

A revision of the *Yelicones* species (Hymenoptera: Braconidae: Rogadinae) from Central America, with descriptions of sixteen new species

D.L.J. Quicke, M.J.K. Chishti & H.H. Basibuyuk

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Donald L. J. Quicke^{1,2}, M. Jamil K. Chishti¹ & Hasan H. Basibuyuk^{1,2}.

¹, Department of Biology, Imperial College at Silwood Park, Ascot, Berkshire SL5 7PY, U.K.; ², Department of Entomology, The Natural History Museum, London SW7 5BD, U.K.

Key words: Hymenoptera; Braconidae; Rogadinae; *Yelicones*; Meso-America.

The genus *Yelicones* Cameron, 1887, from North and Central America is revised. Nineteen species are recognized: *Y. arizonus* spec. nov. from U.S.A. (Arizona) and Mexico; *Y. barroci* spec. nov. from Panama; *Y. bicoloripes* spec. nov. from Costa Rica and Panama; *Y. canalensis* spec. nov. from Panama; *Y. confusus* spec. nov. from Mexico and Panama; *Y. crica* spec. nov. from Costa Rica; *Y. delicatus* (Cresson), from U.S.A. to Panama; *Y. howdeni* spec. nov. from Mexico; *Y. infuriatus* spec. nov. from Mexico; *Y. longulus* spec. nov. from Panama; *Y. luteus* spec. nov. from Panama; *Y. nigrigaster* spec. nov. from Dominican Republic; *Y. nigromarginatus* Quicke & Kruft from southern U.S.A.; *Y. panameus* spec. nov. from Panama; *Y. pilops* Quicke & Kruft, from U.S.A. to Ecuador; *Y. setosus* spec. nov. from Mexico; *Y. tricolor* spec. nov. from Mexico and Costa Rica; *Y. woldai* spec. nov. from Panama. An illustrated identification key is provided.

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Introduction

This paper is one of a series revising the World fauna of the parasitic wasp genus *Yelicones* Cameron, 1887. *Yelicones* belongs to the braconid subfamily Rogadinae Foerster, 1862, which are koinoboint endoparasitoids of lepidopterous larvae. The North American species were recently revised by Quicke & Kruft (1995) who also summarized what little is known about the biology of the genus. The present paper deals with those species known from Mexico to Panama and including the Carribean islands. The key provided also includes one species recently described from the south-eastern U.S.A., *Y. nigrimarginatus* Quicke & Kruft, 1995, which might be expected to occur in Mexico, and it also includes the description of a new species from Mexico which also extends into the far south of the U.S.A. (Arizona). Recent collecting, particularly by H. Wolda in Panama, has greatly improved our knowledge of the Meso-American fauna. This material is housed in the Nationaal Natuurhistorisch Museum, Leiden and Canadian National Collection, Ottawa, and forms a substantial part of the material used in the present study.

Terminology and measurements

Terminology largely follows that of van Achterberg (1979, 1988). However, the following points should be noted: inter-tentorial distance is measured between the middle of tentorial pits; the length of face is measured from the dorsal margin of clypeus to the anterior edge of the antennal socket; horizontal length of eye is measured as the maximum length perpendicular to the face as viewed from above; the length of fore wing is measured from the apex of the tegula parallel to vein C+SC+R; hind wing vein SC+R1 is measured from SC+R1 to the first hamulus because of the difficulty of distinguishing where vein R1 starts in this genus; length of femur is measured excluding the trochantellus; the length of the eye (as used in the key) is taken as the maximum length measured along the major axis of the eye, and the maximum width is measured perpendicular to this. (N.B. These are not the same measurements as the height of eye and width of eye given in the descriptions which are both measured relative to the plane of the face). Relative lengths of wing veins are important for the recognition of some *Yelicones* species and their lengths are measured exclusive of their junctions except fore wing veins 2-SR+M and 1-CU1 which are measured inclusive of their junctions. Descriptions of sculpture follow Harris (1979).

The following abbreviations are used for museums holding specimens referred to in this study: Canadian National Collection, Ottawa (CNCO); Nationaal Natuurhistorisch Museum, Leiden (RMNH); National Museum of Natural History, Washington D.C. (USNM); Natural History Museum, London (BMNH); Quicke Collection, Lon-

don (QC); Texas A & M University Collection, College Station (TAMU); University of California at Davis (UCD).

