PURPLE FLOWERED WEINGARTIAS

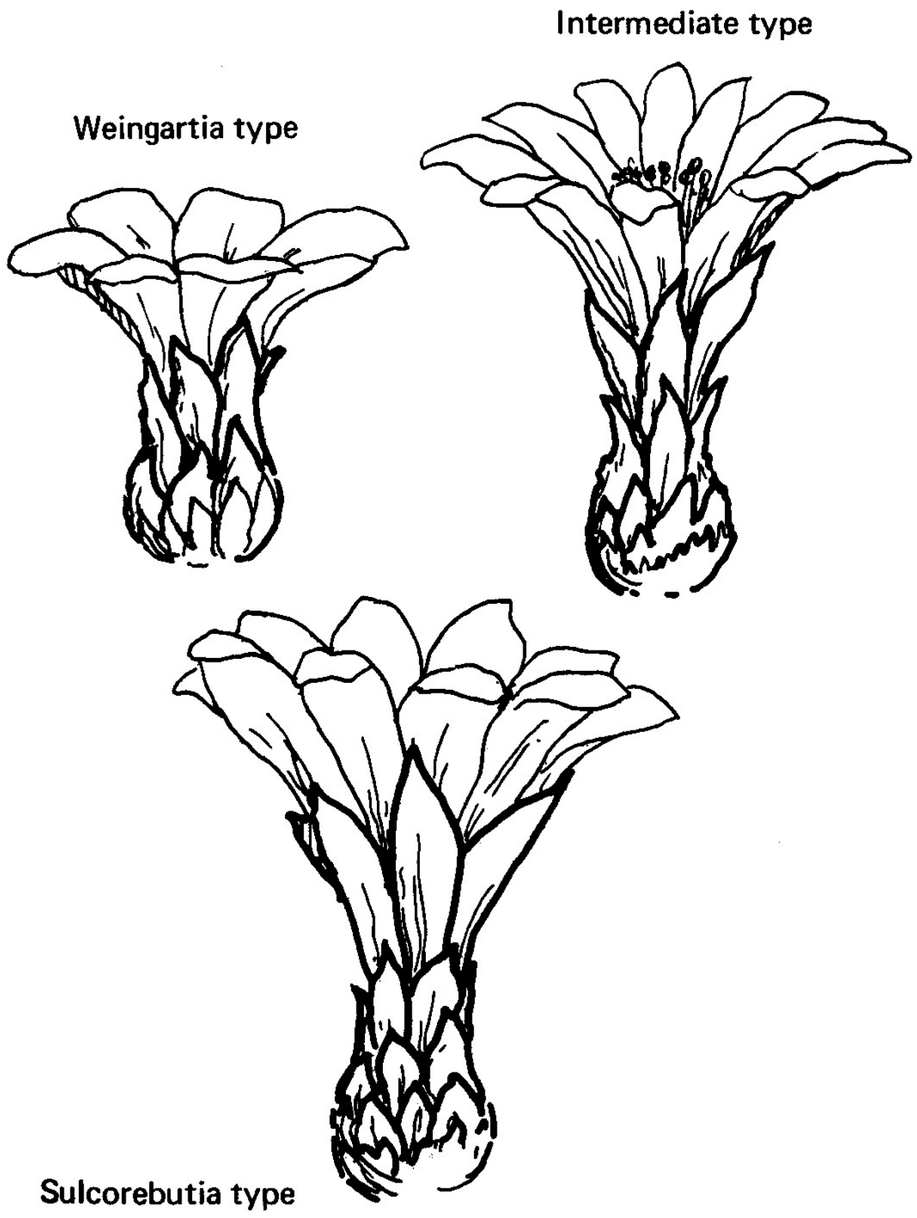
Violet, mauve and purple flowers are common enough amongst *Sulcorebutia* species but apparently and surprisingly rare amongst their very close relatives in *Weingartia*.

The publication and diagnosis of a light purple flowered *Weingartia* by the late Prof. Martin Cardenas in the American Cactus & Succulent Journal came therefore as a surprise to many who had accepted hitherto *Weingartia* as a wholly yellow or orange flowered genus. Yet in 1951 Curt Backeberg had already paved the way for acceptance of colours other than yellow by transferring the rather obscure plant, *Echinocactus ambiguus* Hildm. to *Weingartia* after a plant with this name had flowered for him. (This same plant is now at the Jardin Exotique, Monaco). The flower of Backeberg's plant was purple-violet, and short tubed with naked scale axils. Further in 1963 Backeberg transferred to *Weingartia* the known species and forms of *Neowerdermannia*, all of which have purple, mauve, rose-pink or near white flowers. The habitat of *Echinocactus ambiguus* had been quoted by Schumann as either Chile or Bolivia and the *Neowerdermannias* are found widely distributed over the adjoining areas of Northern Chile, Southern Peru, South Western Bolivia and North Western Argentina, well to the west of the normal distribution of *Weingartia* apart from *W. fidiaiana*, *W. neumanniana* and *W. westii* which have a slight overlap with *Neowerdermannia vorwerkii* Fric. In several respects these three *Weingartia* species are quite distinct from the remainder of the genus from Central Southern Bolivia. Martin Cardenas' new *Weingartia torotorensins* clearly belongs to the main line of *Weingartia* development and in body form is very close to the *W. cummingii* populations. The real difference is the colour of the flower - light purple as against orange yellow for *W. cummingii* - a trivial separation perhaps!

