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Authors: Lack, Hans Walter, and Wissemann, Volker

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## HANS WALTER LACK1\* & VOLKER WISSEMANN2

# Gerhard Wagenitz (1927–2017)

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Gerhard Wagenitz passed away on 30 January 2017, just a few months before his ninetieth birthday. He was the doyen of plant taxonomy in Germany, a professor emeritus of Göttingen University and a full member of the Göttingen Academy of Sciences. In a unique way GW combined several qualifications: he was a world authority in Compositae, an outstanding connoisseur of the history of biology in general and of plant taxonomy in particular, and a very active academic teacher with no fewer than three of his many students currently holders of university chairs. In addition to his many activities at Göttingen University, including his role as the head of its herbarium for many years, GW left behind an extremely rich and diverse scientific oeuvre of the highest profile. It covers an unconventionally broad spectrum of topics with his Wörterbuch der Botanik [Dictionary of Botany] as his most influential publication. For eleven years, from 1958 until 1969, GW had been a member of staff of the Botanic Garden and Botanical Museum Berlin-Dahlem, a period of his long life emphasized to a certain degree in this obituary.

# The early years

GW was born in Potsdam in Germany on 31 May 1927 as the only child of Hermann Wagenitz, a Lyceal-Oberlehrer [senior teacher at a lyceum] in Potsdam and owner of a tree nursery in Eiche, now part of Potsdam, and his wife Martha (called Magda) née Waak. Clearly influenced by his parents he developed an early interest in botany. From his father, who had joined the Botanischer Verein der Provinz Brandenburg in 1921 and who was to die when his son was only five years old, GW learned as his first scientific names *Digitalis purpurea* and *Coccinellia septempunctata*. His mother, who had attended a practical course in plant determination given at Munich University in 1913 by Gustav Hegi (the author of *Illustrierte Flora von Mitteleuropa*), acted as a competent nature guide



Fig. 1. Gerhard Wagenitz in the Old Botanic Garden of Göttingen University, 2016. – Photograph: Uwe Wagenitz.

for her son. Unsurprisingly, GW, like his father, began to collect plants, to prepare herbarium specimens at the age of five and learned from his mother how to determine them. According to GW's personal recollections about his youth he "always read very much", a character trait that remained dominant until the last weeks of his long life and was also strongly influenced by his mother. She had studied mathematics and physics at Göttingen University under such luminaries as David Hilbert and Max Born and had started to teach at a gymnasium in Uelzen, but after her marriage had had to give up her position because at that time husbands and wives were not both allowed to be

<sup>1</sup> Botanischer Garten und Botanisches Museum Berlin, Freie Universität Berlin, Königin-Luise-Str. 6–8, 14195 Berlin, Germany; \*e-mail: h.w.lack@bgbm.org (author for correspondence).

<sup>2</sup> Institut für Botanik, Herbarium und Botanischer Garten, Justus-Liebig-Universität Gießen, Heinrich-Buff-Ring 38, 35392 Gießen, Germany; e-mail: volker.wissemann@bot1.bio.uni-giessen.de

employed by the state. It was only several years after the death of her husband that Magda, who did not remarry, started to teach her two subjects once more, thereby providing the material basis for Gerhard and herself.

In 1937, GW, aged ten, was sent for the next few years to the Realgymnasium [secondary school] in Potsdam's Kaiser-Wilhelm-Allee, a period of his life overshadowed by the political realities of the time. For all pupils, joining the Deutsches Jungvolk [German Youngsters] and subsequently the Hitlerjugend [Hitler Youth] was compulsory, with the latter including straightforward pre-military training. Not being athletic, Gerhard was scolded. However, there was plenty of time for him to read many books, among them several biology text books from his father's library, and these Gerhard enjoyed tremendously. His mother clearly had negative views about Nazism, but because of the extremely effective oppression could not be a declared opponent of the system. It was his mother who taught him how to use his father's Leitz microscope and how to determine plants with the help of Karl Kraepelin's Exkursionsflora von Nord- und Mitteldeutschland. She generously allowed her son also to make chemical experiments in their flat, including some admittedly dangerous ones. Two weeks after the defeat of the German army in Stalingrad [now Wolgograd], Gerhard, aged 15, and his classmates were conscripted Flakhelfer, i.e. they belonged to the auxiliary staff of the German Luftwaffe, and underwent recruitment training in Nauen, a town northwest of Berlin. There, GW experienced the drill and nonsensical rhetoric typical of every military system, especially of the German one at that time. In parallel with the training, the number of lessons was steadily being reduced because of frequent alarms caused by air raids. In early September 1944, GW was demobilized, but periods soon followed, first in a Wehrertüchtigungslager [defense training camp] belonging to the Hitler Youth and after that conscripted labour in the Reichsarbeitsdienst [Reich Labour Service]. According to his recollections, GW was by then convinced that the war was lost for Germany.