Genus *Yelicones* Cameron, 1887

Yelicones Cameron 1887: 387; van Achterberg, 1995: 147 (literature). Type species, *Yelicones violaceipennis* Cameron, designated by Viereck (1914).

Rhopalotoma Cameron 1911: 318. Type species, *Rhopalotoma crassitarsis* Cameron, monotypic:

Pectenopi Fischer 1961: 156. Type species, *Pectenopi paradoxus* Fischer, original designation.

Diagnosis.— Distinctly cyclostome (figs 59, 84, 102); mandibles with a small accessory third tooth (figs 90, 91, 110); hind wing with vein 2m-cu (figs 1-4); second, third and fourth tarsal segments very short, telotarsus enlarged (figs 47, 48); hind basitarsus laterally compressed (fig. 31); claws pectinate (fig. 32); ovipositor not or hardly exerted.

Yelicones may be recognized using the keys of Marsh et al. (1987) or van Achterberg (1993, 1995).

Key to North and Meso-American species of *Yelicones*

1. Hind wing vein 2m-cu strongly antefurcal (fig. 1) 2
 - Hind wing vein 2m-cu interstitial or postfurcal (figs 2, 3, 28, 44, 49, 50) 5
2. Fore wing 3-SR longer than vein r-m (figs 7, 68, 76); pterostigma unicolorous, pale to dark brown; maximum length of eye less than 1.7 times maximum width of eye (figs 57-59) 3
 - Fore wing 3-SR shorter than vein r-m (fig. 6); pterostigma bicolorous, yellow on basal third, dark brown distally; maximum length of eye more than 1.8 times maximum width of eye (fig. 102) *Y. delicatus* (Cresson, 1872)
3. Body largely yellow; maximum length of fore wing subdiscal cell (excluding veins) less than 5 times its medial width (figs 9, 75); third metasomal tergite more than 2.0 times wider than medially long (figs 31, 76) 4
 - Body black; maximum length of fore wing subdiscal cell (excluding veins) more than 6 times its medial width (fig. 8); third metasomal tergite less than 2.0 times wider than medially long (fig. 64) *Y. longulus* spec. nov.
4. Flagellum all black; scutellum and axillae yellow; metasomal tergites behind the first tergite largely brown *Y. canalensis* spec. nov.
 - Flagellum largely yellow; scutellum and axillae piceous; metasomal tergites behind the first tergite yellow *Y. nigrigaster* spec. nov.
5. Eyes glabrous or if distinctly setose then the median area of the metanotum is rugose or striate and lacks a medio-posterior pit (figs 19, 21, 36, 92, 112) 6
 - Eyes setose, the setae being long; median area of the metanotum with a deep medio-posterior pit (see fig. 28) *Y. pilops* Quicke & Kruft, 1995
6. Fore wing vein 2-CU1 less than 1.95 times length of 3-CU1 (fig. 5); wings yellow except for a narrow infuscate distal margin 7
 - Fore wing vein 2-CU1 more than 2.05 times length of 3-CU1 (figs 10, 27, 38, 49, 68); wings variable 8
7. Fore wing vein C+SC+R yellow; hind tibia black *Y. crica* spec. nov.

