

THE LIFE AND TRAVELS OF FRIEDRICH CARL LEHMANN

Friedrich Carl Lehmann (1850-1903) (Figs. 1, 2) collected orchids and other plants in Colombia and Ecuador over a period of almost three decades from 1876 (Rolfé, 1904). He was by profession a commercial plant collector, and also eventually a land-owner, a mine-owner and German Consul in Colombia. His extensive preserved collections of herbarium specimens and illustrations of the plants that he collected form one of the most significant archives of the plants of the northern Andes. The main target of his plant-hunting was orchids, and the most important collection of his preserved plants is now held in the Herbarium at the Royal Botanic Gardens, Kew. His specimens are also to be found in a dozen other major herbaria in Europe and North America. He collected many living plants, especially orchids, originally for the nursery firm of Stuart Low of Messrs Hugh Low & Co. of Upper Clapton, London, and for Frederick Sander (Fig. 3) of Messrs Sander & Sons of St Albans. He also painted many of the plants that he collected, and his iconography is now in the Archives of the Royal Botanic Gardens, Kew, where almost 1000 paintings are deposited. Small numbers of his paintings are also to be found at the Natural History Museums in London and Vienna.

The early years

Lehmann was born in Platkow, Germany on 27th December 1850 in humble circumstances, the eldest son in a large family. He received elementary schooling before being apprenticed as a gardener in Germany. He arrived in the New World in 1876 to collect plants for the Low nursery of Upper Clapton, London, then the leading English nursery specializing in orchids and other tropical plants.

A glimpse of this can be seen in Reichenbach's introduction to his account of new discoveries by Lehmann, published in *Otia Botanica Hamburgensia* of 1878:

On behalf of the famous company H. Low & Co, Upper Clapton, London, Mr. Lehmann from Werder has travelled a part of western South America, mainly to collect living plants. In agreement with Mr. Low, this courageous, skilled and happy botanist has sent me several collections of dried orchids, which count amongst the most excellent contributions I have ever received. There were not just single flowers without descriptions but mostly entire plants even of genera like *Stanhopea*, *Cynoches*, and *Catasetum*, requiring a certain amount of heroism.

As a result, we are able to regard Lehmann, who clearly possessed a thorough knowledge of the known (species), as the discoverer of many species, whose collection may have been avoided by many of his predecessors, especially Jamieson [Jameson]. In addition I received many useful notes. I don't believe it to be timely to publish the exact coordinates of localities. Given the hot competition in orchid collection it would lead to the destruction of many plants. We do not wish to support the vandalism with which some self-made collectors, following others, proceed to destroy everything. I know that some do not share my views and demand, "in the interest of science", that all details be made public – in order to go and earn lots of guineas without much effort. It seems that science is to horticulture as religion to politics. As Messrs. Low and F.C. Lehmann risked money and health to achieve their goals, I do not feel I have the right to abuse their trust. It is due to my unbreakable confidence that I tend to know about the London-based explorations and geographical results.

Furthermore, I wish to point out that there seems to be a remarkable harmony between the orchid floras of Costa Rica and Ecuador. This is evident from a comparison with Endres' orchids. Generally, the species appear very similar, however, on close inspection they turn out to be different. It would be helpful to learn about oreographical and climatological data. Modern theorists will not require this. A cloud of organic seedlings, which poured over Costa Rica and saved some for Ecuador. This is probably what happened – how many million years ago ?

His earliest recorded collections of both living and dried specimens were made in Ecuador in 1876. Herbarium specimens of his collections were sent to H. G. Reichenbach, the eminent German orchid specialist in Hamburg, who identified and named them, describing many new species based on his collections. At about the same time or a little later, Lehmann engaged Eduard Ortgies, the Superintendent of the Zürich Botanic Garden as his agent, selling plants to private growers in Europe. Ortgies offered some consignments of orchids for sale through Stevens auction rooms in Covent Garden.



FIGURE 1. Friedrich Lehmann (1850 -1903), plant collector and German Honorary Consul In Popayan, Colombia. Oil painting courtesy of the late Sra Amalia Lehmann de Sarría, the great-granddaughter of Consul Lehmann. Photograph Henry Oakeley.

Establishment as a plant collector

Lehmann's arrival in South America presented him with several problems. He did not know the country nor had he any previous collecting experience. He also had rivals with a great deal more experience than himself. Also in the field at this time were Gustave Wallis, William Boxall, John Carder, Chesterton, Eduard André, Benedict Roezl and his nephews Eduard and Franz Klaboch. Of these, only Boxall was collecting for Low. Lehmann's own correspondence to Messrs Low & Co. from the period has disappeared but the letters of Eduard and Franz Klaboch to Frederick Sander survive and provide a vivid insight into Lehmann's strategy. He decided to stick like a limpet to the brothers and to collect from their choice localities. Of course, they were aware of his strategy and motives but, in the small community of expatriot collectors, they were unable to keep their movements secret for long. Lehmann either anticipated their moves or dogged their steps. The frustration frequently boiled over in their correspondence with Sander. Thus, in successive letters sent from Guayaquil on 1 and 21 July 1876, Eduard wrote:

I have just despatched Franz to Cuenca where he will travel today and I shall go to my old location for the *cirrhosum*.

Unfortunately I am too late because Low has his collector Lehmann here already since 15th May and he has sent a consignment of *cirrhosum* with today's mail. He tells me that he only collected 300. If I can believe him, that's not too many, but if he has sent more, then my task is in doubt. I believe that by August you should receive a few hundred from me.

As Lehmann described the location, he has been collecting at the same place as I did last year. Now I am going there again and he also wants to go there."

"Franz departs tomorrow, Lehmann will follow him, I don't know how I shall cope here.

Lehmann also sought out their collectors and made better offers to them to secure choice plants:

Can you imagine, today there arrived a man who usually collects (*Odontoglossum hallii* and *cirrhosum* for us, and Lehmann found out about this in a strange way. He went to see him and told him that he would pay one dollar more than we per 100 plants, and he wanted him to collect for him. The man did not agree and came to me straight away and told me about it. I gave him \$20 advance and told him that he should pay me for this with plants.

Of course, I could not keep this a secret from Lehmann; so he started making excuses and said that this man was a liar, that he had not discussed anything like this with him. He did not realise that this man can be a disadvantage for him for he is an Indian like the rest of the people in the village. If asked to collect, he will ask if you are coming also; if not, he will not go anywhere, nor will the rest of the village. Since Lehmann had annoyed me so much, I told him that the man had talked about him and that he is quite hostile. This means that he may not receive any plants from there, which would be the best thing for us. I don't trust him, he appears very friendly but I notice that that does not go far. He says that ambition has driven him to collect. If that is so, why doesn't he go to find something new? for with *cirrhosum*, there is no more honour to be gained. I knew that the *cirrhosum* are much easier to find at the other location, I told him that Franz was going there to find *Onc. macranthum* and I went with him to collect the *cirrhosum*. I couldn't get a room in the hotel and rented an apartment at some distance. He even found out about that and turned up last night when I had the whole room full of *cirrhosum*. He stood as if hit by lightning. I didn't exactly enjoy his visit, but now we are ahead of him by 3,000. He had no idea. Franz left another 1,000 *cirrhosum* there because he could not carry them; we are also ahead of him by 500 *hallii*. Today I paid in advance. A few hundred *Mesospinidium sanguineum* will probably be in our next consignment.

The rivalry was intense and Eduard Klaboch could not resist crowing when he felt that he had outwitted Lehmann:

Luck had it that Franz and I arrived at the same time. I arrived with Lehmann, each of us brought 1000 plants which we collected with great difficulty. But Franz brought 3,000, so that we have more than Lehmann.

Frederick Sander, using the intelligence from Klaboch's letters, conspired to make Lehmann's and Low's life difficult, publishing two advertisements in the *Gardeners' Chronicle* intimating that Lehmann had offered plants for sale falsely under the name *Odontoglossum cirrhosum*. Eduard Klaboch's letter of 27 September 1876 considered the matter:



FIGURE 2. Friedrich Lehmann, photograph published in the *Gardener's Chronicle* 1904.