#### The difficult years

On 6 January 1945 GW, aged 17, was conscripted as a soldier to do service in a machine gun company based in the town of Brandenburg, west of Potsdam, where he experienced the final months of the Second World War with all its indescribable chaos. Around 26 April near Rathenow, GW was lightly wounded on his right hand, but he had to continue westwards as fast as possible in order to avoid contact with the victorious Soviet army, which was approaching from the east. The fear was of becoming a Soviet prisoner of war, with the very real danger of being sent to Siberia. GW finally reached Zerbst, a town that had just surrendered to US troops on 28 April 1945. In this he was extremely lucky – only a few days later, on 6 May, Zerbst was handed over to Soviet troops. On 8 May, the unconditional surrender of the German Reich was signed in Berlin

ending in a sense the Second World War in Europe. Difficult weeks followed: GW, now a prisoner of war, was handed over from the US Army to British troops, and marched westwards via Magdeburg to the tiny village of Weferlingen in what is now Lower Saxony. There he was released from captivity in mid-July 1945 and was given permission to continue to Celle, then in the British zone of Germany, where one of his uncles lived. Looking back, GW was happy not to have been allowed by the British authorities to return directly to Potsdam, which may well have brought him into Soviet confinement. It was in Celle that GW passed his Abitur in March 1946, and two months later he was back in Potsdam, where fortunately his mother had survived the final months of the war unharmed. This return journey of c. 180 km lasted no less than twenty-three days because, in agreement with the decisions reached at the Yalta Conference, Germany had been divided into four allied occupation zones: GW had to pass from the British into the Soviet Zone which meant, among others, quarantine in Erfurt, forced labour for the Soviet authorities in Beelitz, and all kinds of controls and delays, in order to reach his very severely destroyed home town Potsdam, where he arrived on 18 May 1946.

#### As a student in Berlin and Göttingen

Having survived the inferno, GW took up employment as a garden worker in the well-known nursery of Karl Förster in Bornim, now part of Potsdam, where he had to dig over the ground, cart soil and compost, weed and tidy the beds and cut flowers, the latter a job in retrospect he regarded as the most pleasant one. However, all this was not the kind of occupation GW wished to have for long and therefore in the summer of 1946 he sent an application for admission to Berlin University. This was successful and upon matriculation he solemnly shook hands with Johannes Stroux, the first post-war Rektor [Vice Chancellor], then part of the tradition of welcoming incoming students. In Berlin GW found himself in a very complex situation.

Firstly Berlin, like the rest of Germany, was divided into four sectors, though in 1946 people, goods and traffic could still move freely from one sector to another with the Reichsmark being the only currency. However, the main building of Berlin University on the boulevard Unter den Linden was situated in the Soviet sector of the city, while several other university institutions, among them the Botanic Garden and the Botanical Museum Berlin-Dahlem (BGBM), were situated in the US sector. Furthermore the US Military Government as a result of their right of occupation had unilaterally removed the BGBM from the Berlin University in March 1946 and placed it under the administration of the magistrate of Berlin, i.e. the city of Berlin. In short, the institution no longer belonged to Berlin University. Secondly, the academic staff of Berlin University had been severely depleted by the Second World War and its consequences, which meant a very reduced academic programme of lectures, prac-

tical courses and excursions, and there was hardly any fixed curriculum. This went hand in hand with extremely meagre resources resulting in academic teaching based on blackboard and chalk only, without the assistance of text books, demonstration charts or slides – even pen and paper were quite scarce. Thirdly, many buildings were severely war-damaged, and this applied both to the main building of Berlin University and the Botanical Museum. In March 1947, GW was conscripted to labour input – he mixed mortar and taped stones for the reconstruction of the ruined main university building on Unter den Linden, a fact he recollected whenever he passed by.

In addition, there were more prosaic realities: food was extremely difficult to come by in Berlin, and GW noted in his recollections that "it was always a problem to eat one's fill". However, in his sober way he also noted that he was more fortunate than others – he had relatives outside town who were ready to help with food and he occasionally received food packets sent from South Africa. Heating in winter was another problem. GW had rented a room in Driesener Straße, but only the tenant's kitchen could be heated, and in the evenings he sat on the slowly cooling hotplate his feet wrapped up in a blanket. The well-heated Amerikahaus in the US Sector was a heaven where GW enjoyed reading in a more comfortable atmosphere.

Commencing in the winter term of 1946–1947 at Berlin University, GW studied botany and zoology with an emphasis on the latter field. This had several reasons: one was that he was already familiar with many aspects of botany, in particular the vascular flora of Central Europe; another was the lack of a full professor in plant taxonomy – since the death of Ludwig Diels in November 1945 his position had not yet been filled. In GW's recollections, the BGBM played no significant role - the herbarium, library and conservatories had largely been destroyed, the Botanical Museum was partly in ruins, only a plant determination course given by Hermann Otto Sleumer is mentioned as having taken place in this building. In contrast, GW noted many details on the lectures and practical courses, as a rule in rooms hardly heated during winter, given by the zoologists Günter Tembrock, Werner Ulrich and, in particular, the plant physiologist Kurt Noak, who taught general botany.