- Fore wing vein C+SC+R black; hind tibia yellow except for apex which is black ...
.....*Y. nigromarginatus* Quicke & Kruft, 1995
- 8. Propodeum largely coarsely foveate rugose, antero-medially both with inverted 'V' (or 'U')-shaped carina, and mid-posterior triangular area ill-defined (figs 21, 28, 92); hind wing vein 2m-cu straight (figs 1, 2, 28) or weakly curving (fig. 3) ... 9
- Propodeum less foveate rugose, antero-medially with both inverted 'V' or 'Y' (or 'U')-shaped carina, and mid-posterior triangular area well-defined (figs 13, 36, 37, 54, 66, 82, 88, 100); hind wing vein 2m-cu strongly curving towards wing base, often reaching vein 2-1A (figs 3, 49, 69) 11
- 9. Metasomal tergites entirely yellow; with 33 or fewer flagellomeres 10
- Metasomal tergites largely brown to blackish with the lateral margins ivory white; with 34 or more flagellomeres *Y. tricolor* spec. nov.
- 10. Fore and mid legs entirely yellow *Y. barroci* spec. nov.
- Fore and mid legs with apex of femur, base of tibia and apex of tibia dark brown or black *Y. bicoloripes* spec. nov.
- 11. Metasomal tergites 3 to 6 densely short setose and usually with conspicuous punctures at the bases of the setae (figs 15, 48, 56, 67, 83) 12
- Metasomal tergites 3 to 6 shiny, and sparsely setose (fig. 37) *Y. confusus* spec. nov.
- 12. Wings unicolourous hyaline, dark brown, or yellow; mesosoma unicolorous red or yellow, or at most with pronotum and propleuron black or piceous 13
- Wings boldly patterned, brown and yellow with a brown transverse band at level of parastigma and a brown apex; mesosoma bicolorous, pronotum, propleuron, mesoscutum, and mesopleuron black, propodeum and scutellum, yellow
..... *Y. woldai* spec. nov.
- 13. Wings pale, hyaline or yellowish; head entirely yellow; legs variously boldly patterned yellow and black 14
- Wings uniformly brown to dark brown; head with at least the face, frons and occiput black; legs largely or entirely black or piceous or at most with only the base of the fore leg and the mid trochanter paler 15
- 14. Antero-medial carinae of propodeum separate up to anterior margin, forming an inverted 'U'-shape (see fig. 42); second metasomal tergite largely sculptured, areolate-rugulose to strigate, and with a complete mid-longitudinal carina (see fig. 83); wings hyaline with the apical margin of the fore wing infusate
..... *Y. howdeni* spec. nov.
- Antero-medial carinae of propodeum united before anterior end to form an inverted 'Y'-shape (fig. 66); second metasomal tergite largely shiny with fine puncturation and with incomplete mid-longitudinal carina (fig. 67); wings entirely yellowish *Y. luteus* spec. nov.
- 15. Antero-medial carinae of propodeum separate up to anterior margin, forming an inverted 'U'-shape (fig. 23, 54, 82); dorsal carinae of first metasomal tergite uniting distinctly in front of or at same level of the spiracle (fig. 83) 16
- Antero-medial carinae of propodeum more or less united before anterior end to form an inverted 'Y'-shape (fig. 88); dorsal carinae of first metasomal tergite uniting distinctly behind the level of the spiracle (fig. 89) *Y. setosus* spec. nov.
- 16. Metasoma bicolorous, tergites 1-4 yellow, tergites 5-7 brown; median area of metanotum strongly sloping anteriorly, with three diverging carinae arising from the posterior margin (fig. 80) *Y. panameus* spec. nov.

- Metasoma unicolorous, reddish; median area of metanotum more or less flat, with carinae only anteriorly (figs 12, 53) 17
- 17. Propodeum with antero-medial carinae close together and nearly parallel, propodeum lateral to these relatively smooth becoming abruptly rugose posteriorly (fig. 54); fore coxa and trochanter, and mid trochanter yellowish-white *Y. infuriatus* spec. nov.
- Propodeum with antero-medial carinae well separated and diverging posteriorly, lateral to these more strongly punctate becoming gradually rugose posteriorly (fig. 13); fore coxa and trochanter, and mid trochanter black *Y. arizonus* spec. nov.

Descriptions

Yelicones arizonus spec. nov.
(figs 4, 11-15)

Material.— Holotype, ♂ (USNM), "Huachuca Mts. vii.20-36 Ariz. [U.S.A.], J.N. Knull". Paratype: 1 ♂ (TAMU): "Mexico: Oaxaca, 6 mi. NE Mitla, 20.vii.1985, Woolley & Zolnerowich".

Holotype, ♂, length of body 8.0 mm, of fore wing 6.6 mm.

Head.— Antennae incomplete; first flagellomere 1.4 times longer than both second and third separately; first flagellomere 1.8 times longer than wide; third flagellomere 1.4 times longer than wide; malar space smooth, moderately setose near the edge of eye; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:6.3:1.6; clypeus smooth except for transverse row of deep punctures near dorsal margin; face punctate-reticulate, densely punctured with long setae, without mid-longitudinal carina; height of eye:width of face:width of head = 1.0:1.0:1.9; length of face 0.5 times width of face; eyes glabrous; frons impressed behind each antennal socket, with a complete mid-longitudinal carina, and posteriorly with two curved, transverse carinae (fig. 11); occiput and temples densely short setose (fig. 11); horizontal length of eye:horizontal length of head behind eye = 2.0:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:2.4:3.8; occipital carina incomplete medially (fig. 11).

