

## XI. LEDERMANN'S AND SOME OTHER GERMAN LOCALITIES IN PAPUA NEW GUINEA

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Collecting localities are of special interest to those who want to know the exact origin of the material under study: e.g. when citing types, designating neotypes, preparing distribution maps, planning expeditions, comparing species lists, or because of some historical interest. It is not always easy to gather these data, especially in the case of many former colonies where geographical names as used on collections have been changed (or may never have been recorded by the authorities and include on maps or in official gazetteers). As we have spent some time to gather the present information, we thought a wider audience might be interested.

For a brief period, 1884 to 1921, the northern half of Papua New Guinea was a German colony, and the mainland portion known as Kaiser Wilhelmsland. German names were given to villages and other places where the colonists settled, and to the rivers and mountains they 'discovered'. When the Mandated Territory of New Guinea came into existence in 1921, the Australian administration proceeded to change many of these names. Some were merely translated, e.g. Aprilfluss became April River, Felsspitze became Rocky Peak, and Hansemann-Berg (near Madang) became Mt. Hansemann. Others underwent a complete change: Kaiser Wilhelmsland was abandoned in favour of 'North-East New Guinea', the mighty Kaiserin Augustafluss reverted to being the Sepik, the English names for Neu-Pommern and Neu-Mecklenburg were restored, the names of famous English politicians replaced those of German philosophers for two peaks in the Finisterre Range, and Friedrich-Wilhelmshafen became Madang after the name of the District Officer's house which had been moved there from Finschhafen. Fortunately relatively few names were changed after the Independence of Papua New Guinea in 1976.

Vink had, many years ago, prepared a card index to many German localities, with an emphasis on Carl Ludwig Ledermann (1875-1958), a Swiss who was the principal botanical collector on the great Kaiserin-Augusta Expedition, 1912-1913, in the Sepik River basin of Papua New Guinea. To this gradually also other names encountered in the botanical literature were added. Vink consulted the original Expedition maps published by Behrman in his 1922 book 'Im Stromgebiete des Sepik' ('In the Sepik Basin') and 1924 report 'Die westliche Kaiser-Wilhelmsland in Neu-Guinea' ('The western part of Kaiser Wilhelm Land in New Guinea'), as well as sources in the Mapping Office, Canberra, the Lae Herbarium, and the Rijksherbarium.

Frodin also tried to reconstruct the itinerary, identify expedition localities, and prepare a survey of the collections made. In 1984 he prepared a small exhibition in the Herbarium of the University of Papua New Guinea as part of science 'open days'. This included a full-size copy of the Behrman maps of 1924.

Veldkamp, with Frodin's help, has now rearranged and correlated the various data,

notes, and sites with the official Papua New Guinea Gazetteer (1974), local World Aeronautical Charts, and 1:250,000 maps of the area. Additional German localities are given on pp. 1168–1171 in the English edition of Rudolf Schlechter's work on orchids, 'The Orchidaceae of German New Guinea' (Melbourne, 1982), but as there is little overlap with the present list it has not been incorporated here.

Of all the many substantial collections of plants made in the German period the largest and botanically most important one was that of Ledermann: 6639 numbers of Phanerogams alone were collected! One of the significant botanical results was the demonstration by Diels in a 1921 paper, 'Die pflanzengeographische Stellung der Gebirgsflora von Neu-Guinea', that the (lower) montane flora of New Guinea was fundamentally of Gondwanic affinity, and that while no families were endemic it featured a very high percentage of species found only in New Guinea.

The Sepik Expedition was the last in the 'grand manner' to be mounted by the Germans. It was organized by the Commission for Land Research and Exploration in the German Colonies, a body founded in 1905 upon a suggestion of the geographer Hans Meyer, and already with a previous New Guinea Expedition to its credit, the German-Dutch Border Survey of 1910, and supported by the German Department of Colonies, the German Colonial Society, the Royal Museum for Natural History in Berlin, and the Berlin Geographical Society (in whose journal expedition progress reports, initial summaries, and Behrmann's paper of 1924 would be published). Local support was provided by a military escort under the command of Bergassessor A. Stollé and material and financial assistance from Governor Hahl and the administration. This well-organized enterprise, led by the geographer and geomorphologist Walter Behrmann (later professor at Frankfurt-am-Main and still later at the Berlin University), had as its main objectives the exploration of the still poorly-known Sepik Basin (much of the river itself having already been surveyed on previous expeditions), and the penetration of the unknown Central ranges, as well as the study of landforms, natural history, and peoples of the region. Six scientists in all participated.

