Studies in Neotropical Mallophaga—Part II

New Genera and Species

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Pseudocophorus n. g.

Genotype, *Pseudocophorus antennatus* n. sp.

This genus finds its closest affinity in *Philopterus*, sharing many characters in common with it, viz., shape of head, clypeal signature and structure of thorax and abdomen, but differing widely in the type of antennae and the genital armature.

The antennae are strongly dimorphic (decidedly a generic character in this group, but not in all others). The 1st. segment is greatly lengthened and swollen in the ♂, with segments 2, 3 and 4 normal and the 5th. minute, while in the ♀ the antennae are of the usual Philopteroid type. The antennal fossae are very deep in the ♂ and shallow in the ♀.

The trabeculae are small and bluntly pointed; the eyes prominent, without ocular fleck; occipital or gular plate and pharyngeal sclerite prominent. The prothorax and pterothorax, combined, are shorter and slightly narrower than the head, each segment being much wider than long.

The abdomen contains nine segments, all clearly separated in the male, but with the 8th. and 9th. almost completely fused in the female, the suture being visible only for a short distance from the margins.

The genital armature of the male is strikingly different from *Philopterus*, although there are some species now placed under that genus which seem to be an approach towards this type. The basal plate is unusually large, three times as long as broad, and extending backward to the posterior border of the 4th. abdominal segment. All movable parts are greatly reduced in size, very compact and well sclerotized and pigmented.

The parameres are much shortened, not clasper-like, but plate-shaped at the base, and with a rounded tubercle at their tips. There are very large, broad, dorsal endomeral plates, and a well-developed, undivided ventral endomeral plate.

The genus has thus far been taken only on two genera of *Cotingidae*, *Euchlornis* and *Procnias*, three species of the former and one of the latter. Superficially the parasites from the different species of hosts resemble each other closely, but careful comparison shows that all are slightly different, either in the shape of the head, thorax or abdomen, and especially in the shape of the parameres and endomeral plates. The parts of the genital armature are so minute that the differences do not, at first glance, seem to be of importance, but were these structures of the usual size, the differences would then appear very striking. Considering carefully all of these differ-

ences, it has seemed advisable to make separate species of the parasites from the different avian hosts.

Pseudocophorus antennatus n. sp.

Pl. I, figs. 1, 2, 3 and 5

Types, adult ♂ and ♀, taken from freshly killed specimen of *Euchlornis arcuata*, collected at La Cuchilla, Venezuela, June 24, 1922, by M. A. Carriker, Jr. (Types in the collection of the author.)

Male: Head about as wide as long, massive in proportion to the body, and larger than the combined segments of the thorax; preantennal area short and bluntly conical, with clypeal margin flatly convex; temples convex, scarcely divergent, with posterior angles uniformly rounded; occipital margin concave, but the occiput itself slightly convex. Trabeculae small, triangular and pointed, less than half the length of the first antennal segment in the ♂; antennal fossae deeply emarginate; antennae thickened and more than half the length of head; 1st. segment much thickened and lengthened, with swollen sides; 2nd., 3rd. and 4th. thick, but not parallel-sided, and each successive segment shorter than preceding, while the fifth segment is minute, not more than half the length of 4th.

Mandibles heavy, with massive condyles, the right one with broad, three-toothed tip, and left one pointed. Eyes very prominent, clear, with a short spine; a prominent, heart-shaped occipital signature, or gular plate. Clypeal suture prominent, hyaline, and with clypeus attached by heavy, internal, chitinized bands curving around the mandibles. No hairs on pre-antennal margin, but two rather stout ones on dorsal surface between the antennal and clypeal bands; a minute hair at base of trabeculae, and all segments of antennae with several short, stout hairs; a very long, stout hair in temporal angles and about five short bristles around temporal margins.

Prothorax quadrilateral, with sides slightly divergent (more so in ♂ than in ♀), and posterior angles rounded and furnished with one long hair and a short bristle; three longish hairs laterally on posterior margin. Heavily chitinized bands along sides and posterior margin, and with the coxae almost filling the segment. Pterothorax short and wide, about same length as prothorax, with widely divergent sides, and almost as wide as head at posterior angles, which are slightly rounded and set with a very long, heavy hair; posterior margin flatly rounded and set with about 12 hairs on each side. Middle and posterior coxae also very large, the former filling the greater part of the pterothorax, while the latter are attached to the posterior margin, and appear as under the first abdominal segment.

The abdomen is small (especially so in the ♂), being shorter than the combined head and thorax, is almost globular in shape, and is widest at the sixth segment. The pleural plates are narrow, deeply pigmented, and

overlap considerably at the sutures; the tergal plates are continuous on the first five segments, but separated at the sutures by hyaline areas; on segments 6 to 8 they are much narrower internally and do not extend to the basal plate of the genital armature. The posterior angles of the abdominal segments are bluntly rounded, set with one hair in segments 2, 3 and 4; two hairs in the 5th. and three in segments 6 to 8, while the flatly convex posterior margin of segment 9 is thickly set with long, stout hairs. There are a few longish hairs on the dorsal surface, at the posterior margins of segments 2 to 8, and a great number on the ventral surface.

Legs are short and stout, especially the coxae and femora; claws of medium length and thickness; femora and tibiae with fair number of short, stout bristles. The description of genitalia under genus need not be amplified.

Female. With the exception of the antennae, the head is the same as in the male, although the trabeculae are smaller and the antennal fossae scarcely apparent. Antennae are short, about the length of the first three segments in the male; segments 1 to 3 subequal; 4 and 5 shorter, and all about of the same thickness.

The abdomen is elongated oval, much larger than in the male, and with the tergal plates continuous across all of the segments. Segments 8 and 9 are almost completely fused, although the suture is apparent at the sides. The chaetotaxy is slightly different. There are two hairs in the posterior angles of segments 2 to 4, and three to four longish dorsal hairs grouped along anterior margin of segments 3 to 7, just inside the pleural plates. There is also a dorsal patch of stiff setae in lateral portion of segments 7 and 8, and a ventral comb of short spines extending across segments 7 and 8 in the form of a much flattened V. Segment 9 is small, slightly emarginate, and without marginal hairs.

