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A REVISION OF THE GENUS IPHICRATES

(Hemiptera: Lygaeidae)[1]

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Like several other genera of Oriental Blissinae, the genus *Iphicrates* is interesting because of the nature of the sexual dimorphism exhibited. Males of all species have the bucculae strongly produced anteriorly to extend well forward of the apex of the tylus. In females the bucculae are usually slender ridges lying along the sides of the labium (figs. 1, 13) much as they are in most Lygaeidae, but in some species slightly produced forward of the apex of the tylus. These enlarged and forward extending bucculae of the males are of great importance in specific diagnosis.

Although the function, if any, of the bucculae is completely unknown, it appears likely that the case is analogous to the development of the "horns" in many Scarabaeidae. Indeed in the species *Iphicrates malayensis* we already appear to have a case where a "submale" is present. One male specimen of this species from the type locality exhibits sexual dimorphism of the head that differs markedly from that of the type specimen and the other males available for study. The bucculae of this specimen are approximately two-thirds the size of the normal males and somewhat divergent (figs. 11, 12). The female of *malayensis* does not have the bucculae produced at all forward of the apex of the tylus (fig. 13). The condition of the bucculae in the anomalous male is therefore rather like the other males but with some reduction. The juga, on the other hand, are thick and subtriangular in the reduced male (fig. 12) and are in fact much as in the female (fig. 13) and quite unlike the elongate juga that occur in other males (fig. 11). It is evident, therefore, that this specimen shows a very incomplete expression of the striking dimorphism present in the genus. Since the female head is typically blissine and generalized and the male is the sex expressing the specialization, it seems reasonable to suppose that whatever genetic or hormonal system is involved is incompletely developed in this individual. Its importance to the systematics of the group is the recognition that in any population we may anticipate finding a certain proportion of the males that will not exhibit a complete sexual dimorphism. Indeed the males of *Iphicrates nigritus* very possibly are male specimens showing a similar type of reduced male dimorphism (fig. 3). It is tempting to think that there may eventually be shown to be a gradient in the male dimorphism similar to that found in many of the Scarabaeidae but one must confess that the available museum material is too scanty to more than hint at such a possibility.

1. This work was supported in part by Grant No. G5631 National Science Foundation.

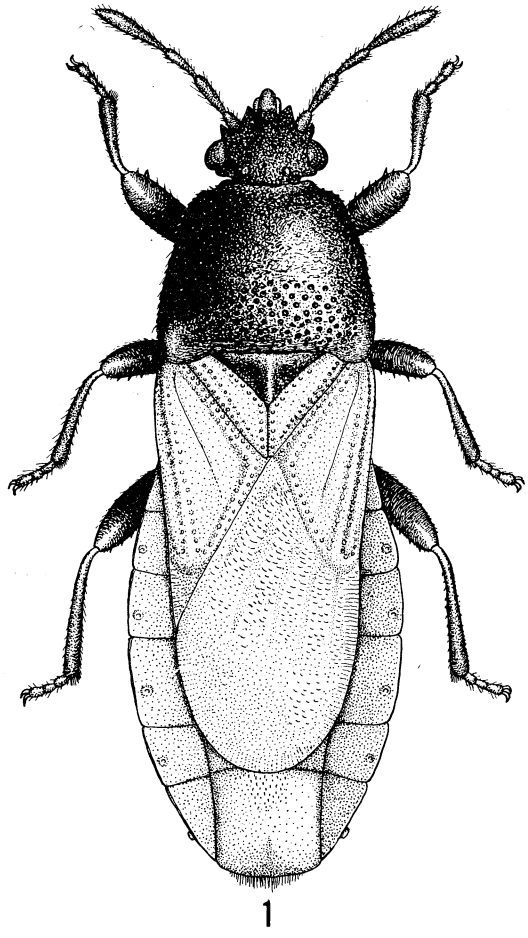


Fig. 1. *Iphicrates lativentris* (Bergroth). Female. Dorsal view.

Since the erection of the genus, no study of the group has been undertaken. This is not surprising as most species of *Iphicrates* are rare insects in collections. During recent revisional work on the subfamily Blissinae, I have had occassion to study the material present in most of the larger European museums and the results relative to *Iphicrates* are presented in the present paper.

Genus **Iphicrates** Distant

Iphicrates Distant, 1903, Ent. Soc. Belg. **47**: 44.

Diagnosis: Expanded ♂ bucculae most obvious characters. Small to moderate sized blissines with antenniferous tubercles acute, pointed, frequently curved and shaped like "cowhorns;" juga elevated and projecting forward as cone-like points; compound eyes never stalked, but produced laterad on shelf-like ledge, not in contact with antero-lateral pronotal margins; pronotum with a weak or obsolete transverse impression; apical corial margin straight or with very slight sinuation on basal 1/3; abdomen elliptical or linear with strongly explanate connexival margins; fore femora and sometimes middle and hind femora with small fine teeth present, these frequently confined to 2 or 3 placed ventrally near apex of fore femora; fore coxal cavities closed.

Type species of genus: *Iphicrates subauratus* Distant, 1903; Ceylon.

RANGE: Oriental and Australian regions from Ceylon, Malaya and Japan southward and eastward through Indonesia, New Guinea and Australia to the Solomons, New Caledonia and Tasmania.

