The Collections that Never Arrived – Jaime Güemes

Nuria Rodríguez asks herself why collecting all the mountains, all the islands, all the rocks, all the words, every single thing, once and again? I would reply, because it is the only way to remember, compare, measure and in consequence, to learn.

Scientific collections are the main result and testimony of the scientific exploration of natural resources. Natural History Museums and research centres dedicated to Botany, Zoology or Geology around the world preserve thousands of millions of specimens which are the result of the work of travellers, collectors and scientists in history. Still today, the testimony of the description of new species or morphology, molecular or corologic work with them is referred to a sample, a specimen, kept in a scientific collection. Thanks to this testimony, sciences such as taxonomy, systematics, biogeography or phylogeny can be contrasted and subjected to the scientific method.

Sometimes explorers go to great lengths to hide their samples from other scientists until they have studied them themselves. This can satisfy individual egos, but it does not contribute to the increase of knowledge or the progress of science. Great botanists such as Carl von Linné (1707-1778), Antonio José Cavanilles (1745-1804) or Carl Sigismund Kunth (1788-1850), to whom we refer at the end of this text, worked, studied and described plants collected by other botanists in faraway places. None of them ventured too far away from their study cabinets, but they knew how to discover the characters that made plants different.

Alexander von Humboldt's journey across Spain and his later equinnox adventure in the late eighteenth century and beginnings of the nineteenth century were a combination of adventure and fate, probably just as was the case of the journeys of many European scientists to visit the ends of the continents somewhere else than the Iberian peninsula.

However, and in spite of his initial botanical training, Alexander von Humboldt (1769-1859) proved to be more interested in Astronomy, Meteorology, Mineralogy, Geology and Geography. This made of him more an environmental scientist than a botanist, and more biogeographer than taxonomist. This has granted him a place in history, a place that he may not have if he had dedicated himself to the thorough study of the plants that he found on his path and if he would have wanted to trascend with them giving them a name for science.

Nuria Rodríguez asked me to contribute a text about Humboldt's botannical findings for the catalogue of her exhibition "Sistema Humboldt. Thinking/Painting". To my surprise, this

aspect of his monumental work and his long travels across America has been not so studied. The first clue came from Aedo (2018). It has allowed us to look deeper into the botannical collections of Humboldt's American trip, and to look for explanations for their absence in Spanish institutions. However, most surely, many of the Humboldt documents still remain to be analysed. Perhaps in them we could find arguments to explain or correct the vision which we expose as follows.

Humboldt and Carlos IV Passport

Before turning thirty years old, Alexander von Humboldt arrived to Spain on January 3rd, 1799, with French naturalist, medical doctor, and botanist Aimé Bonpland (1773-1858), who has been considered friend, companion, assistant or secretary of the Prussian aristocrat. Both arrived with the idea of travelling safely to Morocco to travel across the Atlas mountains, after failing in their attempts to embark to acompany Captain Baudin in his travel around the world. They also wanted to travel to Algeria, reaching from there El Cairo and La Meca (Puig-Samper and Rebok 2007). Finally, the travellers never arrived to the African coast; as after a brief journey across the Iberian peninsula, they embarked on a travel across America. This was Humboldt's dream come true, "to take a great expedition for the study of natural history", perhaps to broaden his outlook of the the world, forged in the Tegel forests, outside Berlin, where as a child he started collecting stones, plants, butterflies, and he spent long hours contemplating nature (Wulf 2016).

After his Spanish tour, Alexander von Humboldt arrived to Madrid on February 23rd, 1799. At the begining of March, he secured access to the court of Carlos IV; he visited the king himself to whom he presented his credentials and explained his intentions. This introduction, fundamental for the new orientation of this travel plans to the American territories of the Spanish Crown, was propitiated by Mariano Luis de Urquijo, Secretary of State, who granted the petition of baron Phillip de Forell, ambassador of Saxony (Rebok 2009).