Measurements:

	Male		Female	
	length	width	length	width
Body	1.38 mm.	—	1.64 mm.	—
Head { at trabeculae	.42 "	.33 mm.	.49 "	.40 mm.
Head { at temples		.46 "		.50 "
Prothorax	.20 "	.29 "	.21 "	.32 "
Pterothorax	.18 "	.41 "	.24 "	.48 "
Abdomen	.66 "	.62 "	.99 "	.68 "
Antennae	.30 "		.19 "	
" (1st. segment)	.13 "	.08 "	.06 "	.05 "
Basal plate of genital armature	.29 "	.13 "		

Pseudocophorus decoratus n. sp.

Pl. I, fig. 4

Types, ♂ and ♀ adult, taken from freshly killed specimen of *Euchlornis aureopectus decora*, collected at Pueblo Viejo, Sierra Nevada de Santa

Marta, Colombia, March 6, 1914, by M. A. Carriker, Jr. (Types in collection of author.)

Differs from *P. antennatus* in the following particulars: The total length is less but the head is larger; the trabeculae are shorter and thicker; the shape of the temples and occiput is the same. The shape and size of the prothorax is the same, while the pterothorax is slightly longer and considerably wider at posterior angles, with the sides much more divergent. The abdomen is shorter and wider, decidedly more globular in shape, while the pleural plates are very narrow on segments 5 to 7, and but faintly pigmented. The parameres are close to those of *P. chasmorhynchus*, but the lateral, endomeral plates seem to be of a decidedly different shape, more nearly resembling those of *antennatus*.

The female, however, differs more decidedly from that of *antennatus*. The total length is considerably less; the head is about the same length and width at temples, but the width at base of trabeculae is much less, while the whole outline of the head is much different. The front of the clypeus is more convex; the pre-antennal margins are convex, and the trabeculae minute; the occipital margin is much more deeply incised.

One ♂ and two ♀ ♀ (including the types) were taken.

Measurements:

	Male		Female	
	length	width	length	width
Body	1.33 mm.		1.57 mm.	
Head (at trabeculae)	.44 "	.36 mm.	.50 mm.	.36 mm.
Head (at temples)		.48 "		.50 "
Prothorax	.20 "	.31 "	.19 "	.29 "
Pterothorax	.20 "	.45 "	.22 "	.44 "
Abdomen	.62 "	.66 "	.90 "	.60 "
Antennae	.31 "		.18 "	
" (1st. segment)	.12 "	.08 "	.05 "	.05 "
Basal plate of genital armature	.26 "	.15 "		

Pseudocophorus peruvianus n. sp.

Pl. I, fig. 6

Types, adult ♂ and ♀, taken on freshly killed specimen of *Euchlornis i. intermedius*, collected at Auquimarca, Peru, February 11, 1931, by M. A. Carriker, Jr. (Types in collection of author.)

This species is also close to *P. antennatus*, the differences in size and shape of the various segments of the body being but slight.

The pre-antennal margins are slightly convex, as in *chasmorhynchus;* the temples are more convex laterally, and the posterior angle more uniformly rounded, while the occiput is more convex.

The prothorax has the sides *more* divergent, while in the pterothorax they are *less* divergent than in *antennatus*.

PLATE I

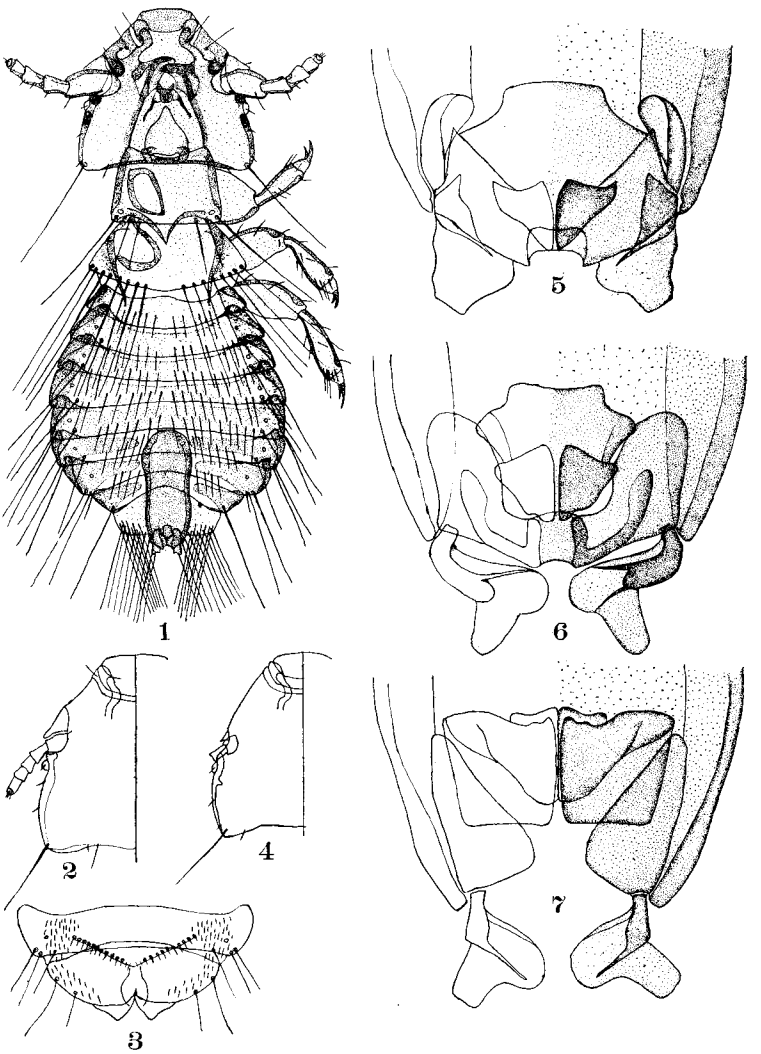

FIG. 1. *Pseudocophorus antennatus*, ♂. Fig. 2. Same, head of ♀. Fig. 3. Same, last abdominal segment ♀. Fig. 4. *P. decoratus*, head of ♀. Fig. 5. *P. antennatus*, ♂ genitalia. Fig. 6. *P. peruvianus*, ♂ genitalia. Fig. 7. *P. chasmorhynchus*, ♂ genitalia.

The abdomen is slightly wider in the male, while in the female it is both wider and longer, with the total length of the body in the female considerably greater than in *antennatus*.

The genital armature differs greatly in the shape of the different parts, especially the parameres and endomeral plates, while the basal plate is slightly longer and narrower. Three ♂♂ and three ♀♀ collected.

