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*Alwin Berger and others.
The signs of German culture in the gardens and
in the Riviera landscape.
Before and after the Great War*

*Edited by
Mauro Mariotti & Luigi Minuto*

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Alwin Berger Archiv in Möschlitz*

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PRESENTATION

In the second half of the 19th century the French and Italian Rivas became so famous all around Europe as a resort place especially for winter holidays. This territory was discovered by the European first class and aristocracy that settled there, since they have appreciated the climate, the nature, the artistic and cultural heritage, and so marking the start of a real economy founded on tourism. In particular, in some towns of the Ligurian Riviera such as Bordighera and Sanremo, is very known the presence of British people (up to many thousands at its peak), as it is still witnessed today by the presence of the English Avenue, some Anglican and Presbyterian churches and all over the Hanbury Botanical Gardens. The presence of British people in this part of the Mediterranean coast is so famous and today is carried on by the attendance of many English people. However, is still unknown how much important has been the contribution of the Germans to the development of the local economy and society.

In these proceedings the reader will have the possibility to discover this fervid and fruitful period of the Ligurian Riviera thanks to the contribution of many German people who have presented a new methodology in the management of work and made a great scientific contribution to the natural knowledge of this area. However, it has been thanks to Thomas Hanbury's experience and to his acclimatization garden that the arrival of German experts has been possible. In fact, his unpopular strategy to hire in his garden of La Mortola only uneducated and local gardeners caused the entrustment of the direction of the garden's management to German head gardeners and scientists. As Francesca Mazzino will point out in her contribution, the first important presence of a German in the Ligurian Riviera was Ludwig Winter. With his important contribution to the first arrangement of Hanbury's garden, he contributed to a new aesthetics of landscape architecture with design principles that took into account the flow of plants from America, Asia and Africa. To

him, gardens weren't simply made of flowers but of a landscape of flowers: in this way he introduced new types of gardens of the Mediterranean region, such as acclimatization gardens, palm gardens, rock gardens of succulents and cacti, gardens-nurseries and promenades which became new models of gardens for the winter season.

A large part of these proceedings is dedicated to Alwin Berger. He was hired by Thomas Hanbury for his scientific skills on succulent plants. At the end of the 19th century Thomas Hanbury's garden had already its structure but it needed a scientific improvement in its collection. The permanence and the research activities of one of the most important experts in succulents gave a new deal and fame to the garden still alive today. Firstly, Lutz Schmalfuß will introduce the life and professional career of this gardener and botanist but, in particular he will briefly outline Alwin Berger as a husband and father basing on the manuscript "Lebenserinnerungen" of his wife Elise Berger. Secondly, Detlev Metzger will illustrate Alwin Berger's scientific heritage. During his long permanence at La Mortola, he made substantial contributions to the taxonomy and the horticulture of the succulent plants which have been published in numerous papers, journal articles, books and book contributions. All the scientific material analyzed and studied by Alwin Berger is today partly still conserved in the garden.

Alessandro Guiggi (together with Mauro Mariotti, Fabrizio Pastor and Elena Zappa) will explain how the succulent specialist, during his scientific activity in the Hanbury Botanical Gardens (1897-1915), and elsewhere, preserved more than 1,400 exsiccata and published more than 700 new taxa and combinations. The specimens still living in the garden are presented here and compared with other living material which has been rediscovered in other scientific structures all around the world.

The figure of Alwin Berger as Curator of the Hanbury Botanical Garden will be described by Elena Zappa and Mauro Mariotti. She investigated many documents which belong to the Hanbury Archives and are kept in Bordighera at the Istituto Internazionale di Studi Liguri. She

analyzed the registers (Sowing & Planting) in which the curators or others collaborators carefully daily recorded the activities of the Hanbury's garden, many letters and photographs, and finally the life's memories of his wife.

This unpublished diary on Alwin Berger's life has been transcribed by Mauro Mariotti and translated by Gabriele Campodonico who here report the result of a close collaboration between botanists and interpreters and the helpfulness of the Alwin Berger Archive in Möschlitz (Germany). This cultural and scientific work has a fundamental importance because it reports a huge source of information, but it also points out a different view of that historical period troubled by conflicts and war, when friends became enemies.

A final important note on Berger's life is taken in these proceedings by Francesca De Cupis and Daniela Gandolfi reporting about an unknown photo album prepared as a gift for Thomas Hanbury's 75th birthday in 1907. Alwin Berger kept in touch all Hanbury's best friends and he joined together their pictures and dedications. The result is an interesting spitting image of the relations existing between the Riviera and the wide world in that period. In particular, as Mauro Mariotti reports in a specific chapter of these proceedings, many were the Germans who have significantly contributed to botanical culture and gardens in Italy, having studied and disseminated the values of the wild and cultivated flora, the gardens and the landscape, especially in the Ligurian Riviera. Ottone Penzig was one of them, as drawn by Sergio Carlini. He was professor at the University of Genoa and with his scientific and cultural relationships with Thomas Hanbury he has marked a lucky moment for the presence of creative foreigners in Liguria. Ottone Penzig got from Thomas Hanbury the funds for the construction of a new Botany Institute in Genoa, which was inaugurated during the organization of one of the first International Botanical Congresses.

In addition to these scientists, several young men, after having been formed in good German technical schools and with a deep "Germanic"

culture, gradually came to Italy, contributing to the emancipation and progress of our unitary state, despite the continuous conflicts which opposed the Italian and German countries. Some of these Germans, as Claudio Littardi will report, were seen as collaborators and sometimes as friends, becoming in this way the co-founders of the industrial floriculture of the Ligurian Riviera during the 20th century. This extraordinary moment was also characterized by the creation of wonderful public and private acclimatization gardens, nurseries, the first horticultural businesses and a rich botanical literature.

The greatness of this book is due to the concomitance of its publication with the anniversary of the end of the First World War. The world conflicts of the 20th century have led to the Italian cliché that Germans are eternal antagonists but, concerning Botany and the Ligurian Riviera, they always took many opportunities of great and mutual collaboration that led to amazing results in the past.

The Hanbury Botanical Gardens were the origin and the fulcrum of this phenomenon and they remain a great crossroads of plants, scientific and human relationships. I hope this volume will be a good omen of the resumption of new and fervent collaborations between Italy and Germany in the fields of botany, horticulture, gardening and floriculture.

Luigi Minuto
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ALWIN BERGER: HIS LIFE, FAMILY AND FRIENDS

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ABSTRACT

The life and professional career of the gardener and botanist Alwin Berger are outlined briefly based on the manuscript “Lebenserinnerungen” of his wife Elise Berger (née Keller).

KEY WORDS

Alwin Berger, botanist, biography, cacti, succulents

INTRODUCTION

At the beginning there was the word. A huge collection carefully written down by Elise Berger. It was the base to search the life and creativity of her husband, the German botanist Alwin Berger. You can find the bundled notes in the book “Lebenserinnerungen” (Memories of life), which Elise has given to her children Fritz and Verna and to her brother-in-law Adolf in remembrance of Alwin, after he died. One exemplar of the manuscript is family-owned since then (Berger undated). It was written with a typewriter and carbon copy. In 2009 it became the basis for research to the established “Alwin-Berger-Archiv”. The objective is to collect and reprocess all publications, correspondences and papers of Alwin Berger (Luding, 2011). In this report, we want to introduce the biography of the person Alwin Berger, based on (Berger undated, see also Berger, 2016). The Alwin-Berger-Archiv is part of the Möschlitzer Bürgerverein e.V.

CHILDHOOD AND ADOLESCENCE

Alwin Berger (henceforth refers to Berger) was born on 28th August 1871 in Möschlitz (Thuringia, Germany). He was the first child

of the married couple Johann Heinrich Berger (1845-1885) and Marie Friedericke, birth name Göller (1847-1917). His little brother was Adolf Berger. Alwin reminded the big fire in his village in 1875. During that occasion 43 houses, the church and the school burnt down. His family home was destroyed too in many parts and they had to rebuilt everything. Berger attended the grammar school in Möschlitz from 1878 to 1880. During that time his botanic interest awoke, caused by two people: one was his teacher Christian Oswald, who taught him how to graft fruit trees and the other person was his five years older friend Karl Möckel. They both laid out their first herbarium. Berger went to academic high school in Schleiz from 1881 to 1886. His favorite teacher, Prof. Hartenstein, found out about his ability in natural science.

At New Year's Night 1885, Berger's father died; this was a decisive turning point in his life. His mother hold onto his attendance of the school in Schleiz, although the financial situation got worse for the family. She married the farmer Ernst Weise and Hermann Weise, Berger's halfbrother, was descended from this marriage.

EDUCATION AND YEARS OF TRAVEL

A new part of Berger's life started in 1887 with the vocational training at the promological institute in Reutlingen. After only one year, however, he went back to the Thuringian homeland. On one hand, the training costs were too high for the guardian, but on the other hand it was not the work Berger longed for.

Instead of a training as a farmer, which his guardian would have liked to see, he began a gardener training in Ebersdorf in the court yard of Prince Henry XIV of Reuss in 1888. There he discovered his passion for the exotic greenhouse plants. After the training, he realized that his further path will take him to botanical gardens. Dresden became his first stop. There he spent the year 1890, where under the guidance of Franz Ledien, the new botanical garden was being built. Since that time, Berger had a close friendship with Ledien and his wife. In addition, he met Kurt

Dinter, who told him that he was looking for a job in Italy to work for a rich Englishman.

Berger went on to the botanical garden in Freiburg im Breisgau. Professor Hildebrand, the director of the garden, allowed him to attend university lectures. Berger's time in Freiburg lasted from January 1891 to August 1893. His route led him to the Grand Ducal court yard in Karlsruhe. But the winter over there was too hard for this health, so that during severe cold his desire to the south grew. From 1894 to 1895 a time began in Pallanza at Lago Maggiore (Italy) in a market gardening for Berger.

But as beautiful as the surroundings of Lake Maggiore was, he was reluctant to make money from plants. Berger dared to jump from the sunny south to the cool north, where the botanical garden in Greifswald was his new workplace between 1896 and 1897. He won another friend in Greifswald, Camillo Schneider, who reminded him of his early death friend Karl Möckel. When Schneider, after Christmas, already resigned again, Berger did not last long in Greifswald. He also quit. After a brief stopover in Gießen, Berger received a lucrative offer from the Palmengarten in Frankfurt am Main.

Already on 19th January 1894, Inspector Ledien from Dresden wrote a letter to Berger with an offer to come to Italy. There would be a place as a curator in a private botanical garden of Sir Thomas Hanbury. Berger did not receive a commitment until 5th May 1897. The traveling years were over at that time.

IN THE HANBURY BOTANICAL GARDENS

In the following 18 years from 1897 to 1915, Alwin Berger was hired as curator of the Hanbury Botanical Gardens. This was probably the most beautiful time of his life for Berger.

Hanbury was not only his boss and owner of the garden, but also a paternal friend and promoter of his research. During this time, Berger was able to undertake different journeys, also through the generous financial

support of his mentor. For instance, Berger was a number of times at the Royal Botanical Gardens in Kew, London.

LATER STATIONS

„Wilhelma“ in Stuttgart

With the outbreak of the First World War an important part of life came to an end for Berger. In 1915 he had to return to Germany with his family. At the service of King Wilhelm II of Wurttemberg, Berger began a new era.

The new work was quite different; he was responsible for the various gardens and parks of the King of Wurttemberg and took over several administrative tasks. Berger supervised the Wilhelma and the Rosensteinpark in Stuttgart, the Schlosspark Ludwigsburg, the parking facility of Hohenheim, the Schlosspark of Kirchheim unter Teck, the park of Bebenhausen and the castle grounds of Ludwigshafen on Lake Constance.

In line with the 25th anniversary of the King's throne, in October 1916, Berger was appointed Royal Court Director. He was also awarded the Wilhelmskreuz for his botanical work. But it was only for a short time that this part of life lasted in a time of upheaval.

The November Revolution became the next change for Berger. Thus the Royal Court Garden Court was dissolved. In the following period he developed the plan to put Wilhelma into one popular botanical garden. This encountered resistance, but at the very end he could thwart a planned sale of Wilhelma. In 1921, Berger was also dismissed as a court garden director, since he did not want to be immediately available to the new government. He continued to receive his salary, but his employment relationship rested. It was an increasingly difficult time for Berger, who was only able to improve in 1923 with an offer to come to America.

New York State Agricultural Experiment Station in Geneva

With the help of his friend Dr. Rose, he got a job for a research project in Geneva (USA). Berger was there alone at first, later his family came after him. The research work lasted from 1923 to 1926.

During this time, Berger never really felt at home, so he returned to Germany with his family. There the situation had improved somewhat. His son, Fritz, continued to live in Arizona, where he faithfully resembled his father's model of cacti and succulent research in the Huntington Botanical Gardens.

Naturkundemuseum (Museum of Natural History) in Stuttgart

Alwin Berger once again found a position in Stuttgart. During that time he directed the Botanical Department of the Natural History Museum. It was Berger's last stop in his working life. The Berbers had acquired a small row house in the Heidelberger Strasse 44. The advantage was in a related garden, which soon included a small botanical collection. Traces of Berger are still to be found in this garden. There are terraced beds and roses, which Berger planted at that time.

But in terms of health, Berger was getting worse and worse. He did not recover completely from a severe cold in the winter of 1930. On March 21, 1931, Berger died of the consequences of an appendicitis in a hospital in Stuttgart. It was discovered too late.

FAMILY AND FRIENDS

In 1902, Berger met Elise Keller (1869-1944), his later wife. She was the foster daughter of Dr. Southgate of London, who was a friend of Hanbury. Elise wanted to make a stopover from Cairo in Ventimiglia, then continue to London. However, Elise's originally planned short visit was a longer stay. On April 6th, 1903, the wedding of Alwin and Elise took place in the German Consulate General in Genoa. A year later, on the 10th April 1904, there was an increase in family numbers among the

Bergers. The son Erich Fritz Ernst was born. Two years later the daughter Iris Verna was born on 5th May 1906.

In the life of the Berger family, various friends played a role. This included the Bulgarian royal family of Ferdinand I. The royals were far more than just visitors to the Hanbury Gardens — their children played together with those of the Bergers in the garden, and later the desire of King Ferdinand was to install a second La Mortola from Berger. These plans were thwarted by the consequences of the First World War.

Francis Darwin (Charles Darwin's fifth child) was another friend. A letter of friendship with several visits consisted of Ernst Haeckel in Jena. During one of the visits of Haeckel to the Hanbury Botanical Gardens he painted watercolors, which he later sent to the Bergers as a gift. Professor Schweinfurth also belonged to a close circle of friends. With Professor Engler, a friendship extended far beyond their joint publications.

Dr. Rose from Washington D.C. was one of Berger's colleagues, who also worked on cacti. In a difficult time, he helped him to find out the possibilities for research at the Geneva laboratory in the state of New York.

He also had a friendly relationship with Karl Hagenbeck (founder of Hagenbecks Zoo, Hamburg) and Professor Straßburger. Along with Professor Straßburger, Berger worked together on a project to design the island of Brioni as a mixture of zoological and botanical gardens.

The Daimlers (Paul Daimler was the eldest son of the German automobile manufacturer Gottlieb Daimler), who were not only repeatedly named in the book "Lebenserinnerungen" (Berger, 2016), but were also at the side of the family in difficult times. And before Fritz, the last representative of the Berger family, moved to the United States, the Daimlers took over the parental care for him at short notice.

Among his friends was Carl Schmidt, who worked in the company "Haage & Schmidt" in Thuringia, a large plant and seed trade.

Simplified considered, Professor Hartenstein from Schleiz was the first to discover Berger's abilities. Franz Ledien from Dresden acted as a pioneer for Berger. Carl Ludwig Sprenger, in turn, opened the life-task of cacti and succulent research. Professor Penzig acted as a companion for Berger's work in the Hanbury Botanical Gardens. In addition, he was witness at Berger's wedding, together with the painter Vernazza, Francis Darwin, and Sir Thomas Hanbury. Sir William Turner Thieselton-Dyer, the director of Kew Gardens, was one of Berger's friends and who have enabled to do research.

Berger maintained his friendships by regular correspondence. Many of his letters, which bear witness to his lively exchanges with professional colleagues, are still preserved in archives, such as the Smithsonian Institution (Washington, D.C.) and Royal Botanic Gardens Kew (London). In his travels, Berger always combined visits with friends. Some were very pleased with Berger's souvenir of plants. Several friends were also regular guests in the Hanbury Botanical Gardens.

ACKNOWLEDGEMENTS – A special thanks to Horst Luding from the Berger family. With the few material available about Alwin Berger, he started the Berger research even before the founding of the Bergerarchive. Dr. Rainer Redies also owes my gratitude, he was concerned with the life of Elise Berger as part of the Stolperstein initiative. I would also like to thank Dr. Detlev Metzger (University of Oldenburg), who has been working for several years on the scientific work of Berger, as well as a group of high school graduates from the Duden Gymnasium in Schleiz, Johannes Enk, Matthias Naumann and Florian Knoch, who have written their seminar work on Alwin Berger and have also been instrumental in the preparation of the lecture held during the conference "Alwin Berger e gli altri" in October 2016 in Hanbury Gardens. In addition, I thank the Berger family for their support and their interest in Berger research. I'm also grateful to Dagmar Ritter for her text translation. Finally, a special thank you to my spouse Sybille. Only with her support, the Berger research is possible.

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THE SCIENTIFIC HERITAGE OF THE GARDENER, BOTANIST, AND SUCCULENT RESEARCHER ALWIN BERGER

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ABSTRACT

The scientific heritage of the gardener and botanist Alwin Berger is outlined. Berger made substantial contributions to the taxonomy and horticulture of succulent plants, published in numerous papers, journal articles, books, and book contributions. A comprehensive bibliography of Alwin Berger is presented here for the first time.

KEY WORDS

Alwin Berger, bibliography, succulent plant research, horticulture, Hanbury Gardens

INTRODUCTION

Due to their exceptionally and diverse morphological and physiological adaptations to periodically dry conditions, succulent plants attracted plant enthusiasts, gardeners and scientists for long times. Whereas plant lovers and gardeners in horticulture or landscape gardening are mainly delighted in the various forms, structures and colours of succulent plants, scientists have special interests in the biology of these plants, e.g. patterns and combinations of plant characters, phylogenetic relationships, ecology, biogeography, and so on. However, there is no strict distinction between the joy on succulents and scientific curiosity for these plants. Quite the contrary: many of the persons, who contributed to succulent plant science over the times, were no academic educated biologists. An outstanding example is Alwin Berger, who started his career as gardener and, although without an academic degree, later became an internationally renowned scientist for succulent plants.

The name Alwin Berger today is inseparable from the history of succulent plant science, although his botanical interests were not confined to succulent plants only.

Alwin Berger was born in 1871 in the small village Möschlitz (Thuringia, Germany). Intrigued by plants already in his youth, he completed an apprenticeship as gardener after school time. Between 1887 and 1897 he had various jobs in nurseries and botanical gardens. In 1897 he became curator of the Hanbury Gardens ‘La Mortola’ in Italy, where he also met and married his wife Elise Berger, née Keller. At that time his son Fritz Berger (*1905) and his daughter Iris Verna Berger (*1906) were born. During the time at La Mortola, Berger came into contact with cacti and succulents, and it was the famous gardener Karl Sprenger (1846–1917), who recommended him to study succulent plants more in detail. Due to the political developments and the World War I the Bergers had to leave Italy in 1915. From 1915 to 1922 he was employed as ‘Hofgartendirektor’ (court garden director) at the Wilhelma Park in Stuttgart, Germany. For a new position he moved to the United States in 1923, where he worked on ‘small fruits’ (*Rubus*, *Ribes*, *Fragaria*, etc.). After completion of this project in 1926 he got a secondary position at the Museum of Natural History in Stuttgart and became curator of the collections there in 1929. He died in 1931, due to a misjudged appendicitis (Engelhardt & Seybold, 2009; Metzinger, 2010; Luding, 2011; Berger, 2016; Schmalfuss, 2017).

What we can conclude from the “Lebenserinnerungen” (Berger 2016; Schmalfuss, this volume), is that the time following Alwin Berger’s apprenticeship and the years of training and travel, when he was curator at the Hanbury Gardens from 1897 to 1915, probably has been the most happiest period of his life. At least it was the most fruitful time of his life, in respect to his scientific advancement and publication productivity. Here he had the opportunity to study even large specimens of succulents growing and flowering outdoors in the garden, which hardly would have been possible in a greenhouse collection in Germany. The social and

scientific contacts, which he could establish in this time due to his position as curator and as well as due to the social prestige and network of Sir Thomas Hanbury, influenced and encouraged his activities over the long term, too.

What is left of Berger's work up today? First of all, his numerous publications have to be mentioned (see Appendix 1). These include hundreds of scientific names, given by him to new taxa or new combinations. Plant specimens, prepared by him for the herbarium, still exist today, too (Guiggi et al., 2017).

BERGER'S BOOKS AND BOOK CONTRIBUTIONS

Berger published several books respectively volumes of book series under his name (Fig. 1). The first book was an inventory of the spontaneous flora growing at La Mortola (Berger, 1905a), prepared in 1903 by order of Thomas Hanbury. Therein Berger listed 479 taxa with short references to habitat, geographical origin, and partly specific characters. In a further book, a catalogue of the plants cultivated in the garden at La Mortola, Berger (1912a) lists not only the existing plants, but also comments on taxonomical, horticultural and curatorial aspects for selected plants.

Other books, written by Berger as sole author, are dealing with succulent plants. In the series "Illustrierte Handbücher sukkulenter Pflanzen" (Illustrated handbooks on succulent plants) he published four volumes, on succulent euphorbias (Berger, 1907a), Mesembryanthemaceae and Portulacaceae (Berger, 1908), stapeliads and Compositae (Berger, 1910a), and cacti (Berger, 1929). Further volumes on aloes, agaves and Crassulaceae were announced as in preparation, but never have been published by Berger. After the publication of the first volume Berger was criticised, that the book were not purely botanical or horticultural. Exactly this was his intention: these books have not been written for academic botanists or experienced gardeners but for succulent plant enthusiasts, which are in most cases neither this nor that. In

Germany the growing of succulent plants as hobby became popular at the beginning of the 20th century (the German cactus society has been founded a few years before in 1892). So there was a market for these books and hence the books have been published in German language only. Sir Thomas Hanbury gave a bonus payment to Berger, when he got the first volume in 1907, but Lady Hanbury was unimpressed, that a book in German language came out from La Mortola (Berger, 2016). However, there is no doubt, that Berger's handbooks enhanced the popularity of succulents, at least in Germany. The books have keys for identification as well as notes on cultivation, but from the scientific view the approach was not very critical (Rowley, 1997).

That is different for the comprehensive monographs he prepared for the encyclopaedic series of Engler respectively Engler & Prantl (Berger, 1908b; 1930a). Berger was a precise observer and skillful artist, and many drawings in these monographs (and other publications) were done by him. With the treatment on the Aloineae (Berger, 1908b) at the latest he gained the widely recognized scientific reputation as succulent plant researcher. The work on the Crassulaceae (Berger, 1930) has been "the first authoritative treatment" of the family (Mort & al., 2010). About 180 new names/taxa have been published by Berger in this volume.

Whereas a popular volume on agaves never has been published in this series, Berger (1915) summarized the scientific knowledge on the genus *Agave* from a European perspective. The rich living collection of agaves, which had have been established by Thomas Hanbury in his garden and which have been enlarged during Berger's time there, was the perfect foundation for a study of these plants. There he could study many agaves in flower, and his infrageneric classification was mainly based on characters of the inflorescences and flowers. For decades his book was a standard reference for the genus (Jacobsen, 1954) and in 1982 even a reprint was issued by the publishing house Gustav Fischer.



Fig. 1. Alwin Berger published several scientific and popular books and book contributions, mainly about succulent plants.

A contemporary of Berger in America was William Trelease, who studied agaves in the nature and published extensively on this genus, too. There was correspondence between Berger and Trelease, but the World War I interrupted their contact for several years (Gentry, 1982). Berger's book finally has been printed, when he was back in Germany, and the preface was written by him already in Cannstatt/Stuttgart.

A pioneering work was his book „Die Entwicklungslinien der Kakteen“ (Berger, 1926). From a phylogenetic perspective, it is the starting point of modern cactus phylogenies (Rowley, 1997; Metzinger & Kiesling, 2008). Berger presented his view on the evolutionary lines of Cactaceae, illustrated by 16 phylogenetic trees. To illustrate the supposed evolution ways in phylogenetic trees was not really new at that time.

A first tree for the cacti has been published already by Ganong (1894). Better known to the general public are the several trees drawn by

the biologist Ernst Haeckel (1834–1919) for different groups of animals. Haeckel and Berger had a long friendship (they met for the first time, when Haeckel visited Thomas Hanbury in La Mortola). But up to now we have no evidence, that Berger was influenced by Haeckel, when he published his “Entwicklungslinien”. The name Haeckel is not mentioned therein and no letters are known up today, where Berger and Haeckel mentioned or discussed the concept of phylogenetic trees. However, the trees shown in his book are amazingly modern, because they were constructed using derived features inherited from the immediate ancestor of the group, with mostly dichotomous branching, hence applying principles of cladistics long before the cladistic school founded by the German biologist Willi Hennig (1913–1976) in the 1950s became accepted by the taxonomic community (Metzing & Kiesling, 2008).

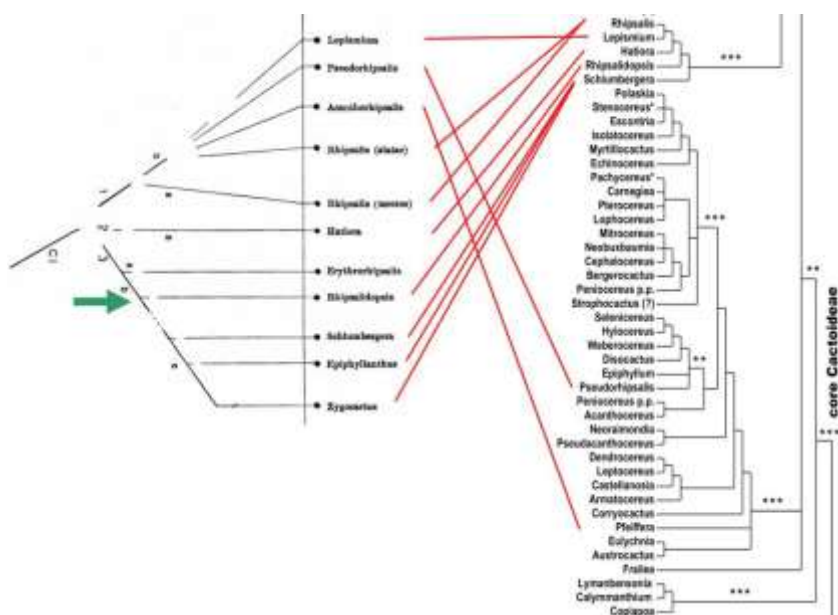


Fig. 2. A comparison of the scheme drawn by Berger (1926; left side) and a DNA based phylogeny (taken from Korotkova, 2015; right side) shows the discrepancies in the hypothesized relationships for epiphytic cacti. For further explanation see text.

The focus of his “Entwicklungslinien” laid in the infrafamilial evolutionary history of cacti. For genera, Berger largely used the progressive classification published by Britton & Rose (1919–1923), as he considered the narrow genus concept used by them more appropriate for displaying the evolutionary lines of the family. From today's view we have to compare Berger's trees with modern phylogenies based on DNA studies. It becomes obvious, that Berger's phylogenies are largely not supported by modern DNA methods. One example (Fig. 2): In his scheme 4 Berger (1926) was right in placing the genus *Schlumbergera* (incl. *Epiphyllanthus* and *Zygocactus*) as sister group of *Rhipsalidopsis* (green arrow). But other relationships drawn by him therein, doesn't reflect the branching patterns of DNA based phylogenetic trees. Berger indicated a paraphyly of *Pereskia* with *Eupereskia* as the sister group of *Rhodocactus*, *Maihuenia*, and all other cacti. The paraphyly of *Pereskia* has since found support in modern studies, but the basal relationships he delineated within Cactaceae have been largely rejected. His phylogeny of the subfamily Opuntioideae, wherein he accepted ten genera, is not supported by recent studies. Berger saw *Quiabentia* and *Pereskiopsis* as sister groups of all other Opuntioideae, again not supported by latest studies. For the Cactoideae (“Cereoideae”), Berger outlined four independent branches (the subtribes Rhipsalideae, Epiphyllaeae, Hylocereae and Cereeae), but he could not resolve their phylogeny in detail (Metzing & Kiesling, 2008).

In 1929 Berger published his book “Kakteen”. Here he made a step backwards (in comparison to the approach in his “Entwicklungslinien”) and accepted only 41 genera for the Cactaceae. 129 genera have been accepted by him in the publication of 1926. Apparently he could not decide whether to use the modern classification of Britton & Rose (1919–1923) with many, small genera or a conservative view with a few, large genera (Rowley, 1997). He stated, that the book was mainly written for cactus enthusiasts, who would not accept the splitters concept as published by Britton and Rose. So he placed the species again in large

collective genera, the names of the genera in the splitters concept are only mentioned as synonyms. But in the index he mentions several new names for the more confined genera, which he doesn't accept in the main text. There is a long discussion now, whether these new combinations in the index can be accepted according to nomenclatural rules or not (Metzing & al., 1995; Nyffeler & Eggli, 1996; Doweld & Greuter, 2001). Nyffeler & Eggli (1996) concluded: „Berger's book ‚Kakteen‘ is a constant source of nomenclatural uncertainty ...“.

The latest book contributions authored by Berger were the treatments of succulent plant families and genera for the horticultural lexicon edited by C. Bonstedt (Berger, 1931a–x).

Three further books of Berger I will mention here only briefly: The 5th edition of the popular book “Unsere Kakteen und Sukkulenten”, firstly published by Wilhelm Otto Rother in 1902, has been revised by Berger (1923a). During his time at the New York State Agricultural Experiment Station in Geneva (USA) Berger became author of two books, dealing with the taxonomy and nomenclature small fruits, including cultivars (Berger, 1924a; Hedrick & al. 1925). The latter one is one of the few publications, which were co-authored by Berger; most of his publications were written by him alone.

We know that Berger intended to publish more books. Apart from the above mentioned, never published volumes of the “Illustrierte Handbücher” he worked on a book with the title “Evergreen trees and shrubs in subtropical Gardens”. In 1914 he signed a contract with a British publisher, to finish the manuscript up to 1915. He continued to work on the manuscript during his time in Geneva, but then he preferred to focus on the “Entwicklungslinien” (Berger, 2016).

Finally, it has to be mentioned, that Alwin Berger published one book under a pseudonym. Shortly after Berger lost his position in the Wilhelma in 1921 he got the offer from a publisher to write a garden book. He agreed only on the condition, that the book would not be published under his name (Berger, 2016). Perhaps he feared to loose his scientific

reputation. In 1923 the book was published under the pseudonym A. B. Burgk (A. B. obviously stands for the initials of Alwin Berger; Burgk was the name of a residential castle near Berger's home village Möschlitz). The book was subdivided in four parts; cultivation of vegetables, fruit growing, ornamental garden, and diseases and pests. The publisher didn't pay the royalty, and went bankrupt. The book were taken over by the company Wilhelm Pfitzer and sold over a long time (Berger, 2016). In the following years the book parts were re-issued as separate booklets by the publishing house Hallwag.

JOURNAL PAPERS AND CONTRIBUTIONS

Besides book manuscripts Berger wrote a high number of articles for journals, mainly for horticultural or botanical journals (Fig. 3). His first known papers have been published in 1896 in the garden magazines "Gartenwelt" and "Zeitschrift für Gartenbau und Gartenkunst", where he wrote about horticultural and botanical aspects of carnivorous plants (Berger, 1896a), orchids (Berger, 1896d), and grafting (Berger, 1896b). Gardening and vegetation around the Lago Maggiore, where Berger has been worked 1894–1895, was depicted by him in 1896, too.

Berger was a constant author of the journal "Gartenwelt" for almost all his professional life. 65 contributions by him have been published therein, this number is surpassed only by the journal of the German cactus society "Monatsschrift für Kakteenkunde", wherein 71 articles and notes have been printed. Berger published in nearly twenty different journals. Most of his papers were published in German language, numerous in English, and only a few in Italian.

In his contributions Berger dealt mainly with various aspects of horticulture and taxonomy: a) ornamental plants (e.g. Berger, 1897f), b) succulent plants (e.g. Berger, 1898b; 1899i), c) native or wild flora (e.g. Berger, 1897a; 1905a), as well as d) travelogues and descriptions of landscapes, vegetation, and gardens (e.g. Berger, 1896c). Besides that he published a few reviews of books authored by friends of him, and

obituaries. Some of his publications are only short notes or reader's letters, a distinction of these publications is hardly possible in several cases.

