Makedonija **2**. — Herzogia **10**: 266.

Poelt, J. 1995a: Antonin Vězda – der Mensch hinter dem Werk. — Biblioth. Lichenol. **58**: 1–4 [Festschrift A. Vězda].

Poelt, J. 1995b: On lichenized asexual diaspores in foliose lichens – a contribution towards a more differentiated nomenclature (Lichenes, Lecanorales). — Cryptog. Bot. **5**: 159–162.

Poelt, J. 1995c: [Review of] Trass, H. & Randlane, T. 1994. Eesti Suursamblikud. — Herzogia **11**: 262.

Poelt, J. 1996: Helga Pittoni 1924–1994: Ein Leben für die steierische Botanik. — Mitt. Naturwiss. Ver. Steiermark **125**: 5–7.

Poelt, J. & Baumgärtner, H. 1964: Über Rhizinenstränge bei placodialen Flechten. — Öster. Bot. Zeitschr. **111**: 1–18

Poelt, J. & Boidol, M. 1963: Zur Kenntnis von Blütenbränden an Cyperaceen in Südbayern. — Ber. Bayer. Bot. Ges. 3**6**:13–23.

Poelt, J. & Buschardt, A. 1978: Über einige bemerkenswerte Flechten aus Norwegen. — Norweg. J. Bot. **25**: 123–135.

Poelt, J. & Döbbeler, P. 1975a: *Lecidea margaritella*, eine an ein Lebermoos gebundene Flechte, und ihr Vorkommen in Mitteleuropa. — Herzogia **3**: 327–334.

Poelt, J. & Döbbeler, P. 1975b: Über moosparasitische Arten der Flechtengattungen *Micarea* und *Vezdaea*. — Bot. Jahr. Syst. **96**: 328–352.

Poelt, J. & Döbbeler, P. 1979: *Bryostigma leucodontis* nov. gen. et spec., eine neue Flechte mit fast unsichtbaren Fruchtkörpern. — Plant Syst. Evol. **131**: 211–216

Poelt, J. & Doppelbaur, H. 1956: Über parasitische Flechten. — Planta **46**: 467–480.

Poelt, J. & Fritz-Schroeder, J. 1983: *Ramularia* und verwandte Pilze in der Steiermark. — Mitt. Naturwiss. Ver. Steiermark **113**: 79–89.

Poelt, J. & Gärtner, G. 1992: *Gypsoplaca macrophylla,* eine Flechte winterkalter Halbwüsten in den Alpen. — Herzogia **9**: 229–237.

Poelt, J. & Grube, M. 1993: Beiträge zur Kenntnis der Flechtenflora des Himalaya VIII – *Lecanora* subgen. *Placodium*. — Nova Hedwigia **57**: 305–352.

Poelt, J. & Hafellner, J. 1975: Schlauchpforten bei der Flechtengattung *Thelocarpon.* — Phyton (Horn, Austria) **17**: 67–77.

Poelt, J. & Hafellner, J. 1976: Die Flechte *Neonorrlinia trypetheliza* und die Familie Arthrorhaphidaceae. — Phyton (Horn, Austria) **17**: 213–220.

Poelt, J. & Hafellner, J. 1981: Bemerkenswerte Flechtenfunde aus der Steiermark II. — Mitt. Naturwiss. Ver. Steiermark **107**: 143–150.

Poelt, J. & Hertel, H. 1968: *Pachyascus lapponicus* nov. gen. et spec., eine bemerkenswerte Flechtengattung unklaren Anschlusses. — Ber. Deutsch. Bot. Ges. **81** (6): 210–216.

Poelt, J. & Hinteregger, E. 1993: Beiträge zur Kenntnis der Flora des Himalaya. VII. Die Gattungen *Caloplaca*, *Fulgensia* und *Ioplaca* (mit englischem Bestimmungsschüssel). — Biblioth. Lichenol. **50**: 1–256.

Poelt, J. & Huneck, S. 1968: *Lecanora vinetorum* nova spec., ihre Vergesellschaftung, ihre Ökologie und ihre Chemie. — Öster. Bot. Zeitschr. **115**: 411–422.