FIGURE 3. Frederick Sander, the self-styled 'Orchid King', nurseryman of St. Albans, England, and Bruges, Belgium.

I have received your letters dated 17th and 29th July including the *Gardener's Chronicle* with the advertisements of Wallis'. Low sent the two advertisements to Lehmann, he could not have been very happy that you published them, but it will damage us. Lehmann says I have exaggerated the matter. All the same, as we decided to take no further plants, he is getting another 6,000. I told him that I had done it only for his sake. Fortunately he did not get very many the first time round. Now he is sick, but not very seriously, it's just a fever.

You ask me about his movements; so far they are the same as mine except for a trip to Sitambas {?}. Otherwise he is always going with me. Every day he talks about making different journeys but he changes his plans daily. I believe Lehmann does not have the courage to go to an unknown destination and Low does not have the courage to fund such journeys. For I believe if Lehmann felt confident enough to make an independent journey, he would not forever cling to me. He wants to know everything about localities of plants. Whenever he talks about a plant, he pulls out his special map, as if he could find it on there. And when he then puts the map back into his pocket he says: "Yes, that's where it is."

He is also looking for *Nanodes medusae*, but that does not seem to be on his map.

I don't know where he intends to go next, but God willing, his next journey will be to hospital.

By now, it was clear that the Klabocho considered Lehmann a serious rival and kept close tabs on his movements. Their letters contain many references to his activities, thus on 20 January 1877, Eduard wrote:

You ask if Lehmann knows anything about the *Odontoglossum*? He knows nothing, and if he did it would not matter much because I believe they are merely *Od. roseum* and so rare that he would find it impossible to collect them. Regarding the white *Maxillaria*, I don't know if he had an order for them or if he sent the right ones, he knows where it grows for he has it in flower and will collect more. I found it in Molleturo, three plants in box No. 5 are from there. Also in the same box are a few *Nanodes*, they grow together with the *Maxillaria*. Lehmann has departed for Cauca,

probably to collect *Bollea* and *Masdevallia chimaera*....You ask for more *Od. macranthum* and *Od. cirrhosum*, but it is too late for that for the rainy season has started. If Lehmann stays here he will not be able to send anything before June, because the dry season starts in May and before then he can't do anything. We can be back here by May.

However, it seems that the relationship between them was not entirely antagonistic for, on 31 July 1877, Eduard Klaboch wrote:

Mr Lehmann accompanied me during the entire trip [to Ecuador], during which Lehmann suffered very severely from dysentery.

At the end of the trip Klaboch also

suddenly got so ill that I thought I would die.

Lehmann's generously gave them details of localities of showy orchids with Klaboch acknowledging that:

...together with the *Odontoglossum karwinskii*, *Selenipedium wallisii* grows by the Zamora River....I shall collect them because Lehmann has indicated the location very precisely.

Nevertheless, the relationship remained tense. Eduard wrote from Guayaquil on 14 October 1877 that:

Lehmann is going to Cauca and told me that he intends to go to Popayan where he will look for *Oncidium superbiens*. It is perfectly possible that he will find it because he has a letter from the old General Alosquera, and they were found on his estate before.

Only for him to add the following day in a postscript that:

Lehmann has deceived us all, he did not want to admit that he was going to Colombia, but in the end he could no longer keep the secret for I was present when he departed.

The rewards for Lehmann as an orchid collector are difficult to gauge by today's standards. However, amongst the letters from the Klaboch brothers to Sander is an account for the year 1878. The Klabochs' plants fetched almost £1,100 at auction or by direct sale to nurseries in England and on the Continent. This is the equivalent today of £66,000. However, their expenses, including payments to Sander and Roezl as agents, each of 10%, came to £1,015, or the equivalent of today's £60,900. The profit for the Klabochs seems so small as to be scarcely worth all the effort and danger.

Marriage and property

Sometime after 1880, Lehmann married Sra Maria Josefa de Mosquera, a lady from a prominent family who held estates in and around Popayan, Cauca province, Colombia. From that time, he settled in Popayan, using it as a base from which to launch his subsequent explorations. His wife inherited property in Popayan and a country estate nearby in Cauca Province which Lehmann improved and managed. Gold was found on land owned by his wife's family soon afterwards (Kraenzlin, 1904). Lehmann consequently acquired considerable skills as a geologist and prospector. He certainly had long-standing interests in mining in Colombia. Documents in the possession of his family suggest that he was involved in the sale of a mine to a company based in New York but retained an interest in it. Indeed, he was visiting a mine he managed beside the Rio Timbiqui when he was so tragically killed.

Orchid business

In 1880 Lehmann visited Europe to enhance his business connections, especially those with Low and other orchid nurseries. At the time, orchids were rapidly becoming the most popular of all plants for cultivation by royalty, the landed gentry and wealthy businessmen throughout Europe, but especially in England. Lehmann went to Germany and England, visiting botanists, nurserymen and private growers, making many new contacts.

He resumed plant collecting in the Andes in June 1880, following his return from Europe. The first plant he collected on his return was a palm, in July 1880, in Colombia. His first sequentially numbered Andean orchid collection (*Lehmann 9*) was an un-named species growing on a mangrove and his second a *Vanilla* (*Lehmann 10*). His illustration of the latter is his first recorded orchid painting.

From 1880 he divided his efforts between the English nurseries of Low and Sander, both of whom he had met in London. His relationship with Low deteriorated and by 1882 was almost finished. Eduard Klaboch met Lehmann at Coban in Guatemala in April 1882 and related to Sander his opinion on Lehmann's relationship with Low:

Now I have found how he [Lehmann] operates. First there was no better man than Low, then Ortgies, and of course his friend Polko. Now he is no longer so fond of Low, he has broken with Polko and he has nothing good to say about Ortgies. But he is not honest, for when he was travelling for Low, he sent things to Polko, and that made a bad impression on me, for he did this at the expense of Low, the journey to Barbacoas, where he found all the new things and did not send a single one to Low, which means he defrauded him. And now I understand that he went to Costa Rica for Low, but he also sent plants to you. I can therefore not find it in me to trust him. If he cheats others, he will not make an exception with me. Of course, none of this is any of my business, but it annoys me when he is dishonest with me.

Of course, Klaboch was no friend of Lehmann and certainly sought to harm any budding relationship that he had with Sander.

Lehmann's correspondence with Sander between 1880 and 1888 survives in the Archives of the Royal Botanic Gardens, Kew, and traces a stormy relationship that eventually failed. Towards the end of the relationship, Lehmann began to offer plants for sale directly through advertisements in the *Gardeners' Chronicle*, a weekly gardening magazine with a wide British and European circulation. Sander would certainly have considered this as serious competition, undercutting his own business.

Hard times

Lehmann collected thereafter for his private clients and also for the Liverpool Horticultural Company, another nursery specializing in wild-collected orchids. A letter of 6 May 1893 to Henry Ridley succinctly describes the end of the latter relationship and some of Lehmann's current problems:

I losed (sic) nearly all my means for the continuation of my work by the bankruptcy of the Liverpool Hortic. Company.

Heinrich Gustav Reichenbach

Lehmann relied upon taxonomic botanists to name and describe his collections, essential if he was to obtain the best prices for his many discoveries. However, the botanists had conflicting priorities and seldom were able to keep up with Lehmann's prodigious rate of collection of novelties. Needless to say, his relationships with his botanical contacts were often as stormy as those he had with nurserymen.

Undoubtedly, Heinrich Gustav Reichenbach (1824-1889) (Fig. 4), the acknowledged orchid authority of the day who had assumed the mantle held by John Lindley on the latter's death in 1865, was the botanist who most influenced Lehmann. Lehmann held an implicit belief in the ability and integrity of Reichenbach, that is, until Reichenbach's death, when the provisions of his eccentric will produced a stunned reaction amongst all those who had known and collaborated with him.