The first known publication dealing with succulent plants came out 1898, when he wrote about *Aloe schweinfurthii* (Berger, 1898b), illustrated with a photo taken by Daniel Hanbury, and agaves (Berger, 1896k). His first paper in a succulent plant journal was a paper about *Stapelia hanburyana* (Berger, 1899g), which was also Berger's first taxonomic description of new taxon, co-authored by Rüst (Fig. 4).

Berger's first publications in scientific botanical journals were two papers in "Curtis Botanical Magazine" and "Malpighia" (Berger, 1902a; 1902h).

Berger (1905) proposed a new, "most natural" subgeneric classification of the genus *Cereus*. Although in some aspects his classification was more conservative than that of Schumann (1898), it was a milestone for the taxonomy of the columnar cacti. Later authors, the Italian botanist V. Riccobono as well as the American botanists N. L. Britton and J. N. Rose could build on Berger's ideas and accepted his subgenera at generic level. Although Berger obviously was still not brave enough to take this step, this paper is one of his most important ones for the classification of cacti.

Berger was a prolific author and all together he published nearly 300 papers, books, short notes, and reader's letters. The total number is dependent from the counting method; if we would e.g. count his numerous treatments of plant families and genera in Bonstedt's *Blumengärtnerei* (Berger, 1931a–x) as one publication, or if we would ignore his reader's letters and short notes, the number would be lower of course.

A complete list of Berger's publications has not been published up to now and the real number may be still unknown. Below (Appendix 1) a list of all Berger's publication known to me is presented. Nearly all publications have seen by me during a long lasting research in libraries

and in the internet. I could not scan all volumes of all journals and there may be some neglected publications of Berger up to now. At least two publications I couldn't find up to now: a paper in an Austrian journal (Berger, 1920d; cited by Vaupel, 1920) and a contribution published in the "Stuttgarter Tageblatt" (see Berger, 2016: 200–210). There are probably further contributions or reader's letters in other newspapers from Stuttgart, published in defense of the Wilhelma (see Berger, 2016: 272). I would be grateful for every advice on Berger publications not listed here!



Fig. 3. Alwin Berger published about 250 articles, short notes and reader's letters in several botanical and horticultural journals.

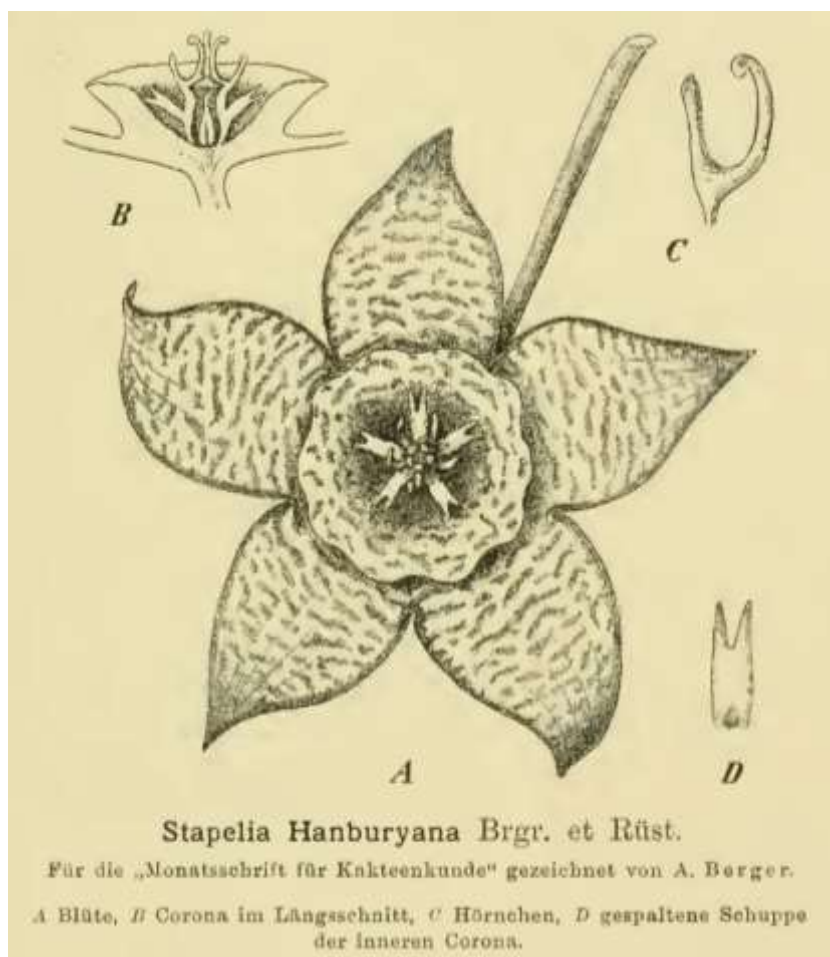


Fig. 4. *Stapelia hanburyana* has been described by Alwin Berger and Rüst in 1899. The drawing was done by Berger, who was a skillful botanical artist.

PLANT NAMES AND DESCRIPTIONS

Berger published many plant names, either in descriptions of new taxa and cultivars or as new combinations. More than 200 names for cactus taxa have been published by him, around 180 for taxa of the

Crassulaceae, and several more for taxa of Aloaceae, Agavaceae and other families, too.

Differing for the families, about 10% to 30% of Berger's combinations are still accepted with that name and taxonomic position in recent treatments. Many taxa described by Berger were based on specimens cultivated in the Hanbury Gardens or other collections and he could not study the plants at their natural habitats. Certainly this is one reason, why so many of his names were sunken by subsequent authors in the synonymy.

HERBARIUM SPECIMENS

Already in his youth Berger collected plants to preserve them in a herbarium. During his professional life the work with herbarium specimens was an important part of his research activities. The private herbarium of Berger was given by his widow Elise Berger to the herbarium of the New York Botanical Garden after Berger's death (Britton, 1932). More specimens are kept in several other herbaria, too (Stafleu & Mennega, 1993). In the herbarium of the Hanbury Gardens (Herbarium Mortolensis, HMGBH) many specimens prepared by Berger



Fig. 5. In the Herbarium Mortolensis (HMGBH) in the Hanbury Gardens many herbarium specimens prepared or studied by Alwin Berger still exist.

still exists (Figs. 5 and 6), together with further specimens he did receive from his scientific colleagues.

A comprehensive survey of the herbarium specimens prepared, annotated or studied by Berger is still lacking (Guiggi et al, 2017). Certainly many type specimens still have to be detected, although Berger didn't cite types for many of the taxa described by him.



Fig. 6. Herbarium sheet of *Opuntia tomentella*, described by Berger (1912g), in the Herbarium Mortolensis (HMGBH). This sheet has to be considered as original material, its type status still has to be proven.

CONCLUSIONS

Starting his professional life as gardener and without an academic degree, Berger pursued a remarkable career as botanist, author and succulent plant researcher. The most prolific time of his research and publishing activities he had between 1896 and 1915, when he was curator of the Hanbury Gardens. His publications, herbarium specimens and other unpublished material kept in archives are a worthwhile source for further research on the history of Alwin Berger and his influence on succulent plant science as well as on the collections of the Hanbury Gardens.

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ELISE BERGER'S LIFE MEMORIES. PRESENTATION OF THE
ITALIAN EDITION OF AN UNPUBLISHED DIARY ON ALWIN
BERGER'S LIFE

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ABSTRACT

Analysis of “Lebenserinnerungen” (Life's Memories), unpublished manuscript of Elise Berger, and presentation of the edition translated in Italian after more than eighty years.

KEY WORDS

Alwin Berger, Elise Berger, Life's memories

INTRODUCTION

The publication of the volume (Berger, 2016) presented here is the result of a close collaboration between botanists and interpreters and the Alwin Berger Archiv in Möschlitz. This presentation is divided in two parts: the first part has been written by Mauro Mariotti (MM), the botanist, and the second part, which consists of a description of the characters mentioned in the book and an analysis of the original text, has been written by Gabriele Campodonico (GC), the translator. However, another botanist, Pier Giorgio Campodonico, GC's father, to whom this Italian edition is dedicated, has to be mentioned. He was among the promoters of the editorial initiative, has lived a great part of his life in the Hanbury Botanical Gardens, but unfortunately left us suddenly a few days before the publication.

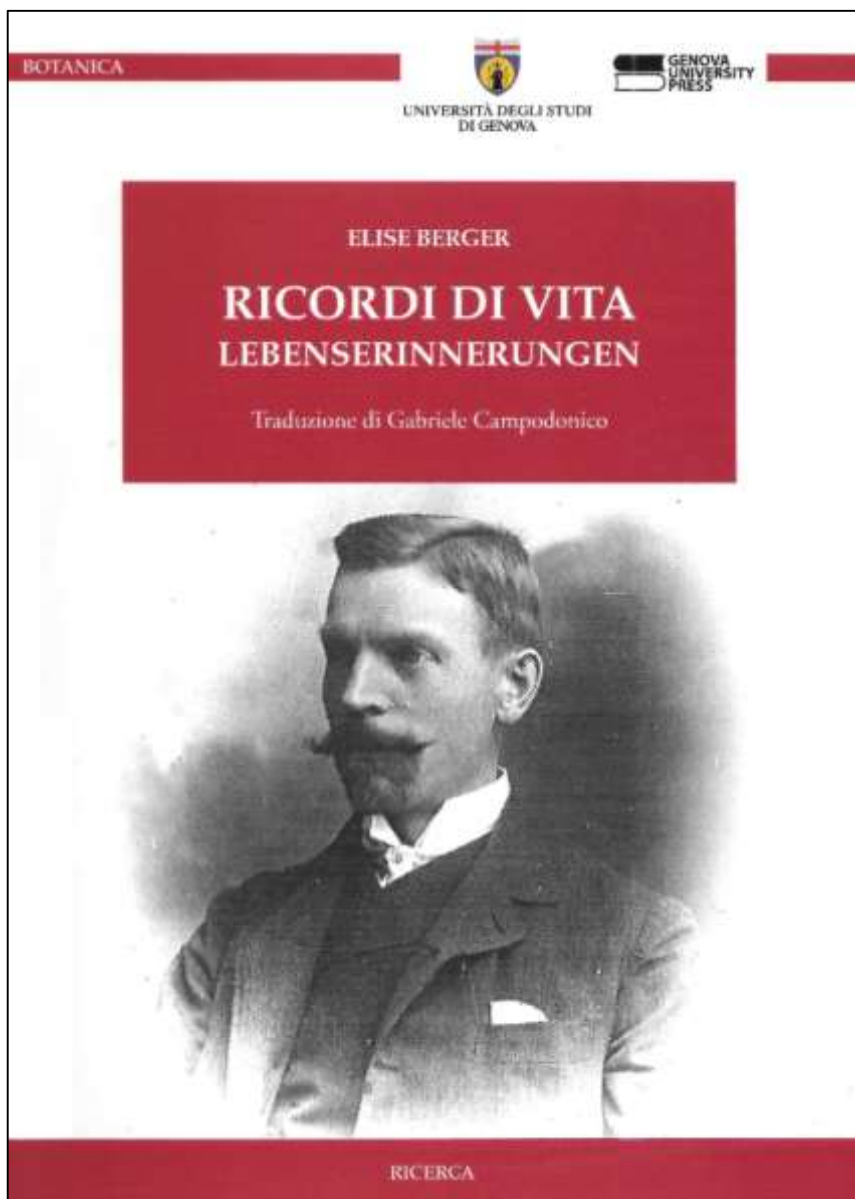


Fig. 1. Cover of the Book of the Italian-Germanic Edition of Memories by Elise Berger (2016).

Elise Keller, born in Heidelberg in 1869, became parentless when she was only 7 years old. Lord Southgate adopted and raised her with a typical English education. After having spent some time in Cairo, she moved to the Riviera, where she met and married Alwin Berger, the botanist and the curator of the Hanbury Gardens in Ventimiglia. After having taken her husband's name Berger, she lived with her husband for over 25 years until his death in 1931. Her only work, *Lebenserinnerungen* (Life Memories), was completed in 1933, when anti-Semitism became a state doctrine in Germany. Elise died in 1944 as a victim of the Holocaust in the death camp of Theresienstadt.

Lebenserinnerungen is the diary of a woman and, at the same time, the biography of a scientist who has lived during a troubled time, marked by the outbreak of the First World War and the subsequent economic and political upheavals of Germany. It is also much more: a revived story of a great botanical garden and a novel where it is possible to meet both noble and popular characters and to compare diametrically opposed cultures and ways of living.

This book (Fig. 1) is the third of the “Botany” series of the publishing house Genova University Press (GUP) and it is devoted to Alwin Berger’s biography. Through the words that his wife has left to their children, this book aims at highlighting aspects of the family life, the work and the deeds of a scientist known to botanists throughout the world.

Lebenserinnerungen has remained a typewritten document in family hands until 1933, when the author sent a copy to her brother-in-law Adolf (the brother of her beloved Alwin) in Möschlitz. Today, the publication of this biography, after the tragic events of World War II and the Holocaust broke off Elise Berger's life, has been possible thanks to the permission and the kind helpfulness of the Alwin Berger Archiv of Möschlitz, curated by Lutz Schmalfuß. This family archive has promoted several initiatives to increase in value its cultural heritage which includes, besides the original memories, some copies which have been discovered

among Alwin Berger's legacies to some of his friends – Prof. Ernst Haeckel in Jena and the Bulgarian Royal Family – and an interesting photographic documentation. In 2017 we are celebrating the 150th anniversary of the foundation of the Hanbury Botanical Gardens of La Mortola near Ventimiglia, whose reputation has continued to spread also thanks to the incessant work and dedication of Alwin Berger, the curator who has been able to combine his botanical skills with the ability to act in full harmony with the same Gardens' patron and owner, Sir Thomas Hanbury, suggesting and multiplying the international relations.

Between the late 19th century and the early 20th century the contribution of people of German culture to the knowledge of both the native and the exotic flora of Italy and, above all, to the creation of the gardens of the Riviera has been extraordinary. In several cases it has been a determining factor in the creation of scientific and cultural centers and in the changes of the landscape and of private and public green spaces, as well as in the increase in value of the Italian cultural heritage. Nevertheless, the gratitude of Italians towards them has been minimal and some Germans have suffered serious difficulties because of the Great War. Even today, both the role of the German culture in Italy and the injustices which have been committed against those who suddenly became "enemies" still haven't been fully recognized. A century has passed since the First World War and many events have been organized to recall historical memory, to celebrate the protagonists, to rediscover, restore and increase the value of cultural sites and monuments. Unfortunately this commemorative aim doesn't always distance itself from a concept of distinction between national identities and isn't always able to promote a sharing that goes beyond these identities and extends to European Culture.

The Hanbury Botanical Gardens, like other gardens on the Italian Riviera, are classified among the "English Gardens" in Italy, but for an expert it is difficult to separate their peculiarity from the Germanic influence which botanists, landscape architects and

nurserymen such as Alwin Berger, Otto Penzig, Ludwig Winter, Kurt Dinter, Gustav Cronemeyer, Fritz Mader, Eduard Strasburger, Charles Gottlieb Huber, all of them protagonists of this book, have poured into the Italian Riviera and the Côte d'Azur.

CHARACTERS OF THE BOOK AND ANALYSIS OF THE TEXT

There are four main characters: Elise Berger, who is at the same time the story's author and narrator, her husband Alwin, her son Fritz and her daughter Iris Verna.

This book consists of five main parts:

1. a short presentation of the book by MM, Editor of the "Botany" series of the publishing house Genova University Press;
2. a short presentation of Elise Berger's work and in particular of its origins, its contents and the few information about the author's life, based on the contents of the internet page <https://www.stolpersteine-cannstatt.de/biografien/elise-berger-gelaehmt-nach-theresienstadt>;
3. Elise Berger's original text along with its Italian translation;
4. an appendix written by Elise Berger along with its Italian translation. This appendix contains:
 - a. a summary of Alwin Berger's career;
 - b. a list of some plants which have been named after Alwin Berger's family members;
 - c. a short poem about a storax vial to which both Thomas and Daniel Hanbury were bound;
 - d. the speeches in Italian which have been held during the inauguration of a bronze bust which represented Thomas Hanbury;
 - e. two other speeches which have been held during the celebration of Prof. Schweinfurth's 76th birthday and the launch of Alwin Berger's book "Die Entwicklungslinien

der Kakteen" (The cactuses' development lines), respectively;

f. the Italian translation's notes;

5. an iconographic appendix with some illustrations of the figures, the places, some plants and objects which are mentioned in the book.

The book has many notes for two reasons:

1. the text mentions a lot of personalities and facts with which the Italian average reader is little familiar;
2. the translator (GC) has preferred to leave some parts in the original language (mostly in English), in order that the book could be used as a starting point for any possible research. Anyway their translation can be found in this section.

Let's pass to a text analysis which can be considered more similar to the ones which students usually do when they attend school:

- Time: the story takes place at a definite period of time, i.e. between 1871 and 1931, which are Alwin Berger's birth year and death year respectively.
- Main places in which the story has taken place:
 - Germany, which is Alwin Berger's birth country and in which he has often worked;
 - La Mortola, the place in which he has not only worked but also lived the most;
 - the United States of America, where first Alwin Berger, then his wife and his children have had to move because of the political crisis which has been brought about by the German Revolution and the subsequent economical crisis which has arose during the establishment of the Weimar Republic.
- The narrator's role is played by Elise Berger; however, when her husband finds himself far away from his family, he in turn becomes a narrator too.

- Seeing that both Elise Berger and her husband Alwin play the role of narrator, we can speak of variable internal focalization, i.e. the story is narrated from the point of view of more than one character (in this case two).
- Furthermore, Elise Berger's narrating style shows other peculiarities:
 - presence of flashbacks and interior monologues;
 - seeing that Elise Berger was German-speaking, the text has been written mainly in German, but there are also some passages in English. Maybe she wanted to highlight even more "my English education and ideas and my predilection for everything English";
 - sometimes Elise Berger's narrating style becomes epistolary, e.g. when Alwin Berger has found himself far away from his family for work purposes he has sent many letters to his wife and his children in which he has described all the things he has seen and everything that has happened to him. In fact Elise Berger has included in her story the letters which her husband has sent her.

Elise Berger has written her "Life memories" for 3 main reasons:

1. to leave her children a portrait of their father Alwin Berger;
2. to praise her husband's work and credits;
3. to highlight the role played by the war, the great history in general and the deep bond with La Mortola both in his life and in his family's one.

ACKNOWLEDGEMENTS - We would like to thank Dr. Pier Giorgio Campodonico, father and friend.

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ALWIN BERGER, CURATOR OF THE HANBURY BOTANICAL GARDENS AT LA MORTOLA

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ABSTRACT

Alwin Berger (1871-1931) spent eighteen years at La Mortola as Curator (1897-1915). We outlined his contribution to development and displays of scientific collections of the garden analysing some original historical documents. A selection of original botanical photographs made by A. Berger was included here.

KEY WORDS

Alwin Berger, curator, horticulture, scientific collections, Hanbury Gardens

INTRODUCTION

German botanists and scientists made an important contribution in the development of the garden of La Mortola since the early years: Daniel Hanbury had built close connection with academics as Friedrich Flückinger, and until the First World War the curators and administrators of the garden were usually Germans: L. Winter, G. Cronmayer, K. Dinter and Alwin Berger. La Mortola owes much to the teutonic tradition of systematic botany and flair for horticultural administration (Quest-Ritson, 1992).

Thomas Hanbury's intentions were twofold: first to undertake serious scientific experiments in acclimatisation, and second to make a collection that was both useful and instructive (Quest-Ritson, 1992). Since the 1880, the scientific value of La Mortola as subtropical botanical garden became more evident: a small botanical Museum, a herbarium of cultivated and indigenous plants and a library equipped with the most necessary botanical works, chiefly on systematic and geographical botany. Since 1893 the *Index Seminum*, a list

of seeds offered in exchange, for private circulation only, was printed and distributed to all Botanic Gardens and many other correspondents. In 1893 Sir Joseph Hooker, Director of Kew Gardens, dedicating the 119th volume of the Curtis Botanical Magazine to Sir Thomas Hanbury wrote “.. as a tribute to the value of your services to Scientific Horticulture, in creating a garden of Exotic plants at Mentone, which, in point of richness and interest, has no rival amongst the principal collections of living plants in the world..”.

Alwin Berger was appointed Curator of La Mortola Garden in 1897, following on from Kurt Dinter and attended this mansion to 1915, when the war forced him to return in Germany. In 1897, he was a young man with excellent credentials and considerable experience as gardener and horticulturist. A. Berger (1871-1931) was born at Möschlitz, near Schleiz, in Thuringia. He attended school in Schleiz and Reutlingen at the “Pomologisches Institut”, and began his career in gardening at Eberdorsdorf at the as apprentice, where he learned to know and to grow tropical plants in the greenhouses. Later, he worked in several German botanic gardens: Dresden, as assistant (1890), where he knew Kurt Dinter; Freiburg (1891), with the director Prof. Friedrich Hermann Gustav Hildebrand; Karlsruhe (1893), with Leopold Gräbner. In 1894 he worked as horticulturist in the nursery of Uberto Hillebrand in Pallanza, Lago Maggiore; in 1896 at the Botanic Garden of Greifswald, director Prof. Tischler. 1897 Botanic Garden Giessen, and in 1897 Palmengarten, Frankfurt – Main.

During his eighteen years at la Mortola not only he attended to the mansions of the curator but seizing the opportunity offered by the richness of succulent plant collections, he began a large publishing output of papers and books on succulents, to whom other specific contribution is dedicated (Metzing, 2017).

METHODS

To outline Alwin Berger's contribution to the development of the garden during his years at La Mortola, we analyse some original historical

sources of Hanbury Archives, property of the Italian State and currently kept for the most part at the Istituto Internazionale di Studi Liguri in Bordighera, Fondo Hanbury (henceforth IISL-FH), and, in part, at the Hanbury Botanic Gardens in Ventimiglia (henceforth GBH-FH).

In particular, we consider the manuscripts: “*Sowing & Planting*”/”*Semi e piante*” vols. 6, 7, 8 (1896 – 1907) (IISL-FH), registers in which the curators or others collaborators carefully daily recorded the arrival of seeds, plants, cuttings from every part of the world.

Hanbury Archives preserve also a collection of Alwin Berger’s correspondence with botanists, horticulturists from different parts of the world; it consists of five folders containing mainly letters, postcards, and manuscripts from 1888 to 1914 (IISL-FH).

Among the historical photograph found of the Hanbury Archive we have a collection of botanical photographs made by Alwin Berger, concerning both single living specimen of plants, and groups of plants, made mainly at La Mortola, but also in the neighbour sites (Viale, 2011).

We consider also the catalogue of the plants growing in the garden *Hortus Mortolensis. Enumeratio Plantarum in horto mortolensi cultarum*, compiled by Alwin Berger and published in 1912, as well as his numerous scientific papers and contributions on the *Gardener’s Chronicles*.

The Elisa Berger’s Memoir: “Elise Berger. Life memories. The Italian edition of an unpublished diary on Alwin Berger life” let us to know many details about his work in the garden (Berger, 2016).

THE CURATOR’S ASSIGNMENTS

During his years of apprenticeship and work in Germany, Alwin Berger had acquired a good training in caring exotic plants cultivated in greenhouses, and in systematic botany. In the “Letters of references copies of testimonials (translation)” (IISL-FH), we read the portrait of a clever and diligent young man; G.A. Poscharsky, inspector of the Royal Botanical Garden Dresden, on 29th December 1891, wrote “*he has have*

the same in care plants of the warm and cold house, also succulents and cultivated these plants with perfect contentedness...he has employed his free time to his perfection in the systematic botanic"; A. E. Eibel, inspector of the University Botanic Garden of Freiburg, on 5th August 1893, certified that *"he [A.B.] had in culture the tropical Orchidaceae, Filices, and the better warm and cold house plants...."*; Gräbner, director of the Court Garden Karlsruhe, wrote *"he [A.B.] was principal employed in the systematic department of our institute. He appeared particularly qualified for this branch by his good systematic knowledges"*.

On 18th May T. Hanbury wrote: *"The accounts I have received concerning you are so satisfactory that I have decided to give you the position of Curator to my Garden here, being the post just vacated by Mr. K. Dinter... You will have a good furnished cottage and a salary of Lire 125 per month to begin from the day you arrive here, and I shall pay for your railway ticket in traveling here. I wish you to come via Genoa and to call on Prof. Penzig at the Orto Botanico, R. Università there. Other privileges enjoyed by Mr. Dinter you will also have, such as firewood, vegetables, oil for your lamp, and the washing of your linen. You are however expected to bring your own pillow, sheets, blankets and table linen also knives forks and spoons.*

The agreement is to continue subject to three months notice on either side. You will please write to me before starting saying whether the above is satisfactory and whether you agree to it, I will then tell you when to start." (Berger, 2016).

In his letter of 22nd May 1897 to Sir T. H., Berger accepted the position of curator, and wrote *"as respect to Mr. Salvai [the head gardener's], I hope to find a man of great experience in gardenculture and on my part you shall not have to fear frictions and jealousy and this more as my position as curator is the first in the garden, with the general purpose of the scientific part.For this I promise you the greatest care of all things, expecially for the reputation of the garden in a scientific*

view.....My arrival would take place for the most conveniently the 15th of June and I ask you very much to put it on this day...”.

On 25th May T. Hanbury answer: “The 15th June is a date quite suitable for you to arrive so far as the garden is concerned but in all probability I and my family will have left for our accustomed absence in England during the summer so that I should not make your personal acquaintance till I return in the autumn unless I can plan for you to meet us en route”.

As curator of the garden was charged of the supervision of the garden, with the collaboration of the head gardener. He was also responsible for cataloguing and labelling plants; the exact recording of all the new entrances, the editing of *Index Seminum*; for the correspondence with the different botanical gardens and with different lovers of the plants all over the world; for care of the library and herbarium.

Elisa Berger (2016) wrote: “For the father [A.B.] was beginning the most beautiful period of his life. From morning to night he walked through the large and magnificent garden. He often stopped silently admiring the beautiful plants. The impressive aloe and agave, once known as miserable seedlings, awakened his enthusiasm and fascinated him incomparably. At that time, only the agaves were blooming. Moreover opuntias, with their yellow and red flowers, bright as silk, hooked him.

Every week the father [A.B.] sent his letter to Mr. Hanbury. At first, it was difficult to draw up a detailed report in English. Mr. Hanbury returned these correct reports in the most meticulous manner. Since we have this correspondence, you can convince yourself at any time of the enormous progress made by your father in a short time.

On Sundays and holidays, the father [A.B.] made excursions in the beautiful surroundings and especially in the mountains.

A few weeks after his arrival he came to visit Karl Sprenger, co-owner of Dammann & Co. of Naples, whose contributes on various specialized magazines were well known to the father [A.B.]...

It was during this time that Carl Ludwig Sprenger (1846–1917), partner at Dammann & Co., horticultural house in Naples, Italy, suggested Berger study succulent plants more in detail.

.....Sprenger, with his impulsive style, put both hands on A.B shoulders: *“Here, Mr. Berger, he has been offered the best opportunity to make useful studies. From Salm Dyck's time no one has been busy studying these interesting succulent plants with precision: do it: here you can find everything you need, follow my advice and we will be all grateful to you. Take care of succulent and cactacee and your time at La Mortola will be well spent”*.

Already in 1890, in the botanical garden of Dresden, A.B. took care of the cactacee; he often told us how to observe them with curiosity, but without admiring them in a particular way. But what were the little seedlings, grown miserably in jars, compared to what was offered here, in the wonderful garden of La Mortola! He picked up Sprenger's stimulus immediately. From that day on, the succulent study became his main field.

Now the most harmonious part of coexistence and work began. Day by day they walked through the magnificent garden. New plantations were planned, the necessary changes were discussed and for the father it was a pleasure to wander around with Thomas Hanbury and discover interesting things about the origins and origin of so many precious and rare plants as Thomas Hanbury was secretly delighted to having finally obtained such a passionate and talented curator. What a difference between Berger and Dinter! With the latter they had almost never exchanged a word of friendship! During the following years the relationship between father and Thomas Hanbury became more and more intimate and close, until eventually Thomas Hanbury could no longer do without his father even for an hour. He had to be ready when Thomas Hanbury called him from the marble terrace, because then his father's museum was in the palace.

INTRODUCTIONS OF PLANTS, RECORDING ALL THE NEW ENTRANCES.

In the preface of *Hortus Mortolensis* A. Berger wrote “the introduction of new plants has been continued, and all the available land has been more intensively cultivated and planted”.

Every new entrance was timely recorded in the registers “Sowing & Planting” with date of entrance, origin (institution or name of the contributor and place of origin), status (plant, seed, cutting, and bulb) and quantity of the plant material.

Some examples of the records from *Sowing & Planting* Vol.6:

- 9th March 1898 from Hillebrand Pallanza, plants [a list of 24 taxa of ornamental plants and bulbs].
- 14th March 1898 from P. Ruschpler, Dresden, plants, 10 *Rosa Crimson Rambler*, 5 *Rosa lawrenziana*... *R.* ‘Crimson Rambler’ (Hybrid Multiflora), bred by an unknown Japanese breeder before 1893, was introduced in United Kingdom by C.Turner in 1893 as ‘Turner’s Crimson Rambler’. The name was soon shortened to ‘Crimson Rambler’. *R. lawrenziana* was perhaps *Rosa lawranceana*, a binomial employed by several authors to describe the smallest species of the genus, miniature roses, everblooming, and with many variants.
- 29th June 1898, from Franz Ledien, Botanic Garden Dresden, bulbs of *Tecophylaea cyanocrocus* [the Chilean blue crocus, a flowering perennial plant native to Chile].
- 2nd April 1898, from Southern California Acclimatizing Association, Santa Barbara, seeds [a list of 41 taxa most of which trees and shrubs native of California, among them, *Cupressus guadalupensis*]. *C. guadalupensis* is cited in *Hortus Mortolensis* and an old specimen is planted in Hanbury Botanic Garden.
- 30th April 1898, from Söhrens, director of the Botanic Garden of Santiago, Chile, plants and bulbs; *Cereus chilensis eburneus* Colla, *Echinocactus curvispinus* Colla, *Eulychnia acida* Filippi, bulbs of *Tecophylaea cyanocrocus*.

- 21st Nov. 1898 from Southern California Acclimatizing Association, Santa Barbara, seeds, *Quercus douglasii*. Blue Oak [sclerophyllous oak endemic to Sierra Nevada, California].
- 8th Nov 1898 from Dr. Dieck, Zöschchen bei Merseburg, plants, 2 *Rosa gallica* var. *damascena* *trigintipetala*, 2 *Rosa gallica* var. *conditorum*, 2 *R. indica* *semperflorens flore simplici*..., 2 *Rosa gallica* x *multiflora* [and some botanical roses]. *R. x damascena* 'Trigintipetala' and *R. gallica* 'Conditorum' were introduced in Germany in 1889 by G. Dieck, the last one had just been obtained by G. Dieck; all them are recorded in *Hortus Mortolensis*.

From *Sowing & Planting* Vol. 7:

- 25th Dec. 1898 from Comm. Th. Hanbury, seeds: *a Collection of seeds from the high mountain of Tibet* [no names].
- 25th Dec. 1898, from Paul Reschpler, Dresden, plants [a list of 32 garden and botanical roses, among which *R. multiflora* and its varieties].
- 5th April 1899 from Miss Willmott Gt Warley [UK], plants [a list of 160 plants, among which *Mesembrianthemum*, cactus, many botanical *Pelargonium* and cultivars].
- 22nd October 1899 from Kew seeds of *Hesperoaloe engelmanni* x *Yucca recurvifolia* Hort. Kew. 1899.
- Oct. 1900 from Missouri Botanical Garden, seeds in exchange collected by Trelease: *Samuela carnerosana*, *S. faxoniana*, *Yucca constricta* (*helata*), *Y. constricta* (*caulescent*), *Y. macrocarpa* Torr., *Y. rigida* Engel., *Y. rostrata* Engelm. [with date and location data]. *Samuela carnerosana* is the only species still alive, among *Yucca constricta*, *Y. rigida* and *Y. rostrata* cited in *Hortus Mortolensis*.
- Jan 1901, from Dr Weber, Paris, seeds of *Opuntia cardona* Web., *O. macrorhiza* Engelm., *O. streptacantha* Lem. *Pilosocereus. pringlei* Web., *Opuntia spec.* "amarilla de Zacaticas" excellent fruit jaunes (group de *Ficus indica*), *Opuntia spec.* "blanca de Zacaticas" excellent fruit blancs (group du *Ficus indica*), and *A. lechuguilla* [with location data]. Fig. 1.

