

ON SOME EULOPHID PARASITES (HYM., CHALCIDOIDEA) OF THE  
OIL PALM HISPID BEETLE.

By JAMES WATERSTON, B.D., D.Sc.

Oil palms in West Africa are periodically subject to somewhat serious attacks by *Coelaenomenodera elaeidis*, Maulik, a beetle of the family HISPIDAE, which mines the leaves. From the early stages of this beetle Mr. G. S. Cotterell, Assistant Entomologist, Gold Coast, has bred several Chalcidoid parasites, which were forwarded to the Imperial Bureau of Entomology and form the subject of the present paper.

Family EULOPHIDAE.

Subfamily EULOPHINAE.

Genus **Dimmockia**, Ashm.

Amongst the larval parasites were seven examples of an Eulophid, apparently referable to Ashmead's genus *Dimmockia*, in which, up to the present, only an American species has been included. Mr. A. B. Gahan, in confirming this conclusion, has increased my indebtedness to him by forwarding a specimen (♀) of the genotype compared with the type for study. Some additional notes on the genus may be given.

♀. Head thin, very distinctly broader than deep, frontal orbits straight, slightly divergent ventrally; toruli just above base line of eyes. Antenna 10-jointed, with two ring joints.\* Propodeon with central and lateral keels (subparallel) well developed. Fore wings bare on rather over the basal third.

♂. Scape swollen, with large pincushion-like sensorium. The appendages on joints 1-3 of the funicle are genuine processes of the joints themselves and carry similar sensoria. Abdomen with pale basal blotch.

***Dimmockia aburiana***, sp. n. (figs 1 and 2).

♀. Head, thorax and coxae blackish, dull, a little shining along the posterior edge of the pronotum and on the axillae. Propodeon like thorax, but with some metallic green reflections. Bristles of thorax pale. Abdomen with slight metallic green reflections on anterior third, more purplish or dull cupreous posteriorly. Antennal scape pale, pedicel infuscated, especially dorsally; funicle, palpi, and basal two-thirds of mandibles blackish brown; mandibles apically yellow, with lower tooth ferruginous. Wings hyaline, nervures pale. Legs with trochanters pale (except in fore legs, where they are a little infuscated), femora to about one-fourth from apex blackish and for the rest pale.

♂. Similar to ♀, but only the basal one-fourth of the scape is pale; rest of antenna brown. Reflections on propodeon slight and on abdomen confined to the middle (anterior) and sides of the first tergite. The pale spot is large, extending from just beyond the middle of tergite 1 (3) to the middle of 3 (5). Seen from above it covers entirely the intervening tergite, though the overlaps are chitinised and infuscated.

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\* Ashmead says "10-jointed with one ring joint." The specimen of the genotype which I have examined unfortunately lacks antennae, but apparently Ashmead reckoned as a joint the sub-articulate cap of the club. If so, the formula should be 11 joints. The 2nd ring joint of the ♂ antenna is concealed in the base of the 1st funicular.

♀. Head joint wider than thorax; much wider (9:7) than deep. Frons broad, at its narrowest occupying five-ninths of the total breadth. Base line of eyes two-thirds the breadth. Toruli distinctly above base line, at one-third the depth above the clypeal edge, broadly oval (8:7) and separated by one and a quarter times their long diameter and from the orbits by two diameters. Lateral ocelli nearly a diameter from the orbits. Clypeal edge straight, eyes bare, prominent, in depth half, in width two-ninths the breadth of the head. Scapal impression smooth, extending in an elongate triangle to the anterior ocellus; surface elsewhere finely reticulate and pattern hardly raised.

Labrum (1:3) simple, straight-edged, with six fringing bristles (fig. 1, c); maxillary palpi with two joints (9:11), terminal bristle longer than joint; labial palpi 10; mandible (see fig. 1, b). Antenna (fig. 1, a), scape (6:1) longer than pedicel (8:5), ring joints and first funicular together; first funicular joint very distinctly the longest; proportionate lengths of funicular joints, 21:14:13, and club 12:10, breadths, 9:10:11, and club 11:7. Sensoria as in fig.

