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Contents

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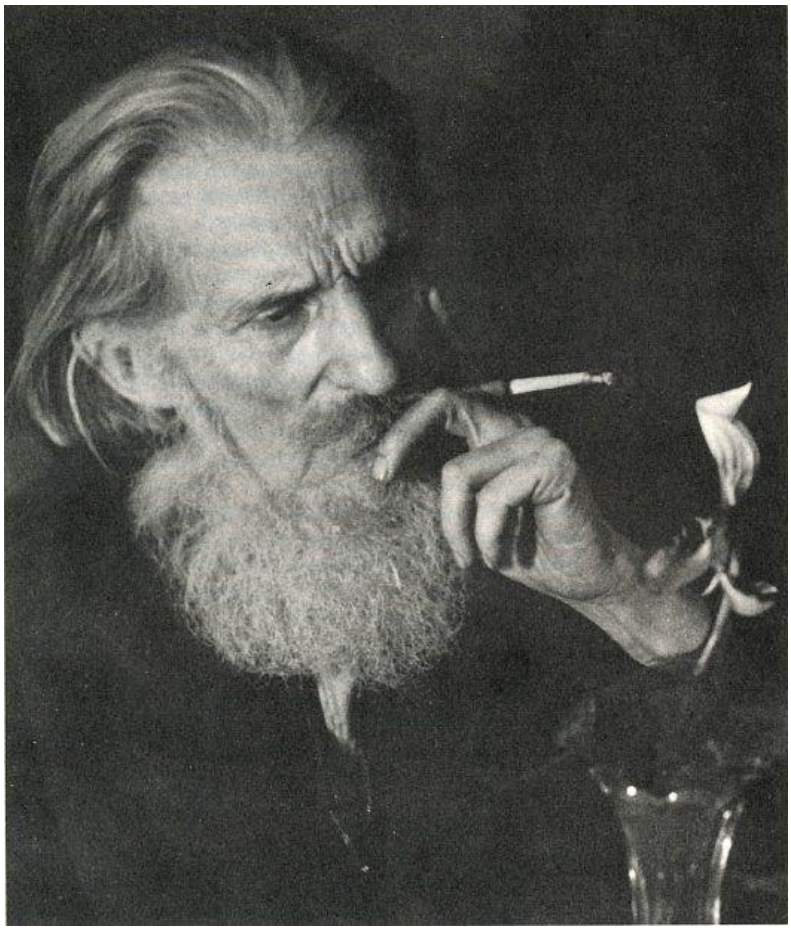
Cover picture: *Gymnocalycium marsoneri* VoS 1393, west Frias, Prov. Catamarca, 368 m. (photo: V. Schädlich).

Editorial

Dear Gymnocalycium friends,

Wolfgang Papsch

The name A. V. Frič regularly emerges in the articles of our magazine with reference to locality data, especially with Latin American cacti and in discussions concerning nomenclature. This also applies to the issue at hand. Thus it might be of particular interest to introduce “cacti hunter” Frič in SCHÜTZIANA.



Alberto Vojtěch Frič 1942, photo: repro Lovec kaktusů.

Vojtěch Frič jr. was born in Prague on September 8th, 1882. Father Vojtěch sr. was a municipal councillor and deputy mayor in Prague. The family can be regarded as upper class with further family members in politics, merchants as well as zoologists. Possibly his growing up in a family socially involved in manifold ways was a formative background. The juvenile Vojtěch was very much interested in nature and its related sciences. The beginning of his interest in cacti was somewhat awkward. The trigger was an Echinopsis eyriesii taken home and a policeman accusing him of theft. The boy’s curiosity arose from the flowering cactus. Later he writes about

this episode, *"It was fascinating for me that such an uninteresting and shapeless plant like a cactus, by me only intended to be a tool of revenge, could generate so much beauty."* As early as at the age of 15 he was regarded as a cacti specialist who was accessed for advice in questions on cacti and was even invited to scientific congresses.

The freezing of his first cacti collection in winter 1899 was a setback. After its reestablishment he decided, then 19 years of age, to go on a journey to the cacti countries of Latin America. Apart from collecting cacti he was interested in the little to unknown Indian tribes that had hardly been influenced by civilisation.

A. V. Frič (Brazil, ~ 1905-1907) https://commons.wikimedia.org/w/index.php?curid=38491637

On May 15th, 1901 he set out for this journey to Sao Paulo at the border of Mato Grosso. During his field excursions he came across Indians from the Savantes tribe. For over a year he was doing research in the Mato Grosso area. An attacking jaguar injured him severely and he had to be nursed by the Indians for weeks. For this survival of a "tiger's" embrace he was rewarded with the Indians' highest respect, which enabled him to reach otherwise almost inaccessible destinations. On August 5th, 1902 he returned to Prague from this journey with his Christian name translated into Spanish, namely "Alberto".

Only one year later, on August 11th 1903, he went on another journey to South America, this time to Uruguay and Paraguay. Commissioned by the government, Frič was exploring the River Pilcomayo for the first time in its entire length. In doing so, he lived for some time with the

Chamacoco tribe, whose home is along the River Paraguay. He took a woman from the tribe, Lora-y, as his wedded wife. A daughter called Hermina descended from this bond. This voyage lasted for over two years, during which he found, among other cacti, *Echinocactus Fričii*, *E. arechavaletai*, *E. floricomus* and *E. scopa*. For the Gymnocalycium community, however, it is the first finding of *Gymnocalycium mihanovichii* which is of importance. The journey ended on 17th September 1905.

