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TWO NEW HAIRSTREAKS FROM MEXICO (LEPIDOPTERA: LYCAENIDAE)

HARRY K. CLENCH

Carnegie Museum, Pittsburgh, Penna., 15213

In 1966, when Dr. Lee D. Miller and I were in eastern Mexico, we spent several days collecting in the vicinity of Zimapán, Hidalgo, using the Hotel Posada del Rey there as our base of operations. The manager of the hotel, Sr. Enrique Calderón, was interested in our activities and suggested that we should visit the little town of El Encarnación, in the mountains off the main highway to the north of Zimapán. Our heavy work schedule had left us with only one day to spare for this trip, and that day turned out to be cold and completely overcast. We never got there.

When Dr. and Mrs. Miller returned to Zimapán in 1969 they were able to repair that omission, and a spectacular collection was the result. Sr. Calderón's advice had been good indeed.

Among the material the Millers took at El Encarnación is a series of a hairstreak that proves to be conspecific with *Thecla dignota* Draudt, a new record for Mexico and hitherto known only from Colombia. Not surprisingly these Mexican specimens represent a new subspecies. Structural examination of them shows that the species must be referred to the genus *Micandra* Schatz.

Micandra Schatz

Micandra Schatz 1888, in Staudinger & Schatz, *Exot. Schmett.*, Theil I: 288; Schatz 1892, in Schatz & Röber, *Exot. Schmett.*, Theil II (*Familien und Gattungen der Tagfalter*): 265, pl. 46; Comstock & Huntington 1958, *J. New York Ent. Soc.* 66: 112.

Micandra Staudinger: Hemming 1967, *Bull. British Museum (Nat. Hist.) (Ent.) Suppl.* 9:290. Hemming incorrectly credited the name to Staudinger (it is explicitly credited to Schatz alone in both the 1888 and 1892 references) but correctly pointed out that the type species, by effective monotypy, is *Pseudolycaena platyptera* Felder [1865] (*Reise Ost. Fregatte "Novara,"* Lep. Rhop. (2): 246, pl. 28 figs. 6, 7) (= *Pseudolycaena cadmus* Felder [1865], *op. cit.*: 247, pl. 31 fig. 5 [= ♀], NEW SYNONYMY).

Some of the distinctive traits of this genus were mentioned by Schatz (1892, including figure): the origin of vein M_2 much closer to M_1 than to M_3 on both wings; the distad production of the posterior angle of the hindwing cell to an acute angle; the origin of forewing vein R_1 far before the remaining radials and closely approximating Sc for most of its length; the truncate forewings. The venation of *dignota* shares all these traits.

The male genitalia of the type species and of *dignota* are quite similar, despite the considerable difference in facies, and may be described as follows: uncus lobes low and transverse, separated by a broad median notch about as

deep as the lobes; tegumen struts slightly arcuate, arising at the lateral corners of the uncus notch; falces normal, with slightly to moderately constricted tips; dorsal vinculum much wider than ventral vinculum, with a large posterior shoulder process; vinculum strut at about right angles to anterior border of vinculum, stout and conspicuous, ending near the posterodorsal corner of the shoulder process; saccus elongate-subtriangular, rounded and somewhat digitate at tip, about three to four times as long as breadth at middle; valvae of normal length, contiguous to middle (*platyptera*) or to tips (*dignota*), broadest at about the middle (*platyptera*) or distinctly before (*dignota*); each valva bears, at about the level of its greatest breadth, a transverse invaginated "pocket" ventrally, somewhat larger and more conspicuous in *dignota* than in *platyptera*; penis long (about 1.8 times as long as saccus + valvae in *platyptera*; 1.6 times in *dignota*), slender, straight, the tip flared and upturned, without terminal ventral keel; a distinct, large, terminal cornutus is present, distally conspicuously and coarsely toothed along its dorsal border; a possible second cornutus dorsad, indistinct and possibly enveloped in a membrane of sorts.

