



PERESKIA ACULEATA. West Indies

Cacti-of-the-Month

PERESKIA

by Rick Latimer

The cactus family naturally divides into three unequal subfamilies. The most "advanced" and by far with the largest number of species is the Cereoideae, which in turn is divided into two tribes: Cereae and Hylocereae. The Cereae includes all those plants from the miniature specimens of the genus Blossfeldia, through the "barrels" such as the Ferocacti, all the way up to the tall columnar cacti such as Pachycereus and Neoraimondia; of which this column usually devotes itself to. The tribe Hylocereae and the other two subfamilies are somewhat neglected, but the Cereae does have the largest number of species by far and they are the most interesting. The Hylocereae, of course, includes those species that were covered in this article last February 1983 and are those species that are "cereus-like", but mostly epiphytic and usually found in jungle environments. The second and more "primitive" subtribe is the Opuntioideae which includes the "prickly pears", "chollas" (which usually get noses turned up at them), and the (often appreciated) Tephrocacti. This tribe is distinguished by its glochids (insidious barbed miniature spines), and different characteristics of the flowers, fruits, and seeds. Where the Cereoideae only has leaves when seedlings first pop up (the dicotyledons), many of the Opuntioideae species may exhibit small leaves on new growth (such as Opuntia subulata) which fall in the dry season. The third and by far the smallest tribe is the Pereskioideae, which consists of the "primitive" leafy cacti.

The pereskia subfamily has a natural range that is largely limited to tropical jungle habitats (although not to the Amazon basin![except for the area around Iquitos, Peru]) in Mexico, s. Florida, Caribbean isles, n. South America, and s. Brazil and n. Paraguay. This is the limit of the tribe Peireskieae belonging to Pereskioideae. There is also another tribe called Maihuenieae which is native to central Argentina and Chile. This second tribe has only one genus Maihuenia. The plants ^{of this genus} form rounded cushions of which the cylindrical stems bear leaves that are not readily deciduous. The flowers are fairly large and range from white to yellow or red. I have never seen the flowers of any and I have seen only one species around - M. poeppigii which makes a nice bonsai. The genus Pereskia is also the only one in its tribe Pereskieae. The name of the genus derives from a Provencal scholar named Peiresc (and that is why some texts spell the genus Peireskia). This genus has long been regarded the ancestral section of the cactus family. For the most part, they are woody trees, bushes, or vines with large "leafy" leaves that do not even remotely resemble the typical image we have of what cacti should look like. Many of the arborescent Pereskia species look more like citrus trees, but with flowers that look like wild roses. However, they do have areoles, which only the cactus family possesses. Since Pereskia species have continued to bear unmodified leaves (even in dry zones) without any environmental adaptation towards more succulence, it has been suggested that this genus represents not an ancestral branch of the family, but rather a branch that mimics the average looking shrubbery. Whatever.

The Pereskia species in general are not cultivated since they demand lots of room for proper development and simply since most are not available to the grower. Some species are used for grafting stock (I think one of the rare Anacampseros species was once grafted on a pereskia in Japan!). Probably the most commonly (and for the longest time) grown species is P. aculeata. When I have shown cuttings of this plant to easterners, they think it might be a lilac (except for the spines) and when I show it to westerners, they suspect it is a bougainvillea. If allowed, it would become a rampant vine as long as 30 feet. The flowers are white, pale yellow or pinkish and they bloom in the fall. The common name for the plant is "lemon vine" due to the scent of the flowers and the color of the fruits. The plant is frost tender and turns black as if it had been burnt if it is exposed to too much cold. An attractive variety is P. a. var. godseffiana which has green or golden (depending on the amount of sunlight) leaves on the top surface and red on the bottom surface. Examples of two other species are P. sacharosa with light purple flowers and P. corrugata with scarlet-orange flowers. Both of these species are described as shrubby.

Two similar genera are Pereskiopsis and Quiabentia. The first genus was originally regarded as a part of Pereskia due to the leafy habit of the species (some leaves begin to get more succulent), however the flower shape, the presence of glochids in the areoles, and the large, hard seeds show its true relationship as a member of the Opuntioideae. Quiabentia in contrast to Pereskiopsis does not have glochids according to Backeberg, but instead "thin subsidiary spines". One species Q. pereziensis is reported to have glochids on the fruits (and has pink flowers). This genus is native to the Brazilian catinga and from e. Bolivia to n. Argentina. Pereskiopsis ranges from Baja California to mainland Mexico and into Guatemala. Two species reportedly from Baja are P. porteri (also from the mainland) with yellow flowers and orange fruits and P. gatesii with ? colored flowers and deep pink fruits. Maihuenia, Pereskia, Pereskiopsis, and Quiabentia - bring one if you have any.