Measurements:

	Male		Female	
	length	width	length	width
Body	1.38 mm.		1.78 mm.	
Head (at trabeculae)	.45 "	.33 mm.	.48 "	.46 mm.
Head (at temples)		.46 "		.52 "
Prothorax	.20 "	.30 "	.20 "	.33 "
Pterothorax	.20 "	.42 "	.22 "	.47 "
Abdomen	.65 "	.66 "	1.02 "	.72 "
Antennae	.30 "		.20 "	
" (1st. segment)	.12 "	.08 "	.06 "	.05 "
Basal plate of genital armature	.30 "	.12 "		

Pseudocophorus chasmorhynchus n. sp.

Pl. I, fig. 7

Type, ♂, adult, taken on freshly killed specimen of *Procnias averano carnobarba*, collected at Heights of Aripo, Trinidad, Id., June 29, 1910, by M. A. Carriker, Jr. (Type in collection of the author.)

This species is represented by but a single male, the type. It differs from the male of *P. antennatus* in the following characters.

The antennae have the first segment much shorter, but equally thickened; the trabeculae are much more slender and more pointed; the lateral margins of the pre-antennal area are slightly convex, instead of slightly concave; the temples are more convex laterally, and with the whole occipital margin uniformly concave.

The genital armature differs more radically from *antennatus*, than do those of the other species of the genus. These differences are more clearly shown by the drawing than would be possible by a description. Both parameres and endomeres are of decidedly different shape and proportions, especially the latter.

Measurements:

	Male	
	length	width
Body	1.33 mm.	
Head (at trabeculae)	.47 "	.35 mm.
Head (at temples)		.50 "
Prothorax	.18 "	.31 "
Pterothorax	.18 "	.44 "
Abdomen	.64 "	.66 "
Antennae	.28 "	
" (1st. segment)	.12 "	.09 "
Basal plate of genital armature	.31 "	.14 "

OPISTHOCOMIELLA[1] Guimarães

Revista do Museu Paulista, Tomo XXIV, Art. 6, pp. 286, June 20, 1940.

Pl. II, figs. 2, 2 and 3

Genotype: *Opisthocomiella macropoda* Guimarães.

Translation of the original description: Philopteridae of medium size;

[1] A description of this genus and species had been included by me in the present paper, under

general form goniodes-like. Head much wider than long; pre-antennal region short; frontal margin flatly rounded, presenting an emargination on the median line; trabeculae small, and sharply pointed; no sexual dimorphism in the antennae; temporal margins but slightly divergent, and slightly convex; temporal angles inconspicuous; occipital margin deeply excavated, but only slightly re-entering; mandibles large and heavy, placed far forward; pharyngeal sclerite and glands present; gular plate triangular; antennal and clypeal bands forming a dark border heavily chitinized, whose internal extremities are separated on a level with the frontal emargination; temporal bands narrow; occipital bands extending from base of mandibles; a long hair in temporal angle.

Prothorax with divergent sides; postero-lateral angles rounded and set with a medium sized hair. Pterothorax much wider than head, postero-lateral angles rounded, furnished with two hairs of unequal length and one sensory hair. Pair of posterior legs much more developed than two anterior pairs, this enlargement much more accentuated in the male; claws of unequal size. This inequality of the claws particularly noticeable in the hind legs of the male.

Abdomen semi-cylindrical; pleural plates interrupted by a clear space from the 2nd. to 7th. segments, as much in the male as in the female; sternal plates continuous in the males. Genitalia very characteristic in both sexes.

The above characterization of the genus *Opisthocomiella* by Guimarães contains many characters which are purely specific and lacks others which I consider to be of generic significance. My characterization of this genus is as follows:

Nearest to *Goniocotes*, with which it agrees in the general shape of the head, thorax and abdomen, but from which it differs radically by the presence of a deep emargination on the rounded frontal margin of the head; pre-antennal region much reduced; mandibles massive, and greatly enlarged rear legs in the *male*.

The head is short and wide, with broadly expanded temples; pre-antennal region flattened, somewhat irregular in outline, and with a deep, median emargination, which is partially covered by a dorsal membrane.

Trabeculae entirely absent; antennal fossae rather deep; antennae similar in the sexes and eyes apparently wanting.

Thorax short and wide, the combined segments shorter than the head; the abdominal tergal plates divided medially, and pleural plates heavily chitinized.

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the name of *Hoatzinia femoralis*, and the corrected galley-proof had been returned to the editor when he discovered that L. R. Guimarães had already published a description of it in "Malofagos da Cigana," Revista do Museu Paulista, Tomo XXIV, pp. 283 a 318, June 6, 1940. A review of the genera and species contained in it is here included which adds a new genus and species to the already considerable list which has been taken on this interesting bird.