Judging from GW's recollections, he very much enjoyed the botanical excursions because they helped him to extend his already profound knowledge of species diversity. These tours brought him into the surroundings of Berlin, to the island of Hiddensee in the Baltic Sea, and to the Kyffhäuser, a hill range southeast of the Harz Mountains, all situated in the Soviet Zone and at that time still freely accessible. On one of these excursions led by the bryologist Hermann Reimers he realized his preference for botany over zoology. It was also on one of these tours that GW met Ruth Heinecke from Berlin-Friedrichshagen and soon fell in love with her; she was later to become his wife and the mother of their three sons.

Meanwhile, the views of the four allies over the future of Germany had continued to become more and more

divergent, with the subsequent crisis culminating in the Berlin Blockade, i.e. the Western allies being denied the railway, road and canal access to their sectors in Berlin. In the end this conflict resulted in (1) the creation of the Federal Republic of Germany on 24 May 1949, agreed on by the three Western military commanders for Germany, and (2) the creation of the German Democratic Republic on 7 October 1949, agreed on by the Soviet Military Administration in Germany. By contrast, the future destiny of Berlin, which belonged neither to the Federal Republic of Germany nor to the German Democratic Republic, remained unresolved or, in modern political terminology, a frozen conflict. This was the beginning of what would become the division of Germany, resulting in the infamous Berlin Wall, which came to an end only in the Treaty on the Final Settlement with respect to Germany signed by the Four Allies and the two German States and taking effect on 15 March 1991.

Living in the Soviet sector of Berlin, GW had not been affected by the Berlin blockade, but he already felt the growing political pressure on students and may have realized the political difficulties and dangers to come. Changing from the Berlin University, which had already been renamed Humboldt University, to the Freie Universität Berlin (FUB), founded on 4 December 1948 in the American sector, was not an attractive option for GW the academic programme for botany was still meagre and in the winter term of 1959-1960 comprised introductory courses only. Instead, and following the role model of his mother, GW decided to continue his botanical studies at Göttingen University, where he found in Franz Firbas a professor who supported him in his botanical studies and in his Celle-based uncle a relative who supported him financially. In short, GW like many of his generation went west.

After having attended the two Botanische Großpraktika [Monday to Saturday full-day practical courses in botany], where the emphasis was on preparing very accurate drawings, a course in plant geography, excursions into the surroundings of Göttingen and, in spring 1951, to Lake Garda (which for GW was a sensation as he never had been south of the Alps), he prepared under the supervision of Firbas his Staatsexamensarbeit on pollen diversity in Valerianaceae. This was a kind of diploma thesis acting as one of the prerequisites for being admitted to the written and oral exams that were needed to become a teacher at a secondary school. At that time, GW obviously contemplated continuing the teaching tradition of his family. However, Firbas had other plans: he suggested to GW, who had passed the Staatsexamen with best marks in 1952, that he undertook a doctoral thesis on the genus Centaurea with an emphasis on palynology to be written under his guidance. GW agreed, not knowing that this topic would bring him deeply into plant taxonomy and occupy him for the rest of his life. Further botanical excursions followed, again to Lake Garda and to Montpellier, where GW for the first time experienced the eu-Mediterranean flora. In November 1954, he passed the final examinations in botany, zoology and chemistry in a room of the Universitätsaula on Göttingen's Wilhelmsplatz and received his doctor's diploma.

Meanwhile, Ruth, who had written her Staatsexamensarbeit on vegetation successions (extract published in 1958 in Wiss. Z. Pädagog. Hochschule Potsdam, Math.-Naturwiss. Reihe 4(1): 55–64), had stayed behind in the Soviet sector of Berlin, though she visited GW a few times in Göttingen. On 30 December 1954 they married in the town-hall of Berlin-Köpenick, but only after a considerable amount of red tape was Ruth permitted to move across the border between the German Democratic Republic and the Federal Republic of Germany to Göttingen in May 1955. Meanwhile, her husband had got a one-term job as scientific assistant to Firbas.