Lehmann sent herbarium specimens to Reichenbach from the late 1870s until the latter's death. Reichenbach responded, identifying and describing Lehmann's orchid collections. His earliest description based on a Lehmann collection, that of *Masdevallia lehmannii* in the *Gardeners' Chronicle* of 1878 (ii: 38), is accompanied by a paean of praise and a dig at English orchid collectors:

It was discovered in Ecuador by Mr Lehmann, who sent many good Ecuadorian things ... to Mr Low. Mr Lehmann's name gives me hope of his being my compatriot. There is, however, a strong indication of his having been in contact with English. Not because he sent a very beautiful collection of dried specimens – specimens indeed, not scraps! of Ecuadorian orchids to Mr Low for me. No, no! I am sorry to say *cetemps n'est plus* – collecting specimens is no more

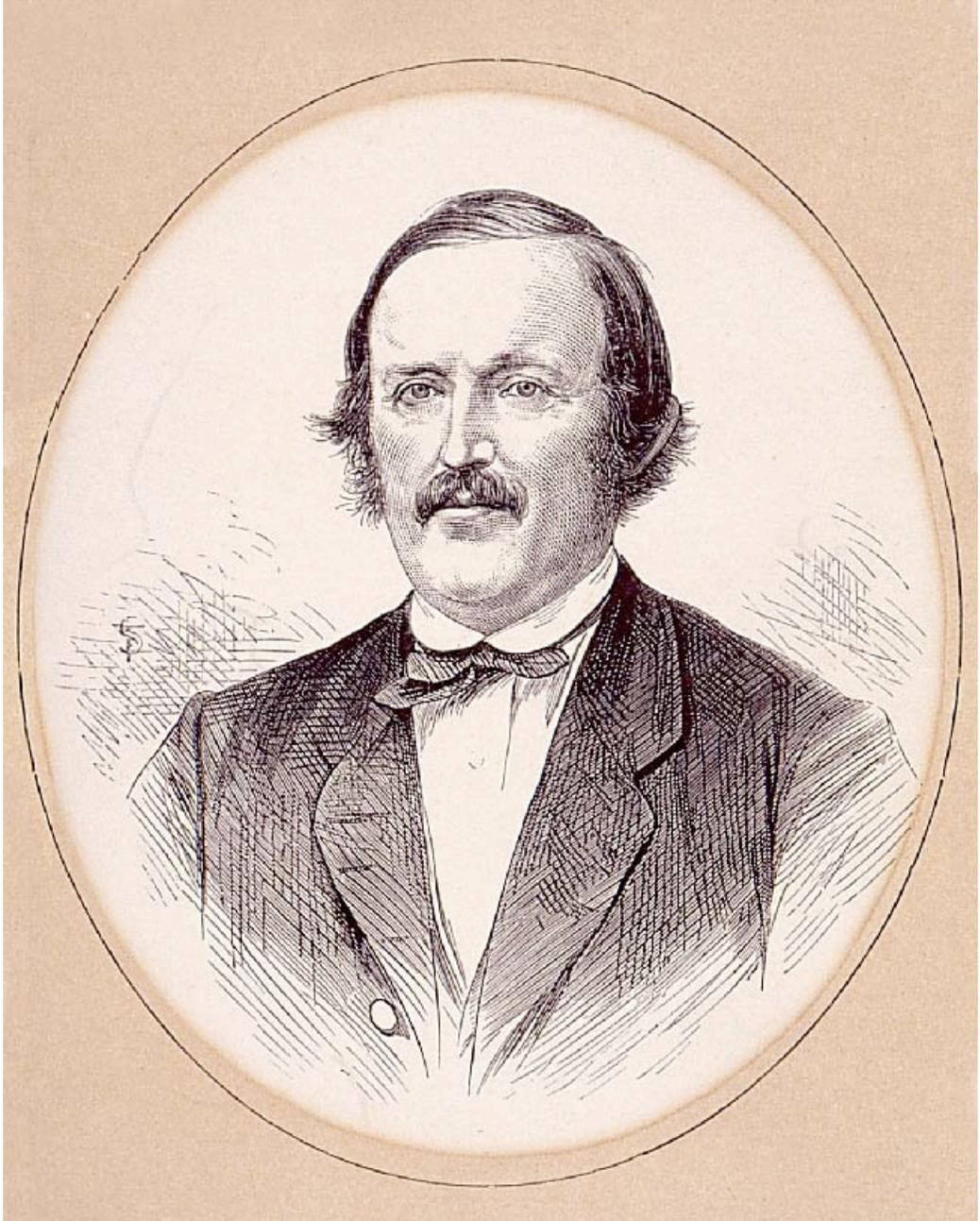


FIGURE 4. Heinrich Gustav Reichenbach (1824-1889), German botanist and orchid authority, of Hamburg.

the general custom of English collectors, as in the glorious days of both the Lobbs, Purdie, the Cunninghams, and Gardner. No! It would seem that the English do not acknowledge a plant to be a specimen unless it is glued down. I have obtained splendid specimens glued down abroad on the most miserable grey blotting paper. I could not help thinking of the old general who declared a mantle was a very useful thing for a soldier, provided it was neatly rolled on his back. After all it is much better to obtain a glued, or fastened specimen, than none at all, and I recommend myself to Mr Lehmann for all such niceties by dedicating to him most thankfully this lovely *Masdevallia*

A second species, *Masdevallia triglochis*, was described in the same volume, again with praise for Lehmann:

I knew very well that Mr Lehmann, the zealous Orchidist, had discovered a new *Masdevallia* of the *Triaristella* group in the hunting grounds of Hall, Jameson, Wallis, Krause, Spruce, Roezl, Klaboch, Sodiro, and Andre, for I possess a very satisfactory set of dry specimens (not miserable scraps) in my herbarium, where the lovely genus *Masdevallia* is not very poorly represented.It was in June when Mr Lehmann found this novelty, at an elevation of 5500 feet. All Orchidists will be very pleased to thank him for the discovery, and Mr Low for the lucky introduction. (p. 648)

In 1878 he published a catalogue of a further 76 Lehmann's discoveries in *Orchideae F.C. Lehmannianae ecuadorenses* (Reichenbach, 1878). Of these, 31 were new taxa (28 new species and three new varieties). Notable amongst them were new species of *Cranichis*, *Odontoglossum*, *Maxillaria*, *Cycnoches*, *Aeranthus*, *Epidendrum* and *Masdevallia* named in the collector's honour.

The following year, Reichenbach (1879) described the fine *Pescatoria lehmannii* in the *Gardeners' Chronicle*, calling it:

A glorious discovery. A grand violet flower, with some white stripes at the base. It is thus that Inspector Ortgies (of Zürich B.G.), who has before him Mr F.C. Lehmann's careful representation, which I have not yet seen, describes it. My richest curiosity is a complete dried plant and three flowers, one of which I have softened with great care to judge it with certainty. ...I feel pleased to dedicate this grand species to the keen and very intelligent traveller, my friend Mr F.C. Lehmann, who does so much for the progress of botany and agriculture. No doubt the best wishes of all lovers of Orchids follow him in the wild and often unwholesome deserts of the Andes, where he is already known to have braved so many dangers.

Lehmann must have swelled with pride to read such a glowing endorsement. He was undoubtedly proud of the connection, boasting to Sander that

Reichenbach wrote succinctly: the orchids of F.C. Lehmann are close to my heart, the wonderful collection, full of new discoveries (letter of 30 January 1880).

However, Reichenbach was a hard taskmaster, and a year later Lehmann wrote that:

Has Prof. Reichenbach not yet published the *Pescatoria trevoriana*? He seems to be cross with me; he has not yet written to me. He wanted me to stay in Europe and to give him my diary so that he could use it for the *Plantae Lehmannianae Americae meridionalis* which was the name of the work he was going to publish next spring.

It appears that this was never published, but Reichenbach continued occasionally to describe Lehmann's novelties until his death in 1889, mostly in the journals *Linnaea* and *Flora*.