The major genitalic differences between the two species are as follows: In *platyptera* the valvae are broadest at about the middle and their mesial edges divergent thence to tips; the falces are moderately constricted apically; the teeth on the larger cornutus of the penis are large and occur on well over half the length of the expanded part, and the vesica lacks minute spiculae. In *dignota* the valvae are broadest at about $\frac{1}{3}$ their length from the base, their mesial edges more or less contiguous to tips; the falces are little if at all constricted at the tips; the teeth on the more conspicuous cornutus are smaller and clustered more apically, and the vesica is minutely spiculate.

I have examined the genitalia of only two species belonging to this genus, *platyptera* Felder (= *cadmus* Felder) (fig. 1) and *dignota* Draudt (fig. 2), but several others may well be congeneric also, based only on their facies: *aegides* Felder, *amplitudo* H. H. Druce, *furina* Godman & Salvin, *cyda* Godman & Salvin, *comae* H. H. Druce, *ion* H. H. Druce and *extrema* Draudt. Facies, however, are apt to be unreliable, and in the absence of genitalic study I can neither be sure that these are congeneric nor affirm that there are no others I have not listed. The above species, however, are generally similar in underside wing pattern and in wing shape (the most strongly deviating, in both respects, is *platyptera*) and a key to them (males only) may be useful.

1. a. Upperside of forewing with androconial patch 2
 b. No androconial patch 6
2. a. Androconial patch quite small; black borders broad
 *dignota* Draudt (including new subspecies)
- b. Androconial patch large, more or less as large as discal cell 3
3. a. Forewing underside largely blue, more or less completely
 obscuring all traces of transverse lines 4
 b. Forewing underside with a small patch of blue or none;
 transverse lines present 5
4. a. Wings extremely rounded; no hindwing tails *platyptera* Felder
 b. Wings more triangular; hindwing tailed *extrema* Draudt
5. a. Forewing underside with small blue patch *ion* H. H. Druce
 b. Forewing underside with no blue at all *comae* H. H. Druce
6. a. Forewing upperside, black border in cubital area less than
 an interspace width in breadth 7
 b. Black border in this area broader than an interspace width 8
7. a. Upperside blue purplish; borders very narrow *amplitudo* H. H. Druce
 b. Upperside blue greenish; borders broader *aegides* Felder
8. a. Forewing upperside with black border relatively narrow,
 its inner edge in median area about half-way between
 cell-end and termen *furina* G. & S.
 b. Black border broader, its inner edge much closer to
 cell-end than to termen *cyda* G. & S.

Micandra dignota tongida, new subspecies

Male. Upperside: Forewing bright blue to about 2/3; basally the blue is greenish, distally slightly purplish; beyond the blue the wing is black: narrowly on costa, broadly at apex, tapering slightly to the tornus; the division between blue and black is fairly abrupt, passing just beyond discal cell and intercepting Cu₂ at about the middle of the vein; cell-end with a small, gray, quadrate patch within which is the extremely minute scent patch, comprised of long, dark, specialized scales and located just within the incurved lower discocellular; fringe indian red. Hindwing similarly blue, the blue also greenish basad, slightly purplish distad, and the wing distad of the blue nearly black, except as noted below; the division between the blue and the black is somewhat less sharp than on the forewing, passes from costa near base to cell-end, follows M₁ briefly, then curves down diagonally across median and cubital interspaces to its most distal extent, on Cu₂, which it intercepts at about 3/4 from origin; beyond this blue the wing is black, save for the costa, where it is gray-tan, shading distally to the black, and the inner margin, which is somewhat silvery gray from base to about middle, shading to dark gray, then to red-brown (indian red) at the tornal lobe, the latter shading more or less abruptly to black costad. From tornus to Cu₁, at the base of the fringe, runs a pale blue line, inset step-wise (but continuous) above Cu₂; fringe above Cu₁ short, indian red; in Cu₁-Cu₂ longer, mostly black; from Cu₂ to tornus longer, indian red, with a thin, pale line externally; a white spot in fringe at tornus. Tails: that at Cu₁ a mere blunt, short tooth, indian red; at Cu₂ long (about twice as long as terminal width of Cu₁-Cu₂), black, with a large central core of indian red and a white tip.