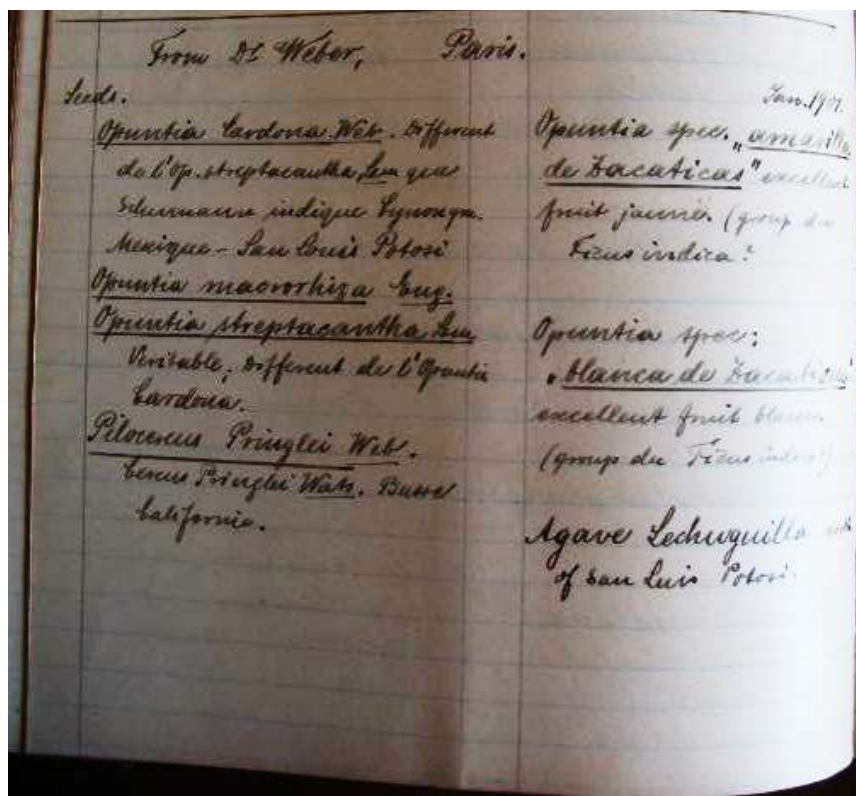


Fig.1. Record Jan 1901, from Dr Weber, Paris, seeds. Sowing & Planting 7, IISL-FH.

- 8 May 1901 from Mr Dorrien Smith Scilly Island, plants in exchange.... Among these, *Puya chilensis*, cited in Hortus Mortolensis and still alive in Hanbury Botanic Gardens.

- 30th June 1901, from Dr. Weber, Paris, plants of *Agave heteracantha* f. *glomeruliflora* Engelm. (from the author authentic specimen). Texas. *Epiphyllum russellianum*. *Agave Mexicana*. *Opuntia leptarthra* Web. Mexique spec. nova *O. curassavicae* affinis. *Opuntia quipa* Web., Pernambuco. *Op. spegazzinii* Web. sp. nov. *Op. Salmianae* affinis. Fig. 2.



Fig. 2. Record 30th June 1901, from Dr. Weber, Paris, plants. Sowing & Planting 7, IISL-FH.

- 20th June 1902 from Dr. Weber, Paris, *Agave tequilana*.
 - 8th Nov. 1902 from Dr Weber Paris, cuttings *Agave weberi*....[follow a list of species of *Opuntia*, among which several samples without names].
- Fig. 3.

From Sowing & Planting Vol. 8:

- 7th Oct 1903 from Mr Frantz De Laet, Contich [Belge]. Plants in exchange [A list of 27 *Cactaceae* *Opuntia*, *Echinocactus*, *Cereus*, *Rhipsalis* and 6 *Opuntias* sent to A.B. to be named].
 - August 1906 from W. Weingart, plants, a collection of over 80 numbers of rare and new *cactaceae*, about these in letter, many of them still to be determined.
 - 16th Nov. 1906 From Dr J. N. Rose, Washington, 2 plants of *Beschorneria spec. (n. 19259)* recently collected in the valley of Mexico at an elevation of about 10,000 feet. by Dr. Rose and Pringle. 10th Dec.
- Fig. 4.
- 10th Dec 1906, from Dr. Marloth, Cape Town, *Mesembrianthemum* 5 *spec.*, unnamed.

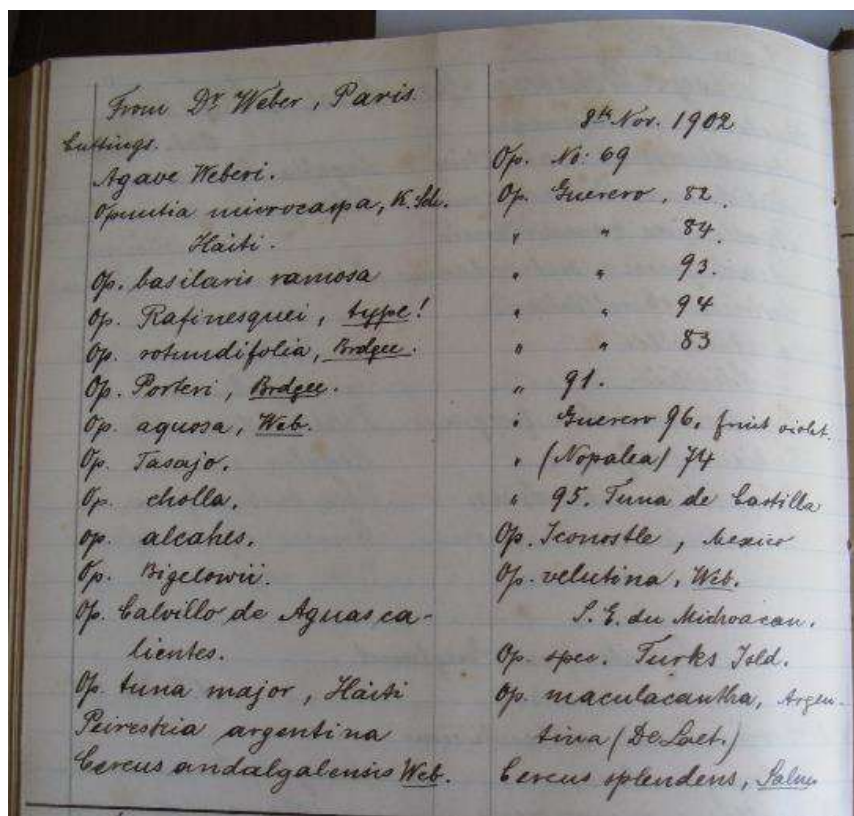


Fig. 3. Record. 8th Nov. 1902 from Dr Weber Paris, cuttings. Sowing & Planting 7, IISL-FH.

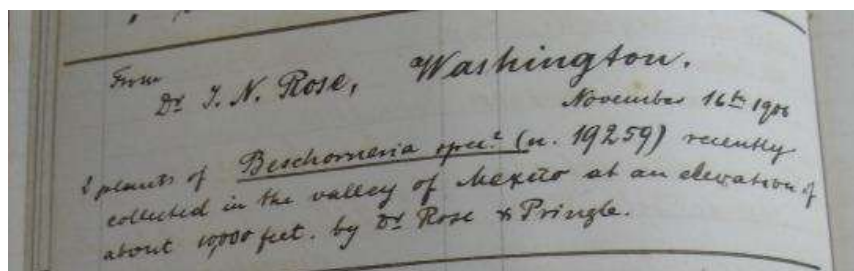


Fig. 4 record 16th Nov. 1906 From Dr J. N. Rose, Washington, 2 plants of Beschorneria spec. Sowing & Planting 8, IISL-FH.

In the preface of *Hortus Mortolensis* Berger mentioned a long list of contributors of plants and seeds during those years; among them we remind botanists such as:

- Dr. Nicholas Edward Brown (1849–1934), English botanist at Kew specializing in African succulents;
- Prof. Ernst Heinrich Philipp August Haeckel (1834–1919), German evolutionary biologist in Jena;
- Dr Hermann Wilhelm Rudolf Marloth (1855-1931), German botanist, chemist and pharmacist, living in South Africa from 1883;
- Carl A. Purpus (1851-1941), German botanical explorer of Mexico and the W of USA, brother of J. A. Purpus;
- Joseph Anton Purpus (1860-1932), German horticulturist in St. Petersburg and Darmstadt;
- Dr. Joseph Nelson Rose (1862–1928), US-American botanist in Washington D.C. and eminent specialist on Cactaceae and American Crassulaceae;
- Dr. Ernst Camillo Karl Schneider (1876–1951), German botanist, garden architect, horticultural journalist in Berlin;
- Prof. William Trelease (1857-1945), US-American botanist, director of the Missouri Botanical Garden from 1889 to 1912;
- Dr. Frédéric Albert-Constantin Weber (1830–1903) French military surgeon and amateur botanist strongly interested in cacti and agaves;
- Dr. Richard Wettstein (1863–1931), Austrian botanist in Vienna.

Among the gardens owners we cite Ellen Willmott (1858 –1934), English horticulturist, gardener, botanist, owner of famous gardens as Warley Place (UK), and Villa Boccanegra (Ventimiglia, I).

Among the Horticulturists:

- Dr. Georg Dieck (1841-1925) botanist, farmer and nursery owner; his collection of 450 Wild Roses was showed at the World Exhibition in Paris in 1908 and was then moved to Sangerhausen in 1909;
- Frans de Laet (1866– 1928), Belgian succulent plant expert and horticulturist in Contich (Kontich);

- Carl Ludwig Sprenger (1846–1917), partner at Dammann & Co., horticultural house in Naples;
- Paul Ruschpler (1832-1888), rose breeder and propagator, nursery owner at Dresden-Strehlen;
- Haage und Schmidt, nursery in Erfurt, Germany.

The complete analysis of all these accessions data is in progress and will improve our knowledge about traceability of the present living botanic collections.

RELATIONSHIPS WITH BOTANIC GARDENS AND BOTANISTS: *INDEX SEMINUM* AND BOTANICAL CORRESPONDENCE.

Every year the Curator elaborated the *Index seminum*. The first edition signed by A. Berger was in 1897, with 1670 different seeds and many cuttings of succulent species offered in exchange for a list of *Desiderata* that included “*Cistineae. Cistus, Elinathemum, Hudsonia. Proteaceae. Succulents. Agave, Aloe, Apicra, Haworthia, Gasteria, Yucca, etc. Euphorbia, Asclepiad, etc., etc. Trees & shrubs of extra-tropical countries, especially such as enumerated in Baron Muellers “Select Extratropical Plants”, plants of mediterranean regions.*

The list of *Desiderata* give us an idea of the developing objectives of the Garden in that period.

Besides the annual distribution of seeds, fresh and dried material has been liberally sent to many laboratories, and students have been freely admitted to the garden.

Since 1900 they started to note regularly weather reports on special forms and registers.

Seeds and plant were distributed to almost every botanical establishment in the world, and to many private gardens, in increasing numbers. Many Colonial, Agricultural, and Forestry Departments send requests for them, and many new botanical gardens become indebted to La Mortola. In 1900, 6378 packets of seeds were sent out; in 1901, 7837; in 1902, 9331; in 1908 they numbered 13.085.

Alwin Berger cared the correspondence with Botanic Gardens, botanists, plants collectors, that offered and asked for seeds or plants, following the *Index Seminum*. This correspondence collection consists in hundreds of letters, notework, postcards, lists of plants; the documents are is a reach and extensive botanical resource, particularly for the traceability of the living and *exsiccata* collections and for the field of taxonomy; it is also a valuable historical resource. We know that not all his botanical correspondence is included in this collection.

The inventory of these documents is ongoing; as example, we transcribed here a selection of the letters, in chronological order, with, year, author, address, town and country of origin, object or plants mentioned in the letters (key words).

- 1902. 19020310. Giorgio Roster. Firenze. 3 p. richiesta piante di Agave, Opuntia, Cereus, ecc.
- 1904. 19040117. I. Baldrati, Colonia Eritrea, Ufficio Agrario Sperimentale, Asmara. 1 p. Euforbie....
- 1904. 19040314. N.S. Pillans Rosedale, Rosebank, Cape Colon. [RSA]. 4 p. Stapelia, Duvalia, Huernia
- 1904. 19040321. A. Borzì, Regio Orto Botanico Palermo. 3 p... *Aloe che ho intenzione di chiamare A. hanburyi, in piena e splendida fioritura...*
- 1904. 19040324. Morris. R.M.S. Orotava. 4 p. A collection of plants form the Canarian and Madeira.
- 1904. 19040531. Curt Schrottky [entomologist]. Villa Encarnacion, Alta Paranà, Paraguay. 1 p. Rhipsalis
- 1904. 19040716. J. Meddley Wood. Natal Botanic Gardens. [RSA]. 1 p. *Aloe natalensis*....
- 1904. 19041014. Friedrich Fobe. Ohorn. 2 p. Cereus sonomensis, cereus stellatus, prof. Schumann.
- 1904. 19040812. Curt Schrottky, Villa Encarnacion, Alta Paranà, Paraguay. 4 p. Opuntia, Rhipsalis, pollinators.
- 1905. 19050422. M.T. Dawe. Scientific and Forestry Department Entebbe Botanic Garden, Uganda. 1p. small plant of our native aloes.

- 1906.19061205. Mac Owen. Botanic Garden Cape Town [RSA]. 3p. Cycas and Tree Ferns
- 1907. 19070904. Sargent. Arnold Arboretum Harvard University. Seeds collected by Wilson (China).
- 1907. 19071011 Daniel Fairchild. United States Department of Agriculture Bureau of Plant Industry, Washington. Seeds from Mexico of *Cereus eburneus* and new specie of *Pilocereus*....

DEVELOPMENT OF BOTANICAL COLLECTIONS: *HORTUS MORTOLENSIS* AND CONTRIBUTIONS ON HORTICULTURE MAGAZINES.

A measure of the development of botanical collections that the garden had with Berger results clear comparing the number of species listed in the 1912 catalogue with the previous one: 5800 species compared to about 3600 contained in the catalogue drawn up by Dinter published in 1897. As for Aloes, the collection included 98 species, along with several varieties and hybrids, a number three times greater than the previous edition; overall, succulent collections increased in the same order of range. Other collections had a substantial boot in the 15 years between the two catalogues, such as *Citrus*, with 58 varieties in 1912, against 26 in 1898 (Mariotti & Zappa, 2015); the flora of the Canary Islands, that in 1912 was represented by 130 taxa, number more than doubled compared to the previous edition (Zappa & Campodonico, 2006). *Hortus Mortolensis* distinguished from previous editions as well as for species richness, and the accuracy of the nomenclature and systematic, for the presence of notes on the introduction, the systematic and the origin of specimen of individual species, genera and/or collections.

In those years, they conducted observations on the fertilization of the new plants introduced to la Mortola. Experiments of fertilisation of specific group, such as *Yucca*, were made, introducing the pollinator by the origin area; in the 1890s Thomas Hanbury introduced from America the moth *Pronuba yuccasella*, which is the only insect able to fertilise yuccas: the moth is very small and very less visible for his short life and

nocturnal activity. Thomas Hanbury wrote a note on experience on *Gardener's Chronicle* (1902) and A. Berger reported it in the note about *Yucca* in *Hortus Mortolensis*.

Observations on biology and horticultural behaviour of exotic plants growing at la Mortola were object of several contributes published on the "Gardeners' Chronicle": *Cantua pendens* (1898), *Aloe schweinfurthii* (1898), *Rosa gigantea* (1898), *Citrus medica* var. *digitata* (*Citrus medica* 'Buddha's Finger') (1902), *Calodendron capense* (1903a), *Opuntias* (1903b), *Phyllocactus strictus* (1903c), *Caralluma crenulata* (1904a), *Opuntias* (1904b), *Aloe baumii* (1904c), *Huernia oculata* (1904d), *Echinocereus acifer* Lemaire (1904e), the genus *Aloe* (1904f), *Stapelia divergens* (1905a), the genus *Agave* (1905b), *Crassula columnaris* (1905c), *Castanospermum australe* (1905d), *Buddleia asiatica* (1906a), *Acacia podalyriaefolia* (1906b), *Aberia caffra* (1906c), *Beschorneria pubescens* (1906d), *Hibiscus venustus* (1908a), shrubby and soft-wooded *Compositae* (1908b), *Erythrina insignis* (1908c), *Brassica insularis* (1908d), culture of epiphytes (1909a), succulents (1909b), plants from China obtained from Mr. Wilson (1909c), *Schotia brachypetala* (1909d), *Melianthus intermedius* (1911a), *Senecio prainianus* (1911b), *Montanoa wercklei* (1911c).

BOTANICAL INVESTIGATION ON WILD FLOWERS: 1905 "FLORULA MORTOLENSIS".

In 1905 Alwin Berger, published "Florula Mortolensis, an enumeration of the plants growing wild at La Mortola", a list of plants that spontaneously grew at la Mortola, that he elaborate in the summer 1903. The list (486 species gathered in 92 families), compiled in systematic order for family, contains information on the ecology and location of taxa. The copy of Hanbury Botanic Gardens contained some notes with the local dialect names. The list includes 486 species grouped in 92 families, drawn up in taxonomic order by family.

In 1905 Clarence Bicknell reviewed *Florula Mortolensis* on the “Gardeners Chronicle”: “ *This is a catalogue of plants growing wild in the neighbourhood of La Mortola, and has been prepared by Mr. Alwin Berger. It has been drawn up by order of Sir Thomas Hanbury for the benefit of the numerous visitors who come to see his gardens, many of whom are often not less interested in the indigenous than in the luxuriant tropical and subtropical plants under cultivation. The vegetation of this portion of the Italian Riviera in the immediate neighbourhood of Mentone is both rich and varied, as this useful catalogue abundantly testifies. Its luxuriance is due to the great variety of locality that exists. There are dry, steep rocks, deep and fertile soil, bare sunny banks, shady and woody places, water-channels, the bed of a torrent, and the sea shore. The sub-soil is almost entirely limestone, in many places rich in fossils. Sand occurs only in one isolated spot close to the garden entrance, but it contains chalk as well, and does not influence in any way the wild vegetation. We should add that Mr. Berger calls attention to the following volume as containing good illustrations of the Riviera plants – Contributions to the Flora of Mentone, and to a Winter Flora of the Riviera, etc., by J. Traherne Moggridge (1871), and Flowering Plants and Ferns of the Riviera » .*

BOOKS, SCIENTIFIC PAPERS AND BOTANICAL PHOTOGRAPHS

Berger published a great number of books, monographies, and scientific papers on the major groups of succulents, on which focuses Metzing’s contribute (Metzing, 2017).

Most of the photographs and the drawing of these texts concern plants cultivated at la Mortola: the richness of the collections afforded him with a wealth of material to study, and photography was a tool for his scientific research.

The historical photographic found of Hanbury Archive cares an important collection of botanical images having as subjects mainly agave and aloes, as well as Cacti and other succulents, that has been analysed

by Viale (2011). This nucleus is composed by nearly 300 photographs realized with different photographic technical, and is a testimony of primary interest in documenting Berger's studies.

On the original paper envelopes, as well as on some positive, captions handwritten by Berger, let us to ascribe to him this photographic material, documenting his interest for the photographic medium, as an element of study and classification. Most of the photographs are plants of La Mortola garden, but there are also some pictures of botanical interest, referring to different contexts.

Photography is used for the preparation of botanical images aimed to printing. In the shots, the botanical subject is isolated from the garden context. In some pictures, it is the case with some photos of succulent plants in bloom, the best definition is obtained thanks to the help of a wooden panel or a black cloth used as a background; sometimes a human figure or an auction is inserted inside the frame to provide a reference measurement unit (Viale, 2011).

Photography was also a support for the drawings, in order to obtain a more faithful graphic return to the botanical image. In the case of his aloe monography (1908e), a comparison of photographs and drawings made by Berger by hand (IISL-FH and GBH-FH), allows us to follow the process from the plate to the drawing. Examples are represented by *Aloe somaliensis* (GBH-FH, inv. 240, 986); *Aloe supralaavis*, photographed by the Author (IISL-FH, inv. 155) and the drawing of fig. 129 p. 308; *Aloe speciosa* (GBH-FH, inv. 984) and fig. 124 of Aloe's monography (Berger, 1908). Plate 1, 2.

In the Agave monography (1915), the Author had included a number of photographic plates, with images at la Mortola in the garden and on the cliff, and in Ludwig Winter's Garden at Madonna della Ruota, Bordighera; some examples are represented by *A. cochlearis*, Madonna della Ruota, Winter, July 1911. (IISL-FH, inv. 105) and fig. 41 (Berger, 1915.); *A. mitis* (sub *A. rupicola* IISL-FH inv. 28) and fig. 9 (Berger,

1915), plate 3; *A. americana* (IISL-FH, inv. 102) and fig. 47, p. 152 die Agaven (Berger, 1915), plate 4.

Also *Mesembrianthemum* taxa cited in the monography (1908f) were cultivated at la Mortola, an example is *Mesembrianthemum wettsteinii*, October 1908, IISL-FH, inv. 147.

In Systematic revision of the genus *Cereus* Mill. (1905e), the original photographs of plates 5 and 12 are conserved in IISL-FH inv. 0988, 0975; likewise the original drawings (GBH-FH, busta 14, reg. 133/136).

Also for *Stapeliaceae* und *Kleinien* (1910), some photographs and drawings were obtained by plants growing at la Mortola or in surrounding gardens. Some original documents are represented in plate 4.

Another consistent group of photographs of Hanbury Archives referred to groups of plants, visual views and documented the species, the displays of collections, the outline of the garden in his different landscaping and environmental aspects of the early '900, and documented the intense and profitable work of Berger curator.

CONCLUSIONS

Alwin Berger made a fundamental contribution to the development of the garden. A first analysis of archive documents allowed us to widen on the botanical networks, to date the introduction of several taxa, and to identify the origin of some cultivated specimens. The complete analysis of these documents is ongoing and it will contribute to the traceability of the current living collections.

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APPENDIX I. LA MORTOLA IN THE EARLY' 1900 IN A. BERGER'S
PHOTOGRAPHS AND DRAWINGS (HANBURY ARCHIVES).

Plate 1. Aloe studies

Plate 2. Aloe studies

Plate 3. Agave studies.

Plate 4. Stapelien drawings and *Caralluma*

Plate 5. Aloe collection in A. Berger's photographs.

Plate 6. Agave collection in A. Berger's photographs.

Plate 7. The South Terrace with the succulents beds in front of the Museum.

Plate 8. Photographs made in the surrounding gardens. Villa St. Luigi at the frontier, Villa Paradu, the Casino in Monte Carlo. This photograph was published in the gen. *Cereus*. A. Berger is inside the frame as a reference unit of measurement.

Plate 9. Views of the Garden in the early'1900.

Plate 10. Views of the Garden in the early'1900.

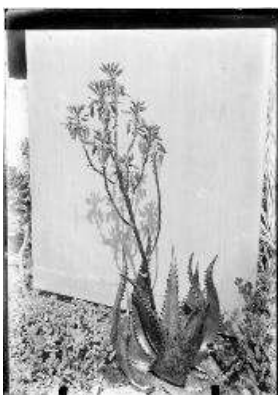
Plate 11. Views of the Garden in the early'1900. Agave slope in the "Quattro Stagioni" area and the "Gran Route".

Plate 12. Views of the Garden in the early'1900

PLATE 1



A. Berger. *Aloe somaliensis*. IISL-FH inv. 986



A. Berger. *Aloe somaliensis*. IISL-FH inv. 240



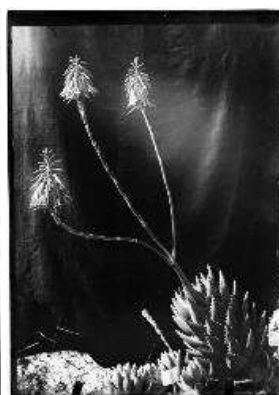
A. somaliensis—fig. 86 in Berger (1906e)



A. Berger. *A. tricolor & saponaria*. IISL-FH inv. 196



A. Berger. *A. campylosiphon*. IISL-FH inv. 204

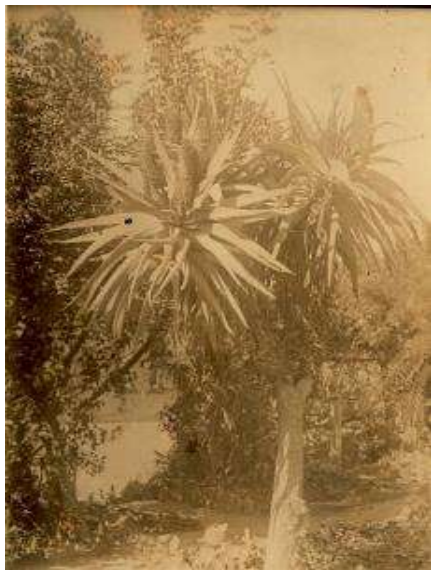


A. Berger.. *A. mitriformis*. IISL-FH inv. 154

PLATE 2



A. Berger. *Aloe supralaevis*. IISL-FH inv. 155 *Aloe supralaevis* in Berger (1908e)



Berger. *Aloe speciosa*. IISL-FH inv. 984 *Aloe speciosa* in Berger (1908e)

PLATE 3



A.Berger. *A. cochlearis*, Madonna della Ruota, Winter, July 1911. IISL-FH inv. 105



A. cochlearis, fig. 41 in Berger (1915)



A. mitis (sub *A. rupicola*). IISL-FH inv. 28



A. mitis, fig. 9 in Berger (1915)

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spitz, ca
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3-kantig.
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Rande, g
M.e.
Jahre 18
Holzlän-
Haseloff
Pflanze
Hala
A. Bonch
haben gew
röhlichen B
niedriger.
schieß in
eine lange
lere Blüten
und kürze
sind bleich
die Blüten
formig, ob
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vielkäufi

PLATE 4



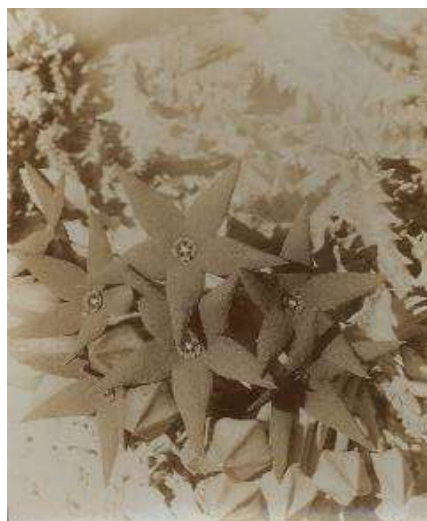
A. Berger fig. 21 Stapelien - original drawing. GBH-FH



A. Berger fig. 52 Stapelien - original drawing. GBH-FH

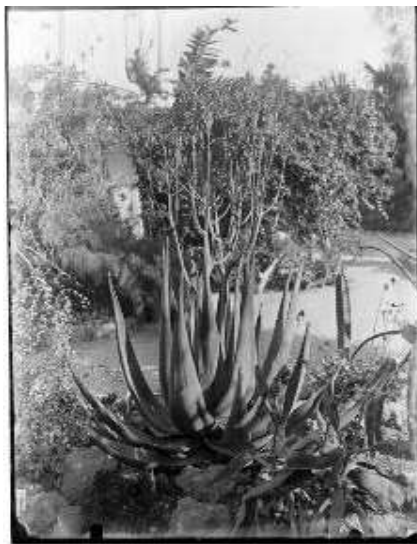


A. Berger fig. 56 Stapelien – *S. asterias* var. *lucida*. Original drawing. GBH-FH



A. Berger. *Caralluma*. IISL-FH inv. 978.

PLATE 5



A. Berger. *A. schweinfurthii*. IISL-FH inv. 151



A. Berger. *A. campylosiphon*. IISL-FH inv. 189



A. Berger. *A. pallidiflora*. IISL-FH inv. 189



A. Berger. *A. hereroensis*. IISL-FH inv. 148

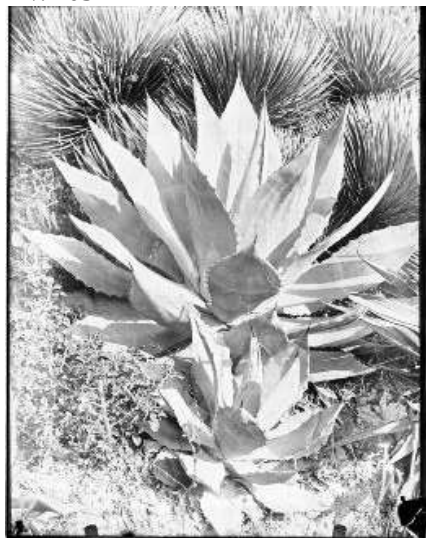
PLATE 6



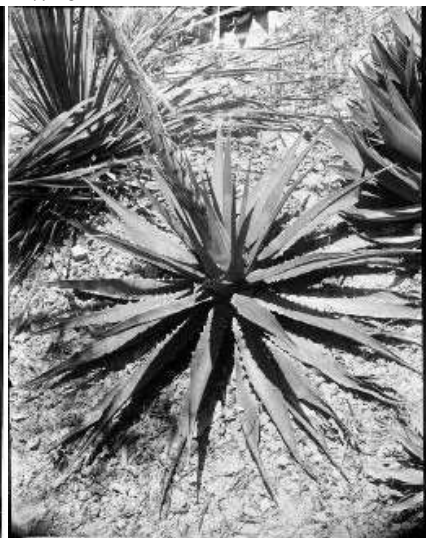
A.Berger. *A. schidigera*. IISL-FH inv. 105



A.Berger. *A. ghiesbreghtii*. IISL-FH inv. 70



A.Berger. *A. heteracantha* Rondo Nuovo ende Nov. 1910. IISL-FH inv. 86



A.Berger. *A. horrida* sopra Pergola July 1909. IISL-FH inv. 116

PLATE 7



A.Berger. *Alte cacteengruppe* [sic]
...museum. IISL-FH inv. 233



A.Berger. *Alte cacteengruppe*
[sic]..museum IISL-FH inv. 235



A.Berger. IISL-FH inv. 205



A.Berger. IISL-FH inv. 8

PLATE 8



A.Berger. *Piptanthocereus validus* Casino garden – Montecarlo. IISL-FH inv. 0988. Published also in Berger (1905).



A.Berger. *Cereus* in Villa Paradu *C. gilliesi* *c. pasacana* - June 1909 IISL-FH inv. 123



A.Berger. *Agave salmiana* villa St Luis July 1911. IISL-FH inv. 115



A.Berger. *Agave salmiana* villa St Luis July 1911. IISL-FH inv. 172

PLATE 9



A.Berger. *Agave crenata*. IISL-FH inv. 163



A.Berger. *Agave picta* July 1911. IISL-FH inv. 125



A.Berger. *Agave Hanburyi* sopra la Pergola ende Nov. 1910. IISL-FH inv. 90



A.Berger. IISL-FH inv. 197



A.Berger. *Agave friederici* cadenza delle Cycas IISL-FH inv. 180

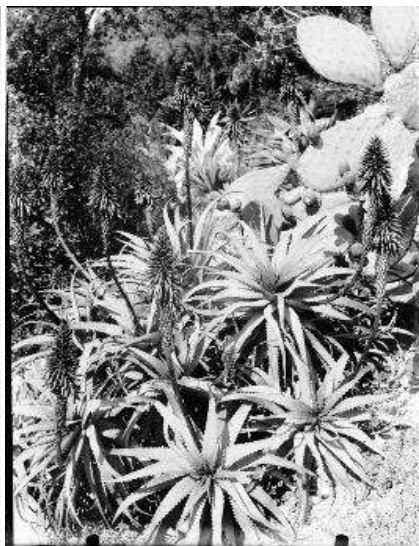


A.Berger. Succulente sotto la Pergola. IISL-FH inv. 755

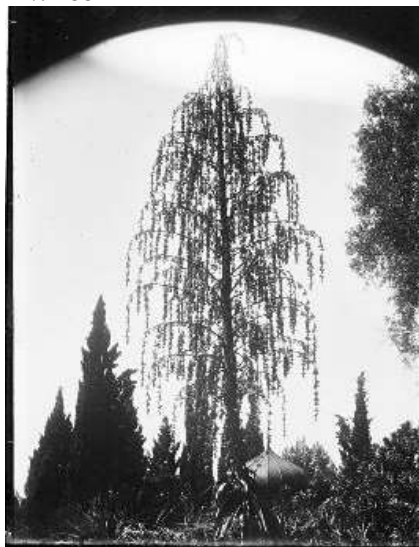
PLATE 10



A.Berger. *Aloe arborescens* IISL-FH inv. 266



A.Berger. *Aloe arborescens natalensis*. IISL-FH inv. 265



A.Berger. *Furcraea bedinghausii* May 1909. IISL-FH inv.52



A.Berger. *Agave*. IISL-FH inv. 106
Agave

PLATE 11



IISL-FH inv. 717



A.Berger. *Agave vivipara* L.M. IISL-FH inv. 168



GBH-FH inv. 718



GBH-FH inv. 719

PLATE 12



A.Berger. *A. scolymus* Quattro Stagioni
May 1909. IISL-FH inv. 0136



A.Berger. *Agave salmiana* May
1909. IISL-FH inv. 0133



A.Berger. *Agave haynaldii* in ...
Route Nuova ende Nov. 1910. IISL-
FH inv. 110



A.Berger. *Agave atrovirens* fol. var.
neben Ag. Salmiana. Quattro Stagioni
Nov. 1910. IISL-FH inv. 68

A PRECIOUS PHOTO ALBUM IN HONOR OF THOMAS HANBURY RECENTLY REDISCOVERED

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ABSTRACT

The contribution is a first and preliminary presentation of the precious large-format photo album made at the initiative of Alwin and Elise Berger on the occasion of Thomas Hanbury's 75th birthday. Hanbury died before the delivery of the gift.