Humboldt, with his botanical works for credentials, and his title as a high advisor on mines to the king of Prussia, laid out his merits, his projects, and his idea of going on a journey useful for the knowledge of sciences and natural resources of the American territories under Spanish dominion. The king's ministers paid special attention to the obtention of mineral resources, but they did not reject other natural resources, plants in particular, when they gave order to authorise and give all kinds of facilities for the task that Humboldt was about to tackle. That final passport that would open for Humboldt and Bonpland the gates of the New World was signed on May 7th, 1799 by the Secretary of State (Rebok 2009). The contents of the passport were extremely generous with the Prussian traveller and his desire to explore. However, it established some conditions and commitments with the Crown. Of all of them, we are interested in what refers to how to bring to Spanish institutions the samples collected during field work:

> "For which the King has resolved, ..., to concede passport to Mr. Alexandro Federico Baron of Humboldt, ..., so accompanied by his Assistant or Secretary Mr Alexandro (sic) Bonpland, passes to the Americas, ... in order to continue the study of the mines, and to make collections, observations, useful discoveries for the progress of natural sciences; therefore HM orders....that no obstacle is placed upon his travel ... nor he is prevented for any reason... to collect freely plants, animals, seeds and minerals..., and HM as well orders every person ... that receive and ship ... with destination to the *Real Gabinete de Historia natural* [Royal Cabinet of Natural History], all the boxes that contain natural objects pertaining to this History, and that were handed by Mr Alexandro Federico Baron of Humboldt, whom has been given the mission of gathering and collecting the expressed productions to enrich the *Real Gabinete de Historia natural*, and the *Jardines Reales [Royal Gardens]*, ..."[1]

Humboldt, in the company of Aimé Bonpland, left the Iberian peninsula, on course to America on June 5rth, 1799 from La Coruña harbour. They would never come back to Spain, as their return to Europe would happen on August 3rd, 1804, arriving to Bordeaux harbour. A five-year long American journey that left no samples in Spanish herbariums.

True is that the Crown was neither scientifically nor financially responsible for that expedition. It is true that Humboldt covered all the expenses, and also the later publication expenses of his studies. It is also true that without that passport, he would not have been able to travel, study, catalogue, measure, describe nor discover the American territories; neither he could have possibly become one of the most notable scientists of the nineteenth century and the history of Natural Sciences.

The only known letter was sent by Humboldt to Cavanilles, and it was published by the latter in the *Anales de Ciencias Naturales* [Annuals of Natural Sciences](6: 281-287. 1803). In it, Humboldt wrote

1 From the passport translation, in Rebok (2009, 138).

Antonio José Cavanilles, *Dissertatio botanica de Sida, et de quibusdam plantis quae cum illa affinitatem habent*. Parisiis, Apud Franciscum Amb. Didot, 1785. Biblioteca Històrica, Universitat de València

Species described by willdenow from the materials gathered by Humboldt and Bonpland in their journey across America.
Herbarium Collection
Jardí Botànic, Universitat de València

on April 22nd, 1803 from Mexico City, and he refer to letters previously sent and which had been unanswered. This complain is very present in Humboldt's correspondence with the Spanish (or authorised in Spain) scientists and politicians. In it, he regularly refers to shipment of minerals to the *Real Gabinete de Historia Natural*, but only in some occasion the shipment of seeds for the *Real Jardín Botánico* [Royal Botanical Garden] (*cf*. Rebok 2009).

The letter describes the journey, at least since leaving Lima on December 25th, 1802, with a reference to travelling along the Amazonas riverside, or the freezing snow of los Andes. It talks about travelling past Acapulco, Guayaquil and Loxa. It does not seem to be a continuation of a previous letter, and it does not seem to contain references to possible news that needed an answer and which would have been lost in unanswered letters.

It contains detailed botanical information, in which he relays the collections gathered by his "friend and companion" Aimé Bonpland, matching gathered genus and species, to life drawings and sketches and referencing to the most probable description of the new taxons, and which will be awaiting its return to Europe to compare them with the publications by "the wise ones". He specifies that his collections "contains over 4,200 plants", of which they have elaborated descriptions. It refers to palm trees, melastomataceae or poaceae. However, it does not make any reference to previous shipments or to any shipment sheduled. Quite the opposite, Humboldt very clearly states that "we have destined some specimens for you, which we will bring over as we return".