PLATE II

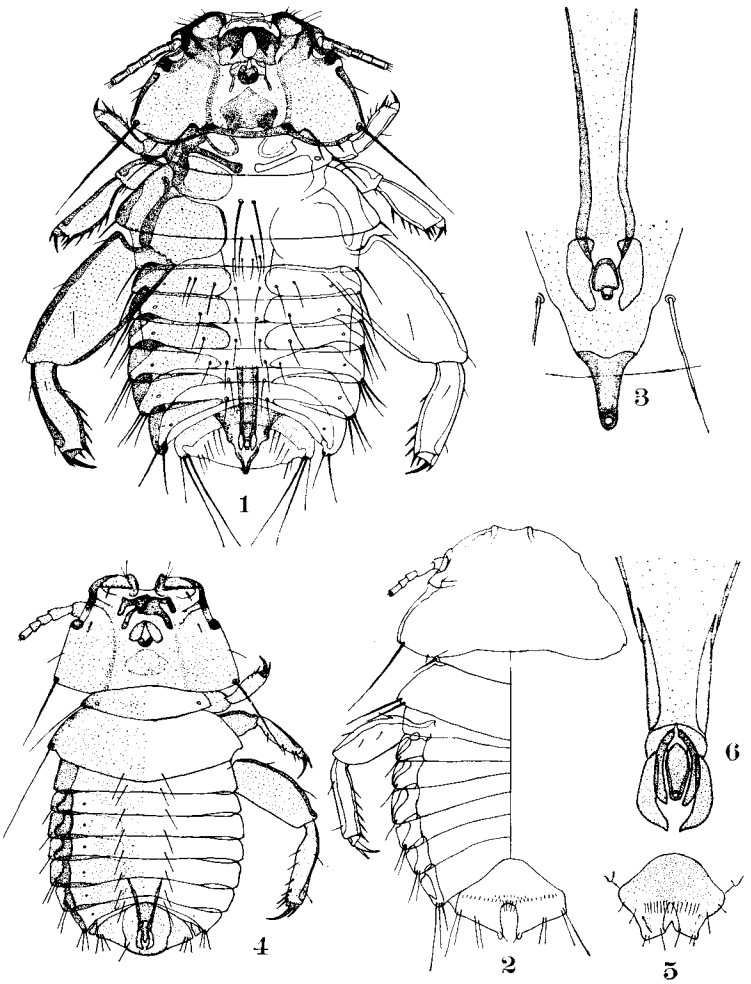

FIG. 1. *Opisthocomiella macropoda*, ♂. Fig. 2. Same, ♀. Fig. 3. Same, ♂ genitalia. Fig. 4. *Opisthocomiella curta*, ♂. Fig. 5. Same, last abdominal segment ♀. Fig. 6. Same, ♂ genitalia.

Rear pair of legs disproportionately enlarged in both sexes, but much more noticeable in the male of the genotype, while in *O. curta* they are almost equal in the sexes.

The male genitalia are small and of simple construction, consisting of a rather well developed basal plate; small, curved parameres, a median endomeral plate and penis. In *O. macropoda* the lateral endomeral plates seem to be absent or very minute, while in *O. curta* they are well developed.

The genus contains but two species, *O. macropoda* Guimarães, and

O. curta (Nitzsch). Both are found on *Opisthocomus hoazin*, usually being taken together on the same bird, but not always.

Guimarães states that small, sharply-pointed trabeculae are present. This, I think, is an error. The antennal fossae lie on the under side of the head, being covered by the dorsal integument, while there is a short, bluntly-pointed projection of the ventral integument extending partially under the first segment of the antennae, so that the antennae are actually articulated in a small groove on the side of the head. These small ventral projections under the base of the antennae cannot be classed as trabeculae.

In his description of the genotype he claims that the eyes are level with the temporal border, but as far as I can determine these organs are entirely absent.

The remainder of his description of the genotype is full and correct, the accompanying drawings being unusually clear and accurate. In a note at the end of the description Guimarães states that in two males examined by him, the 2nd. and 3rd. abdominal segments were fused on the *left side*, giving the appearance of one abdominal segment less on that side, and with two spiracles in one segment. There are no specimens in my collection which show this curious deformity.

I have specimens of this species taken from birds collected in Venezuela, Peru and Bolivia. A specimen from the Orinoco, which was selected as the type, does not agree with the measurements as given by Guimarães, and since his measurements are incomplete, I append those of the Orinoco specimens.

Measurements:

	Male		Female	
	length	width	length	width
Body	1.17 mm.		1.08 mm.	
Head (at antennae)	.34 "	.39 mm.	.34 "	.36 mm.
Head (at temples)		.62 "		.60 "
Prothorax	.14 "	.44 "	.12 "	.40 "
Pterothorax	.22 "	.69 "	.21 "	.60 "
Abdomen	.62 "	.61 "	.60 "	.62 "
Antennae	.21 "		.17 "	
Hind femora	.42 "	.20 "	.26 "	.09 "
" tibiae	.22 "	.085 "	.21 "	.06 "

OPISTHOCOMIELLA CURTA (Nitzsch)

Pl. II, figs. 4, 5 and 6

Goniocotes curtus Nitzsch, Burmeister Handb. Entomol. II, p. 432, 1838.
Goniodes curtus (Nitzsch), Zeit. f. ges. Naturw., 1866, XXVIII, p. 387.
Goniocotes curtus Nitzsch, Giebel, Insecta Epizoa, 1874, p. 189.
Goniocotes curtus Nitzsch, Taschenberg, Die Mall. Halle, 1882, p. 90.
Opisthocomiella curta (Nitzsch), Guimarães, Revista do Museu Paulista, Tomo XXIV, June 20. 1940, p. 308.

The descriptions and figures given by both Giebel and Taschenberg clearly refer to this species, and not to *O. macropoda*. Hence there can be no confusion concerning the species originally described by Nitzsch.

The female of *O. curta* closely resembles the female of *O. macropoda*, but they may be easily distinguished by the shape of the head, the deeper frontal emargination, and by the shape of the last abdominal segment.

In *O. curta* the female is larger than the male, while in *macropoda* the opposite is true. Also, in the female of *curta* the third femur is scarcely longer than the tibia (.20 mm.—.19 mm.), while in *macropoda* the femur is considerably longer (.26 mm.—.21 mm.), but *not* wider.

Another distinguishing character of *O. curta* is the straight, dorsal line (apparently a fused suture) across the front of the head (in both sexes), on a line with the inner edge of the frontal emargination.

The males are distinguished at a glance, by the enormous size of the third pair of femora in *macropoda*, and by the genital armature, *curta* lacking entirely the funnel-shaped, secondary apparatus which protrudes from the tip of the abdomen in *macropoda*. The genital armature of *curta* is of the same general type as that of *macropoda*, except that in *curta* the lateral pair of endomeres is nearly as large as the parameres. Were it not for the peculiar frontal emargination in *O. curta*, I believe it could remain in the genus *Goniocotes*. On the whole it seems to be congeneric with *O. macropoda* in spite of the differences in the genital armature and the dimorphic femora.

Measurements:

	Male		Female	
	length	width	length	width
Body	.95 mm.		1.07 mm.	
Head (at antennae)	.30 "	.30 mm.	.28 "	.30 mm.
Head (at temples)		.48 "		.48 "
Prothorax	.12 "	.34 "	.12 "	.32 "
Pterothorax	.20 "	.50 "	.20 "	.50 "
Abdomen	.53 "	.51 "	.62 "	.50 "
Hind femora	.29 "	.105 "	.19 "	.06 "
Tibiae	.21 "	.06 "		

PESSOAIELLA Guimarães

Revista do Museu Paulista, Tomo XXIV, June 20, 1940, p. 300.

Genotype: *Esthiopterum absitum* (Kellogg).