Mesosoma.— Largely shiny, densely setose and minutely punctured at the bases of setae (figs 12, 13), 1.85 times longer than high; mesoscutum postero-medially with weak sculpturation; notauli shallow, without carination, distinct anteriorly, indistinct posteriorly (fig. 12); scutellar sulcus with 6 carinae between the 2 outer ones; median area of metanotum largely smooth, anteriorly with short carinae, postero-medially without pit (figs 12); mesopleuron largely smooth; precoxal suture deep, crenulate, narrow, straight and extending 0.75 length of mesopleuron; propodeum anteriorly punctate becoming largely rugose posteriorly, antero-medially with inverted 'U'-shaped carina, medially with transverse carinae, sublateral carinae almost completely developed (fig. 13).

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 4.8:0.96:1.0; vein 1-SR+M more or less straight; vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.1:0.9; lengths of veins 2-SR+M:2-M:m-cu = 1.0:2.0:1.3; lengths of veins 2-CU1:1-CU1 = 1.8:1.0; lengths of vein 2-CU1:3-CU1 = 2.1:1.0; veins C+SC+R and 1-SR forming an angle of 30°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.1;

vein 2-SC+R longitudinal; vein SR distinctly curving posteriorly at extreme tip; vein 2m-cu marginally postfurcal, strongly curved towards wing base (fig. 4), reaching vein 2-1A, tubular 0.9 of distance to posterior wing margin; marginal cell, basal cell and base of wing densely short setose.

Legs.— Lengths of fore femur:tibia:tarsus = 1.9:2.1:1.0; fore femur 3.25 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 3.25 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.6:2.3:1.0; hind basitarsus 4.1 times longer than maximally deep.

Metasoma.— Metasomal tergites densely setose (figs 14, 15); metasomal tergites 1-2 rugose-punctate; first metasomal tergite 1.4 times wider than medially long, dorsal carinae uniting anterior to level of spiracles; second metasomal tergite 1.8 times wider than medially long, antero-medially with small, smooth triangular area which is produced posteriorly to form a complete longitudinal carina (fig. 14); second suture smooth; third metasomal tergite largely, and 4th anteriorly rugulose-punctate; tergites 5-8 densely punctate (fig. 15).

Colour.— Reddish; head, propleuron, pronotum, tegula, and legs, piceous; wings including veins, pterostigma and setae, brown; fore wing vein C+SC+R piceous.

Variation.— (Paratype, male) Prothorax completely, anterior of mesopleuron and mesosternum black or piceous; wing veins dark brown; length of body 6.9 mm; length of fore wing 5.8 mm; first flagellomere 1.2 times longer than both second and third separately; first flagellomere 2.3 times longer than wide; third flagellomere 1.6 times longer than wide; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.4:1.3; height of eye:width of face:width of head = 1.0:1.1:1.7; length of face 0.7 times width; horizontal length of eye:horizontal length of head behind eye = 2.4:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:2.0:3.3; mesosoma 1.7 times longer than high; fore wing: lengths of veins 2-SR+M:m-cu = 1.0:1.1; lengths of veins 2-CU1:1-CU1 = 2.6:1.0; lengths of vein 2-CU1:3-CU1 = 2.6:1.0; hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.2; fore femur 2.5 times longer than maximally deep; hind femur 3.0 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.8:2.7:1.0; hind basitarsus 3.4 times longer than maximally deep; first metasomal tergite 1.1 times wider than medially long; second tergite 1.8 times wider than medially long; third tergite 2.2 times wider than long.

Distribution.— U.S.A. [Arizona], Mexico.