### Scholarship in Vienna

A scholarship financed by Deutsche Forschungsgemeinschaft (DFG) opened new gates to GW in January 1956. He and his wife moved to Vienna for nine months in order to work at the Department of Botany of the Natural History Museum. There, GW was hosted and supervised by Karl Heinz Rechinger, the department's director and a well-known specialist of the flora of the eastern Mediterranean and the Near East with a particular interest in the Compositae. No doubt this interval was very important for GW's further career because, for the first time, he worked in a huge herbarium and a vast library with extensive materials from all over the world. The post-war realities meant, however, among others, that there was no working lift inside the tall and pompous building on Vienna's majestic Ringstraße. During winter, only the botany library was heated, whereas the herbarium remained extremely cold; meanwhile, the second district of the city where the young couple had rented a room still showed all the marks of recent Soviet occupation. In retrospect, Rechinger, no doubt a member of the old taxonomic school more ready to describe one more new species rather than one fewer, noted that each of his suggestions fell on fertile ground with his guest and that GW was instantly able to orientate himself inside the herbarium and the library. In addition, GW managed to quickly and efficiently revise a few plant groups like Psammogeton in the Compositae and Lepyrodiclis in the Umbelliferae for Rechinger's proposed Flora Iranica project. It was at the Natural History Museum in Vienna that GW began to study the Compositae genera Filago, Iflago etc., mimicking balls of wool, and to copy with his typewriter hundreds of protologues of names in the genera Centaurea and Jurinea, which he had traced in the library and which served him in his subsequent studies.

#### **Back in Berlin**

With his scholarship coming to an end, GW had to look out for a new position and found it late in 1956 in Berlin, where he became assistant to Erich Werdermann, thereby filling the position previously held by Theo Eckardt. The former was full professor at the FUB and held in personal union the position of director of the BGBM, which was then an independent institution. GW's first job was associated with Werdermann's professorship and as a consequence he was engaged in the Botanisches Großpraktikum. Since the FUB was unable to offer adequate space for academic teaching in botany, the course took place in the famous Blaue Grotte [blue cave] in the Botanical Museum, now the second floor of the Botanical Museum's galleries. When his two-year appointment came to an end, GW remained at the Botanical Museum, albeit in another, newly created position - from 1 October 1958 onward he was wissenschaftlicher Angestellter [scientific employee] at the BGBM. At that time, Hans Melchior was acting director of the institution, and it was clearly for him that GW wrote several treatments, including Campanulales, Dipsacales and Rubiales, for the twelfth edition of the Syllabus der Pflanzenfamilien cared for by Melchior and published belatedly in October 1964. Melchior was followed on 1 September 1959 as acting director by Eckardt, who was additionally appointed on 1 October 1959 professor at the FUB without giving up his position as acting director.

In his new position, GW was expected to fulfil curatorial duties and research. He managed to accomplish both commitments in an exemplary way. Judging from the annual reports published in Willdenowia, where the two obligations are for good reason consistently and persistently treated separately, GW's focus was primarily on the rearrangement of the extensive collection of wood samples and of various families in the herbarium, notably the Compositae. As a consequence annotations in his hand, always in black ink, very readable, dated and signed, are omnipresent in the herbarium and continue to act as useful guides to a broad spectrum of specimens even today. During his first years at the BGBM, GW published papers on Centaurea, Myopordon and the life and work of Joseph Bornmüller, thereby starting his series of in-depth studies on the history of botany in general and plant taxonomy in particular. Because of the pronounced historical dimension of taxonomy and nomenclature, GW always regarded this double approach an absolute necessity. It became a characteristic trait of his scientific oeuvre.

After a few years under the acting directors Melchior and Eckardt, the BGBM got a new director on 1 March 1961 in Walter Domke, who had no affiliation with the FUB and whose priorities were different to those of his predecessors. Only a few months later, the world was shocked by the erection of the Berlin wall. On 13 August 1961, not only were the western sectors of Berlin sealed off from the Soviet sector but also from the surrounding areas in the German Democratic Republic. All this went in parallel with the construction of similar fortified structures along the border between the German Democratic Republic and the Federal Republic of Germany. Botanists

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such as GW based in the western sectors were confronted with several consequences – no more visits to Potsdam, no more excursions into the surroundings of Berlin and no more easy travel to the Federal Republic of Germany. In a sense, the Berlin Wall also changed the profile of the Botanic Garden, which now became a frequently visited green space for those living in the walled-in western sectors. In parallel, the newly appointed director advocated conservation rather than research in plant taxonomy as the primary purpose of his institution and concentrated his attention on the Botanic Garden and the galleries of the Botanical Museum.

Meanwhile, throughout all these changes, GW continued his taxonomic research in the genus Centaurea, and submitted a study on C. subg. Phaeopappus for publication in Botanische Jahrbücher, a journal which at that time had Eckardt as its co-editor. Eckardt invited GW to submit this paper as Habilitationsschrift [habilitation thesis], a proposal to which GW quite naturally agreed. When subsequently informing Domke, his superior, on this plan, GW was lectured that if he chose to continue with his Habilitation [qualification to conduct self-contained university training] at the FUB there would be no further place for him at the BGBM. As a matter of fact this was an inappropriate argument as well as an incorrect statement, because GW's position had meanwhile been made permanent and furthermore no regulation existed that would forbid a Habilitation to a member of staff of the BGBM. However, GW felt deeply offended by Domke and recalled this confrontation a few times in conversation with the first author. Judging from the course catalogue of the FUB, GW started lecturing in the summer term of 1963 and continued offering lectures, practical courses, excursions and seminars for six years. His focus was on plant taxonomy, but he also lectured on flower biology and the history of vegetation in Europe since the Tertiary; a few practical courses in plant determination were also included. It was during these years that GW supervised the first student to write a doctoral thesis under his guidance - Manfred Dittrich, later a curator at the Conservatoire et Jardin botaniques de la Ville de Genève.