REFERENCES:

Günther Andersohn, Cacti and Succulents.

Curt Backeberg, Cactus Lexicon.

Ladislaus Cutak, Cactus Guide.

1984 SDCSS SHOW THANK YOU

We wish to thank all of those who participated in this year's show, whether they helped, exhibited, or even just visited. This year we had about 950 plants exhibited by 36 exhibitors and visited by about 2500 people buying hundreds of plants. We all feel proud to belong to such a first rate society! Special thanks go to our three judges: Madelyn Lee, Leo Pickoff, and John Trager.

-Frank Thrombley, Rick Latimer, John Pasek, Joan Johnson, Perlso Lewis, Dorothy Dunn, Robert Kent, & Marianne Thrombley; Chairmen

MONADENIUM

by Dave Phillips

Unlike the majority of the society's membership, from an early stage in my collecting, my fascination has been with the other succulents. On a visit to Holly Gate nurseries in 1967, we were fortunate to arrive when Clive Innes was unpacking a consignment of imported plants. All the plants enclosed belonged to the family Euphorbiaceae. It was this one occasion that began my long association with this group of plants. I set out to build up a representative collection of the genus Euphorbia, and this was progressing nicely when I began to become more aware of the other genera within the Euphorbiaceae. Of particular interest to me were the Monadeniums.

Monadenium was formed by Pax, in 1895, based on a plant (*Monadenium coccineum*) discovered some ten years earlier by the explorer G. Fischer in what was then known as German East Africa. In 1913 when N. E. Brown concluded his monograph of the tribe Euphorbieae, the number of species belonging to the genus *Monadenium* had reached 24. In the following 20 years only four further discoveries were made. It was about this time that Peter R. O. Bally became interested in and dedicated much of the next 25 years to the study of these plants. In 1961 he published his monograph "The Genus *Monadenium*" in which a further 18 new species were described. This has proved a very popular book with botanists and succulent enthusiasts alike. Unfortunately it is now out of print, and is most unlikely to be reprinted. Second hand copies are not only very difficult to obtain but costly. It has been a most useful reference work and has assisted me in compiling this article. The key to the species is very easy to understand and very little botanical knowledge is required. It is most beautifully illustrated with reproductions of the authors own water colours. These are held loose in the back covers; distribution maps and line drawings accompany each species.

Since the publication of the monograph several further discoveries have been made. It has proved a difficult task in tracking down their descriptions. Some have appeared in a recently published book by Doreen Court "Succulent Flora of South Africa".

The genus is confined to Tropical East Africa with four exceptions. Three extend into West Africa, with the remaining species in the Central African Republic. It is strange that not one single species has reached the Cape Peninsula where Euphorbias grow in such profusion with their many forms of shape and size.

The distinguishing feature of the genus is the shape of the inflorescence called a cyanthium, meaning "cup". Where as a typical Euphorbia cyanthium is made up of one female flower and many male flowers arranged in a group, the *Monadenium* cyanthium is different as this system has been fused together in one gland. This is where the genera got its name, *Monadenium*, meaning one gland. This gland forms a rim around the reduced flowers with an opening forming at the base. As in Euphorbia there is confusion as to what constitutes the flower. The large petal-like arrangements that give each flower a hooded appearance are in fact bracts. These vary in size and the colours range from white, through the various shades of green, pinks and red. The bracts usually match the glands in colour. The bracts are in two forms, those forming a pair predominate, while the more specialized succulent and geophytic species have a one piece cup like structure.

The growth forms vary considerably including herbaceous, succulent, geophytic and arborescent. All can be cultivated successfully within the glasshouse providing certain precautions are taken. A temperature not falling below 55°F is advisable. The main cause of loss is rot and this can occur from the root system, the base or growing point of the stem, and even from the flowers. *Monadeniums* have a tendency to produce their flowers in late summer or autumn, and with our typically damp conditions, a mould will soon attack the flowers. If not kept under control with a fungicide this will spread down the peduncle (flower stalk) into the stem. It is then that your troubles begin as rot travels very quickly down the stem and usually results in the loss of this stem and sometimes the whole plant.