Reichenbach's poisoned legacy

On Reichenbach's premature death, Lehmann turned to Fritz Kränzlin in Berlin, Henry Ridley (Fig. 5) at the British Museum (Natural History) and Robert A. Rolfe (Fig. 6) at Kew to name his orchid collections. Adolf Engler in Berlin coordinated the description of his other plant collections. The orchid specialists were, however, all faced with the same dilemma, the terms of Reichenbach's will. This gave his collection to whichever museum promised to keep it under lock and key for a period of 25 years after his death. The major museums refused to have anything to do with a will that was unprecedented in denying access to material needed for taxonomic research. Critical analysis of Reichenbach's many new species without access to the original material was impossible. This was especially irritating because so many collectors, growers and institutions had given Reichenbach free access to their collections for his studies over many years. Eventually, the Natural History Museum in Vienna accepted the Reichenbach Herbarium on the terms laid out in his will. Thus, the herbarium was due to open again in 1914, but the First World War intervened, and it was not made available again until 1921. Of course, all of Lehmann's early collections were in the Reichenbach Herbarium, which might have influenced him to spread his collections more liberally. Indeed,

Lehmann sent extensive herbarium collections to the British Museum (Natural History), Kew, Berlin and Geneva over the succeeding 14 years.

Lehmann wrote in a letter to Henry Ridley on 10 August 1889, shortly after Reichenbach's death, in which he sums up his and most others' views of the will:

Of the death of Prof. Reichenbach you will have heard long before this. But what your opinion is about his will I really should like to know. Fancy the idea to seal up his herbarium for 25 years! Is it that he does not like others to look in to his work, who also know something about it, or is it only to crown his egoism. I think few after him will hold his theory upright as exclusively on the foundation of the genera on the arrangement and existence of the pollinaries. I for one do not adhere to it in its all-umscribing (sic) extent. Up to now I incline rather to accept Lindley; than Rchb.'s foundations, of course with some moderations. I, for instance, cannot well see how *Pilumna* possibly could be separated from *Trichopilia*. How it is with *Helcia* I do not decide yet.

Ridley's reply obviously struck a chord. In a letter of 6 May 1893, Lehmann replied as follows:

What you say about Reichenbach... is sadly true. I often wondered what he meant by putting up genera such as *Bollea*, *Pescatorea*, *Kefersteinia* and all at once they go to *Zygopetalum*.....But what is far more sad with Rchb. than all his changes, is that malevolent grudge not to let any man occupy himself with orchids which not led him to be untrue. There is an instance! Your *Ponthieva grandiflora* – which bye-the-bye I recognise and as such have named it in all the herbaria to which I have given duplicates – Rchb. said he had received it long before your publication from me and it was his *P. andicola*. Now this is in plain English a lie.... I only hope you and myself may live long enough to enjoy the interesting revelations of the Irish stew now being pirkled (sic) up for 25 years at Vienna.

Rolfe fared little better in this exchange:

What you say about Rolfe are my own views. I therefore omit any further observation. Of all that I know closer and who work with orchids at the present day I think Kränzlin is one of the best. Very very sadly he is to (sic) shifty, wants to catch everything in moment and seeks others instead of letting him be caught.

Henry Ridley and Robert Rolfe

A small number of letters from Lehmann to Henry Ridley (Fig. 5) survive in the Archives at Kew. Ridley, later Director of the Singapore Botanic Garden, is best remembered for his introduction of rubber trees to Malaya and is generally considered to be the founding father of the rubber industry in the region. However, he was fascinated by orchids and published extensively on the orchids of South-east Asia. In 1886, he contacted Lehmann enquiring about the purchase of herbarium specimens for the British Museum in London. Lehmann replied on 22 October offering specimens, either directly at £10 per hundred with notes in English or via Fritz Kränzlin in Gross-Lichterfelde near Berlin at £2 per hundred with notes in German. Lehmann's pride in his collections surfaces yet again:

As to the specimens themselves, I may observe that I dry good ones only. Prof. Reichenbach, Dr Kraenzlin and others who have seen them, often said that they are unique as to quality and arrangements.

On 7 February 1887 he explained his methodology for his collections and expanded his litany of praise for his collections in an attempt to get Ridley to identify and name them:

The notes I, II etc. on the different tickets to my herbarial (sic) collections are mere indication as to the range of distribution (geographically). The specimens from different localities reappear under numbers by themselves, which I consider a very important and significant necessity in order to show the range of variation, occasioned by geographical distances, and moreover prove the geographical distribution of the species. 100 specimens mean specimens, not species including the varieties.

I may mention here that my Herbarium has few or no equal. The notes as to colour, character, habit, utility of flowers, leaves, fronds, wood, etc. and the elevation above the sea-level, in which the species grows, of the 6000 specimens of the series from 1880 to date, fill already several volumes. To the Orchideae over 400 coloured sketches explain differences of colour, variations etc.

Today I beg you to tell me, under which conditions you would accept to classify and publish the whole of my orchids, if I make you the owner of an entire series of them, and allow you use of all sketches. The latter remain my property.

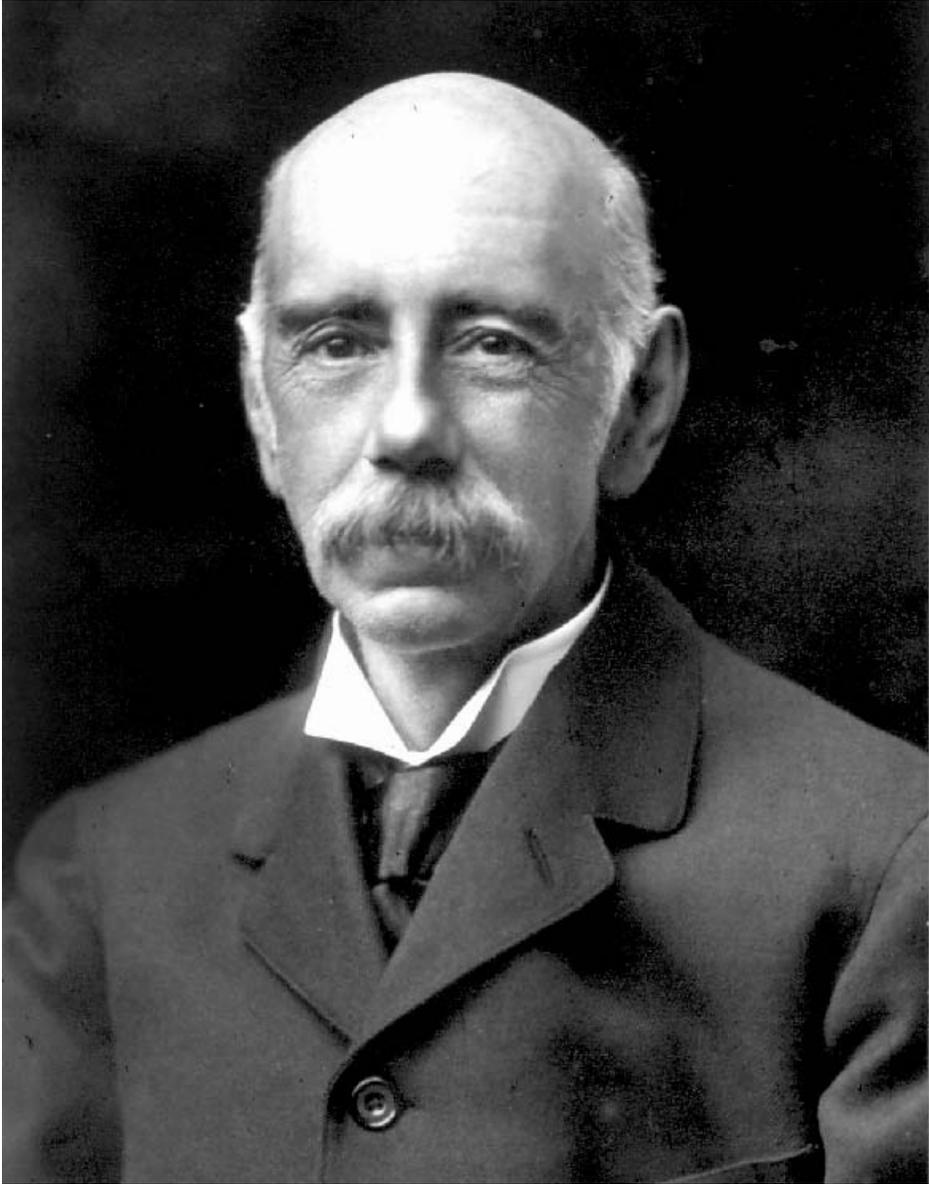


FIGURE 5. Henry Ridley (1852-1953), British botanist, British Museum (Natural History), now the Natural History Museum, erstwhile Director of the Singapore Botanic Garden.