Cavanilles immediately wrote to Pedro Cevallos, then Secretary of State of Carlos IV, asking him to send on "the seeds, plant skeletons and letters" that Humboldt may have sent to the Real Gabinete de Historia Natural. The Secretary of State in turn asked Eugenio Izquierdo, director of the Real Gabinete, who answered with the information that Humboldt had only shipped "volcanic productions" to the Real Gabinete (Gónzález Bueno 2002).

The truth is that not one sample of dried plants that Humboldt and Bonpland may have gathered in their American journey arrived to Spanish scientific institutions. There is only knowledge of a shipment of a set of seeds to the Real Jardín Botánico, which was sown in 1801. Although the Prussian and the French left testimony of their collections in the herbariums of the Muséum National d'Histoire Naturelle (National Natural History Museum) in France, and the Botanischer Garten und Botanisches Museum (Botanical Garden and Botanical Museum) Berlin-Dahlem, Zentraleinrichtung der Freien Universität Berlin, in Germany. In Paris 5,586 are kept, and in Berlin about 3,306. These are probably duplicates from the main collection, which are quantities that may match those manifested by Humboldt in his 1803 letter to Cavanilles, having into account that the explorers stayed in America two more years.

How to justify such an absence of the Humboldt collections in Spanish botanical institutions? It could be questioned whether those plants and letters from Humboldt may have been lost in a shipwreck, although we do not have news of such occurrence. Another possibility is that Cavanilles and the other people receiving Humboldt's correspondence may have destroyed them, something that seems improbable in the case of the Valencian botanist, who as explained by González Bueno (2002), would keep even the most minimal expenses receipt.

This makes us consider that perhaps Humboldt understood that his commitments with Carlos IV were limited to the shipment of mineral samples to the Real Gabinete de Historia Natural, which he did; and he may have assumed that he enjoyed further freedom in the case of plants. As he told Cavanilles in his letter from Mexico City, this would allow him to send "to the national institute of France", without the authorisation of the Crown, "a curious collection of quinas from New Granada, which consisted in well chosen pieces of bark, beautiful samples in bloom and fruit, and magnificent drawings illustrated in big folios", a present from José Celestino Mutis (1732-1808). He may have heard through Casimiro Gómez Ortega of the disputes between Cavanilles and the American explorers, especially with Hipólito Ruiz (1754-1816), abouth the management and study by the abbot of the plants sent from America to the Real Jardín Botánico, drawing, describing and publishing all that he considered new for science, without having into account the collectors, of whom he even said, "it is not the same being a traveller than being a Botanist, neither seeing plants to see a competent judge to determine their fructification, genus and species. Whoever takes plants and seeds and sends them with no previous examination is not an author." (Quintanilla 1999).

Antonio José Cavanilles died on May 5th, 1804. He never saw in the Real Jardín Botánico the Humboldt collections, which never arrived. Humboldt and Bonpland later returned to Europe, through France. They settled in Paris, where they wrote and published the results of their journey. Bonpland studied the plants, and within 12 years, he barely described 175 taxons (genus and species) new for science. All of them were published between 1805 and 1817, in the succesive deliveries of their joint work *Plantes Équinoxiales*.

It was published in 17 deliveries, gathered in two volumes. The entire contribution to plants systematic can be attributed to Aimé Bonpland. The slow progress of studying American plants made Humboldt despair. He looked for Carl Sigismund Kunth (1788-1850) to study them. Kunth was an orderly, systematical cabinet botanist, like Humboldt himself, a disciple of Carl Ludwig Willdenow (1765-1812). He was capable of the systematic study of the sheets and the drawings, and between 1816 and 1825 he published, in Paris, the seven volumes of *Nova Genera et Species Plantarum Quas in Peregrinatione ad Plagam Aequinoctialem Orbis Novi Collegerunt Bonpland et Humboldt* where 3,472 new to science taxons are described. This is the main botanical contribution of Humboldt and Bonpland's exploration in the equinnox regions between 1799 and 1804. Finally, the Prussian scientist understood what Cavanilles attempted to explain to Gómez Ortega; thanks to Kunth's systematic work, who had not participated in the American expedition, they successfully brought into the light numerous new species. Without this, those species would have had remained on the shelves of the herbarium in Paris, or in the natural spaces that Alexander von Humboldt and his friend Aimé Bonpland travelled.