In recent cultivation experiments I have found soil heating cables backed up with a thermostatically controlled fan heater a satisfactory method of over wintering these plants. They drop their leaves during the dormant period and in some cases the thin stemmed varieties die back to soil level. These have a caudex root and will re-shoot in the spring. A fine spray of water containing Benlate is given weekly, depending on the weather conditions. This has two functions, firstly to stop plants drying out too much with the higher temperatures, and secondly with the added Benlate it achieves control of mildew.

There follows a brief description of the plants that I regard as desirable and well worth obtaining.

M. coccinium Pax. Locality: Tanzania

An erect semi-climbing plant, the stems are simple but sometimes branch. It is reported to grow up to 130cm high, but I have never seen a plant reach this height in cultivation; mine has not gone beyond 30cm. The stems are 10-12mm thick and 5 angled, a mid green colour and if grown in full sun take on a purple striped effect. They are reported to be unarmed, but where the leaves join the stem there are two stipules which can prick particularly when the leaf has fallen. Leaves are alternate, oblanceolate with the widest point being above the middle.

The cymes are produced from the upper leaf axils, many times forked and each forming a dense cluster of bracteate heads. The peduncle is bright scarlet above, light green below, and the bract-cup is also bright scarlet. The roots are tuberous, so a very open compost is advisable. When in full flower this plant takes some beating for a colourful show and they come when most other plants in the collection have finished.

The following 2 species are of a similar growth form and much confusion has arisen due to *M. stapelioides* being so variable in thickness of stem and leaf size. An example of this statement is that I wished to add *M. schubei* to my collection and over a period of four years several plants were obtained with this name on the label, but not one was correct. I discovered some time after, that all these plants came from the same source and were in fact cuttings from one stock plant. It is my belief that this particular plant was itself a hybrid as it did not match up with any of the descriptions. The stems were of *M. stapelioides*, but leaves and inflorescence were not. I doubt if *M. schubei* was even involved.

M. stapelioides Pax. Locality Kenya, Tanzania

Producing one to many fleshy stems, starting erect but soon becoming decumbent, rarely rebranching, with age forming a dense cushion up to 50cm diameter. The

stems are cylindrical and covered with spirally arranged tubercles, armed with very tiny rudimentary prickles. Leaves are produced on the uppermost tubercles, and are succulent, dull green and spatulate with minutely serrulate margins, deciduous and leave a scar.

The inflorescences are crowded at the stem tips, coming from the leaf axils. The bract-cups are a greenish white in colour, usually flushed with pink on the edges. The involucre (gland) is cylindrical and the horseshoe shaped rim is a dull red. The roots are tuberous.

M. schubei Pax. Locality: Zimbabwe, Tanzania

Producing one to many fleshy, erect cylindrical stems which have very prominent tubercles. The stems are up to 4cm thick, not including the tubercles, and dark green. The tubercles are rectangular at the base tapering toward the tip which is marked by the leaf scar and armed with several reflexed sharp spines. The leaves are very succulent, oblanceolate, 35-60mm long, 15-20mm wide, with crinkled margins.

The cymes come from the axils in the upper part of the stem and are usually forked. The peduncle is very short, the bract-cup is oblique and envelopes the involucre, which is cup shaped. The rim is horseshoe shaped and whitish green but can show a pinkish tinge. The roots are tuberous.

M. guentheri var. guentheri Pax. Locality: East Africa

Stems fleshy, cylindrical, with very prominent tubercles, many growing from a single root-stock. They are erect when young, slightly curving when older and may even lay flat on the surface of the soil. The tubercles are hexagonal at the base, slightly recurved, and taper towards tip. The leaf scar is surrounded by 3 sharp prickles, the centre one deflexed, the laterals straight. The leaves are small, up to 30mm long and 20mm wide, sessile, fleshy, linear-lanceolate, margins entire and crisped at the apex.

The cymes come from the axils at the tip of the stem. Each is formed of a peduncle bearing one central and two lateral bracteate heads. The bract-cups are oblique, greenish-white with purple marbling. The gland rim is a purple-brown.