In letters of March and 22 June, Ridley agreed and a letter from Lehmann of 30 August expressed his gratitude agreeing to dispatch forthwith a small number of specimens of novelties by the next mail and promising to send the rest, another 800 species, the following spring. The letter reproduced here of 2 December 1887 shows Lehmann's sketch of a *Utricularia jamesonii* (Fig. 7), a member of a genus in which Ridley was particularly interested. Ridley, however, gained the post of Director of the Singapore Botanic Garden in 1888 and was unable to fulfil his promise to Lehmann, lacking access to the major European herbaria that contained the bulk of Andean material needed for comparing Lehmann's collections. Nevertheless, they continued an amicable correspondence.



FIGURE 6. Robert Allen Rolfe (1855-1921), Kew botanist and first curator of the Kew Orchid Herbarium.

Robert Rolfe (Fig. 6) occasionally described new Lehmann species, *Ada lehmannii* in the *Gardeners' Chronicle* (Rolfe, 1891) and *Lueddemannia triloba* and *Scelochilus carinatus* in the *Kew Bulletin* (1895), but these were based upon Lehmann collections that flowered in cultivation in Europe, rather than herbarium collections.

Fritz Kränzlin

Eventually, Kränzlin (1899) bit the bullet and published *Orchidaceae Lehmannianae in Guatemala, Costarica* [sic], *Colombia et Ecuador collectae, quas determinavit et descripsit*. This included 107 new species, all but nine under the joint authorship of Lehmann and himself. The largest number of new species were in the genera *Epidendrum* (40), *Pleurothallis* (18) and *Masdevallia* (9), but new species were described in 23 genera. Two of the genera, *Neolehmannia* and *Pterostemma*, were newly established by him.

Kränzlin waited over a quarter of a century until his next foray into Lehmann's collections. This was almost certainly the result of Kew's successful offer to Lehmann's widow for his herbarium and illustrations' collections in 1903. Kränzlin had most of the material in Berlin at the time of Lehmann's death, and he claimed ownership of it for Berlin (Kraenzlin, 1904). However, he had only lent the material to Berlin, and it duly came to Kew. Kränzlin visited Kew after the First World War and began a detailed study of *Masdevallia* and its allies in the Lehmann collection. He described a few species in 1921 and established the genus *Lothiana* (Kränzlin, 1924) to commemorate the Marquess of Lothian, one of Lehmann's best clients. Some 30 new taxa based on Lehmann collections were described in his monograph of *Masdevallia* and its allies (Kränzlin, 1925). The latter were mostly under Kränzlin's authorship but with a smattering also posthumously attributed to Lehmann.

The Marquis of Lothian's *The Genus Masdevallia*

From the Introduction to his Monograph of *Masdevallia* by F. Kränzlin in Fedde's *Repertorium* of 1925:

Then occurred a crowning element of luck which rarely happens to a group of plants. The Marquis of Lothian – Newbattle Abbey – made a sacrifice to science by commissioning one of the most precious monographs, which to this day is unsurpassed. The text and drawings are the work of Miss Florence Woolward of Belton, the descriptions of geographical distribution are by F.C. Lehmann. The work was not diminished by the fact that its authoress was not a trained botanist; she has given her best and whoever studies the work from beginning to end, as I have done several times, will have to acknowledge the immensely dedicated and detailed work of which it is a testament. If a writer of monographs and trained botanist happens to be of a different opinion regarding one or other species, this does not diminish the admiration for what Miss Woolward has achieved.

The Genus Masdevallia, commissioned by the Marquis of Lothian and with text and illustrations by Florence Woolward, is considered by many to be one of the finest illustrated orchid books of the Victorian age. The book's genesis was the result of the Marquis's passion for orchids, particularly the Andean *masdevallias* of which he had a renowned collection at his home, Newbattle Abbey, in Scotland. He had obtained most of them directly from Friedrich Lehmann, who advertised his tempting wares in the pages of the weekly magazine *The Gardeners' Chronicle*. Florence Woolward, who was commissioned by the Marquis to paint his orchids as they flowered, was a botanical artist working freelance and later at the British Museum (Natural History), now the Natural History Museum, where the majority of her work is preserved today in their extensive archives. Pressed flowers from the Marquis's collection at Newbattle Abbey are preserved in the collection of the Natural History Museum (Figs. 8-9). Over a period of ten years and on frequent visits to the Marquis's home, she painted over 350 orchid portraits, some 85 of which were of *Masdevallia* species. The originals survive today at the present home of the Marquis of Lothian, where they are justifiably treasured.

The Genus Masdevallia was conceived by the Marquis as an opportunity to monograph a group of remarkable and diverse orchids that were little known to contemporaries and, in particular, to profile his own remarkable collection of them. New species began to flood into Britain from the northern Andes, especially in the 1870s and 1880s. Lehmann was a major source of novelties and of spectacular species from Colombia and Ecuador. The Marquis searched for an author and approached Robert Rolfe, then the foremost orchid specialist of his day, who was based at the Royal Botanic Gardens, Kew. Rolfe was Kew's first Curator of the Orchid Herbarium, an incomparable resource based on the extensive collection of John Lindley, the father of orchid taxonomy. Lindley had been Assistant Secretary of the Horticultural Society of London, later the Royal Horticultural Society, which

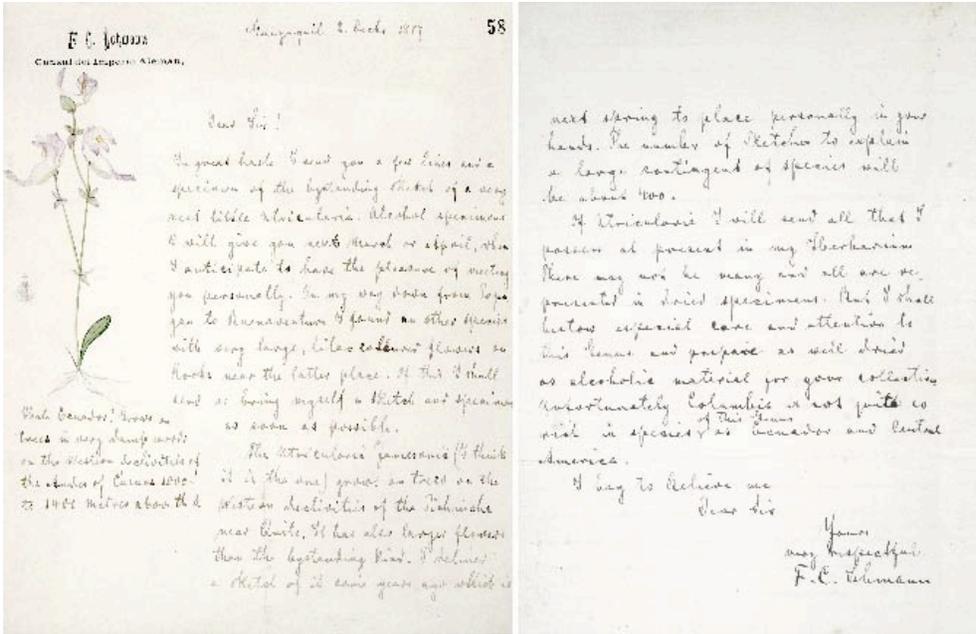


FIGURE 7. Letter of 2 December 1887 from Lehmann to Ridley. Archive, Royal Botanic Gardens, Kew.