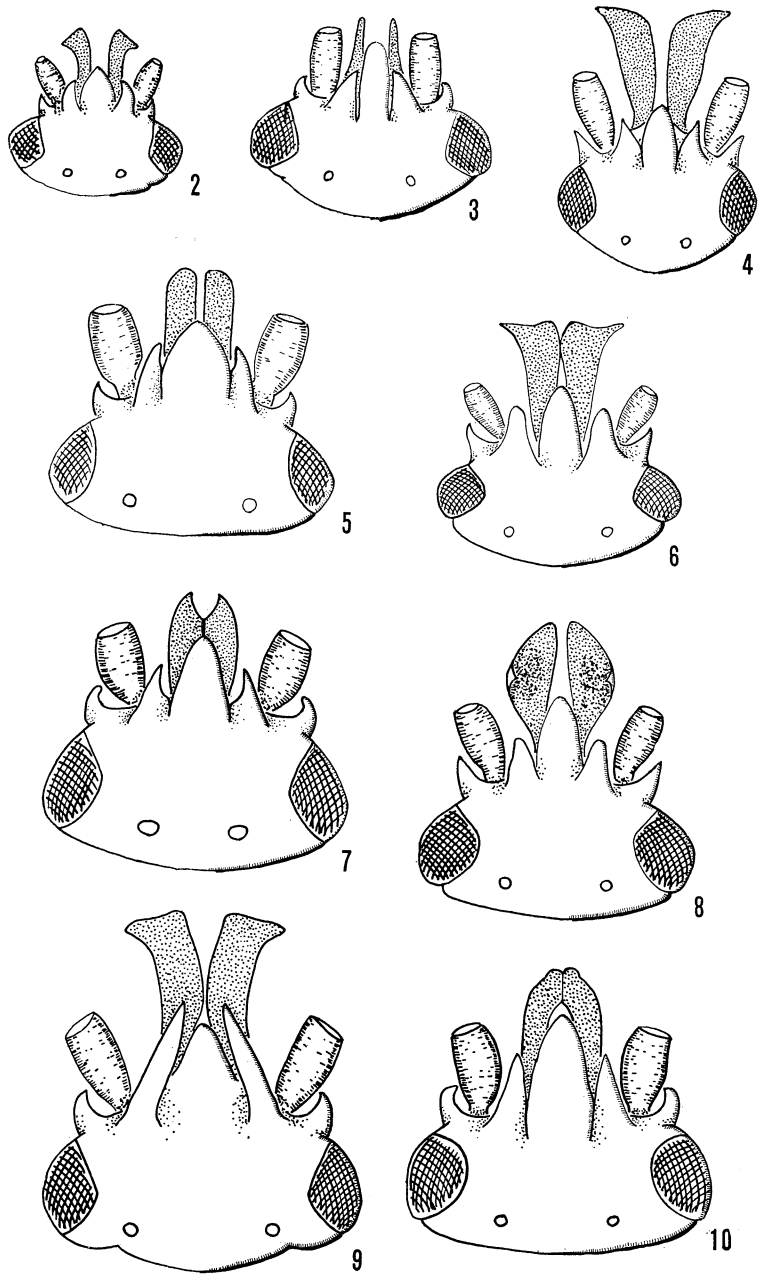
The genus *Iphicrates* was actually established by Distant in 1903 when he described as a new species "*Iphicrates subauratus*" from Ceylon. This validated the genus with *subauratus* as the monobasic type species. Subsequent action by Distant (1904) and Oshanin (1912, Katalog Pal. Hem.) where *spinicaput* (Scott) is cited as the type species is accordingly invalid.

In the present paper the genus *Anisosoma* Bergroth is synonymised as based upon a female of *Iphicrates lativentris*. *I. montaguei* (Distant) is transferred here from *Macropes* and seven new species are characterized. There are, however, additional species at present in collections represented only by females that are not formally described at this time (Mindanao, Celebes, New Guinea, Java).

As previously noted, specimens are scarce in collections and it probably will be many years before we have a reasonably good knowledge of the distribution of the various species. However, interesting problems of speciation and distribution are already evident. For example, two very distinct species occur on Bougainville in the Solomons and the same two (or in one case a closely related) species are also present in New Guinea. For a mature knowledge of the group, New Guinea must be understood as here is surely the present evolutionary center of the genus. New Guinea species show more affinities to Philippine species than to those from Australia.

Key to males of Iphicrates

1. Bucculae narrow and linear or converging, apices never strongly broadened and expanded (figs. 3, 5, 7, 10, 11); if slightly expanded distally then also with juga attaining or exceeding apex of tylus 2
   Bucculae becoming strongly expanded at apex (figs. 2, 4, 6, 8, 9, 14) 6
2 (1). Bucculae acute at apex (figs. 3, 7) 3
   Bucculae either rounded or truncate at apex (figs. 5, 10) 4
3 (2). Bucculae in contact on meson before tylus, broad and sharply curving to the acute apices (fig. 7); body elongate, pronotal length equal to basal width; with at least posterior lobe of pronotum and hemelytra yellowish..... **lineatus**
   Bucculae projecting forward as small slender sub-acute spikes, very broadly separated from one another for entire length (fig. 3); pronotal width across humeri considerably greater than median length; entire body surface black or very dark chocolate-brown ..... **nigritus**
4 (2). Juga attaining or exceeding apex of tylus, long and slender; apex of bucculae sharply truncate (fig. 11) ..... **malayensis**
   Juga much shorter, remote from apex of tylus; bucculae rounded at apex, not sharply truncate (figs. 5, 10) 5
5 (4). Bucculae converging and broadly in contact along midline (fig. 10) ..... **montaguei**
   Bucculae nearly linear, never broadly in contact along midline ..... **spinicaput**
6 (1). Bucculae strongly angulate from inner apex to lateral corner (figs. 2, 8), or broadly rounded (fig. 14) 7
   Bucculae nearly straight across apical margin, never strongly angulate from meson to lateral angle (figs. 4, 6, 9) 9
7 (6). Bucculae narrow and straight for most of length, sharply expanded apically (fig. 2); fore femora armed below distally with 2 sharp spines..... **cervinellus**
   Bucculae expanded for greater portion of length, lateral margin therefore strongly convex, dorsal surface concave and having a "scooped-out" appearance (figs. 8, 14) 8
8 (7). Bucculae with outer margin formed into an acute point, sometimes slightly recurved (fig. 8); juga rounded and thick; pronotum entirely black except



