

STUDIES IN NEOTROPICAL MALLOPHAGA (VIII)

ISCHNOCERA OF THE AMERICAN PSITTACIDAE, PART 1.

GENUS PARAGONIOCOTES

by

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INTRODUCTION.

This is the first of a series of papers which will treat of the Mallophaga of the American Parrots, concerning which very little has been published, and from which very few species have been recorded. The material used in the preparation of this series has been almost entirely collected by the author, from birds shot by him or his native collectors, ranging over a long period of years, and includes material from Mexico, Costa Rica, Colombia, Venezuela, Peru, Bolivia and Brazil.

All measurements are given in millimeters, and all drawings were prepared by the author and every effort has been made to have them mathematically correct in all details.

The next paper of this series will treat the genus *Epipsittacus* Carriker (*nom. nov.* for *Dimorphia* Carriker, 1940, preoccupied. See: Stud. in Neotr. Mall. III, p. 233).

Genus PARAGONIOCOTES Cummings.

Genotype: *Paragoniocotes gripocephalus* Cummings.

The characterization of this genus by Cummings is very meager, in fact, his generic description, without the description of the genotype, might easily apply to any one of two or three genera. In reality, no genotype is designated.

He says: "This is a new parrot genus known to me by several species, only one of which has hitherto been described, viz., the species from *Calopsittacus novae-hollandae*, named in 1880 by Piaget, *Goniocotes fasciatus*." "*G. fasciatus* is a simple member of the genus in which the two large, recurved frontal processes on each side of the head, so characteristic a feature of the new species about to be described, are absent."

No other species, except *gripocephalus*, belonging to the genus, is mentioned, and since I do not consider that *Gc. fasciatus* Piaget is congeneric with *P. gripocephalus* Cummings, I herewith designate *P. gripocephalus* as the genotype of *Paragoniocotes* Cummings, and would

characterize the genus as follows:

Small Ischnocera, probably closest systematically to *Degeeriella*, infesting several genera of New World parrots (*Psittacidae*). No sexual dimorphism other than smaller size and shorter and rounded, temples expanded and rounded, and occipital margin more or less concave; antennae simple, with first joint short and slightly thickened; second the longest, third and fourth shorter and subequal; trabeculae replaced by long, heavy, recurved spinous processes in *both sexes*, such as are found in the genera *Physconella* and *Physonelloides*.

Prothorax small, quadrilateral, wider than long (the exposed portion); pterothorax also short, much wider than prothorax, with divergent sides and rounded posterior margin. Abdomen in male very small, rounded oval; in female much longer, from elongated oval to almost parallel sided; tergal and sternal plates widely separated medially in both sexes and in all segments except VIII (sternite II continuous in a few species in male); segment VIII in male large and rounded, in female also longer than VII, but much wider than long and with a bipartite tip.

Segment VIII in female bears on each side, near posterior margin, on ventral side, a comb of three long, heavy, slender pointed spines, and a ventral genital plate with the circular posterior margin fringed with short, stiff hairs; in addition to this plate another longer one covers the median portion of segments VI and VII, and sometimes part of VIII.

The male genital armature is complicated and highly specialized; basal plate very large, often as long as segments II to VII inclusive; paramers heavy, more or less incurved and pointed apically; apparently two pairs of lateral, dorsal, endomeral sclerites in addition to a median plate which Cummings calls the penis, but which I hesitate to accept, after the examination of the genitalia of eight species and subspecies of the genus, preferring to call it the telemeron.

Briefly, the genus may be recognized easily by the heavy, recurring trabecular spines in *both sexes*; by antennae similar in the sexes; by widely separated tergal and sternal plates in *both sexes* and by the two combs of long, heavy spines in segment VIII of the female, and which are attached near the *posterior margin of the segment* (the location of these spines is very important, since they are also present in the females of *Epipsittacus* Carriker (equals *Dimorphia* Carriker), but in that genus they are located near the *anterior margin* of segment VIII).

I have collected this genus from the following genera of parrots: seven species on *Amazona*; four species on *Pionus*; one on *Pianopsitta* and one on *Pyrilia*. It seems to be replaced by *Epipsittacus* on the avian genus *Ara*, as well as on some of the *Aratinga* group.

Paragoniocotes gripocephalus Cummings.

Paragoniocotes gripocephalus Cummings, Ann. & Mag. of Nat. Hist., Ser. 8, vol. 17, January, 1916. Host: *Amazona augusta* (G.R.Gray), equals *A. imperialis* Richmond.

This species has been very elaborately described and figured by its author, the only character of importance left slightly in doubt being the position and size of the two combs of three spines on segment VIII of the female.

The identity of the host, unfortunately, remains somewhat in doubt. *Chrysotis augusta* G. R. Gray (equals *Amazona imperialis* Richmond) is a resident of the West Indian Island of Dominica, while Cummings says that the label in the tube containing the specimens also had the words "August Amazon" (sic). If the host came from anywhere on the Amazon River it obviously could not have been *Amazona imperialis*. None of the material in my collection, from *Amazona*, can be referred to *gripocephalus*, all but two species having the male genitalia very different. There are two species, *P. cornutus* n. sp. from *Amazona f. farinosa* (Rio Beni, Bolivia) and *P. mercenarius* from *A. mercenaria*, which have the genitalia of the same type as in *gripocephalus*, so that I am a bit doubtful about *A. imperialis* being the correct host for *gripocephalus*, and this can only be definitely determined by securing material of the genus from that host.

All of the species of *Paragoniocotes*, which I have seen, form a very homogeneous group, differing among themselves in the shape and proportions of the head, thorax and abdomen; in the genital plates and shape of segment VIII in the female, and in the size, shape and proportions of the component parts of the male genital armature, while the type of genitalia differs somewhat in the groups of parasites from different avian genera.