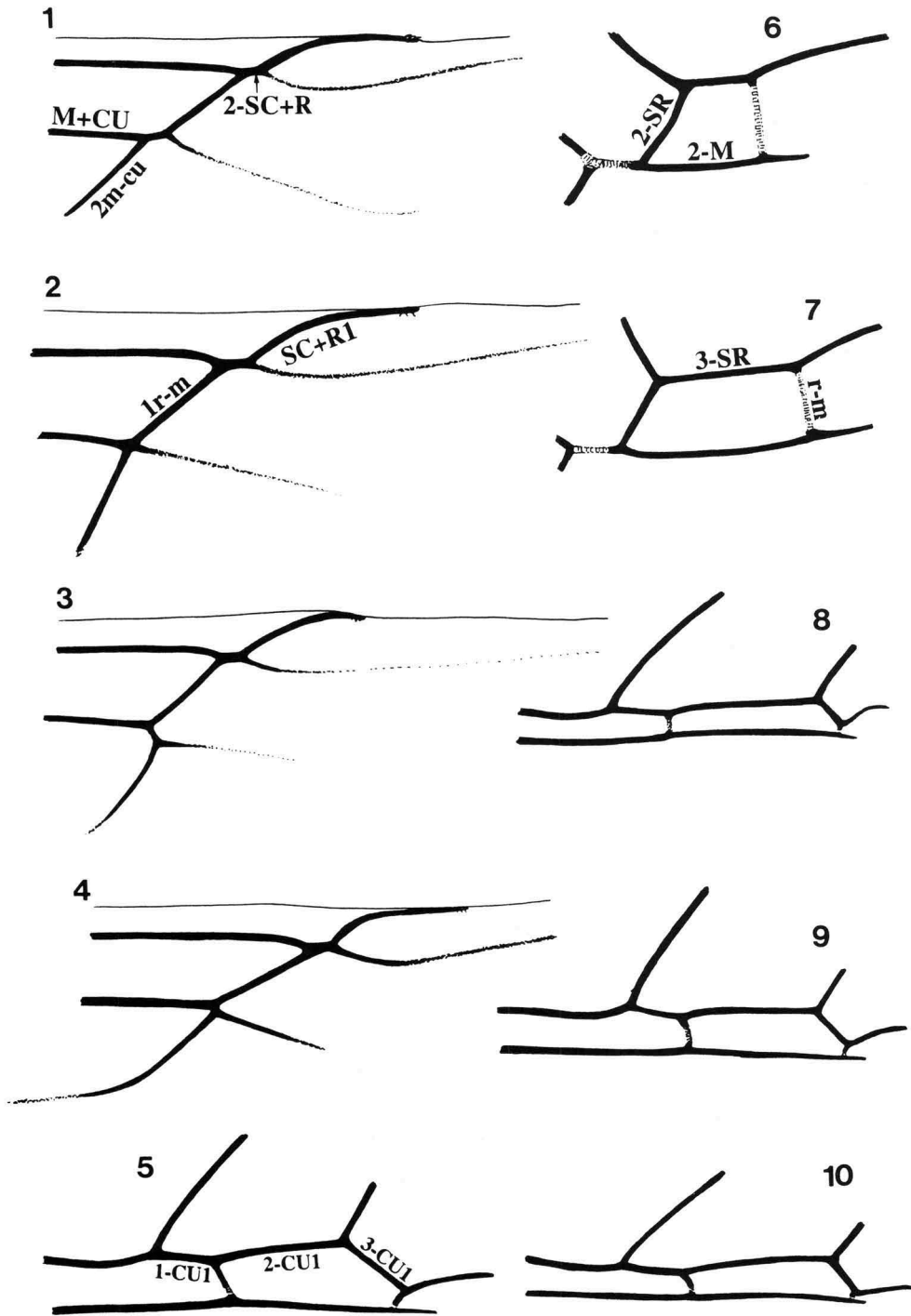
Yelicones barroci spec. nov.