Figs. 2–10. Dorsal view of heads of males: 2, *Iphicrates cervinellus* n. sp.; 3, *Iphicrates nigritus* n. sp.; 4, *Iphicrates papuensis* n. sp.; 5, *Iphicrates spinicaput* (Scott); 6, *Iphicrates lativentris* (Bergroth); 7, *Iphicrates lineatus* n. sp.; 8, *Iphicrates angulatus* n. sp.; 9, *Iphicrates subauratus* Distant; 10, *Iphicrates montaguei* (Distant).

at humeral angles; basal width of pronotum greater than median length... ..... **angulatus**

Bucculae with lateral margins evenly rounded, not formed into an acute angle (fig. 14); juga sharp and acute; pronotum with posterior 1/3 usually dark reddish brown; median pronotal length subequal to width across humeri.. **spathus**

9 (6). Bucculae meeting or nearly meeting along midline for some distance cephalad of apex of tylus (fig. 9); juga very elongate, exceeding apex of tylus and projecting toward meson..... **subauratus**

Bucculae usually separated along meson if in contact near apex then always with juga short and thick and not attaining apex of tylus (figs. 4, 6) 10

10 (9). Juga short and blunt at apices, projecting nearly straight forward (fig. 6); bucculae concave on cephalic margin and often in contact or nearly so near apices..... **lativentris**

Juga acute at apices and projecting cephalo-laterad (fig. 4); bucculae convex on cephalic margin, broadly separated along meson ..... **papuensis**

Iphicrates subauratus Distant, **1903**: 44; **1904**: 28. Fig. 9.

Head above and below, central area of anterior pronotal lobe, anterior and antero-lateral portions of propleuron and sternum, greater part of meso- and metapleurae and antennae black to very dark brown; extreme apex of tylus and juga, anterior 1/2 of head below, posterior lobe of pronotum, lateral margins and collar of anterior lobe, acetabulae, scutellum except adjacent to median carina and entire hemelytra, abdomen, labium and legs pale tan to testaceous.

Head with bucculae strongly produced, pale white and broadly in contact along midline cephalad of tylus, apices divergent with apical margin "squared-off" (fig. 9); juga very elongately produced, exceeding apex of tylus and convergent toward midline; antenniferous tubercles curving inward and produced as acute projections; eyes strongly produced laterad on projecting shelf of head, head length 0.62 mm, width across eyes 0.80 mm, interocular space 0.52 mm; pronotum relatively rectangular for genus with shallow transverse median impression, lateral margins sinuate, posterior margin with conspicuous posteriorly projecting lobes laterad of scutellum, pronotum length 0.92 mm, width 1.20 mm; scutellum with a rather weak T-shaped polished carina, length 0.40 mm; corium with lateral margins convex with an explanate flange, tapering caudad, apical corial margin weakly concave on basal 1/2, distance apex clavus—apex corium 0.60 mm, apex corium—apex abdomen 1.90 mm, membrane reaching midway onto penultimate abdominal tergite; connexivum strongly developed and upcurved, extending laterad of hemelytra from tergite 3 caudad; fore femora strongly incrassate, armed below near apex with pair of sharp spines, proximal one larger; labium extending well onto mesosternum, probably not attaining mesocoxae (apex obscured in type), length of labial segments, I 0.38 mm, II 0.45 mm, III 0.38 mm, IV 0.50 mm. Total length 5.00 mm.

DISTRIBUTION: Ceylon.

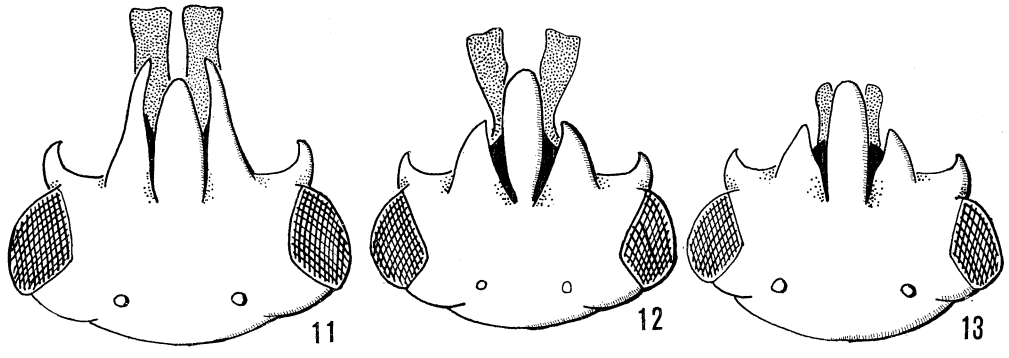
Type data: ♂, ♀ (BMNH), "Pundalu-oya, Ceylon." Male here selected as **lectotype** and appropriately labelled.