Paragoniocotes cornutus new species

Fig. 1 (a, b, d).

Types: Male and female, adults, from *Amazona f. farinosa*, collected by the author at Chatarona, Rio Beni, Bolivia. Sept., 1934; in coll. of the author.

Diagnosis: Of all the species I have seen, this one resembles most that of *gripocephalus*, but differs from it as follows: The whole insect is smaller; the head is proportionately narrower, with narrower pre-antennal margin, while the trabecular spines are much longer and thicker, extending beyond the posterior margin of 1st segment of the antennae; the pterothorax is much narrower, while the abdomen is much smaller in both sexes; there are fewer hairs on segment VIII

in the male, while on the posterior margin of the pterothorax there are but four hairs on each side instead of six. There is a slight dimorphism in the shape of the head, the female having the frons slightly wider than the male. The occipital margin is uniformly concave, the occiput not being sharply convex, as shown in the figure of *gripocephalus*; the sides of the pterothorax are uniformly convex.

The male genital armature differs considerably. The paramers are much thicker apically, with channeled tips, while the median portion is sharply constricted laterally; the outer endomeral plate is longer, more pointed distally and narrower medially; the inner endomeral sclerite has the tip curved outward, instead of inward, the whole plate being uniformly curving. The median plate, called by Cummings "the penis", I prefer to call the telemeron, and this plate is very similar to that of *gripocephalus*, except that the tip is much wider; there are two shorter, apical, lateral spines (instead of one longer spine), while the lateral margins of the tip are not serrated.

The figure of *gripocephalus* does not show the characteristic arched support across the base of the basal plate, to ends of which are usually attached the paramers and endomeres.

Measurements:	male		female	
	length	width	length	width
Body	.96		1.32	
Head { frons	.34	.32	.41	.37
temples				
Prothorax	.135	.228	.195	.26
Pterothorax	.13	.337	.185	.41
Abdomen	.477	.38	.75	.54
Antennae	.174	—	.185	—
Basal Plate	.205	.12		
Paramers	.163	.077		
Telemeron	.112	.038		

Paragoniocotes mercenarius new species.

Fig. 1 (c, e, f).

Types: Male and female, adults, from *Amazona mercenaria*, collected by the author on Mt. San Lorenzo, Sierra Nevada de Sta. Marta, Colombia, Sept. 4, 1945 (in coll. of U. S. Nat. Mus.).

Diagnosis. — Closely related to *P. cornutus*, agreeing with that species in some characters, but differing in others. The male genitalia which seem to furnish excellent specific characters in this genus, are very close to *cornutus*, which differs strikingly in this respect from most of the other species treated in this paper.

P. mercenarius differs from *cornutus* as follows: Both sexes are larger in all measurements. In the male (especially) the temples are more flattened laterally, while the frons is much wider, giving the

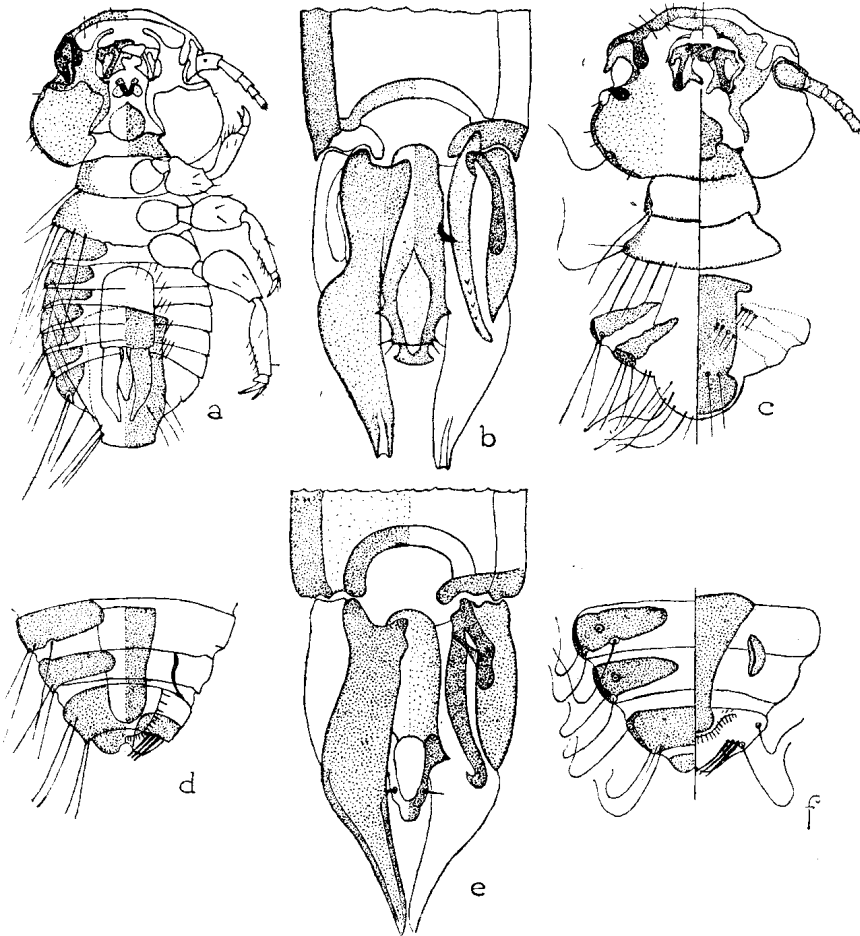


Fig. 1. — *Paragoniocotes cornutus* n. sp.: a, body of ♂ ; b, genitalia of ♂ and d, tip of ♀ abdomen. *Paragoniocotes mercenarius* n. sp.: c, head, thorax and tip of ♂ abdomen, e, ♂ genitalia and f, tip of ♀ abdomen.

head quite a different shape from *cornutus*. The trabecular hooks (equal *clavi* of Clay) are shorter and thicker, while the antennae are also thicker. The mandibles are *massive*, much larger than in *cornutus*. The abdomen is more oval in shape, with terminal segment much larger, and rounded posteriorly, and with different chaetotaxy; the tergites are narrower, and the large sternal plate covering median portion of segments IV to VIII is very differently shaped (see figs.).