The base camp was known as Hauptlager Malu (Malu Main Camp) and was located just downstream from the foot of the present airstrip of Ambunti, a station first established in the early 1920s. The relationship of the station, airstrip, and camp is clearly shown in a photograph in C.W.L. Townsend's book 'District Officer' (Sydney, 1968). From here, starting in March 1912, Ledermann collected extensively in the region both by river and on foot, until the close of the Expedition in September 1913. The localities were in part selected with a view to forming an adequate sample in relation to altitude; the total range was from 30 to 2070 m. Ledermann himself wrote a short review of his collecting (*Bot. Jb.* 55, Beibl. 122, 1919, 33–44), together with sketches of the vegetation (to a great extent still the only general discussion of the plant life of the southern part of the basin and the adjacent hills and mountains). This provides a key starting point for any retrospective studies, for unfortunately the main set of the Ledermann collection was lost in the fire at the Berlin Herbarium during World War II (1943). In that disaster alone, a great part of the primary evidence for identification and comparison, 'typical' and authentically named specimens, was forever lost, there having been no photographic program of the kind carried out in the 1930s for tropical American types by J. Francis Macbride from the Field Museum of Natural History in Chicago in the U.S.A. (originally organized, however, with a different aim). At one stroke a 'tradition' was ended: for a long time indeed there would be no further contributions from Berlin to the New Guinea flora. The thread of continuity was

broken in this and other ways, and mapping activities during and after the war in many cases took little notice of the localities used by few other than botanists. Thus a number have become obscure and virtually lost, as they were not listed or mapped by modern sources, including for example the Papua New Guinea Gazetteer already referred to.

Yet, for many species these are the type localities causing their exact whereabouts to be a matter of scientific importance. In many cases only descriptions now exist, and, if they do not match any material available from whatever source, these taxa have in the last 40 years often been dropped into the wastebasket of 'species dubiae incognitae vel excludendae'. It is therefore necessary to check on the spot if the species cannot be rediscovered. This, in the case of Ledermann, has largely been neglected.

That the 'lost' taxa could be found again was demonstrated in August 1984 by Mr. S. Rogstad, who, following some advice from Frodin and others, recollected for the first time since the Expedition *Polyalthia multinervis* Diels (Annonaceae) in the region of the April River airstrip. This is South of the type locality but in a comparable habitat, swampy bottomland forest, and the trees were reportedly locally plentiful. The species occurs nowhere else, as far as known, and lends support to an idea that the Southern Sepik Foothill zone, which includes the Hunstein Range, is a 'zone of peculiarity' within New Guinea, which on account of the area's geology harbours a number of species with restricted distributions, either endemics or occurring only locally elsewhere. The loss of most of Ledermann's collections is therefore all the more regrettable, as is the near failure to re-examine his areas. The only ones who have gathered significant vascular plant materials in the southern part of the Basin since 1913 have been R.D. Hoogland and L.A. Craven during part of a CSIRO regional survey which from May to September 1966 examined the whole of a region centering on Aitape in the North and Ambunti in the South, and included Mt. Hunstein (cf. Fl. Males. Bull. 21, 1966, 1397).

In 1981 T. Koponen visited for ten days the Frieda River Prospecting Area, which lies in foothill country between the Frieda and May rivers (cf. Acta Bot. Fenn. 22, 1985, 367–396) and collected bryophytes. Koponen, who was joined by his associates D. Norris (for the mosses) and S. Piipo (for the hepatics) gave a survey of collectors and localities, and noted that the loss of Ledermann's bryophytes, and the scanty locality data published by Stephani in his reports on the hepatics, have likewise created serious problems.

Research on Ledermann's exploits is further complicated because in 1930, in a fit of depression, he destroyed his notes as being too personal (cf. Fl. Males. Bull. 14, 1959, 617 and Fl. Males. I, 5, 1958 [62]: this note has been extended erroneously in the Index Herbariorum II/3, 1972, 422 to the effect that he also destroyed part of his herbarium in B).

The results of the Expedition as a whole appeared in a number of specialized scientific journals, in two major reports, and a popular book by Behrmann. Two of these monographs have already been mentioned, the third, which preceded them, was 'Der Sepik (Kaiserin-Augusta) Fluss und ihr Stromgebiete' which appeared in 1917 as *Erganzungsheft* 12 of the German Colonial Department's scientific series 'Mitteilungen aus den deutschen Schutzgebieten'. With an eye towards the relatively limited efforts of the Australians in New Guinea after 1914 Behrmann also praised the work of the Expedition in a general review of German exploration at a 1924 colonial congress. In 1927 he wrote one further book drawing on what he and others had learned: 'Das Zentralgebirge Neuguineas in westlichen Kaiser Wilhelmsland'.