Underside: both wings indian red, perhaps slightly browner in tint than the fringe. Forewing shading to slightly paler gray-brown along inner margin; wing crossed by three lines, transverse and continuous, the first slightly diagonal, from costa to origin of Cu₁; the second and third from costa to vein Cu₂. Each line is thin, white, and sharp, and the three, plus the termen, are about equally spaced; the outermost is tinged with pale blue. Fringe concolorous with the ground, or perhaps slightly redder. Hindwing also crossed by three whitish transverse lines, all thin, sharp and continuous. The first (basalmost) crosses straight from Sc near base diagonally outward across cell to base of Cu₂ where it abruptly angles (about a right angle) toward base of inner margin, across the interspaces between cell and 3A; this line is extremely thin, usually distinctly bluish, especially posteriorly. The second line begins on Sc near costa at about the middle of the latter, crosses nearly straight to Cu₂ at about 3/4, there angling back on itself briefly along Cu₂, then curving across to end on inner margin at about 1/3; this line is white to Cu₁, thence to its end pale blue with an inner edging of black scales; the end of this line and that of the first line are conjoined along 3A: hard to see unless specially looked for and the specimen is fresh. The third line begins on costa at about the end of Sc, runs convexly (more or less parallel to termen, but gradually approaching it posteriorly) to Cu₂, angles there and crosses to 2A, still parallel to termen, where it angles sharply basad and follows just within inner margin to end at the greatest convexity of the latter just before middle of inner margin. This line is blue throughout, edged distally by a thin line of black, and the segments between the veins are slightly concave outward, producing a small projection or tooth at each vein. Beyond this line, for its whole length, the ground is slightly paler in a parallel band. Tornal lobe somewhat darker brown, with a minute white dot basad. A terminal thin blue line runs from 2A to slightly costad of Cu₁ at base of fringe. Fringe concolorous with ground, or perhaps slightly redder, with a paler distal line below Cu₂ and a white dot at tornal lobe.

Female. On the upperside differing from the male only in the absence of the scent patch and its surrounding gray field; on the underside with the ground slightly paler and the hindwing lines somewhat less distinct; hindwing tail at Cu₁ is slightly longer (about half as long as distal width of Cu₁-Cu₂). The wing shape and shade of upperside blue are identical to those of the male.

Length of fore wing: males, 16.0 - 19.5 mm., mean (of 10 specimens) 17.6 mm.; females, 15.5 - 19.0 mm., mean (of 8) 17.3 mm.

Holotype, male, vic. El Encarnación [approximately 20° 53'N, 99° 12' W], 2400 - 2450 m., *Hidalgo, Mexico*, 15.ii.1969 (*leg.* L. D. & J. Y. Miller, sta. 36), oak - pine forest. A. C. Allyn Acc. 1969-4.

Paratypes: 9 males, 9 females, all with the same data except as follows: 1 ♂ 1 ♀, sta. 6, 23.i.1969; 1 ♂ 1 ♀, sta. 11, 27.i.1969; 2 ♂ 4 ♀, sta. 36, 15.ii.1969; 5 ♂ 3 ♀, sta. 38, 16.ii.1969.

The Holotype, seven male and seven female Paratypes all in the Allyn Museum of Entomology. Two male and two female Paratypes in Carnegie Museum (C. M. Ent. type series no. 669).

Remarks. *Thecla dignota* Draudt (1919, in Seitz, Grossschmett. Erde 5: 754, pl. 153 b) was described from a single male from Bogotá, Colombia. The original description, translated from the German, is quoted here in full:

"*Th. dignota* sp. nov. (153 b) differs from *aegides* (148 h) in a rather large round gray-brown scent-spot at the cell-end, very sharp wing apex below which the outer margin appears almost concave, red-brown fringes and tail; also the anal lobe is completely red-brown, in its middle with a few silver-green scales, the fringes on it partly white; the blue-white line before the margin is completely absent. Beneath, the same cross-lines stand out on the cinnamon-red ground color, but they are narrowly black, sprinkled with silver-gray scales and only costad on the fore wing somewhat wider and whiter; the third, counting from the base, is regularly and strongly toothed, with outwardly concave arcs. Described according to one ♂ from Bogota (Coll. Fassl)."