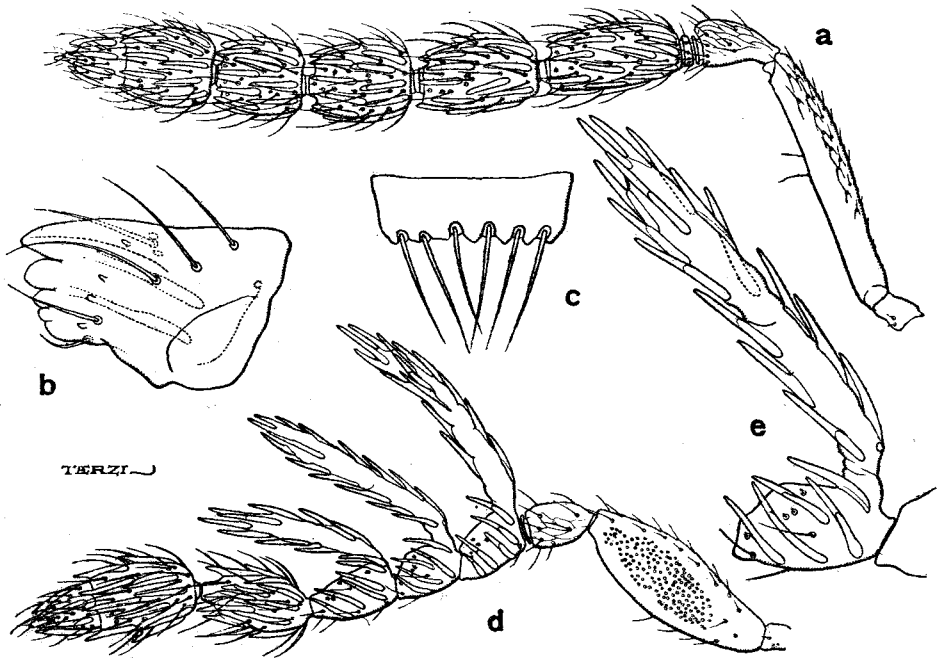


Fig. 1. *Dimmockia aburiana*, sp. n.: (a) antenna, ♀; (b) mandible, ♀; (c) labrum, ♀; (d) antenna, ♂; (e) second funicular joint, ♂.

Pronotum with strongly raised, rather coarse, pattern on the rounded posterior half; the descending anterior half much smoother, but with four concave patches of coarse reticulation medianly behind the head; spiracular notch distinct, sides (overlaps) concave with coarse sculpture, six major bristles in posterior row—one of them above spiracle. Mesonotum sculptured like posterior half of pronotum, with six major bristles in two longitudinal rows (3:3) on scutum, and four or five shorter ones on the undifferentiated parapsides. Axillae bare, with pattern finer and less raised. Scutellum, except in middle, with rather coarse sculpture; four bristles, one behind the axilla almost on the suture, and the other above the crenulate hind margin. Sternopleurae (fig. 2, b). The foveae of the prepectus and pleurae should be noted. Propodeon (*vide infra* and fig. 2, c).

Forewings (fig. 2, *a*) (7:3) submarginal: marginal: radius: post marginal, approximately 12:11:2:3; 6-7 bristles on radius. Hindwings 7:2.

Legs: coxa of fore and hind legs, about 2:1; femur, fore 13:3, mid 14:3, hind 4:1; tibia, fore and mid, about 10:1, and broader (7:1) in hind legs; tarsus, in fore and mid legs the first joint one-fifteenth longer, in hind legs one-fifth shorter than second joint. Fore femur with a row of nine long bristles (one just before the apex longest and stoutest) on outer ventral aspect; comb of first tarsal joint with seven spines; on mid femur only the long subapical bristle ventrally. Hind legs, tibial ventral row 12, apical comb 12 spines. All the tarsal ungues bear a long bristle dorsally rising from a well-marked preapical notch.

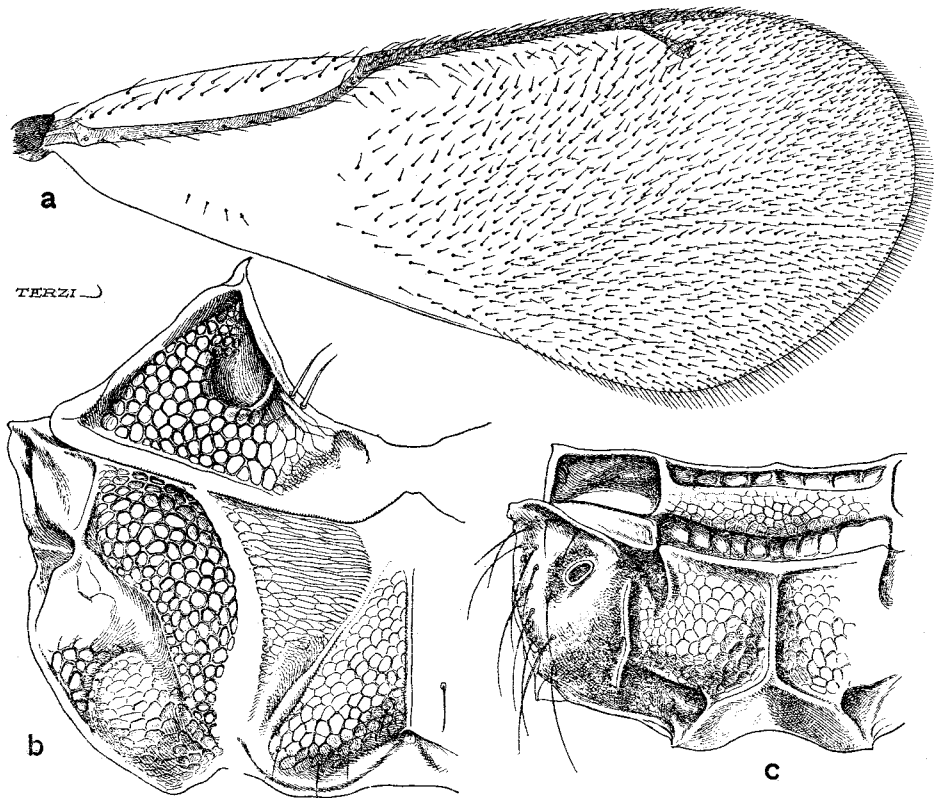


Fig. 2. *Dimmockia aburiana*, sp. n., ♀; (a) fore wing; (b) mesosternopleurae and prepectus; (c) propodeum.

