

MEXICAN FIELD-NOTES (8)

by Christian Brachet, Michel Lacoste & Felipe Otero

It was only in 1963 (i.e. after the publication of *Die Cactaceae*) that both *M. dixanthocentron* and *M. flavicentra* were described by C. BACKEBERG in a leaflet entitled Descr. Cact. Nov. (111) and containing the descriptions of many new species or varieties. As was his usual practice, he did not designate as holotypes herbarium specimens, but only living plants in his collection. So much ink has already been spent to discuss this matter that we feel unnecessary to open once more the subject. The interested reader will find in *Bradleya* 3:97-102 (1985) an excellent discussion of the subject by U. EGGLI, in which he concludes that the lectotype designations by R.MOTTRAM (Mammillaria Index :24 & 31. 1980) have resulted in acceptable validation of these names.

Both these taxons were stated by C.BACKEBERG to have been discovered by F.BUCHENAU along the road from Tehuacan to Oaxaca City. In the Kakteenlexikon (1966), C.BACKEBERG brought some interesting modifications and additional information:

- the type-locality of *M. dixanthocentron* is stated to be “Arroyo Verde, c. 30km S of the type locality of *M.buchenaui*.” We have not been able to find an “Arroyo Verde” in this area of the state of Oaxaca, but we can probably state with reasonable confidence that the site of *M. buchenaui* is San Jose Tilapa, just at the border of the states of Puebla and Oaxaca. If we assume that the 30km mentioned are to be understood “as the bird flies”, then the site referred to by C.BACKEBERG would be about 5km south of Santa Maria Tecomavaca, around km100-105 of MEX 131. If, on the other hand, we count the 30km as the road twists (and it certainly does!), then we would probably be quite near San Juan de Los Cues. Both sites are today well known for abundant populations of *M. dixanthocentron*. The illustration in Kakteenlexikon is more reminiscent of the plants found south of Santa Maria Tecomavaca than of those found near San Juan de Los Cues.
- the description of the central spines of *M. dixanthocentron* was radically modified. In the original description, we have “*aculeis centralibus a, primo claro colore flavido, deinde cornicoloris vel albidis, sursum et deorsum divaricatis, ea. 5mm longis.*” In Kakteenlexikon, we read “**Csp 2(-4)**, one above the other or cruciform, the top one erect, c. 5mm lg., the lower one projecting to directed downwards, to c. 1.5cm lg., both light at first, becoming horn-coloured or whitish tipped horn-colour.” F.BUCHENAU also published his own description (*CySM* 9(2) :48-49. 1964), in which he reduces the number of radials to 14-16 from the 19-20 given by C.BACKEBERG, increases their length to 3-6mm from 2-4mm, and increases the length of the lowermost central to 15-21mm from 5 (or 15)mm: three descriptions for one plant and one name! F.BUCHENAU's description of the flower, fruit and seed is also much more detailed. He also states that the plant grows in alkaline orange yellow soil, and this detail fits better the area near San Juan de Los Cues than the one south of Santa Maria Tecomavaca (as do both his photograph of a group of plants taken in the field, **op. cit.** :25 and W. ANDREAE's illustration in KuaS 22(2):21. 1971 of a plant which probably originated from F. BUCHENAU, either as seed or as an imported specimen).
- the type-locality of *M. flavicentra* is stated to be “on higher W. slopes, above the locality of *M. buchenaui*.”, It has been stated that the correct type-locality is in fact near Pala, above Coxcatlan, some 10km north of San Jose Tilapa. In fact it is probable that populations of

M. flavicentra can be found along a large stretch of the Sierra Madre Oriental in that general area. However, the illustration in Kakteenlexikon just does not look at all like what is usually understood today as *M. flavicentra*! In our opinion, it looks quite like our ML38, which we have attributed to *M. noureddineana* (JMS **31** (4) :47. 1991). An illustration which we find more interesting was published by W. ANDREAE in KuaS **22**(3):41 (1971): it represents a “golden-beauty in bloom”, grown from seed received from F. BUCHENAU, and can therefore be considered to be authentic. Both illustrations of W. ANDREAE were used by H.KRAINZ in Die Kakteen, C VIIIc, 15.1.1972 and 15.X.1972.