KEY WORDS.

Thomas Hanbury, Alwin and Elise Berger, photo album, Patrick Geddes, Robert Horne

INTRODUCTION

Last March, through Dr. Elena Zappa, curator of the Giardini Botanici Hanbury (Università degli Studi di Genova), we learned of a request made by Mr. Lutz Schmalfuß, director of the “Alwin Berger Archive” of Möschlitz, Thuringia (central Germany) in the municipality of Schleiz, which had given birth to the illustrious German botanist, curator of the Botanical Gardens of La Mortola from 1897 to 1914.

In his correspondence of March 12, Mr. Schmalfuß referred to a letter, identified in the archives under his direction, in which Alwin Berger expressed his intention to donate to Thomas Hanbury, on the occasion of the latter's 75th birthday on June 21, 1907, an album of photographs in which were present all the personalities that had been, or

were at the time, in contact with the Botanical Gardens of La Mortola and with Hanbury himself. In his letter dated 14 July 1906, and addressed to Sir William Thiselton Dier, Berger, requesting participation in the project, informed that this album was to be an artistic work made in Italy and designed by “Signor Vernazza, the painter of the al fresco (Carlo Quinto) [sic]” and listed the names of other botanists who intended to be involved or who had already promised their participation [Möschlitz, “Alwin Berger Archive”, 133: letter of A. Berger to W. Thiselton Dier from July 14 1906. On the presence from 1903 of the Genovese Angelo Vernazza, in the villa of La Mortola to decorate the loggia with the triumphal mural depicting “The procession of Carlo V crossing Porta Canarda” (De Cupis, 2011)].

This album was also mentioned in the “Lebenserinnerungen” of Alwin Berger’s wife, Elise, drafted in 1931, immediately following the death of the botanist on 21 March of that year, and only recently given to print.

“Am 21. Juni 1907 sollte Sir. Thomas seinen 75ten Geburtstag feiern. Vater plante eine Ehrung des Jubilars. Eine künstlerische Ehrenurkunde sollte ihm überreicht werden, ebenso ein Album, das die Photographien aller mit dem Garten in Beziehung stehender Botaniker und Pflanzenfreunde enthielt.” (On the 21st of June 1907 Sir Thomas would have celebrated his 75th birthday and the father [Alwin Berger] projected the idea of creating an homage for the event. Thomas Hanbury would have received a certificate of merit and an album containing photographs of all the botanists and lovers of plants that were connected to the Gardens) (Berger, 2016).

The research carried out in the exceptional and vast Hanbury collection kept in the archives of the Istituto Internazionale di Studi Liguri in Bordighera (Saita, 2011) have allowed, thanks to the attention of Dr. Bruna de Paoli of the same institute, the identification of the album mentioned in the correspondences of Alwin Berger and in the biography drawn up by his widow, an album striking for the care and beauty with

which it was realized [Archivio Istituto Internazionale di Studi Liguri (henceforth IISL), Bordighera. Fondo Hanbury]. The news of the delivery of this album to the widow Hanbury recurs in the chronicles of the era, as, for example, in “The Gardeners’ Chronicle” of 8 February 1908 (Anonymous, 1908) and in the “Daily Telegraph” of 11 February of the same year. In addition, Alasdair Moore cited it in his volume dedicated to Thomas Hanbury and to the Gardens of La Mortola in 2004, without specifying the source (Moore, 2004).

THE ALBUM

The Album measures 44 x 34.3 cm, has a green leather cover adorned with minute gilded decorations, and a leather strap with metallic buckle (Fig. 1). Two decorated parchment sheets precede the gallery of portraits: the first, richly decorated, contains the dedication to Thomas Hanbury for his birthday, the second a list of the persons represented in the album (Fig. 2).

The dedication, which recalls the virtues of the dedicatee, bears the signatures of four illustrious characters: Dietrich Brandis, Berlin, German



Fig. 1. The Album in honor of Thomas Hanbury (Archivio IISL, Bordighera. Fondo Hanbury).

botanist, Joseph Dalton Hooker, Sunningdale, English botanist, Baron Schröder, London, passionate collector and owner of a well-known rock garden in Surrey, and Paul Ascherson, professor of botany at the University of Berlin. At the base of the title page appears the name of the Scottish painter Robert Home and the designation Edinburgh, dated March 1, 1907, only a few days before the death of Thomas.



Fig. 2. The frontispiece of the Album

The album consists of 50 sheets in blue paper edged with gold, equipped with recessed frames arranged to accommodate the hundred and fifty autographed photographs, with captions handwritten by Alwin Berger with the name, the charge or/and the role played, the city of birth, of all the botanists, gardeners, correspondents, directors of Gardens and



Fig. 3. The pages of the Album with the photos of the American botanists Nathaniel L. Britton, William Trelease, Joseph N. Rose with, on the left, the handwritten identification by Alwin Berger.

Botanical Gardens, who had been in contact with the celebrated and who adhered to the initiative of which Berger was certainly one of the most active parties (Fig. 3)

We present here a first synthesis on the Album, about which we will give a complete illustration in a monograph being prepared in collaboration with the DISTAV-Università degli Studi di Genova.

Of great interest, in reconstructing the events related to this album, is a group of letters belonging to the Patrick Geddes collection (“Patrick Geddes Papers”) preserved at the archives of the Scottish University of Strathclyde [University of Strathclyde Archives (henceforth ASA), *Patrick Geddes Papers*, GB 249 T-GED]. A character of extraordinary standing - biologist, sociologist and urbanist, advocate of an interdisciplinary approach between the various disciplines of scientific knowledge - Patrick Geddes (Ballater 1854-Montpellier 1932) is considered the pioneer of urban ecology, a discipline based on the study

of how integrate nature and the built environment. For the biography of Patrick Geddes and for a bibliography of his works, see *Oxford Dictionary of National Biography* (Meller 2004).

The twenty letters sent to Geddes by Alwin Berger and his wife, from the summer of 1906 to the spring of 1907, cast light on the origins of the photo album, taking into account a "work in progress" that proceeds through a continuous exchange of ideas and suggestions, touching all the different aspects of the preparation: from the choice of the artist for the miniature, to the artistic binding, to the collection of photographs, to the writing of the dedication of the greeting, up to the search for funding to support the costs of the album¹. A shared work in which Elise Berger assumed a significant role, committed from the start in all aspects of the project. Facilitated by her mastery of the English language, learned in Britain despite being of German birth, she constantly updated Geddes on the progress of the project, requested assistance in soliciting the photographs of the British botanists, about whom she laments the lukewarm support to contribute financially to the project.

Despite the difficulties, the enterprise succeeded in completing the precious gift intended for Thomas Hanbury. The rich parchment containing the augural dedication was composed by Patrick Geddes himself.

Based on the model of a medieval page written in Gothic letters, it is the work of the Scottish artist Robert Home, who affixed his signature and

¹ The letters written by Alwin Berger are eight, the rest are by Elise. Following are the archival references in chronological order; the indication between parentheses (AB) and (EB) identifies the author of the citation, respectively Alwin and Elise Berger; ASA, GB 249 T-GED-9-673 (AB) 26 July 1906; 9-720 (EB), 17 October 1906; 9-730 (AB), 11 November 1906; 9-732 (EB), 30 November 1906; 9-737 (AB), 14 December 1906; 9-738 (EB), 20 December 1906; 9-748 (EB), 11 January 1907; 9-749 (AB), 13 January 1907; 9-751 (EB), 18 January 1907; 9-754 (EB), 23 January 1907; 9-755 (EB) 1 February 1907; 9-759 (EB), 21 February 1907; 9-762 (EB), 10 March 1907; 9-761(EB), 6 March 1907; 9-763, 14 March 1907 (AB); 9-764; 24 March 1907 (AB); 9-765 (EB), 27 March 1907; 9-772 (EB) 15 April 1907; 9-777 (EB), 9 May 1907; 9-785 (AB), 31 May 1907.

the date at the bottom of the page: “Robert Home, Edinburg Inv., Del. et Pinx., 1:03:07“. He also created the second parchment that precedes the photo gallery containing the list of botanists broken down by geographical areas of origin.

Not well known today, Robert Home (Edinburgh 1865-Ceres 1938), was a member of the Society of Scottish Artists, of which he was president between 1915 and 1918. In addition to portraits, he also did book decoration, production of drawings for windows, miniatures and, especially, heraldic designs – well documented by their presence at annual exhibitions of the Royal Scottish Academy in Edinburgh, which saw a concentration of miniature works on parchment during the first decade of the twentieth century. The notations found on the painter are very few (McEwan, 2004; Halsby & Harris, 2010). The date of the death can be found in the local newspaper at the time, see *St. Andrews Citizen*, 13 August 1938; 20 August 1938. In his later years he did landscape painting, two of which are in the collection of the Fife Folk Museum in Ceres, a village near the university town of St. Andrews, where the artist spent his retirement, and died. Some portraits are published on the website: artuk.org. A portrait, presented at the annual exhibition of the Society Scottish Artists in 1918, was reviewed in the pages of *The International Studio*, 1918, p. 129. It is also worth noting his designs for the stained glass of the Coldingham Priory: Thomson, 1908, p. 100, and a parchment with a dedication to Dr. Morrison of the Public Library of Edinburgh (see *The Library Word* 1904, p. 297). For a list of the participation of Robert Home at the Royal Scottish Academy exhibitions, from 1882 to 1929, see Viles & Soden (1991).

Painted with enameled colors and with copious use of gold, used in particular to embellish the body of the letters that make up the name of Thomas Hanbury, the dedication page presents fringes decorated with florals and palmette branches that house a series of heraldic and symbolic elements. On the right the coats of arms of the two “Patrie” of the celebrated (Italy and England), resolved in the happy chromatic counterpoint of the alternation of the fields; in the lower left corner a dragon, alluding to

Hanbury's travels in China; in the upper right, the heraldic emblem of the Hanbury family – a crest surmounted by an exuberant lion cub – drawn based on a photograph of the marble coat of arms inserted in the entrance door to La Mortola. At the center of the great capolettera, a sinuous Botticellian goddess Flora pays homage with a palm branch to an elder Thomas Hanbury dressed in gardener's attire in the of La Mortola, with the villa and the Sea,, travelled by some sailboats, and the bluffs of Ventimiglia to the cape of Sant'Ampelio of Bordighera, in the background. (Fig. 4) (ASA, GB 249, T- GED -9-749, *Lettera di Alwin Berger a Patrick Geddes*, 13 January 1907).



Fig. 4a-b. The heraldic emblem of the Hanbury family painted in miniature, and that in marble over the entrance of the Villa of La Mortola, the inspiration for the former.

Inspired by the style of Italian seventeenth century bookbinding, in turn deriving from the French models called “à la Gascone”, the album is a unique piece, made with great technical skill, undoubtedly related to the “Giulio Giannini & Figlio” workshop (Fig. 5), which had for years won in Florence a prominent position in the bookbinding arts, achieving great success in the preparation of photographic albums particularly



Fig. 5. The mark of the workshop “Giulio Giannini Firenze” stamped on the inner border of the Album cover.

appreciated by the English clientele. In 1888 the English community in Florence paid homage to Queen Victoria, during her visit to Florence, with a photographic album from the Giannini workshop. The words “Giulio Giannini Firenze”, embossed with gilded characters on the inner edge of the front plate, suggests, moreover, the involvement of the owner of the firm, Giulio Giannini, committed in recent years to reassert the historical styles of the seventeenth and eighteenth centuries, presented both with original variants, and faithful reproductions, as in the case of the Hanbury binding, evident by a comparison with the ancient specimen published by Giannini in an article that appeared in the 1912 “Risorgimento Grafico” (Giannini, 1912). To compare a similar binding see *I Giannini*, p. 41 (no. 8) (Ercoli, 1986).

In the album are collected photographs, which bear in many cases, beyond the signature and the date, a dedication autograph, of 150 “fautores” of Thomas Hanbury, who responded to the invitation of Alwin Berger: directors of gardens, botanists, gardeners, scientists, explorers, university professors and leaders of various botanical and horticultural societies.

The photographs, which sometimes occupy the entire right page, are most often presented in pairs, or larger groups, and are accompanied, on the left page, by regular handwritten notes from Berger himself, placed roughly in correspondence with the images, with the name of the personage, their job at the time, sometimes the specialization or the activities in which they had distinguished themselves. In some cases the name is preceded (more rarely followed) by a cross indicating the death of the personage, from which it could be deduced that the album, started in 1906, missing the target date of June 21.1907, and donated to the widow Katherine Hanbury in April of that same year, was given identification tags until at least 1912, the year of the death of Eduard Strasburger (Bonn, 18 May), botanist in Jena from 1871, of the Spanish naturalist José Arechavaleta, who died in Montevideo (Uruguay) on June 16, and Ludwig Winter (Mannheim, July 12), all noted in captions.

After the large-format photographs of the four presenters (Fig. 6-8), the groups of photos are organized to some extent on the nationality of the characters present, or the country in which they worked at the time of the realization of the grandiose gift, starting from the two “Patrie” of Thomas Hanbury: The United Kingdom with its colonies, then Italy and then, to follow, Germany, Austria, Switzerland, France, Belgium, the Scandinavian countries, America, Japan, Java and at the bottom, the late comer, Prof. Alberto Terracciano, director of the Botanical Garden of Sassari.

Among the many present, (“Together with an Album containing their Photographs”), and it could not be otherwise, are the first curators of the Garden of La Mortola who, together with Thomas Hanbury and his brother Daniel, had designed one of the most beautiful acclimatization gardens on the Italian soil, Ludwig Winter and Berger himself who, in his identification card, does not add more than his name (Fig. 9). Also included are the Brits who, like Hanbury, had chosen that far corner of Liguria to establish his enchanted residence: Clarence Bicknell, George King and Ellen Willmott, the only woman



Fig. 6. The photograph of John D. Hooker in the Album.

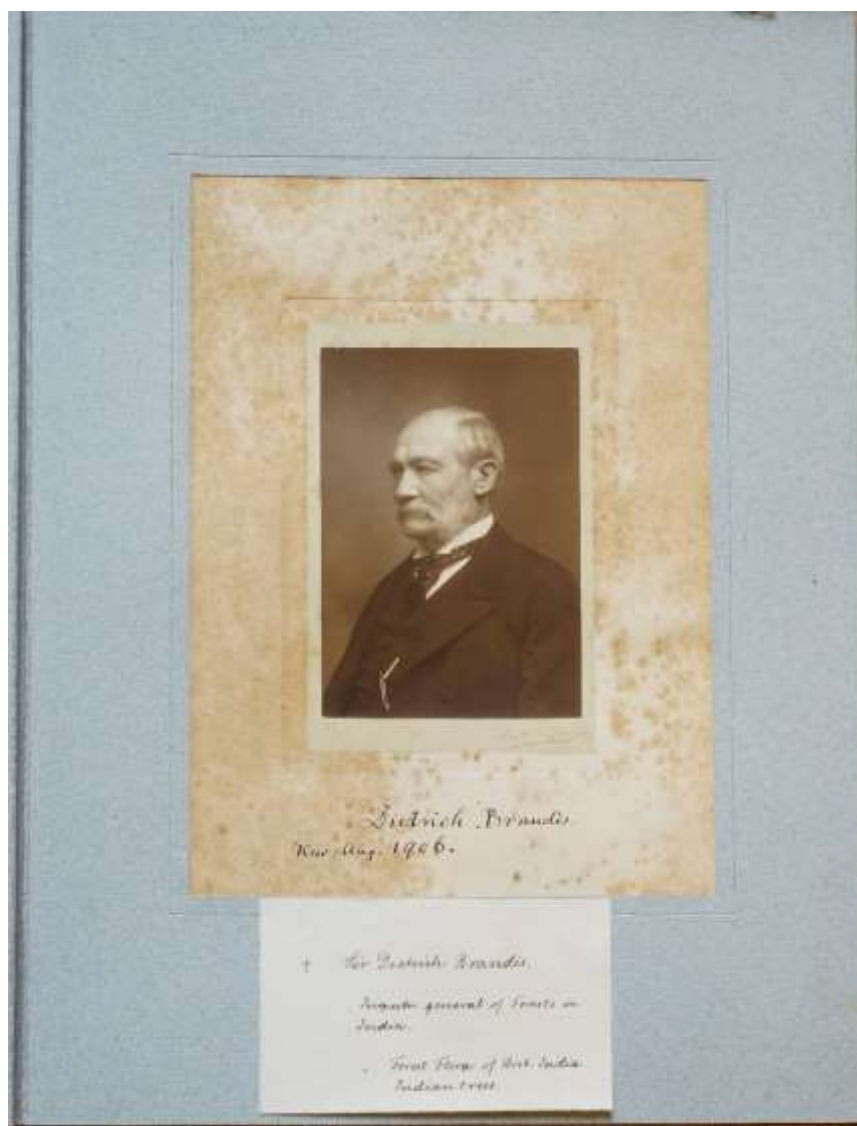


Fig. 7. The photograph of Dietrich Brandis in the Album.

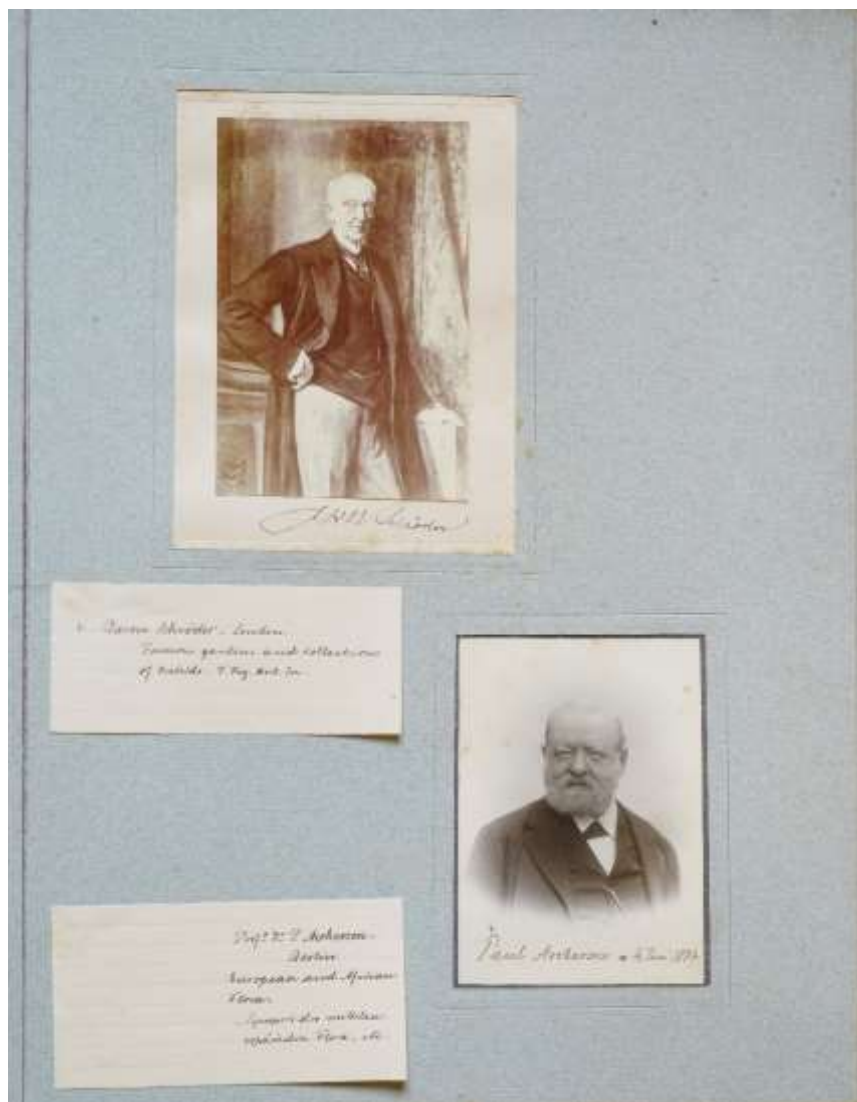


Fig. 8. The photographs of Baron Schröder and Paul Ascherson, with the handwritten identification by Alwin Berger, in the Album.



Fig. 9. The photograph of Alwin Berger in the Album.

present in the album through the reproduction of her portrait by the painter Rosina Mantovani Gutti (De Cupis, 2011), and the botanists with whom he had close relationships, full of esteem and collaboration, such as German Prof. Otto Penzig, – from 1886 professor at the University of Genoa and director of the local Botanic Institute – and who led Hanbury in 1892 to finance the construction of Botanical Institute which today bears his name; or as Sir Patrick Geddes himself (Fig.10), who had done so much for the Album, and who in 1920 would create in Montpellier the Collège des Ecossais, or even as in the case of Otto Adolf Oesterle, the son-in-law of Frederick Augustus Flückiger, who is included in the Album under the name Osterle-Flückiger, to remember the illustrious father-in-law that disappeared in 1894, who had published, together with Daniel Hanbury, the famous treatise on Pharmacographia (London , Macmillan, 1874) and, in 1877, the essay “*An Easter Holiday in Liguria: with an account of the Garden of Palazzo Orengo at Mortola*”. Among the directors of the Great Gardens and European Botanical Gardens is also Alexander Fischer von Waldheim, a Russian of German origin, then director of the Imperial Botanical Garden of St. Petersburg.

CONCLUSIONS

Thomas Hanbury never received this precious album, conceived by its creator as a gift to honor his great spirit, since death seized him a few months before his 75 birthday, on March 9, 1907, but still today, a hundred and ten years after his passing, it speaks of the profound esteem, admiration and, in many cases friendship, that his person had aroused, and of the emotional and shared mourning that his death caused in the hearts of those who had known him in person, through his works or walking in the garden where in March of 1867, sailing in the Bay of Menton, he had found his port. “*Inveni portum. Spes et Fortuna valete! Sat me lusistis; ludite nunc alios!*” is the Latin couplet, actually of Greek origin (*Anth. Pal.* IX, 49), that Thomas Hanbury had placed on a headstone mural over the entrance to the Villa in the Gardens of La Mortola.



Fig. 10. The photograph of Patrick Geddes in the Album.

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EXSICCATA AND TYPES IN THE A. BERGER'S HERBARIUM AT LA MORTOLA (HMGBH)

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ABSTRACT

Alwin Berger (1871-1931) during his scientific activity at the Hanbury Botanical Gardens (1897-1915) and as succulent specialist have preserved more than 1,500 exsiccata and published more than 700 new taxa and combinations.

The Berger's succulent dry collection, preserved at the *Herbarium Mortolensis* [HMGBH] and characterized by approximately 1,400 *exsiccata* with 48 specimens potentially useful for typifications, and 59 genera is here presented and compared for the first time with the other collections deposited at the Smithsonian Institution of Washington [US], New York Botanical Garden [NY], and Royal Botanical Gardens, Kew [K].

Two projects focusing on the Berger's succulent herbaria conservation, study and revision now being carried out so to contribute to the promotion of the monumental history of the Hanbury Gardens and the Berger's systematic work on succulent families are presented.

KEY WORDS

Exsiccata, Typus, Succulents, Alwin Berger, Herbarium Mortolensis.

INTRODUCTION

Alwin Berger (1871-1931) was a German Botanist specialized in succulent plants. He was curator between 1897 and 1915 at La Mortola an alternative name for the famous Hanbury Botanical Gardens (GBH) located in Ventimiglia (NW Italy) near the French border, founded by Sir Thomas Hanbury in 1867.

During his curatorship he enriched and implemented both the living collection with the support of valuable collaborators as researchers and explorers in the Americas (Guiggi, 2016) and the *Herbarium Mortolensis* (HMGBH) (Fig. 1) preserving many of his new described and cultivated taxa. Historical information on this *Herbarium* is reported by Campodonico (2011): the main core of HMGBH consists of Alwin Berger's *exsiccata*, collected personally or obtained by its correspondents (i.e. Prof. J. Arechavaleta (Uruguay), Prof. C.F. Baker (Cuba), Mrs. Brandegee (USA), Prof. N.L. Britton (USA), Prof. Conzatti (Mexico), Mr. F. Eichlam (Guatemala), Dr. D. Griffiths (USA), Mr. C.A. Purpus (USA), Dr. J.N. Rose (USA), Dr. J. Söhrens (Chile), Prof. W. Trelease (USA), Dr. F.A.C. Weber (French), Mr. W. Weingart (Germany), Mr. W.C. Wercklé (Costa Rica), *cfr.* Guiggi, 2016). HMGBH also retains specimens collected by Dinter during his stay at Mortola as curator and by Clarence Bicknell in Val Roja.



Fig. 1. Historic home of the *Herbarium Mortolensis* at the Hanbury Botanical Gardens. Photo. A. Guiggi

Berger's studies at La Mortola were focused in particular on the genus *Agave*, *Aloe*, *Cereus*, *Euphorbia*, *Mesembrianthemum*, etc, depositing more than 1,400 *exsiccata* and publishing more than 700 new taxa and combinations in succulent families during his scientific careers.

A type is a specimen, usually an *exsiccatum*, selected to serve as a reference point when a plant species is first named or revised. These specimens are extremely important to botanists who are attempting to determine the correct application of a name. There are several categories of types (e.g. holotype, isotype, syntype, paratype, lectotype, neotype, topotype, etc.) (sciweb.nybg.org). The typifications are frequently applied for the revision of historical taxa, particularly for those which the type designation was not obligatory before the 1959 (McNeill et al., 2012).

The object of this preliminary work is to highlight the importance of the Berger's *exsiccata* and the presence of types of taxa described by Berger himself that are kept in HMGBH.

METHODS

The Alwin Berger's succulent herbaria that include many types are studied and compared in HMGBH (Hanbury Botanical Gardens, La Mortola Italy), NY (The New York Botanical Garden, U.S.A., New York, Bronx), US (Smithsonian Institution, U.S.A., District of Columbia, Washington) and K (Royal Botanical Gardens, U.K., Kew, Richmond) together with the Berger's specialized literature (Berger, 1904, 1905, 1906, 1907, 1908, 1910, 1912, 1915, 1920, 1926, 1929).

Additional material not studied here that does not concern to succulents is also deposited at HMGBH (Flora Saxonica, etc) and at: B (Botanischer Garten und Botanisches Museum Berlin-Dahlem, Zentraleinrichtung der Freien Universität Berlin), BH Cornell University, U.S.A., New York, Ithaca), BR (Botanic Garden Meise, Belgium), DBN (National Botanic Gardens, Ireland, Dublin), G (Conservatoire et Jardin botaniques de la Ville de Genève, Switzerland), LZ (University of

Leipzig, Germany), M (Botanische Staatssammlung München, Germany), NY and US.

RESULTS

An accurate analysis of the preserved succulent material kept at HMGBH enabled to recognize 390 samples of Cactaceae, 10 useful for revision and typification of the Berger's taxa (Fig. 2), belonging to the following principal genera: *Cereus* s.l., *Echinocactus* s.l., *Echinocereus*, *Echinopsis*, *Epiphyllum*, *Mammillaria*, *Opuntia* s.l., *Pereskia*, *Pereskopsis*, *Phyllocactus*, *Rhipsalis* s.l., etc.

Meanwhile other succulents are characterized by about 1,000 samples, 38 useful for typifications (Figs. 3-4), represented by the genus *Agave*, *Aloe*, *Caralluma*, *Cotyledon*, *Crassula*, *Dasyliirion*, *Echeveria*, *Gasteria*, *Haworthia*, *Kalanchoe*, *Mesembryanthemum* s.l., *Pachyphytum*, *Sedum*, *Sempervivum* s.l., *Stapelia*, *Yucca*, etc.

A complementary study was carried out also with the material kept at US that includes 12 Cactaceae and 290 other succulents specimens with 6 designated types, at NY with 9 Cactaceae, 13 other succulents and 10 types, and at K with 3 Cactaceae, 8 other succulents and 2 types.

DISCUSSION AND CONCLUSIONS

The Berger's succulent s.l. herbarium at La Mortola [HMGBH] represents the most complete and representative piece of his scientific work. It includes a bulk of almost 1,400 specimens, 48 potentially useful for typification of the Berger's taxa and ca. 59 genera compared with the 302 specimens for 6 genera deposited at US, 21 spec. for 9 genera at NY, and 11 spec. for 6 genera at K. Nevertheless but contrarily to the US, NY and K material, it has never been the object of a specific study.

Currently, two different projects on the entire succulent herbarium in HMGBH are being carried out. The first one is aimed at the digitization of all the dry specimens, while the other one intends to carry out the study and revision of the material.



Fig. 2. Exsiccata of *Opuntia haematocarpa* A.Berger that includes several flower sections, deposited at the Herbarium of HMGBH. Photo. F. Pastor.



Fig. 3. Exsiccata of *Agave calodonta* A. Berger marked as Typus that includes a spined leaf, deposited at the Herbarium of HMGBH. Photo. A. Guiggi & F. Pastor.



Fig. 4. Exsiccata of *Gasteria metallica* A. Berger including an inflorescence separated in two parts, deposited at the Herbarium of HMGBH. Photo. A. Guiggi & F. Pastor.

The first piece of work regarding the identification and typification of the Berger's *Opuntias* described at GBH which includes the recognition of 1 neotype, 5 lectotypes and 4 epitypes (Guiggi & Mariotti, 2017) is in press, while the other ones are in preparation.

The taxonomic work of Alwin Berger at La Mortola represented a milestone for the study of the succulent families and a valuable part of the history of the Hanbury Botanical Gardens. The revision of his herbarium is the first step to rediscovering, understanding and validating this scientific legacy, and a basis on which to build a future programme of research into the succulent plants at the Hanbury Botanical Gardens.

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LUDWIG WINTER: ITS GARDENS AND ITS SIGN IN THE ITALIAN LANDSCAPING

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ABSTRACT

Ludwig Winter contributed to a new aesthetics of landscape architecture with design principles that took into account the flooding of plants from America, Asia and Africa. Its idea of garden was no longer a garden of flowers but a landscape of flowers equally what the Picturesque garden was inspired by the forest landscape and the countryside landscape. Winter started at La Mortola, in the property of Thomas Hanbury, to create different thematic gardens following botanical criteria and shaping spatial structure through the texture and the colors of exotic plants. The creative characters of the gardens of its gardens are represented by new types of gardens of the Mediterranean region which spread out in Liguria and in French Riviera in late decades of 19th and in 20th century: *jardins d'acclimation*, palm gardens, rock gardens of succulents and cacti, gardens-nurseries and sea promenades which became new models for the gardens of the winter season.

KEY WORDS

Garden design, phytogeography, cultural landscape.

LUDWIG WINTER IN THE EUROPEAN GARDEN CULTURE OF THE 19TH CENTURY

The work of Ludwig Winter can be placed in an innovative cultural context for the landscape architecture in which he had the opportunity to become a talented landscape gardener and to develop new ideas for garden design.

He studied in Potsdam, at the oldest School of Gardeners in Germany founded in 1823 and directed by Peter Joseph Lenné who was responsible for more than fifty years of the Royal Gardens of Potsdam. Formerly in Erfurt he was trained in the nurseries of this town, known for the development of horticultural production and for the “scientific

seeding” introduced by “the father of Blumenstadt Erfurt” Christian Reichart (Borchardt, 1968).

He received a theoretical and practical education based on the principles of garden design formulated by Lenné and Friedrich Ludwig von Sckell, the other one relevant landscape architect of the country. They contributed to the evolution of the Picturesque garden toward the Romantic garden orienting the landscape design to naturalistic solutions and avoiding the extravagances of the late baroque and eclectic gardens of 19th century full of *chinoiseries*, ruins and many others artificial elements scattered in the parks and gardens.