The female also differs in shape of temples, but especially in the shape of the terminal abdominal segments and the large genital pla-

te. The male genitalia differ but little in size and general structure from those of *cornutus*. The paramers are not constricted medially and are much more slender apically and lack the channelled tips. The endomerical rods differ slightly in detail, but the general type is the same, as well as the circular brace across the base of the basal plate. The telemeron differs but slightly, being narrower apically, with a different shaped tip, and with but one spine on each side apically instead of two, as in *gripocephalus*. The type series consists of 4 males and 4 females.

Measurements of types:	male		female	
	length	width	length	width
Body	1.13	—	1.47	—
Head	frons	.415	—	.455
	temples	.37	.485	.415
Prothorax	.15	.25	.185	.28
Pterothorax	.14	.358	.16	.415
Abdomen	.56	.51	.87	.673
Antennae	.185	.045	.206	.046
Basal plate	.217	.115		
Paramers	.175	.108		
Telemeron	.108	.05		

Paragoniocotes heterogenitalis heterogenitalis new species.

Types: Male and female, adults, from *Amazona aestiva xanthopteryx*, collected by the author at Samaipata, Bolivia, Nov. 10 1937; in coll. of the author.

Diagnosis: In the male the head is equal in length to *gripocephalus*, and a trifle longer than in *cornutus*, but the width at trabecular spines is much greater than the latter, being almost equal to the temples (.40 against .435), while in *cornutus* it is .32 against .423 (temples in *gripocephalus*, .50). The trabecular spines are massive, larger even than in *cornutus* (still longer in female); the front is more flatly rounded than in *cornutus*, and has the same median depression; the occipital margin is but slightly concave on each side of the barely convex occiput; the prothorax is nearly the same size as in *cornutus*, but the pterothorax is smaller.

The tergites almost meet medially on segment I, while in II they are more widely separated, but connected by a narrow sternal sclerite. The basal plate is much shorter, and some narrower. The paramers are shorter and thicker and not incised on the outer margin in basal portion (see fig.); the outer endomerical plates are much shorter and wider, while the inner sclerites are shorter, and curved inward apically as in *gripocephalus*, and lack the short spicules on apical portion which are present in both *gripocephalus* and *cornutus*. The most striking difference in the genitalia is the shape of the telemeron (called "penis" by Cummings), which is shorter and very wide, entirely

without apical spines or serrations, but thickened along the lateral margin.

The is very little difference between the sexes, except that the female has the pre-antennal area narrower, or rather the temples wider; the abdomen is longer, but little wider, while the narrow median sternite on segment II is absent.

The genital plate is wider in anterior portion and segment VIII is wider; the three long spines are longer than in *cornutus*. The type series consists of 2 males and 2 females.

Measurements of types:	male		female	
	length	width	length	width
Body	1.08		1.34	
Head				
frons	.355	.40	.41	.39
temples		.435		.46
Prothorax	.14	.22	.16	.25
Pterothorax	.115	.315	.14	.37
Abdomen	.575	.41	.78	.456
Antennae	.185	—	.18	—
Basal plate	.14	.10		
Paramers	.143	.043		
Teleméron	.097	.07		

Paragoniocotes heterogenitalis similis new subspecies

Fig. 2 (c, e).

Types: Male and female, adults, from *Amazona aestiva aestiva* collected by Plaumann at Nueva Teutonia, Brazil, October 26, 1938; in coll. G. H. E. Hopkins.

Diagnosis: Differs from *heterogenitalis* as follows: Head in male slightly longer, narrower at frons and wider at temples; in female slightly longer and much wider at both frons and temples; the trabecular spines are much smaller, about as in *gripocephalus*.

Both pro- and pterothorax are larger in both sexes, as well as the abdomen. The genital armature, while of same general type, as in *heterogenitalis*, differs sharply in shape and proportionate size of component parts. The paramers are short and thick, tapering sharply to the narrow, channeled tips, while the basal portion is cut off obliquely to almost a point where it is attached. The outer endomeral plate is longer, narrower, and differently shaped, as well as the inner endomeral sclerite, which is considerably thickened in basal portion, with long, slender, incurving tip, and without spicules, while it extends backward to the distal end of the teleméron. The teleméron is also differently shaped, and without a clear, median portion, as in *heterogenitalis*, *cornutus* and *gripocephalus*.

In the female abdominal segments VI and VII are wider (transversely), but VIII is about the same, while IX (?) is very small, and barely notched in median portion.

Type series consists of 1 male and 2 females. The male and female types will be returned to Dr. Hopkins as soon as conditions permit, while the single female paratype will remain in the collection of the author.

Measurements of the types:	male		female	
	length	width	length	width
Body	1.15		1.50	
Head { frons	.37	.38	.43	.45
} temples		.455		.545
Prothorax	.15	.24	.185	.28
Pterothorax	.14	.35	.185	.412
Abdomen	.60	.46	.87	.67
Antennae	.205	—	.22	—
Basal plate	.16	.123		
Paramers	.133	.097		
Telemeron	0.74	0.77		

Paragoniocotes tenuigaster new species.

Fig. 2 (f).

Type: Female, adult, from *Amazona tucumana*, collected by the author at Padilla, Bolivia, January 12, 1938; in coll. of the author.

