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Abstract

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The collections from the Royal Spanish Expeditions to Latin America conserved in the Institut Botànic de Barcelona, comprising 695 specimens, illustrate the changing fortunes in the study of the flora of tropical America by Spanish botanists and their herbarium material. We present data on the collectors, the collection localities and the expeditions, and as electronic supplement, a list of all specimens with collecting data and the determinations on the sheets.

Key words: history of botany, herbarium specimens, Ruiz & Pavón Expedition, Sessé & Mociño Expedition, Malaspina Expedition.

Introduction

The Institut Botànic de Barcelona houses a collection of specimens from some of the Royal Spanish Expeditions which explored the overseas colonies at the end of the 18th century. Most come from the Ruiz & Pavón herbarium in Madrid, which was formed as a result of the botanical expedition to the viceroydom of Peru and Chile in 1777-88. Hipólito Ruiz (1754-1816), as first botanist, José Pavón (1754-1840), Juan Tafalla (1755-1811) and, as illustrators, José Brunete and Isidro Gálvez, took part in this expedition. Joseph Dombey (1742-96), a French physician, had been designated by his government to contribute to this expedition; Carlos III approved his participation, but with the condition that he had to share all his discoveries by sending a copy of his observations to Spain (Delgado 1994).

A decade later, in 1787-1803, a second Royal Botanical Expedition, to New Spain, was undertaken with the botanists Martín Sessé (1751-1808), José Mariano Mociño (1757-1820), Juan Castillo (1744-93) and Jaime Senseve (?-1805). They explored present day Mexico, Guatemala, Cuba, Puerto Rico, California and Nootka Bay.

The second expedition was just starting, when Carlos IV (1748-1819) approved a third one, known as the Malaspina Expedition (1789-94), with the purpose of studying the natural products

of America and the Far East (Acosta 1997). In charge of this expedition was Alessandro Malaspina (1754-1810) and it included the naturalists Antonio Pineda (1753-92), Luis Née (1734-1803?) and Thaddäus Haenke (1761-1816). They visited present day Uruguay, Argentina, Chile, Peru, Ecuador, Panama, Mexico, the Gulf of Alaska, the Nootka Archipelago, Guam, the Philippines, the Moluccas, New Guinea, New Zealand and Australia.

In 1788 the Ruiz & Pavón Expedition returned to Spain with thousands of herbarium sheets and numerous other objects of interest for natural sciences. Dombey came back in 1784. Tafalla, however, remained in Peru and Ecuador, exploring Guayaquil (1799-1802) and subsequently the Andes of Ecuador. Back home, Ruiz and Pavón worked in the “Oficina Botánica” of Madrid, a kind of Royal Cabinet for the study of the overseas flora, and initiated the publication of the “Flora Peruviana et Chilensis”, where the new species were arranged according to the Linnaean system (Steele 1964). They also received sheets from Tafalla, duplicates from Dombey and material from the second Royal Botanical Expedition to New Spain.

In 1816 Hipólito Ruiz died, but Pavón continued to serve in the office in Madrid with the purpose of publishing the Flora and taking care of the collections of the other expeditions. But the “Oficina” weakened due to its debts and the publication of “Flora Peruviana” stagnated definitively (Estrella 1988). After the Napoleonic wars, Spain was a ruined country with very few resources to support science. In this situation Pavón began a commercial relationship with Aylmer Bourke Lambert, an English collector, who acquired thousands of sheets from the Spanish expeditions to America over a period of nine years. With this contact Pavón sought, on the one hand, alternative revenues to his official wage, which he received on a very irregular basis, and, on the other hand, an integration into the group of principal Old World botanists (Miller 1970, Rodriguez 1994). Another Englishman and collector, Philip Barker Webb, continued as a client of Pavón until 1831 when the “Junta de Protección del Museo de Ciencias Naturales” stopped this business.

However, the sheets deposited in the Institut Botànic de Barcelona demonstrate that this was not the end of the wanderings of Royal Expedition specimens. Lagasca's successor at the Museum of Natural Science of Madrid, his pupil Mariano de la Paz Graells, mediated the sale of plants from the American expeditions to the Real Academia de Ciencias y Artes de Barcelona in 1836 (Camarasa 1989, Montserrat 1996). These plants were obtained from the “Oficina Botánica”; Eduardo Carreño (1820-42) and Miguel Colmeiro (1816-1901) helped Graells to examine and arrange this herbarium (Graells 1842). In 1905 the Real Academia de Ciencias y Artes de Barcelona revised this collection, as can be seen in the catalogue conserved in the archives of the Institut Botànic de Barcelona (“Herbarios cedidos por la Real Academia”).

In 1925 Pius Font Quer obtained the approval of the Real Academia to move all its herbaria to the Museu de Ciències Naturals (Font Quer 1925), embryo of the current Institut Botànic de Barcelona. With the herbaria of the Academy, Pavón's plants arrived, wrapped in the same envelopes that appear photographed in “La botánica al servicio de la corona” (Muñoz Garmendia 2003: 178), together with minor collections, such as the Miguel Barnades (c. 1708-71) and Carreño (1820-42) herbaria, listed in the Catalogue of the Museo de la Real Academia de Ciencias y Artes de Barcelona of 1898 (archives of the Real Academia de Ciencias y Artes de Barcelona). All are preserved nowadays in the Institut Botànic de Barcelona.