Winter probably knew the gardens of Charlottenhof in Potsdam started by Lenné in 1818. The flat and wet area was transformed in a romantic park, the earth of the lake excavation was used for the creation of an articulated landscape of undulating hills, grassy plains, curving paths and meandering streams on both side of the central baroque axis which was conserve. The novelty was the introduction of exotic plants and trees planted in natural way to produce a continuous variation on the visual perception of the visitors. Despite the fact that Frederick William IV and Karl Friedrich Schinkel preferred the Italianate style consisting in a formal structure with a stylistic mixture of architectonical elements and plants introduced in Europe at this time, Lenné adopted a more naturalistic aesthetic. (Gothein, 1914)

John Claudius Loudon, the English expert in horticulture and landscape gardening, very famous for its *Encyclopaedia of gardening* (Loudon, 1822), who represented the garden culture in transition from the Regency period toward that of Queen Victoria reign, recognized the importance of Germany in the affirmation of the new trend of garden design called Gardenesque. He was moved by the interest for use of exotic plants and expressed these ideas in the handbook *The suburban gardener* (Loudon, 1838) in which he affirmed that the garden should be distinguishable from the surrounded landscape especially through the introduction of exotic plants. He was also interested in botanical gardens

and supported the plantation of new exotic trees in Hyde Park and Kensington Garden in London where the plants were labeled for the first time (Hunt, 1964, 238). The research of Loudon on trees and shrubs from America, listed and described in *Arboretum et Fruticetum Britannicum* (1854), was another reason to appreciate the German landscape architecture and the results obtained by specialized nurseries which successfully propagated plants coming from others continents. Loudon wrote that the work of Sckell and Lenné revealed that the principles of Gardenesque and its application were better understood in Germany than in Great Britain.

Winter, in the letter of presentation sent from Erfurt to Thomas Hanbury (3 nov. 1868), affirmed that he had both theoretical and practical knowledge in landscape gardening to “must go hand in hand if a garden shall be arranged as well as possible” (letter 3 nov. 1868, Erfurt, Archivio Hanbury, Busta 14. Fasc. 119 Istituto Internazionale Studi Liguri, Bordighera)

From the point of view of landscape architecture Winter contributed to the idea of garden regarded no longer as a flower garden but as a landscape of flowers equally what the Picturesque garden was inspired by the forest landscape and the countryside landscape.

At the end of 18th century the even faster flooding of plants from America, Africa and Asia determined the problem of integration of them into the garden.

In the work of Winter is manifest that the project has as main aim to display the individual beauty of the plants, the peculiar aspect of the canopy, foliage and flowering. Its botanical and horticultural education was a solid basis to identify the plants physiology, the correct soil composition, the distance of planting, etc., to create a harmonious arrangement of plants with an attractive appearance. (Fig. 1)

Its idea was that the combination of trees and shrubs should be inspired by the natural growth patterns to create “natural sceneries”. (Stuard, 1988, 57).



Fig. 1. Hanbury Botanic Gardens, La Mortola (Ventimiglia), View from the *Cycas* avenue on the arrangement of trees and shrubs.

In 1866 in his apprenticeship at the botanic garden of Poppelstorf (Bonn), known for the collection of tropical plants, in the nursery of Antoine Chantin in Paris in 1867, and later in the nursery of Charles Huber in Hyères, he improved enormously his knowledge of exotic plants. He turned its interest to the *Cycadeaceae* and palms seen in the greenhouses when he visited the *Exposision universelle* in Paris.

Winter adopted in a limited way the theories of Subtropical movement, consisting in bedding schemes with plants with striking foliage pushed in beds of annual exotic flowers whit the effect of brilliant show of colors; his preference was focused on trees and shrubs. Therefore the garden design and maintenance are based on the needs of the plants.

He imagined the gardens of the Riviera as a part of an “oriental landscape” which inspired particular emotions in the visitors coming from the center and the north of Europe. (Fig. 2)



Fig. 2. Hanbury Botanic Gardens, La Mortola (Ventimiglia), the “oriental landscape” from the *loggia* of *palazzo* Orengo.

The French landscape architect Edouard André, author of *L'Art des Jardins. Traité general de la composition des parcs et jardins*, in the chapter *Les plantations du midi* regarding the design principles of the Mediterranean gardens, explained that the “oriental character” of the new gardens in the Riviera was considered the most appropriate. Its peculiarity was due to the plants of South Africa, New Zealand, Central America which could develop there like in their natural environments (André, 1879, 654). The admiration of André for the exotic species concerned mainly trees, listed in the book, which can grow open-air, including several species of *Acacia*, *Casuarina*, *Cupressus*, *Eucaliptus*, *Ficus*, *Pinus*, considered suitable for the Mediterranean gardens.

He affirmed that the main innovative concept for the Mediterranean garden design should be expressed in spaces rich of plants which could exceed the beauty of the tropical gardens of that time where the size of leaves was more prominent than the variety and the color of

flowers. (André, 1978, 652) The spectacular effect, unknown before, was determined by evergreen shrubs and trees with a rich palette of green, but also to the unlimited and prodigious richness of color of trees and shrubs blossoming in all the seasons.

Plants that have adapted in contexts in which they found favorable conditions are now commonly considered originating in places where they were introduced and they distinguish plant landscapes with strong cultural value (organically evolved landscape, UNESCO, World Heritage Operational Guidelines 1992)

Winter at La Mortola, in the property of Thomas Hanbury, created different thematic gardens following botanical criteria and a new landscape aesthetic.

LUDWIG WINTER AND NEW TYPES OF MEDITERRANEAN GARDENS

The creative characters of the gardens realized by Winter are represented by new types of gardens which spread out in Liguria in late decades of 19th and in 20th century: *jardins d'acclimation*, palm gardens, rock gardens of succulents and cacti, gardens-nurseries, sea promenades which became new models for the gardens of the winter season.

Jardins d'acclimation

The excellent training and skills in drawing, garden design, horticulture and botany of Winter were crucial to create at La Mortola an unique example of a botanical garden which combines numerous species of exotic plants. The experience at La Mortola was also surely essential to put in practice new horticultural techniques and to make experimentation on the growth of the plants. His idea of the *jardin d'acclimation* didn't not mean a chaotic jungle, but a neat combination of plants controlled by the landscape gardener with a significance of beauty comprehensible to all, not only to expert botanists.

Winter developed with remarkable sensitivity ideas to create the "plants scenery" of other continents.

In the 1830s the plants cultivated in greenhouses in pots were placed in the ground and later in the Riviera this idea could be applied to entire parks and gardens.

To understand this peculiar aspect of Winter experimental design method is useful to compare the garden of the botanist Gustave Thuret created in 1857 at Antibes where he started to conduct acclimatization experimental tests on exotic plants from regions with hot tempered climate.

The Hanbury brothers had many suggestions from Thuret when they started to transform the terraced grounds and the plain area by the sea and they received many plants and seeds from this garden. (Mazzino, 1994, 38)

The garden of Thuret was planned as an arboretum, a peculiar type of garden to collect trees of others continents that originated in Great Britain in the second half of 18th century. (Boursier-Mougenot, Racine, 1987, 100). The plants are grouped together, more or less densely, primarily for botanical interest; landscaping is secondary (Hunt, 1964, 63). The garden is structured to consider each plant as an individual which can get a strong feeling of monotony for inexperienced persons. (Stuart, 1988, 184).

Winter try instead to integrate the botanical aspect with the aesthetic perception of the richness of the shapes, textures, colors of trees and shrubs, based on his ability to observe the growth of plants. The garden is transformed from a “catalogue” of plants in an interpretation of different landscapes. (Boursier-Mougenot, Racine, 1987, 40). In this sense he anticipated phytogeographical criteria for planting.

The prolonged absence of Thomas and Daniel Hanbury gave him a considerable freedom in the project of the new types of gardens at La Mortola. In 1872 we wrote to Thomas forty-five letters, in 1873 the letters were thirty-four on the progress of hardscape works, the plantation of new plants, the construction of reservoirs, started in 1871, but also on the agricultural aspect of property. In the correspondence he informed the proprietor about the decisions taken using sketches and plans.

The collection of genera started very early; in October 1869 he

planted twenty-five species of *Pelargonium* (letter 24 Oct. 1868, Mortola, Archivio Hanbury, Busta 14, Fasc. 119). In 1872 he planted two-hundred roses, “particularly vigorous” “thirty-three different varieties chosen among those flowering richly during the winter”. From the letter we know that “thirty were in borders around Palazzo and the other ones in conspicuous spots near principal walks” (letter 12 Sept. 1868, Mortola, Archivio Hanbury, Busta 14, Fasc. 121 Istituto Internazionale Studi Liguri, Bordighera). In two long letters he described the old varieties of Liguria olive trees and the cultivation techniques (letter 24 July 1872 and letter 11 Aug., Mortola, Archivio Hanbury, Busta 14, Fasc. 121 Istituto Internazionale Studi Liguri, Bordighera). Between 1871 and 1872 he completed the *Quattro Stagioni* area with succulent plants, the new road between the North entrance of the garden and the *palazzo* Orengo along which were planted tree and shrubs at that time considered very rare.

The very fast creation of botanical collections of many species of plants was possible for the correspondence of interest between Daniel and Thomas Hanbury and Ludwig Winter for plants of China, Japan, Cape of Good Hope and Central America, not limited to a few plants, that prompted them to collect the more large number of species of the various botanical genera.

In the *Quattro Stagioni* area he created an “oriental scenery” of *Cactaceae*, *Agavaceae*, *Euphorbiaceae* and *Aloe* spp.

Winter was capable of imagining the final result of new road from the entrance to the *palazzo* Orengo which captivated the visitors and invited them to discovery a landscape and a garden where the plants are the main protagonists.

In the plain area he replanted the old vineyard, planned new paths covered by pergolas, a typical feature of the gardens of Liguria with various genera of plants which allowed walking in the shade.

In 1875 Winter lived a garden almost completely realized in the layout and in the botanical collections.

The collaboration between Thomas Hanbury and Ludwig Winter

produced an interesting fusion between the natural and agricultural landscape on the one hand and the exotic botanical garden on other. They were confronted with the difficult challenge of implementation of a *jardin d'acclimatation* where exotic species were collected in order to give an idea of the landscapes in which they grew spontaneously, adapting the British model of Picturesque garden to the Mediterranean landscape.

Palm gardens

The reputation of Winter is connected with the palms; the most interesting aspect of his work was the spread of palm trees in the coastal landscape of Liguria in the 19th and 20th century and the creation of palm gardens that became the symbol of the seaside resorts.

In northern Europe countries the attraction of palms on lovers of botany and gardens promoted the propagation of the palm houses, large greenhouses for tall trees, to allow visitors of botanical gardens and *jardins d'hiver* the possibility of admire these plants also in aesthetic terms.

In Germany the passion for the palms was widespread, in 1818 Sckell in the Nymphenburg park built a large greenhouse to cultivate palms, in 1832 Frederick William III in Pfaueninsel Park built the Palmarium, a greenhouse for palms, in 1869 a palm house was built in Palmengarten of Frankfurt for the rich collection of the Nassau duke.

Winter, like others Germans, was fascinated by these plants so singular for trunk, canopy and leaves. The possibility of being in contact with so particular plants identified places particularly suitable for recreation and entertainment.

The palms in Bordighera and Sanremo were one of the features of the agricultural landscape before the discovery of the Riviera by foreign visitors who called Bordighera “city of palms” for the dissemination of palm groves in the Sasso valley and the Arziglia hill. (Fig. 3).



Fig. 3. Bordighera, the palm groves of Arziglia hill.

According to local tradition palms were imported by Egyptian hermit Ampelio in Bordighera in the fifth century; perhaps the date palms were spread by Saracens who climbed the hills and abandoned the seeds of dates used as nourishment. In the *Statuti di Sanremo* (1435) the palms are mentioned together with lemons, cedars and others citruses as a local agriculture production (Calvini, 1983). The palms were cultivated to obtain ornamental foliage for export in the countries of central and northern Europe. The production of palm leaves increased considerably in the 18th century until the second half of the 19th century.

At Bordighera the technique of cultivation in the palm groves was similar to that of the oases of North Africa; the canopy of palm trees shaded the fruit trees and vegetables. From the springs and the streams of the Sasso valley the water was collected in small canals connected to the *béodo*, a sort of aqueducts constructed in 1470, which watered the orchards in the terraces and fed water to the village. Along the aqueduct a path linked the coastal village with the inland small village of Sasso and the cultivated terraces. The *béodo* and the surrounding palm groves formed a great attraction for the first tourists who had the impression of being in an African landscape then difficult to reach by most visitors.

Winter chose two of the most remarkable places in terms of landscape for its nursery gardens located in the Sasso valley and nursery of Madonna della Ruota hill in the west part of Bordighera. He respected the character of the agricultural landscape retaining existing palms and introducing the cultivation of roses, succulents and acacias.

Winter was an innovator in the respect of local tradition. The millenarian practice of mixed cultivation of vegetables and fruit trees was replaced by the cultivation of ornamental plants under the crowns of palms and this choice contributed to transform the agricultural landscape in a new cultural landscape, result of botanical and landscape design experimentations.

Between 1870 and 1890 he favored the spread of palm trees from Bordighera to the Gulf of Tigullio and the Gulf of La Spezia and the affirmation of the Riviera style which quickly became established in the early winter resorts. The palm gardens from the Western Riviera spread out in the entire coast and in other parts of Italy. He experienced growing in pots, for the green interior and transport of large palms.

He inserted in the catalog of its nurseries of 1909 fifty botanical species of palms that included several species of *Butia*, *Phoenix*, *Sabal*, etc. In fact, in addition to the considerable variety of species, large plants were also available (*Brahea armata*, *Livistona australis*, *Jubaea chilensis*, *Phoenix reclinata*, *Trachicarpus fortunei*, *Washingtonia robusta*, etc.) (Viacava, 1996, 88).

Winter realized the first palm garden at La Mortola on the upper part of the property along the new avenue. He transformed the terraces below the new entrance staircase in slopes connected to the curves of the avenue coming down toward the *palazzo* Orengo. (Mazzino, 1990, 290). The construction of the main avenue and areas adjacent to it demanded complex earthworks that adapted to the strong steepness of the hill in which he inserted many palms (Mazzino, 1991, 29).

The effect that Winter had expected was to give the impression of being in a tropical paradise; descending toward the sea it could admire the evergreen leaves of the palm trees, climbing up the size of columnar trunks. (Fig. 4)

He obtain from Thomas Hanbury the permission to buy a considerable number of species including *Phoenix dactilifera*, *Chamaerops humilis*, *Phoenix canariensis*, *Washingtonia filifera*, *Butia capitata*, *Cocos botryophora*, *Cocos flexuosa*, *Jubaea chilensis*, some of them received as a gift from the director of the *Jardin de Plantes* of Paris (Mazzino, 1994, 90). Among the palms Winter preferred *Phoenix canariensis* then just introduced in Riviera; he was the first to use a great number of these species. The more compact structure and wider pinnate leaves and numerous oval fruits were considered very ornamental for parks and gardens.



Fig. 4. Hanbury Botanic Gardens, La Mortola (Ventimiglia), the palm garden in the upper part.



Fig. 5. Bordighera, villa Bischoffsheim-Regina Margherita, the main avenue.

In some cases Winter planned single-topic palm gardens in which he also inserted *Cycadeaceae*, but in general its gardens were characterized by a large variety of other species. (Mazzino, 2006, 295) (Fig. 5)

The palm gardens designed from Winter were in the villas of Charles Garnier and Bishoffsheim banker at Bordighera became a model emulated in Sanremo, Ospedaletti, Alassio.

In the Ventimiglia public garden at the mouth of the river Roja, funded by Thomas Hanbury, Winter planted different species of palms. The main avenues are flanked by rows of *Phoenix canariensis* considered the most suitable for the canopy and the trunks and others rare palms. In the parks of new hotels of Bordighera (Hotel d'Angleterre, Hotel de Bordighera, Hotel Angst, Grand Hotel des Iles Britanniques) the palms were the leading plants of the *jardins d'acclimatation*. The iconographic documentation shows that the dense vegetation of palms, with their crowns of leaves, constituted a visual screen to reduce the visual impact of extensive facades and the impressive volumes of the buildings.

The fabulous "East" was revived in gardens where exotic palms were gathered in groups, silhouetted isolated within the lawns of parks lined the balustrades of the terraces and arranged in rows avenues and sea promenades. (Mazzino, 1998, 31)

The sea promenade of Sanremo, called Corso Imperatrice to remember the gift of trees to be planted along the new path by the Tsarina Maria Alexandrovna, wife of Alexander II, was equipped for the meeting place of tourists and for their entertainment with a sophisticated urban design consists of kiosks for music and various species of palm trees among which *Washingtonia filifera*, *Phoenix dactilifera*, *Phoenix canariensis*, *Chamaerops humilis*, *Erythea edulis*, *Butia capitata*. (Fig. 6)

His experience in the palm cultivation put into effect the creation of palm-lined sea promenades in Hyères, Cannes, Menton.

The coastal strip was transformed by selecting several species of palms in public gardens, parks and gardens of villas and hotels of Bordighera, promenades of Sanremo and Rapallo, tree-lined streets of



Fig. 6. Sanremo, corso Imperatrice, post-card.

Bordighera (Corso Italia), Sanremo (Corso Mombello), Ospedaletti (corso Regina Margherita) and Nervi (Viale delle Palme) (Mazzino, 2006, 243).

In Liguria the gardens with the highest concentration of palm trees are the Hanbury Botanic Gardens in Ventimiglia, the Winter gardens nurseries at Bordighera and the Nervi parks in Genoa (Paola & Minuto, 1997, 15).

Rock gardens of succulents and cacti

The German botanist Otto Penzig, friend of Thomas Hanbury, observed that the scarcity of water in the Mediterranean region is extreme and is, especially, in the arid soil of La Mortola one of the most serious obstacle for the cultivation. In summer the soil is three, five months without water; and despite the provident institution of large reservoirs, tanks and a system of channels conducted throughout gardens, it is

impossible the cultivation of many kinds of plants, and for others it is made extremely difficult (Penzig, 1883,6).

These observations are at the origin of the idea to realize gardens with plants that are resistant to aridity with interesting results from the aesthetic point of view.

From initial disappointment in seeing the plants just planted suffering or dried Thomas Hanbury and Ludwig Winter came to the acceptance of this condition and limits imposed by the environment and drew new ideas on garden design.

They created a new type of rock garden, which until then had been conceived for the alpine flora and rock plants that could be seen on the ruins, and obtained impressive results, imitated in other gardens like the Jardin Exotique in Monaco.

The paths between the rocks, the cliffs, rock faces, rather than be a limitation in design, became the main elements of exotic rock garden.

Succulents have adapted to survive in environments where water is not constantly available; the water can be abundant in certain periods of the year or in same restrict spot in which there is the presence of underground waters.

Cacti and succulents appeared to be suitable for this purpose, in the first few years they begin to introduce plants that had only been tried in a few gardens of the French Riviera. The most of plants planted at La Mortola are from the southern part of Africa e the succulents are from the central America where they have developed a successful adaptive strategy.

The brothers Hanbury favored especially aloes and agaves, so much so that in a short time managed to collect the most complete collection in existence then. (Mazzino, 1994, 88)

In 1871 Daniel Hanbury gave instructions to Ludwig Winter for the plantation of the first *Cereus peruvianus* in the terrace behind the palazzo which was completely transformed into a succulent plant garden.

In that year Winter was commissioned to design the slope above the Topia - the pergola which cross longitudinally the garden - an area dedicated to these plants which stretches along the north-east slope.

Winter in the Quattro Stagioni area brought together those genera of plants that Daniel had planted here and there.

Experimentation led to completely new plant arrangements, such as aloes, yuccas, dragon trees association. The prickly pears were associated with *Mesembrianthemum*, among the succulent plants were planted *Euphorbia*.

In the cultivation he had several maintenance problems; the difficulty of eliminating weeds - since many species have thorns - was reduced covering the rocky terrain with ground cover plants.

The realization of raised beds such as that of the terraced front of the *palazzo*, the modeling of the ground as in the Quattro Stagioni area and the insertion of stones between the plants ensured the drainage and restrained humidity at night.

The roots of plants growing in the soil held between the stones consolidating the steep slopes.

The observation of the surrounding landscape formed by dry stone walls of the terraces colonized by the caper and the valerian and several ferns was a source of inspiration for the creation of special vertical rock gardens.

In the interstices of the walls African *Pelargonium* and other plants were inserted to be included creating fragrant and flowering vertical gardens.

In the *Sketch for new stairs above Topia*, (1871, Archivio Hanbury, Busta 14, Fasc. 120) Winter draw a section, the plan and a sketch of Quattro Stagioni area; the terraces and the olive plants were maintained, roses and wines covered the pergola, on the sides of the stairs he placed small borders for roses, the round space on the top of circular stairs was organized in a bed with rocks and succulents with a seat in front the slope. At the center he placed a basin of water with

Cyperus papyrus, *Alisma plantago-aquatica*, *Thalia dealbata* enclosed by rockworks. The slope was modeled in the shape of vegetable amphitheater with stones and agaves and on the two sides *Musa spp.* and other tender plants. (Fig. 7)



Fig. 7. Hanbury Botanic Gardens, La Mortola (Ventimiglia), the succulent plants amphitheater in the Quattro Stagioni area.

Many Mediterranean gardens are on the rocky soil, Winter didn't consider this fact constraint, but he drew attention to the potential of the natural rocks, furthermore he considered that the succulents are extremely useful in places where there is tiny soil. Many succulents grow in colorful cushions and they arrange their leaf rosettes to cover the ground.

The innovative idea of grouping plants in this way it was later applied to Madonna della Ruota nursery; the plants were not to be considered as isolated individuals for the taxonomic classification, the grouping of plants in masses was intended to present to customers models of xeriscape

garden.

In the Charles Garnier garden in Bordighera Winter inserted in the terraces of the ancient palm grove compact masses of agaves, prickly pears, aloes, he gave also to the garden the “Moorish character” that the architect had wanted for the villa with the insertion of loggias and panoramic tower.

Gardens-nurseries

The interest in botany and gardens was one of the most popular amusements of the British and German guests of the Riviera; in the second half of the 19th the owners of villas and hotels change the coastal landscape with the construction of parks and gardens for botanical rarities.

Winter was able to target the green areas of the winter tourist town that it traced in part of the garden city model then adopted for its spas and the tourist centers. He organized the cultivation of plants in his nurseries to meet the demanding customers requiring rare plants, evergreens and flowering.

The activities were planned according to advanced criteria; he used the more recent techniques of cultivation and hybridization; also marketing was very accurate; the production was presented through plants lists in Italian and German with photographs of remarkable quality of Jean Scotto that constitute an irreplaceable testimony of these gardens-nurseries unfortunately disappeared.

He introduced new ideas in the nursery marketing, in effect he conceived its nurseries as a permanent exhibition of plants to show to the clients the final effect of the plantations and to propone planting schemes that that could be replicated in the gardens; the plants were harmoniously integrated in the ancient palm groves with the inclusion of different species from *Phoenix dactilifera* respecting the terraces, pergolas and tanks of the historic agricultural landscape. (Fig. 8).



Fig. 8. Bordighera, via Lodovico Winter, some remains of the Vallone del Sasso garden-nursery in a private garden.

The spatial structure of Winter gardens-nurseries is difficult to understand because of the severe destruction they suffered in the 20th century, some elements can be identified through historical images and descriptions, but is not possible to have a complete idea of the landscape gardener project.

The garden-nursery of Madonna della Ruota, the best known of those created by Winter in Bordighera, was located next to the old church of Madonna della Ruota and had been used as a setting for some of the most evocative pages of the novel *Il dottor Antonio* (1850) of Jacopo Ruffini. The full realization of the nursery garden took thirty years of work (Taggiasco, 1952, 25).

The images show the original layout, overlooking the sea, and therefore often depicted in postcards of that time.

The climate more temperate than the La Mortola favored engraftment of palm trees, mimosas, araucarias, pines, magnolias inserted between the olive trees, date palms and brooms.

The ancient palm grove was turned into a demonstration garden for visitors with remarkable collections of shrubs, conifers, palm trees and mimosas, in which each plant was labeled for the recognition of botanical species. Plants were arranged like in a garden to highlight the beauty of the new crop species; they were not aligned and grouped according to species, but mixed and arranged in groups among the existing trees. The steep ground was crossed by paths bordered of rock gardens coming up the hill; the main route descended below and reached the ancient well used in the past by the peasants of Bordighera, surrounded by groups of palm trees, which inspired the German poet Victor Scheffel.

The wisteria pergolas faced the sea with panoramic views on the coast open to the amphitheater in which stood the village of Ospedaletti and the promontory of Capo Nero; on top of the hill were the pine forest and the palm grove; over the cliff a garden of Mediterranean and exotic shrubs.

Two concentric pergolas of large size occupy the space divided into

a paved area and in a semicircular water basin; along the pergolas were inserted pots for vegetation consisting of flowering shrubs that formed pillows along the edges of the water basin and climbing plants. The ancient palm grove was preserved, tall palm trees were transplanted, the slopes were covered with anemones, carnations and lush rose bushes.

Winter knew persuade customers about the landscape quality objectives that they would reach with the purchase of its plants. The goal was to show to the customers how they could associate different species of plants, with a "ready-effect" as we say today, offering direct experience through observation and appreciation of the beauty of the plants and how the creation of gardens could be included in the costs of construction of new houses enhancing the value of the properties.

CONCLUSIONS

The contribution of Winter within the garden design was to make accessible to all exotic plants that were reserved to the collections of wealthy foreign tourists, the transformation of nurserymen in professionals capable of directing the market and meet the designers' requirements, a new artistic language, the deciduous trees and conifers that had changed the face of British and German parks, replaced palms and sub-tropical plants with new colors and shapes.

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THE CONTRIBUTION OF SOME GERMAN PERSONALITIES TO
BOTANICAL CULTURE IN LIGURIA (NW-ITALY) BETWEEN 19th
AND 20th CENTURIES

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ABSTRACT

The author presents a review of some German personalities who have contributed significantly to botanical culture and gardens in Italy, particularly in the Italian Riviera. Many of them have had close relationships with the Hanbury Botanical Gardens or have been in contact with these Gardens.

KEY WORDS

German culture, botany, Riviera

INTRODUCTION

The contribution of the Germans to the botanical knowledge in Italy is far greater than has been assessed so far. Several people of German culture have distinguished themselves for having studied and spread the values of the wild and cultivated flora, the gardens and the landscape, especially in Riviera. The cultural relationships between Italy and Germany are well represented in the picture "Italia und Germania", painted by Johann Friedrich Overbeck in 1828, at a time when Deutscher Bund and Italy were fragmented. In this allegorical painting, beyond the physical features and clothing of the two female figures, it is possible to see the ancient historical heritage a landscape with some mountains which decline towards the sea and the laurel wreath for Italy and the building skills - with a fortified citadel and the spire of a Gothic church- for Germany (Fig. 1).

Besides many artists (writers, painters, photographers, singers, composers, conductors, actors, industrial designers), architects, engineers, industrialists, we find also scientists, botanists, zoologists,



Fig. 1. "Italia und Germania" by J.F. Overbeck (Directmedia Publishing GmbH)

explorers and travelers. Some of them have showed more interest in the most popular aspects of our country and represented only one side of it, not always in a positive way, with caricatures which can be found in some German newspapers and magazines when there's a description of the Italianness. Others have plumbed the depths of the spirit of Italy and the Italian people and even committed to proposing, sharing and realizing some very important cultural objectives in our country. Some examples of such works are still appreciated in a global context. The contrast between these two views is clearly expressed by comparing some of Giorgio Sommer's pictures (eg. "The spaghetti Eaters") and what Anton

Dohrn has been achieved in Naples, above all the renowned zoological station named after him.

During the second half of the 19th century several young men, after having been formed in good German technical schools and with a deep “Germanic” culture, gradually came to Italy and contributed to the emancipation and to the development of our unitary state, which was formally born in 1861, despite the continual conflicts which opposed Italy and Germany. The alternate periods of peace and war determined times when the “German” was seen now as a great collaborator and also as a “friend” and now as a bitter enemy who had to be removed or even wiped out even after having been fully integrated and “Italianized”.

In the Riviera di Ponente the arrivals of the British, French and German people increased considerably, and this increase marked the start of a real economy based on tourism and holidays, especially after the achievement of the PLM railway line, Paris - Lyon - Méditerranée (1855-1862), which reduced travel times and brought about a remarkable economic, social and urban development along the coast.

In 1872 also the railway line between Genova and Ventimiglia was opened. This new line intensified the trade and the development of this area, gave a remarkable boost to the birth and development of the gardens and determined the birth of floriculture. During that period began also the cultivation of the rose “Safrano” in the plain of Latte, near Ventimiglia: a very important step towards the development of the floriculture in the Riviera.

GERMAN BOTANISTS, EXPLORERS AND LANDSCAPISTS IN RIVIERA

Both Thomas and Daniel Hanbury, through some contacts with some scientists who gravitated to the Royal Kew Gardens, dreamed about creating a botanical garden that could host the largest number of species, since they were very young. This dream became stronger in Thomas, perhaps after his trip to Germany, Switzerland and Italy in 1852, before leaving for Shanghai, and became true between 1867 and 1868, about one hundred and fifty years ago, when he purchased a good part of the

property of Capo Mortola from the families Grandis and Orengo. He aimed to create a very spectacular English landscape and acclimatization garden, but it had to be oriented by the *scientia amabilis*, botany, and equipped to carry out rigorous scientific experimentation.

In order to make his dream of an English garden come true, Thomas Hanbury called a young German since the beginning: Ludwig Winter, who had been formed in Germany, exactly in Erfurt, Potsdam and Poppelsdorf near Bonn, and in France, exactly in Paris, Marseille, Cannes and Hyères. Winter can be considered as the first curator of Hanbury Botanical Gardens, where he worked from 1869 to 1875, before devoting himself - he was only 29 years old - to his own nursery. More information about Winter and his important contribution to the Mediterranean landscape can be found in another chapter (Mazzino, 2017).

Below I will go through other Germanic personalities who made a contribution to the botany as a science on the Riviera. Unfortunately we know very little about some of them, so we are going to list only few data, sometimes uncertain. I will go through neither with Alwin Berger nor with any other important German gardeners, to whom other specific contributions are dedicated (Schmalfuss, 2017; Metzing, 2017; Guiggi, 2017; Littardi, 2017; Zappa & Mariotti, 2017).

Gustav Cronemeyer

After the Ludwig Winter's departure and Daniel Hanbury's death in 1875, the Hanbury Botanical Gardens were managed directly by Thomas Hanbury without the help of a prominent botanist or landscape gardener. Between 1875 and 1876, Gustave Rütschie, a Helvetian head-gardener, seemed to have a more important role than other people, but it's impossible to identify in his work the position of curator. Meanwhile, Thomas Hanbury continued to acquire the lands of Capo Mortola and the last purchase took place in 1893, 25 years after the first one. Therefore, the project of the Botanic Gardens progressively increased its potential and its needs about management. That's why in 1883, after that most of

the cultivated areas had been acquired, Gustav Cronmeyer was appointed as curator of Hanbury Botanical Gardens. He was probably born in 1832 and worked as curator from 1883 to 1892, when he died at La Mortola.

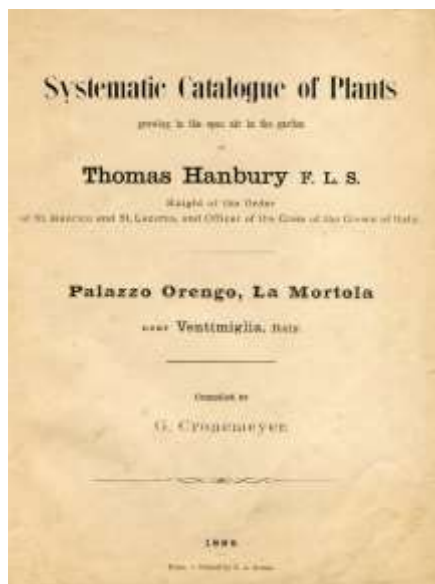


Fig. 2. Title page of the first catalogue of the Hanbury Botanical Gardens written by G. Cronmeyer (1889).

We know little about Gustav Cronmeyer's work, but surely it has been relevant and he was probably responsible for a truly scientific approach. He boosted the herbarium and drafted the first catalogue of La Mortola Botanical Gardens with the title "Systematic Catalogue of Plants growing in the open air in the Garden of Thomas Hanbury F.L.S." (Fig. 2) published by Koenig, Erfurt (Cronmeyer, 1889). This catalogue includes 3,600 taxa cultivated at La Mortola and another edition was published with the taxa in alphabetical order. The epithet of a species of Aizoaceae has been

named after Cronmeyer: *Delosperma cronmeyerianum* (A.Berger) H.Jacobsen ex H.E.K.Hartmann (basionym: *Mesembryanthemum* c. A Berger).

