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Two New Species of *Cartwrightia*
from Central and South America
(Coleoptera: Scarabaeidae: Aphodiinae)

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The genus *Cartwrightia*, described by Federico Islas S. in 1958 for a single Mexican species, superficially appears most closely allied to *Rhyparus* in the tribe Rhyparina but actually will fall in the tribe Eupariina as now defined. The species are myrmecophilous as are those of *Euparia*, *Euparixia*, *Myrmecaphodius*, and some others of the Eupariina. One of the two new species described below was collected in a detritus cavity six to eight feet deep in the nest of a leaf-cutting ant, *Atta cephalotes* (L.). *Euparixia* have been taken as deep as 12 feet below the surface in *Atta* nests.

The species of *Cartwrightia* (so beautifully shown in the plates by Mrs. Elsie Froeschner, our staff artist) have a very distinctive habitus not duplicated in any other genus. The depressions of the pronotum and the two large bulbous formations at the apices of the elytra are unique.

The first Mexican species is redescribed for the benefit of non-Spanish readers and because a few additional characters may help in its determination. The original description was in Spanish.

Key to Species

1. Pronotal ridges widely bare, shining and noticeably punctate (see pl. 1);
Mexico, El Salvador, Guatemala *C. islasi*, new species
Pronotal ridges not widely bare, shining or noticeably punctate 2
2. Anterior longitudinal pronotal ridges narrow, sharply carinate; Bolivia.
C. cartwrighti, new speciesAll pronotal ridges low, rounded; Mexico *C. intertribalis* Islas

Cartwrightia islasi, new species

PLATE 1

HOLOTYPE MALE.—Length 3.45 mm, width 1.5 mm. Elongate, subparallel, generally dark reddish brown with areas of grayish golden-brown argillaceous coating showing on head, pronotum, tips of elytra and underside. Clypeus with double anterior edge, upper and lower margins separated by fine narrow furrow extending from gena to gena, lower margin with median triangular tooth directed downward; upper margin very narrowly recurved, moderately deeply emarginate between low triangular teeth, laterally nearly straight to genal suture; gena arcuate downward with sharp posterior angle; clypeal-frontal suture distinct from gena to base; discal area convex, slightly concave each side, surface shining brown, minutely alutaceous, without argillaceous coating, punctures shallow, fine to moderate, separated by about their diameter, group of slightly coarser punctures on each side near frontal suture; posterior margin of clypeus elevated above frontal-basal area and downward on each side to gena; fine carina-like margin following curvature of eye with furrow in front of it; basal area behind clypeus dull, minutely alutaceous.

Pronotum wider in front, anterior edge narrowly membranous, surface generally shining, dark brown, with five depressed areas and posterior margin showing argillaceous coating, five areas separated and surrounded by low rounded ridges; two large anterior areas separated by longitudinal median ridge, replaced suddenly by narrow median depressed area of equal width over posterior half to base; two sinuate lateral depressed areas extending diagonally backward from anterior angles to middle of median basal area (pl. 1); median basal area with deep, sharply incised median line and diagonal areas with similar sinuate incised line; deep line also visible from side along posterior angle. Shiny ridges quite closely finely punctate, slightly finer and closer along anterior pronotal margin; two anterior depressions with row of close coarse punctures in front and group of very close, coarse punctures posteriorly. Base of pronotum very weakly angulate at middle.

Scutellum elongate, parallel, three times as long as wide. Elytra length 2.3 mm, width 1.5 mm. Humeri distinctly dentate. Each

elytron with sutural, four discal, and marginal costa separated by wide shiny intervals; costae, without argillaceous coating in holotype, high, cariniform, about half as wide as discal intervals, which have lateral rows of punctures except over apical declivity, where they disappear. First discal costa widened apically into large argillaceous bulbous end as wide as first two intervals and first two discal costae combined; large bulbous end narrowly separated from sutural costa and from second and third discal costae with slightly enlarged argillaceous ends. Sutural costae not appreciably widened at apex.

Prosternum with large, wide, triangular posterior intercoxal process. Mesosternum flattened, slightly concave, sides flaring and partly covering anterior three-fifths of middle coxae; meso-metasternal suture as wide as length of middle trochanter. Metasternum with long, deeply incised midline in slightly concave discal area, minutely alutaceous, finely punctate, a slightly roughened triangular depression in front of hind coxa, otherwise very finely alutaceous outward to sides.