In view of the lack of permanently preserved types with unequivocal type localities and in conflicting facts around these taxa, one can clearly wonder if both *M. dixanthocentron* Backeberg ex Mottram and *M. flavicentra* Backeberg ex Mottram are identical with *M. dixanthocentron* Backeberg sensu Buchenau and *M. flavicentra* Backeberg sensu Buchenau (or sensu Andreae or sensu Krainz, for that matter...) The untimely deaths of both C. BACKEBERG in January 1966 and of F. BUCHENAU in March 1969 do not allow them to help us solve that riddle. Happily, although not identical, the taxons to which one can refer these two names are close enough to fall within two single species.

W.REPPENHAGEN complicated the matter even further when he decided in 1987 (Die Gattuna Mammillaria nach dem heutigen Stand meines Wissens. 1987 :122-123) that *M. flavicentra* should be placed at a varietal level under *M. dixanthocentron* and published *M. dixanthocentron* v. *flavicentra* (Backeberg) Reppenhagen, using the occasion to reject with little explanation the lectotype designation made by R.MOTTRAM for *M. flavicentra*, stating: “Es ist ja keineswegs anzunehmen, dass es sich hier um die von BACKEBERG beschriebene Pflanze handelt” and then proceeding to designate one of his collections, REP 1636 from above Teotitlan del Camino, Oaxaca, as a neotype. However, already in 1988 he had repositioned *M. flavicentra* at the species level (Die Gattung Mammillaria nach dem heutigen Stand meines Wissens, 1988 :122-123), and now he apparently accepts the lectotype designated by R. MOTTRAM (Die Gattung Mammillaria 2:517. 1992)! So for a period of time, we also had *M. flavicentra* Backeberg sensu Reppenhagen, but thankfully, we seem to have the right to forget about that one...

Three other names need mentioning before listing our field observations:

- *M. supertexta* Martins ex Pfeiffer was described in 1837. D. HUNT has published and designated as lectotype a drawing in the Munich Herbarium (CSJGB 39:98. 1977), which gives some idea of what is covered by that name. It is noteworthy that L. PFEIFFER's description indicates 2 centrals and 16-18 radials, but gives us no information about the flower.

- of the authentic *M. celsiana* Lemaire (Cact. Gen. Nov. Sp. :41. 1839), we know very little. N.L. BRITTON and J.N. ROSE identified it (The Cactaceae 4:1 12-1 13, ill. Fig. 116 and Plate XII, fig. 6) with a plant “from the District of Cuicatlan” with 4-6(-7) pale yellow central spines, which D. HUNT thinks may be identical with LAU 1087 (CSJGB **39**:99. 1977).

- *M. lanata* Br.& R. was briefly described in- 1923 (The Cactaceae **4**:104, ill. Fig. 105. 1923). It was collected by C.A. PURPUS and is stated to be a plant with 12-14 spines, all radials, and with very small red flowers. The type locality is the Rio de Santa Lucia, at the border of the

states of Puebla and Oaxaca (i.e. near the area known today as Rancho Calapa, site of LAU 61 and LAU 679). G. LINDSAY (CSJA **12**:1 1, ill. Fig. 28. 1940) reports having collected this species by the side of the railroad track crossing "Toulmaline Canyon" north of the village of "Toulmaline" and is quoted by R.T. CRAIG in *The Mammillaria Handbook* :140 (1945). G. LINDSAY's illustration shows a five-headed specimen with two open flowers quite low down on the stem of the plant. D.HUNT states that *M. lanata* may be a redescription of *M. supertexta*. We would prefer reserving our opinion until having found growing near the Rio de Santa Luisa a population of plants with no centrals (or with centrals so minute as to be barely visible to the naked eye...) Would by any chance our collection ML 192 which we have referred to *M. meissneri* Ehrenberg correspond? It is found nearby, at San Antonio Nanahuatipan (JMS **31**(3):35. 1991). Or should we call back to active duty *M. irregularis* De Candolle, a caespitose plant with no centrals collected like *M. elegans* by COULTER?