Several maps were present in the various reports and papers, but it is the set of three at 1:250,000 included in 'Die westliche Kaiser-Wilhelmsland in Neu-Guinea' that remained a

primary source for the Sepik Basin – all earlier results being incorporated – and many of the place names are still current in some form or other. The great majority of the Ledermann localities are clearly marked and direct comparison with some standard modern topographical series is facilitated by the common scale. Indeed, for the Telefomin area – reached by the anthropologist Richard Thurnwald, one of the Expedition members, in 1913 – the Behrmann map is topographically more accurate than any of its successors until at least the 1970s.

Certain key localities, though, are not given on modern maps or in the Gazetteer and can only be traced through secondary sources, some of which are hardly botanical. Notable among these are the following:

*The Lordberg.* The clue lies in the introduction to the report on the birds collected, which appeared in Arch. Naturgesch. 89, Abt. A, 7 (1923) particularly on page 5. Here Dr. Th.J. Bürgers (after whom the Burgers Mt. and the unusual bambusoid genus *Buergeriostochloa* were named) noted that this was the same as the Durchblick on the official Expedition maps. Further corroboration is present in Behrmann's 'Im Stromgebiet des Sepik' and by what Ledermann himself told Dr. H.O. Sleumer (L, pers. comm.). The mountain and camp were named after the Expedition's Dobermann 'Lord', who sadly met his untimely end in the form of a startling new and interesting local culinary delight, no doubt because he was a new and exotic kind of animal.

*Hügellager am Sepik.* Many hills lay along the Sepik, the location of this one was ascertained through Ledermann's dates, the 1924 map, and the descriptions in Behrmann's 1922 book. The long and dismaying passage through a sago swamp from this hill to the base of the West Range shows clearly on the maps, old and new.

The botanical collections were not studied by Ledermann himself, but sent to the specialists of the Botanical Garden and Museum at Berlin (B). As the different plant groups were worked out, mainly in the special series, 'Beiträge zur Flora von Papuasien' ('Contributions to the flora of Papuasiasia') in Engler's Botanische Jahrbücher. For many families these papers still are the most recent review available. Material of some families was absorbed directly into Pflanzenreich revisions, while in other cases, for example the new Myrsinaceae described by Carl Mez and Prodoehl's report on some Gramineae, they came out as isolated articles in journals such as the Botanische Archiv. No treatment at all exists e.g. for the Malvaceae, and coverage of some families was limited to novelties.

Regrettably, only few duplicates were made, and many of those remained in Berlin, to be lost later. What was actually distributed was haphazardly done, so that now they are scattered over several herbaria, e.g. C (ferns), E, K (1250 numbers), L (494), SING, US (some grasses), and Z. Some are also in the Lauterbach herbarium in WRSL, mainly in those families in which he had a personal interest and then sometimes only as rubbings.

From these and the publications it is possible to reconstruct identification lists and a detailed itinerary. This may then also serve to check errors in citation, and, very importantly, generate lists of taxa to be looked for. Such a list is presently being compiled by Frodin (any definitive result, however, may be some time off! DGF).

For Ledermann's other collecting trips it may be noted that a set of duplicates at least from the Carolines (1913–1914) has recently turned up in B (Dr. F.R. Fosberg, U.S.A., pers. comm.). Mr. F.N. Hepper (Kew Bull. 29, 1974, 365–381, 2 maps) has discussed Ledermann's activities in Cameroon (1908–1909).

For the Provinces, formerly Districts, in Papua New Guinea, the following abbreviations have been used:

BGL = Bougainville	MAD = Madang	WHD = Western Highlands
ENB = East New Britain	MBE = Morobe	WNB = West New Britain
ESP = East Sepik	NID = New Ireland	WSP = West Sepik

Save for relatively few collections in and around Madang, almost all Ledermann's work was carried out in the present-day East and West Sepik Provinces (ESP and WSP).