Additional material examined: Puwakpitiya, Ceylon, Hiver, 1906–7; ♂, ♀ (PARIS MUS.).

I. subauratus is a very distinctive species at least in the male sex. Not only are the bucculae distinctive but the very elongate, acute juga are found only in this species and the related *malayensis*. Females are very similar to males in general facies, size and coloration.

Iphicrates malayensis, n. sp. Figs. 11, 12, 13.

Head, anterior pronotal lobe, thoracic sterna and base of scutellum black; posterior 1/2 of pronotum, hemelytra, abdominal connexivum and apex of scutellum testaceous becoming red-brown on abdomen above and below, legs, antennal segment 1, acetabula and posterior lobe of metapleuron; antennal segments 2, 3 and 4 fuscous; head and pronotum nearly smooth, never conspicuously rugose, with numerous distinctly differentiated punctures.



Figs. 11–13. *Iphicrates malayensis* n. sp. 11, head, dorsal view of male; 12, head, dorsal view of sub-male; 13, head, dorsal view of female.

Body elongate linear; head with eyes placed laterally on prominent "shelf", bucculae of ♂ projecting anteriorly as a pair of nearly straight parallel sided bars with apices sharply truncate, juga very elongate, extending anteriorly to or slightly beyond apex of tylus, becoming very tapering and somewhat elevated; projections of antenniferous tubercles strongly curving, head length 0.55 mm, width across eyes 0.72 mm, interocular space 0.48 mm; pronotum only slightly convex, transverse impression very obsolete, lateral margins straight, narrowing mesad only on anterior 1/4, posterior margin shallowly and evenly concave, pronotum length 0.90 mm, width 0.92 mm; scutellum with a well-defined but low median carina, scutellum length 0.38 mm; hemelytra strongly brachypterous, at most barely attaining abdominal tergite 4, narrowing evenly from base to apex of membrane to leave all abdominal connexiva from segment 2 caudad exposed, distance apex clavus—apex corium 0.40 mm, distance apex corium—apex abdomen 2.52 mm; labium short, at most barely attaining anterior margin of fore coxae, always very remote from base of prosternum, length of labial segments, I 0.25 mm, II 0.22 mm, III 0.15 mm, IV 0.24 mm (from ♂ paratype); fore femora moderately incrassate, armed below on distal 1/3 with a pair of sharp spines; antennae nearly terete, segments 2 and 3 slightly enlarged to apex, length of antennal segments, I 0.22 mm, II 0.32 mm, III 0.22 mm, IV 0.45 mm. Total length 5.05 mm.

DISTRIBUTION: Malaya, Sumatra.

Holotype ♂ (South Austral. Mus.), Gap, (Fraser's Hill), Malay Peninsula, A. M. Lea & wife. Paratypes (Leiden Mus., Paris Mus., So. Austral. Mus., author's coll'n) 6 ♂, 2 ♀: same data as holotype: Penang, Malay Peninsula, Lea & Party: "Inde;" Mauna, Sumatra, M. Knappert.

This species is related to *subauratus* Distant in many respects having similar elongate juga that attain or slightly exceed the apex of the tylus, two spined fore femora, curved antenniferous tubercles and coloration. In addition to the jugal differences however *malayensis* is a much more elongate, slender species than is *subauratus*. In fact it bears considerable superficial resemblance in size and shape to *spathus* from Tasmania. This resemblance is especially evidenced by both species having a very similar type of brachyptery of the forewing which evenly tapers caudad and leaves all of the abdominal segments from tergum three caudad exposed. Nevertheless on the basis of what I consider fundamental characters in the genus, *malayensis* belongs with *subauratus* and is not actually closely related to *spathus* despite the general resemblance.

Iphicrates spinicaput (Scott).

Ischnodemus spinicaput Scott **1874**: 426; Distant **1883**: 416.

Iphicrates spinicaput Distant **1904**: 27; Oshanin **1906**: 272; **1912**: 29; Esaki **1950**: 224; Stichel **1959**: 319.

Head, pronotum except across humeri, scutellum and humeral area of pronotum and extreme apex of scutellum brownish; clavus, corium and abdomen above light testaceous shading on abdomen to brownish; membrane pale hyaline, the 3 principal veins light brown.

Head with eyes little produced, juga thick and projecting nearly straight forward (fig. 5); antenniferous tubercles acute and curving mesad, head length 0.60 mm, width across eyes 0.68 mm, interocular space 0.48 mm; pronotum lacking a transverse impression, slightly but evidently narrowing anteriorly, posterior margin concave, lateral lobes not produced caudad, surface rather irregularly rugulose, pronotum length 0.90 mm, width 1.02 mm; scutellum with a subshining T-shaped carina, length 0.42 mm; corium with lateral margin slightly convex, posterior margin weakly sinuate along anterior 1/2, membrane extending only to near posterior margin of penultimate abdominal tergum; distance apex clavus—apex corium 0.80 mm, distance apex corium—apex abdomen 2.05 mm; abdominal connexivum strongly upturned and nearly entirely exposed laterad of wings from tergum 3 caudad; labium at most barely attaining anterior margin of mesosternum; fore femora weakly incrassate, armed below with 2 small spines on distal 1/3, the larger proximad, also bearing a series of fine upstanding hairs along ventral surface; length of antennal segments, I 0.21 mm, II 0.32 mm, III 0.23 mm, IV 0.50 mm. Total length 5.05 mm.

DISTRIBUTION: Japan.

Holotype ♀ (BMNH), "Japan."