In a recent article, R.WOLF (MAfM **16**(2):56-60. 1992) brushes a detailed portrait of *M. dixanthocentron* Backebera ex Mottram, the result of his personal observations at fourteen different sites. He points out at the variability which can be noted in the length and the colour of the spines (but this did not restrain him from describing *M. dixanthocentron* v.*rubrispina* in KuaS **38**(2) :46-47. 1987). To his interesting observations and comments we would like to add the result of our own field-work, as we also have had the opportunity of observing many populations clearly referable to *M. dixanthocentron* and *M. flavicentra*, whatever interpretation is given to these names. Here is the list of our field numbers:

- ML 39 - *M. dixanthocentron*, near km107 of MEX 131 from Tehuacan to Oaxaca, OAX. Alt.: 700m.

Centrals: 2, ivory-white with brown tip, lowermost the longest, to 10mm. Radials: 1 8, chalky white, to 4mm.

- M L 40 - *M. dixanthocentron*, Santiago Quiotepec, Tomellin Canon, OAX.

Centrals: 2(4), stout, chalky white with just the tip brown, uppermost the longest, very short (c2mm). Radials: 20, chalky white, to 3mm. This is probably identical with LAU 1158, which has often been referred to *M. lanata* or *M. supertexta* (but the flowers are salmon pink...)

- ML 42 - *M. dixanthocentron*, Rio Salado, Tomellin Canon, OAX. Alt.: 600m.

Centrals: 2, ivory-white with brown tip, lowermost the longest, to 10mm. Radials: 20-22, chalky white, to 4mm. Axils with abundant white wool.

- ML 145 - *M. dixanthocentron*, San Juan de Los Cues, OAX. Alt.: 1200m.

Centrals: 2(-4), yellow with brown tip, lowermost the longest, to 20mm, the other 1(-3) to 6-8mm. Radials: 17-19, glassy white tinged yellowish aging to chalky white. Axils with abundant white wool. One of the best known populations of this taxon, often stated to be the one from which F.BUCHENAU collected his original plants.



ML 39. *Mammillaria dixanthocentron*. Near km. 107 of MEX 131 from Tehuacán to Oaxaca, Tomellin Cañon, Oaxaca.



ML 194. *Mammillaria flavicentra*. Pala, above Coxcatlán, Puebla.

- ML 175 - *M. dixanthocentron* (= LAU 63A, REP 1330), Barranca Ixcatlan, OAX. Alt.: 1100m.

Centrals: 2(-4), variable in colour with top third more or less dark brownish, fairly stout, lowermost the longest, to 13mm. Radials: ca. 18, white, to 4-5mm. Axils with abundant white wool.

- ML 177 – *M. dixanthocentron*, 5km E of Santa Maria Ixcatlan, OAX. Alt.: 2000m.

Centrals: 2-4, upper half brown, lower half pale glassy yellow, lowermost the longest, to 10mm. Radials: ca. 18, glassy white. Plants intermediate with *M. flavicentra*(?)

- ML 190 - *M. dixanthocentron* (REP 1917?), first 5km of dirt trail from Santiago Quiotepec to San Juan Bautista Cuicatlan, OAX.

Centrals: 24, white with upper third brownish, variable in length, lowermost the longest, to 6mm. Radials: 16-20, white, to 3mm. Axils with abundant white wool. Variable plants, but most have 2 short very fine white centrals, which break off in your skin in a most unpleasant fashion!