His third journey, beginning on 21st August 1906 and lasting as long as August 1908, took Frič again to parts of Argentina, Paraguay and Brazil. It was once more ethnobotanical reasons which motivated him. He brought a Chamacoco chief's son back with him to Europe, because the boy had contracted an unknown disease. Frič was hoping for a cure in his home country. During this trip Frič was invited to give a presentation at Buenos Aires University.

Left: A. V. Frič 1901 – http://www.radio.cz/cz/static/alberto-Vojtěch-Frič
Right: A. V. Frič 1920 – in the public domain, https://commons.wikimedia.org/w/index.php?curid=38477322.

In 1909 on his fourth journey, which lasted for three years, Frič took the boy back together with medication. Once again, Argentina and Paraguay were his destinations. There are no reports referring to cacti from this tour.

Frič went on his fifth voyage, which took place between 28th May 1919 and 11th June 1920, not only as a scientist and travel writer, but also as a diplomat of the newly founded Czechoslovakian Republic. It had been intended to appoint Frič ambassador, however, this plan could not be carried out due to political disagreements. Thus search for cacti was the focus of this journey. Frič imported numerous cacti from Uruguay. Those went, for instance, to the companies De Laet in Belgium or Seidl in Czechoslovakia.

In the period between 1916 and 1920 numerous articles on cacti in general were published by him in the “Monatszeitschrift für Kakteenkunde” (monthly magazine of cacti studies) and various Czech magazines. Besides, his marriage to Draga Janáčková took also place during that time. Both branches of the family, the Indian and the European one, met by accident due to the trips of two Czech documentary filmmakers. They were on a search for clues as to Frič’s history and in so doing came across his daughter Hermina, whose eight children also proudly carry the name Frič.

Frič set out for his sixth expedition on 12th April 1923 and returned on 25th February 1924. His travel list comprised Mexico and its cacti. The spectacular highlight was the retrieval of *Astrophytum asterias,* which was considered extinct and oddly grew in the Botanical Garden in plain view of the botanists.

For Gymnocalycium friends his seventh journey from January to June 1927 is of particular interest. During those seven months Frič found many new cacti between Patagonia and Asuncion. He vividly depicts his travel impressions under the title “The Cacti Hunter” in “Möllers Deutsche Gartenzeitschrift” (Möller’s German Garden Magazine).

On his eighth and last journey from October 1928 to March 1929 his destinations were again the countries Argentina and Uruguay. He might also have made a side trip to Bolivia and Peru. This journey is mentioned in the contribution presented below by Volker Schädlich.

In 1928 Frič published his first plant and seed catalogue with the title “Cacti the coming fashion”. One year later it was followed by the catalogue “Cacti Hunter” and in 1932 by the catalogue “Cacti Hunter at Home”. All three catalogues are important sources of information concerning Frič’s findings.

In the course of time Frič developed into a worldwide renowned specialist for cacti, mainly because of his voyages. He described dozens of species and compiled one of the most complete collections of cacti known at that time. Experts were impressed by his findings of plants and he is highly revered in Czechoslovakia to this day. His collection in Prague comprised more than 30.000 specimens. Just like his first collection, however, this one was destroyed as well by freezing during World War Two.

His discoveries in the field of cacti are of decisive significance. Unfortunately, he was not interested in publishing his findings in a scientific way and he could also not warm up to the strict taxonomic rules. The missing Latin diagnoses, descriptions as well as data of finding, result in nomina nuda for most of his findings. Yet, his herbarium, which is deposited in the Prague National Museum, is of scientific relevance because it comprises over one hundred specimens.

Frič is not only a celebrated cacti specialist in his home country, he is also recognized outside Czechoslovakia for his ethnographic activities and knowledge of American native people. Apart from many pictures, he brought back numerous ethnographic artefacts from his travels. After his journeys Frič dedicated himself to the cultivation of cacti and hybridisation of exotic plants – he was especially successful with tomatoes.

Frič visited dozens of native tribes and compiled a dictionary of 36 Indian languages. He spent more than ten years among Indians, the best of his life according to his own words. He took numerous photographs and brought back uncountable ethnographic artefacts and souvenirs to

Europe. Most of these collections were taken abroad, for instance to New York and Saint Petersburg. Only a small fraction remained in Prague.

A. V. Frič on a stamp of Czechoslovakian Mail

Besides his multitude of botanical and ethnographic publications Alberto Vojtěch Frič also wrote some specialized books and literature for young people. So he became very popular in Czechoslovakia and new editions of these books were printed again and again. They were illustrated by Zdeněk Burian, who thus filled the adventures described by Frič with life.

In November 1944 Frič was injured while gardening. He came down with tetanus and died of this disease on December 4th, 1944.

Literature

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Zázvorka, J.& Šedivý, V. 1993: Jména Kaktusů A. V. Friče.-aztekia 1991 (14).

We would like to express our warmest thanks to Mrs Iris Blanz (Austria) who supports us with the translation into English, to Mrs Larisa Zaitseva (Russia) for the translation into Russian, to Mr Victor Gapon (Russia) for the content corrections of the Russian edition, to Mr Takashi Shimada (Japan) for the translation into Japanese, to Mr Jiahui Lin (China) for the translation into Chinese, to Mr Václav Johanna (Czech Republic) for the translation into Czech and to Mr Daniel Schweich (France), who has mirrored our publications under https://www.cactuspro.com/biblio/.

Gymnocalycium marsoneri Frič ex Y. Itô, *Gymnocalycium megatae* Y. Itô, *Gymnocalycium matoense* Buining & Brederoo – all one species?