FIGURE 8. Left, *Masdevallia rosea*, flowers preserved on 13th June 1890 from a plant cultivated by the Marquis of Lothian. Right, *Masdevallia coccinea*, flowers preserved from a plant cultivated by the Marquis of Lothian. Both at the Natural History Museum, London.



FIGURE 9. Top, *Masdevallia ephippium*. Bottom, *Masdevallia xanthina*. Flowers preserved from plants cultivated by the Marquis of Lothian, accompanied by vignettes drawn by Florence Woolward . Both at the Natural History Museum, London.

was a major sponsor of plant collecting expeditions in the tropics. In his position, he gained first sight of all the novelties introduced by its collectors, especially the orchids that fascinated him most. He described nearly 2000 species and over 180 genera during his lifetime. Rolfe, after initially agreeing, apparently declined to write the text to accompany Miss Woolward's illustrations. Consequently, she decided to write the text herself, no doubt with some help from other botanists on her frequent visits to the British Museum.

The book eventually appeared in nine parts between 1891 and 1896. Each part contained ten plates and text, except the last which had seven plates. Each was priced at £1 10s, making a total of £13 10s for the set. Today, it sells at auction, when it rarely appears, for thousands of pounds.

A distinctive feature of the book is its detailed accounts of the localities in the Andes where the plants grow wild. They were contributed by Lehmann. A few of his original contributions, in the form of hand-written descriptions, survive in the possession of his family in Popayan (Escobar and Robledo, 1975). A letter from Miss Woolward to Lehmann also survives in this collection:

Belton, Grantham,
Lincolnshire
February 17th 1891

Dear Consul Lehmann,

I send you tracings from my drawings of two species of *Masdevallia*, for which I much wish to have a note from you, as I intend to substitute them for two of the ten on the list which I sent you in my letters of Dec. 18th and Feb. 2nd. They are rare and will create more interest than the commoner species which I intend to include in Part II. If you could tell me, by the return mail, where you found the two species, their altitude etc. I think and hope that I might receive your letter in time to have your note printed for part II of the Monograph.

I have got complete drawings ready, and a photograph and descriptions. *M. guttulata* was first described by Reichenbach in *Linnaea* XLI (1877) p. 118. No locality given, except "Ecuador"? No name of discoverer. Of course it is of the same section as *M. ephippium* etc. In the *Gardeners' Chronicle* Sept. 6th 1890, p. 267 to my great amusement, Mr Rolfe described *M. guttulata* as a new species! having quite overlooked the fact that Professor Reichenbach described it in 1877. No locality or discoverer is given in the latter reference.

M. picturata was first described by Reichenbach in *Otia Bot. Hamb.* 16. Collected by Wagener, Fendler and Arnold. Locality, Venezuela? Flowered first with Mr. F. Sander, 1882. There seems to have been a recent importation of this species, for I have lately heard of more than one instance of its flowering this year, apparently for the first time since 1882. I should be glad if you would be kind enough to tell me your experience with these two species, for so little is known about them that it would be most useful and interesting. I shall soon have completed the lithographing for Part II and I shall then go to London to collect information for the text, which your notes, so anxiously expected by me, will complete for printing.

Hoping that you are well, and with kind regards I am yours very truly

Florence H. Woolward (See Escobar and Robledo, 1975)

Lehmann duly obliged, not once but many times. He also sent copies of his own drawings of *Masdevallia* species to Miss Woolward, three of which, *Masdevallia fractiflexa*, *M. ophioglossa* and *M. ventricularia*, eventually appeared in the book. The original paintings of them are in the Natural History Museum attached to the respective herbarium specimens (Figs. 18, 19). His detailed descriptions of habitats were added for over half of the species. A few of the descriptions of orchid habitats survive in the collection of his family in Popayan. His detailed description of the habitat of *Masdevallia maculata* is a good example:

The trunks of the trees are covered with small lichens, in a lesser degree with mosses and but little frequented by ferns, bromeliads etc. The orchids that frequent these woods belong to the genera *Pleurothallis*, *Lepanthes*, *Stelis*, *Restrepia*, *Masdevallia* (the species: *auropurpurea* Rchb.f., *maculata* Klotzsch et Karst., *ephippium* Rchb.f., *amanda* Rchb.f.), *Comparettia*, *Burlingtonia*, *Oncidium* (the species *obryzatum* Rchb.f., *panduratum* H.B.Kth., *globuliferum* H.B.Kth.), *Epidendrum*, *Sobralia*, *Evelyna* and a few others.

The climatic conditions of this region are characterized by dense fogs and heavy rains with frequent and very heavy electric discharges. During the rainy season it is highly interesting to observe these meteorological [sic] phenomena. Towards daybreak dense fogs form themselves and lay [sic] close above the woods, appearing, if observed from the higher regions of the Cordilleras, like immense loose [sic] cotton heaps or masses. At about 8

o'clock these fogs begin to rise and to form large cumulus clouds. From 2 o'clock p.m., the latter begin to condense and to fall in heavy showers by severe electric discharges and lasting as a rule until late at night. A dry season in this region takes place in Venezuela during the months of January to the end of March and in the Cauca from July until September. The annual mean temperature of the region ranges between 18 and 19° Centigrade and the extremes between 15 and 25° Centigrade. In its natural habitat *Masdevallia maculata* flowers from August until December. Cultivated at Popayan it is never without flowers.

It is quite clear that *The Genus Masdevallia* would have been a far poorer work but for the efforts of Lehmann. He contributed plants, watercolours and detailed habitat notes for the volume and surely deserved co-authorship. Woolward admits as much in the Foreword:

Drawings also of numerous species entirely unknown in this country, or known only hitherto as dried specimens, are generously promised by Consul F.C. Lehmann, whose exceptional advantages as a skilled botanist collecting for many years in those regions of Central and South America where alone *Masdevallias* are to be found, place him at the head of the authorities upon the genus. His drawings will be published in later parts of the works, with names and descriptions supplied by him, and with a chapter on the geographical distribution of the genus, accompanied by a map. For each species which he has himself collected, he contributes a note stating the temperature and elevation of the locality in which he has found the plant.

In the event, she failed to live up to her promise, stating in the Introduction that was published in the last part of the work:

It was originally proposed that more of his (Lehmann) drawings should be included in the present work, but many of those lent to me by him for that purpose, although in themselves, were sent without dissections, names, notes, or descriptions, and were, therefore, useless for publication.

We know a little of Lehmann's view on the partnership from a letter to Henry Ridley, of the Singapore Botanic Garden, of 6 May 1893:

Within shortly I intend to go to Europe for a short stay chiefly to repack my Herbarium and look a little closer into the matter of the monograph of the genus *Masdevallia*. Miss Florence Woolward goes on a little to (sic) quick and to my great dislike introduces items in the work which were better left out.... In the way of new discoveries of late I have nothing to note of any great horticultural interest. The new species of botanical interest however are numerous enough. If the monograph on the *Masdevallia* is completed it will not be short of 150 species.

Nevertheless, *The Genus Masdevallia* can be considered Lehmann's finest monument to a lifetime's exploration.

Lehmann the botanist

Apart from his shadowy collaboration with Kränzlin and his ecological and geographical descriptions for the Marquis of Lothian's *The Genus Masdevallia*, he occasionally contributed descriptions of new taxa to the *Gardeners' Chronicle*. His account of the discovery of the genera *Trevoria* (Fig. 10) and *Gorgoglossum* in that journal of 1897 is well worth quoting, illustrating his botanical knowledge and the extent and danger of his endeavours as a collector:

This is the second of a number of new genera of orchids which I have discovered during the twenty one years of my travels in the Andes. Both *Trevoria* and my *Gorgoglossum* are old acquaintances of mine; but owing to their great rarity, and their growth in habitats very difficult to reach, insufficient floral material have made it hitherto impossible to publish them.