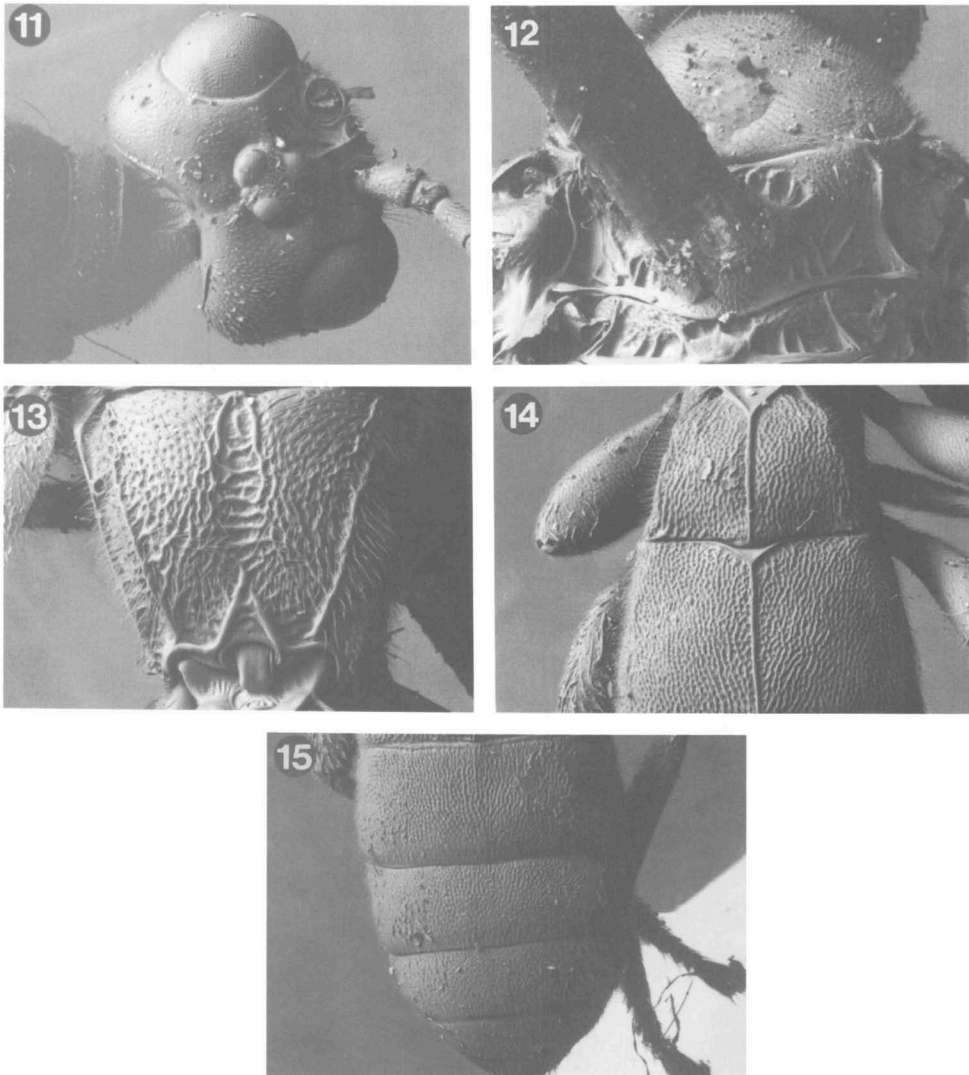
(figs 2, 10, 16-22)

Material.— Holotype, ♀ (CNCO), "PANAMA: C7, Barro Colorado Island, iv.1983, H. Wolda".

Holotype, ♀, length of body 4.9 mm, of fore wing 3.7 mm.