Abdomen pointed oval; 1st (3rd) tergite about one-fourth longer than the others, which are subequal.

Length 1.2-2.3 mm.; alar expanse 2.2-4.2 mm.

The larger examples with a forewing length of about 1.8 mm. appear to be of the normal size.

♂. Head with frons broader, at narrowest occupying two-thirds of the width; base line of eyes three-fourths the width. Toruli rounder and wider apart (one and a half diameters) than in ♀. Lateral ocelli nearly two diameters from orbits.

Antenna (fig. 1, *d, e*); scape (5:2) swollen, as long as pedicel, ring joints (2) and first two funicular joints together; pedicel (3:2); funicle length, 10:11:14:16, and club 14:10; the width varies from 6 (on 3rd joint) to 9 (on club).

Legs with the femora relatively thicker (deeper) than in the ♀, and with 3-4 fewer bristles or spines in the rows.

Abdomen: lengths of tergites approximately 7:4:4:5:5:4.

Length, about 1.7 mm.; alar expanse, about 2.8 mm.

GOLD COAST: Aburi, 1923 (*G. S. Cotterell*).

*Type*.—♀ in the British Museum, one of a series of three ♂♂ and six ♀♀ bred from larvae of *Coelaenomenodera elaeidis*, Maul., var. The ♂♂ were reared in September, the ♀♀ in October. A paratype ♀ has been deposited in the United States National Museum, Washington.

In *D. aburiana*, sp. n., the side keels (folds) of the propodeon (fig. 2, *b*) are parallel to one another and to the mid keel (when looked at from above in a carded specimen slightly *divergent* posteriorly); the diameters of the areas on each side of the mid keel bisect one another. Spiracular sulcus deep and pit-like at the anterior end of the lateral fold. The oval spiracle is remote both from the side keel and from the anterior edge. Surface of inner area smooth and gleaming, the pattern perceptible indeed but raised only near the mid keel posteriorly. Outer (spiracular) area smooth.

In the genotype (*D. incongruus*, Ashm., 1904) the side keels *converge* considerably posteriorly; the diameters intersect *unequally*; spiracular sulcus not forming a deep pit at the end of the fold; spiracle subcircular and practically touching the side keel and the anterior edge. Surface of side areas scaly reticulate, pattern rather strongly raised. Outer (spiracular) area rough, not smoothly contoured.

#### Subfamily ENTEDONINAE.

#### **Cotterellia**, gen. nov.

♀ ♂. Head large, transverse, just wider than thorax; occiput carinate; eyes large, densely pubescent, extending from the occipital edge nearly to the mouth edge, *i.e.*, malar space very short; orbits divergent on vertex, sub-parallel and straight on upper and gently concave on lower frons. Face inflexed at about one-third from the anterior ocellus to the clypeal edge—the inflexion forming a distinct ridge across the middle two-thirds of the frons. Labrum simple, transverse, with numerous long fringing bristles; mandibles similar, apically bidentate; maxillary and labial palpi each with one joint. Antenna 8 (10) jointed, *viz.*, scape, pedicel, three ring joints, three in funicle and two in club—the apical joint awl-like.

Pronotum transversely ridged; parapsidal furrows deeply percurrent, each expanding into a triangular hollow in the parapside before the suture. Between these lateral hollows is a depression of the scutum reaching forward to about one-half from the suture. Scutellum large, subequal to the scutum in length, with a strong ridge on each side before the edge; posterior margin crenulate. Prepectora hollowed, crossed by one or two slight rugae and forming a deep depression at their median fusion.

Propodeon with a strong median keel; from above there are two blunt posterolateral angles; on each side of median keel a pentagonal area enclosed by keel, hind edge of metathorax, lateral keel (or fold) and hind edge, which is strongly raised. Spiracles rather small, oval, remote from lateral keels and placed far forward—almost on edge. Abdomen shortly petiolate wider than long (♀) or just longer than wide (♂), oval in ♀, long oval in ♂, with characteristic punctation (*vide infra*).

**Cotterellia podagrica**, sp. n. (figs. 3, 4).

♀. Black, whole surface of body more or less metallic; on head and thorax anteriorly dark blue with green reflections, becoming violet on scutellum; reflections of abdomen purplish, especially anteriorly; ventral reflections mainly dark green. Wings (except shortly near radix, which is hyaline) completely and evenly infuscated, the forewings the darker. First three tarsal joints white or (fore legs) pale.