Poelt, J. & Jülich, W. 1969: Über Beziehungen zweier corticioider Basidiomyceten zu Algen. — Öster. Bot. Zeitschr. **116**: 400–410.

Poelt, J. & Krüger, U. 1970: Die Verbreitungsverhältnisse der Flechtengattung *Squamarina* in Europa. — Feddes Repert. **81**: 187–201.

Poelt, J. & Leuckert, Ch. 1976: *Lecanora* (*Plac*.) *sphalera* spec. nov. (Lichenes, Lecanoraceae und die Frage, die sie stellt. — Herzogia **4**: 25–31.

Poelt, J. & Leuckert, Ch. 1991: Der Formenkreis von *Protoparmelia atriseda* (Lichenes, Lecanoraceae) in Europe. — Nova Hedwigia **52**: 39–64.

Poelt, J. & Leuckert, Ch. (mit Unterstützung von Cl. Roux), 1995: Die Arten der *Lecanora dispersa*-Gruppe (Lichenes, Lecanoraceae) auf kalkreichen Gesteinen im Bereich der Ostalpen. Eine Vorstudie. — Biblioth. Lichenol. **58**: 289–333.

Poelt, J. & Mayrhofer, H. 1979: Studien über Ascosporen-Typen der Flechtengattung *Rinodina*. — Beih. Sydowia **8**: 312–331.

Poelt, J. & Mayrhofer, H. 1988: Über Cyanotrophie bei Flechten. — Plant Syst. Evol. **158**: 265–281.

Poelt, J. & Nash, T.H. III 1993: Studies in the *Umbilicaria vellea* group (Umbilicariaceae) in North America. — Bryologist **96**: 422–430.

Poelt, J. & Obermayer, W. 1990a: Über Thallosporen bei einigen Krustenflechten. – Herzogia **8**: 273–288.

Poelt, J. & Obermayer, W. 1990b: Lichenisierte Bulbillen als Diasporen bei der Basidiolichene *Multiclavula vernalis* spec. coll. — Herzogia **8**: 289–294.

Poelt, J. & Obermayer, W. 1995: *Rhizocarpon mosigiae* spec. nov., ein neuer parasitischer Vertreter der Gattung aus Tirol (Österreich). — Herzogia **11**: 111–113.

Poelt, J. & Oberwinkler, F. 1964: Zur Kenntnis der flechtenbildenden Blätterpilze der Gattung *Omphalina*. — Öster. Bot. Zeitschr. **111**: 393–401.

Poelt, J. & Pelleter, U. 1984: Zwergstrauchige Arten der Flechtengattung *Caloplaca*. — Plant Syst. Evol. **148**: 51–88.

Poelt, J. & Petutschnig, W. 1992: Beiträge zur Kenntnis der Flechtenflora des Himalaya IV. Die Gattungen *Xanthoria* und *Teloschistes* zugleich Versuch einer Revision der *Xanthoria candelaria*-Gruppe. — Nova Hedwigia **54**: 1–36.

Poelt, J. & Romauch, E. 1977: Die Lagerstrukturen placodialer Küsten- und Inlandsflechten. — In Frey, W., Hurka, H. & Oberwinkler, F. (eds.): Beiträge zur Biologie der niederen Pflanzen, pp. 141–153. — Stuttgart, New York: G. Fischer.

Poelt, J. & Steiner, M. 1971: Über einige parasitische gelbe Arten der Flechtengattung *Acarospora*. — Ann. Naturhist. Mus. Wien **75**: 163–172.

Poelt, J. & Sulzer, M. 1974: Die Erdflechte *Buellia epigaea*, eine Sammelart. — Nova Hedwigia **25**: 173–194.

Poelt, J. & Tavares, C.N. 1968: *Xanthoria resendei*, eine neue Laubflechte der südwesteuropäischen Küsten. — Portugaliae Acta Biol. (B) **9**: 300–307 + 2 Tab.

