

THE STRANGE STORY OF HOFFMANN'S TWO EPIDENDRUMS¹

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ABSTRACT: During his stay in Costa Rica, the German medical doctor and naturalist Karl Hoffmann Brehmer (1823–1859) collected natural history specimens, including mammals, birds and plants. Among the latter, in May 1857, he found two orchid specimens at Curridabat that served as the types for *Epidendrum ionophlebium*, described by H.G. Reichenbach filius in 1866, and *Epidendrum hoffmannii*, proposed by R. Schlechter in 1920. Having been collected at the same locality, these two taxa have been considered as synonyms for a long time. However, a comparison of the extant collections and the analytical drawings prepared by Schlechter around 1915 reveal that Hoffmann's two epidendrums belong to different species. The holotype of *E. ionophlebium*, supposedly at W, was not located. The specimen collected by Hoffmann under his field number 570, annotated at W as the holotype of *E. ionophlebium*, is actually the holotype of *E. hoffmannii*, which should be considered a synonym of the widespread *E. chacaoense* (syn. *Prosthechea chacaoensis*), originally described from Venezuela.

TODAY'S CURRIDABAT, WITH its stream of heavy traffic, its large superstores, sophisticated boutiques and modern car rentals, doesn't seem a place particularly worthy of searching for new orchids. What was a small village along the road connecting the actual capital city of Costa Rica to Cartago, the old colonial capital, is now a wealthy neighborhood of San José and quite a hard place to find an epiphytic orchid, or even a single tree it could grown on. Curridabat must have appeared rather different in the mid nineteenth century, when San José was nothing more than a large village (the longest avenue of the town was just nine blocks) (Fig. 1), and the muddy road to Cartago was transited only by horses and oxcarts transporting potatoes and other vegetables from the cool slopes of the Irazú volcano to the capital. It was not so strange at that time, for a young and curious medical doctor and naturalist coming from Germany, to spend his spare time visiting the still virgin places surrounding the capital and looking for rare plants and animals to be scrutinized by recognized scientists in far off Europe.

Karl Hoffmann Brehmer (Fig. 2) was born in Stettin, the capital of Pomerania in the German Empire, in 1823. He studied in Berlin, where he received his degree in medicine, and where he was in contact with the great humanist and naturalist Alexander von Humboldt, considered by Charles Darwin "the greatest scientific explorer ever." When Hoffmann left Germany together with his wife on the brigantine Antoinette in 1853, to

travel to San Juan del Norte (on the Caribbean coast of Nicaragua), he had with him a letter of recommendation written by Humboldt and addressed to the president of Costa Rica, Juan Rafael Mora Porras. On the same ship he enjoyed the company of Alexander von Frantzius (1821–1877, who was a colleague at the University of Berlin) and the naturalist Julian Carmiol Grasneck (1807–1855), both of whom would make considerable scientific discoveries in Costa Rica. From the new family house in San José, where he established his study and a little dispensary, Hoffmann began to explore the exuberant nature of his adopted country. In 1855, he climbed the Irazú and Barva volcanoes, and in 1856 he had no hesitation in joining the Costa Rican army during the war against the filibusters led by William Walker. Coming back from the front, Hoffmann's health worsened, and he had to abandon his long exploratory excursions (for a complete account on the Costa Rican journey of Karl Hoffmann (see Hilje Quirós, 2006).

COLLECTING AT CURRIDABAT: In May 1857, during the last days of the Costa Rican summer (dry season), Hoffmann collected two orchid plants at Curridabat. As he noted in his account on the ascent to the Irazú volcano (Hoffmann, 1856), the village was neat and pleasant, and it took an hour and a half to reach it by mule from San José. While most of the nearly thousand plants he collected in Costa Rica were sent to Johann Friedrich Klotzsch at the Botanical Museum of Berlin, the two plants from Curridabat, together with some other orchids, were consigned to the botanist Hermann Wendland (1825–1903), gardener at the court of Hannover, who was visiting Costa Rica between March and August of 1857. Coming back to Germany, Wendland presented them for identification to the most recognized specialist in orchid taxonomy of the time, Heinrich Gustav Reichenbach (1823–1889), or Reichenbach