Part 1: *Gymnocalycium marsoneri*

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ABSTRACT

In the 1st part of the series *Gymnocalycium marsoneri* Frič ex Y. Itô is presented. A short historical outline is given and the geographical distribution of the species is discussed. On the basis of the seeds, differences between *Gymnocalycium marsoneri* and *Gymnocalycium delaetii* (K. Schum.) Hosseus are pointed out. An emended description of *G. marsoneri* is published.

KEYWORDS

Cactaceae, *Gymnocalycium*, *delaetii, marsoneri, megatae, matoense, schickendantzii*, Argentina, Bolivia, Paraguay, Brasilia.

INTRODUCTION

The Czech Alberto Vojtěch Frič (8th September 1882 – 4th December 1944) was an ethnographer, cacti and plant collector as well as a trader. He ventured on eight expeditions altogether to the New World. One voyage took him to the southern States of the USA and to Mexico, seven more to Latin America, where he travelled the countries Argentina, Brazil, Paraguay and Uruguay. For almost eight years in total he was exploring* many then unknown regions, looking for cacti at the same time. His last journey in October 1928 took him first to Uruguay and at the end of the same year to Argentina. During this trip he went as far as the very north of Argentina, to the Province Salta. He visited the Andes region in search of Echinopsis in particular. In 1929 Frič reports about it with the heading “Die letzte Kakteenjagd des Forschers A. V. Frič“ (The Explorer *A. V. Frič's* Last Cacti Hunt) in „Möllers Deutsche Gärtner-Zeitung“ (Möller's German Gardening Magazine).

In 1935 *G. marsoneri* is mentioned for the first time in Kreuzinger's catalogue by Frič and briefly described by him. The description reads as follows: *“Marsoneri Frič 1934. Habitus like Knebelii, but 7 marginal spines. Two groups of 3 each in lateral direction, one downwards.“* There are hints that Frič had planned to describe this plant as early as in 1933 (fig. 1).

Nr. 553: Hymenorebulobivia Kreuzingeri Frič 1934 (Nr. 14)
sehr große goldgelbe Blüten, 0,8 natürlicher Größe.

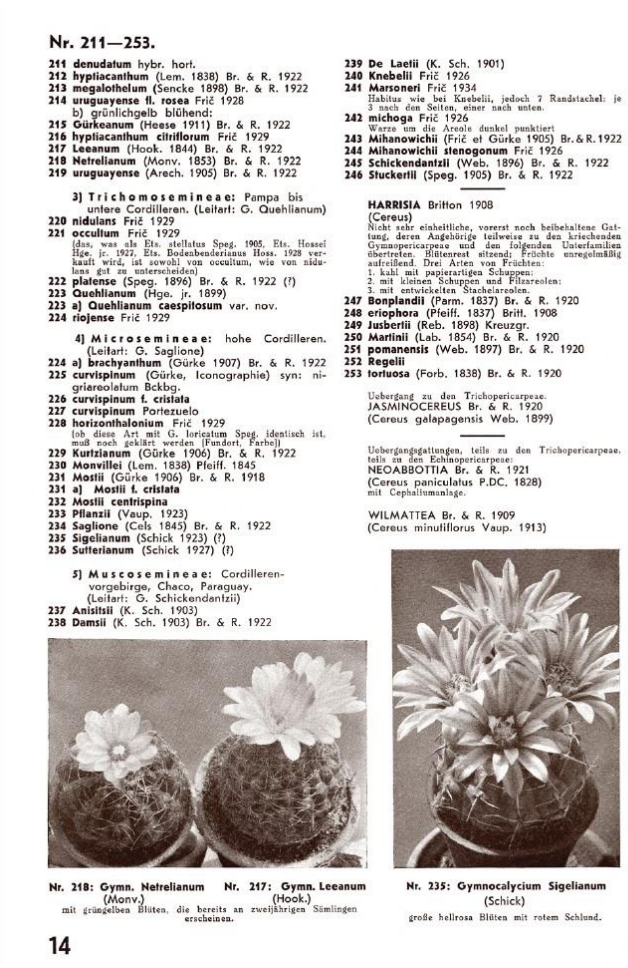
Kakteenkultur K. KREUZINGER, EGER (Böhmen), Geyersbergstr. 20, Č.S.R.

Verzeichnis
amerikanischer und anderer
SUKKULENTEN
mit Revision der
SYSTEMATIK DER KAKTEEN
von
K. KREUZINGER,
Mitglied der
INTERNATIONALEN VEREINIGUNG ZUR FÖRDERUNG DER KAKTEENFORSCHUNG IN DEREN HEIMAT
der D. K. G. und anderer Gesellschaften.

Mit 103 Abbildungen. 1 Mikrosamenphoto und 1 Verwandtschaftstafel.

EGER 1935.

IM VERLAGE DER FIRMA K. KREUZINGER, EGER.



Nr. 211—253.