Additional material examined: Nagasaki, G. Lewis; Mt. Wakasugi, T. Hidaka; 3 ♂ (BMNH, author's coll'n).

Esaki (1950) gives an excellent figure of the male of *spinicaput* and separate sketches of the head of both sexes showing the dimorphism.

Miyamoto (1957) records an ovariole number of six.

Iphicrates cervinellus, n. sp. Fig. 2.

Head, anterior pronotal lobe (except collar), antennae, venter of thorax except acetabula, posterior 1/3 of pronotum and posterior lobe of metapleuron black; femora except extreme apices and venter of abdomen dark red brown; remainder of body bright yellowish to testaceous; pronotum with numerous large punctures.

Bucculae strongly projecting straight and narrow until near apex, here strongly expanded with anterior edge angulate and outer apical angle acute (fig. 2); juga thick, stubby, projecting straight forward or slightly inward; antenniferous tubercles short, slightly curving, stubby, with apices not acute; length head 0.45 mm; width across eyes 0.61 mm; interocular space 0.40 mm; pronotum with a weak transverse impression becoming obsolete mesally, lateral margins slightly sinuate, posterior margins nearly evenly concave with caudally directed lobes very slightly evident laterad of scutellum, pronotum evenly but very slightly narrowing cephalad, length pronotum 0.75 mm, width 0.85 mm; scutellum with a weak poorly defined T-shaped carina, strongly punctate over most of surface, length 0.32 mm; hemelytra with lateral margins slightly convex, narrowing caudad, apical corial margin nearly straight, membrane covering apical 1/3 of ultimate abdominal tergite; distance apex clavus—apex corium 0.72 mm; distance apex corium—apex abdomen 1.22 mm; abdomen linear, connexivum well developed and strongly upcurved; femora only moderately incrassate, armed below with two sharp spines near distal end, proximal the larger; labium short, extending only between fore coxae, not attaining posterior margin of prosternum, length of labial segments, I 0.22 mm; II 0.15 mm, III 0.13 mm, IV 0.22 mm; length antennal segments I 0.18 mm, II 0.28 mm, III 0.20 mm, IV 0.40 mm. Total length 3.75 mm.

DISTRIBUTION: Neth. New Guinea.

Holotype ♂ (BISHOP), Wisselmeren Obano, Neth. New Guinea, 9-VIII-1955, J. L. Gressitt. Paratype (author's coll'n) ♀, Wisselmeren, Okaitadi, Neth. New Guinea, 1,800 m, 8-VIII-1955, J. L. Gressitt.

There is an additional specimen before me from Bougainville (Simba Mission) that is very similar, differing only in possessing a somewhat longer labium.

Despite the expanded apex to the bucculae this species is most closely related to *spinicaput* Scott which it resembles in general habitus, condition of punctures, fore femoral spines and juga.

Iphicrates spathus, n. sp. Fig. 14.

Head, anterior 2/3 of pronotum, abdomen and almost entire ventral surface black to very dark red-brown; hemelytra, abdominal connexivum, apex of scutellum, tibiae and tarsi testaceous; posterior 1/3 of pronotum and femora red-brown; antennae uniformly fuscous; head finely rugulose, punctures on pronotum shallow, irregular and relatively obscure for genus.

Bucculae produced forward as rounded lobes, all margins rounded and convex without sharp angulations, separated on midline, except sometimes narrowly in contact subapically (fig. 14); juga acute extending nearly straight forward, projections of antenniferous tubercles strongly curved, length head 0.58 mm, width across eyes 0.72 mm, interocular space 0.53 mm; pronotum elongate nearly rectangular, the lateral margins nearly straight

sided, very little narrowed anteriorly, transverse impression evident but obsolete, posterior margin shallowly concave, length pronotum 0.98 mm, width 1.00 mm; scutellum with a well developed median carina, length 0.38 mm; hemelytra strongly brachypterous, apex of membrane only extending caudad to midway onto abdominal tergite 4, entire hemelytron tapering and curving mesally from base to apex, leaving connexivum exposed from segment 2 caudad, distance apex clavus—apex corium 0.52 mm, distance apex corium—apex abdomen 2.68 mm; abdomen nearly linear, very slightly rounded, pale connexivum strongly contrasting with dark coloration of tergites; labium extending between fore coxae but not attaining anterior margin of mesosternum, length of labial segments, I 0.28 mm, II 0.26 mm, III 0.18 mm, IV 0.30 mm; fore femora moderately swollen, armed below near apex with 3 sharp teeth, all femora below with a series of blunt tubercles; antennae with segments 2 and 3 very narrowly enlarged to apex, length of antennal segments, I 0.20 mm, II 0.35 mm, III 0.25 mm, IV 0.52 mm. Total length 5.42 mm.

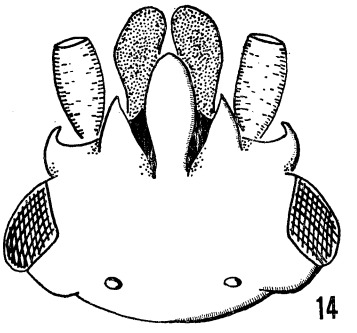


Fig. 14. *Iphicrates spathus* n. sp. Head, dorsal view of male.

DISTRIBUTION: Tasmania.

Holotype ♂ (South Austral. Mus.), Launceston, Tasmania, "in tussocks," A. M. Lea. Paratypes (South Austral. Mus., author's coll'n) 14 ♂, 33 ♀; same data as holotype.