In 1930 a Barcelona student, Josep Cuatrecasas, obtained a postdoctoral grant to pursue his studies in systematic botany in Berlin, at that time being the largest research centre focused on neotropical botany. From Berlin, Cuatrecasas wrote to his teacher Font Quer that Erich Werdermann (1892-1959), a member of staff who the year before had visited the Real Jardín in Madrid (Lack 1979), specialist in *Cactaceae* and in South American flora, was studying plants of Ruiz & Pavón, which had arrived on loan from Madrid the previous year (correspondence of Cuatrecasas of 1930, archives of the Institut Botànic de Barcelona). He proposed that the plants conserved in the museum of Barcelona should be studied at the same time. Font Quer answered affirmatively and the plants arrived in Berlin. Through Cuatrecasas a neotropical collection of great interest was readily available for the specialists in Berlin. However, in March of 1943, during one of the allied bombings on Berlin, two bombs destroyed the enormous herbarium in Berlin-Dahlem. Fortunately, more

than 500 000 sheets survived, i.e. about ten percent of the initial collection (Hiepko 1987), including the plants of Pavón and others that Font Quer had sent from Barcelona.

A simple, handwritten note in pencil saying “Mus. Barcelona. Arten von R. et Pav.” enabled Prof. Werner Greuter to reconstruct the history of the loan after all correspondence had been burnt with the herbarium, archives and library in 1943. Subsequently the specimens were returned to the Institut Botànic de Barcelona at the beginning of the nineties.

Methods

Our research is based on previous studies dedicated to Sessé & Mociño (Blanco 1987, 2000, Blanco & al. 1988, Blanco & Puig Samper 2003), Tafalla (Estrella 1991, Tafalla & Estrella 1989), Ruiz & Pavón (Álvarez 1953, Delgado 1994, Estrella 1988) and Malaspina (Muñoz Garmendia 1989). In addition, we have examined the catalogue of the herbaria donated by the Real Academia de Ciencias y Artes de Barcelona to the Museu de Ciències Naturals (“Herbarios cedidos por la Real Academia”), kept in the archives of the Institut Botànic de Barcelona, and the Catalogue of the Museo de la Real Academia de Ciencias y Artes de Barcelona of 1898 (archives of the Real Academia de Ciencias y Artes de Barcelona).

Our research included the annotations on the herbarium specimens. We have taken into account that the taxa names had been published in “Flora Peruviana” (Ruiz & Pavón 1794, 1798-1802, 1954-59), “Flora Huayaquilensis”, or “Plantae Novae Hispaniae” and “Flora Mexicana” (Sessé & Mocino 1893, 1894).

To improve access to the information on the herbarium sheets we have databased the label information (Ibáñez & al. in press) and updated toponymy using Barreiro (1931) for the Ruiz & Pavon herbarium, “Flora Mexicana” and “Plantae Novae Hispaniae” (Sessé & Mocino 1893, 1894) for the sheets of Sessé & Mociño and the “GeoNet Names Server” (GNS 2002). Authors of plant names have been supplemented using the “International Plant Names Index” (IPNI 2002).

Results

The collections from the Royal Spanish Expeditions to Latin America kept at the Institut Botànic de Barcelona comprise 695 sheets. All are listed in the catalogue of herbaria donated by the Real Academia de Ciencias y Artes de Barcelona to the Museu de Ciències Naturals. At present, these sheets are kept in 23 boxes arranged by catalogue number.

The specimens were collected between 1778 and 1809, but only 100 sheets are dated. The main collectors are Pavón (545 sheets), Ruiz (29 sheets), Sessé (26 sheets), Dombey (7 sheets) and Néé and Tafalla with 3 sheets each. 135 sheets have labels copied by Colmeiro. Regarding the revision labels, early annotations are in the hand of Dombey (26 sheets) and Pavón (13 sheets) but the majority come from German botanists who revised the herbarium when it was in Berlin: Friedrich Markgraf (1897-1987) (54 sheets), Kurt Krause (1883-1963) (50 sheets), Hermann Otto Sleumer (1906-93) (33 sheets), Friedrich Walter Domke (1899-1988) (31 sheets), Ludwig Emil Friedrich Diels (1874-1945) (28 sheets) and Otto Christian Schmidt (1900-51) (25 sheets).

Most sheets are from the Ruiz & Pavón Expedition (see Table 1), predominantly from Peru. The Sessé & Mociño specimens comprise 24 %, all annotated by Sessé. His labels are easily recognizable because they are very large and have a characteristic numeration. Specimens attributable to Tafalla can be recognized (Estrella 1991) by Tafalla’s annotation “F. P” for “Flora Peruana” in 1793 and “F. H.” for “Flora Huayaquilensis” from 1799 onwards.

A list of the sheets preserved in BC from the Royal Spanish Expeditions to Latin America is given as an electronic supplement to this paper at http://www.bgbm.org/willdenowia/willd36_1_Special_Issue/Ibanez+al.htm. It includes the name of the taxa as on the original label in brackets, the authors of the labels (m = manuscript), the locality, if any, the revised determination, if available, with the date of the revision, if any, and the BC sheet number. Our own annotations are in square brackets.

Table 1. The 695 herbarium sheets of the Royal Spanish Expedition to Latin America in BC listed according to the expeditions and collection localities.

Expedition	Origin	Sheets
Ruiz & Pavón (419 sheets)	Peru	296
	Chile	34
	Guayaquil (Ecuador)	2
	without locality	87
Sessé & Mociño (170 sheets)	“Nueva España”	95
	Mexico	41
	Puerto Rico	5
	La Havana (Cuba)	6
	other localities	5
	without locality	18
Tafalla (38 sheets)	Peru	14
	Ecuador	5
	without locality	19
Malaspina (13 sheets)	Australia	6
	Ecuador	5
	Alaska	1
	Panama	1
Not identified (55 sheets)	Peru	1
	South Africa	1
	without locality	53

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