211 denudatum hybr. hort.
212 hyptiacanthum (Lem. 1838) Br. & R. 1922
213 megalothelum (Sencke 1898) Br. & R. 1922
214 uruguayense fl. rosea Frič 1928
b) grünlichgelb blühend:
215 Gürkeanum (Heese 1911) Br. & R. 1922
216 hyptiacanthum citriflorum Frič 1929
217 Leeanum (Hook. 1844) Br. & R. 1922
218 Netrelianum (Monv. 1853) Br. & R. 1922
219 uruguayense (Arech. 1905) Br. & R. 1922

3] Trichomosemineae: Pampa bis untere Cordilleren. (Leitart: G. Quehlianum)
220 nidulans Frič 1929
221 occultum Frič 1929
(das, was als Ets. stellatus Speg. 1905, Ets. Hossei Hge. jr. 1927, Ets. Bodenbenderianus Hoss. 1928 verkauft wird, ist sowohl von occultum, wie von nidulans gut zu unterscheiden)
222 platense (Speg. 1896) Br. & R. 1922 (?)
223 Quehlianum (Hge. jr. 1899)
223 a] Quehlianum caespitosum var. nov.
224 riojense Frič 1929

4] Microsemineae: hohe Cordilleren. (Leitart: G. Saglione)
224 a] brachyanthum (Gürke 1907) Br. & R. 1922
225 curvispinum (Gürke, Iconographie) syn: nigriareolatum Bckbg.
226 curvispinum f. cristata
227 curvispinum Portezuelo
228 horizonthalonium Frič 1929
(ob diese Art mit G. loricatum Speg. identisch ist, muß noch geklärt werden (Fundort, Farbe))
229 Kurtzianum (Gürke 1906) Br. & R. 1922
230 Monvillei (Lem. 1838) Pfeiff. 1845
231 Mostii (Gürke 1906) Br. & R. 1918
231 a] Mostii f. cristata
232 Mostii centrispina
233 Pflanzii (Vaup. 1923)
234 Saglione (Cels 1845) Br. & R. 1922
235 Sigelianum (Schick 1923) (?)
236 Sutterianum (Schick 1927) (?)

5] Muscosemineae: Cordillerenvorgebirge, Chaco, Paraguay.
(Leitart: G. Schickendantzii)
237 Anisitsii (K. Sch. 1903)
238 Damsii (K. Sch. 1903) Br. & R. 1922

239 De Laetii (K. Sch. 1901)
240 Knebelii Frič 1926
241 Marsoneri Frič 1934
Habitus wie bei Knebelii, jedoch 7 Randstachel: je 3 nach den Seiten, einer nach unten.
242 michoga Frič 1926
Warze um die Areole dunkel punktiert
243 Mihanowichii (Frič et Gürke 1905) Br. & R. 1922
244 Mihanowichii stenogonum Frič 1926
245 Schickendantzii (Web. 1896) Br. & R. 1922
246 Stuckertii (Speg. 1905) Br. & R. 1922

HARRISIA Britton 1908
(Cereus)
Nicht sehr einheitliche, vorerst noch beibehaltene Gattung, deren Angehörige teilweise zu den kriechenden Gymnopericarpeae und den folgenden Unterfamilien übertreten. Blütenrest sitzend; Früchte unregelmäßig aufreißend. Drei Arten von Früchten:
1. kahl mit papierartigen Schuppen;
2. mit kleinen Schuppen und Filzareolen;
3. mit entwickelten Stachelareolen.
247 Bonplandii (Parm. 1837) Br. & R. 1920
248 eriophora (Pfeiff. 1837) Britt. 1908
249 Jusberlii (Reb. 1898) Kreuzgr.
250 Marlinii (Lab. 1854) Br. & R. 1920
251 pomanensis (Web. 1897) Br. & R. 1920
252 Regelii
253 torluosa (Forb. 1838) Br. & R. 1920

Uebergang zu den Trichopericarpeae.
JASMINOCEREUS Br. & R. 1920
(Cereus galapagensis Web. 1899)

Uebergangsgattungen, teils zu den Trichopericarpeae, teils zu den Echinopericarpeae:
NEOABBOTTIA Br. & R. 1921
(Cereus paniculatus P.DC. 1828)
mit Cephaliumanlage.

WILMATTEA Br. & R. 1909
(Cereus minutiflorus Vaup. 1913)

Nr. 218: Gymn. Netrelianum (Monv.)
Nr. 217: Gymn. Leeanum (Hook.)
mit grüngelben Blüten, die bereits an zweijährigen Sämlingen erscheinen.

Nr. 235: Gymnocalycium Sigelianum (Schick)
große hellrosa Blüten mit rotem Schlund.