Five visible abdominal segments, narrower at middle than at sides, terminal segment about three times as long as penultimate, all except terminal narrowly edged posteriorly with argillaceous coating, anteriorly indistinctly crenate, surface otherwise finely alutaceous and with scattered very fine punctures, terminal with fine shallow punctures generally separated by one diameter or less. Pygidium with scabrous-argillaceous coating and low median, longitudinal carina.

Anterior femora with perimarginal groove, six or seven long setae along outer margin and row of shorter setae along posterior margin, surface finely alutaceous with evenly distributed, shallow, moderate, setigerous punctures separated by two or three diameters, setae short, semi-appressed about as long as diameter of punctures; tibia with three teeth, two terminal one on inside, one outside, and one lateral at apical fourth; apical spur slender, acuminate, slightly hooked. Middle and posterior femora slender, shining, setigerously punctate as forefemora, complete posterior marginal line; tibia slender, parallel sided, tarsi longer than tibia, long spur half as long as first tarsal segment, latter subequal in length to remaining four segments combined; claws very fine.

ALLOTYPE FEMALE.—Length 4 mm, width 1.6 mm. Head outlined with fine cream-colored argillaceous line close to finely reflexed anterior margin of clypeus, curving up around eyes and across base; large similarly colored comma-shaped argillaceous area curving down around each side of median convexity, small median frontal spot behind elevated posterior margin of clypeus. Elytral costae with very fine line of argillaceous coating on each side of sharp shining top.

Spur of anterior tibiae heavier and straight. Femora less shining than in male, covered with thin argillaceous coating. Terminal and penultimate abdominal segments of equal length, with cream-colored argillaceous coating covering half their length along their common margin.

TYPES.—Holotype: collected at light, El Salvador, San Salvador, May 1, 1957, by P. A. Berry, USNM 69609. Allotype: Mexico, Sinaloa, 27 miles east of Villa Union, July 7, 1964, H. F. Howden (Canadian National Collection). Paratypes, 6 females: 3, El Salvador, San Salvador, May 1, 1957, P. A. Berry, at light; 1, Mexico, Veracruz, Cuitlahuac, Aug. 10–12, 1964, Paul J. Spangler; 1, Mexico, Veracruz, 18 miles north of San Andres, June 1954, D. G. Kissinger; 1, Guatemala, Suchitepequez, Cuyotenango, Olimpo, Finca San Rafael, Jan. 21, 1956, J. M. Campbell, ex large detritus cavity of *Atta cephalotes* (L.), 6–8 feet deep (Canadian National Collection).

REMARKS.—This species usually shows no argillaceous coating on the elytral costae; however, the allotype does show a very fine line of this coating along each side of the costae—one of the reasons the specimen was chosen as allotype. It was also the best of the female specimens available.

The species is named in honor of Dr. Federico Islas S. of Mexico City, who described the genus and first species of this interesting and unusual group of myrmecophilous scarabs.

Cartwrightia cartwrighti, new species

PLATE 2

HOLOTYPE MALE.—Length 3.0 mm, width 1.25 mm. Elongate, subparallel; except for smooth black elytral intervals, completely covered, including legs and underside, with grayish-brown argillaceous coating. Clypeus with double anterior edge, upper and lower margins separated by fine narrow furrow extending from gena to gena, lower margin with median triangular tooth directed downward; upper margin anteriorly narrowly shining brown, very narrowly recurved, shallowly emarginate between two low, widely spaced angles, straight laterally to genal angles; genae at middle notched or angulate inward, leaving sharp angle posteriorly; posterior margin of clypeus sharply elevated above frontal-basal area of head and down laterally to genae; fine furrow ending in pit anteriorly behind gena, furrow just in front of fine carinaform margin following curvature of eye; clypeus with strong median longitudinal swelling over middle third, surface argillaceous with some masked, close moderate punctures on each side of median swelling separated by one diameter or less, elsewhere with fine indistinct punctures.



Cartwrightia islasi, new species.



Cartwrightia cartwrighti, new species.