Diagnosis: This species is represented by two females (including the type), and without the male genitalia it is rather difficult to separate it from closely related species. The abdomen is short, and narrower than in most species; the head has the frons considerably narrower than the temples (.38 against .48); the trabecular processes are long and heavy; the prothorax has the sides strongly convex, and is of normal size; the pterothorax is the smallest of any female I have seen (.14 by .347).

I hesitate to describe this species solely on the basis of the female characters, but there are several characters, or rather combination of characters which seem to differentiate it decisively from the other females here treated, especially the small pterothorax, and when the male sex is known I am positive that the genitalia will present distinctive characters.

Measurements of the type:	female	
	length	width
Body	1.21	
Head { frons	.40	.38
} temples		.48
Prothorax	.16	.245
Pterothorax	.14	.347
Abdomen	.68	.47
Antennae	.174	

Paragoniocotes mexicanus new species.

Fig. 2 (h).

Type: Female adult, from *Amazona a. autumnalis*, collected by the author at Tres Zapotes, Vera Cruz, Mexico, March 25, 1940; in coll. U. S. Nat. Mus.

Diagnosis: This species also rests solely on the characters of the female, of which but two specimens were taken, but there seem to be outstanding characters which differentiate it. The head has the frons decidedly sinuate, with the clypeal band reduced to a narrow line at the base of the long, heavy trabecular processes, then widens abruptly into an unusually shaped, much thickened base, which covers the basal half of the trabecular spines, and ends in a *point* (this end is almost always broadly rounded); the occipital bands are broad medially, tapering to slender tip at sides of anterior margin of prothorax. The abdomen is unusually wide, decidedly oval in shape, and with the genital plate short and wide, with the sides emarginate medially. The two specimens are not in first class condition, so that some of the characters are not perfectly clear, while the fringed plate in segment VIII is quite invisible, but I would not say that it was absent.

Measurements of type:	female	
	length	width
Body	1.24	
Head { frons	.395	.358
{ temples		.477
Prothorax	.16	.25
Pterothorax	.15	.38
Abdomen	.695	.50
Antennae	.174	

Paragoniocotes microgaster new species.

Fig. 2 (g,i).

Type: Male, adult, from *Amazona albifrons*, collected by the author at Tres Zapotes, Vera Cruz, Mexico March 21, 1940; in coll. U. S. Nat. Mus.

Diagnosis: This species is characterized by the very large, wide head, a very small thorax and abdomen, and large genital armature, of a decidedly distinct type.

The temples are .10 mm. wider than the length of the head (.435), with frons only .355 mm.; the trabecular processes are short and thick, as in *gripoccephalus*; the occipital bands are short, fading out before reaching the anterior prongs of the prothorax. There seems to be a median sternite on segment II (not shown in figure), but since that area is obscured by foreign matter, this is not positive.