Translation of the original description: Esthiopterine type of medium size, with general coloration bright yellow. Head conical, much longer than wide, with greatest length at the temples; clypeal signature distinct, in the form of a shield. Clypeal bands interrupted dorsally at clypeal suture; ventrally this band covers a portion of the lateral border of the signature; antennal fossae of slight depth; pharyngeal sclerite and glands present; occipital bands in form of a triangle, with vertices doubled backward; temporal bands narrow and faint; temporal angles rounded. Strong sexual dimorphism in antennae, 3rd. segment in male with a prolongation at distal end; eyes but slightly protuberant. Occipital margin straight.

Prothorax trapezoidal, much narrower than the head, and with a hair at the postero-lateral angles. Pterothorax with sides slightly divergent; posterior margin forming a flatly obtuse angle in median portion.

Abdomen elongated; tergal plates interrupted medially in first seven segments; sternal plates entire in male; in the female these plates are small and oval. Six pairs of spiracles.

Genital plate in female with spines along posterior margin. Genital apparatus in male apparently unique. Basal plate short, endomeres fused, forming an endomeral plate; pseudopenis "afunilado" and more compressed than the endomeral plate.

The above generic characterization contains no characters which would separate this species from several Esthiopterine genera. The shape of the head and body is not characteristic, nor are the antennae, and the type of male genitalia is by no means unique.

I can see no valid reason for removing this species from the genus *Esthiopterum*. It is true that the pre-antennal region of the head is somewhat different from *E. hebraeum* (N), the genotype of *Esthiopterum*, but the differences, in my opinion, do not seem to be of generic significance. I would regard, therefore, the genus *Pessoaiella* Guimarães as a synonym of *Esthiopterum* Harrison.

Hoazineus Guimarães

Revista do Museu Paulista, Tomo XXIV, June 20, 1940, p. 311.

Genotype: *Colpocephalum armiferum* Kellogg.

Translation of the original description: Menoponidae of medium size. Head much wider than long; front reduced and almost round. Lateral margin of the head with but a slight emargination ventrally at base of antennae; margin in pre-ocular region with a groove, surrounded by a pigmented patch; temporal lobes rounded; occipital margin with a pigmented band; pharyngeal sclerite and glands present; antennae long, with penultimate segment funnel-shaped, and last segment conical, both with scaled integument.

Thorax with three segments; prothorax almost as wide as head; posterior margin flatly rounded; lateral angles semi-acuminate. Mesothorax very small.

Metathorax trapezoidal. Coxae of front legs expanded anteriorly; femora of posterior pair with an imperfectly delineated patch of setae. Tibiae of all legs with a row of small bristles on external border of the distal portion.

Abdomen elongated oval, segments sub-equal and furnished with a row of very small hairs along posterior margin; lateral margins flatly convex, and with numerous short, stout hairs; 4th. and 5th. sternites with patches of setae, some larger, others smaller than the general chaetotaxy of the body.

Genital region of female terminating in a border of closely set hairs. Male genitalia with basal plate long and slender; parameres strong and with tips bent outward; preputial sac "(?)" conical.

The above generic characterization contains very little of generic significance outside of the presence of patches of setae on the posterior femora and on certain abdominal segments. The genital armature is not unlike many species of the genera *Colpocephalum*, *Myrsidea* and *Menacanthus*, while the shape and markings of the head are certainly typical of *Colpocephalum* or *Heleonomus*.

I have examined a large series of *Colpocephalum absitum* Kellogg. If the presence or absence of patches of setae on the hind femora and certain abdominal segments are regarded as generic characters (as now accepted by most modern authors), this species cannot be separated from the genus *Heleonomus* Ferris.

In the description of the genus *Hoazinea* the author states that the thorax is three segmented, the mesothorax being very small, and in his figure of *H. absitum* he shows a suture separating the meso- and metathorax. A careful examination of many specimens of this species fails to reveal any suture, beyond a faint indication of it on the lateral margins of the pterothorax. The meso- and metathorax are completely fused into a typical pterothorax.

I have compared this species with specimens of *Heleonomus assimile* (Piag.) and find that it agrees perfectly in all generic characters, especially in the head and in the patches of setae located on the hind femora and on the 4th. and 5th. abdominal segments. Since there is nothing to preclude its inclusion in the genus *Heleonomus*, I can see no reason for the erection of another monotypic genus for its reception.

In my conception, the genus *Hoazineus* Guimarães represents a synonym of *Heleonomus* Ferris and hence *Colpocephalum absitum* Kellogg becomes *Heleonomus absitus* (Kellogg).

EULAEMOBOTHRION OPISTHOCOMI (Cummings)

Laemobothrium opisthocomi Cummings, Bull. Ent. Res., 1913, Vol. IV, p. 42, figs. 5, a, b.
Eulaemobothrium opisthocomi (Cummings), Guimarães, Revista do Museu Paulista, Tomo XXIV, July 15, 1940, p. 308, figs. 25, 26.

Guimarães is quite correct in placing this species under *Eulaemobothrion*, since it possesses the strong, flattened hairs on the dorsal surface of the pronotum, the principal character on which the genus was separated from *Laemobothrion*.

In addition to the interesting new genus and species described by Guimarães (*Opisthocomiella macropoda*), I have recently added another genus and a new species to the already formidable array of the ectoparasites of this curious host, viz., an undescribed species of the genus *Menacanthus*, of which a ♂ and 3 ♀ ♀ were taken in Bolivia.

The particular bird which harbored this new parasite also yielded *all* of the remaining known species which have been described from the Hoatzin, viz., *Eulaemobothrion opisthocomi* (Cummings); *Esthiopterum absitum* (Kellogg); *Opisthocomiella macropoda* Guimarães; *O. curta* (Nitzsch); *Heleonomus armiferum* (Kellogg).

A total of five genera and six species is now known from this amazing bird.

Menacanthus megaspinus n. sp.

Pl. III, figs. 5 and 6

Types, ♂ and ♀ adult, taken on *Opisthocomus hoazin*, collected at Todos Santos, Rio Chapáre, Bolivia, August 11, 1937, by M. A. Carriker, Jr. (Types in collection of the author.)

Diagnosis: The present form appears to be quite distinct from any described species. Very few known species of *Menacanthus* have the head shaped like the present one, which resembles much more the commoner forms of *Myrsidea*. The genitalia seem to be more or less unique, and decidedly different from any other species of the genus which I have seen.

There are combs of fine setae on either side of abdominal segments 3, 4 and 5, as well as on the posterior femora. The spinous processes arising from the base of the labial palpi are unusually long and heavy, and deeply pigmented. The ocular fringe of hairs is well-developed; numerous longish hairs on the head and thorax, and the abdomen with many hairs on both dorsal and ventral surfaces.