Cartwrightia intertribalis Islas.

Pronotum quadrate, anteriorly with narrow membranous edge, slightly wider anteriorly, lateral margins shallowly doubly sinuate, narrowly explanate, angles obtusely rounded, base angulate at midline; surface with five depressed areas, large area on each side of median ridge anteriorly, median, longitudinal, wide area over basal half, and depressed area with long, deep, sharply incised, sinuate line from anterior angles diagonally back to basal fourth (pl. 2); two anterior depressed areas bordered anteriorly by wide rounded edge, on each side and in middle by rather narrow carinae, surface with numerous deep, coarse punctures running together slightly posteriorly; middle anterior carina divided like inverted tuning fork to enclose median basal area, surface of which with few deep moderate punctures toward sides; diagonal lateral depressions also with few similar punctures as well as deep incised lines; latter areas open to anterior depressions without intervening ridge; surface generally with indistinct very fine punctures.

Elytral length 2.0 mm, width 1.25 mm, with sutural and four high, sharply carinate, argillaceous, discal costae on each elytron and flat feebly shining minutely alutaceous intervals in between, intervals bordered on each side by row of very moderate punctures separated by three or four diameters except over posterior fourth, where they disappear and leave a very shiny smooth area; elytral costae with very fine smooth midline under moderate magnification, straight and parallel except at posterior ends, where first enlarged into large bulbous argillaceous mass and next three converge to mass, their ends enlarged very slightly with argillaceous coating but remaining very narrowly separated from large mass of first; diameter of enlarged end of first about equal to width between sutural and second costa, first well separated from elytral margin and covered with fine setigerous punctures separated by one to two diameters, setae fine, short, and inconspicuous.

Entire underside covered by thin argillaceous coating with alutaceous surface sculpture masking surface features. Prosternum with large wide triangular posterior intercoxal piece. Mesosternum shallowly concave with thin margin expanding to partly cover edge of middle coxae along anterior three-fifths; coxae diverging and almost meeting elytra anteriorly; middle coxae separated by width of middle femur. Metasternum with long, deep, moderately wide midline, disc with scattered, shallow, indistinct, moderate setigerous punctures, generally separated by two or more times their diameters, smooth and impunctate outward to sides; large, rough, depressed, triangular area in front of posterior coxae.

Abdominal segments alutaceous and thinly argillaceous, the last five times wider than penultimate; other segments normal. Pygidium

medially weakly ridged longitudinally, alutaceous-argillaceous with few scattered, shallow indistinct punctures.

Anterior femur surprisingly flat with weak indistinct perimarginal groove, everywhere alutaceous-argillaceous; tibia with two sharp, triangular external teeth, posterior tooth at apical fourth, inner margin ending in tooth bent downward, spur long, slender, bent inward, underside alutaceous outside a longitudinal carina to posterior tooth, smooth and shining along inside; first, last, and middle three antennal segments combined, approximately equal in length; claws short, hair-like. Middle femora and tibiae alutaceous-argillaceous with fine setigerous punctures separated generally by two or more diameters, postfemoral line complete, tibial short spur short, sharp, curved, half as long as long spur; long spur long, narrow, acuminate, half length of first tarsal segment, latter longer than remaining four combined; tarsus slightly longer than tibia in length. Posterior femur, tibia, and tarsus as in preceding.

ALLOTYPE FEMALE.—Length 3.5 mm, width 1.4 mm. Seemingly identical with male except for straight, slightly downwardly curved anterior spur of anterior tibia, and for penultimate abdominal segment, which is normal and slightly shorter than preceding segment.

TYPES.—Holotype: collected in 15-watt black light trap, Saavedra Exper. Sta., 60 miles north of Santa Cruz, Dept. Santa Cruz, Bolivia, Jan. 4, 1960, by Robert B. Cumming, USNM 69610. (The station is on the fringe of the Amazon basin, intermediate between Chaco and rainforest.) Allotype: same locality, Jan. 3, 1960. Paratype, 1 female: same data, Jan. 2, 1960, collection of Div. Plant Industry, Florida Dept. Agric., Gainesville, Fla.

REMARKS.—*Cartwrightia cartwrighti* is named after my brother Raymond Kenneth Cartwright, who, though not an entomologist, accompanied me and served as guide on many pleasant and productive field trips.