M. guentheri var. mammillare Bally. Locality: Tanzania

Very similar to the above, but its stems are more numerous and thicker, and its spines less developed. The leaves are broader and a light green, and the overall colour of this plant is lighter than the previous variety. There is also a small difference in the inflorescence.

M. heteropodum N.E. Brown. Locality: Tanzania

This plant usually starts as a single stem which will reach a height of 35cm before becoming decumbent. It is at this stage that new stems form. Another distinguishing feature is the tubercles which in fast growth become narrowly hexagonal, whereas in slow growth they form a rhomboid base. This gives the plant stem an appearance of necking. The soft prickles are connected by a horny rim. Leaves are produced in the upper tubercle axils, and are spatulate, fleshy, and glabrous. The inflorescence is not unlike the previous species.

M. lugardae N.E. Brown. Locality: South West Africa, Natal, Zimbabwe

This plant differs in that it has no tubercles. Instead, the cylindrical stems have hexagonal tessellations. The plant soon forms a clump of bright green stems reaching a height of 50cm. The leaves are spaced on the upper portion of the stems or in some forms grow as a terminal tuft. They are the largest of the species so far mentioned, up to 9cm long, 3cm wide, obovate and curly serrulate towards the tip. The inflorescence has no particular distinguishing features, except that the bract-cup is a pale green on the outside and a light brown on the inside. The roots are tuberous.

M. reflexum Chiov. Locality: Ethiopia, Kenya

Stems very succulent, up to 35cm long, solitary, erect and cylindrical. The stems are densely beset with reflexed tapering tubercles, the leaf scars at the apex bearing two lateral stipular spineshields. Leaves are terminal, soon deciduous, 24mm long, 10mm wide, spatulate, fleshy and puberulous. The leaf margins are wavy, particularly towards the tip, and a mid green in colour with those newly formed having a redish tinge.

The cymes are crowded at the apex. The bract-cups are a yellowish green and just protrude above the involucre, which is funnel shaped and yellow. The roots are fibrous. In my view this is the most difficult species to cultivate successfully and by far the slowest growing. The reflexed tubercles give it a most attractive appearance.

The remainder of those mentioned cause no problems providing an open compost is used and the temperature does not drop below 50°F. I have found that they do not like it too dry during the dormant period. The root system seems to dry out and when water is given rot sets in. I spray this group on the warm days of winter.

M. ellenbeckii N.E. Brown. Locality: Ethiopia, Kenya

A fleshy branched shrub. The stems are erect, cylindrical, up to 25mm thick, shallowly tessellate with longitudinal grooves. The leaf scars are small and spirally arranged. Leaves are few, borne at the very apex and soon deciduous, as are the lateral spines. The leaves are small, 10mm long and 8mm wide. The cymes are axillary, persisting after the leaves are shed. The bract-cups are yellow-green and the involucre is barrel-shaped and yellow.

M. ellenbeckii forma caulopodium Bally. Locality: Kenya

Stems not erect but prostrate and more numerous. The markings of the stem and inflorescence are as with the type. This is a far more vigorous growing plant and in my experience the leaves remain for a longer period and it comes onto flower earlier. The roots of both varieties are tuberous.

M. invenustum N.E. Brown. Locality: Kenya

Stems erect, glabrous and a glaucous green, reaching a height exceeding 60cm. The leaf scars are slightly raised and are armed with two small stipular spines. Leaves are large, up to 4cm long and 3cm wide, the upper surface a dark glaucous green with pale veins, the underside a pale green. The bract-cup matches the upper surface leaf colour but has pale green transverse stripes. The involucre is funnel shaped and white. The roots are tuberous.

M. montanum Bally. Locality: Tanzania

Stems are solitary and erect, cylindrical and produced new annually. The leaves are very fleshy, sessile, narrow and green with purple markings. The bract-cup is grey-green and the involucre is cream. The roots are tuberous and with age several spherical swellings are formed.

M. montanum var. rubellum Bally. Locality: Kenya

This plant differs from the type by being glabrous, by its narrower red mottled leaves and by the uniformly pale rose inflorescence. The bract-cup is also longer and narrower. The roots are as with the type. This form does give problems during our cold, damp winters and is very prone to the caudex and root system rotting.