- ML 197 - *M. dixanthocentron*, El Campanario, Calipam, PUE. Alt.: 1200m.

Centrals: 2, horn-coloured with brown tip, to 3mm. Radials: 16-18, chalky white, to 3mm. Plants with mostly minute central spines, but from time to time with longer central spines.

- ML 199 - *M. dixanthocentron* (= LAU 63), near km95.7 of MEX 131, south of Tecomavaca, OAX.

Centrals: 2, top half or two-thirds brown to reddish brown, very stout, lowermost the longest, to 18mm. Radials: 16-18, chalky white. Axils with abundant white wool. Plants with very robust central spines of variable colour (related to the so-called *M.dixanthocentron* v. *rubripina*?)

- ML 200 - *M. dixanthocentron*, near km 95 of MEX 131, south of Tecomavaca, OAX.

Centrals: 2(-4), glassy white or ivory with brown tip, lowermost the longest, to 9mm. Radials: 20-25, chalky white, to 3mm. Large white caespitose plants, with centrals of variable lengths.

- ML 240 - *M. dixanthocentron*? (= LAU 677, REP 872, WM 6311), Tonalá, Puente Morelos, OAX. Alt.: 1325m.

Centrals: 2, glassy yellow with brown tip, both of the same length, to 20mm. Radials: 20-22, glassy white, to 5mm. A most astonishing population, in view of its isolation from other populations of *M.dixanthocentron*. T.LINZEN (pers. comm.) wonders if it is not a different taxon. Time will tell, we hope...

- ML 389 - *M. dixanthocentron*, (= LAU 62), trail to Tres Picos, San Juan Bautista Cuicatlan, OAX. Alt.: 530-600m.

Centrals: 2, chalky white with yellowish tinged upper third, lowermost the longest, to 12mm. Radials: 23-25, chalky white, to 4m m. Very white spines. Beautiful single upright plants.

- ML 396 - *M. dixanthocentron*, (= LAU 1087), trail to Tres Picos, San Juan Bautista Cuicatlan, OAX. Alt.: 800-900m.

Centrals: 4-6, yellowish to yellowish brown, stout, to 8m m. Radials: 18-24, glassy white, to 4mm. Axils with abundant white wool. Caespitose plants developing into large clumps. According to A. LAU "the most beautiful and interesting plant of all the *Mammillarias* in the Tomellin area" (CSJGB 41:61 -66. 1979).

- ML 399 - *M. dixanthocentron*, new trail from San Juan Bautista Cuicatlan to Santa Maria Ixcatlan, OAX. Alt.: 925m.

Large plants with long honey coloured centrals, quite similar in appearance to the plants growing near San Juan de Los Cues.

- ML 253 - *M. conspicua* v. *vaupelii* (?) (= LAU 1454, REP 949), Suchixtlahuaca - Tejuapan, OAX.

Centrals: 2, reddish brown, of equal lengths, to 10mm. Radials: 18-20, fine, glassy white, to 4mm. C. GLASS and R. FOSTER (CSJA 43:268-273. 1971) considered at one time the population found at this most beautiful spot to be *M. dixanthocentron*. First A. LAU, in 1983, and then W. REPPENHAGEN in 1985 and 1992, have referred this population to *M. vaupelii*. Astonishingly, D.HUNT seems not to have noticed this interesting suggestion (Bradleya 5:33-34. 1987). Please note that W. REPPENHAGEN (Die Gattung Mammillaria 2:495-496.1992) states that the plant remains small. This fits better TIEGEL's original illustration than the wild population found in the field...

- ML 182 - *M. flavicentra*, Barranca de San Bartolo, Concepcion Buenavista, Sierra Mixteca, OAX. Alt.: 2150-2200m.

Centrals: 4, stout, strong yellow with minute brown tip, to 9mm. Radials: 18-20, fine, glassy pale yellow, to 6mm. Axils with abundant white wool.