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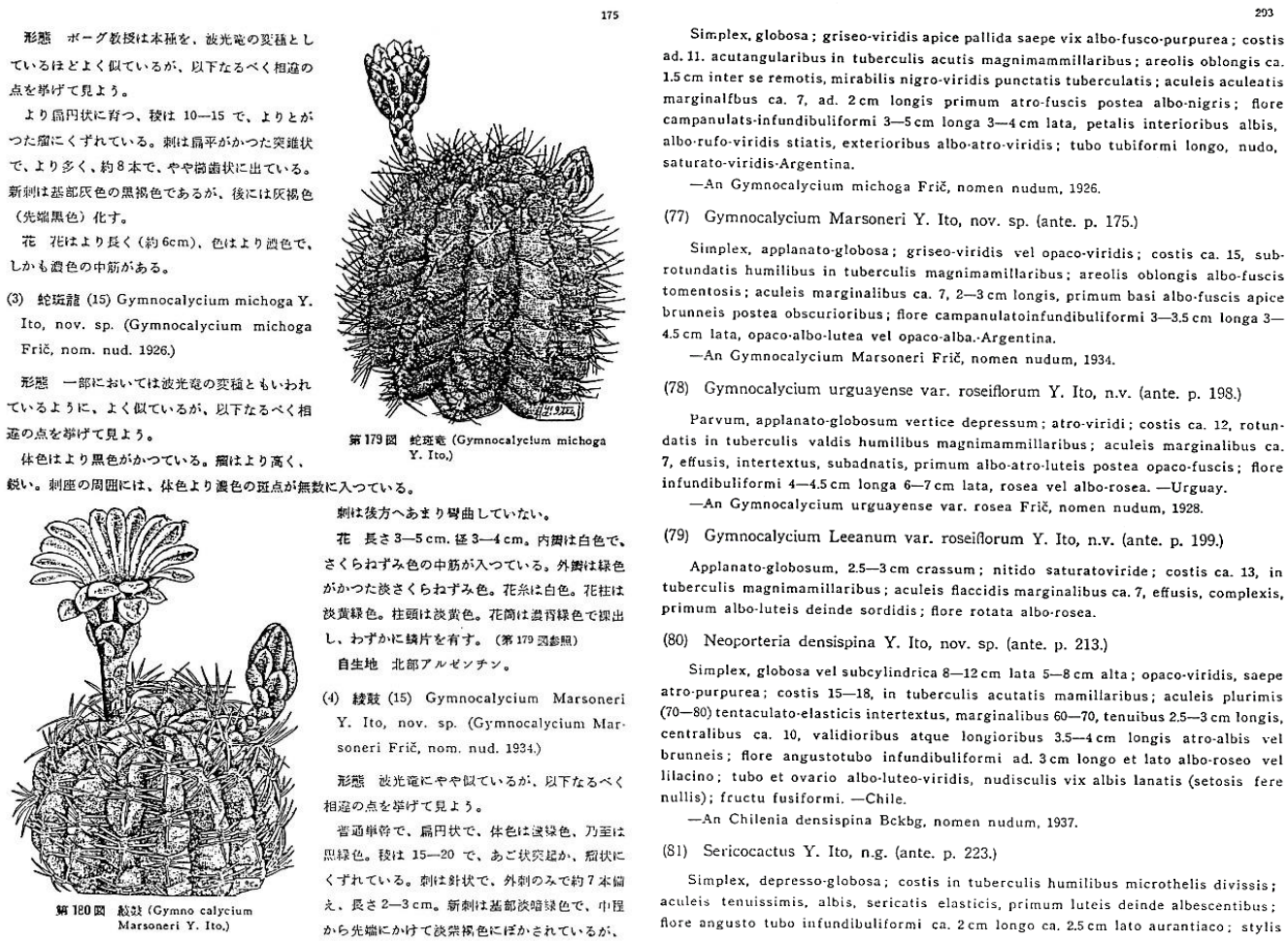
Fig. 1: Description of *G. marsoneri* in the Register of American and other Succulents with a Revision of Cacti Systematics by K. Kreuzinger, 1935.A large part of the cacti discovered by Frič remained invalidly described despite his naming them because he rejected the rules of ICBN (International Code of Botanical Nomenclature). Since January 1st, 1935, it has been required to add a Latin diagnosis to a plant's new description. Thus, Frič's description of *G. marsoneri* remains invalid.

In 1937 Robert Blossfeld from Potsdam offered seeds of *G. marsoneri* as a novelty in his spring catalogue (K 370) for the first time. This offer is repeated in the autumn catalogue (K 380). Seeds and plants were collected by Harry Blossfeld while he was travelling in order to collect. He set out on this journey together with Oreste Marsoner in 1935. When the opportunity showed up he sent plants and seeds to his father Robert Blossfeld in Potsdam.

Harry Blossfeld reports in a series of articles in the magazine "Kakteenkunde" (Cacti Studies) about their journey in a two-ton truck in 1936. They travelled the provinces Tucumán and Salta, among others areas. Frič was travelling the same region in 1929. The seeds presumably reached Y. Itô in Japan from these collectings, either direct via Harry Blossfeld or the garden centre Robert Blossfeld. The Blossfeld company's seeds were sold all over the world. This is documented on the rear page of the November 1937 catalogue, where customers' letters are quoted.

In 1957 the formal first description of *G. marsoneri* was established by Y. Itô in his book "Explanatory Diagram of Austroechinocactinae" with a diagnosis in Latin and a drawing of the plant. Just as Kreuzinger had done before, he refers to *G. marsoneri* Frič nom. nud. and assigns the new species together with *G. schickendantzii* Britton & Rose, *G. De Laetii* Y. Itô, *G. michoga* Y. Itô and *G. stuckertii* Britton & Rose to his subgenus 4 *Ophiocephalum* (fig. 2).



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形態　ボーグ教授は本種を、波光竜の変種としているほどよく似ているが、以下なるべく相違の点を挙げて見よう。

より扁円状に育つ、稜は 10—15 で、よりとがつた瘤にくずれている。刺は扁平がかつた突錐状で、より多く、約8本で、やや櫛歯状に出ている。新刺は基部灰色の黒褐色であるが、後には灰褐色（先端黒色）化す。

花　花はより長く（約 6cm）、色はより濃色で、しかも濃色の中筋がある。

(3) 蛇琉龍 (15) Gymnocalycium michoga Y. Ito, nov. sp. (Gymnocalycium michoga Frič, nom. nud. 1926.)