The genitalia are small, poorly chitinized and rather difficult of interpretation. The basal plate is short and rather broad, with a purse-like sac protruding from its posterior portion, while the parameres are very short and slender, lying alongside the basal portion of the protruding sac, and with their slender, pointed tip curving *outward*.

The female is considerably larger than the male, but with the abdomen of similar shape, while the same combs of setae are present on the same abdominal segments and on the femora.

The accompanying figures give a better idea of the detailed structure of the species than would a minute and lengthy description.

Measurements:

	Male		Female	
	length	width	length	width
Body	1.34 mm.		1.60 mm.	
Head	.34 "	.55 mm.	.38 "	.61 mm.
Prothorax	.24 "	.38 "	.28 "	.42 "
Pterothorax	.14 "	.46 "	.15 "	.50 "
Abdomen	.78 "	.68 "	1.02 "	.88 "
Spines on head	.08 "	.03 "	.106 "	.038 "

Genus PARAGONIOCOTES Cummings

Ann. and Magazine of Nat. Hist., Ser. 8, Vol. XVII, January, 1916, p. 101.

When Cummings described this genus he failed to designate the geno-

type, merely saying that the genus was known to him from several species, one of which had hitherto been described by Piaget under the name of *Goniocotes fasciatus*, but that it was a simple member of the genus in which the "two large recurved frontal processes, one on each side of the head, so characteristic a feature of the new species about to be described, are absent."

Harrison, later designated *P. gripocephalus* as the genotype, which fortunately fixes the generic name of *Paragoniocotes* and leaves no confusion, since *Goniocotes fasciatus* Piaget is certainly not congeneric with *P. gripocephalus* Cummings.

Cummings' characterization of the genus is very inadequate, the characters which he uses being very vague and indefinite, and more specific than generic. He says: "Head broader than long. Front margin circular, temples rounded, with an elongate bristle. Prothorax narrow, abdomen short and small. Small species infesting parrots."

I have before me adequate series of several species of the genus *Paragoniocotes*, all taken on South American parrots, one species of which is quite close to *P. gripocephalus*. I believe that one of the strongest generic characters of this genus is the presence of the heavy, curving, spine-like processes arising from each side of the frontal margin, and curving backward and inward under the first segment of the antennae, but *within* the antennal fossae. This is the same character which is so outstanding in the genera *Physconella* Paine and *Physconelloides* Ewing, and which alone seems to me to be sufficient to separate this group from its near relatives. I would therefore characterize the genus *Paragoniocotes* as follows:

Antennae subequal in the sexes, without appendages; frontal margin of head much flattened and clypeal area much reduced, the massive mandibles being located near the front of the head; temples expanded and rounded; a heavy, curving, spine-like process arising at each side of the frontal margin of the head and curving backward and inward, under the first antennal segment, the point ending within the antennal fossae; whole thorax smaller than the head; the meso and metathorax completely fused; male genitalia very large, with basal plate nearly one third the width of the abdomen; parameres massive and penis well developed. Small species found on American parrots.

Dimorphia n. g.

Genotype: *Dimorphia mirabilis* n.sp.

Closely related to *Paragoniocotes* Cummings, with which the female agrees in the character of the curving spines at base of antennae, but in the male these hooks are replaced by well developed trabeculae, while the first segment of the antennae is enormously developed. In *Paragoniocotes* both sexes have the curved spines on the head, instead of trabeculae,

while there is very little difference between the sexes in the size of the antennae. The genital armature is of an entirely different type, being highly specialized and of a type hitherto unknown to me. Both the trabeculae of the male and the hooks of the female seem to be slightly movable, they having been noted in slightly different positions in different individuals.

On the dorsal surface of the last abdominal segment of the female, on either side of the genital plate, is a cluster of three long, curving spines. Cummings makes no mention of such spines in *Paragoniocotes gripocephalus*, although such spines are present in the female of four undescribed species of this genus which are in my collection. In *Paragoniocotes* the spines are set on the *posterior margin* of the last segment and *not* on the dorsal surface well forward in that segment, as in the present genus.

The genital armature extends forward to the 4th. abdominal segment, and consists of a basal plate, well developed parameres, and two pairs of large endomeral plates, the dorsal pair being much longer than the parameres. The penis is apparently absent, but there is a pair of short, pointed appendages lying on top of and at the base of the parameres which I am unable to define. There seems to be a membrane stretched across the posterior part of the genitalia, attached on either side to the tips of the parameres, and pierced medially by the dorsal endomeral plates, while the ventral endomeral plates protrude slightly through it, or under it, just in front of the tips of the parameres.

The re-characterization of the genus *Paragoniocotes* Cummings, as given above, will apply equally well to *Dimorphia*, with the exceptions herewith noted.

Dimorphia mirabilis n. sp.

Pl. III, figs. 1, 2, 3 and 4

Types, ♂ and ♀ adult, taken on freshly killed specimen of *Ara ararauna*, collected at Chatarona, Dept. Beni, Bolivia, September 18, 1934, by M. A. Carriker, Jr. (Types in collection of the author.)

Male: Head large, with pre-antennal area very short, and front flatly rounded; temples rounded and slightly expanded laterally and posteriorly; occiput concave. Trabeculae large and slightly movable.

Antennae large, with first segment much elongated and swollen, but without appendages; 2nd. segment much smaller than first and each succeeding segment smaller than preceding. Mandibles strong, but not massive. Pharyngeal sclerite well-developed, as well as gular plate; eye rudimentary.

Thorax small, the combined segments considerably smaller than head. Prothorax quadrilateral, sides slightly sinuate and divergent, with posterior margin rounded.