After Domke's retirement as director of the BGBM on 30 September 1964, Eckardt was appointed his successor and he brought about a more harmonious working atmosphere at the BGBM. However, it should be noted that the new director expected his scientific staff to spend a maximum of half of their working time on research, while the rest had to go into curatorial activities. These included filing accessions into the herbarium, rearranging collections and identifying specimens cultivated in the garden or gathered on expeditions according to a division of responsibilities. Guided tours for the general public in the Botanic Garden and Botanical Museum also belonged to these responsibilities, as did writing brochures on topics dealt with in the Museum's galleries. GW fulfilled all these obligations in a perfect way, and was also made the scientific superintendent of the library, which meant that it was he who selected all acquisitions, determined shelf marks etc. and thereby shaped the profile of this key part of the BGBM. In short, focusing only on research was not commented on favourably by Eckardt, although only occasionally did he sanction the neglect of curatorial duties. Shortly after Eckardt's coming into office, the first instalment of the second edition of volume 6(3) of Hegi Illustrierte Flora von Mitteleuropa started to appear in Munich; it had GW as author. This well-known encyclopaedia dealing with the vascular plants of Central Europe became a leitmotif of his life; three more instalments of volume 6(3) were published during his years in Berlin, a fifth instalment during his early years in Göttingen, while the second edition of volume 6(4) ending the treatment of the *Compositae* appeared only several years later. While GW was author in these cases, he acted as editor of the third edition of volume 3(1) of this work, published in Berlin in 1981; even before, and together with Dimitri Hartl of Mainz University, GW had been coeditor of the second edition of volume 3(1), which was published in Munich in the years 1965–1974. Otherwise GW refrained from the necessary but invidious and timeconsuming task of editing scientific journals or books.

Based on his Vienna experience, GW became during the sixties an expert in the care and management of herbaria, not only of that in the BGBM but also in other places in Central Europe, e.g. Geneva, where he had worked as a guest for several weeks. His remarkable ability to decipher the handwritings of botanists from all over the world and from several centuries, as well as his qualifications to understand the complexities of herbarium work, originate from this time. GW's paper on the collections in the Willdenow Herbarium originating from the famous expedition undertaken by Joseph Pitton de Tournefort, Andreas Gundelsheimer and Claude Aubriet to the eastern Mediterranean and Transcaucasia in 1700–1701 exemplifies this.

On 2 September 1965, GW, then living at Spanische Allee 160 not very far from the BGBM, was made Kustos [curator] at BGBM, thereby becoming a civil servant of the Land Berlin (the legal successor of the magistrate of Berlin), and on 2 September 1966 the FUB awarded him the title Professor Extraordinary.

#### In Göttingen again

It was less than three years later, on 1 August 1969, that GW reached the summit of the academic hierarchy in Germany – he was appointed full professor at Göttingen University. This was a sensible and logical move. Considering the taboo on Hausberufungen in Germany, i.e. the concept that the position of a professor must not be a tenure track position within any given university, GW had no chance to be appointed full professor at the FUB and/or a director of the BGBM, irrespective of his qualifications.

The first author had the privilege to meet GW for the first time in Göttingen in September 1973, just four years after GW had taken over the professorship which was combined with the responsibility for the Herbarium. Compared to what the first author had seen previously in Brussels, Edinburgh, Kew, Paris, Prague and Vienna, the Systematisch-Geobotanisches Institut of Göttingen University was definitely a markedly smaller institution. Remarkably, GW was extremely knowledgeable and highly competent in all fields of his new function, including the herbarium and the library. Although now the holder of one of the two chairs of the institute, he continued to cultivate his great interest in all the collections under his care, and he took this – in contrast to some of his equivalents in other universities - very seriously. One of the fruits of this activity was his Index Collectorum Principalium Herbarii Gottingensis published in 1982, now together with subsequent additions and corrections available on the internet. Quite naturally there was more academic teaching in Göttingen than in Berlin, more responsibility, and more administrative duties, with GW twice elected Dean of the faculty and for 1981–1983 vice president of Göttingen University, but there is no doubt that these were happy years for him. For his family and himself he bought a nice house and garden at Göttingen's Ewaldstraße 73, which became also the place for his ever-growing library and where he regularly hosted external visitors. In addition, he felt satisfied with his position with its mix of research, academic teaching, curatorial attention and the routine of managing a small institute, set into the refined atmosphere of an old German university town.