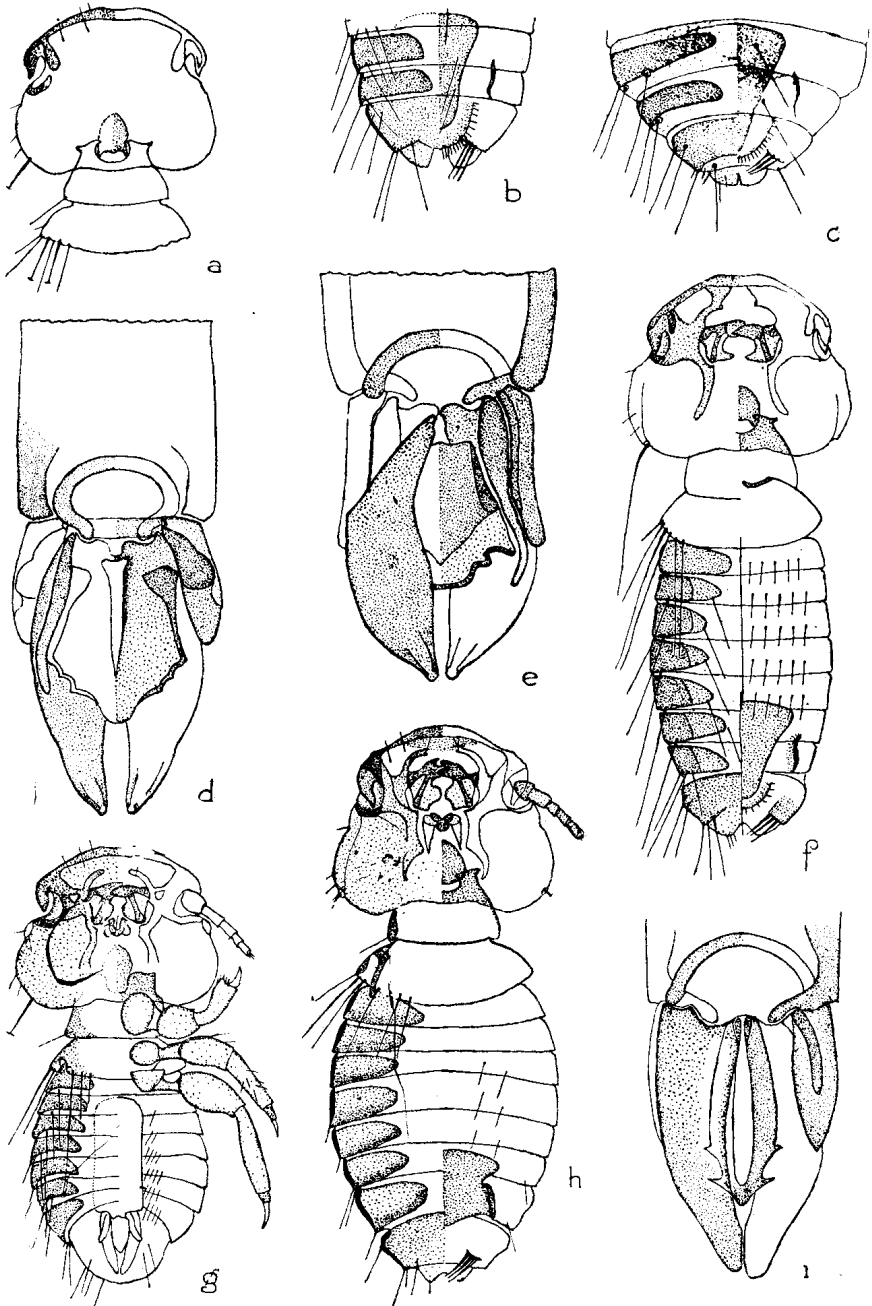


Fig. 2. — *Paragoniocotes heterogenitalis heterogenitalis* n. sp.: a, head and thorax of ♂, b, tip of ♀ abdomen and d, ♂ genitalia. *Paragoniocotes heterogenitalis similis* n. sp.: c, tip of ♀ abdomen and e ♂ genitalia. *Paragoniocotes tenuigaster* n. sp.: f, body of ♀ *Paragoniocotes mexicana* n. sp.: h, body of ♀ *Paragoniocotes microgaster* n. sp.: g, body of ♂ and i, ♂ genitalia.

The genital armature is unique for the genus. The paramers are short and thickened, with wide, bluntly rounded tips and wide bases; the outer endomeral plate is well developed, wide, and more than half the length of the paramers, while the inner endomeral sclerite is short and narrow, and seems to lie on top of the outer plate.

The telemeron is of similiar shape to that of *gripoccephalus* and *cornutus*, being narrow and long, nearly three fourths the length of the paramers, and has a strong spine on each side of tip, and another a short distance behind it, while there is a large median clear area running nearly the whole length of the plate. Species represented by the type.

Measurements:	male type	
	length	width
Body	.91	
Head	.337	} .435
frons		
temples		.355
Prothorax	.12	.217
Pterothorax	.13	.293
Abdomen	.45	.38
Antennae	.185	—
Basal plate	.13	.10
Paramers	.137	.087
Telemeron	.097	.04

Paragoniocotes acutifrons new species.

Fig. 3 (a, d, e).

Types: Male and female, adults, from *Pionopsitta m. melanotis*, collected by the author at Incachaca, Cochabamba, Bolivia, Apr. 23, 1937; in coll. of the author.

Diagnosis: This species has a long head, with wide frons and rather small trabecular processes; the frons is differently shaped from all of the species treated above being roughly truncated conical, with the median portion very flatly convex (not concave as in other species), and the sides very slightly concave; the temples are straighter on the sides (not uniformly rounded), while the occipital margin is merely sinuate.

Both pro- and pterothorax have the sides strongly convex; there is very little difference in the shape of the abdomen in the two sexes; the tergites are widely separated medially, except on segment I, while the narrow median sternite is present on segment II, uniting the inner ends of the tergites.

In the female the abdominal plates are as in the male, except for the median sternite on segment II (this sternite is present *only* in the males). The genital plate is very differently shaped (see fig.), wide and short, and with deeply incised lateral margins, and with

a narrow, curving bar across the lateral portion, posterior to the lateral constriction. In the median portion of segment VIII there are *two* circular fringes of setae, one within the other. The outer, posterior fringe extends over segment IX, and has the setae finer and set more closely together. These two fringes of setae are on the ventral surface, but it is not clear whether the two combs of long spines are dorsal or ventral.

The male genitalia, while being of the same general type as in *heterogenitalis*, are of quite distinct shape and proportions (see figs.). The paramers are of medium length, wide at base, and taper gradually to slender, slightly out-curving, non-channeled tips; the outer endomeral sclerite is short and thick, and is attached in front of the paramer, on the *side* of the circular bar at the distal end of the basal plate; the inner endomeral plate is long and very slender apically, sinuate medially, and with tip incurved, while it extends almost to the end of the telemeron. The inner endomeral plates are apparently superimposed on the paramers, while the outer ones are largely *outside* of the paramers. The telemeron is somewhat less than half the length of the paramers, broad at base, tapers sharply, and is deeply incised just back of the expanded tip.

The type series of the species consists of 6 males and 6 females.

Measurements of types:	male		female	
	length	width	length	width
Body	1.12		1.40	
Head { frons	.39	.38	.435	.412
{ temples				
Prothorax	.16	.25	.175	.27
Pterothorax	.14	.358	.155	.412
Abdomen	.59	.44	.78	.545
Antennae	.174	—	.195	—
Basal plate	.16	.12		
Paramers	.12	.056		
Telemeron	.066	.06		

Paragoniocotes longulufrons longulufrons new species.

Fig. 3 (b, c).

Types: Male and female, adults, from *Pionus corallinus*, collected by author at Samaipata, Bolivia, November 12, 1937; in coll. of the author.

Diagnosis: In this species we have the head shaped very much as in *acutifrons*. The width of the frons in the male is the same as the total length of head with the temples slightly wider (.05 mm.); the front is, however, slightly concave (not convex as in *acutifrons*), while the trabecular processes are small (the sides of