Cartwrightia intertribalis Islas

PLATE 3

Cartwrightia intertribalis Islas, 1958, p. 345.

Male.—Eight specimens: Length 3.31 mm, width 1.35 mm. Elongate, subparallel, head, pronotum, and elytral costae covered with argillaceous covering, intervals of elytra shining, dark castaneous. Clypeus with double anterior edge, upper and lower margin separated by fine narrow furrow extending from gena to gena, lower margin with median triangular tooth directed downward; upper margin angularly rounded on each side of wide shallow emargination, laterally straight to genal angles, entire anterior edge narrowly shining brown, finely recurved; genae small, margin emarginate, to sharp posterior angle;

yellowish-brown argillaceous surface of clypeus with distinct coarse punctures over large area on each side of median convexity; posterior margin of clypeus sharply elevated above frontal-basal area of head and laterally down to genae, deep pit behind gena.

Pronotum generally with argillaceous coating, more or less quadrate, anteriorly with narrow membranous edge, anterior angles broadly rounded, lateral margin sinuate to broadly rounded posterior angles, base slightly angulate posteriorly at middle; surface with five depressed areas, large area on each side of median ridge anteriorly; over basal half a median, wide, depressed longitudinal area; depressed area with deep, sharply incised line from anterior angles diagonally back to basal fourth (see pl. 3); five depressed areas separated by rounded, faintly shining ridges showing very fine punctures and alutaceous sculpture; anterior depressed areas with deep coarse punctures in argillaceous coating; most of them grouped rather closely in posterior half of depression; some coarse punctures in diagonal depressions also; none noticeable in median basal depression; sharp, deep, narrow depression just inside posterior angles visible in lateral view.

Scutellum long, narrow, parallel, three times as long as wide. Elytra 2.15 mm long, 1.35 mm wide. Each elytron with strong sutural, lateral, and discal costae, four discal costae with fine, shining, median carina bordered on each side with narrow argillaceous line; first discal costa ending posteriorly in large, swollen, argillaceous mass, hooked laterally toward ends of other costae, second and third with very slight swelling, hooked inward toward first but not quite uniting with it, end of fourth with practically no swelling; sutural costae flattened and widened posteriorly toward bulbous ends of first but remaining separated by narrow furrow; intervals flat, smooth, shining, with row of small distinct punctures on each side close to bordering costae, punctures gradually disappearing over apical declivity.

Pronotum with large, wide, triangular posterior intercoxal process. Mesosternum flattened, slightly concave, sides flaring and partly covering anterior three-fifths of middle coxae; middle coxae separated by length of middle trochanter. Metasternal midline long and deep but somewhat masked by argillaceous coating of elongate concave discal area, this area with mixed, scattered fine and moderate indistinct punctures, surface everywhere finely alutaceous; triangular depression in front of posterior coxae moderately deep and slightly scabrous.

Five visible abdominal segments narrower at middle than at sides, penultimate segment very narrow at middle, only about one-sixth length of terminal segment at middle, segments bordered anteriorly with row of indistinct close moderate punctures. Pygidium concave on each side of low, wide indistinct carina. Entire undersurface, includ-

ing legs, with thin to moderate argillaceous coating with alutaceous surface sculpture.

Anterior femora with rather heavy argillaceous coating and scattered indistinct punctures bearing short, fine, inconspicuous yellow hairlike setae; foretibiae with two terminal teeth and one lateral close by; anterior spur hooked. Middle and hind femora with thin argillaceous coating and fine hair bearing indistinct punctures as on profemur; tibiae very weakly arcuate; first tarsal segment twice as long as long spur, slightly longer than remaining four segments combined.

FEMALE.—Six specimens: Length 3.33 mm, width 1.39 mm. The only noticeable differences from the male are the straight spur of the anterior tibia and the much wider, normal penultimate abdominal segment.

SPECIMENS.—Specimens on hand were all collected by H. F. Howden 21 to 28 miles east of Villa Union, Sinaloa, Mexico, July 7, 25, 26, 1964. Specimens are in Canadian National Collection, U.S. National Museum, and the private collection of H. F. Howden.

Literature Cited

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