Therefore, it was no surprise that GW chose not to apply for the combined position of professor at the FUB and director of the BGBM, which after the retirement of Eckardt had become vacant, although this decision was regretted by the majority of staff at the BGBM. GW never disclosed his reasons for not applying, but it is likely that he realized wisely that the double function and the running of a much larger institution would perhaps require qualifications he believed he might not possess and that he would be left with much less time to do sensible research. In addition, it should be noted that in the seventies, due to the Berlin Wall, the position was much less attractive than the professorship in Göttingen for any botanist who liked to go with his students on excursions.

During his first decade in Göttingen, GW published several treatments of *Compositae* genera for *Flora of Turkey*, notably of the genus *Centaurea*. Together with Ulrich Hamann of Bochum University, GW published a bibliography of the flora of Central Europe, in a sense a companion volume to *Hegi Illustrierte Flora von Mitteleuropa*, which saw a second edition in 1977. But there was more than treatments for Floras: further papers on the "balls of wool", i.e. *Filago* s.l., on the systematics and phylogeny of *Compositae* in general, on individual herbaria kept in Göttingen such as the "Plantae Malabaricae" and on Göttingen-based botanists such as Albrecht von Haller and August Grisebach. The most substantial contributions during GW's second Göttingen decade were his

treatments for *Flora Iranica*, in particular the accounts of *Centaurea* and *Jurinea*, the latter with Rechinger as first author. It was during this period of his life that he was elected full member of the Göttingen Academy of Science, even for a full professor at Göttingen University this was a special honour not awarded automatically.

Over more than three decades, first in Berlin and later in Göttingen, GW supervised a very considerable number of Staatsexamensarbeiten, diploma theses and doctoral theses, plus one habilitation thesis. Topics ranged from carpological studies in the genus Centaurea and related genera to the monocots of the Karakorum Mountains, from the nectar in Asterideae and its relevance for flower biology to nectaries in Dipsacales, from Fragaria species in Lower Saxony to the Luzula campestris group in the northwestern part of Germany. This list could be considerably extended considering that GW mentored, reviewed and assessed no fewer than 36 diploma theses. More relevant for science and very characteristic of his care for his students is another fact: he made sure that a very considerable number of these works or extracts from them were properly published in various scientific journals, among them Botanische Jahrbücher, Candollea, Flora, Stapfia, Willdenowia, or in series like Dissertationes Botanicae. No doubt GW was a man of high standards and he expected these also to be fulfilled by his students. The authors will not forget his final verdict "dünne" [thin, i.e. poor in facts and/or arguments] in cases where GW was not satisfied by the evidence presented or the arguments put forward.

GW's geographical focus was clearly circumscribed, resulting in a somewhat limited knowledge of the plant diversity in the tropics and the southern hemisphere. By contrast, he was a great expert on botanical literature on a global scale, past, present and at great depth. As a consequence, he became a connoisseur of the almost inexhaustible treasures of the Niedersächsische Staats- und Universitätsbibliothek (SUB) in Göttingen and became a regular visitor to all its reading rooms. When GW came back to Göttingen in 1969, the SUB compared very favourably with the situation in Berlin. At that time, the similarly inexhaustible treasures of the Preussische Staatsbibliothek were still divided - one part was kept in the Soviet Sector of Berlin, another part in Marburg in the Federal Republic of Germany, a third part in Cracow in Poland, while other parts were either kept in the Soviet Union or had been lost. As a consequence, all this material was much more difficult to use. It is therefore easy to imagine why GW fell in love with the SUB. This resulted in a few high-profile exhibitions, which he initiated and organized in this magnificent library. They focused on the works of Linnaeus, Haller and botanical illustration, yet another topic very near to the heart of GW. Needless to say, he contributed to the respective catalogues.

For a variety of reasons, among them his professorial and administrative duties, and in contrast to some of his colleagues, GW travelled relatively little and, with the

exception of tours to Turkey, Armenia and Egypt, only within Europe. In addition, he was not an avid plant collector like Rechinger or Werner Greuter, but like them he also worked in the field and arranged for all his collections to be properly determined and later deposited in his institute's herbarium. Within these limitations, GW had seen much of the European flora – from northern Sweden to Cyprus – with an obvious focus on Central Europe and the Alps, which he visited on excursions often undertaken with students. Unsurprising for a man of his calibre, GW was repeatedly invited to lecture on a broad spectrum of topics and this he did with pleasure, mainly in Germany, but occasionally also in Austria, Switzerland, the Netherlands and England. In addition, GW was a regular visitor to the library and herbarium of the BGBM, which he knew so very well, annotating specimens and making photocopies of those books and journals that were not available in Göttingen.

In marked contrast to many of his generation, GW began at an early stage to make use of the potentialities of data management with the help of a computer. He is reported to have possessed the first PC at the institute in Göttingen and was able to impress his students in his competence in handling databases – just moments after having translated a protologue from Latin into German.