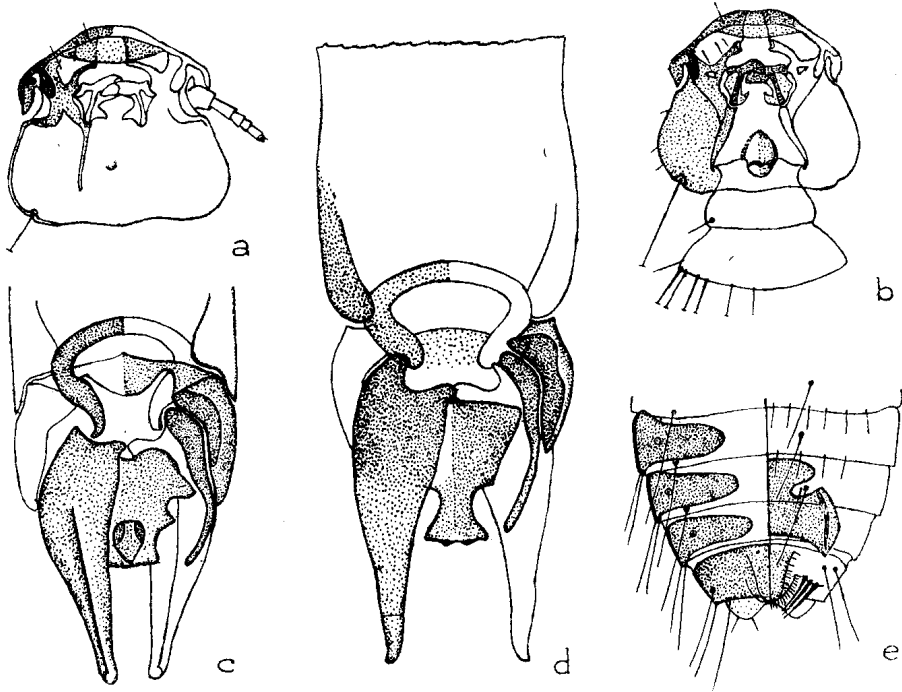


Fig. 3. — *Paragoniocotes acutifrons* n.sp.: a. head of ♂ d. ♂ genitalia and e. tip of ♀ abdomen. *Paragoniocotes longulufrons longulufrons* n.sp.: b. ♂ head and thorax, and c. ♂ genitalia.

the frons are not quite as concave as shown in the figure); the temples are uniformly rounded and the convex occiput wider than in most species.

The sides of the prothorax are strongly convex on the exposed portion, but incised under the head; the sides of the pterothorax are flatly rounded. The abdominal tergites are as in *acutipennis*, in segment I almost touching medially, with the narrow sternite present in segment II.

The male genital armature resembles somewhat that of *acutifrons*, with paramers wide at base and tapering from ends of outer endomeral plates to slender tips, but their apical portion is deeply channeled for more than half of their entire length. The outer endomeral plates are short and thickened, and lie entirely outside of the paramers, while the inner sclerites are almost exactly as in *acutifrons*, thickened basally, sinuate medially, and with long, slender, incurving tips reaching to the distal end of the telmeron, while a portion of the base is *outside of* the paramers, the remainder superimposed. The telmeron is short and wide (less than half the length of the

paramers), with tip wide and truncate and the sides deeply incised near the tip. Just within the truncate tip of the telemeron lies a heart-shaped body, with oval thickenings on each side, the nature of which I am unable to determine.

The female has few distinguishing characters. The head is shaped like that of the male, the thorax is the same, while the abdomen might belong to any one of several species except for the genital plate and chaetotaxy of segment VIII. The genital plate is short, wider than long, incised on sides near anterior end, and extends laterally, in median portion, in the form of long, slender prongs which curve backward across segment VIII. There is a single media-lunar fringe of setae between the two combs of long spines, and in addition, three short bristles at anterior end of this fringe. Segment IX is well developed and deeply notched at tip.

All of the material of this genus, taken from the four species of *Pionus*, represents closely related forms, with the same shape of head, same type of male genitalia and genital plate in female, but nevertheless they differ from each other in small, constant characters, especially in the male genitalia, so that it seems best to make them all conspecific with *longulufrons*. The type series consists of 6 males and 10 females.

Measurements of types:	male		female	
	length	width	length	width
Body	1.07		1.39	
Head				
\ frons	.35	.35	.412	.398
\ temples		.40		.467
Prothorax	.16	.225	.17	.26
Pterothorax	.14	.36	.15	.412
Abdomen	.55	.41	.80	.49
Antennae	.174	—	.185	—
Basal plate	.16	.105		
Paramers	.12	.046		
Telemeron	.056	.06		

Paragoniocotes longulufrons subsimilis new subspecies.

Fig. 4 (a, b, e).

Types: Male and female, adults, from *Pionus tumultuosus*, collected by the author at Choros, Dept. Cochabamba, Bolivia, January 10, 1937; in coll. of the author.

Diagnosis: Differs from *longulufrons* as follows: The head is larger and proportionately wider at frons (less difference in width between frons and temples); the shape of the frons is the same, but the trabecular processes are longer and heavier.

The thorax is somewhat larger, but abdomen nearly the same

size; abdominal sclerites the same. The male genitalia are much larger, with the exception of the outer endomeral plates, which are of same length, but wider and of different shape; the paramers are much longer, with widest portion at base, and taper gradually to long, slender, deeply channeled tips; the inner endomeral sclerites are practically the same in both races, except somewhat longer in *subsiniilis*. The telemeron is of decidedly different shape, being widest at median portion, with a broad, transverse tip, from which protrudes a smaller, truncate body, which may be the penis; the sides are emarginate back of tip, and there is a peculiar thickened body on each side in the median portion of the plate, bearing three blunt projections on posterior end. The type series consists of 7 males and 11 females.

Measurements of types:	male		female	
	length	width	length	width
Body	1.15		1.37	
Head } frons	.38	.40	.43	.40
Head } temples		.435		.475
Prothorax	.175	.24	.175	.25
Pterothorax	.13	.36	.175	.394
Abdomen	.586	.43	.77	.434
Antennae	.195	—	.195	—
Basal plate	.14	.13		
Paramers	.153	.051		
Telemeron	.09	0.53		

Paragoniocotes longulufrons gracilis new subspecies.

Fig. 4 (c, d, f).