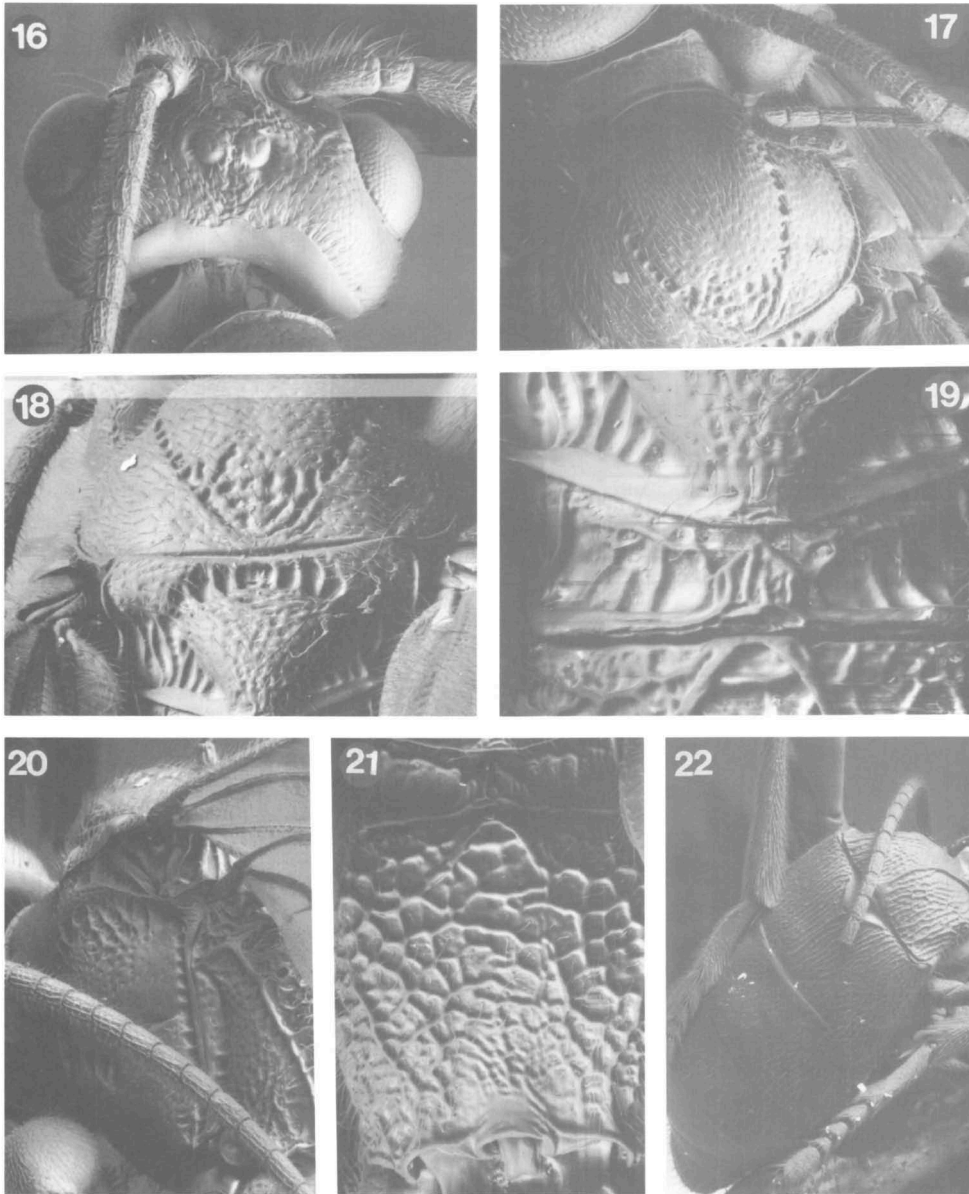
Figs 1-10, vein features and cell dimensions of holotypes (or paratypes; 3 & 6) of *Yelicones* species. 1-4, indicating curvature of hind wing vein 2m-cu: 1, ♀, *Y. longulus* spec. nov.; 2, ♀, *Y. barroci* spec. nov.; 3, ♂, *Y. confusus* spec. nov.; 4, ♂, *Y. arizonus* spec. nov. 5-10, vein lengths and cell dimensions of fore wing: 5, ♀, *Y. crica* spec. nov., first subdiscal cell; 6-7, second submarginal cell: 6, *Y. delicatus*; 7, ♂, *Y. canalensis* spec. nov.; 8-10, first subdiscal cell: 8, ♀, *Y. longulus* spec. nov.; 9, ♂, *Y. nigrigaster* spec. nov.; 10, ♀, *Y. barroci* spec. nov.





Figs 11-15, *Y. arizonus* spec. nov., ♂, holotype. 11, head, anterior of mesosoma, dorsal aspect; 12, mesoscutum, scutellum, metanotum; 13, propodeum, dorsal aspect; 14, 15, metasomal tergites.

Head.— Antennae with 33 flagellomeres; terminal flagellomere pointed, approximately 2.5 times longer than wide; first flagellomere 1.3 times longer than both second and third separately; first flagellomere 2.0 times longer than wide; third flagellomere 1.75 times longer than wide; malar space largely smooth to moderately punctured; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.1:1.6; clypeus smooth except for transverse row of long setae near dorsal margin; face densely punctured with long setae, a distinct complete mid-longitudinal carina running between antennal sockets and clypeus; height of eye:width of face:width of head = 1.0:1.3:2.2; length of face 0.5 times width of face; eyes glabrous; frons largely



Figs 16-22, *Y. barroci* spec. nov., ♀, holotype. 16, head, dorsal aspect; 17, mesoscutum; 18, posterior of mesoscutum, scutellum; 19, posterior of scutellum, metanotum, anterior of propodeum; 20, mesosoma, lateral aspect; 21, metanotum, propodeum, dorsal aspect; 22, metasomal tergites, flagellomeres, hind leg medially;

smooth, impressed behind each antennal socket, mid-longitudinal carina posteriorly incomplete (fig. 16), antero-medially with curved transverse carinae; occiput and temples densely setose and punctured (fig. 16); horizontal length of eye:horizontal length of head behind eye = 2.45:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.1:3.1; occipital carina incomplete medially (fig. 16).