In 1993 GW had reached retirement age. While this often means a decrease of scientific output, this was definitely not the case with him and the opposite happened, although with a gradual shift towards history of botany versus taxonomy. His most important publication from this period was the Wörterbuch der Botanik [Dictionary of Botany], the fruit of some forty years of study. Meanwhile, it has become a standard reference for botanical terminology highly praised by the scientific community and available in a second, enlarged edition, which was also taken care of by GW. As explicitly stated in the subtitle "Die Termini in ihrem historischen Zusammenhang" [The terms in their historical context], this dictionary is at the same time a major contribution to the history of biology in general. The thoroughness of GW's approach may be illustrated by a simple figure – no fewer than 109 printed pages are dedicated to the bibliography containing several thousand references going back to the year 1542. Short biographies of a considerable number of biologists followed from GW's pen for several projects, like the Lexikon der bedeutenden Naturwissenschaftler. On the other hand, he continued to publish on Cardueae and wrote the account of Globulariaceae for The Families and Genera of Vascular Plants as well as papers on technical terms. His analysis of the German term "ansalben", often used in the floristic literature, may act to exemplify the breadth of his knowledge – he could prove that it goes back to a line in Alessandro Manzoni's novel I Promessi Sposi first published in Milan in 1840–1842. Several nomenclatural proposals co-authored by GW also appeared during this period of his life – earlier, i.e. in the period following the XI International Botanical Congress in Seattle in 1969, he had been a member of one of the permanent nomenclature committees, the Committee for Spermatophyta, and subsequently kept an interest in the evolution of the *International Code of Botanical Nomenclature* (which became, in 2011, the *International Code of Nomenclature for algae, fungi, and plants*).

In agreement with German tradition, GW maintained a room at his institute, by then renamed Albrecht-von-Haller-Institut für Pflanzenwissenschaften, and came in almost daily. Later, GW was unfortunately moved to a much smaller room in the basement, where he received guests and where some of his books and journals found shelter. He continued to enjoy the Old Botanic Garden (Fig. 1), and he continued to collect the biographical data on various botanists, write book reviews and act as a reviewer for projects or manuscripts to be published. The Göttingen Academy and the meetings held there, which he had regularly attended over the years, became more important to him now than ever before, including the famous Nachsitzungen [suppers after a meeting] at the seat of the academy at Theatergasse 7 along with the informal gatherings of his colleagues there. And GW continued to enjoy the pros of his life as an emeritus in Göttingen its dense network of book shops, concerts, SUB and its perfect bibliographical service as well as the exhibitions held there and, not to be forgotten, the delicious sweets of Cron & Lanz, another Göttingen institution, where the authors met GW on a few occasions.

#### The final years

Losing his beloved wife Ruth first to dementia and then to death on 31 July 2007 must have been an extremely bitter experience for GW, but he still had the strength and energy to continue. He published a revision of the genus Centaurea in Iraq, a brief introduction to botanical illustration, and contributed to a substantial paper on the history of research in *Compositae*. Always interested in the botanical exploration of his home region, i.e. the Land Brandenburg, in its historical dimension, GW summarized his many years of biographical and bibliographical research on this topic in a paper of 499 pages that appeared in Verhandlungen des Botanischen Vereins für Berlin und Brandenburg in 2010. It was during his final years that GW focused his attention on the many letters written by Carl Ludwig Willdenow, the Prussian Linnaeus, which are still extant in various archives, notably in Scandinavia. He transcribed them, summarized their content and provided, together with the first author, an introduction, biographical account, commentary and index, all published in Annals for the History and Philosophy of Sciences on no fewer than 291 pages. Willdenow was also the subject of GW's last lecture given outside Göttingen - at a meeting of the Botanischer Verein für Berlin und Brandenburg (BVBB) in Berlin. As always, he spoke in his clear Potsdam intonation, free of any influence taken up during his many years in Lower Saxony.

GW was very happy with the families of his three sons, including his ten grandchildren, and saw them regularly, in Göttingen and elsewhere. He was also lucky in enjoying stable health for very many years. Late in life GW developed a lymphoma which progressed slowly, but in its later stages made chemotherapy necessary. He coped with the first course admirably and in the long subsequent pause led an almost normal life. In his eighty-eighth year he performed a vivid and lively lecture on Willdenow and his letters at the Göttingen Academy. However, GW felt substantially weakened by the second course of chemotherapy, though he remained self-determined, in physical and intellectual integrity, active, interested in the world around him and even spoke on the telephone to both authors as late as early January 2017. In order to be nearer to his eldest son, GW was transferred from Göttingen to Geisenheim. His mind having been crystal clear until the end, his body finally succumbed to pneumonia on 30 January 2017 in the St. Josef Spital in Rüdesheim am Rhein. On 10 February 2017 his sons and their families, friends, pupils, colleagues, the current holder of GW's chair, as well as representatives from Göttingen University and Göttingen Academy gathered at the Junkerberg cemetery in Göttingen to accompany Gerhard's coffin and say farewell to him.