Poelt, J. & Türk, R. 1994: *Anisomeridium nyssaegenum,* ein Neophyt unter den Flechten, in Österreich und Süddeutschland. — Herzogia **10**: 75–81.

Poelt, J. & Ullrich, H. 1964: Über einige chalkophile *Lecanora*-Arten der mitteleuropäischen Flora (Lichenes, Lecanoraceae). — Öster. Bot. Ges. **111**: 257–258.

Poelt, J. & Vězda, A. 1974: *Sarcogyne similis*, eine "nordamerikanische" Flechte in Griechenland. — Ann. Mus. Goulandris **2**: 49–54.

Poelt, J. & Vězda, A. 1977: Bestimmungsschlüssel europäischer Flechten. Ergänzungsheft I. — Biblioth. Lichenol. **9**: 1–215.

Poelt, J. & Vězda, A. 1981: Bestimmungsschlüssel europäischer Flechten. Ergänzungsheft II. — Biblioth. Lichenol. **16**: 1–390.

Poelt J. & Vězda, A. 1990: Über kurzlebige Flechten (On shortliving lichens). — Biblioth. Lichenol. **38**: 377–394.

Poelt J. & Vězda, A. 1992: Ein Vorkommen foliicoler Flechten in der Steiermark. — Herzogia **9**: 239–246.

Poelt, J. & Wirth, V. 1968: Flechten aus dem nordöstlichen Afghanistan gesammelt von H. Roemer im Rahmen der Deutschen Wakhan-Expedition 1964. — Mitt. Bot. Staatssamml. München **7**: 219–261.

Poelt, J. & Wunder, H. 1967: Über biatorinische und lecanorinische Berandung von Flechtenapothecien untersucht am Beispiel der *Caloplaca ferruginea*-Gruppe. — Bot. Jahrb., Syst. **86**: 256–265.

Poelt, J. & Wunder, H. 1970: *Anaptychia ulotrichoides* in Europa und ihre Gesamtverbreitung. — Herzogia **1**: 459–463.

Poelt, J., Huneck[65], S. & Scholz, P. 1995: Die Gipsflechte *Psora saviczii* im mitteleuropäischen Trockengebiet und ihre Gesamtverbreitung. — In Daniels, F.J.A., Schulz, M. & Peine, J. (eds.): Flechten Follmann, contributions to lichenology in honour of Gerhard Follmann, pp. 451–459. – Koenigstein: Koeltz.

Poelt, J., Zhurbenko, M. & Matzer, M. 1996: *Lecanora gyrophorina* sp. nov., eine bemerkenswerte, auf *Umbilicaria hyperborea* parasitierende Flechte aus Sibirien. — Herzogia **12**: 1–6.

Poelt, L. 1994: Von Peccingen und Pozzenhoven. Eine Chronik der Altgemeinde Pöcking. — Gemeinde Pöcking: Selbstverlag.

Racovitza, A. 1959: Étude systematique et biologique des champignons bryophiles. — Mem. Mus. Nation. Hist. Nat. **10**: 1–288.

Rassadina, K.A. 1950: The Cetrariae of the USSR. — Plantae Cryptogamae, Acta Instit. Bot. Acad. Sci. URSS **5**: 171–304.

Remler, P. 1979: Ascomyceten auf Ericaceen in den Ostalpen. — Bibl. Mycol. **68**: 1–321.

Runemark, H. 1956: Studies in *Rhizocarpon*. I. Taxonomy of the yellow species in Europe. — Opera Bot. **2** (1): 1–152.

Salisbury, G. 1953: The genus *Thelocarpon* in Britain. — NWest. Nat. **24**: 66–76.

Santesson, R. 1952: Foliicolous Lichens I. A revision of the taxonomy of the obligately foliicolous lichenized fungi. — Symb. Bot. Upsal. **XII-1**: 1–590.

Santesson, R. 1984: The lichens of Sweden and Norway. — Stockholm & Uppsala: Swedish Museum of Natural History.

Santesson, R. 1993: The lichens and lichenicolous fungi of Sweden and Norway. — Lund: SBT-förlaget, Lund.