Adler River	MBE	147° 03' E, 6° 44' S	= Busu River
Angriffshafen	WSP	141° 17' E, 2° 40' S	= Vanimo Harbour
Aprilfluss	ESP	142° 25' E, 4° 19' S	= April River
Augustfluss	WSP	141° 10' E, 4° 15' S	= August River = Yapsici River
Awarspitze	MAD	144° 57' E, 4° 07' S	= Condor Point
Bambusberg	ESP	142° 29' E, 4° 44' S	= Bamboo Mts.
Bani-Schlucht	ESP	142° 49' E, 4° 13' S	= crevice on the Peilungsberg
Belowberg	WNB	148° 25' E, 5° 32' S	= Mt. Talawe
Berlinhafen	WSP	142° 29' E, 3° 09' S	= NW corner of Seleo Island
Brecher Bucht	ESP	144° 34' E, 3° 58' S	= Brokenwater Bay
Breusingfluss	WSP	142° 56' E, 3° 21' S	= Muam River
Dampier Island	MAD	145° 58' E, 4° 37' S	= Karkar Island
Kap della Torre	ESP	144° 33' E, 3° 50' S	= Cape Girgir
Djaul	NID	150° 53' E, 2° 57' S	= Dyaul Island
Dörferfluss	WHD	144° 01' E, 5° 05' S	= Yuat River
Durchblick	ESP	142° 31' E, 4° 52' S	
Ehlersberg	WNB	148° 58' E, 5° 33' S	= Mt. Andewa
Eitape	WSP	142° 21' E, 3° 09' S	= Aitape
Eitel-Friedrichhafen	MAD	145° 25' E, 4° 30' S	= Ulingan Harbour
Etappenberg	ESP	142° 29' E, 4° 38' S	= betw. Kamelrücken/Bambusberg
Felsspitze	WSP	141° 28' E, 4° 10' S	= Rocky Peak
Festungskap	MBE	147° 50' E, 6° 20' S	= Pt. Kitumala, Fortification Pt.
Flachesee	ESP	142° 54' E, 4° 17' S	= Biimba Lagoon
Franziscfluss	MBE	146° 54' E, 7° 07' S	= Francisco River
Kap Fransecky	ESP	144° 34' E, 3° 51' S	= Cape Franseski
Französische Inseln	WNB	149° 20' E, 4° 5' S	= Witu Islands
Friedaberg	ESP	141° 59' E, 4° 29' S	= Mt. Frieda
Friedafluss	ESP	142° 00' E, 4° 26' S	= Frieda River
Friedrich-Karlhafen	MAD	145° 48' E, 5° 10' S	= Nagada Harbour
Friedrich-Wilhelmshafen	MAD	145° 47' E, 5° 13' S	= Madang
Gicquel Berg	WNB	149° 57' E, 5° 21' S	= Mt. Bangum
Grägat Insel	MAD	145° 49' E, 5° 12' S	= Kranket Island
Grosse Bucht	ENB	152° 05' E, 5° 15' S	= Wike Bay
Hänischhafen	MBE	147° 35' E, 6° 43' S	= Hänisch Harbour
Hannahafen	WNB	150° 04' E, 5° 17' S	= Talasea Harbour, Garua Harbour
Hannam Insel	WNB	150° 05' E, 5° 18' S	= Garua Island
Hansemann Küste	ESP	144° 00' E, 3° 49' S	= Wewak - Sepik coast
Hauptlager Malu	ESP	142° 50' E, 4° 13' S	= Ambunti
Herbertshöhe	ENB	152° 16' E, 4° 21' S	= Kokopo
Hollrungberg	ESP	144° 05' E, 4° 57' S	= betw. Regenbergl/Schraderberg
Hügellager am Sepik	WSP	141° 32' E, 3° 57' S	= near mouth of North R.
Hunsteinberg	WNB	148° 24' E, 5° 40' S	= Mt. Tangi
Hunsteinfluss	ESP	142° 45' E, 4° 25' S	= Hunstein River, Yapa River
Hunsteinspitze	ESP	142° 40' E, 4° 31' S	= Mt. Hunstein