- ML 187 - *M. flavicentra*, San Pedro Nopala, Sierra Mixteca, OAX. Alt.: 2500m.

Centrals: 2(-6), stout, bright reddish brown, equal in length, to 8mm. Radials: 20-22, fine, glassy white, to 4mm. This population had some of the larger plants of the Series Elegantes which we have ever seen, reaching a height of 300mm with a diameter of 150mm.

- ML 194 - *M. flavicentra*, Pala, above Coxcatlan, PUE. Alt.: 2500m.

Centrals: (4-)6, stout, glassy dark yellow, of equal lengths, to 10mm. Radials: 22-24, fine, glassy pale yellow, to 4mm. This site may be the one where F.BUCHENAU collected his original plants.

- ML 251 - *M. flavifentra*, La Mexicana, Sierra Mixteca, OAX.
- ML 392 - *M. flavicentra* San Juan Coyula, on trail from Santiago Quiotepec to Santo Domingo, Tomellin Canon, OAX. Alt.: 1 250m.
- ML 249 - *M. flavicentra* x *M.?*, El Enebro - San Miguel Astatla, Sierra Mixteca, OAX.

A population so variable in its spination that one may wonder if this would not be a hybrid swarm between *M. flavicentra* and *M. conspicua* (or *M. elegans*).

Despite all our efforts, we have not been able to demonstrate any logical pattern in connection with the morphological characteristics of these populations. Similar looking plants can be found at quite a distance from one another, whilst very distinct plants will grow side by side.

M. dixanthocentron is the more variable of the two species we have been discussing here. its salmon flower (not red) is in our opinion its most distinctive character, as nothing can be made of the colour or length of the spines, except that the centrals are usually two in number, and that when they exceed 10mm in length, then the lowermost is the longest. The population from Tonalá, in the north western angle of the state of Oaxaca is physically so far away from all other known populations which are found in the Tomellin Canon that it is difficult to figure out what it can represent. The variety *M. dixanthocentron* v. *rubrispina* Wolf is really no more than one of the many forms to be found in the field, and should be sent back to the rank of synonym...

M. flavicentra is, compared to *M. dixanthocentron*, an altitude plant to be found in the mountain ranges east of the northern part of the Tomellin Canon and in many different sites in the Sierra Mixteca. It has more numerous centrals, and is a larger plant with brighter flowers. However, we feel there is much to study within the relationship of the Sierra Mixteca plants with *M. conspicua* to the north and with the population growing in the Barranca de Suchixtlahuaca which, as we have noted, has been attributed to *M. conspicua* v. *vaupeifi*. Then, and if only for the fun of really scaring the "splitters", we do have to point out that many plants carrying the names of *M. supertexta* or *M. lanata* are in fact short-spined forms of *M. dixanthocentron*.

On the other hand, "genuine" *M. lanata* (i.e. red flowered plants) may well have to be placed under *M. meissneri* Ehrenberg (or, if you prefer, *M. elegans* v. *schmollii* Craig, with the type locality « San Andreas, Puebla » which we have not been able to trace).

Therefore, the paler flowered plants would fall under *M. supertexta* Martius incorporating as long-spined forms *M. dixanthocentron* Backeberg and the darker flowered plants would fall under *M. meissneri* Ehrenberg incorporating *M. lanata* Br. & R. as a noncaespitose form. Maybe D. HUNT is too optimistic when he states that "it seems in accordance with all the evidence to identify such plants as LAU 61 and LAU 1168 [sic! 1158] as *M. supertexta*.". We

agree for LAU 1158 (but then claim the right to lump *M. dixanthocentron* under *M. supertexta*); but disagree for LAU 61 which we feel is attributable to *M. lanata* and should therefore be lumped under *M. meissneri*. Our readers may be relieved to hear that for the time being we have nothing « against » *M. flavicentra*...

With all our apologies for our taxonomic terrorism and its implications!