♂ like ♀, but less brilliantly coloured; thoracic reflections chiefly faint dark green; on abdomen mainly at base (on first tergite) dark purplish. First three joints of fore tarsus infuscated, though not black like the fourth; wings less deeply infuscated.

♀. Head much wider than deep (10 : 7). Inter-ocular distances (*a*) on occipital edge 5 : 8 of width, (*b*) across posterior ocelli 1 : 2, (*c*) at frontal ridge about 2 : 5, (*d*) across facial inflexion not quite 1 : 2, (*e*) across toruli 3 : 8, (*f*) base line of eyes 1 : 2. Vertex and frons down to ridge and along orbit, to level of toruli, with closely set umbilicate punctures. Toruli at two-thirds from transverse ridge to mouth-edge, oval, moderate-sized, two-thirds as long as the malar space and a little wider apart

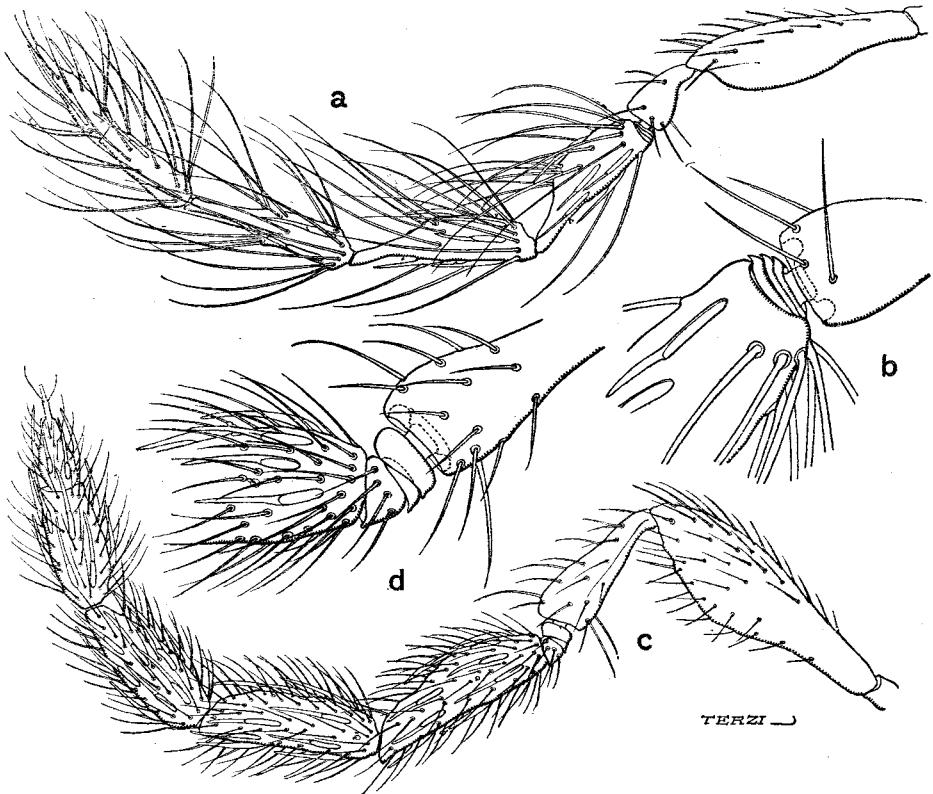


Fig. 3. *Cotterellia podagrica*, gen. et sp. n.: (a) antenna, ♂; (b) ring joints, ♂; (c) antenna, ♀; (d) ring joints, ♀.

than from the orbits. Above the toruli a well-defined narrow triangular deeply punctured area extends upwards with its apex at the middle of the transverse ridge. On each side the facial impression is coarsely reticulate and strongly raised, this sculpture merging with the heavier punctation along the orbits. Clypeus medianly

swollen, smooth with deep punctures along the straight mouth-edge, and a group of similar punctures on each side, which do not, however, extend over the narrowly gleaming lower orbits (*i.e.*, below level of the toruli).

Labrum (about 1 : 2) with edge slightly convex, with some 20 fringing bristles, of which the longest (median) are half as long again as the sclerite itself. Mandibles (fig. 4, *b*) (15 : 13); basal ventral lobe large; above second tooth a rounded cutting edge.

Antenna (fig. 3, *c*, *d*) about 1.2 mm. long. Scape (3 : 1) widest above one-half and narrowed basally, not quite twice (11 : 6) as long as the pedicel (5 : 2); the latter narrowed in proximal half. First ring joint normal, rather large, bare; second small, narrow, wedge-like, bare; third large, triangular in profile, with two rows of bristles similar to those on normal funicular joints and like the second, articulating well above the centre (fig. 3, *d*). First two funicular joints subequal (72 : 70), third (62); club joints subequal (45), the terminal process of the second occupying one-third of the length. In the same scale the breadth of the scape and funicle is about 25, diminishing to about 18 at the club suture. Bristles and sensoria as in figure.