Moritz Kurt Dinter

Moritz Kurt Albin Dinter (Fig. 3) was born June the 10th, 1868 in Bautzen and died December the 16th, 1945 in Neukirch/Lausitz. He was an important German botanist and explorer of German South West Africa,



Fig. 3. Portrait of M.K. Dinter (courtesy of Namibian Scientific Society).

curator of the Hanbury Botanical Gardens from 1892 (after Cronmeyer) to 1897 (before Berger). He drafted the “Alphabetical catalogue of plants growing in the open air in the garden of Thomas Hanbury, Palazzo Oregio, La Mortola, near Ventimiglia, Italy”, published in Genova in 1897. This catalogue (Dinter, 1897) listed approximately the same number of taxa as the previous one, published by Cronmeyer. Kurt Dinter’s behavior at Mortola hasn’t always been irreproachable, since he tended to be overcome by alcohol and other debaucheries. However, after having married Helena Jutta Schilde (1871-1949) and having become famous in the South-West African colonies, he got his head together. He subsequently returned for a short vacation at La Mortola and was warmly welcomed by everyone.

About Kurt Dinter’s life we have several information from Alwin Berger's biography, written by Elise Berger (2016). Some passages are mentioned below in italics.

Despite the difference in age and, above all, character, Dinter and Berger were always good friends even before Dinter’s arrival at La Mortola.

... In Dresden, father [Alwin Berger] made Kurt Dinter’s acquaintance, who one day appeared in the botanical garden from his hometown Bautzen. He wanted to see again the place of his previous job, although the year before he had been fired on the spot in disgrace because of his unworthy behavior. As the two were conversing animatedly, Inspector Poscharsky passed by and called the father: “Mr. Berger do not let yourself be involved with the scoundrel, that isn’t the sort of company you should be keeping!”

But father could not be stopped. That same evening he met Dinter. Dinter told him that he wanted to go to Italy, and hoped to find an employment in the large garden of La Mortola, which belonged to a rich Englishman. There a German named Cronmeyer had just died. In fact, he hadn’t got any permanent job yet, but he trusted to luck and would travel to Genoa as a journeyman.

...

Several times the opportunity to leave La Mortola presented itself. The German Colonial Minister, Dernburg, asked whether father [A.B.] was ready to move to German South West Africa. In this case it would have concerned Dinter's removal and father [A.B.] declined.

...

Dinter brought father [A.B.] many valuable plants, partly dried, partly preserved in alcohol. Then father sat together with Dinter for hours and hours. They identified zealously the new species, then they published them together in the "Englers botanische Jahrbüchern".

...

During the same week, there was another pleasant surprise! On their way back home from their trip to Switzerland, the Dinters came to visit us. Exactly in the morning, father [A.B.] had gone to Kirchheim unter Teck to tour a large private collection of Cactaceae. We managed to call him by telephone. By Dinter's request we had to prepare a gigantic bowl of "pastasciutta alla mortolese" for dinner. He enjoyed it with relish; his appetite was always astonishing.

We can have a detailed picture of Kurt Dinter's behavior when he was unmarried and his "repentance" from the following passages.

His appetite must have been phenomenal. One evening, when he arrived hungry at home after an excursion, Angiolina [the cook] offered him to prepare something quickly and asked him if he wanted some eggs. He said yes and after having asked again: "How many eggs do I have to take? Two? Three?". The astounding answer was: "No, Twelve". And he really ate up all the twelve eggs and a large bowl of red peppers for dessert.

During the great heat, he used to sleep in the "Cava", the sand cave near the entrance. Usually it was used to store both old junks and various gardening tools. Dinter used to sleep there for weeks and weeks and affirmed that it was more comfortable than his apartment.

He was often brought to his room completely drunk by the workers and slept for days. Obviously he neglected his duties. The Italian chief gardener, with whom Dinter had a row almost every day, sent reports to the distant Thomas Hanbury that would have made his hair stand on end.

...

Since he left Dresden in 1890, Dinter had a very bad time of it. He wrote to father [A.B.] about this bad time: "I've been on the street for two years. I've crossed half Europe. I have worked as a slave in the Rhine Province near Aachen under the name of a gardener in an estate. In Verden and in Hannover I transported bricks in a building site ... Several times I have been on the point of taking my own life in despair, but now I would be very angry if I did. Luck usually comes suddenly, unexpectedly; surely more rarely than bad luck, but it happens". Dinter was right: luck had never left him. When he went to Africa, he was dismissed without notice from his first job at a farm near Windhoek after one year: he had become violent during an argument with the owner. So he found himself completely destitute! Without hesitation, he walked on the road to Swakopmund. After months full of the heaviest privations, he arrived there without a penny. He wandered through the town and in the evening he settled in a hostel. There he wrote an article with the title "Wie kann man Stadt und Land aufforsten" (How to reforest cities and countryside) and sent it to the local newspaper without mentioning his name. The following day the article was published and read by governor Solf, who immediately inquired after the author and called for him. Dinter came to him and gave him detailed information about the required plants. Then he left the governmental building as a botanist of the German Colonial Society for South West Africa.

On June the 7th, 1898, he wrote to father [A.B.] about this matter: "So I actually work at the German Colonial Society since mid-March but obviously not in Swakopmund. I've had the choice between so many places along the Swakop River and I chose Salem, 110 km west of Swakopmund, because there is superabundance of water here, a lot of

wonderful acacias and the train will go past only 3 hours and a half from here (through Sakalswater near Modderfontein). Now I'm here, a 20-day Malaria is just behind me, while my colleague is still laid up. We both stay here completely alone, without even a single worker; it's impossible to find them: here in the upper Swakop everything is sick and dead. In Okahandja between 5 and 7 blacks die every day! As it is common practice here, I sowed some vegetable seeds on Swakop's wet sand and everything has come up without watering, even the *Eucalyptus globulus*. Now I want to set up a nursery of date palms with 5-6,000 plants, as soon as I get some help ... The climate is completely tropical, in fact we are in the tropics also from a geographical point of view".

...

Alarming weeks followed, because Dinter's appearance was the craziest ever. He roamed around between Ventimiglia and Sanremo with any kind of riffraff and even dared to bring some "girlfriends" in the "Cottage". When he came home late at night, he was never sober.

Eventually father [A.B.] had enough of that. In my presence, he made a long and severe reprimand to Dinter, who was much older than him, and concluded with the words: "Look what you could have done all these years! You had the best opportunity to become famous! In your place, I would feel ashamed to go on holiday in Germany!" Dinter listened everything carefully and patiently, and when father [A.B.] finally paused, he said in a very friendly way: "Berger, you're right! Now I return home and ask Jutta, my old playmate, if she wants me: if so, I promise you I'll become a different person!" Three months later we received his engagement announcement.

Three years after Dinter's marriage the intendancy counselor Engel, one of the famous geologist Engel's sons, native of Württemberg, came to visit us from German South West Africa. He brought greetings and some plants from Dinter. Of course we bombarded him with questions on how could the marriage have been canceled. Then he told us that the piece of news about Dinter's engagement in Swakopmund had

struck like a bomb: the whole colony *couldn't* understand, it seemed so incredible to everybody that a woman might decide to marry someone like Dinter. On the day of the bride's arrival, all those who could hurried to the harbor to see the miracle. General astonishment! Instead of the awaited scarecrow, there was a young, tall, slim, extremely pretty woman completely dressed in white! The next day, the wedding day, the church was full of curious persons. Officers, officials, and all the bachelors were of the opinion that the young - and surely unlucky - woman had the honorary obligation to sweeten and - as far as possible - to make the life with such a man bearable. Each morning, a compassionate soul appeared at Dinter's door to invite Mrs. Dinter to a walk or a boat ride. At first Dinter stood back and did nothing about this coming and going and thanked in the name of his wife for all the attentions. But when he had enough of that, he had a tall fence made of canvas erected by his Blacks during the night, to be safe from inquisitive looks. Then he hung a piece of paper at the doorbell: "My wife belongs to me. Dinter".

...

In July, Kurt Dinter brought his wife at our place. What a change after 5 years! Dinter was unrecognizable. What had become of that mess person? An elegant gentleman with impeccably creases got out of the carriage at the side of his beautiful wife. The whole Mortola was astonished! What had been able to do this woman in that short time! Dinter had worked hard, had published many works, and had made a name for himself with his botanic collections. He was completely under the influence of his wife, but she didn't let it show him. If he became angry as happened in the past, a sweet word, or a gesture of hands from her were enough to calm him down.

However, Dinter's immature behavior didn't adversely affect its overall contribution to botany.

At the end of June 1914 Mr. and Mrs. Dinter came from Okahandja to go again on holiday in Germany. As happened in previous years, Dinter's first stop was La Mortola. This time he had brought with him even more material. He wanted to determine, and then publish, new stapelias and many new mesembriantemums that had been recently discovered together with father [A.B.]. During the last years Dinter had several useful leaflets published about the flora of South West Africa. In the meanwhile, several new plants had been discovered and introduced in Germany by him and his wife. On the 70th birthday of the secretary Engler, the Engelmann publishing house of Leipzig published a celebratory volume in which Dinter and father [A.B.] had published a work about the "*Plantae Dinterianae*".

He became one of the most important experts of succulents and described about 800 new taxa. Four names of genera (*Dinteracanthus* C.B.Clarke ex Schinz, *Dinteranthus* Schwantes, *Dintera* Stapf and *Juttadinteria* Schwantes) and more than 150 species were named in Dinters's honor. Kurt Dinter is also known as the "Father of Botany of Namibia" for his research in Africa. A botanical journal devoted to flora and vegetation of South-West-Africa was named "Dinteria" in his honor on the occasion of the 100th anniversary of his birth (Giess, 1968).

Ottone Penzig

Albert Julius Otto Penzig (March the 25th, 1856, Samitz – March, the 6th, 1929, Genova), was a Prussian botanist and mycologist, explorer of East Africa and Indonesia. Between 1887 and 1929 he worked as professor at the University of Genova, and completed the rearrangement of the Botanical Garden and the Institute of Botany of Genova after being appointed as Director.

Ottone Penzig (Fig. 4) was one of Thomas Hanbury's great friends and has been for several years his academic advisor in Italy.



Fig. 4. Portrait of Penzig at the age of 26 when he obtained Italian citizenship.

Thanks to a donation of Thomas Hanbury, also in order to express gratitude towards Penzig, the new Institute of Botany was built. The construction began in 1890 and were completed in 1892. The new building was inaugurated during the International Congress of Botany, as part of the celebrations of the 4th centenary of the Discovery of America.

Penzig's contribution to the knowledge of the vernacular plants names of Italy and especially of Liguria, has been remarkable, but he has made other significant contribution to many fields of botany, especially to plant

teratology, mycology, and phytogeography.

Penzig (1883) published a detailed description of the Giardini Botanici Hanbury:

... Below the houses of Mortola, where the Route Corniche is a little awake to form a small square, stands the large gate of the Hanbury garden, adorned with the coat of arms of the family: in front of the entrance is an old twisting olive grove, from whose trunk a water spring sprouts, an artificial fountain, there led by Mr. Hanbury (Fig.5).



Fig. 5. A monumental *Araucaria cunninghamii* cited as beautiful by Penzig (1883) in his description of the Hanbury Botanical Gardens.

Penzig (1884) published also a mycological flora (the great majority referred to microfungal taxa) of the Hanbury Botanical Gardens with 37 taxa. This work was recently updated by Ambrosio *et al.* (2015).

Several writings about Ottone Penzig have been published (e.g. Beguinot, 1930; Savelli, 1930) including also the Italian translation of his diary about his expedition in Indonesia (Sergio Carlini, 2017).

Penzig, loved Italy and his culture so much that he even became Italian himself. Nevertheless and despite his older daughter had married and lived together with a member of a strictly Italian family, he suffered during the First World War period, “an ordeal of bitterness and sorrow” (Issel in Savelli, 1930). Nonetheless and despite the premature loss of his wife and daughter Berta, he remained a fine, straightforward, austere and charitable gentleman. He wrote over 130 articles and monographs (28 in German, 2 in French, 2 in English and 104 in Italian). He was a naturalist, a great, almost reflective observer, a traveler, a hiker and, at the same time, an extraordinary bookworm and archive user.

Fritz Mader

Friedrich Heinrich (Fritz) Mader (1872, Nice – 1921?, Stuttgart?) was one of the six sons of Philipp Friedrich Mader, lutheran priest at Nice (Binder, 2006) (Fig. 6). He was an alpinist, a photographer, an archaeologist and also a botanist (he corresponded with Burnat) (Maurin, 1938; Bellone, 1999; Frascia, 2000).

Within twenty years, he published several articles (Mader, 1892; 1896; 1897; 1900a; 1900b; 1901; 1903a; 1903b; 1905a; 1905b; 1907a; 1907b; 1909; 1912a; 1912b) in Italian, French and German on the geography of the Riviera and the Southwestern Alps, including a survey of gardens in the Maritime Alps. Some of his photographs are kept in the Fondazione Sella in Biella (Cassini & Caudano, 2017). His monograph published in 1897 contains the results of repeated travels and investigations as a result of the study of the literature about a very little explored landscape, expressed in a strictly scientific form. This

monograph concerned mainly the flora and the vegetation and contains interesting phytogeographical observations. Fritz Mader's botanical skills are evident in his work published in 1912 about the forest of Saint Baume. In this article, there are many biogeographic comparisons with the flora of the southwestern arch of the Alps, and of other countries. His landscape descriptions provide useful information to analyze land use changes in the Riviera and the Western Alps.



Abbildung 32: Familienbild am 15. Mai 1905 (ohne Philipp Friedrich Mader)
v.l.n.r.: Dr. Fritz Mader (Sohn), Käthe Mader (Tochter), Mathilde Mader, Marie Mader (Tochter), Else Maaß geb. Mader (Tochter), Giovanni (Jean) Maurin (Schwiegersohn), Max Maaß (Schwiegersohn), Lilly Hänni, Frida Maurin geb. Mader (Tochter) mit ihren 4 Kindern im Vordergrund v.l.n.r.: Margarete, Erika, Silvia und Elena Maurin (Enkelinnen)

Fig. 6. Fritz Mader (first from left) in a family photo in 1905 (from Binder, 2006).

Mader has highlighted very contemporary themes: he has dealt with the exploitation and the conservation of rare species, monumental trees, historic gardens (Mader, 1909) and the problem of invasive species (Sant & Alziar, 2013). He was one of the first to propose a park that had the Royal Hunting Reserve of Valdieri and Entracque as its core, but the

“vast Karst area with funnels and caves around the Cima Marguareis” had to be included as well. Deforestation was his main concern for the Alpes-Maritimes.

Limitandoci a località determinate, sarebbe forse interessante di proteggere, a parte, qualche tratto di quegli stupendi prati che ricoprono molte giogaie delle Alpi Liguri, e vengono alternativamente falciati e abbandonati al pascolo, con danno di molte piante belle e rare. Ma più urgente è la conservazione dei boschi e degli alberi rimarchevoli, i castagni essendo le sole vecchie piante generalmente non minacciate (se non, purtroppo, dall’impianto di fabbriche di prodotti tannici, le quali poi si chiudono dopo compiuta la strage)²² (Mader, 1892).

In 1897 Mader played an important role in informing Clarence Bicknell of the existence of rock engravings in Val Fontanalba. They became so much friend that Mader had a mountain named after Bicknell (Cima Bicknell, 1645 m a.s.l.) which is on the crest separating Val Fontanalba from the Valmasca (Avery, 2016). The Genoese climbers Federici and Piccardo dedicated two picks to Fritz Mader: the Torrione Mader (2215 m a.s.l.) and the Dente Mader (2220 m a.s.l.) in the Upega Valley.

Fritz Mader, at a very young age, was able to observe and identify essential processes of plant life, vegetation and landscape: the evolution during geological eras, the consequences of climate change such as glaciations, the competition among species, the dynamism and the succession of plant communities, the role of man in destroying populations of species that have become rare and to be protected. His short paper on *Chamaerops humilis* (Mader, 1905a) is a significant example of his skills to explore, observe, and analyze botanical

²² *By limiting ourselves to some specific places, it might be interesting to protect, separately, some stretch of those beautiful meadows that cover many mountain ranges of the Ligurian Alps and are alternately mowed and left to pasture, to the detriment of many beautiful and rare plants. But more urgent is the conservation of the woods and the remarkable trees, since the chestnuts are the only old plants that are generally not threatened (except by the installation of tannic products factories, which then close after the massacre).*

information. This work published in French was then almost entirely reproduced and published in English by Berger (1907).

Mader and his family had also friendly relations with Alwin Berger. In the biography written by Elise Berger (2016) a few but significant episodes are reported.

The old German pastor of Nice, Mader, lived in Tenda together with his family. Father [Alwin Berger] had got friendly with his son, Fritz Mader, for years, and had made long excursions in the mountains with him. Dr. Mader was a geographer and photographer and had published a great guide with the title "Die Riviera". Furthermore he adapted every new edition of the "Baedeker" guide of the Riviera.

...

In such gloomy moments it was the Reverend pastor Mader, who still walked erect despite his 80 years, who reinforced in us, who were younger than him, our confidence in the justness of our German question and the skill of our army, in order for our confidence to persist firmly, even when public opinion towards us was changed more and more ... Afterwards more than ever ...!

Perhaps it might interest large circles and appropriately illuminate the cultural progress of the "Grande Nation" if I added that pastor Mader has told us how he could continue to live in his vicarage of Nice during the 1870-1871 war. Despite all the people's hostility, nothing happened to him, because Napoleon III had placed a sentinel in front of the church and, after his fall, the Republic continued to have that order carried out. Nevertheless, that time the German church and the vicarage were plundered and destroyed after a few months, while the old pastor was in Tenda together with his family to spend the summer, as he had been doing for 35 years. Despite his advanced age, pastor Mader was taken by the Italians from his house of Tenda to Lucca for "suspect espionage"!

A few days after the father's [A.B.] arrival in Stuttgart, he saw from a distance on the Castle Square a man who looked very much like his old friend, Dr. Fritz Mader of Nice. Father [A.B.] thought, "If I didn't know that Fritz Mader is still in Tenda, I might think that's him!" As they approached, they recognized each other with great joy. He had come to Stuttgart with his sister Käthe, Mr. Bieler and Mr. Gross, who had lived with us in the outbreak of war in Tenda village. The Mader came from Württemberg.

The second passage shows how wars contribute to degrade souls and to consider suddenly as enemies those who were considered as friends or even brothers or fathers until the time of the declaration of war.

Eduard Strasburger

Eduard Strasburger (February the 1st, 1844, Warsaw – May, the 18th, 1912, Bonn) (Fig. 8) is one of the most famous biologists and botanists of the 19th century. He contributes to the development of the modern Cell Theory, demonstrated the double fertilization, and discovered the discrete stages of mitosis and cytokinesis in algae and higher plants, describing cytoplasmic streaming in different systems, and reporting on the growth of the pollen tube into the embryo sac and guidance of the tube by synergides. Strasburger has raised many problems which are hot spots in recent plant cell biology, e.g., structure and function of the plasmodesmata in relation to phloem loading (Strasburger cells) and signaling, mechanisms of cell plate formation, vesicle trafficking as a basis for most important developmental processes, and signaling related to fertilization (Baluška et al., 2012; Wolkmann et al., 2012). His Textbook of Botany is still very popular today, after 36 editions.

In 1895 Eduard Strasburger published the first edition of a travelogue ("Streifzüge an der Riviera") which includes also an inventory of the local flora in addition to the description of the Riviera and people. Other edition were illustrated by Louise Reusch (1865-1955) and published posthumously in 1904 and 1913. After several trips in the



Fig. 7. Portrait of Eduard Strasburger (photo Dr. Wolfram Lobin/Uni Bon from <https://www.uni-bonn.de/neues/126-2012>)

Mediterranean area, one of which to Egypt and Red Sea with his friend and colleague, the Darwinist Ernst Haeckel, Strasburger's enthusiastic view for nature, biodiversity and life in general. Was reinforced. "Streifzüge an der Riviera" was an insightful compendium of five travel between Hyères (France) and the Cinque Terre (Italy), in which the author described the fascinating life of plants. He has also reported on historical events in the area and regional customs, including ingredients and protocols for the production of different typical alcoholic drinks of the area. He also was fondly interested in the industrial use of plant products as oil and even in perfumes from the Grasse area (Wolkmann et al., 2012). The February 1907 issue of the Gardeners' Chronicle, which contained a reference to the English version of this book, translated by O and R. Comerford Casey under the title of "Rambles on the Riviera", reported, among other things: *An account is given of Sir Thomas Hanbury's garden at La Mortola and the volume is dedicated to that generous protector of the sciences.*

For his students, he was not just an excellent teacher but also often like a father discussing individual problems during his laboratory visit even or, in particular, at the weekend. Even at the fin de siècle, his team was of international composition, in particular by students from the USA (Wolkmann et al., 2012).

Strasburger had quite close relations with Alwin Berger and the Riviera. The biography of Alwin Berger (Berger E., 2016) reports:

Prof. E. Strasburger was a regular guest at our place. For many years he came regularly on the Riviera at the Easter time. His book "Streifzüge an der Riviera" contains a long chapter about La Mortola. In the fourth edition, whose revised edition he completed on the day before his death, father [Alwin Berger] must have been able to help him. For us his visits were "red letter days". He then sat in his favorite chair and could talk for hours. Usually he came over by foot from Mentone and we were allowed to accompany him on his way back a little way. His

wealth allowed him to descend to his first hotel, where he had always lived the same room for twenty years...

He was particularly pleased when he received in 1908 the Darwin Wallace Medal from the Linnean Society of London, which had been given to seven scholars in the last fifty years, including Haeckel, for their services to Darwin's doctrine. He called this his "Pour le mérite"...

In March 1910, we had the pleasure of seeing Prof. Ernst Haeckel again. He came on vacation to Mentone for a longer time. At his request, we settled him in a very modest guest house on the beach of Garavan. On the other hand, his former student and colleague, Prof. E. Strasburger, lived in the first hotel nearby....

In April, a great spring feast took place in Menton, to which father [A.B.] and I [the wife, Elise Berger] were invited by Prof. Strasburger. On this occasion, the Bengal lights lit up the harbor and the city. After dinner, in which Haeckel took part too, we went through the streets festively illuminated.

...

Lady Hanbury sent an official invitation to the Stewardess of the Household and invited the Royal Highnesses to the "5 o'clock tea". The invitation was accepted for a Sunday afternoon. The visit lasted one hour and Lady Hanbury gave the princesses the English translation of Strasburger's book "Streifzüge an der Riviera" in memory of the meeting..

...

Fritz [Berger] was often longing for his dad and spoke always of La Mortola. When Antonio Winter [son of Ludwig] sent us some flowers from Bordighera for Easter, he sadly looked them. Together with Mrs. von Tobold, prof. Strasburger's only daughter, the children could go to the zoo and the aquarium.

Alban Voigt

In 1914 Alban Voigt (1857-after 1937) published “Die Riviera - Junk's Naturfuhrer”, a nature guide. One of the volumes includes a very full description of the Hanbury Botanical Gardens at La Mortola (occupying 135 pages) with a complete list of the fine collection and a map with the location of the plants. There are also some short descriptions of the show gardens of Cannes and its district: Château de Thorenc, Château Vallombrosa (Villa Sainte-Ursule and then Hôtel du Parc), Villa Eilenroc, etc. Alban Voigt has been in contact with Alwin Berger: in “Hortus Mortolensis”, Berger (1912) expressed his *thanks to those who have given me their kind assistance in compiling this Catalogue, especially to Mr. James Britten, F.L.S., Mr. Clarence Bicknell, M.A., of Bordighera, and to Mr. Alban Voigt, of Dresden.*

Voigt (1914) was one of the first to correctly identify and report the presence of *Erigeron karwinskianus* DC. as an adventitious species « en grandes masses dans les murs des jardins des maisons n° 47-75 de la route de Nice à Villefranche » and aux « villas du boulevard de Garavan ». A letter sent by Voigt to Società Botanica Italiana and published in its Bulletin (Voigt, 1918) confirmed his botanical skills. Voigt highlighted seventeen plant species collected in Lugano and other places of Canton Ticino, among which *Commelina communis* L., *Pueraria montana* (Lour.) Merr. var *lobata* (Willd.) Sanjappa & Pradeep [sub *P. thunbergiana* (S.Z.) Benth.], and *Ailanthus altissima* (Mill.) Swingle (sub *A. glandulosa* Desf.). At present their invasive potential is yet thoroughly monitored.

In 1918, Alban Voigt, as he was trying to reorganize the herbaria of the Lugano Museum, found two collections of *exsiccata* dating back to the beginning of the 19th century. It has been a discovery of the utmost importance, as they were the herbaria that had been considered missing since a long time and belonged two real precursors of Ticinese floristics: abbot Bartolomeo Verda (1744-1820) and doctor Giuseppe Zola (1789-1831) (Voigt, 1920).

Voigt (1920) published a long list of plants of the Flora of the Canton Ticino which he had been collected personally in Lugano and in its surrounding area and/or had been kept in the herbaria of the abbot F. Verda and Dr. G. Zola. The numerous adventitious species confirmed Voigt's interest in exotic species. Some information about Voigt's exploration in Canton Ticino can be gained from his unpublished handwritten notes at the Museum of Natural History Lugano (Bellosi et al., 2011).

Alban Voigt was among the new members of the Botanical Society & Exchange Club of the British Isles during the year 1919-1920.

Several of his botanical notes were published in the 1920s on the German magazine "Allgemeine Botanische Zeitschrift für Systematik, Floristik, Pflanzengeographie". A lot of specimen he collected or revised are kept in the herbaria of the Museo Cantonale di Storia Naturale di Lugano (LUG) (Fig. 8 and 9).



Fig. 8. Specimen of *Gagea villosa* collected by Alban Voigt and kept in LUG (© Museo cantonale di storia naturale, Lugano)



Fig. 9. Specimen of *Stachys alopecurus* of Abbot Verda's Herbarium, revised by Voigt and kept in LUG (© Museo cantonale di storia naturale, Lugano)

Woldemar Kaden

Woldemar Kaden (February the 9th, 1838, Dresden – July, the 26th, 1907, Munich) was a German author and translator. He was director of the German School of Napoli from 1867 to 1873 and was chair of German language and literature in the University of Napoli, but resigned in 1882. He traveled extensively in Italy, and his many writings dealt almost exclusively with Italy.

In 1874 Kaden published *Wandertage in Italien* and in 1880 *Unter den olivenbäumen*, a collection of forty-three folk tales from Southern Italy. Probably Kaden had translated these tales from the works of some Italian ethnographers rather than directly from oral sources, to the point that the famous Giuseppe Pitrè (1886) accused him, together with Christian Friedrich Wentrup and Theodor Trede, of having plagiarized works of other authors. However, Kaden published in 1880 also a report on a summer tour in southern Italy with descriptions that linked to the Italian literary movement of the verism and highlighted his exceptional ability to observe and his strong attention to social issues. Masi (2000) talks about Kaden as a refined person of letters. Scamardi (1998) described the important role played by German travelers such as Kaden in promoting the knowledge of Italy.

In 1883 Kaden wrote a description of Isola d'Ischia and in 1884 published *Die Riviera - Wanderziele und Winterasyle der ligurischen Küste von Nizza bis Spezia*, a travel guide illustrated by Hermann Nestel (Fig. 10).

Die Riviera has been reissued many times. It's a wonderful illustrated book of geography with descriptions of countries, people, plants, climate and the sea and it provides not only sensations, but also scientific data (temperatures, rainy days, etc.) which can be useful for a comparison between present and past. In this regard, Kaden's descriptions and Nestel's illustrations of the Vallone del Sasso in Bordighera, Ventimiglia, Menton, and many other places in the Riviera are exemplary.



Fig. 10. The Hanbury Gardens illustrated by H. Nestel in the guidebook published by W. Kaden (1884).

The painter Maler Hermann Nestel (May the 10th, 1858, Stuttgart –1905, Bordighera) was a great friend of Ludwig Winter and his daughter married Antonio Winter, Ludwig's son.

CONCLUSIONS

The importance of the role played by Germans in the landscaping and management of the gardens and nurseries of the Italian Riviera has already been highlighted on a number of occasions (e.g. Carassale et al., 2015; Hornung 2013; Littardi; Mariotti, 2013; Viacava, 1997). The above data allows to attribute a greater incidence of this role to the knowledge of the flora and the landscape, the exploration of Italy and the botanical research, attributing it to people who have been unjustly forgotten a bit. Some of them have suffered accusations which have been determined

only by an excessive nationalism during periods marked by war vicissitudes and deep changes in the forms of government. These accusations were often false allegations that went beyond the populations' dimension by diverting to a more personal one and lead to deny and to subvert friendly and familiar relationships that seemed to be consolidated. The few pages of this contribution are just a starting point for a further development of a study of intercultural relations in a borderland, an ancient crossroads of languages and traditions which stretches between the Italian Riviera, the Côte d'Azur and the South-Western Alps.

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GERMAN BOTANISTS AND NATURALISTS ON THE RIVIERA
BETWEEN THE END OF THE 19TH CENTURY
AND THE FIRST HALF OF THE 20TH.
THE ORIGINS OF THE INDUSTRIAL FLORICULTURE.

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ABSTRACT

The author reviews the many German botanists, nurserymen and growers who conducted their activities in the Riviera di Ponente, contributing to the development of the region.

KEY WORDS

German culture, botany, floriculture, Riviera

INTRODUCTION

Between the middle of the 19th century and the first half of the 20th century the most western part of Liguria, better known as the *Ponente Ligure* or the *Riviera dei Fiori*, was considered as a coveted destination for botanists, naturalists and garden lovers. This extraordinary moment was characterized by the creation of wonderful public and private acclimatization gardens, nurseries, the first horticultural businesses and a rich botanical literature. When we mention the botanists on the Riviera we don't refer only to the sporadic presence of some great scientists or to their excursions, but also to all those gardeners, growers, naturalists and more generally to all those people who have thoroughly described the local flora, to the famous personalities and other less known people who have stayed on the Riviera to study its plants, to make experiments about their acclimatization and at the same time to create extraordinary botanical collections. In this pioneering context the Germans have played a prominent role, which cannot be restricted to some sporadic appearances or to some short scientific trips (Carassale et al., 2016). The presence of the German community on the Riviera has been well

described by Koerner (1892). Among the Germans we can number famous personalities and other less known people who have left their permanent marks in the landscape and on the local economy, thanks to their experience and excellent intuitions. Unlike other Italian regions, during this period the western Liguria didn't progressively industrialize itself, but it "modernized" itself through a hotel and tourist development, while the agricultural economy was based on the floriculture (Napolitano, 2011). This new kind of economy became international, thanks to the start-up of the railway line between Genoa and Ventimiglia, which connected Liguria with France and the rest of Europe. The railway connections have also created real strangers' colonies, which were livened up mainly by English, Germans, Russians and Poles. The people who could be seen on the Riviera usually belonged both to the European nobility and the upper middle-classes, who chose the Riviera not only as a winter holiday resort, but also as a health resort. In order to better understand the spirit of this place and the feelings of the eminent hosts, we can refer to M. Philippson's writings, who was the biographer of Frederick William III, Crown Prince of the Kingdom of Prussia and German Emperor, from the Villa Zirio (Guglielmi Manzoni, 2015), the Emperor's residence in Sanremo: "*the façade looks onto a magnificent garden, rich in exotic plants, which glimmers thanks to the blue brightness of the Mediterranean*" (Philippson, 1908). The author, Von Martin Philippson (1846-1916), historian professor at the Université libre de Bruxelles and at the University of Bonn, has undoubtedly caught the main elements which have spread the myth of the Riviera among the German-speaking populations, to whose community belonged several botanists and gardeners that have stayed, lived and laid out gardens and launched important entrepreneurial activities. Hörstel (1902) wrote in his famous guide Die Riviera: "*the Riviera di Ponente is the most beautiful Italian region and Sanremo can be defined as the most German of the Italian towns*".