形態　一部においては波光竜の変種ともいわれているように、よく似ているが、以下なるべく相違の点を挙げて見よう。

体色はより黒色がかつている。瘤はより高く、鋭い。刺座の周囲には、体色より濃色の斑点が無数に入つている。

第 179 図　蛇琉竜 (Gymnocalycium michoga Y. Ito,)

刺は後方へあまり彎曲していない。

花　長さ 3—5 cm. 径 3—4 cm。内被は白色で、さくらねずみ色の中筋が入つている。外被は緑色がかつた淡さくらねずみ色。花糸は白色。花柱は淡黄緑色。柱頭は淡黄色。花筒は濃背緑色で擡出し、わずかに鱗片を有す。（第 179 図参照）

自生地　北部アルゼンチン。

第 180 図　綾鼓 (Gymno calycium Marsoneri Y. Ito,)

(4) 綾鼓 (15) Gymnocalycium Marsoneri Y. Ito, nov. sp. (Gymnocalycium Marsoneri Frič, nom. nud. 1934.)

形態　波光竜にやや似ているが、以下なるべく相違の点を挙げて見よう。

普通単幹で、扁円状で、体色は濃緑色、乃至は黒緑色。稜は 15—20 で、あご状突起か、瘤状にくずれている。刺は針状で、外刺のみで約7本位え、長さ 2—3 cm。新刺は基部淡暗緑色で、中程から先端にかけて淡紫褐色にぼかされているが、

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Simplex, globosa; griseo-viridis apice pallida saepe vix albo-fusco-purpurea; costis ad. 11. acutangularibus in tuberculis acutis magnimammillaribus; areolis oblongis ca. 1.5 cm inter se remotis, mirabilis nigro-viridis punctatis tuberculatis; aculeis aculeatis marginalfbus ca. 7, ad. 2 cm longis primum atro-fuscis postea albo-nigris; flore campanulats-infundibuliformi 3—5 cm longa 3—4 cm lata, petalis interioribus albis, albo-rufo-viridis stiatis, exterioribus albo-atro-viridis; tubo tubiformi longo, nudo, saturato-viridis-Argentina.

—An Gymnocalycium michoga Frič, nomen nudum, 1926.

(77) Gymnocalycium Marsoneri Y. Ito, nov. sp. (ante. p. 175.)

Simplex, applanato-globosa; griseo-viridis vel opaco-viridis; costis ca. 15, subrotundatis humilibus in tuberculis magnimamillaribus; areolis oblongis albo-fuscis tomentosis; aculeis marginalibus ca. 7, 2—3 cm longis, primum basi albo-fuscis apice brunneis postea obscurioribus; flore campanulatoinfundibuliformi 3—3.5 cm longa 3—4.5 cm lata, opaco-albo-lutea vel opaco-alba.-Argentina.

—An Gymnocalycium Marsoneri Frič, nomen nudum, 1934.

(78) Gymnocalycium urguayense var. roseiflorum Y. Ito, n.v. (ante. p. 198.)

Parvum, applanato-globosum vertice depressum; atro-viridi; costis ca. 12, rotundatis in tuberculis valdis humilibus magnimammillaribus; aculeis marginalibus ca. 7, effusis, intertextus, subadnatis, primum albo-atro-luteis postea opaco-fuscis; flore infundibuliformi 4—4.5 cm longa 6—7 cm lata, rosea vel albo-rosea. —Urguay.

—An Gymnocalycium urguayense var. rosea Frič, nomen nudum, 1928.

(79) Gymnocalycium Leeanum var. roseiflorum Y. Ito, n.v. (ante. p. 199.)

Applanato-globosum, 2.5—3 cm crassum; nitido saturatoviride; costis ca. 13, in tuberculis magnimamillaribus; aculeis flaccidis marginalibus ca. 7, effusis, complexis, primum albo-luteis deinde sordidis; flore rotata albo-rosea.

(80) Neoporteria densispina Y. Ito, nov. sp. (ante. p. 213.)

Simplex, globosa vel subcylindrica 8—12 cm lata 5—8 cm alta; opaco-viridis, saepe atro-purpurea; costis 15—18, in tuberculis acutatis mamillaribus; aculeis plurimis (70—80) tentaculato-elasticis intertextus, marginalibus 60—70, tenuibus 2.5—3 cm longis, centralibus ca. 10, validioribus atque longioribus 3.5—4 cm longis atro-albis vel brunneis; flore angustotubo infundibuliformi ad. 3 cm longo et lato albo-roseo vel lilacino; tubo et ovario albo-luteo-viridis, nudisculis vix albis lanatis (setosis fere nullis); fructu fusiformi. —Chile.

—An Chilenia densispina Bckbg, nomen nudum, 1937.

(81) Sericocactus Y. Ito, n.g. (ante. p. 223.)

Simplex, depresso-globosa; costis in tuberculis humilibus microthelis divissis; aculeis tenuissimis, albis, sericatis elasticis, primum luteis deinde albescentibus; flore angusto tubo infundibuliformi ca. 2 cm longo ca. 2.5 cm lato aurantiaco; stylis

Fig. 2: Valid description of *G. marsoneri* by the Japanese Y. Itô, 1957.

The translated description reads as follows: *“Solitary, flat spherical, greyish green or mat green; ribs about 15, low, slightly rounded, divided into tubercular protuberances; marginal spines about 7, 2-3 cm long, at first light brownish at the base, brownish at the top, later darker; areoles oblong, with light brown felt. Flowers funnel-bell-shaped, 3-3.5 cm long, 3-4.5 cm wide, mat light yellow or mat white. Argentina.*

The authors H. Till, H. Amerhauser and W. Till publish an item with the title “Rearrangement of the genus Gymnocalycium part II” in the Austrian cacti magazine “Gymnocalycium” (special edition November 2008). Some nomenclature changes within the genus *Gymnocalycium* are effected in this article. *G. marsoneri* is assigned to *G. delaetii* (K. Schum.) Hosseus as a subspecies. The authors do not offer an explanation for the new combination.