This species is related to *spinicaput* from Japan and *lineatus* from Australia. It has the same general elongate body and semi-rectangular pronotum as *lineatus* but, the juga and general head appearance are more reminiscent of *spinicaput*.

This is the only species of the genus where a reasonably extensive series has been available. Therefore it has been of especial interest as it has made possible a study of the variability of the head structures especially of the bucculae that have been utilized so extensively in the present paper. Of the fifteen males available there is some variation in size and width of the bucculae and especially in the position relative to the midline. Some specimens agree with the holotype in having the bucculae meeting narrowly at the midline near their apices while in others they are widely separated. However, in all specimens the bucculae are of very similar general size and shape. There is nothing in this series to indicate that the extremely different conditions illustrated in the present paper are not as constant as other structural features, but only that in utilizing the character one must use intelligent judgement in expecting a reasonable amount of variation to occur.

I. spathus actually shows only slight sexual dimorphism of the bucculae as compared with many of the species of the genus. The females also have the bucculae developed forwards as rounded, flattened lobes beyond the apex of the tylus. The female bucculae appear similar to those found in the males but are much smaller and always very widely separated mesally. As with other members of the genus the female juga are shorter, more thickened and lie nearly flat against the sides of the tylus.

Iphicrates lineatus, n. sp. Fig. 7.

Head, antennae, pronotum, scutellum, thorax below and femora black, becoming brown

on apices of scutellum, antennal segment 4 and femora, across humeral area of pronotum and on posterior lobe of metapleuron; tarsi, bucculae and hemelytra pale testaceous; membrane hyaline, the veins a very slightly differentiated brown; abdomen and tibiae red-brown; pronotum with numerous large punctures, head rugulose, surface of both polished and subshining.

Head with bucculae broadly in contact at midline anterior to apex of tylus, but with apices narrowed to points and divergent, lateral margin convex (fig. 7), juga sharp, acute, nearly straight, antenniferous tubercles strongly curving mesad, eyes placed strongly laterad on shelf-like head area, head length 0.58 mm, width across eyes 0.70 mm, interocular space 0.48 mm; pronotum very elongate, a well developed shallow transverse impression present, lateral margins sinuate, posterior margin with well developed, posteriorly directed lobes laterad of scutellum, pronotum length 1.02 mm, width 1.00 mm; length scutellum 0.45 mm; hemelytra linear, tapering moderately posteriorly, leaving well developed connexivum exposed, distance apex clavus—apex corium 0.75 mm, distance apex corium—apex abdomen 2.25 mm; abdomen linear, slender, membrane extending posteriorly to midway onto penultimate abdominal tergite; fore femora incrassate, armed below near apex with a pair of sharp spines, the proximal the larger, middle and hind femora bearing a series of small widely separated tubercles on ventral surface; labium short, extending between fore femora, but not reaching base of prosternum, length of labial segments, I 0.28 mm, II 0.28 mm, III 0.22 mm, IV 0.29 mm; length of antennal segments, I 0.20 mm, II 0.38 mm, III 0.28 mm, IV 0.50 mm. Total length 5.36 mm.

DISTRIBUTION: Australia, New Guinea.

Holotype ♂ (Austral. Mus.), Kuranda, Queensland, Australia, I–1950, J. G. Brooks. Paratypes (Austral. Mus., South Austral. Mus., BMNH, Paris Mus., author's coll'n) 5 ♂, 2 ♀: same data as holotype; Dets Torres, T. Thursday, A. Nugue; NEW GUINEA: Papua. Mafula, 1,200 m, I–1934, L. E. Cheesman; Mt. Lamington, N. E. Papua, 400 to 460 m, C. T. McNamara.

This is a very easily recognized species by virtue of its linear shape, being the only species with the pronotal length subequal to the basal width. The female specimens have the bucculae projecting slightly beyond the apex of the tylus and convergent until near apices, thus the sexual dimorphism while evident is less strongly developed than in most other species of the genus.

Iphicrates angulatus, n. sp. Fig. 8.

Head, pronotum, scutellum, antennae and thoracic venter black; femora and tibiae brown; hemelytra and tarsi pale testaceous; abdominal sternum reddish brown; membrane dull whitish-flavescent; pronotum and head rugulose with coarse but irregular punctures, punctures on clavus and corium weak and obscure.

Head with strongly projecting bucculae that expand from base to apex, apical margins strongly angulate from meson to outer angles, the lateral edge often somewhat curled over (fig. 8); juga very short, thick and blunt, projecting straight forward; antenniferous tubercles acute, nearly straight, at most very feebly curved, length head 0.52 mm, width across eyes 0.66 mm, interocular space 0.45 mm; pronotum with only a very obscure transverse impression, slightly narrowing cephalad, the lateral margins weakly sinuate, posterior

margin with small but evidently posteriorly directed lobes laterad of scutellum, length pronotum 0.88 mm, width 1.05 mm; scutellum with well developed T-shaped median carina, length 0.40 mm; hemelytra with lateral corial margins sinuate, apical margin sinuate on anterior 1/2; hemelytra relatively broad for genus nearly covering connexivum on most segments, membrane extending midway onto ultimate abdominal tergite, distance apex clavus-apex corium 0.70 mm; distance apex corium—apex abdomen 1.35 mm; fore femora moderately incrassate, armed below on distal 1/3 with 3 sharp spines, ventral surface proximad of spines bearing a series of setae-like hairs almost to base; middle and hind femora also bearing a series of small spines and setae; labium extending to base of prosternum or barely attaining anterior portion of mesosternum, length of labial segments, I 0.30 mm, II 0.32 mm, III, IV–obscured; length antennal segments I 0.18 mm, II 0.27 mm, III 0.20 mm, IV 0.50 mm. Total length 4.10 mm.