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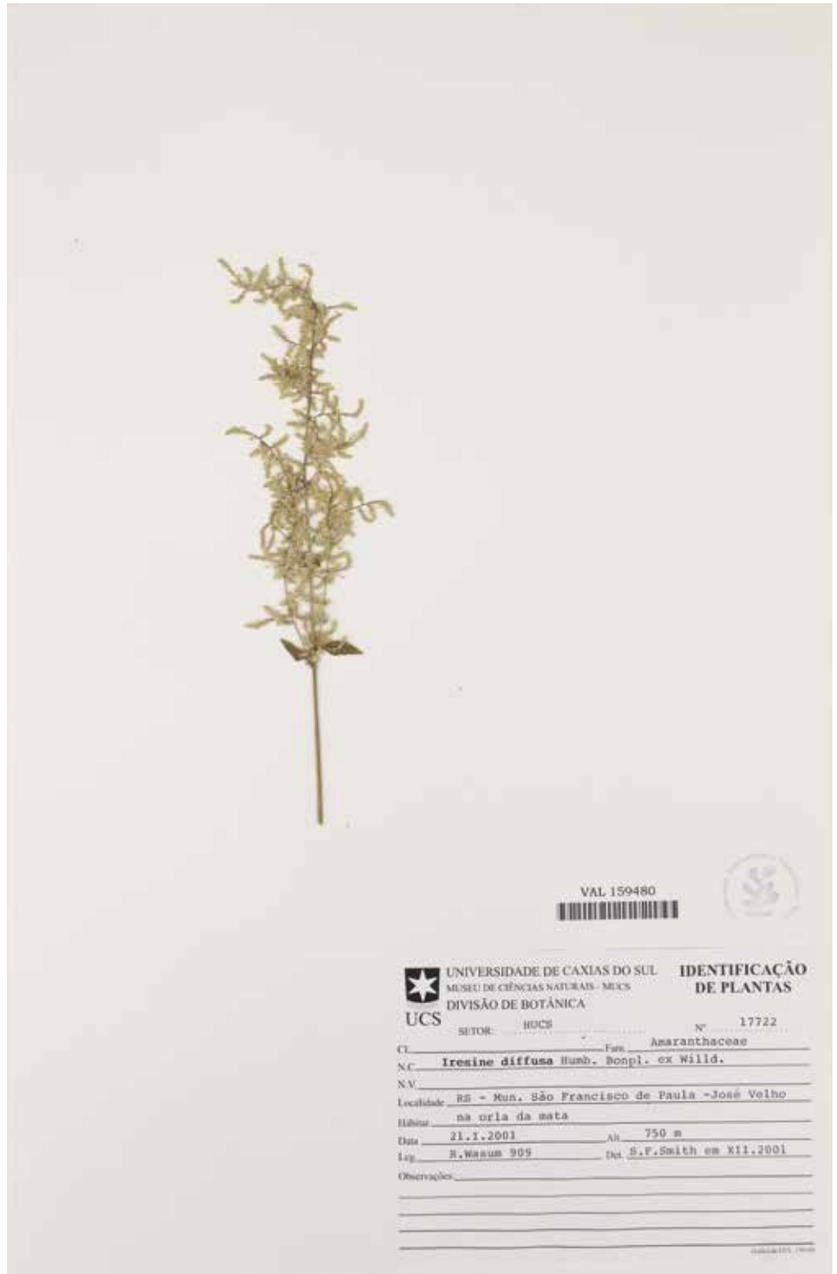

Species described by Willdenow from the materials gathered by Humboldt and Bonpland in their journey across America.
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