Four years later a new description of *G. delaetii* is published in “Gymnocalycium” (2013, 25(3)) with the title (translated) “Gymnocalycia of the Gran Chaco and the Savannahs of Argentina, Bolivia and Paraguay, part XI”. The authors H. Till and H. Amerhauser write that “due to observations in habitat and long-term investigations in cultivation” features of both taxa can be noticed in the investigated distribution area of *G. marsoneri* and *G. delaetii*. They rearrange *G. marsoneri* as a subspecies of *G. delaetii*.

Distribution

After the finding by Marsoner and Blossfeld in 1936 no further *G. marsoneri* plants presumably reached Europe until Rausch's rediscovery. It seems likely that Frič also collected in this area. At that time Argentina possessed an excellent rail network (fig. 3). Back then it was still possible to travel by train from Buenos Aires to Salta. Frič frequently used the train on this journey, as he usually did when travelling.

Fig. 3: At the outskirts of Campo Quijano, in the railway station neighbourhood. This is probably the most well-known locality of *G. marsoneri*. The first collectings reached Europe again from this region (Walter Rausch WRA 159 in 1964; Brigitte and Jörg Piltz P 230 in 1978).

In the last years some new localities of *G. marsoneri* could be discovered through intensive field work. Hence further localities, which are situated more to the south and east, were added to the so far known localities south of the town of Salta, Province Salta and south of Trancas, Province Tucumán. The localities in the Provinces Chaco, Santiago del Estero and Catamarca enlarged the distribution area considerably. Consequently there is a north-south-expansion of around 500 km in linear distance of the localities known to the author (fig. 4). The expansion in eastern direction as far as the Province Chaco is also substantial, from Campo Quijano to the easternmost known occurrence in "Parque Provincial Loro Hablador" there is a linear distance of approximately 370 km.

The localities known to the author are situated at an altitude of 220 to 1500 m a.s.l. All the finding areas are located in the Chaco, a xerophytic forest, which stretches across parts of Argentinian, Bolivian, Paraguayan and a small part of Brazilian territory.

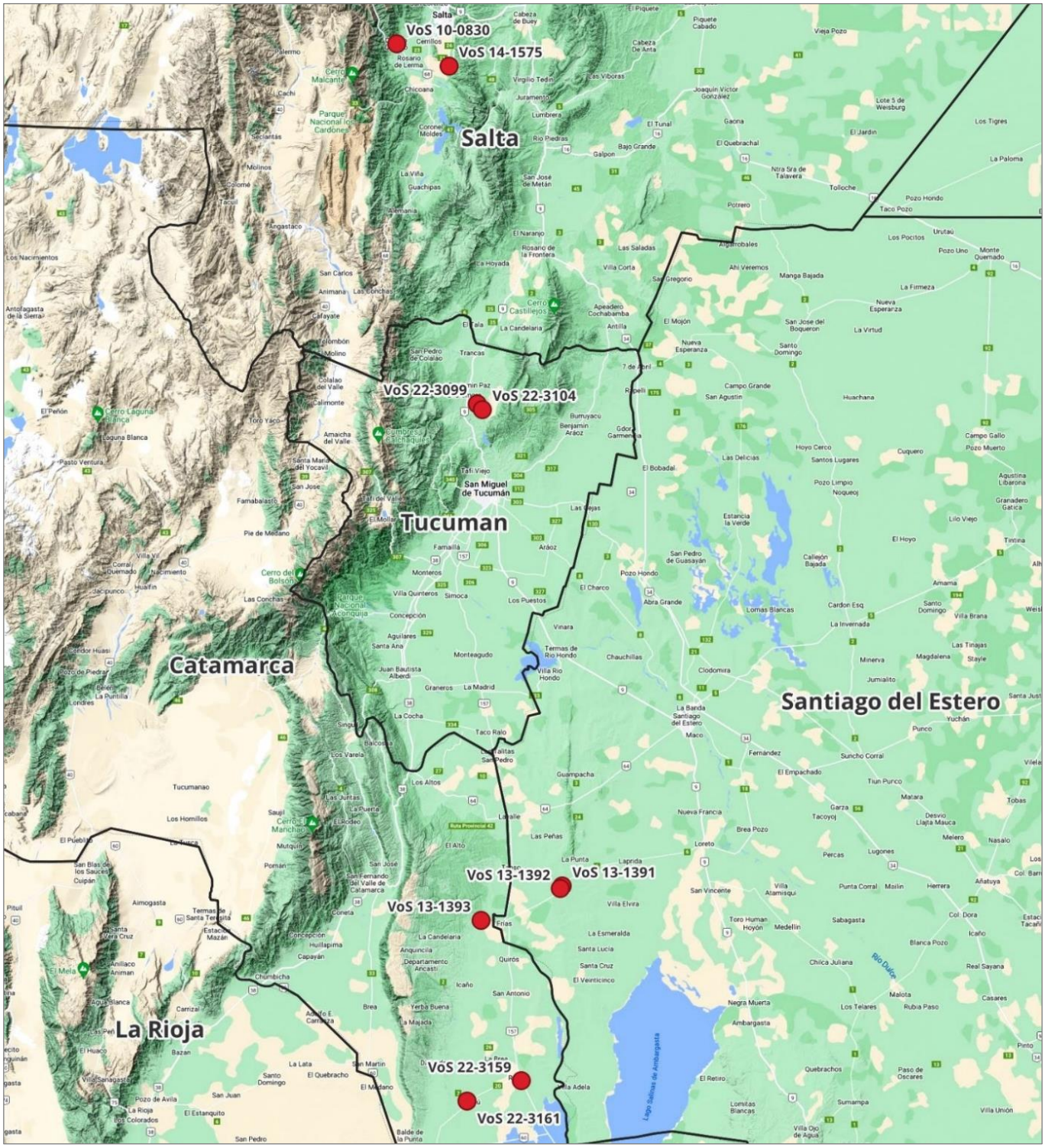

Fig. 4: Known localities of *G. marsoneri* (map: M. Wick, map background Google Maps).