M. yattanum Bally. Locality: Kenya

Stems erect when young, on reaching a height of approximately 12cm they become prostrate, rarely branching, unarmed, 10mm thick cylindrical and slightly tuberculate. The leaves are laxly crowded in the upper portion of the stem, very fleshy, oblanceolate, tapering toward the base. The upper surface of the leaves are dark green with purple marbling between the veins. The underneaths are a much lighter shade of green. I have yet to flower this species but the bract-cup is reported to be oblique, green and striped with purple. The involucre is brown-yellow. With me this species is proving to be a slow growing plant, in 3 years it still has not out grown its 7cm (2 3/4 inch) pot. The leaves are not completely deciduous and I think the more you can keep on the plant during the winter months the easier it is to start it into vigorous growth in the spring.

M. rhizophorum var. rhizophorum Bally. Locality: Kenya

A small glabrous shrub, the root system consisting of thin tubers that form a long rhizome. From these the stems arise, up to 10cm in height, cylindrical and unbranched. Leaves crowded at the apex, spatulate and a mid-green. If grown in full sun, between the veins turns purple. The inflorescence is a greenish yellow. When grown in a very open compost this species soon fills the pot with rhizomes from which appear the new shoots. This is when the plant is at its most attractive.

M. rhizophorum var. stoloniferum Bally. Locality: Kenya

A much smaller plant than the previous variety. The roots are perennial and napoid, producing several stems which are erect when young becoming decumbent when weighted down by the very succulent leaves. These stems then re-root from the nodes and further tubers are formed. The leaves start off a dark green but soon turn to a brownish purple no matter where the plant is placed within the greenhouse. The bract-cup is olive green edged with cream. When in full growth the leaves soon cover the surface. The combination of purple leaves and olive green flowers makes an eye catching plant.

M. magnificum Bruce. Locality: Tanzania

Form distributed by Peter Bally: A succulent shrub up to 1.5 metres high, stems usually solitary up to 6cm thick and 4 to 5 angled. These angles are slightly undulate and reddish spiny clusters, 3-4mm diameter, form continuously along the edges. The spines are about 3-4mm long. Between the angles the stem is a glaucous green mottled with a paler green. The leaves are very fleshy, reflexed and large, up to 15cm long and 10cm wide, broadly elliptic, apex obtuse. The midrib is sharply keeled and has many soft prickles along the edge.

The inflorescences are axillary and produced in the upper portion of the stem. The peduncles are 10-15cm long and 7mm thick, these too are armed with soft prickles. When newly formed their colour is a vivid scarlet turning a dull red with age, many times forked. The bract-cups are a lighter scarlet but appear to hold their colour longer than the peduncle. The root is an irregularly shaped tuber.

American clone: Very similar to above but the stems are much thinner (2-3cm thick) and the reported height is 2 metres. Another difference is that they branch from the base at an early age. An advantage is that this form flowers more freely but seems to be a less vivid colour, but this could be due to cultivation differences.

In both clones the inflorescence is borne before the leaves and this is the last of all the species mentioned to come into growth.

M. cannellii Leach. Locality: Angola

This is the most recently described species in my collection. It was discovered by Mr. Larry Leach in the Benguela district of Angola in 1970. A spiny, succulent shrub up to 1.5 metres in height, stems 3-5cm thick. The leaves are fleshy, 7-10cm long, up to 5cm wide and form from the upper portion of the stem and hang downwards hiding the stem. The stem and leaf keels are armed with prickles. The inflorescences are borne on long peduncles which are forked and well above the leaves.

To conclude, I hope this article will encourage others to add a few of the above species to their collections. They are a challenge, but when you are successful these plants are most rewarding. Gradually, plants are becoming more available and this genus is sure to gain in popularity.

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about Dave Phillips

The author of this fine article, Dave Phillips, lives in Southampton, England. Frank Thrombly met Dave at the CSSA convention in New Mexico (1981). Dave grows succulents in his two greenhouses at his home in Southampton. His prime interest is the Genus Monadenium and Euphorbia. He propagates from seed and cuttings and is an avid hobbyist in this great hobby of ours. We thank Dave for this interesting article.

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The San Diego Cactus & Succulent Society is open to all persons interested in growing cacti, other succulents and exotic plants. Meetings are held the second Saturday of each month at 1:30 pm in Room 101, Casa del Prado, Balboa Park. Board of Directors meetings are held after the general meetings. Annual dues are \$8.00 per single member per year, \$2.00 for each additional member of a household within a family. Single copies of Espinas y Flores are 60 cents.

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