LUDWIG WINTER

Although the English community of that time included also patrons such as Sir Thomas Hanbury and naturalists such as Clarence Bicknell, a great contribution to the botanic studies, to the gardens' creation and to the horticultural development has been made by enthusiasts and erudite Germans. In this regard, the same Sir Thomas Hanbury chose a young German, Ludwig Winter, in order to create his gardens in La Mortola, and hired several expert German botanists as curators. In order to analyze the reasons why an English man hired German botanists as curators and to understand why their presence has been so important for the horticultural development of the most western part of Liguria, we have to think about the cultural background of the German world of that time. Those distinguished botanists, gardeners and aspiring nurserymen were undoubtedly attracted by the charm of the Riviera, by its climate and by the possibility to cultivate new plants, but they weren't unprepared adventurers. They all had both a solid botanical and horticultural formation, which they had acquired by having studied in renowned gardening schools and by attending botanic gardens with greenhouses, which were rich in collections of exotic plants. The plants' exhibitions, which were common in Germany, are an evidence of the horticultural knowledge of that time. The Germans brought with them also a rich cultural heritage on the Riviera, among which the agronomic and technological innovations which were at the root of the reconversion from the olive growing to the industrial floriculture. The spread of this new kind of floriculture is considered as an answer to a new trend which began to spread and to expand more and more in Europe. In order to better understand the size and the expectations of that time towards the flower market, it's worth recalling a quote of Mario Calvino: *"Flowers have become a real need for kind people. Every noble lounge in Petersburg, Berlin or London is decorated with flowers from our Riviera"*. However it's the German Ludwig Winter, who was an esteemed landscape architect, nurseryman, flower grower and gardener, who is considered the

pioneer of the industrial floriculture on the Riviera. Born in 1846 in Heidelberg, Germany, since he was young he showed a great interest both for the botany and the gardening, but also a forward-looking spirit, a desire for changings, a leaning for travels and an openness to experimentation. His enthusiasm and his passion for botany pushed him to widen his knowledge and to seek new ambitions, but in the Europe of that time winds of war were blowing. The political tensions between France and Prussia pushed him on the Côte d'Azur, in Charles Huber's renowned horticultural business near Hyères. In that same period, near the border between Italy and France, Thomas Hanbury was making his dream of creating a great acclimatization garden in La Mortola come true. For this purpose, the English patron availed himself also of Charles Huber's suggestions. Among the other things, Charles Huber suggested Thomas Hanbury to hire the talented Ludwig Winter. The young German gratefully accepted the work and devoted himself to this ambitious project with great passion. Soon his enthusiasm, his determination and his hard work made him gain the Hanburys' trust, which will never fail, despite the subsequent events. All the collections of young plants coming from all over the world found their suitable place in the garden's great project, which followed a modern arrangement which was based both on the landscape and the biogeography. In 1874 the garden was almost completed and Ludwig Winter moved to the near town of Bordighera, where he started a new activity of his own, as a nurseryman and a flower grower. The experience he acquired in La Mortola would prove itself decisive for his new activity.

He created a cut flower cultivation of mimosas in *Curtasse*, one of Bordighera's town districts, and he launched on the market some cultivars he had obtained by hybridizing different species such as *Acacia hanburyana* (*dealbata* x *podaliriifolia*), which usually bloomed between January and February, and other cultivars such as *siebertiana* and *de-neufvillei* (Stacchini, 1926). In the same period he began to grow both the *Safrano* and *Marie Van Houtte* roses as cut flower roses. That's how the

floriculture began. In 1875 he produced and sold a lot of tropical plants in his “nursery-garden” in the “Vallone del Sasso”, but it’s in “Madonna della Ruota”, another town district of Bordighera, that Ludwig Winter created his landscape masterpiece, a wonderful place (*“Everything is beautiful in that garden: its regular lines, its harmonious curves, its monumental arbours, its wide panoramic views above the sea”*). Ludwig Winter was not only a pioneer of the floriculture, but also a capable entrepreneur who, like the art, knew how to be ahead of his time and to foresee the new market strategies: *“Our horticulture has to produce plants not only for trade, but also to pleasure the senses. It’s the voice of the beauty of Nature that we have to bring in Man’s house by means of our plants”*. Ludwig Winter’s entrepreneurial spirit was extraordinary and revealed itself also in the brilliant idea of bringing in the Modern Art some of his products, which he manufactured by interweaving some parts and leaves of palm. He also marketed the big palms, above all Phoenix dactylifera, which were meant for the villas and the boulevards of the coast towns of both the Italian and French Rivièras. The sale of great specimens allowed him to improvise some “developed” gardens, offering to the clients what we define nowadays as “ready effect”. At the beginning Ludwig Winter sent his goods by train. Also his detailed catalogues (Fig. 1), which listed the plants according to the species they belonged to, their size and their price, and reported also a short description and some useful information about their culture, can be considered as another example of promotional instrument ahead of Ludwig Winter's time. As a German, he is very scrupulous about commercial details. But all the plants were exposed and grouped together in the nursery not only according to their scientific name and their size, but also to their color, their growth and their growing needs. In this way Ludwig Winter was not only a nurseryman, but he became also a landscape architect and an artist who, by means of his horticultural compositions, stimulated the client’s imagination but at the same time he respected the plants' growing needs.



Fig.1. The front cover of the catalogue of the L. Winter's nursery in Bordighera.

Then the same nurseries began to sell also the small potted plants which were meant for the interior decoration and as garden products. These were the first steps of the flower-growing industry, which would grow extraordinarily in the subsequent years, also thanks to the passion of some local growers. *"This infectious example will be followed by many imitators. So the actual Ligurian flower-growing industry was born..."* (Rovesti, 1924). Many of the most prestigious horticultural businesses of western Liguria were started up by men who had grown up and worked with Ludwig Winter and had become entrepreneurs who knew how to put to practical use the teachings of a great master. It's worth mentioning the succulents producing firms started up by Bartolomeo Pallanca, Antonio Ronco, Giovanni Allavena and Giacomo Molinari. Also Ludwig Winter's great respect for Nature and far-sightedness about the sustainable exploitation of the natural resources are always remembered with pleasure. Beyond every description, it's worth recalling the words which were reported in the poster which was published during the first "Fiera del Fiore" in Bordighera in 1895. In this poster he alerted Bordighera's citizens against the danger to neglect their lands for a prevailing tourist exploitation of the territory: surely a far-sighted call to defend their natural heritage and the Riviera's landscape. Several years would pass after Ludwig Winter left Thomas Hanbury before the arrival of another just as valuable curator in La Mortola. It's worth remembering that another German, Otto Zacharias, worked in the garden for a short period, but unsuccessfully.

CRONEMEYER, PENZIG AND DINTER

Thomas Hanbury's respect for German-speaking botanists was confirmed again with the hiring of Gustav Cronemeyer as curator of his gardens. This choice was rewarded and, under Gustav Cronemeyer's guide, the scientific aspects of the garden became more and more important, thanks both to the intense correspondence and to the exchange of seeds with other botanical gardens. The typical German precision of

the new curator can be seen in the compilation of the seeds' catalogue, which became also a valuable instrument of scientific communication. With his arrival, La Mortola could be considered as a real botanical garden. Thanks to the publication *Systematic Catalogue of Plants growing in the open air in the Garden* (1889), botanists from all over the world learned of the garden of La Mortola and began to attend it.

Thomas dedicated much of his time to the scientific aspects of the garden and loved to make friends with the most known botanists of the time. Among the visitors of the Hanbury gardens, one the most loyal is another eminent German botanist, Albert Julius Otto Penzig. Born in Samitz (Prussian Silesia), he soon showed a great love for Italy and ended up spending most of his life in Liguria where he held the important office of director of the botanical Garden of the University of Genoa between 1887 and 1929. Otto Penzig, like many of his contemporaries who lived in the humid and cold regions of northern Europe, came on the Riviera for health reasons. We mustn't forget that Sanremo belonged to the élite European resorts which were recommended in Germany for the treatment of tuberculosis (Napolitano, 2011). The medical prescription to spend winter in a place with a healthy climate brought Otto Penzig to Menton. Penzig attended assiduously La Mortola and worked together with the various scientific curators, whom he helped to identify the new species which had been introduced in the garden and to draft the first editions of the catalogue *Hortus Mortolensis*. Thanks to his friendship with Thomas Hanbury and to the English patron's sensitivity and generosity, Otto Penzig got the money to finance the construction of the new building of the Botanical Institute of Genoa, which would be inaugurated in 1892 during the prestigious International Botanical Conference. This conference was very successful for the scientific world of the time and ended worthily in La Mortola. Sixty botanists coming from all over the world travelled from Genoa to La Mortola by train and spent a "pleasant afternoon" admiring the garden's wonderful collections. Ottone Penzig can be essentially defined as a great naturalist. During his

stay in Liguria he carried out a valuable botanical research and put together a collection of samples of the local flora; unfortunately the finds and a part of the documents went missing during World War II.

He founded and edited a prestigious scientific journal, *Malpighia*, which has remained one of the most important Italian botanical publications for a long time. But Ottone Penzig didn't limit himself to his studies. He also took on some great adventures: he became a daring explorer and travelled to Eritrea and Indonesia. Recently an unpublished manuscript written by this great naturalist during an expedition in Indonesia has been found and translated in Italian (Carlini, 2016). This valuable document contains sketches, drawings and notes about his travel and is also an important anthropological record of the Asia towards the end of the 20th century. As the World War I drew near, since he was of German origin, he was forced to leave Genoa. After the end of the war he came back to the University of Genoa and published *Flora popolare italiana* (Penzig, 1924). This work collects all the dialectal names of the main native plants grown in Italy. It's a very useful book for botanists, because it gives the possibility to relate the popular names of the plants with their scientific names in Latin. The knowledge of the popular names is a fragile heritage and is destined to be lost because Man moves more and more away from Nature and because of the popular traditions and customs. To have an idea of the great research it's worth examining an herbaceous plant which is common in the whole Riviera, *Centranthus ruber* DC., in order to find out with how many different names this plant is known in Liguria: *Basan-a grassa* (Genoa); *Basan-a sarvaega* (Polcevera valley); *Erba da vacche* (Borzoli, one of Genoa's city districts); *Fava grassa* (Pegli, one of Genoa's city districts); *Erba grassa* (Voltri, one of Genoa's city districts); *Fava grassa* (Pegli); *Canna rezza* (Arroscia valley); *Cannuazu* (Cogorno); *Canna rossa* (Bordighera); *Cannerezza* (Porto Maurizio); *Calin-a grassa* (Lavagna); *Gioxia* (San Bernardo); *Courelli* (Montalto); *Cornacia* (Nice); *Cornaccia* (Sospel). Among the various botanical researches, it's worth mentioning a popular

publication that today would be defined as a tourist publication, entitled *Flore coloriée de poche du littoral méditerranéen de Gênes à Barcelone y compris la Corse* and published in 1902. Thanks to the images and the description of the species which grow along the coastline, the botanist expresses “the astonishment of the tourists who visit the Riviera for the first time. A natural wonder that travelers take with themselves in their cold northern lands and tell their compatriots about the green grayish mantle of the olive trees that cover the hills, the scented citrus groves, the majestic palms and the huge agaves”. This description praised the mild climate which allowed to grow a vast number of very heterogeneous plant species coming from the four continents.

After Gustav Cronmeyer's death, the role of curator of the Hanbury Gardens was entrusted to Kurt Dinter, a German botanist who would stand out at international level. The period of time which he spent at La Mortola would reveal itself as an important stage of his life. The rich collection of South African succulents of the gardens fascinated immediately the young botanist, who was absorbed in preparing the draft of the second catalogue *Alphabetical Catalogue of plants growing in the open air in the garden of Thomas Hanbury* (1897). Kurt Dinter's stay at La Mortola was marked by a series of bad behaviours and dissoluteness that pushed him to leave his job as curator (Berger E., 2016). In 1897 he left the Hanbury gardens and moved to German South West Africa to undertake an adventurous exploration of the region. It's the beginning of a long period of time full of travels and explorations, during which he was always accompanied by his inseparable wife Helena Jutta Schilde.

ALWIN BERGER

After Kurt Dinter left his role, Alwin Berger, a substitute with excellent references, reached La Mortola. Alwin Berger was born in Möschlitz, near Schleiz, in Thuringia. The extraordinary talent he very soon showed pushed his parents to make him continue his studies. This would lead him to move to southern Germany and to enroll at the Pomologisches Institut.

Even if he wanted to have a complete education about fruit growing (Berger E., 2016), he didn't feel satisfied because he had to deal every day only with pomology. Therefore he moved to Ebersdorf where he learned to know and to love the exotic plants which grew in the greenhouses. This passion would subsequently lead him to work and study in prestigious botanical gardens such as those of Dresden and Freiburg. During his stay in Dresden, Alwin Berger met Kurt Dinter, who was about to travel to Italy to look for a job in the garden of La Mortola. The charm of southern Europe encouraged also Alwin Berger to travel to Italy for health reasons and to work in Hillebrand's nursery in Pallanza, on the shores of the Lago Maggiore. In 1897 he was hired in the "Palmengarten" of Frankfurt am Main, but he soon received the appreciated proposal to work in Italy, at La Mortola, because the outgoing curator, Kurt Dinter, needed to be replaced. After an evaluation of Alwin Berger's botanical knowledge, which was entrusted to Prof. Cav. Penzig, Thomas Hanbury found Alwin Berger's references satisfying and hired him as the new curator of his gardens (Berger E., 2016). So Alwin Berger reached the Hanbury botanical Gardens, where he worked from 1897 to 1914 with flying colors. During this period of time he made a valuable contribution to the nomenclature of the succulent plants, in particular of the genera Agave and Cactus. He was responsible for drafting the catalogue, labelling the plants, the correspondence, the herbarium and, besides, the rich library. The period of time that the young Alwin Berger spent on the Riviera was happy and creative. During this time he took several study trips: some of his destinations have been the Botanical Gardens of Naples and Palermo: the latter was particularly renowned for its rich collections of exotic plants. Here he found some rare species of the genus Aloe and described many plants *in situ*. Subsequently he took cuttings and whole plants to La Mortola. He went also to the Kew Gardens near London, from where he expressed in a letter to Thomas Hanbury "*all my joy because I have finally managed to make acquaintance with this Eldorado of all the gardens of the world*" (Berger E., 2016). Unfortunately winds of war were about to blow on Europe and dark times were approaching. Since the World War I and all the turbulent political

events that had preceded it were drawing near, Alwin Berger was forced to leave the Riviera under sufferance and to go back to Germany, like many other of his compatriots. His detachment from Italy has been very difficult and left a deep wound both in his mind and in his family's mind. The succulent plants were Alwin Berger's great passion: he brought to the attention of the international scientific community several publications, besides a lot of researches and acclimatization works. Alwin Berger carried out most of his research work during the period of time he spent in Italy. He cured also the drawing up of *A systematic revision of the genus Cereus* Mill. (Berger, 1905a), *Florula mortolensis* (Berger, 1905b) and the famous catalogue *Hortus mortolensis* (Berger, 1912), which listed more than 5,800 native and exotic species. The book included also a sequence of notes about the introduction of the various plants and seeds, including also introduction dates and places of origin. This catalogue is an extraordinary source of information which could be useful to study in depth the botany and the cultivation not only of the native plants of the Riviera but also of the acclimatized ones. During the time Alwin Berger has worked as curator, the garden has been a destination for famous botanists such as the American scholar of cacti J. N. Rose, who came in Europe in 1912 to visit the most important collections of succulent plants. In particular, he inserted many references to the plants he had observed in the Ligurian garden in the monograph of the Cactus family written with Britton (Britton & Rose, 1919-1923). The rich iconography of this work included also some evidence that a plant of *Opuntia bergeriana* was sent to the New York Botanical Garden in 1906 (Britton & Rose, 1919). The studies of the Agaves, about which Alwin Berger has mentioned specifically the collection of succulent plants of La Mortola in his work *Die Agaven* (Berger, 1915), are very interesting.

VON HÜTTNER

Among the learned gardeners and the German-speaking patrons who have helped the development of the gardens of the Ligurian Riviera, it's worth remembering the baron Carl Theophil Von Hüttner. We haven't

got much information about this prestigious guest, who stayed in Sanremo between 1874 and 1884, his deathyear, except that he had been ennobled with the title of Baron (Kanceff, 1998). However, we possess a botanical guide of the garden of the Villa Parva (Hüttner, 1884), his dwelling, and the record of some of the plants he described which are still living today, even if in a reduced strip of land of the garden of the ancient dwelling. Even the Baron reached the Riviera because of its mild and healthy climate which was extolled by the press of that time. Moreover, the Baron Carl Von Hüttner was a committed supporter of phytotherapy, i.e. the use of flowers and gardens as a valuable auxiliary treatment method against the depressions (Napolitano, 2011). At that time there were several tourist offers about various destinations along the Mediterranean coasts for people who looked for places of stay along the seashore and warm climates: in this context Carl von Hüttner's decision to build his dwelling in Sanremo was well motivated: *“The town and its surroundings stand out from all the other European winter resorts stations and even from the overseas ones (Cairo, Madeira) because of the abundance and the variety of the cultivated plants. Since the number of hosts who show a deep interest for the local gardens is growing year after year, during the last few years our German countrymen have also begun to settle in this wonderful region”* (Hüttner, 1884). In his book *Gartenflora des klimatischen Winter-Kurorts San Remo*, Carl von Hüttner confirmed his great interest for the nature which moved the foreign visitors closer to the Riviera, about which, however, the author reminds us the presence of a *small community of German people who have begun to settle in this region*. This essay looks like a treaty on the cultivated flora and provides a lot of useful information not only for the visitors of the seaside and health resort, but also for all the nature lovers. *“The botanist will found out surprisingly that almost all the families of the cultivated plants are represented on our Riviera; all those people who love gardening and plants, but also the gardeners who aren't as familiar with the southern plants, will have the possibility to enjoy the suggestions to find often some*

advice about the outdoor cultivation of tropical plants. On the contrary, all those people who enjoy nature in a more general way could perhaps draw inspiration in the section dedicated to the esthetic aspect of the plants and the role they play in the formation of the landscape” (Hüttner, 1884). Carl von Hüttner’s record is extremely important from the botanical and naturalistic point of view, since he reported a detailed census of both the native and the exotic species which were cultivated in the public and private gardens of Sanremo at that time. About every plant we can find a brief description of the family the same plant belongs to, its botanical name, some curiosities or growing notes and the gardens of the villas in which it is possible to admire them. The guide tells us also that the owners of the different gardens, real plant collectors, used to compete friendly with each other to show the last rarities introduced in Europe. This competition transformed Sanremo in an extraordinary “garden city” with a precious naturalistic heritage. The German community of that time has clearly expressed the passion and the love for the Riviera. In this regard it’s worth highlighting that during a period of time in which the great international contrasts that would have caused the World War I and overwhelmed Europe were raising, the Riviera was experiencing a moment of big splendor, comparable to an oasis of cohabitation between different cultures, ideologies and religions. The upper middle classes and the European nobility enjoyed the local pleasures just as Christians, Israelites, Orthodox Christians, Anglicans and Lutherans expressed their faith freely. Carl Von Hüttner’s grave is in the monumental cemetery of Sanremo, near other graves which belong to British, German, Russian and Polish citizens. It consists of a sturdy base, on which there is a column with evocative funerary symbols. There is also an inscription in German: *Die Lieben gehen, es bleibt die Liebe!* (Loves go, Love remains).

EDUARD STRASBURGER

Among all the German botanists who have visited the Riviera and described its naturalistic aspects, Eduard Strasburger deserves a special

mention. He was an internationally renowned scholar and author of essential works about microscopical botany: among his many publications it's worth mentioning the famous book *Lehrbuch der Botanik* (Textbook of Botany), which was published in 1894 and translated in many languages, including Italian (1897). He was the first to observe the fecundation and the union of the male nucleus with the nucleus of the egg cell in the Angiosperms and from this process he deduced that the cellular nucleus is the main carrier of the hereditary characteristics (1884) (Strasburger, 1995). Also Eduard Strasburger was fascinated by the Riviera and took a journey to Liguria. During his stay he enjoyed the beauty of the places. He had described his emotions and his naturalistic observations in a travel diary, which became famous afterwards: *Streifzüge an der Riviera*, published in 1904 (Strasburger, 1904). The English translation of this book, *Rambles on the Riviera*, was published in 1906 and a subsequent Italian translation with the title *Un botanico racconta* was published in 1944. This work is an extraordinary anthology in form of a novel which describes the naturalistic beauties of western Liguria. As the author walked the paths, crossed the gardens, visited the hills and the villages of the beautiful western Liguria, he depicted and described poetically the landscapes, the climate, the plants and his emotions. Just as the many guides published by foreign visitors who stayed on the Riviera towards the end of the 19th century, also Eduard Strasburger praised the wonderful climate of the Riviera in his work: "While letters and newspapers brought us the complaints of cold and snow north of the Alps, we were before long enjoying the most glorious Mediterranean sunshine...". There are also some references to the gardens: "The pretty garden of the Hôtel Angst was in full luxuriance; the beds resembled baskets of flowers. The huge bushes of the Cape Pelargonium were covered with vermillion flowers" (Strasburger, 1906). The diary described not only the coastal villages, the flowers and the plants in the different places, with continual botanical references, but also his discovery of the local customs, the traditions and the local economy

in an interesting way. The charm of the Riviera is celebrated between the olive groves, the vineyards and above all the palms: *“between the full walls of garden of palms, crossing the ways on which the exiles log fold their crowns, the tourist are felt like transported in other world...”* (Strasburger, 1906). About San Remo the author wrote: *“I was surrounded everywhere by Roses and Acacias, by Pelargoniums and Heliotrope; the air was laden with the scent of Orange blossom and Freezias, of Wallflowers and Stocks”* (Strasburger, 1906). In this short description we can understand a prediction of the upcoming epic of the floriculture in the Riviera. Extraordinary examples of botanical poetry are the descriptions of the olive groves, *“through which one passes on the way from Old Bordighera to Sasso, are particularly fine... Involuntarily does one pause before these trees to admire the striking contrast between the trunks with their deep shades and the bright blue of the sea and sky”* (Strasburger, 1906). He also praised the multicoloured wild flowers and the orchids which could be picked in the olive groves, as spring gifts of a happy land. When the author has described Bordighera he couldn't help but mention the palms which *“thrive nowhere better on the whole Riviera. They lend to the place a touch of enchantment and spread an Eastern glamour around”*.

POETS AND PAINTERS

The appreciation for palms recalls strong emotions that have inspired another famous German, the poet Joseph Viktor von Scheffel, who composed the famous poem “Dem Tode nah” while he was contemplating an evocative group of nine palms near the beach of “Madonna della Ruota”, a town district of Bordighera. Furthermore the German painter Friedrich Von Kleudgen used watercolours in his paintings of some folkloristic aspects of Bordighera, such as “woman with *parmureli*” and “*parmurà* absorbed in tying the palm leaves” (Merello, 1995). The latter, an evocative small picture, depicted this ancient cultivation practice, whose aim was obtaining the white palm

buds for the Palm Sunday. The fascination of the palms has also guided the hand of the famous painter Hermann Nestel, who settled in Bordighera in 1887 and depicted evocative corners such as the famous “*Vallone del Sasso with palms*”.

ALBAN VOIGT

Another German botanist who stayed on the Riviera and left an excellent record of his presence is Alban Voigt, the author of the valuable naturalistic guide “*Die Riviera*”. In this handbook the flora of the coastline between Sanremo and Cannes, for which the German-speaking citizens have a particular preference as a winter resort, is described with passion. In fact, it was mainly to the Germans that this guide was addressed to. Voigt stayed in Liguria, attended Clarence Bicknell’s library in Bordighera and visited with great interest the Hanbury gardens. He was fascinated by the abundance of acclimatized exotic plants, that he compared for amount and variety to those of the Portuguese botanical gardens of Cintra and Busaco. Among Alban Voigt’s observations there is also something about the predominant exotic flora which was spreading to the point that it was supplanting the local flora, even if it was beautiful from the point of view of the landscape and admirable. Alban Voigt enjoyed the local beauty and during his botanical walks he met the curator Alwin Berger, with whom he made friends. The guide is also rich in small anecdotes, among which the warm welcome to the visitors of the garden. While he was walking through the garden the author noticed that there weren’t any signs which invited the visitors to respect the plants. The reason is simple: since the gardens were attended by Gentlemen and Ladies and because of their sensitivity towards nature there was absolutely no need to display such signs. The guide “*Die Riviera*” is provided with a detailed map of the garden with the most important groups of plants and the description of each species grown. In addition there were also descriptions of other gardens of the neighbouring Côte d’Azur.

There has been another young and active German-speaking gardener who has left a great mark in the history of Ligurian floriculture: Hermann Stern reached the Riviera towards the end of the 19th century. After having completed his horticultural formation in Switzerland and worked in some important horticultural businesses in Dresden, Geneva and Lyon, he was ready to make his dream of reaching the beautiful Riviera, known for its mild climate and the extraordinary grow of palms and olive groves, a reality. Herman Stern worked first in Nice and then in Monte-Carlo as a gardener, but he had made his very first experiences in the cultivation and the marketing of the cut flowers. Guided by a strong entrepreneurship, he soon set up his own business. In Cannes, under the name of “*H. Stern & Co., Exportation de Fleurs*” he began to export carnations, anemones, narcissuses, daisies and above all roses. In particular the roses *Safrano* and *Maréchal Niel* were very sought-after and they were already grown in greenhouses. It was a period of great transformations and hopes in the whole Europe and Hermann Stern hoped to expand his business. But unfortunately, during a winter day, a night frost destroyed almost the entire outdoor flower production. The export business suddenly found itself in trouble because it hadn't enough flowers to satisfy both the national and the international orders. Confronted with this sudden trouble Hermann Stern expressed a strong intention to restart and searched for new growing areas in the neighboring Italian Riviera, which was praised for its much milder climate. Therefore he reached Italy and visited Bordighera and Sanremo, where he astonishingly discovered an outdoor cultivation of the valuable rose Marie Van Houtte, which hadn't been at all damaged by the Côte d'Azur's nefarious frost. From this observation he deduced that the place was ideal to go ahead with his project.



Fig. 2. Hermann Stern and his son.

made by the German hybridizers of that time to the Ligurian floriculture can be seen also in the different cultivars' names. The business extended soon its commercial network throughout the northern Europe and the flowers of the Riviera were delivered until to Stockholm, Petrograd and Moscow. The start of this flourishing cut flower trade was followed by an important nursery production of ornamental plants such as *Kentia forsteriana*, *Phoenix canariensis*, *Phoenix roebelenii*, *Aspidistra*, *Dracaena*. Unfortunately, after the outbreak of the First World War, since Hermann Stern was of German origin, he was looked at with suspicion and had to interrupt his business in order to seek refuge in Switzerland. At the end of the war, he resumed his export activity and he set up other cultivations of roses, carnations, bird of paradise plants and succulent plants. On July the 25th 1926, on the magazine "La Costa Azzurra", while Mario Calvino was pointing out the merits of this "pioneer of our floriculture", he fingered Hermann Stern as "another example of a

In 1891 he started to grow roses in Sanremo and a few years later he grew also carnations, even if he preferred the top quality cultivars to those which were grown until then, in particular those cultivars which tolerated better the long-haul trips. At the same time he widened his offer of roses with the introduction of cultivars such as *Ulrich Brunner*, *Frau Karl Druschki*, *Kaiserin Auguste Victoria* which were exposed and made known during the international horticultural exhibitions. The contribution

gardener who knew how to create his fortune and to contribute to the enrichment of our entire region with his intelligent and tireless work” (Calvino, 1926). In 1932 was opened the 1st “Mostra Nazionale di Floricoltura” (National Floriculture Show) and Hermann Stern's business showed an extraordinary collection of cacti and succulent plants in an artistic way. The press of that time mentioned specimens of extraordinary size and “a multitude of little pots on a surface of few square decimeters: a godsend for the modern houses!”

This last remark, which was made by Eva Mameli Calvino in person, an Italian naturalist and the mother of the famous Italian writer Italo Calvino,

makes us understand the commercial intuitions and the far-sightedness of the business strategy of Hermann Stern's factory (Mameli Calvino, 1932), which published also a valuable illustrated catalogue. The brochure *H. Stern - San Remo, Kakteen Sukkulanten - Piante grasse*, is a valuable international guide with nice photos of the business and of the species for sale, but also a botanical description with a price list (Stern, s.d.).



Fig. 3. Catalog of succulents produced and traded by the Stern firm.

Mario Calvino greeted Hermann Stern during his 70th birthday in this way: “a tenacious pioneer of our flower export, who is nicely known not only in Italy but also abroad, where his trade has imposed itself thanks to his strong honesty, seriousness and deep passion for floriculture” (Calvino, 1939).



Fig. 4. Stern's nursery of succulents.

STEFAN NEUHOFF AND KARL FÖRSTER

In 1894 another German, Stefan Neuhoff, moved to the Riviera. His name became very soon famous for the cultivation of the mimosa and was also included among the pioneers of the Ligurian floriculture. He was a good grower who “*knew how to earn a wide profit from the experiences of a master such as Ludwig Winter*” (Taggiasco, 1930). We owe him the spread of the cultivations of mimosa in his plot of land in “Piani di Borghetto”, one of Bordighera's town districts, where, in addition to the harvest and marketing of the leafy branches, he produced millions of little plants to sale to the other flower growers. Dino Taggiasco wrote in his book “Bordighera, storia e leggenda, usi e costumi, istituzioni e cittadini

benemeriti” (Bordighera, history and legend, customs and traditions, institutions and meritorious citizens): “*This real king of the mimosa has contributed to crowd our hills and our plain and to give wealth to many smallholders*” (Taggiasco, 1930). Stefan Neuhoff's actions have been particularly appreciated also by Princess Adelheid of Hohenlohe-Langenburg, granddaughter of the Queen Victoria, who has dwelled for some time at the Hôtel Angst in Bordighera. The World War I was fatal also for Stefan Neuhoff's activity and destroyed the work he had started. After the end of the war, he started decisively and courageously to rebuild his business. Stefan Neuhoff practised diffusely the graft on the *Mimosa floribunda*, which was already tested in France, thus creating plants which were more hardy and stood better the cold which sometimes threatened the cultivations of the Riviera (Taggiasco, 1930).

It's worth remembering also the German botanist, landscape gardener and poet Karl Foerster, who spent his formative period (1902-1903) working under his fellow countryman Ludwig Winter in Bordighera, although his stay on the Riviera has been short. Although only few of his works have been translated in Italian, he is still considered as one of the precursors of the recent landscape leanings related to the use of the herbaceous perennial plants and of the naturalistic and sustainable garden. Born in Berlin in 1874, after the period during which he has devoted himself to the horticultural studies, he reached Bordighera where he attended and worked in Ludwig Winter's nurseries. Here, under the guidance of Ludwig Winter, he began to know and to develop a passion for the use of the herbaceous perennial plants in the Mediterranean landscape. In 1903 he came back to Germany, he made the most of the experience he had acquired and set up a nursery of his own. His outlook on nature and the landscape was at the vanguard for that time and made him soon become one of the pioneers of the use of the wild species in the German gardens, among which the grasses. The first catalogue of Foerster's nursery was published in 1907 and his book “*Vom Blütengarten der Zukunft*” (From the bloomed garden of the future),

which was published in 1917, became a manifesto of the avant-garde landscaping.

ROBERT DIEM

Among other German pioneers of the floriculture, it's worth focusing on Robert Diem, a native of Württemberg. Born in 1892, since he was keen on flowers and botany, he devoted himself very soon to the gardening and he worked in several horticultural businesses in France and in England. He tried his hand at growing outdoors *Asparagus plumosus*, which was very sought-after as cut leafy branch, on the Côte d'Azur: "Before then it was grown mainly in pots, in the greenhouses of some keen amateur and few professional horticulturists, most of who were English; only in Germany and France" (Stacchini, 1929).



Fig. 5. Robert Diem in his nursery of *Asparagus*.