Alfred Lau's two expeditions to Bolivia have provided new plants which challenge the separation of *Weingartia* and *Sulcorebutia* by possessing a mixture of characters normally used to differentiate between the two genera. Commonly, *Sulcorebutia* is distinguished by long, narrow and sunken areoles, and *Weingartia* by broad oval raised areoles, coupled with flowers having relatively long and narrow funnel form receptacles for *Sulcorebutia* and relatively short and broad funnel form for *Weingartia*. Walther Rausch in his new species appears generally to include all long tubed forms as *Sulcorebutia* irrespective of areole form, e.g. the purple flowered *Sulcorebutia flavissima* Rausch, long tubed but with relatively broad oval raised areoles. Martin Cardenas did not recognise the separate existence of *Sulcorebutia*, but only of *Rebutia* and *Weingartia* - but again he was not consistent in choice of genera, e.g. the very short tubed broad funnel form yellow flower of his type 6330 he classified as *Rebutia corroana* while type 6328 with a similar very short tubed broad funnel form but violet flower as *Weingartia torotorensis*, both published simultaneously. *Sulcorebutia glomeriseta* (Card.) Ritt., yellow flower with wide funnel form receptacle and oval areoles, *Sulcorebutia glomerispina* (Card.) Don. purple flower with long narrow funnel form receptacle, broad raised oval areoles, *Sulcorebutia krahnii* Rausch very similar to *Sulcorebutia glomeriseta* and to Ritter's *Weingartia* FR 816, and Ritter' FR 946 *Sulcorebutia weingartioides*, purple flowered with short receptacle and oval areoles, are all species that traverse the limits separating the two genera strictly speaking.

Weingartia ambigua does present some problems, the body of the plant is illustrated in Die Cactaceae vol.3 p. 1793. The acute narrow ribs and small oval slightly sunken areoles are not typical of *Weingartia* at all but nearer to *Copiapoa* or *Neoporteria* section *Nichelia*. Schumann did not describe the flower but Backeberg describes that of his plant as short and naked, 35 mm broad, pale purple violet with inner petals darker, with the style exerted beyond the filaments and a long lobed vertical stigma. It is interesting to compare this flower with that of Lau 332 which apart from its colour, crimson or deep purplish red, would appear identical with it. Lau collected 332 between Cruce and Mina Asientos, south of Rio Mizque in the Department of Cochabamba. However, the body form of 332 is quite different from *Weingartia ambigua*, having broad tuberculate ribs and broad raised oval areoles in contrast to the latters apparent narrow sinuous ribs and narrow sunken areoles. North of Cruce Lau collected two forms of Sulcorebutia 337 (*Rebutia vizcarrae* Card.?) which are intermediate in form between his 332 and Walther Rausch's *Sulcorebutia flavissima* (Lau 338) from Orkho Abuelo near Aiquile and somewhat south east from the habitats of 332 and 337, while *S.flavissima* is as the name implies almost without exception yellow spined, 337 can be yellow to reddish brown to almost black spined like 332. The flower colours vary from purplish red to violet or rich mauve or magenta and with receptacle lengths of around 10 mm. compared with the 3 mm. of 332. Certainly both *S. flavissima* (338) and 337 show with their broad oval raised areoles and shorter receptacles a tendency towards the *Weingartia* form as currently accepted. Cardenas' *Weingartia torotorensis* occurs at Torotoro southwest from Mizque on the borders of the Departments of Cochabamba and Chuquisaca is without doubt a true *Weingartia* in the strictest sense, with its broad oval areoles and short wide tubed flower. Lau collected a very similar plant just south of Mina Asientos (Lau 327) that can be accepted as evidence of the eastern extension of its distribution from Torotoro. Cardenas described the plant as flattened globose, freshgreen in colour with about 20
ribs broken in short hatchet shaped tubercles about 10 mm high and 8 mm broad at the base. The areoles are elliptic 6-8 mm long and about 12 mm apart with extremely uneven spines 3-20 mm long, undifferentiated, acicular and pectinate, grey or whitish, some curved at the tip. The flowers are numerous forming a ring around the crown, funnel form 35 mm long and 30 mm wide bright magenta in colour.