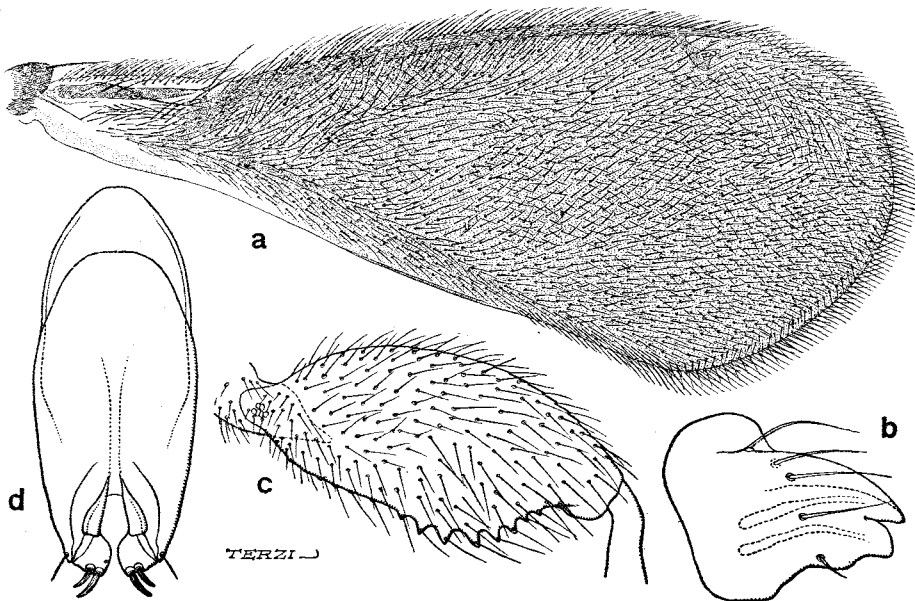


Fig. 4. *Cotterellia podagrica*, gen. et sp. n.; (a) fore wing, ♀; (b) mandible, ♀; (c) hind femur, ♀; (d) genitalia, ♂.

Thorax stoutly built; mesonotum with coarse duller leathery sculpture, the hollows shining, admedian aspect of lateral keels of scutellum crenulate, mesosternum deeply and closely umbilicately punctate medianly and on posterior half towards sides; anteriorly dull with fine punctures but antero-laterally shining and smooth. Mesepisternite shining, the femoral impression dull, raised reticulate; epimeron narrow with 3-4 deep punctures. Propodeon with areas about mid keel smooth medianly, with a few transverse rugae vertical to the keel.

Forewings (fig. 4, *a*) (17 : 7), length 2.2 mm., breadth 0.9 mm. Submarginal : marginal : radius : postmarginal, 32 : 100 : 8 : 15. Three bristles on submarginal, one at about one-half and the others nearer the base, one bristle on slight prominence at crossing of submarginal and marginal. Radius short with 2-3 bristles. Hind

wings (4 : 1), length 1.75 mm., breadth 0.43 mm. Slightly less than one-fourth the basal surface is bare, the rest almost as densely pilose as the forewing. The bare area ends in a straight line at right angles to the submarginella. From apex to beyond one-half posteriorly the edge of the wing (immediately behind the fringe) is narrowly bare. The discal ciliation when it begins again runs parallel with the hind edge and the cilia bounding the bare lines are subparallel to one another.

Forelegs, length nearly 2 mm.; coxa (3 : 2) normal, pyriform, robust, coarsely raised reticulate; femur (3 : 1) stout and a little swollen, with well defined antero-ventral tibial groove; tibia a little longer than femur, widest (11 : 2) at about one-third from apex, contracting on apical third to 9 : 1 at apex; tarsus 30 : 40 : 33 : 72, on antero-ventral edges with 4, 3, 2, 5 spines respectively, the fourth joint stout and about half broader than the others; empodia large, claws large and strong, as long as the first tarsal joint and explanate on basal two-thirds, where the breadth is half the length. Mid legs, about 2.3 mm.; femur (10 : 3) stout but more slender than in foreleg; tibia (15 : 2) slender, narrowed a little on apical one-fifth, distinctly longer (5 : 4) than femur; tarsus 55 : 45 : 35 : 70, first tarsal joint with 7-8 spines antero-ventrally. Hind legs, about 2.4 mm.; coxa (5 : 4) broad and robust, with 3-4 strong parallel rugae across the hollow above the base of femur; femur (7 : 3) one-third longer than coxa, swollen anteriorly (externally) and deep, with 7-8 strong teeth along distal half of the ventral edge (fig. 4, c); tibia (5 : 1) straight ventrally, broadly convex along dorsal edge, a little narrowed on basal third and apical fourth; spur single, stout, flattened and deeply set; apical posterior edge rounded, with comb of 14 spines; tarsus 35 : 40 : 35 : 85, profile with about 7 spines ventrally on first tarsal joint. Apart from the spines mentioned above, the legs generally are extremely pilose or bristly.