In several respects GW was an extraordinary man. As a plant taxonomist, he possessed special qualifications, a fact very appropriately expressed by Rechinger who wrote in his eulogy published in the Wagenitz Festschrift of 1987: "Rarely do we find united in a single individual to such a high degree the intellectual and personal characteristics indispensable for this branch of study, like the capacity for critical observation, feeling for forms, the ability to remember forms, the capacity for concentration and abstraction, patience, consistency, and last but not least also the capacity to express oneself in writing and orally in a clear and concise manner". However, there was much more to GW than just a plant taxonomist. Kären Nickelsen, then a student of the history of science and art at Göttingen University and now a professor at Munich University, who had met him in the nineties, called GW in retrospect "an incredibly knowledgeable, very approachable, vivid professor and scientist, always in a good mood and full of humour" with an enthusiasm which was "not only authentic but contagious". She characterized him as "very generous with his time, his advice, ready to share ideas" and noted that GW knew "the delicate art to enrich in content, to guide occasionally, but let sufficient space for diverging views, to mark his own limits, beyond which the opinions of others should be looked for". Indeed a very appropriate statement. As a lecturer, GW spoke insistently and knew well how to limit himself to the key points of the argument. Very rightly Rechinger had noted already that "far-flung theories and speculations are strange to him [GW] just like nice phrases and the use of buzzwords", it was his "unerring objectiveness"

which for decades had brought GW according to Rechinger the "unlimited appreciation" in the circles of the initiated. At the same time GW possessed a profound knowledge of the complex way in which knowledge in botany developed – not just over the last years but over the last four centuries. For him botany was more than knowledge about plants, but included also all facts on how, when and by whom this knowledge had been collected. This made him one of the few experts in this field; although several of his pertinent publications have Göttingen as their geographical focus, his approach was always much broader. In short, GW's fame resulted almost exclusively from his publications and his oral presentations - not from funds raised, not from organizations founded or chaired, not from congresses organized, not from publicity gained in the media.

As a scientist GW was honoured by having being elected corresponding member of the Senckenbergische Naturforschende Gesellschaft, honorary member of the Deutsche Botanische Gesellschaft, of the BVBB and the Moskovskoe obščestvo ispytatelij prirody. In 1979 he was chosen as recipient of the Willdenow Medal of the BGBM. For a list of eponyms see Wissemann & Lack (2016).

In agreement with his will, GW's estate went to his sons. His scientific correspondence, diaries, manuscripts, drawings and a small number of exceptional and rare books were bequeathed to the SUB, where he had spent so many happy hours chasing rare items and reading. Based on GW's testament, Jürgen, Karsten and Uwe Wagenitz decided to donate almost the entire remaining part of GW's botanical library to the BGBM, where it has meanwhile been received. The Göttingen Academy has agreed to permanently host the electronic files of GW's extensive collection of biographies, almost exclusively of botanists, a project still in progress.

#### **Epilogue**

GW was clearly one of those increasingly rare individuals who possessed an extremely broad spectrum of interests, knowledge and qualifications. In addition, he possessed a distinct and high profile, basing his judgements largely on experience and competence, not on empty words. GW was remarkably well read, with a focus on German literature; the first author will not forget, for example, how they laughed together about the lack of a Göttingen audience's response to "bras dessus, bras dessous" in Hugo von Hoffmannsthal's comedy Der Schwierige. In an exemplary way, GW was at the same time a man of culture and intellect, wisdom and humour, always tactful and polite, with an encyclopaedic knowledge ready to share it with all who were genuinely interested. His soberness and a certain undemanding nature may have been a reflection of his meagre post-war years. In a sense it was very appropriate therefore that GW's sons selected for the death notice a rather technical pen-and-ink drawing of a flowering-head of *Centaurea triumfettii*, originally

drawn by his long-time scientific assistant Ursula Hofmann (†), from GW's book plate as decoration together with an excerpt from Rainer Maria Rilke's immortal lines *Herbst*, here quoted in translation (*Fall*) by Guntram Deichsel:

"The leaves are falling, falling as from far [...] We all are falling. This hand falls, as it extends. And take a look at others. It's in them all. And yet there's One, holding this fall With endless gentleness in both his hands."

#### Note

This obituary is based on (1) miscellaneous recollections for the years c. 1931–1964 noted down by GW, which remain unpublished and have been deposited in the manuscript collection of the SUB with copies in the archive of the Botanic Garden and Botanical Museum Berlin; (2) his autobiographical paper "Erinnerungen an die Botanik in Berlin nach 1945 und an Theo Eckardt" (see bibliography); and (3) conversations held with the first author over a period of 33 years and the second author over a period of 22 years. In addition, the annual reports of the Botanic Garden and Botanical Museum Berlin-Dahlem, published in *Willdenowia*, have been found very helpful. For other sources see Bioprofile.

All translations from German are by the authors.

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