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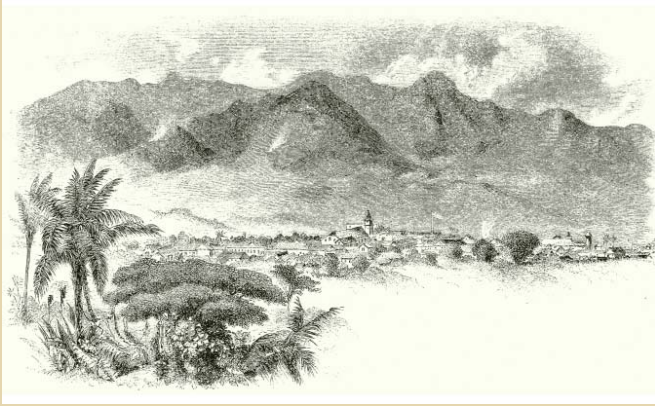


Fig. 1. View of San José, from “Holiday in Costa Rica.” Harper’s New Monthly Magazine, 1859–1860. From: *Tropical Travel — The representation of Central America in the 19th Century. Facsimile of Original Illustrated Texts*. Editorial de la Universidad de Costa Rica, 2007. Reproduced with the permission of the director, Costa Rica University Press.



Fig. 2. The only known photograph of Karl Hoffmann Brehmer. Courtesy of the Meléndez family.

filius, professor of botany and director of the Botanic Gardens at Hamburg University (Reichenbach, 1866, p. 102). We do not know if Hoffmann originally assigned a single collection number to both of the plants from Curridabat in the belief they were the same species, or if he deliberately numbered only a single specimen. What is sure is that one of the plants reached Professor Reichenbach as a collection by Hoffmann *sine numero*, while the other plant was filed among Reichenbach’s specimens with Hoffmann’s field number 570 (W-Rchb Orch 51054!) (Fig. 3).

A NEW EPIDENDRUM IS DESCRIBED: In 1866, in his account of the orchids from Central America, Reichenbach used Hoffmann’s specimen without number to describe *Epidendrum ionophlebium* (Reichenbach, 1866), but he made no mention of the other plant gathered by the same collector at the same date and locality under his number 570. Reichenbach briefly characterized *E. ionophlebium*, comparing it with *E. radiatum* [syn. *Prosthechea radiata* (Lindl.) W.E. Higgins], from which it differs by the entire, apiculate lip (vs. lobate, obtuse) and the median lobe of the clinandrium, which is narrowly ligulate and obtuse instead of broadly ligulate and fimbriate. It is likely that he saw no appreciable differences between the two dried specimens, considering them conspecific, and the *Epidendrum* from Curridabat to which Hoffmann assigned his number 570 was apparently destined to fall into complete oblivion.



Fig. 3. Herbarium specimen of Hoffmann 570 (W-Rchb Orch 51054). Reproduced with the permission of the keeper, the Herbarium, Naturhistorisches Museum, Vienna.

In 1914, Reichenbach’s herbarium, conserved at the Hof Museum in Vienna (now Naturhistorisches Museum Wien), opened to the public as it had been closed after his death for 25 years, as was specified in his will. Unfortunately, soon after the opening of Reichenbach’s collection, one of the richest in orchid type specimens, World War I began, and it was not until the end of the war that botanists from around the world had the chance to study the large legacy of the great German orchidologist in Vienna. However, it is likely that the German botanist and worldwide-recognized expert in orchid systematics Rudolf Friedrich Schlechter (1872–1925, Fig. 4, page 456), at that time at the Botanical Museum of Berlin-Dahlem, had access to Reichenbach’s preserved orchids and orchid drawings around 1915 (R. Jenny, pers. comm.). Among the hundreds of still undetermined specimens mounted in the Hof Museum, Schlechter selected the types of some new orchid species he later published between 1920 and 1922, dedicating several of them to Reichenbach’s memory (i.e., *Chondrorhyncha reichenbachiana*, *Epidendrum reichenbachianum*, *Microstylis reichenbachiana* and *Pleurothallis reichenbachiana*) (Schlechter, 1920, 1921a, b, c, 1922).

Fig. 4. Rudolf Friedrich Schlechter in the herbarium of the Botanical Museum, Berlin-Dahlem (1909). Courtesy Archives BGBM, Berlin-Dahlem.

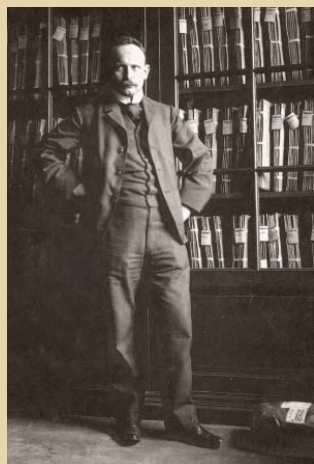


Fig. 5. Copy of Schlechter's drawing of the holotype of *Epidendrum hoffmannii*, made under supervision of Schlechter (AMES 70416). Reproduced with the permission of the director, Harvard University Herbaria.