Kaiser Gebirge	BGL	155° 10' E, 6° 20' S	= Emperor Range
Kaiserin-Augustafloss = Sepik River			
Kamelsrücken	ESP	142° 27' E, 4° 37' S	= Camel Back
Karassau Insel	ESP	143° 27' E, 3° 24' S	= Keresau Island
Käwieng	NID	150° 48' E, 2° 35' S	= Kavieng
Kelanahafen	MBE	147° 31' E, 6° 01' S	= Kelanoa Harbour
Kap König Wilhelm	MBE	147° 36' E, 6° 04' S	= Cape King William
Konstantinhafen	MAD	145° 50' E, 5° 28' S	= mouth Kabenau River
Kronprinz Gebirge	BGL	155° 30' E, 6° 20' S	= Crown Prince Range
Kronprinzhafen	MAD	145° 22' E, 4° 27' S	= Malala Harbour
Lager XVIII	ESP	142° 33' E, 4° 48' S	
Lagerberg	ESP	142° 48' E, 4° 12' S	= Mt. Ambunti, Townsend Mt.
Lagerrücken	ESP	142° 45' E, 4° 15' S	= 5–10 km W of Ambunti
Langhänsberg	WNB	149° 57' E, 5° 21' S	= Mt. Bangum
Lehmfluss	ESP	144° 13' E, 4° 37' S	= Clay River
Leonhard-Schulzefluss	ESP	142° 09' E, 4° 34' S	= Leonhard Schultze River
Lordberg	ESP	142° 31' E, 4° 52' S	= Durchblick
Lottin Insel	MBE	147° 33' E, 5° 19' S	= Tolokiwa Island
Mäanderberg	ESP	141° 41' E, 4° 03' S	= Meander Mt.
Madugos	MAD	145° 47' E, 4° 54' S	= Matuka
Maifluss	ESP	141° 53' E, 4° 17' S	= May River
Malu	ESP	142° 51' E, 4° 13' S	see also Hauptlager Malu
Möwchafen	WNB	149° 32' E, 6° 12' S	= Kandrian
Muschu Insel	ESP	143° 35' E, 3° 25' S	= Muschu Island
Nachtigall Bucht	ESP	143° 49' E, 3° 39' S	= Nightingale Bay
Neu Hanover	NID	150° 14' E, 2° 33' S	= New Hanover
Neu Laucenburg	ENB	150° 29' E, 4° 10' S	= Duke of York Island
Neumaycrfluss	WSP	141° 26' E, 2° 51' S	= Pual River
Neu Mecklenburg	NID	152° 00' E, 3° 34' S	= New Ireland
Neu Pommern		150° 22' E, 5° 14' S	= New Britain
Ottilenfluss	MAD	144° 39' E, 4° 30' S	= Ramu River
Pallasspitze	MAD	145° 36' E, 4° 40' S	= Malas Point
Paris Insel	ESP	143° 27' E, 3° 24' S	= Keresau Island
Peilungsberg	ESP	142° 48' E, 4° 13' S	= slightly north of Mt. Ambunti
Petermannfluss	ESP	143° 08' E, 3° 22' S	= Sowa River
Pfingstberg	ESP	141° 36' E, 4° 25' S	= Pentecost Mt.
Pionierlager	ESP	141° 58' E, 4° 16' S	= nr Mowi
Preussenreede	MBE	147° 00' E, 6° 44' S	= Lac
Prinz-Adalberthafen	MAD	145° 42' E, 4° 46' S	= Sarang Harbour
Pyramide	ESP	142° 29' E, 4° 29' S	= not the Pyramid Mt.
Regenberg	MAD	144° 11' E, 4° 54' S	= Rain Mt.
Richthofen Huk	ESP	143° 56' E, 3° 43' S	= 2 km N of Samap
Rook Insel	MBE	147° 55' E, 5° 38' S	= Rooke Island, Umboi Island
Samoahafen	MBE	147° 04' E, 7° 03' S	= Salamaua
Schichberg	ESP	142° 09' E, 4° 34' S	= Stratum Mt.
Schlangenhafen	MBE	147° 05' E, 5° 57' S	= Dorfer Bay
Schraderberg	MAD	144° 05' E, 4° 58' S	= Schrader Mt.
Schraderkette	MAD	144° 05' E, 4° 58' S	= Schrader Range
Schwarze Flüsschen	ESP	142° 50' E, 4° 21' S	= Black River = Tiyangaram River
Secrosensee	ESP	142° 46' E, 4° 19' S	= Wasui Lagoon

Segu Insel	MAD	145° 49' E, 5° 05' S	= Sck Island
Simpsonhafen	ENB	152° 11' E, 4° 12' S	= Rabaul
St. Anna	WSP	142° 22' E, 3° 10' S	= Raihu
St. Joachim	WSP	142° 15' E, 3° 11' S	= 10 km SSW of Aitape
Standlager	ESP	142° 31' E, 4° 32' S	(on April River)
Stephansort	MAD	145° 44' E, 5° 27' S	= Bogadjim
Tarawai	ESP	143° 17' E, 3° 13' S	= Tendaye Island
Töpferfluss	ESP	144° 06' E, 4° 07' S	= Keram River
Tsenapberg	ESP	142° 17' E, 4° 19' S	= Zenap Mt.
Vulkan Insel	MAD	145° 03' E, 4° 06' S	= Manam Island
Walif Insel	ESP	143° 19' E, 3° 14' S	= Valif Island
Wewäk	ESP	143° 38' E, 3° 34' S	= Wewak
Wrack Insel	BGL	154° 42' E, 3° 21' S	= Wreck Island
Zuckerhut	ESP	143° 02' E, 4° 18' S	= Mt. Garamambu