As can be seen, the resemblance of the present series to *dignota* is close. The most conspicuous difference in *tongida* is the presence, on the upperside, of a distinct pale blue line at the base of the fringe on the hindwing near the tornus. Such a line is present in the species (*aegides*) with which Draudt compared *dignota* and he specifically notes its absence in the latter. Draudt mentions only one tail, and the illustration shows only one tail, at Cu₂, so it is possible that the slight (male) to moderate (female) tail at Cu₁ in *tongida* is an additional difference. On the underside the outer line appears to be less dentate than in nominate *dignota*. Draudt also mentions a few silver-green scales in the center of the red-brown tornal lobe above, which are completely absent in *tongida*. There may be additional points of difference not revealed by Draudt's rather brief description.

I am indebted to Dr. Miller for the following description of the habitat of *tongida*:

"El Encarnación lies in a high montane valley at about 2300 m., right in the middle of those dry Hidalgo mountains. The valley, however, faces south or southeast, and is quite humid, with a small but apparently permanent stream running through it. Except for cultivated areas the major vegetation in the valley is an association of huge oaks and "weeping" pines (*Pinus patula?*) up to nearly 100 feet tall. The hairstreak was associated with the oaks, as nearly as I can tell, and it is possible that the larvae feed on them. Our first specimen was taken early in the morning when it came floating down out of the trees and settled at a mud puddle. We saw what we were sure were others playing around the tops of the trees, and probably all of our captures of it were stray individuals descending to within net reach. A canopy tower might have yielded a lot of them. The hairstreaks were not found in the village itself, nor in the drier areas southeast of it, but only west of town where the oaks were."

Among the other butterfly species associated with *M. dignota tongida* in this locality were: *Papilio multicaudatus* Kirby, *Eumaeus debora* Hübner, *Erora quaderna* Hewitson, a new species of *Callophrys* (*Mitoura*), *Adelpha creton* Godman and *donysa* Hewitson, *Polygonia haroldi* C. & R. Felder, and an apparently new *Paratrytone*. Compare the account under *Adelpha donysa* in Miller & Miller (1970, *J. Lepid. Soc.* 24: 292-297).

***Panthiades m-album moctezuma*, new subspecies**

Thecla m-album: Godman & Salvin 1887, *Biol. Centr.-Amer.*, *Lep. Rhop.* 2: 40; *ibid.* 1901, *op. cit.*: 718; Hoffmann 1941, *An. Inst. Biol. Mex.* 11: 708.

Male: Upperside as in nominate *m-album*; *Female* with forewing blue somewhat more extensive, reaching usually to beyond middle of vein Cu₂ and often invading the base of M₂-M₃.

Underside of both sexes alike, differing from that of the nominate subspecies as follows: ground color darker brown; base of forewing costa less rufous; "Thecla spot" (subterminally on hindwing in Cu₁-Cu₂) consisting as usual of a black spot basally capped with orange, but the black spot is large and wedge-shaped, apex basad (in *m-album* it is small and transversely elongate), and the orange extends distad along each side of the wedge (in *m-album* it is wholly basad and not orange but red) and is wider than deep, its basal edge in line with the subterminal line; there is no trace of it in the adjoining M₂-Cu₁ interspace (in nominate *m-album* the red is deeper than wide, its basal edge distinctly basad of the level of the subterminal line, and traces of red appear in the adjoining M₃-Cu₁ interspace); the tornal black is hardly larger than the black part of the "Thecla spot" and is basally capped by a prominent orange patch which extends part way into the neighboring Cu₂-2A interspace (in the nominate subspecies the tornal black is fully twice this size, many times the size of the black part of the Thecla spot, and there is little or no basal orange; the distal posterior apex of the "W" in the pm line still just touches the inner edge of the "Thecla spot", but because of the changed shape of that spot this apex falls at about 2/3 the length of Cu₂ instead of at about its midpoint; the quadrate subterminal patch in Cu₂-2A is smaller (its dark part only about half as deep as its vein-to-vein breadth, instead of subequal as in nominate *m-album*) and with much less blue irroration.

The male genitalia are identical to those of nominate *m-album*.

Holotype, male, 5 miles north of Zimapan, HIDALGO, MEXICO, 2140-2280 m (6950-7400 ft.), 21.i.1966 (*leg.* H. Clench and L. D. Miller, Carnegie Museum — Catholic University of America Expedition, sta. 29b).