Gorgoglossum Reichenbachianum Lehmann (MS, 1879) was met with in December, 1879, in one single specimen on the Western Andes of Ecuador, at an elevation of 300 to 600 metres above sea level. The single specimen was duly given to the late Professor Reichenbach; but the flowers, having lost their pollinia, he did not venture to describe the plant, and it wandered with some 3000 other numbers of the herbarium for twenty-five years to the grave at Vienna. Some eleven years later, when I knew already the fate of my *Gorgoglossum*, I undertook an especial journey to the locality in order to secure a few plants for cultivation in one of my estates in the Cauca. Only five plants were found, of which one exists in my possession, and another in that of Sir Trevor Lawrence, the rest having been lost on the sea voyage.

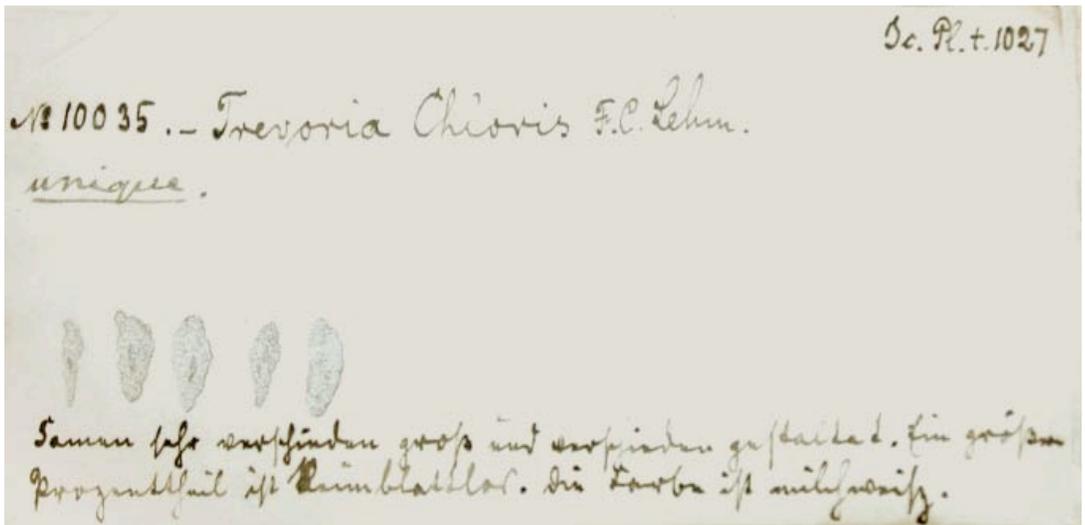


FIGURE 10. *Trevoria chloris*. Top, type specimen at the Royal Botanic Gardens, Kew. Bottom, detail of drawing of orchid seeds from the type specimen.



FIGURE 11. Sir Trevor Lawrence (1831-1913), President of the Royal Horticultural Society and a keen orchid grower.

My first acquaintance with *Trevoria* occurred in 1887. Only three specimens were seen, bearing thin, drooping spikes, about 40 cm long, of thickly set seed vessels but, not flowers. The plants I tried to take to Cauca for cultivation, but, alas! They were stolen from me by some rascal at Esmeraldas during my absence from the steamer, together with a number of other botanical treasures. Nothing more was seen or heard of this plant, which, by-the-by, when during an exploration of a certain portion of the western Andes of Colombia, with a view of projecting a map on behalf of the Cauca Government, a few plants of this species of Orchid were observed. The species found in Colombia is, however, quite distinct from that of Ecuador. The latter grows at an elevation of 500 metres above the sea, and produces flower-spikes of from twenty to thirty flowers, the size and character being as yet unknown, while the Colombian one inhabits a region from 1,500 to 1,700 metres above the sea (as far as observed), and bears racemes of only three to five – commonly only three flowers.

...I have named this genus of Orchidaceae in honour and commemoration of Sir Trevor Lawrence, one of the most enthusiastic orchidists that ever lived.... May Sir Trevor's love of Orchids *perdure sempervirent* as Chloris the goddess of flowers. Popayan, February 1897.

Sir Trevor Lawrence (Fig. 11) became one of Lehmann's most important clients as he strove to improve his fine orchid collection at Burford Bridge, near Dorking in Surrey. It is a shame, indeed, that Lehmann did not formally describe more of his discoveries.

Lehmann's Herbarium

Lehmann sent herbarium specimens to Professor Heinrich G. Reichenbach in Hamburg until the latter's death in 1889 and to several botanists including Fritz Kränzlin in Berlin, Robert Allen Rolfe at Kew and Henry Ridley at the British Museum. He courted the botanists to provide names for his plants. His most productive spell of collecting came between 1880 and June 1903, the date of his last recorded plant collection. In total, after 1880, he collected almost 14,000 numbered collections and a large quantity of un-numbered ones as well. Not all were orchids but the orchid collections numbered in their thousands and formed the main thrust of his collecting. The numbering of collections was distinctly odd. His early collections between 1876 and 1879 were either un-numbered or received Roman numbers; his series from 1880 onwards were sequentially numbered, but that did not necessarily reflect their collection date. In addition, herbarium materials sent to Kew in the 1880s were un-numbered and subsequently received numbers in H.K. and B.T. series. It seems likely that he numbered a proportion of his herbarium collections some time after he had collected them. The majority of his illustrations were of orchids, although occasionally he painted other plants, such as showy species of *Passiflora*, *Aristolochia*, *Pinguicula* and *Eucharis*.

Lehmann's early collections, a small proportion of which were described by Reichenbach, are now in the Natural History Museum in Vienna as part of the latter's herbarium. Later, in 1893, he sold a set of herbarium collections and drawings to the British Museum (Natural History) and another to Boissier in Geneva at about the same time. After his death, the bulk of his herbarium and illustrations and most of his collecting notebooks were purchased by the Royal Botanic Gardens, Kew, for £2500 in 1906. These remaining collections comprised 7200 herbarium collections, of which 3172 were orchids, and about 600 paintings and drawings of orchids and another 400 or so of other Andean plants.

Lehmann had many orchids and other plants named in his honour. The orchids include *Ada lehmannii*, *Catasetum lehmannii*, *Chrysocynis lehmannii*, *Dichaea lehmannii*, *Dracula lehmannii*, *Lepanthes lehmannii*, *Masdevallia lehmannii*, and *Pescatoria lehmannii*. He is also commemorated by the orchid genera *Lehmannia* and *Neolehmannia*.

Lehmann's botanical illustrations

Lehmann took his botanical illustration seriously, asking Sander to buy art paper from Europe and berating him when it proved to be of inferior quality. He was a competent artist, and the completed watercolour paintings are accurate and attractive representations of the orchids he saw and collected. Not all are complete, many being part-coloured or pencil drawings. All are good representations of the plants which, for the most part, are easily recognisable.

Sauvêtre (2009) states that his wife was a skilful watercolour artist and illustrated some of his new species. However, the majority of Lehmann's orchid illustrations bear his own signature.

The unpublished Lehmann iconography is an important source of knowledge of the rich flora of Colombia and Ecuador, especially its orchids. The paintings and drawings, some complete, some parti-coloured, others uncoloured, correspond to Lehmann's herbarium collections, many of which are type collections. A type is the specimen that a botanist uses to describe a plant as new to science and, as such, represents an essential standard for checking the application of a plant name by other botanists. Lehmann discovered many new orchid species on his expeditions. Therefore, his herbarium collections and illustrations are critical in the identification of those species that were described by scientists based upon his collections. The illustrations, being unpublished, have never been available to orchid scientists apart from those who have been able to visit Kew and examine the original materials.