Schade, A. 1933: Flechtensystematik und Tierfraß. — Ber. Deutsch. Bot. Ges. **51**: 168–192.

Schade, A. 1956: Schneckenfraß an Flechten. — Decheniana **108**: 243–246.

Schauer, Th. 1965: Ozeanische Flechten im Nordalpenraum. — Portugaliae Acta Biol. (B), **8**(1): 1–229.

Scheuer, Ch. 1988: Ascomyceten auf Cyperaceen und Juncaceen im Ostalpenraum. — Bibl. Mycol. **123**: 1–274.

Scheuer, Ch. & Poelt, J. 1995: Mycotheca Graecensis. Fasc. 2/Nr. 21–40). — Fritschiana **4**: 1–10.

Schleifer, K.H. 2011: Professor Dr. Dr. h.c. mult. Otto Kandler: distinguished Botanist and microbiologist. — Bulletin of BISMIS **2** (2): 141–148.

65 The sequence of the authors, originally "Huneck, Poelt, Scholz" was altered by the editors into "Poelt, Huneck, Scholz". When Poelt received the proof copy, he was as upset as I had never seen him before. "*This was done out of an easily recognizable intention*", he told me enragedly. "*I announced that I would withdraw this manuscript for the festschrift, if they did not reinstall the author's original sequence,*" he continued. However, after Poelt had suddendly passed away shortly after that, the manuscript was published without the correction.

Schneider, G. 1979: Die Flechtengattung *Psora* sensu Zahlbruckner. Versuch einer Gliederung. — Biblioth. Lichenol. **13**: 1–310.

Schöfer, G. 1954: Untersuchungen über die Polymorphie einheimischer Veilchen. — Planta **43**: 537–565.

Schriebl, A. 1991: Experimentelle Studien über die Laubmoosgattung *Polytrichum*. — Carinthia II, **181** (101 Jahrgang): 461–506.

Servít, M. 1954: Československé Lišejníky Čeledi Verrucariaceae. Lichenes familiae Verrucariacearum. — Praha: Nakladat. Československ. Akad. Věd. Praha.

Smith, A.L. 1921: A handbook of the British lichens. — London: British Museum.

Steiner, M. & Poelt, J. 1986a: Flechten aus Afghanistan II. Die Laub- und Strauchflechten. — Nova Hedwigia **42**: 213–236.

Steiner, M. & Poelt, J. 1986b: Lichenotheca Afghanica, Faszikel 1. (Nos. 1–25). — Graz: Inst. f. Pflanzenwissenschaften, Univ. Graz.

Steiner, M. & Poelt, J. 1987: Lichenotheca Afghanica, Faszikel 2. (Nos. 26–50). — Graz: Inst. f. Pflanzenwissenschaften, Univ. Graz.

Steiner, M. & Poelt, J. 1988: Lichenotheca Afghanica, Faszikel 3. (Nos. 51–78). — Graz: Inst. f. Pflanzenwissenschaften, Univ. Graz.

Teppner, H. 1997: Zur Geschichte der Systematischen Botanik an der Universität Graz. — Mitt. Geolog. Paläontolog. Landesmus. Joanneum **55**: 123–150.

Timdal, E. 1884a: The genus *Hypocenomyce* (Lecanorales, Lecideaceae), with special emphasis on the Norwegian and Swedish species. — Nord. J. Bot. **4**: 83–108.

Timdal, E. 1884b: The delimination of *Psora* (Lecideaceae) and related genera, with notes on some species. — Nord. J. Bot. **4**: 525–549.

Timdal, E. 1986: A revision of *Psora* (Lecideaceae) in North America. — Bryologist **89**: 263–275.

Tschermak-Woess, E. & Poelt, J. 1976: *Vezdaea*, a peculiar lichen genus, and its phycobiont. — In Brown, D.H., Hawksworth, D.L. & Bailey, R.H. (eds.): Lichenology: Progress and Problems. — Systematic Association Special Volume **8**: 89–105.