HOFFMANN'S EPIDENDRUM: Schlechter's fine botanical eye must be credited for having first noted, looking at two dried specimens, the subtle morphological differences between the plants collected by Hoffmann at Curridabat. He not only illustrated Hoffmann's collection number 570, which served as the type of *Epidendrum hoffmannii* (Schlechter, 1920), but also traced the type of *Epidendrum ionophlebium* described by Reichenbach almost 50 years before. Both of the original drawings, once kept at the Berlin-Dahlem Museum, were destroyed by war in 1943 (Ames, 1944), but copies of these illustrations, prepared in Berlin under the supervision of R. Schlechter, are conserved at the Ames Orchid Herbarium of

the Harvard University (Figs. 5, 6). A critical discussion of the botanical identity of *Epidendrum ionophlebium* and its close relatives, with notes about the correct nomenclature of the involved taxa, was done by Pupulin and Karremans (2007), and it is now clear that the two plants originally collected at Curridabat actually represent different taxa.

It is interesting to note that no actual specimen at W corresponds, today, to the plant supposedly used by Reichenbach to describe his *E. ionophlebium*, which was later traced by Schlechter (Fig. 6). In fact, the specimen in Reichenbach's herbarium annotated by various students of Neotropical orchid flora as the holotype of *E. ionophlebium* (W-Rchb Orch 51054), is actually Hoffmann number 570 (Fig. 3). This specimen is not annotated in Reichenbach's handwriting, and the identification as "Epidendrum ionophlebium" was affixed to it when the specimen was mounted in Vienna. If one compares this dried plant with the unpublished drawings by Schlechter of his *E. hoffmannii*, a copy of which is in existence at the Ames Herbarium of the Harvard University (Fig. 5), there is little doubt that this plant is the holotype of *E. hoffmannii* (whatever this name should mean).

On the contrary, the tracing of the sketch made by Schlechter of the holotype of *E. ionophlebium* (based on *Hoffmann s.n.*, AMES!, Fig. 6) clearly shows a more robust plant than the specimen actually filed at W as the type of *E. ionophlebium* (Fig. 3), with a broader, slightly undulate lip, and provided with short median stripes typical of *Prosthechea ionophlebia* (for a comparison between *P. chacaoensis* and *P. ionophlebia* see Pupulin and Karremans 2007).

Ernst Vitek, curator of the Natural History Museum Herbarium in Vienna, kindly tried to retrieve *Hoffmann s.n.* for our study, but he had no success. After Reichenbach's death, his herbarium specimens remained inaccessible for almost 25 years before the personnel of the Hof Museum mounted them, and this particular specimen might have been erroneously filed under a different name or it may be simply missing. Although it was logical to suppose that the two plants of what is now *Prosthechea* collected by Hoffmann were the same species, the extant evidence indicates that the two epidendrums from Curridabat belong to different taxa. We prefer to believe that Hoffmann was aware of the difference, and that this was the reason for collecting two plants and not assigning them the same number.

A MATTER OF NAMES: As a taxonomic consequence, *E. hoffmannii* cannot be a synonym of *E. ionophlebium* [or *Prosthechea ionophlebia* (Rchb.f.) W.E. Higgins], as stated by Ames and co-workers (1936), Williams (1946, 1951), Dunsterville and Garay (1961), Foldats (1970), Dressler and Pollard (1976), Mora-Retana and Atwood (1993), Espejo-Serna and López-Ferrari (1997), Hamer (2001), and Withner and Harding (2004), among others. If the species common in Central America is the same as that of Colombia and Venezuela, then *E. hoffmannii*, typified by *Hoffmann 570* (W-Rchb Orch 51054), must be included under the synonymy of *E. chacaoense* [or *Prosthechea chacaoensis* (Rchb.f.) W.E. Higgins], originally described from the coast of Venezuela, not far from Caracas (Reichenbach, 1854, Fig. 7)]. If a more intensive search for *Hoffmann 570* among the thousands of sheets in Reichenbach's Herbarium would be unproductive, and in absence of any known isotype, *E. ionophlebium* will require neotypification. It is a shame that today's Curridabat is no longer a good place to find an orchid for this purpose.



Fig. 6. Copy of Schlechter's tracing of the holotype of *Epidendrum ionophlebium*, made under Schlechter's supervision (AMES 25232). Reproduced with the permission of the director, Harvard University Herbaria.



FIG. 7. Holotype of *Epidendrum chacaoense* (W-Rchb Orch 51060). Reproduced with the permission of the keeper, the Herbarium, Naturhistorisches Museum, Vienna.

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