It's worth remembering that *A.plumosus* was introduced in Europe in 1882 from South Africa and Robert Diem was the first European grower to attempt the field cultivation, protecting his cultivations with reed mats, branches of *Erica scoparia* or palm leaves: "who hasn't visited Robert

Diem's greenhouses and arbours in the greenhouses of the Nervia valley, who hasn't walked under the trellis of the Vallone del Sasso?" (Stacchini, 1929). With dedication and tenacity, after several experimentations he managed to obtain vigorous little plants and able to guarantee an abundant field vegetation from seeds which had come from South Africa and California. The solution of the horticultural problem allowed also to grow and to launch on the market other species of the genus *Asparagus*. Unfortunately, his booming activity of horticultural producer was interrupted with the outbreak of the World War I and Robert Diem had to leave his cultivations in Antibes to take refuge in Italy. Here he took over the Dorner plant near Camporosso and established a large company, with extensions in the Nervia valley, in the "Vallone del Sasso" and in Arzilia, near Bordighera. In 1929 it was estimated that *A. plumosus* was cultivated on a total area of about 135,000 square meters (about 33 acres) (Stacchini, 1929) and many local cultivators followed Robert Diem's example. The soils which are naturally sandy, such as the coastal plain of Camporosso, offered optimal conditions for this kind of cultivation. At the same time the presence of the olive groves provided that right shade which helped the mixed cultivation of *Asparagus* and the olive grove. The development of the cultivation of *Asparagus* spreaded so fast that Paolo Stacchini (1929) wrote that some dozens of tons of *Asparagus* were about to be launched on the market. Towards the end of the 1930s, all the flower markets in Europe and in North America as well as the flower shops in the little towns were provided with these valuable little plants and cut leafy branches. In Bordighera the profitable cultivation of *Asparagus* spreaded in the shadow of the palms. The palm grove of the Vallone del Sasso partially modified the typically Ligurian intercropping, which was made of fruit trees and vegetable gardens and turned it into an intensive flower cultivation: "*in the Walloon of the Arzilia, Robert Diem grows outdoors A.plumosus very successfully, in order to get the seeds; and he does this under the palms which he himself has wanted to leave where they are, with a commendable sense of aesthetic conservation, in order*

not to alter the tropical appearance of the pleasant position” (Stacchini, 1929). This remark shows the sensitivity and the culture of this agricultural entrepreneur, who had a modern and far-sighted opinion about the awareness of the need to respect the places and of their beauty. These words are an excellent piece of evidence of the romantic German culture and of the sensitivity to the beauty of nature which is threatened by the temptation of an overexploitation. Robert Diem remained the uncontested king of the *Asparagus* until the 1950s, then he sold his business to the Bock family, who had German origins like the same Robert Diem. Robert Diem's work has had an important entrepreneurial implication on the territory, but also social consequences that pushed Paolo Stacchini (1929) to declare: *“The most prolific practice embraces the kindest poetry, and the love for flowers and the ornamental plants not only helps to refine customs, but also gives work to our workers and wealth to our country”*. Robert Diem has also spreaded among Ligurian cultivators a series of technological innovations such as the sprinklers. He expressed clearly his desire to make the most of all the experience he had acquired in an article which was published on the magazine “La Costa Azzurra Agricola e Floreale” (Rinaldi, 1932). This technical article was presented by the director of the magazine as: *“a disinterested and very noble gesture, which crowns a life full of tireless and intelligent work”* and informed the readers about a system devised by Diem to heat the greenhouses and to prevent any damage caused to the cultivations by the cold. At the end of his article the author expressed his certainty that the system he had suggested would prove itself useful for the cultivators and at the same time would give him *“the satisfaction for having contributed again to the welfare and the progress of floriculture”*. During the same period the cultivation of the lily of the valley spreaded in Holland, England, France, America and Japan. *“In Italy this cultivation is carried on successfully by Robert Diem's business, who has credit for having obtained and spreaded the cultivar ‘Valnervia’, which represents the result of a good selection and acclimatization process of the cultivar*

Excelsior” (Rinaldi, 1932). The industrial cut flower cultivation of *Gerbera* was soon added to the other flower productions of the Riviera and the credit for this introduction belonged again to Robert Diem, who carried out also a remarkable genetic crop improvement during about 30 years (Volpi, 1971)! Robert Diem saw for the first time *Gerbera* in Antibes in 1904, on his way back from the International Horticultural Show of Düsseldorf. Since then he developed a passion for the growing of this beautiful *Transvaal daisy*, which owes its name to another German naturalist, Traugott Gerber (1743).

WALTER HERRFELDT

Walter Herrfeldt, still of German origins, is remembered first of all as a keen succulent plant collector and as the owner of the horticultural business “Primores” (Calvino, 1934). In his splendid place on the sea, near the former Osteria del Mattone in Bordighera – mentioned by Giovanni Ruffini (1855) in his work “Doctor Antonio” – he used to collect and grow succulent plants outdoors.

Because of the mild climate, the high quality of his productions and the value of the species he grew, he has been able to start up a business of his own which was internationally appreciated. In the september 1936 issue of the magazine *The cactus Journal* we can find a promotional box on page 28: opportunity for specialists and collectors. Most important cacti and succulent nurseries in Italy are selling their whole stock of plants. On account of private reasons. Extraordinary opportunity for you. Please ask for particulars. PRIMORES-Bordighera, Italy. The business is very well and meticulously organized, in complete accordance with the German culture: “*Hundreds of nearly microscopical plants are disposed in a strict symmetrical order in their pots... The business, which is very interesting from a scientific point of view, was visited by botanists, scholars and groups of cultivators*”. The most delicate plants were cultivated in greenhouses which were heated with a sophisticated system of pipes that carried water and distributed evenly the heat. Walter

Herrfeldt's desire to deepen his botanical knowledge and the knowledge of the growing techniques pushed him to summon in Bordighera one of the most important succulent plant experts of that time, Walther Haage. Walther Haage's stay in Bordighera helped to increase the nursery's prestige and also increased the German scientific community in the Riviera, which already included several prominent personalities. Walter Herrfeldt's business took part to the first "Mostra nazionale di Floricoltura" (National Floriculture Show), which was held in San Remo in 1932, with a rich collection of succulent plants. In an artistic, Mexican-inspired scenario, several groups of different specimens of the genera *Mamillaria*, *Pilocereus*, *Mesembrianthemum*, *Cereus* and *Lithops* were exposed.

CURT BACKEBERG

Among the most eminent German scholars who have attended the Riviera we mustn't forget Curt Backeberg (Newton, 1966). This extraordinary personality, driven by his great passion for succulent plants, became internationally renowned, even if he has been sometimes preempted. His interest for plants and photography pushed him to make several exploratory trips, mainly to Mexico and South America. In Bordighera he attended the nurseryman Ronco Antonio, one of Ludwig Winter's nephews, who grew cacti with passion and competence. Curt Backeberg learned from the young Antonio the innovative technique to perform grafts of *Cactus* on *Peireskiopsis*: this cultivation practice was mentioned in the first volume of his valuable monography *Die Cactaceae*, published in 1958. He wrote several travel diaries and made a rich photographic record, above all about botany and nature in general. Among his main works there is the above cited *Die Cactaceae*, a six volume set (Backeberg, 1958-1962). After the World War II Curt Backeberg remained on the Côte d'Azur and dedicated himself to the cultivation of the collection of Marnier-Lapostolle's botanical garden, *Les Cèdres*.

KARL SPRENGER

Among the German botanists it's worth mentioning also Karl Sprenger, a major personality of the Italian horticulture. Karl Sprenger's precious work as a botanist and nurseryman was remembered by R. Pampanini (1946). Although he didn't carry out his activity on the Riviera, he still visited it, even if fleetingly, and he met Ludwig Winter and Alwin Berger during these visits. Karl Sprenger's reputation as a botanist is related to the multitude of cultivars of *Canna indica*, the so-called *edible cannas*, which beautified the European gardens during the 20th century. Towards the end of the 19th century he was joint owner of the business Dammann & Co. of Naples and he selected a splendid hybrid of *Canna indica*, whose flowers were large and beautiful, and gave it the name Italy. Karl Sprenger's bond with western Liguria dates back to the dedication he lavished to make *Asparagus sprengeri* known (a species that bears his name), which would ensure the commercial success of Robert Diem's business in Bordighera. This species was discovered in South Africa and the first plants were introduced in Germany in 1892; from that moment began the commercial success of this green frond which conquered the world market. Karl Sprenger contributed to the main horticultural periodicals of that time, among which the "Bullettino della R. Società Toscana d'Orticoltura" and "Gartenflora".

BRAÜER AND KOERNER

The German flower growers of the Riviera have also contributed in a significant way to the genetic improvement of the flower cultivations. On the "Gartenwelt" we can read some words about a rose cultivar produced by Paul Braüer, an hybridizer of Sanremo, and launched on the market by J. C. Koerner, a flower grower from Bordighera: "*Among the various latest roses which were marketed this year, 'Principessa di Napoli' is surely one of the most beautiful ones and, as far as I already know, one of the most satisfying ones... the flowers have a bright pink*

coloration, which tends to the opaque yellowish on the inside, whose tone stands out with more intensity and beauty at blooming time... Its scent is very delightful and delicate” (Eckardt, 1897). The text goes on specifying that since this cultivar which has been produced in Bordighera bloomed very much, it was resistant to diseases and since its stems had come to Frankfurt in excellent conditions, it was expected to have a good success on the German market. The process of genetic selection which has been performed by the German hybridizer Paul Bräuer recorded some important successes in the field of the cut flower cultivation of carnations. The German grower Bräuer in San Remo was actually the only one who devoted himself to the research of new hybrids of Tea rose. “His successes are quite satisfactory, above all for the roses of the Riviera; e.g. his creations *Contessa Cecilia Lurani*, *Principessa Bülow*, *William Hartmann*, and *Principessa Victoria di Battenberg*, *Zarina Alexandra*, and above all the new rose, *Re del Siam*” (Kiese, 1912). The villa where Mr. Bräuer carried on his research of new cultivars was at the bottom of the Monte Solaro, near San Remo. The German hybridizer deserves also a special mention for having written a series of interesting articles about the culture of roses in the western part of the Italian Riviera. These articles have been periodically published between 1891 and 1911 on the German magazine *Rosen-Zeitung* (Bräuer, 1891, 1895, 1896, 1907, 1911). As a reaffirmation of the close bond between the history of the Ligurian floriculture and the Germans, it is curious to know that the rootings of *Rosa indica* ‘Major’ which have been used as rootstocks during the 1900s came mostly from Germany.

LEOPOLD ANGERER

Among the various German-speaking personalities that have helped to create gardens on the Riviera, Leopold Angerer deserves a special mention. The great affection and gratitude for the German-speaking guests of the local population has become clear in a short written presentation of this illustrious guest: “*The people of San Remo*

have also a strict obligation of gratitude to many foreigners, who after having purchased plots of land in our country, they establish here their residence, and since their minds and their hearts have been accustomed to the great thinking and the civil uprightness, they do our citizens a very good turn. And among these strangers, I'd love to mention Mr. Leopold Angerer, a lawyer from Innsbruck" (Astraldi, 1914). This Austrian guest was a botanist, keen on books and travels, who spent the winter season in Sanremo in a villa with an Art Nouveau architecture, where he held an extraordinary collection of cycads and several species of palms. But above all it was all the *Encephalartos* from South Africa and the *Dioon* from Central America that made up an unequalled botanical patrimony for that time. This extraordinary collection, which was comparable to a collection of *living fossils*, has in part survived till now and some *Encephalartos* and palms of rare beauty can still be admired.

CARL ERNEST OTTO KUNTZE

Among the German botanists who have stayed on the Riviera we mustn't forget Carl Ernest Otto Kuntze. He was a friend of Alwin Berger's, who came often to visit him in his little countryhouse in San Remo, where he lived (Berger, 2016). Otto Kuntze's name is linked to a critical revision of the botanical nomenclature of that time. Born in Leipzig in 1843, he made a series of botanical excursions worldwide between 1874 and 1876 and he made up a precious ethnological collection which he donated to the museum of Leipzig. He published a three volume set, *Revisio Generum Plantarum*, in which he exposed his taxonomic vision of the plant world (Kuntze, 1891-1898). In 1905 he took part to the Botany International Congress which was held in Vienna, but his valuable job was disputed by the scientific community. He pursued his studies in San Remo until 1907, his deathyear.



Fig. 6. German traders of flowers at the Casino of San Remo in 1925.

CONCLUSIONS

The German contribution to the transformation of the landscape of the Riviera and to the development of the industrial floriculture has been undoubtedly very important. Unfortunately the scenarios of the international politics have often meddled with this development and this cultural and economic transformation.

On April the 3rd, 1932 the first National Floriculture Show was opened in Sanremo; it was a huge success and attracted thousands of visitors. The Show was held in the municipal garden of the Villa Ormond, which had been bought by the municipality not long before and renovated so that it could hold great flower exhibitions. It was an extraordinary showcase for the floriculture and also an opportunity to admire the high quality of the businesses of the German-speaking cultivators who had chosen the most western part of Liguria to set up their businesses. Hermann Stern's business showed up with *Vesuvio*, an amazing scarlet

carnation, and *Manon*, which was a beautiful uniform pink colour carnation, with a complete calyx, of medium size, thus launching on the market a new tendency concerning the production of carnations. Also the *Amaryllis*, the artistic presentation of Cacti and succulent plants and the superb groups of *Strelitzia reginae* were admirable. There was also



Fig. 7. The smile of Rose Marie, Hermann Stern's young daughter, with a bouquet of roses symbolizes a happy relationship between the flowers, the Riviera and Germany.

Robert Diem's business, which presented its Lilies of the Valley grown in Bordighera and a collection of plants of the genus *Gerbera*. In a wide room of the exhibition hall, which was decorated with much good taste, the plants of the genus *Gerbera* were displayed both potted and as cut flowers. The collection featured flowers with delicate shades and, curiously, the seed technique and the different stages of growth were showed to the visitors in various little pots. The collection of ragworts of A. Hillebrand's business was very beautiful and admired. Also Ludwig Winter's business took part to the exhibition with palms, Cycads and "the most beautiful

group of agaves, aloes, mesembryanthemums, echeveria, etc. made by different species and cultivars, showed with beautiful specimens" (Mostra nazionale di floricoltura, 1934). The juries rewarded abundantly the productions of these businesses and it has been a triumph of gold medals and special prizes. The great bond between the German horticultural world and the flower businesses of the Riviera is documented also by a

visit of German university students of the Agricultural University of Berlin. The students visited the prestigious headquarters of the “Istituto Sperimentale di Floricoltura” of Sanremo, where they admired some collections of ornamental flower plants and roses. Then the group reached Stern's nursery, which was renowned for its cultivations of cacti. The students have visited also other businesses managed by German cultivators, such as Ludwig Winter's nursery and Herrfeld's and Diem's ones.

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OTTO PENZIG, EXPLORER. THE DIARY OF THE EXPEDITION IN INDONESIA. PRESENTATION OF THE ITALIAN EDITION

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ABSTRACT

The author draws a portrait of Otto Penzig presenting the diary of his expedition in Indonesia.

KEY WORDS

Ottone Penzig, Botany, Indonesia, Krakatoa, Singapore, Ceylon

OTTO PENZIG

Otto Albert Julius Penzig (Ottone Penzig) was born in Samitz (Silesia) in 1856 (Fig. 1). He moved to France and then to Italy. In Padova knows Pier Andrea Saccardo, a naturalist and mycologist who gives him the passion for mycology. In 1886, he won the Chair of Botany at the University of Genova, where he would remain, for the rest of his life, excluding the First World War.

With his scientific and cultural relationships, the one with Thomas Hanbury, who created the Hanbury Gardens of Mortola in Ventimiglia, marks a lucky moment for the presence of creative foreigners in Liguria (Winter, Bicknell, Berger).

Penzig, with Hanbury's involvement in the situation at the University of Genova, get from him the funding for the construction of the "Hanbury Institute of Botany", within the properties of the Genoese University, with buildings, greenhouses and laboratories, of which Penzig is the director.

On the occasion of the 400th anniversary of the Discovery of America, in 1892 Penzig organized one of the first World Congress of Botany in Genova, with the financial support of Thomas Hanbury (Penzig, 1892).



Fig. 1. Ottone Penzig.

THE EXPEDITION

In the summer of 1893, a catastrophic event affects the Strait of Sunda in present-day Indonesia, then a Dutch colony: the eruption and explosion of the Krakatoa Island in the sea between Java and Sumatra.

The island of Krakatoa explodes, probably due to the invasion of seawater into deep magma, during a terrific eruption. This fact produces the raging projection at high altitude of over 1.5 cubic kilometers of rock, most of the island. A giant wave of tsunamis crashes on all islands of the archipelago, and then on the contiguous coasts of Java and Sumatra, then with a flow of hot volcanic gases and hot water vapor over the surface, leaving at the bottom of the sea a sinkhole which is still largely still to be filled today. It follows a terrible human and natural disaster.

The event was in the particular historical period of exploration and scientific research, and thus attracted the attention of scientists around the world.

Penzig's scientific expedition lasted about six months between 1896 and 1897 in Indonesia, then in Singapore, and then in Ceylon (Sri Lanka), and was also based on the field study of the consequences of this event. The expedition, however, had the main interest in botany and mycology, main scientific interest of Penzig, namely the study of the *Phalloideae* of Java. This study will be published by the Dutch scientific structure of the Botanical Garden (Kebun Raja) of Buitenzorg, which hosted him (Penzig, 1899).

After the destruction by the Japanese in Indonesia during the World War II, and more precisely in the Buitenzorg Botanical Garden (now Bogor), the expedition's documentation is kept in the Nationaal Archief (National Archives) for Colonies of the Dutch government, in the Netherlands. The University of Genova keeps copies of some documents.

THE EXPEDITION DIARY AND ITS PUBLICATION

Penzig wrote a personal diary of the expedition. It has never been published or even read because of the German language and, above all, the difficult conditions in which it was written and the inks used.

This presentation concerns the recent recovery, transcription, publication and edition of this diary by Fratelli Frilli Editore of Genova (Carlini, 2016). The diary was edited and printed thanks to the heirs of Ottone Penzig, the great-grandsons Maurizio Castagna and Adele Gheza.

Mr. Maurizio Castagna, heir of Ottone Penzig, residing in Breno (Brescia), handed to me the original diary. Since I do not have adequate knowledge of German, the first task was to find a transcriber that would transfer a rather hermetic and complex text, scarcely readable in an editable form of word processing. Admirably, this person turned out to be Prof. Helmut Leithner from Gmunden (Upper Austria), my friend and correspondent in a French brotherhood of rare plant growers. Helmut Leithner has shown, well beyond the expected, a passionate scholar, with me, of the diary, to clarify historical, literary and botanical doubts and uncertainties. For the Italian translation, I used Dr. Gabriele

Campodonico, a German linguist, and Antje Suzanne Rath, an Italian of German origin. The final translation of the diary is as complete as possible to the original content. As a purpose of the work, deliberately I did not make notes on the content of the text. I have only added very few notes to explain otherwise incomprehensible terms, despite the diary is written in German, words in Dutch, Indonesian, Malay, English, and even in Italian were used. Everything was then optimized and controlled for current and scientific terminology, which obviously resembles the botanical and cultural situation of the late nineteenth century. All the operators, including myself, worked for free.



Fig. 2. Prins Hendrik in the port of Genova at the end of the 19th century.

The diary begins with the journey from Losine (Brescia province) to Brescia, Milano and Genova, where Penzig embarks on Prins Hendrik (Fig. 2 and 3), a Dutch navy vessel connecting Genova with Batavia (now Jakarta, Indonesia), with stops in Suez and Aden . This journey is meticulously described.

Once in Indonesia, then the Dutch colony, Penzig is housed in the structure of the Botanical Garden of Buitenzorg (today Kebun Raja

Bogor), which with its 87 hectares is still the largest botanical garden in South East Asia and one of the major and most important worldwide.

Laboratory facilities are made available to him, and he is personally able to enlist local collaborators for his research of materials in the surrounding territories.



Fig. 3. The Penzig cabin on the Prins Hendrik.

At first, he develops his research in the botanical garden (her main interest is mycology) but early hikes in the forest and in the countryside and in the most challenging mountains, in the surrounding volcanoes (the area is particularly active from the volcanic point of view), with the examination of smaller volcanic phenomena (Fig. 4). But the research is still marked by botanical observations in the discovery of unexpected and endemic plants, and of course with the collection of massive amounts of Pteridophytes and fungi. Botanical observation on river environment, rice fields and cultivars are also important. From a botanical point of view, Penzig cites, among other things, the research of that time on the diseases that afflicted the cultivation of sugar cane in Indonesia. He notes the environmental changes caused by the massive introduction of tea cultivation and the attempts of coffee cultivation on the hills.



Fig. 4. The Merapi Volcano in Java.

However, the most interesting part of the diary is the one related to non-botanical subjects, with a description of the traditional social structure of the countryside, the villages of the peasants (kampong) and the traditional architecture of the buildings with the use of natural materials, mainly derived from ubiquitous bamboo and palm trees.

For the applied botany, Penzig already notes the turnout of cultivated plants of all kinds and of all origins. In fact, plants considered useful have already been introduced from the rest of the world, moreover from Africa and America, for food reasons (manioc, potatoes, tomatoes, papaya, pineapple) and for industrial production of resins, oils, rubber.

Penzig describes the intensive and omnipresent cultivation of rice paddies, the communications system, then in embryo and developing, with the tracing of roads and railways.

In the larger towns and villages, he notes and describes the mixing already put in place of the indigenous population with the Chinese.

Far beyond the botanical interest, Penzig describes the mix of customs, festivities and religions that shake Indonesian society, loud and bland, but ultimately in good harmony. The Dutch government is floating on it, with its “mandoer” (native government officials), which are drafting a reasonable and efficient social structure, which will then be the base, half a century later, of the structure of the independent state.

Often Penzig enriches the diary with photographs, sketches, drawings and schemes, also to describe human features and costumes. The analysis of traditional Indonesian music is remarkable: the Gamelang, with the typical string instruments, rebabs (Fig. 5), and percussion, traditional dance (slendang). In the diary he even compiled a musical line for a simple harmony. Penzig seems to be a good music critic.

The social life of Penzig is good, with visits and invitations by local notables. His diary also captures his personality, who is interested in analyzing the social and industrial development of the country. In social

life, he does not neglect a few glasses of whiskey, and a few glasses of good beer, but he cannot bear, and he notices it, roughly, smoke.



Fig. 5. Sketches and notes on Rebab player and his instrument

His current daily life, on the other hand, is dotted with the research and treatment of botanical materials, short explorations and epic returns home under the rain, then long days spent in the lab to observe, catalog, and preserve naturalistic finds, above all botanical (Fig. 6).

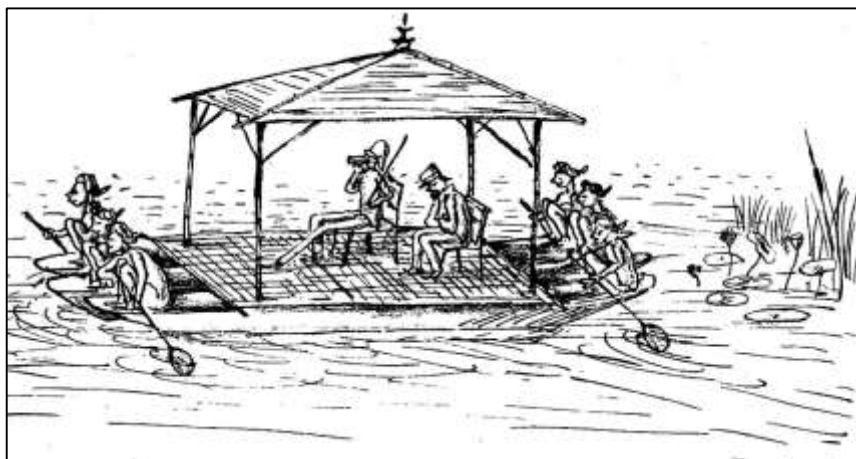


Fig. 6. Penzig' sketch of a canoe raft

His stay at Java culminates with the exploratory trip to Krakatoa, where, on the basis of a careful analysis of previous censuses, he updates the list of species found by him, ordered according to families (Fig. 7 and 8).

Despite his continued references to “supplementary documents” related to the diary, my repeated research at both the heirs and at the University of Genova did not allow me to come to anything and I fear that these documents should be lost.

The differences in botanical names, compared to the present, testify to the time he lived. Indeed, if many attributions are entirely still acceptable today, some others have been amended. Among these, there are the three species of Krakatoa *Ficus*, which he, as normal, attributed to the Urticaceae family.

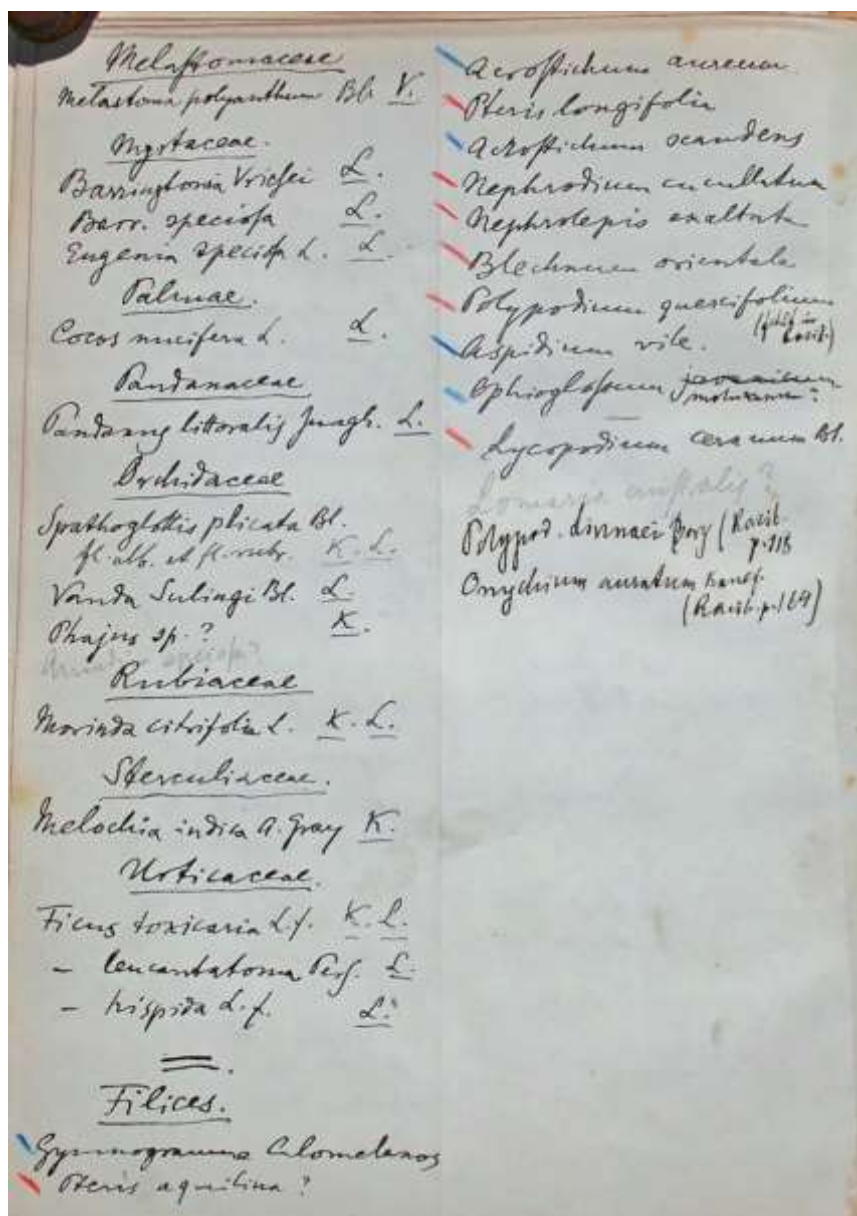


Fig. 7. List of plant collected or observed by Penzig in Krakatoa Island.

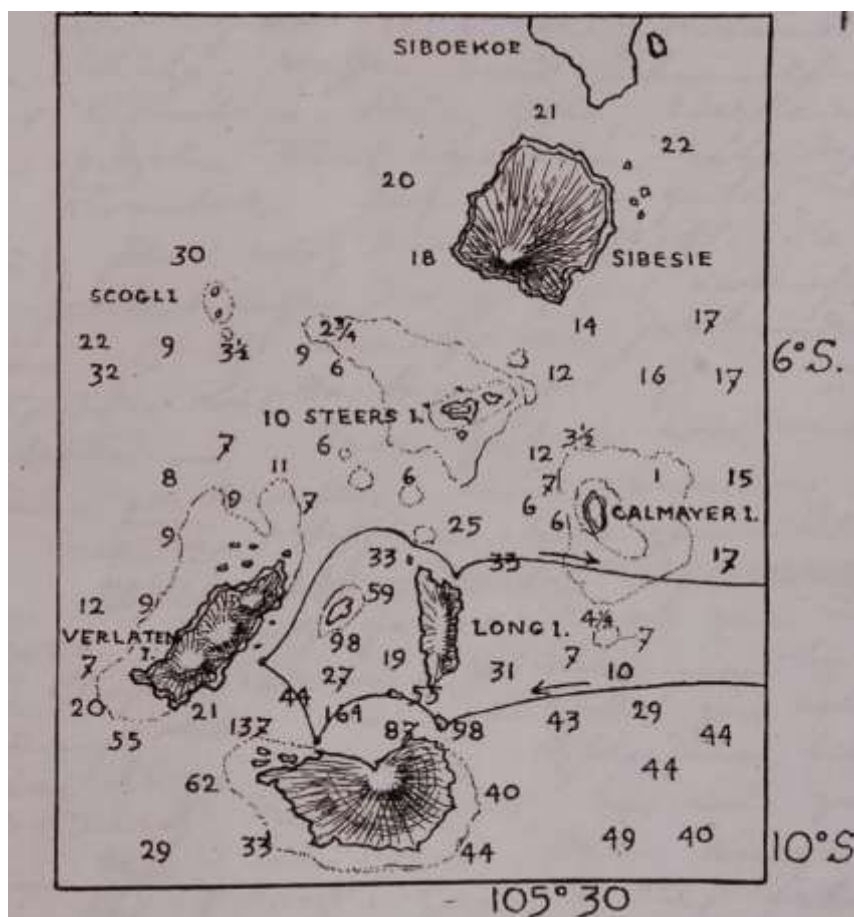


Fig. 8. Map of Krakatoa after August 1893

His favorite companions in his botanical stay in Java are other botanists who meet and with whom he share experiences, the Garden director, Melchior Treub (Dutch), Raciborsky (Polish), Ewarth (English), Clatriau (Belgian). The meeting with residents of the Dutch government structure, merchants, military and diplomatic is practically obvious.

He moved to Singapore where analyzes the botanical and human reality of that peculiar part of the world, the composite blend of all the people here gathered: British, Dutch, German, French, but, above all, loud

and flashy, the Chinese. Penzig assists, participates and narrates the most visibly and loud events. He visits museums and temples with a different success. He is a watchful observer of botanical aspects, and botanical gardens. Comparisons with Indonesia are recurring and accurate.

From Singapore to Ceylon; once again Penzig turns page, and notes the change.

Here the colonizers are the British, and the population is Shinalese, which is closer, as Penzig notes, to the physiognomic traits of Europeans. Among all religions, Buddhism is very widespread here, and Penzig noted it.

Society too is different. Here it is more homogeneous, and Western influence is stronger both in female costumes, halfway between western blouses and eastern silk dresses, and in architecture, where Penzig notes the presence of gaudy and rough buildings in western style, mixed with traditional wood and bamboo ones.

Compared to Indonesia, Penzig notes a lesser use of bamboo and palm trees in the countryside as building material, replaced by low-quality masonry and roof tiles or iron sheets. Temples are Buddhist, and Penzig visits them carefully, in some cases with curiosity and on other occasions even with disappointment.

Even here, visits to gardens and museums are due.

The description, dear to Penzig, of costumes of men and women, especially in the countryside, is good information. He notes the habit of girls to wear jewelry, even of great value, and even in everyday life, at work.

There are many excursions, both of botanical nature more demanding, and easy sightseeing tours. For these, Penzig notes with dismay at that time the imperative of advertising signs along the forest roads.

Penzig tells smiling about returning with the colonial dresses lurid and covered by mud and algae from a difficult botanical hike, in the muddy ponds of the Mahaweli River, in search of *Podostemaceae*. The explorers go parade in front of the astonished native Shinalese who, with the family, on the hot holiday day are on the bank of the river to make a picnic. The children look at them with eyes wide open and ask their

parents who they are ever those strange beings with the helmet, so dirty, coming out of the water. Penzig notes: we pretended nothing; we finally managed to find the *Podostemaceae*.

Penzig repeatedly cites high-level and large format photographs purchased or made to realize, which are not attached to the diary.

My research of these photos, promoted by Prof. Mauro Mariotti, Botanist of the University of Genova, and with the help of technician Sandra Placereani, has allowed the discovery of two large boxes of large format photographs framed, annotated and signed by Penzig, in the Archives of the Botanic Garden of Genova.

I digitized these pictures with the help of Emanuele Bruzzone and a digital copy is kept at the University (DISTAV). My research also produced the discovery, in the archives of the former Hanbury Institute, of the manuscript (in single sheets, without the first page) in which Penzig accurately describes, in Italian, the Buitenzorg market, from anthropological, botanical, pomological and product points of view: a precious document of great interest. This description has been included into the printed edition of diary as “Appendix”.

Unfortunately, in the most significant points of the handwritten diary, regarding scientific and anthropological descriptions, Penzig overlooks referring to different supplements or the developing documents with best explanations. Such specific supplements, as mentioned above, unfortunately was unavailable.

Penzig’s journey ends with the return to Genova with the great German ship *Barbarossa*, which is on its first return trip from Adelaide (Australia). Penzig uses this ship in the stretch from Colombo (Ceylon) to the Mediterranean.

The manuscript diary, however, is accompanied by several other “documents”, pasted or inserted between the pages: travel tickets, payments for materials and services, expense forecasts, notes, etc. Everything was photographed, digitized and attached to the original copy of the diary.

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