Abdomen about as long as thorax. Tergites simple, band-like, visible proportions approximately 6, 3, 4, 4, 5, 5, for the most part densely set with short stiff bristles, except on the first (3rd) broadly in the middle and to hind edge, and on the second (4th) antero-medially; counting along the mid line antero-posteriorly the tergites bear the following decumbent rows 0, 3, 4, 6, 8, 10; each bristle of these rows rises from a horseshoe-shaped hollow deeper anteriorly and shallowing posteriorly. Sternites in ratio 6, 4, 4, 3, 14; very closely associated and forming a trapezoidal plate only three-fifths the length of the ovipositor, which is not extruded and is covered only at base; the peculiar sculpture of the tergites is reproduced on first four sternites medianly; basal part of the valve eight times the distal.

Length, about 3 mm.; alar expanse, 5.2-5.5 mm.

♂. Similar to the ♀ but easily recognised by the antennae (fig. 3, a, b), longer petiole and abdomen. There are numerous minor comparative differences, e.g., labrum with fewer bristles (about 14); forewings broader (7 : 3); legs rather more slender, e.g., fore femur (10 : 3), hind femur (8 : 3). There are only 3-4 distinct hind femoral teeth, and in all the legs the fourth joint of the tarsus is shorter, less robust, and with weaker claws.

Antenna (fig. 3, a), the three ring joints are simple wedge-like laminae (fig. 3, b), together triangular in profile and fitted into a hollow of the first funicular joint. Joints 1-3 of funicle are much excised and contracted dorsally towards the apex from beyond one-half. Proportions (taking the length of the scape as 100), scape 100 : 32, pedicel, 30 : 21, funicle, 72 : 24, 80 : 20, 80 : 18, 48 : 16, 52 : 12.

Length, 2.1-2.4 mm.; alar expanse 3.4-3.9 mm.

GOLD COAST: Aburi, 8.xii. 1923 (G. S. Cotterell).

Type ♀ in the British Museum, one of a series of four ♂♂ and four ♀♀, bred from *Coelaenomenodera elaeidis*, Maul. var. Paratypes ♂ and ♀ have been deposited in the United States National Museum, Washington.

Mr. Cotterell makes the exceedingly interesting note that the ♀♀ *C. podagrica* emerged from the pupa of the host and once from the larva, while the ♂ was always bred from the host larva. Should this prove to be the general rule for this species it may be correlated with the difference in size between the sexes and the presumably longer larval life necessary for the ♀.

***Closterocerus africanus*, sp. n. (fig. 5).**

♀. Ground-colour black or very dark sepia; head and thorax with dark metallic refringence (violet and green); on the metanotum the blue-green is masked by coppery reflections, which reappear faintly over the abdomen. Antennae, femora, hind tibiae and first joint of hind tarsi dark sepia; fore and hind tibiae mainly pale, more or less dark-streaked dorsally and ventrally; tarsal joints (with the exception noted) pale; 1-3 in fore and hind legs a little infuscated dorsally; tarsal ungues like femora. In the wings (fig. 5, *a*) the darker areas and nervures are light sepia.

Head about 5 : 3 from in front. Frons at widest and base line of eyes, half the width. Sculpture of head, thorax, etc., normal for the genus.

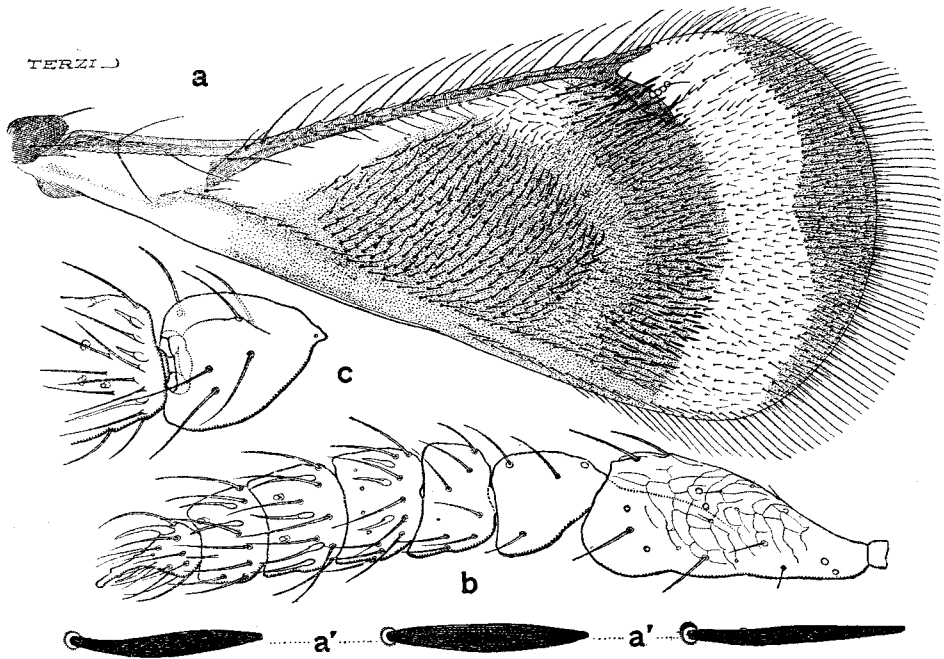


Fig. 5. *Closterocerus africanus*, sp. n., ♀; (*a*) fore wing; (*a'*) modified hairs on fore wing; (*b*) antenna; (*c*) ring joint.