Türk, R. & Hafellner, J. 2010: Nachtrag zur Bibliographie der Flechten und flechtenbewohnenden Pilze in Österreich. — Biosyst. Ecol. Ser. **27**. — Wien: Verlag der ÖAW.

Türk, R. & Poelt, J. 1993: Bibliographie der Flechten und flechtenbildenden Pilze in Österreich. Unter Mitarbeit von Johanna Üblagger. — Biosyst. Ecol. Ser. **3**. — W'ien: Verlag der ÖAW

Ullrich, H. & Klement, O. 1960: Icones Lichenum Hercyniae. Fasc. 1, 8 pp. With 8 original photographs. Author's edition by H. Ullrich, Langelsheim (Harz): Eigenverlag.

Ullrich, H. & Poelt, J. 1968: *Lecanora picea* und *Lecidea praeruptorum,* zwei verkannte und übersehene Arten, auf den Quarziten des Harzes. — Herzogia **1**: 73–77.

Upreti, D.K. 2012a: Dharani Dhar Awasthi (1922–2011). — Current Science **103** (1): 94.

Upreti, D.K. 2012b: Dharani Dhar Awasthi, 28 September 1922 – 21 August 2011. — Internat. Lichenol. Newsletter **45** (2): 25–27.

Vězda, A. 1965: Flechtensystematische Studien II. *Absconditella*, eine neue Flechtengattung. — Preslia **37**: 237–245.

Vězda, A. 1979: Flechtensystematische Studien XI. Beiträge zur Kenntnis der Familie Asterothyriaceae. — Folia Geobot. Phytotax. Praha **14**: 4–94.

Vězda, A. 1996: Zemřel člen ČSB a emerentí professor dr. Josef Poelt (1924–1995). Ehrenmitglied der Tschechischen botanischen Gesellschaft Professor emer. Dr. Josef Poelt ist gestorben. — Preslia **67**: 319–320.

Vězda, A. & Poelt, J. 1990: Solorinellaceae, eine neue Familie der lichenisierten Ascomyceten — Phyton (Horn, Austria) **30**: 47–55.

Vouaux, L. 1912–1914: Synopsis des champignons parasites de Lichens (Suite). — Bull. Soc. Mycol. France **28**: 177–208, 209–256 (1912); **29**: 33–128, 399–444, 447–494 (1913); **30**: 135–198, 281–329 (1914).

Wagenitz, G. 2009: Die Erforscher der Pflanzenwelt von Berlin und Brandenburg. — Verh. Bot. Ver. Berlin Brandenburg, Beih. **6**: 157–556.

Wirth, V., Hauck, M, Schultz, M., unter Mitarbeit von U. de Bryn, H. Bültmann, V. John, B. Litterski & V. Otte 2013: Die Flechten Deutschlands. Band 1. — Stuttgart: Eugen Ulmer.

Wolseley, P., Jørgensen, P.M., Kantvilas, G. & Thüs, H. 2015: A tribute to Peter James (1930–2014). — Lichenologist **47**: 83–92.

Wunder, H. 1974: Schwarzfrüchtige, saxicole Sippen der Gattung *Caloplaca* (Lichenes, Teloschistaceae) in Mitteleuropa, dem Mittelmeergebiet und Vorderasien. — Biblioth. Lichenol. **3**: 1–196.

Zahlbruckner, A. 1907 (1903–1907): Lichenes (Flechten): B. Spezieller Teil. — In Engler. A. (ed.): Die natürlichen Pflanzenfamilien, I. Teil, **1**: 49–249. — Leipzig: W. Engelmann.

Zehetleitner, G. 1978: Über einige parasitische Arten der Flechtengattung *Verrucaria*. — Nova Hedwigia **29**: 683–734.

Zwetko, P. 1993: Rostpilze (Uredinales) auf *Carex* im Ostalpenraum. Ein neues Artkonzept. — Bibl. Mycol. **153**: 1–222.

Address of the author:

Prof. Dr. Hannes Hertel
Botanische Staatssammlung München
Menzinger Str. 67, D-80639 München
Email: hannes.hertel@gmx.de