As is the case with other species of the subgenus *Muscosemineum,* the distribution area is punctiform on the one hand, but on the other hand spans a relatively large geographic area in total. The red, juicy fruits are distributed by birds and other wildlife. The seeds retain their germination capacity for a long period, for this reason long intervals with unfavourable climatic conditions are no problem for germination. Some seeds of the subgenus *Muscosemineum*, among them those of *G. marsoneri*, exhibit a genetically determined retardation of germination. In case these seeds are sown right after harvesting, failure is highly likely. The seeds remain capable of germination for years in cultivation. Although there are large gaps between the

individual localities, which have partly diverse ecological conditions, there are not any noteworthy morphological differences between the populations from the north and those from the south of the distribution area

Habitats

G. marsoneri's northernmost habitats known to the author start somewhat south of the town of Salta and stretch in western direction as far as Campo Quijano (fig. 5-7). Here the plants grow together with *Echinopsis ancistrophora* Speg. and *E. albispinosa* K. Schum. In the northern part of the province Tucumán the species can be found together with *G. delaetii* at one locality.

Fig. 5: *G. marsoneri* VoS 830, Campo Quijano, 1520 m.

Fig. 6: Habitat of *G. marsoneri* VoS 1575 south of Villa Sarmiento, 1100 m.

Fig. 7: *G. marsoneri* VoS 1575, the species grows at this locality together with *G. saglionis (Cels) Britton & Rose* and *Echinopsis albispinosa.*The so far easternmost locality is situated in the Province Chaco in “Parque Provincial Loro Hablador“. The Argentine Carlos Schmidtutz could find the plant there for the first time (fig. 8).

Fig. 8: *G. marsoneri* in “Parque Provincial Loro Hablador“, Province Chaco (Photo: C. Schmidtutz).

The southernmost findings of *G. marsoneri* to this date are located in the province Catamarca. At the locality VoS 3161 near Esquiú, prov. Catamarca, 246 m a.s.l., *G. marsoneri* and *G. schickendantzii* grow together at one locality (fig. 9-11).

Fig. 9: Habitat VoS 3099 southeast of Choromoro, prov. Tucumán, 714 m. Here *G. marsoneri* and the southernmost representatives of *G. delaetii* grow together at one locality.

Fig. 10: *G. delaetii* at the locality southeast of Choromoro.

Fig. 11: *G. marsoneri* at the locality southeast of Choromoro.

Fig. 12: Habitat VoS 1391 *G. marsoneri*, east of Choya, prov. Santiago del Estero, 403 m. The plants often grow here in dense Chaco vegetation.

Fig. 13: Adult plants of *G. marsoneri* at a locality east of Choya. The plants' bodies reach a diameter of about 15 cm.

Fig. 14 - 15: *G. marsoneri* VoS 1392, Choya, prov. Santiago del Estero, 386 m.

Fig. 16: *G. marsoneri* VoS 3161 (photo: R. Sperling).

Fig. 17: *G. schickendantzii* VoS 3162.

Fig. 18: Top: Seeds of *G. marsoneri* VoS 830, bottom: seeds of *G. delaetii* LB 4591 (bar = 1mm).

The seeds of *G. marsoneri* are ± spherical, mostly straight towards the basally positioned hilum-mikropylar region (HMR). The seeds of *G. delaetii* are ± ovate, cut off diagonally to in steps towards the basally positioned HMR (fig. 18).

Fig. 19: *G. marsoneri* in cultivation, WR 159.

Fig. 20: *G. marsoneri* in cultivation, P 230.

Description

Body: solitary, flat spherical, not offsetting, up to 150 mm Ø, epidermis green, greyish green to bluish green, fibrous roots (fig. 19 and 20). Ribs: up to 20, dissolving into slightly rounded, chin-like protuberances. Marginal spines: 5-7, at first horn-coloured to brownish, later grey, darker at the tip, extending radially in lateral directions, not sticking out, up to 25 mm long, areoles with yellowish felt, later greying.

Fig. 21: *G. marsoneri* flower, WR 159.

Fig. 22: *G. marsoneri* flower, P 230.

Flowers: white, funnel- to bell-shaped, appearing from old areoles at the rim of the apex, up to 50 mm long, filaments whitish, style whitish, stigma whitish, anthers yellowish, pollen yellow, secondary stamina bent inwards and adjacent to the stigma as well as above it, primary stamina

are positioned below the stigma (fig. 21 and 22). Fruit: ± oval, bluish to reddish, ripping open vertically, pulp red.

Fig. 23: Seeds of *G. marsoneri* VoS 3159.

Seeds: ± spherical, in direction of the basally situated HMR mostly straight, rarely inclined. Length 0.85-0.98 mm, M (30) = 0.92 mm, width 0.78-0.98 mm, M (30) = 0.89 mm. Testa light brown to brown, mat to slightly shining. Testa cells often indented at the upper part. HMR ± wide oval to occasionally ± octagonal. Seed group *Muscosemineum* (fig. 23).

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