Antenna (fig. 5, *b, c*); scape (5 : 2) longer than the pedicel and first two funicular joints together. The lengths of all the antennal joints are approximately 20, 8, 5, 6, 6, 5, 7. The average width of the funicle is 6 and of the last club joint rather under 4.

Fore wings (fig. 5, *a, a'*) (13 : 6); submarginal : marginal : radius : postmarginal, 5 : 11 : 2 : 1. Hindwings (17 : 3) very long and narrow, practically as long as the forewing.



Fore femur with 6, hind femur with 10 long bristles; hind tibial comb with 9 spines.

Length, 1.6 mm.; alar expanse, 2.6 mm.

GOLD COAST: Aburi, viii. 1923 (*G. S. Cotterell*).

*Type* ♀ in the British Museum, one of a series of three (two broken) reared from eggs of *Coelaenomenodera elaeidis*, Maul. var.

This species is easily recognisable by the shape of the pedicel and penultimate antennal joint, and by the wing pattern.

***Achrysocharis leptocerus*, sp. n.** (fig. 6).

♀. Blackish brown, vertex and thorax with dark green metallic reflections, abdomen at most faintly cupreous above. Wings hyaline, save for a small, very faint spot (nearly invisible in balsam but plainer on a card mount) at the end of the radius on its basal aspect. Antenna brown; scape with a dorsal pale streak from base to apex; third funicular joint mainly pale. Legs with coxae mainly (and always superiorly) brown or infuscated; femora brown-streaked above, the rest paler, with dark empodia.

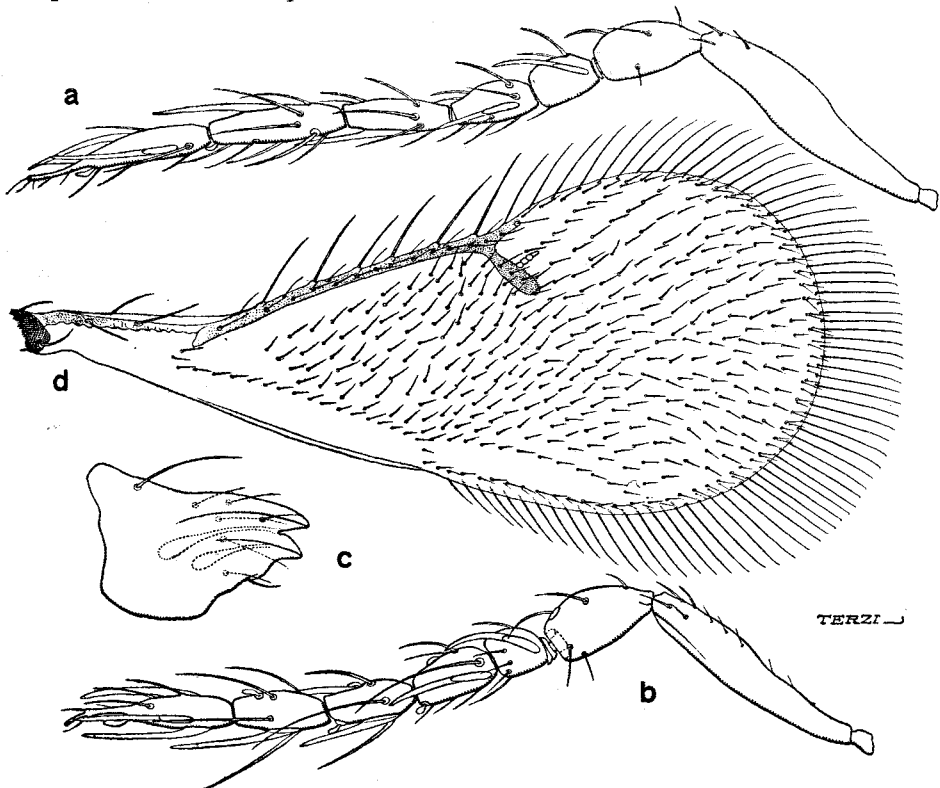


Fig. 6. *Achrysocharis leptocerus*, sp. n.; (a) antenna, ♂; (b) antenna, ♀; (c) mandible, ♀; (d) fore wing, ♀.

♂. Similar to ♀, but the antennal club is darker and the third funicular joint not markedly different in colour from the others.