The ovary is globose, 4 mm long light green with thick loose scales bearing white hairs in the axils. The base is very short 3-4 mm long with light green glabrous scales. The outer perianth segments are 'lanceolate' 20 mm long by 5 mm wide, light magenta in colour with the inner segments a shade darker and white towards the base. Filaments arise over the whole receptacle wall, 5 mm long, magenta in colour and white near the minute yellow anthers. Style is 17 mm long, white with 7 light yellow 5 mm long stigma lobes. Fruit not described. However, fruits have developed on Lau 327 and these are typical of the small rounded fruits of both Weingartia and Sulcorebutia, about 5 or 6 mm in diameter with a few short broad naked spathulate scales and persistent floral remains. Dehiscence is usually lateral with the fruit splitting about 2/3rds up from the base. The seeds are rounded, dull black and weakly papillate, close to those of Weingartia cummingii in form. The fruit of 332 is similar but its seeds are much browner in colour.



Lau 324, a plant collected between Mizque and Arani and therefore to the northwest of the habitats of 327 and 332 was originally thought to be a Lobivia, but upon flowering it is seen immediately to belong again to this Sulcorebutia/Weingartia mixed group. The flower is light purple in colour with short spathulate segments and a short broad funnel form tube, carrying short broad bright green naked scales. From the flower a typical Weingartia - the areoles though are relatively long and narrow not as in the classic form of Sulcorebutia, but intermediate between the latter and the classic broad oval areole of Weingartia. The fruit again is identical with 327 and 332. Any decision to place this plant in either Weingartia or Sulcorebutia must be purely arbitrary.

The purple flowered "Weingartias" may properly belong to Sulcorebutia and indeed seems possible that the majority of the northern Weingartias might be more conveniently placed in Sulcorebutia. The southwest Weingartias which include the type species Weingartia fidaiana differ from the rest in several important aspects and seem more allied to Gymnocalycium. Further studies are necessary before definite conclusions can be made.

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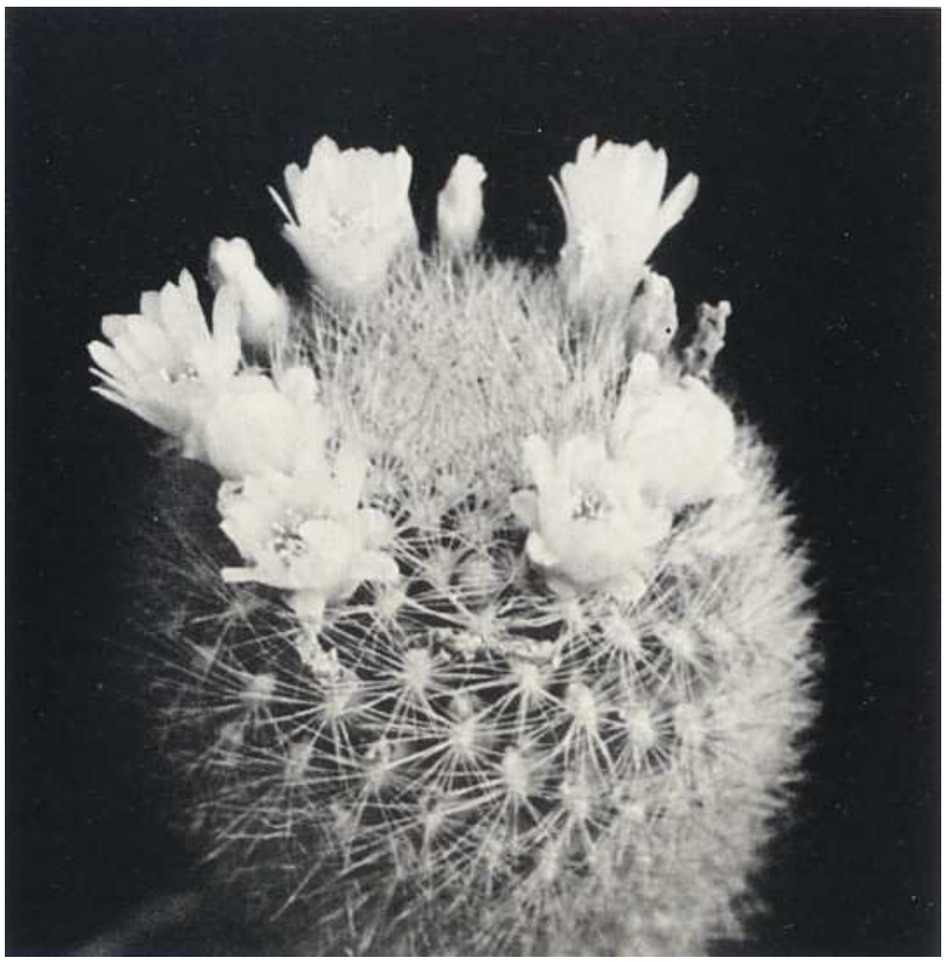

Lau 324 Sulcorebutia/Weingartia sp. from Mizque

Lau 337 Rebutia vizcarrae Card. from Cruce

Lau 332 Sulcorebutia/Weingartia sp. from Mizque

Lau 327 Weingartia torotorensis Card. from Mina Asientos

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