DISTRIBUTION: New Guinea, Solomon Is.

Holotype ♂ (Hungarian Nat. Mus.), Simbang, Huon Gulf, New Guinea, 1898, Biro. Paratypes (Hungarian Nat. Mus., BISHOP, author's coll'n) 5♂: same data as holotype; Buin (Kangu), Bougainville, S. Solomons, 1–50 m, 31–V–1956, in light trap, E. J. Ford, Jr.

Iphicrates papuensis, n. sp. Fig. 4.

Head, pronotum, scutellum and antennae black, becoming castaneous on humeral area of pronotum, apex of scutellum; clavus, corium and abdomen brown to testaceous, membrane sordid, hyaline white, legs dark brown becoming paler distally; nearly glabrous; head and pronotum with conspicuous punctures but smooth and subshining in area of calli and across humeral area of pronotum.

Head with antenniferous tubercles sharp and acute, projecting straight antero-laterad, not curving mesad (fig. 4), juga strongly raised from head surface, divergent and straight; bucculae of male very strongly produced forward and conspicuously broadened at apex with apical margin convex, widely separated from one another for entire length, head length 0.60 mm, width across eyes 0.72 mm, interocular space 0.52 mm; pronotum nearly straight sided for almost entire length, narrowing mesad only on anterior 1/4, the lateral margins very faintly sinuate, posterior margin shallowly concave, length pronotum 0.95 mm, width 1.08 mm; length scutellum 0.38 mm; hemelytra with lateral margins slightly convex, but narrowing caudad to leave strongly developed and rounded abdominal connexivum exposed for greater portion of length, wing appearing sub-brachypterous with membrane leaving terminal 2½ abdominal terga exposed, distance apex clavus-apex corium 0.68 mm, distance apex corium—apex abdomen 1.95 mm; fore femora strongly incrassate with a very large spine and a much smallar second one present ventrally near distal end; labium extending onto anterior portion of mesosternum, length of labial segments, I 0.35 mm, II 0.25 mm, III 0.22 mm, IV 0.30 mm; length of antennal segments, I 0.28 mm, II 0.40 mm, III, IV–missing. Total length 4.75 mm.

DISTRIBUTION: New Guinea.

Holotype ♂ (BMNH), Mt. Tafa, Papua, New Guinea, 2,600 m, II–1934, L. E. Cheesman. Paratype (author's coll'n) ♀: same data as holotype.

Although taken from the same locality as *nigritus* and a month earlier, *papuensis* differs from *nigritus* not only by the extremely different bucculae but also by the parallel-

sided broad pronotum, straight pointed non-incurved antenniferous tubercles and more strongly raised and slender juga. *Papuensis* in fact belongs to the complex containing *lativentris* (Bergr.) and *angulatus*. It is most closely related to *lativentris* both species having quite similar male bucculae, but differ in that in *lativentris* the bucculae are concave on the anterior margin and are in contact with one another, while in *papuensis* they are separated throughout their length and have convex apices. Whether or not these differences in the bucculae will hold through long series cannot be answered from the present material, but species diagnosis does not depend upon them, the juga of *lativentris* being much heavier and thicker. *Lativentris* is in fact a larger more robust and heavier appearing species as can be readily seen by consulting the measurements.

The British Museum possesses a fifth instar nymph of this species and the Hungarian National Museum one of *angulatus*; there appear to be specific differences present in the sclerotized plates present on the posterior abdominal segments.

Iphicrates lativentris (Bergroth), NEW COMBINATION. Fig. 1, 6.

Anisosoma lativentris Bergroth, **1918**: 70.

Head, pronotum, scutellum, antennae, femora, tibiae, thoracic venter black shading to dark brown on appendages; corium, clavus, abdominal tergites pale testaceous; membrane hyaline with veins a very pale brown; abdominal sternum red-brown.

Head with bucculae strongly projecting forward and expanded prominently at apex, apical margin straight across, mesal margin nearly straight, the 2 buccula widely separated for entire length or barely in contact apically (fig. 6); juga thick, heavy and blunt, projecting nearly straight forward or slightly divergent, never acute and directed toward meson; antenniferous tubercles acute, straight or nearly so, not strongly curving mesad, eyes prominently produced on a "shelf", length head 0.65 mm, width across eyes 0.81 mm, interocular space 0.52 mm; pronotum with a weak but evident transverse impression and resultant sinuate lateral margin, maximum width of anterior lobe subequal to that across humeri, posterior lobes developed but small along posterior margin of pronotum laterad of scutellum, entire pronotal surface coarsely and rugosely punctate, length pronotum 1.12 mm, width 1.32 mm; scutellum with a prominent T-shaped carina, length 0.42 mm; hemelytra with lateral corial margins slightly convex, narrowing posteriorly to leave connexivum broadly exposed, membrane attaining posterior margin of penultimate abdominal tergite, distance apex clavus—apex corium 0.75 mm, distance apex corium—apex abdomen 1.90 mm; connexivum broad and flat not at all upcurved; labium at most barely attaining posterior margin of prosternum, but exceeding fore coxae, length of labial segments, I 0.35 mm, II 0.32 mm, III 0.25 mm, IV 0.35 mm; fore femora incrassate with 3 small spines on distal 1/3 of ventral surface; hind femora with series of small setigerous spines on ventral surface; length of antennal segments, I 0.22 mm, II 0.35 mm, III 0.28 mm, IV 0.60 mm. Total length 5.25 mm.