♀. Head, from above, much broader than long (8 : 5), about one-third broader than thorax or abdomen, broadly parabolic in outline—the parabola somewhat

flattened in front, and only slightly concave medianly below the rounded occipital margin. The whole vertical aspect much flattened; occiput well developed behind but narrower than the eyes. The latter bare, four-fifths as long as the head. Vertex broad, nowhere less than one-half the width across the eyes. Ocellar triangle obtuse; anterior ocellus circular, posterior elliptical, rather over their length from the orbit and about four times their length from the occiput. Whole upper surface coriaceous. In profile the head is subtriangular.

Antenna (fig. 6, *b*), length 0.44 mm., over half as long as the body, scape (5 : 1) two and a half times as long as the pedicel, or a little longer than pedicel, ring joints and first two funicular joints together, or equal to the second to the fourth funicular joints together, or four and a half times as long as the first funicular joint. The greatest width (depth) of the antenna is on the pedicel ( $12\frac{1}{2}$ ). Joints of funicle and club in ratio 12 : 15 : 19 : 20 : 33 with breadths 10 : 9 : 8 : 7 : 6. The "beak" of the club occupies rather over one-third of the length, and at its base there is a remarkable curved sense-organ. The surface of the antennal joints is longitudinally rugulose striate—seen well in pedicel.

Mandibles (4 : 3) similar, apically bidentate (fig. 6, *c*). Maxillary palp (about 3 : 1) with terminal bristle one and a half times as long as the palp. Labial palp very minute, two-fifths the length of the maxillary palp, and about as broad as long; terminal bristle four times the palp.

Thorax flat, entire notal surface with strongly raised pattern of rather large regular cells; parapsidal furrows on posterior two-thirds smoother. There are few bristles; on pronotum the posterior row is apparently of six (3 : 3); parapsides and axillae bare (?); scutum 1 : 1 (just behind one-half); scutellum 1 : 1 (behind one-half).

Propodeon simple, transverse, nearly smooth in middle but rougher (with a few rugae) towards the sides. Spiracles small, oval, median (antero-posteriorly), outwardly directed. Separated by three-fourths the width of the sclerite or by rather more than the width of the scutellum. One bristle outside each spiracle and one below on metepimeron.

Fore wings (fig. 6, *d*) (17 : 7) length 0.53 mm., breadth 0.23 mm. Submarginal : marginal : radius : postmarginal, 15 : 27 : 7 : 4. Longest cilia of fringe one-third the breadth of wing. Hind wings (8 : 1), length 0.5 mm., breadth 0.06 mm.; longest cilia 0.08 mm.

Legs with the coxae rather slender, about 2 : 1 in fore and hind legs and rather broader (7 : 4) in hind pair. The fore pair have a large and distinct pattern, not strongly raised, the others are nearly smooth. Fore legs, femur (13 : 3) with (as in all the legs) a strong hyaline preapical ventral bristle, tibia (15 : 2); mid legs, femur (5 : 1), tibia (11 : 1); hind legs, femur (3 : 1) with five rather long bristles in postero-ventral row—not quite on edge.

Tarsus	1	...	2	...	3	...	4
i	10	...	10	...	10	...	16
ii	13	...	11	...	11	...	18
iii	11	...	11	...	11	...	17

Abdomen longer than thorax and propodeon, with practically smooth tergites.

♂. Antenna (fig. 6 *a*) 0.5 mm., slightly longer and more slender than in the ♀. Scape (5 : 1) two and a half times as long as pedicel (2 : 1) and just longer than pedicel and first two funicular joints together, or than the first three funicular joints. Funicle and club approximately 5 : 6 : 7 : 9 : 12. Breadth from scape to first funicular about four, afterwards diminishing gradually to about two on club.

Forewings (8 : 3) slightly broader than in ♀.

Length, ♀, ♂, about 0.7 mm. ; alar expanse, ♀, ♂, about 1.2 mm.

GOLD COAST: Aburi, 8.xii.1923 (G. S. Cotterell).

Type ♀ in the British Museum, one of a series of one ♂, two ♀♀, bred from eggs of *Coelaenomenodera elaeidis*, Maul. var.

***Pleurotropis nigripes*, Waterst.**

*Pleurotropis nigripes*, Waterston, Bull. Ent. Res. v, March 1915, p. 353.

Besides the species just recorded, Mr. Cotterell reared a number of hyperparasites of the genus *Pleurotropis* and referable, for the most part, to the above species.

Mr. Cotterell's material was in two lots: (a), noted as a hyperparasite on *Cotterellia podagrica* ♂, ♀; and (b), noted as a hyperparasite on *Dimmockia aburiana* ♂, ♀. In the tube containing the ♂ of *D. aburiana* were three ♀ of *P. nigripes* apparently included as being the same thing. The specimens in (a) are all *nigripes*, and so is the greater part of (b), but this lot contains also several specimens in which the scutellum is completely reticulated. Consideration of the latter examples must for the present be deferred.

*R. nigripes*, Waterst., was originally described as bred with *Eurytoma* sp. from Braconid cocoons in Southern Nigeria (*l. c.* p. 355).

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