Types: Male and female, adults, from *Pionus fuscus*, collected by the author at Airoca, Sierra Perijá, Colombia, April 6, 1942; in coll. U. S. Nat. Mus.

Diagnosis: The single male taken of this species (the type), may possibly have been slightly shrunken during process of clearing, the median and posterior tibiae, sides of thorax and margins of head having that appearance, so that the shape of the head, as figured, may be slightly distorted with frons more sinuate than it should be, and tibiae and all of the femora are normal in every way, while the rior tibiae and all of the femora are normal in every way, while the head of the female presents the same characters in slightly lesser degree, with only the posterior tibiae unusually slender, the other segments of all the legs being as figured for other species.

If the head of this male is in reality as appears, and as is figured, the species is easily recognizd by the shape of the frons and

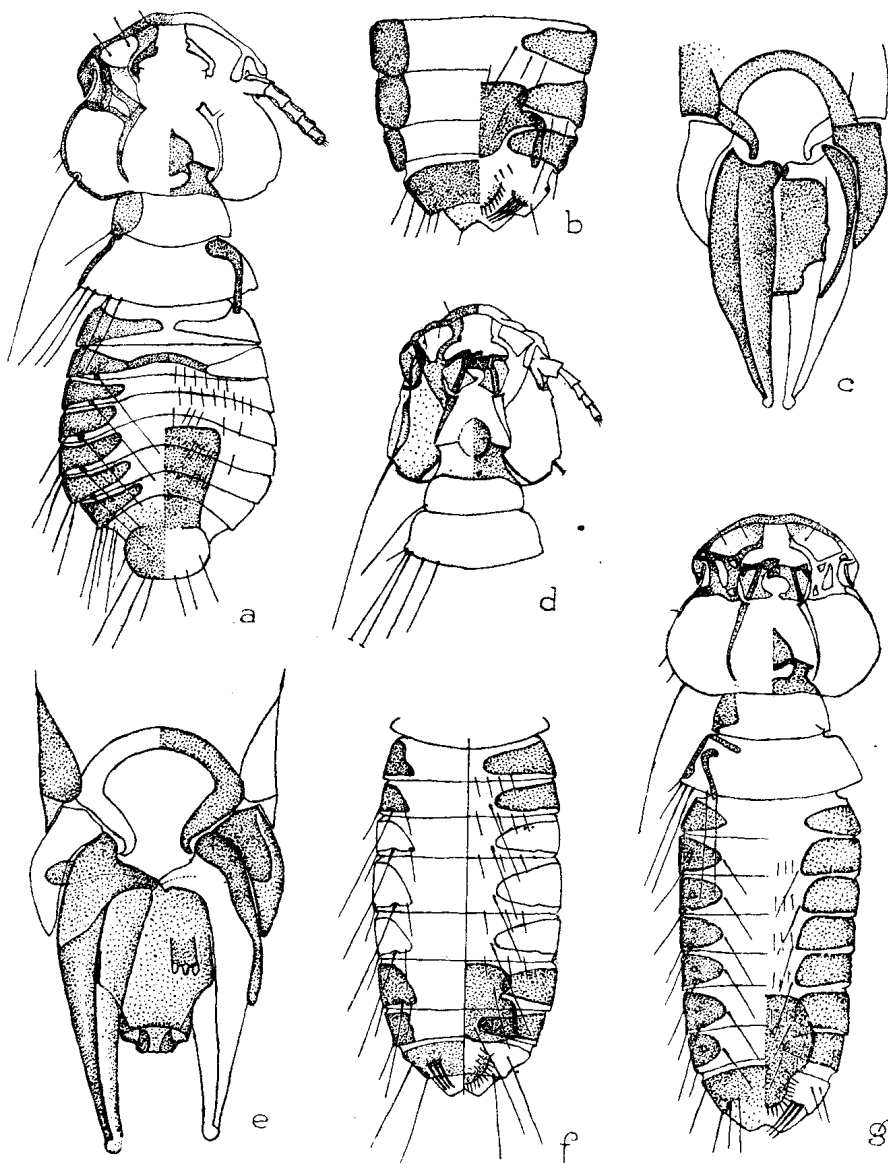


Fig. 4. — *Paragoniocotes longulufrons subsimilis* n. sp.: a, body of ♂; b, tip of ♀ abdomen and e, ♂ genitalia. *Paragoniocotes longulufrons gracilis* n. sp.: c, ♂ genitalia, d, head and thorax of ♂ and f, ♀ abdomen. *Paragoniocotes scutula* n. sp.: g, body of ♀

sides of the temples, the former being rounded in front and with sides strongly sinuate, while the sides of the temples are almost straight, back to the long hair, which is set in a pit; the posterior angles of temples, at sides of prothorax are decidedly angulate (in-

correct in figure), and the occiput is wide and flatly convex.

The pterothorax has the sides as in the figure of *gripocephalus*, but much less divergent, that segment being narrower than in any other known form. This is true of the female also, although in the female the sides are slightly less emarginate in front of lateral angle. The median sternite on segment II is absent in this form.

The female has the abdomen unusually slender; the genital plate quadrangular in shape, without the lateral appendage of *longulufrons* and *subsimplis*, the posterior portion laterally to two longitudinal bars across segment VIII, but it is incised on the sides. Segment VIII is short, with the circular fringe of setae extending backward nearly to end of emargination in IX; inside of this fringe of setae are set about four short bristles on each side.

The male genital armature is much more slender than in *longulufrons* or *subsimplis*, especially the paramera; the basal plate is somewhat narrower at distal end, with the outer endomeral plates jointed at each side of its truncated tip, while the paramers are jointed at the ends of the circular bar (see fig.). The outer endomeral plates are well developed, wide at base, convex on outer edge and concave on inner; the inner endomeral sclerites are long and slender and semicircular, but thickened slightly at base; the paramers are wide at base, slightly expanded medially, and with short tips, the whole sclerite being channeled from tip to near base. The telomeron is somewhat similar to that of *longulufrons*, but lacks the heart-shaped body within the distal portion; the tip is truncate, and the sides irregularly sinuate. Type series: 1 male and 8 females.