Bergroth evidently based his *Anisosoma* upon a female *Iphicrates*. I have not thus far been able to find the type specimens beyond doubt, but in the Baker collection at the United States National Museum is a female from Samar (fig. 1) that agrees with Bergroth's full description in every particular. This Samar female differs from the description given above only in the usual sexual differences found in *Iphicrates*. Furthermore a male and

female from Singapore appear conspecific.

This species as noted above is closely related to *papuensis* and *angulatus*.

Iphicrates montaguei (Distant), NEW COMBINATION. Fig. 10.

Macropes montaguei Distant **1920**: 151.

General coloration red-brown becoming black across anterior 1/2 of pronotum, antennal segment 2, pleura, mesal area of head below and prosternum; wings light brownish yellow to testaceous, membrane pale with veins clearly defined with brownish; tarsi pale yellowish; inner 1/2 of membrane suffused for entire length with very dark brown.

Head moderately produced laterally as a narrow "eye-shelf," bucculae extending forward of apex of tylus, slender not expanded toward apex, with round apices and curving mesad to meet near their apices at median line (fig. 10); juga acute, projecting straight forward, antenniferous tubercles strongly curving mesad, length head 0.60 mm, width across eyes 0.78 mm, interocular space 0.52 mm; pronotum with transverse impression absent over most of disc, little narrowed anteriorly until near anterior margin, maximum width of pronotum across anterior area thus subequal to that across humeri, posterior margin evenly concave, surface smooth or faintly rugulose with numerous scattered punctures, length pronotum 1.02 mm, width 1.08 mm; scutellum with a T-shaped carina, coarsely punctured laterad of the smooth carina; sinuate corial margins present, apical margin rather evenly concave; distance apex clavus—apex corium 0.58 mm, distance apex corium—apex abdomen 3.00 mm; abdominal connexivum well developed but nearly linear, never strongly rounded or elliptical; membrane leaving 2 to 3 abdominal segments exposed; fore femora moderately incrassate with pair of sharp spines present distally; a series of fine-setae-like hairs on ventral surface proximad of spines and extending almost to base; labium barely attaining posterior margin of prosternum, length of labial segments, I 0.38 mm, II 0.40 mm, III 0.35 mm, IV 0.30 mm; length of antennal segments, I 0.22 mm, II 0.42 mm, III, IV–missing. Total length 6.15 mm.

This species is particularly interesting in that the females have the bucculae developed nearly as strongly as does the male. The bucculae in the male are slightly larger and the head of this sex is more rugulose, but in general the sexual dimorphism is minor. The surface of the pronotum tends to be more polished and less strongly punctate than in any of the other species.

DISTRIBUTION: New Caledonia.

Type data: 2♀, 1♂, Plaine des Lacs, New Caledonia. Female bearing BMNH "type" label here selected as **lectotype** and appropriately labelled.

It is difficult to understand why Distant placed *montaguei* in the genus *Macropes* as it is quite clearly an *Iphicrates*, a genus he knew very well. However at the end of Distant's career many of his new species were badly placed and this is only one of the many species incorrectly associated with *Macropes*.

Iphicrates nigritus, n. sp. Fig. 3.

Entire surface including appendages black, shading to very dark brown on basal portion of pronotum and on appendages; entire surface strongly shining, nearly glabrous with

membrane and narrow marginal areas along claval suture dull; laterally with inconspicuous decumbent pubescence; head and pronotum conspicuously punctate becoming somewhat rugulose in region of transverse impression.

Head with antenniferous tubercles curving mesad; juga thick, straight, lying low along sides of tylus little if at all produced upward and forward; bucculae very small and slender, projecting forward of apex of tylus for distance only subequal to distance from apex of juga to apex of tylus (fig. 3), head length 0.65 mm, width across eyes 0.85 mm, interocular space 0.55 mm; pronotum narrowing gradually from posterior to anterior margin, a weak shallow but evident transverse impression present, posterior margin evenly concave, humeral area with a smooth, wide dark castaneous transverse band pronotum length 1.15 mm, width 1.45 mm; lateral corial margin straight, membrane covering abdominal connexivum for most of its length and almost attaining apex of abdomen; scutellum length 0.60 mm; distance apex clavus—apex corium 1.25 mm, distance apex corium—apex abdomen 1.55 mm; fore femora moderately swollen, armed below distally with a pair of short, sharp spines; labium with apex obscured but reaching to or very slightly exceeding base prosternum, length of labial segments, I 0.38 mm, II 0.30 mm, III 0.23 mm, IV 0.34 mm (approx.); length of antennal segments, I 0.22 mm, II 0.35 mm, III, IV–missing. Total length 5.70 mm.

DISTRIBUTION: New Guinea.

Holotype ♂ (BMNH), Mt. Tafa, Papua, New Guinea, 2,600 m, L. E. Cheesman, III–1934. Paratypes [Queensland Mus. (Brisbane), D. A. S. F. Port Moresby New Guinea (T. P. N. G.), Dept. Entomology Univ. of Queensland, author's coll'n] 3 ♂, 2 ♀ Daulo Pass, Cent. Highland, 2,400 m, 20 to 22–VIII–1958, T. E. Woodward.

This is a very interesting species in addition to the peculiar black coloration which for the present will readily distinguish it from all other members of the genus. As mentioned under the discussion of *malayensis* the present male specimens may be "reduced" males.

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