Paratypes: one female, same locality, 12.i.1966 (CM-CUA Exp., sta. 17b); one female, same locality, 1980-2140 m (6430-6950 ft.), 19.i.1969 (*leg.* L. D. & J. Y. Miller, sta. 8).

Holotype and first *Paratype* in Carnegie Museum (C. M. Ent. type series no. 670); second *Paratype* in Allyn Museum of Entomology, Sarasota, Florida.

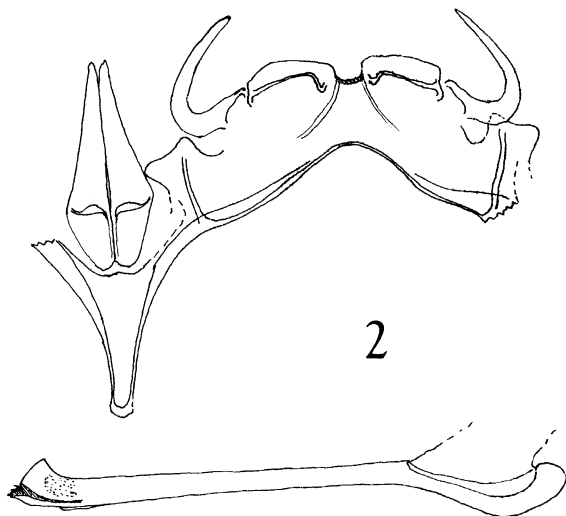


Fig. 1. *Micandra platyptera* Felder, ♂ genitalia, slide C-1225. Colombia: Cauca: Distr. Pereira (leg. R. M. Valencia). CM, exchange from British Museum (Nat. Hist.).

Fig. 2. *Micandra dignota tongida*, new subspecies, ♂ genitalia, slide C-1240, paratype, Miller & Miller sta. 6 (CM).

Note. The uncus lobes of *platyptera* were "turned down" in mounting and apparent differences in this area are spurious or unreliable. The two figures are not drawn to the same scale.

Remarks. In addition to the type series specimens have been seen from the following localities:

Mexico: Sinaloa: 22 mi E of Concordia [ca. 1500 m, = 4875 ft.], 25.x.1961 (*leg.* Cary-Carnegie Museum Exp.); 26 mi E of Concordia [ca. 2150 m, = 7000 ft.], 25.x. 1961 (*leg.* Cary-Carnegie Museum Exp.). In all, 12 ♂ and 10 ♀ (CM). All of these specimens bear the incorrect locality "19 mi E of Concordia." Much of the material from this expedition was mounted and labelled incorrectly, by inexperienced technicians. The above corrected versions are based on my own recollection and field notes (I helped collect both lots). Specimens from the two localities cannot now be distinguished.

Mexico: Guerrero: 4 mi E of Chilpancingo, 1680 m (= 5460 ft.), 30.viii.-1967 (*leg.* L. D. Miller and R. Pine, sta. 17), 2 ♀ (Allyn Mus.).

Guatemala: Chimaltenango: Mpio. Acatenango: Quisache, 1750 m (= 5680 ft.), 14.xi.1966, 1 ♂ (*leg.* E. C. Welling) (CM).

Additional localities are given by Godman & Salvin (*l.c.*). The "Venezuela" they cite is dubious, as they imply.

In Mexico *P. m-album moctezuma* appears to be widespread in oak and oak-pine forest and scrub in the warmer Transition and in most of the Upper Austral zones. The Holotype and first Paratype were taken at the yellow flowers of a woody shrub (probably *Senecio*, cf. *oaxacanus*) along a roadside in oak-pine-juniper low forest, in the Transition zone. The second paratype is from the same locality but at a lower elevation, in the Upper Austral zone. The two Sinaloa localities were respectively in (a) an open, low oak forest on a saddle, probably in the Upper Austral zone, the specimens on low herbaceous flowers along with a number of other hairstreaks typical of lower elevations; and (b) from an open pine parkland, with nearly bare ground, probably in the Transition zone, the specimens quite common on low herbaceous white flowers. The Guerrero specimen was taken in grassy dense scrub.

This subspecies ranges from Durango and Hidalgo southward through Guatemala, apparently as far as Costa Rica.