Health, sickness and death

Despite occasional sickness from dysentery and malaria, Lehmann lived a vigorous and healthy life and expounded his rules of conduct in a conversation (Anon, 1904):

I attribute my good health, and even my life, mainly to two things. First, when in danger, either from natives or, worse still, from lawless white men, I never produce a revolver or other weapon. Scores have lost their lives for showing a revolver, for when guns are about it is always the aim to get the first shot in; so instead of terrifying, the production of a revolver may be your own death warrant. Secondly, I never drink water without first boiling it. Often I have gone thirsty for hours before I could get a chance to boil water, but I preferred that to the risk. If I had coffee (and coffee has had to be boiled over and over again sometimes), I would stir a pinch or so, or more if I thought I could replenish the store soon. But in any case the water had to be boiled unless I was satisfied it was beyond suspicion.

Civil-war raged in Ecuador and Colombia in the 1870s and flared again at the turn of the 20th century. He and his family were inevitably caught up in it, restricting their movement beyond Popayan and affecting their lives in general. A letter from the time, dated 24 March 1903, survives:

We have been several times without any communication for several months. Even to send letters by post was so uncertain that the last lot of important papers I sent by express mule rider all the way down to Buenaventura to make sure that they would get on board a mail steamer. Orchid collecting and travelling have been hampered during the time of the civil war. Officially it has been pronounced ended over and over again, but while reading the announcement, if you were favourably situated, you would still hear the cracking of the rifles. I have been tied down by my consular duties, and also by having to rebuild the house on my country estate; but the latter will soon be finished now, and then I shall be able to roam over hill and valley again and look up some of the many pretty new things which I would like to get into European gardens, especially my discoveries in Masdevallias, most of which are as yet undescribed, for I am an enemy of making new species, and this often carries me to the other extreme.....But I would like to get some of them into gardens, and though my power of endurance is not quite what it was many years ago, for it is no trifle to travel twenty-seven long years in these climates, I am still resolved to do something if it pleases the Lord.

Sadly it did not for he died shortly afterwards, crossing a river that he must have forded many times before with no problem. Kränzlin's (1904) comments in the obituary have led some later commentators to suggest that Lehmann's death may have been more than an accident:

There, in fording the Timbique River, he met with his death, whether by an unhappy accident or by malice is not known.

The legacy

Lehmann's legacy is substantial, particularly for a man of evidently humble origins and little formal education. Throughout his life, he was well aware of the disadvantages of his circumstances and sensitive to perceived slights and the possibility that others might take unfair advantage of him. Nevertheless, he produced an impressive list of achievements and ended his days as a respected mine-owner, plant collector, botanist and diplomat. His botanical achievements are impressive and important contributions to cataloguing the flora of the richest area for plant diversity anywhere in the world. His extensive herbarium and archive of illustrations of Andean plants are still yielding novelties a century after his death. Their continuing relevance as a record of where plants grew, particularly in areas that have been deforested or currently inaccessible because of civil unrest, is invaluable to present-day botanists. The many novelties he discovered are still being assessed by modern researchers and the number of unnamed specimens shows that there is still considerable work to complete.

The Lehmann herbarium collections have never been fully assessed. They undoubtedly contain a wealth of novelties and records from habitats that no longer survive. Many of Lehmann's favourite hunting grounds are now converted to pasture, plantation or wasteland. A considerable proportion of his collections still remains unidentified and unnamed to this day. The American botanist Carlyle Luer is one of the few active taxonomists to have studied Lehmann's collections in depth. His interests are *Masdevallia*, *Dracula*, *Pleurothallis* and their allies, genera that fascinated Lehmann and in which he made efforts to discover novelties to introduce into cultivation. Luer has based many of his new species on Lehmann's material, including the magnificent *Dracula vampira*, surely the most sinister of all in that genus.

Lehmann's contribution to our knowledge of tropical American orchids has been immense. He taught himself the rudiments of botany and became competent at identifying and describing orchids and other plants.

Undoubtedly, if he had survived longer his contribution would have been greater. Novelties will continue to be discovered in the *Herbarium Lehmannianum* in its now scattered locations. So much of his herbarium and the accompanying illustrations have only been available for study after his premature death. His rich collections will prove a treasure-trove for future generations of botanists.

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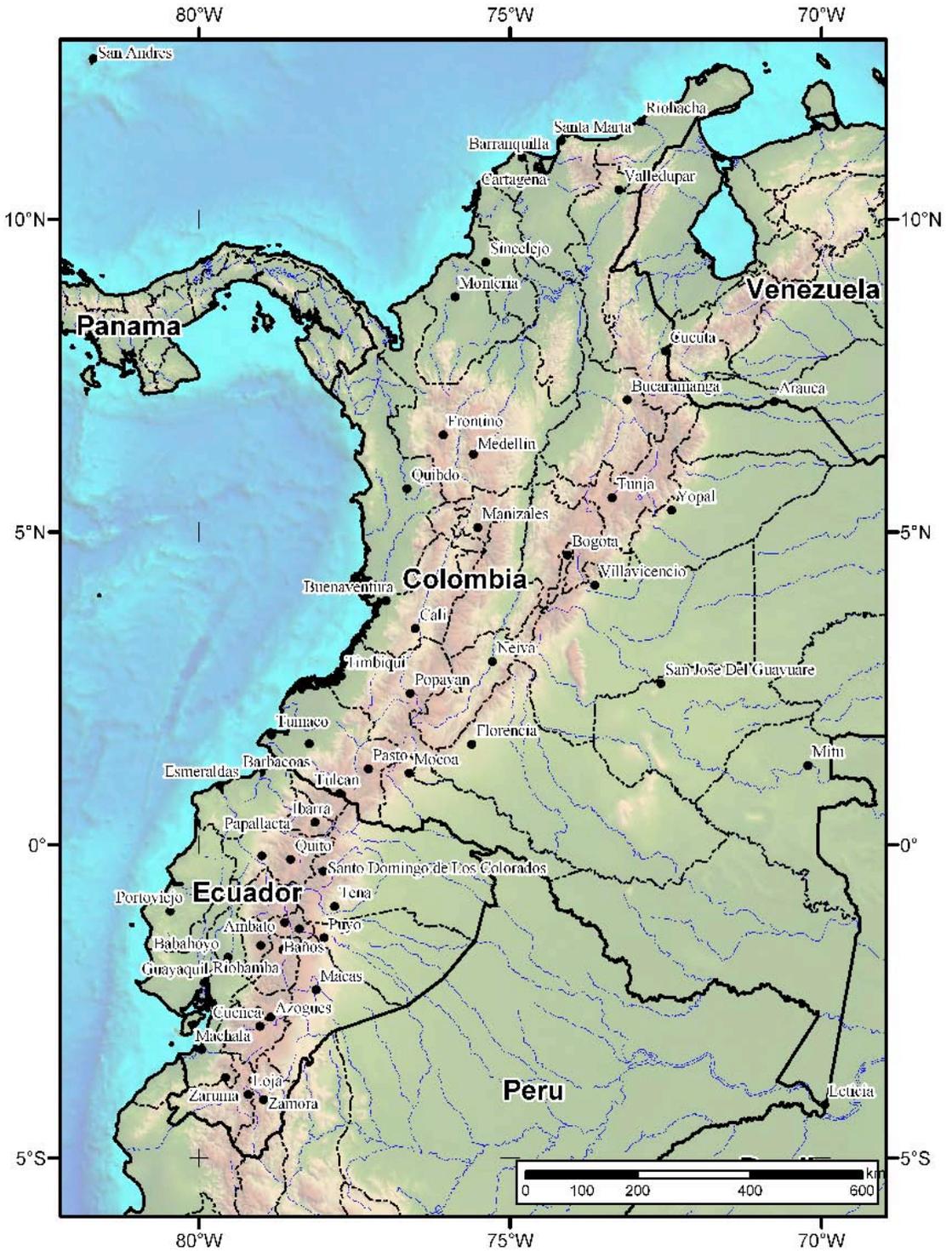


FIGURE 12. Map of northwestern South America and eastern Panama, showing several of Lehmann's collecting localities.