PLATE III

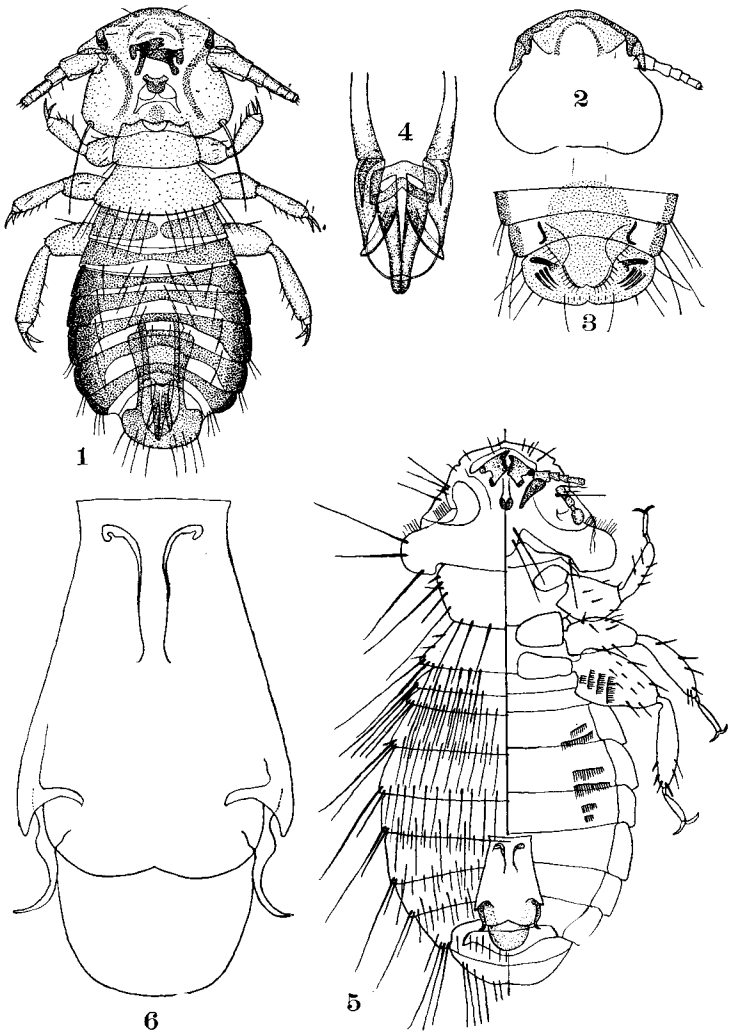

FIG. 1. *Dimorphia mirabilis*, ♂. Fig. 2. Same, head of ♀. Fig. 3. Same, last abdominal segment ♀. Fig. 4. Same, ♂ genitalia. Fig. 5. *Menacanthus megaspinus*, ♂. Fig. 6. *Menacanthus megaspinus*, ♂ genitalia.

Abdomen short, slightly wider than head, roughly oval in shape and with postero-lateral angles rounded and but slightly protuberant. Last segment much the narrowest, rounded posteriorly, and rather deeply imbedded in the 7th. Segments 5 to 7 are sharply bent forward in median portion. Pleurites continuous with tergites, but the latter are widely separated by hyaline margins of segments.

Legs of medium length and thickness, with not a great deal of difference

in size between the pairs, and with a few short bristles on tibiae and femora.

Chaetotaxy: Three short hairs on each side of dorsal surface, on the pre-antennal area and a long, stout hair, set in a pustule at the temples. First three segments of antennae with a short hair on each, and a few at tip of 5th. One weak hair in posterior angle of prothorax; a series of about 14 longish hairs along posterior margin of pterothorax. Apparently there are no hairs in the lateral angles of the first four abdominal segments, but Nos. 5 and 6 have two short ones, the 7th. three, while number 8 has four longer hairs on each side of posterior margin, and two short ones on dorsal surface. There is a longish hair at inner edge of pleurites, on posterior margins of segments 2 to 6, while segments 2 to 5 have about four hairs on median, hyaline portion.

Genital armature: This has been fully described under the generic description, and needs no further comment.

Female: Differs from the male as follows: Movable trabeculae replaced by heavy, spine-like processes which curve backward under the base of the antennae to the posterior margin of the deep antennal fossae. The antennae are filiform, with the first segment but slightly larger than the second.

The abdomen is much longer and more parallel-sided, with the 8th. segment twice as long and almost as wide as the 7th., broadly rounded, and with a slight median emargination. The genital plate is large, and shaped like a short, squat bottle pointing backward, and with a row of short hairs along the posterior margin, which extend backward to the anterior margin of the 8th. segment. On the dorsal surface are three long, very heavy, curving spines, which curve backward and inward. These spines are set in the lateral portion of the segment, near the anterior margin, and just forward of their bases lie two small, hook-shaped, heavily chitinized plates.

The pleural plates are similar to those of the male, except that they are thickened and heavily chitinized along their lateral borders. The tergal plates are not entire, as in the male, but divided medially by a wide hyaline area in all segments except the 8th.

Measurements:

	Male		Female	
	length	width	length	width
Body	1.18 mm.		1.58 mm.	
Head	.35 "	.39 mm.	.40 "	.44 mm.
Prothorax	.16 "	.23 "	.15 "	.34 "
Pterothorax	.15 "	.34 "	.13 "	.37 "
Abdomen	.64 "	.49 "	.82 "	.45 "
Antennae	.22 "		.18 "	
" (1st. segment)	.10 "	.06 "	.045 "	.043 "

Hypocrypturellus n. n.

Shortly after the publication of my monograph on the Lice of the Tinamous, Mr. Paul H. Oehser, of Washington, called my attention to the fact that one of the names I had used for a new genus was preoccupied, viz., *Hypocryptus* Carriker, Proc. Acad. Nat. Nat. Sciences Phila., Vol. LXXXVIII, 1936, page 178, with the genotype of *Strongylocotes (Lepidophorus) coniceps* Tasch. The name had previously been used in Hymenoptera: Ichneumonidae, by A. Förster, Verh. Ver. Rheinlande, vol. 25, p. 198, 1868. I therefore now propose the name *Hypocrypturellus* for *Hypocryptus* Carriker, 1936.

CUCLOTOGASTER LATICORPUS Carriker

Proc. Acad. Nat. Sciences Phila., Vol. LXXXVIII, 1936, p. 67, Text plate I, fig. 2.

This species was made the genotype of a supposedly new genus, and was collected from *Crypturellus s. soui*, El Callao, Venezuela. The type was a female, no males having been taken. A second female was in the collection which was taken from *Crypturellus soui modestus*, on the Rio Sixola, Costa Rica.

Miss Clay later called my attention to the fact that this species seemed to resemble very closely the ordinary chicken louse, *Lipeurus heterographicus* Giebel, for which she had recently erected a new genus, *Gallipeurus* (P. Z. S. 1938, vol. 108, pt. 2, p. 135).