Measurements of the ty-	male		female	
	length	width	length	width
Body	.95		1.26	
Head { frons	.35	.303	.372	.314
} temples		.35		.39
Prothorax	.14	.195	.16	.217
Pterothorax	.12	.27	.15	.315
Abdomen	.49	.37	.72	.38
Antennae	.176	—	.174	—
Basal plate	.15	.108		
Paramers	.122	.046		
Telomeron	.056	.051		

Paragoniocotes longulus intermedius new subspecies.

Type: Female, adult, from *Pionus sordidus*, collected by the author at Tierra Nueva, Sierra Perijá, Colombia, July 3, 1941; in U. S. Nat. Mus.

Diagnosis: This race is represented by five females, and without the male genitalia, it is not possible to fully describe it. The shape of

the head is between that of *subs similis* and *gracilis*, nearer to the latter, with the same undulating frons, and with temples flatly rounded laterally; the long hair on the temple is also set in a pit, but the whole temple is more circular, while it lacks the noticeable angle at the sides of the occiput; the trabecular processes are unusually long and slender. The pterothorax is of the same shape as in the male of *gracilis*, and is also very narrow.

The genital plate is similar in shape to that of *gracilis*, but wider, with an emargination on the sides at anterior end; the setae of the circular fringe are somewhat longer and coarser than in most species, while there are five short bristles set in a line running from inside the anterior end of the circular fringe, forward and outward towards the anterior angle of segment VIII. Undoubtedly the male genitalia of this form will present pronounced distinguishing characters.

If the specimens of *P. l. gracilis* are not abnormally shrunken, and their natural shape is as figured, then that race of *longulufrons* should bear specific rank, and *intermedius* should be made a subspecies of it, but until additional fresh material can be secured, I prefer to leave them as herewith given. Type series: 5 females.

Measurements of type:	female	
	length	width
Body	1.10	
Head { frons	.37	.31
} temples		.40
Prothorax	.16	.22
Pterothorax	.15	.337
Abdomen	.61	.39
Antennae	.176	—

Paragoniocotes scutula new species

Fig. 4 (g).

Type: Female, adult, from *Pyrilia pyrilia*, collected by the author at Tierra Nueva, Sierra Perijá, Colombia, July 18, 1941; in coll. U. S. Nat. Mus.

Diagnosis: The frons is almost uniformly circular, there being only a slight flattening at the front; the trabecular processes are of medium length, but very slender, with unusually slender tips; the clypeal band is narrower than usual across the front; the antennal bands are rather intricate (see fig.), while the occipital bands are very slender, with the incurving tips reaching almost to the sides of the occiput, passing around the anterior prongs of the prothorax; the prothorax is proportionally wider than in most species, with ex-

posed portion of sides strongly convex; the pterothorax is also wider than usual, with flatly convex sides.

The abdomen is slender, with the plates deeply pigmented, the tergites more so than the sternites. Apparently in this genus the pleurites are reduced to a narrow line, while the sclerites lying on each side of the abdomen are the tergal and sternal plates, both very closely fused with the pleurites. In most of the species the tergites are of the same shape as the sternites, and are superimposed over them, but in this species (also several others) the two sets of plates are very differently shaped, the sternites being longer (transversely of the abdomen), and extending inside the tergites. The dissimilarity in shape between the sternal and tergal plates is very noticeable in the present species and forms a distinguishing character.

The genital plate is unusually long, wide at anterior end, with sides circular as far back as its junction with the fringed circular plate on segment VIII, and is *continuous with that plate*. Apparently this species agrees with *gripoccephalus* in this character, according to the description given by Cummings, but does *not* hold good with most of the species described in this paper, which show a decided break between the two plates, at least an unpigmented section at the suture between segments VII and VIII. It will be very interesting to see the male of this species, especially the genital armature.

The type series consists of 6 females.

Measurements of the ty-	female	
pe:	length	width
Body	1.13	
Head } frons	.36	} .337
} temples		
Prothorax	.157	.24
Pterothorax	.14	.37
Abdomen	.64	.36
Antennae	.175	—

SUMMARY

In this paper, the first of a series dealing with the *Mallophaga* of the American Parrots, the author describes ten species and six subspecies of the genus *Paragoniocotes* Cummings, together with the redescription of the genus and notes on the genotypical species. The following are the species and subspecies described: *Paragoniocotes cornutus*, *P. mercenarius*, *P. tenuigaster*, *P. mexicanus*, *P. microgaster*, *P. acutifrons* and *P. scutula* nov. spp. and *P. heterogenitalis heterogenitalis*, *P. h. similis*, *P. longulufrons longulufrons*, *P. l. subsimilis*, *P. l. gracilis* and *P. longulus intermedius* nov. subspp.

RESUMEN

En el presente trabajo, el primero de una serie que tratará sobre los *Mallophaga* de los *Psittacidae* americanos, el autor describe diez especies

y seis subespecies nuevas del género *Paragoniocots* Cummings cuya redescrición hace, agregando además, notas sobre la especie genotípica.

Las nuevas formas descritas son las siguientes: *Paragoniocotes cornutus*, *P. mercenarius*, *P. tenuigaster*, *P. mexicanus*, *P. microgaster*, *P. acutifrons* y *P. scutula* nov. spp. y *P. heterogenitalis heterogenitalis*, *P. h. similis*, *P. longulufrons longulufrons*, *P. l. subsimilis*, *P. l. gracilis* y *P. longulus intermedius*.