She requested me to compare the type with *Lipeurus heterographicus*, and report the results. I did so, and found them to be identical. However, since *Lipeurus heterographicus* had already been made the genotype of *Gallipeurus* Clay, which is unquestionably a valid genus, the generic name *Gallipeurus* Clay becomes a synonym of *Cuclotogaster* Carriker, while the species *Cuclotogaster laticorpus* Carriker becomes a synonym of *Cuclotogaster heterographus* (Giebel).

It will always remain a mystery to me how those two specimens of *C. heterographus* were taken on two individuals of *Crypturellus*, and at such widely separated localities. My only explanation is that both specimens of the Tinamou were shot in thick brush near the outskirts of settlements where domestic fowls were abundant, and strayed far into the surrounding shrubbery, and that the Tinamous may have used the same "dusting" spot which had been used by a domestic fowl, and picked up the parasite there.

NIRMOCOTES Carriker

Proc. Acad. Nat. Sciences Phila., Vol. LXXXVIII, 1936, p. 78.

Genotype: *Nirmocotes orbicularis* n. sp.; host, *Crypturellus tataupa*, Marajo, Brazil.

This genus was created for what appeared to be four species of lice, closely related to *Strongylocotes*, but differing from it so materially that it

seemed advisable to place them in a separate genus. Two of these species were represented by a single immature female (?); the third by two immature females; and the fourth by four females and one male, also immature, but much more nearly adult than the others.

I was not entirely convinced that these species had been properly allocated, but decided to leave them temporarily as published.

Col. Meinertzhagen later called my attention to their resemblance to *Strongylocotes*, and suggested that they might possibly be the young of that genus, but as material was still lacking to substantiate this supposition, nothing could be done at that time.

However, in a collection of Mallophaga recently made by me in Mexico for the Smithsonian Institution, I find a splendid series of specimens of an apparently undescribed species of *Strongylocotes*, where all stages of development are present, from the very young to the adult. In the younger stages we have typical examples of "*Nirmocotes*," which later assume all of the characters of *Strongylocotes*.

Therefore, I am now fully convinced that all specimens described by me under the generic term of *Nirmocotes* are, in reality, forms of *Strongylocotes*, and the synonymy of the group should stand as follows:

Nirmocotes Carriker, 1936 equals: *Strongylocotes* Taschenberg, 1882 (juv.)
Nirmocotes orbicularis Carriker (p. 79) = *S. complanatus* (Piaget) juv.
N. glabrous Carriker (p. 82) = *S. complanatus* (Piaget) juv.
N. cordiceps Carriker (p. 83) = *S. cordiceps* (Carriker) juv.

No species of *Strongylocotes* has been recorded from this host (*Tinamus m. major*), so that we do not know the adult, which will have to be redescribed under the name of *S. cordiceps* (Car.), whenever material is available. It will probably be of the general type of *S. subspinosus* or *S. angulocapitis*, since the recently collected specimens of this genus on *Tinamus major robustus*, from Mexico, have the triangular shaped head typical of those forms, with the median spur on the clypeal band absent.

Nirmocotes nirmoides Carriker (p. 80) equals *Strongylocotes complanatus* (Piaget) juv. I have recorded two species of *Strongylocotes* from *Crypturellus obsoletus punensis* (host of *Nirmocotes nirmoides*), viz: *S. c. complanatus* and *S. subconiceps*. The single male of *subconiceps* came from a bird shot at Calabatea, Bolivia, while the host of *Nirmocotes nirmoides* was collected at La Oroya, Peru, and no adult specimens of *Strongylocotes* were found on it. Furthermore, a careful comparison of *Nirmocotes nirmoides* with *S. c. complanatus* and *S. subconiceps* shows that in all probability it is the immature of the former, rather than the latter.

PSEUDOLIPEURUS MACROGENITALIS (Barros Netto)

Esthiopternum macrogenitale, Contribuiçao oa Astudo genero *Esthiopterum*. Faculdad de Medicina de Sao Paulo, 1933, p. 43, Pl. VIII–IX.

This species is a typical *Pseudolipeurus* and very close to *P. genitalis* Carriker. The genital armature is almost identical in every respect; the

antennae are practically the same, the only apparent differences being in the shape of the head and the pterothorax. It is possible that *genitalis* will prove to be a subspecies of *macrogenitalis*, but specimens must be compared before this can be definitely settled.

P. genitalis differs from *macrogenitalis* in having a longer head with much narrower temples; the pterothorax is wider in the posterior portion, having the sides divergent (posterior to the meso-metathoracic suture), while in *macrogenitalis* this segment is narrower at the posterior end than at the suture. There seem to be differences in the shape of the clypeal signature, but this is not clear from the description or figure. Until careful comparison can be made between specimens of the two forms, I consider it better to leave them as distinct species.

STRONGYLOCOTES LIMAI Guimarães

Folia Clinica et Biologica, Anno VIII, 1936, No. 2, S. Paulo, p. 48.
(Collected on *Crypturellus undulatus vermiculatus* and *C. u. undulatus*.)

Although I have not seen specimens of this species, I am convinced that it is the same as *S. complanatus interruptus* Carriker (1936, p. 85).

The type of *S. c. interruptus* was taken on *Crypturellus atrocapillus*, but specimens of the parasite from *C. u. undulatus* proved to be inseparable.

Guimarães informs me that the publication containing the description of his species appeared on May 10, 1936, while my own was dated March 31 of the same year, thus giving priority to *S. complanatus interruptus* Carriker, of which *S. limai* Guimarães becomes a synonym.

Guimarães deserves credit for having rejuvenated the generic name *Strongylocotes* of Taschenberg simultaneously with the author and using it in its proper place.

GONIOCOTOCANTHUS Guimarães

Revista do Museu Paulista de Universidade de S. Paulo, Tomo XX, 1936, p. 225.

This genus was proposed for a new species of louse collected on the Ground Dove, *Columbagallina m. minuta*. Guimarães must certainly have overlooked the genus *Physconelloides* Ewing, when he published this paper.

There is no question but that the two are congeneric, although the species *G. mattogrossensis* Guimarães, from *Columbagallina*, is distinct from *P. ceraticeps* Ewing, from *Leptoptila ochroptera*.

Therefore, *Goniocotocanthus* Guimarães, 1936, becomes a synonym of *Physconelloides* Ewing, 1927, and *Goniocotocanthus mattogrossensis* Guimarães becomes *Physconelloides mattogrossensis* (Guimarães).