Mesosoma.— Shiny, densely setose and punctured, 1.6 times longer than high; mesoscutum postero-medially irregularly pitted (fig. 18); notauli deep, crenulate, impressed throughout length of mesoscutum (fig. 17); scutellar sulcus with 7 carinae between the 2 outer ones; median area of metanotum longitudinally carinate, postero-medially without pit (fig. 19); mesopleuron largely punctate; precoxal suture deep, crenulate, wide, virtually curved, extending 0.65 length of mesopleuron (fig. 20); propodeum largely areolate-rugose, antero-medially with distinct inverted 'V'-shaped carina, sublateral carinae indistinct and irregular (fig. 21).

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 4.3:1.2:1.0; vein 1-SR+M curved anteriorly towards anterior of wing; vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.4:0.9; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.5:1.3; lengths of veins 2-CU1:1-CU1 = 1.75:1.0; lengths of veins 2-CU1:3-CU1 = 3.2:1.0 (fig. 10); veins C+SC+R and 1-SR forming an angle of 45°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.6; vein 2-SC+R longitudinal; vein SR curved anteriorly at extreme tip; vein 2m-cu interstitial, straight (fig. 2), tubular 0.9 of distance to posterior wing margin; vein 2-1A posteriorly absent; marginal cell, basal cell and base of wing densely short setose.

Legs.— Lengths of fore femur:tibia:tarsus = 1.8:2.0:1.0; fore femur 2.5 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 2.9 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.9:2.7:1.0; hind basitarsus 2.6 times longer than maximally deep.

Metasoma.— Metasomal tergites 1-2 densely and 3-4 largely setose with deep puncturation; first metasomal tergite rugose-punctate, 1.3 times wider than medially long, dorsal carinae uniting at same level as spiracles (fig. 22); second metasomal tergite longitudinally striate, 2.2 times wider than medially long, antero-medial triangular area posteriorly with a small triangular pit, mid-longitudinal carina almost complete (fig. 22); third metasomal tergite 2.3 times wider than long; second suture smooth; metasomal tergites 5-8 largely smooth with moderately dense setosity.

Colour.— Pale yellow; eyes dark red; antennae, stemmaticum, lateral edge of mesoscutum, apices of hind tibia and hind basitarsus, lateral part of ovipositor sheaths, piceous or dark brown; wings very pale; setae, veins and pterostigma dark brown.

Distribution.— Panama.

Yelicones bicoloripes spec. nov.
(figs 23-28)

Material.— Holotype, ♀ (CNCO), "COSTA RICA: Alajuela, Penas Blancas 700 m, iv.1987, E. Cruz MT". Paratypes: 1 ♀, 2 ♂ (RMNH): 1 ♀, "Museum Leiden, NORTH PANAMA, 1050 m. Fortuna, Chiriqui, 8°44' N: 82°15' W. 24.xi.1976, H. Wolda, at light"; 2 ♂, sama data except, one dated 21.xi.1976, second 12-19.iv.1976.

Holotype, ♀, length of body 5.2 mm, of fore wing 3.9 mm.

Head.— Antennae with 31 flagellomeres; terminal flagellomere pointed, approximately 2.8 times longer than wide; first flagellomere 1.3 and 1.4 times longer than the second and third respectively; first flagellomere 2.0 times longer than wide; third flagellomere 1.5 times longer than wide; malar space moderately setose (fig. 24); height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.25:1.5; clypeus and face densely punctured with long setae; face with weak mid-longitudinal carina between antennal sockets extending 0.5 distance to clypeus (fig. 23); height of eye:width of face:width of head = 1.0:1.3:2.3; length of face 0.5 times width of face; eyes glabrous; frons largely punctured, impressed only behind each antennal socket, mid-longitudinal ridge posteriorly absent, antero-medially with 5 diverging, transverse, curved carinae (fig. 23); occiput and temples densely punctured (fig. 25); horizontal length of eye:horizontal length of head behind eye = 2.3:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.4:4.5; occipital carina medially weakly developed (fig. 25).

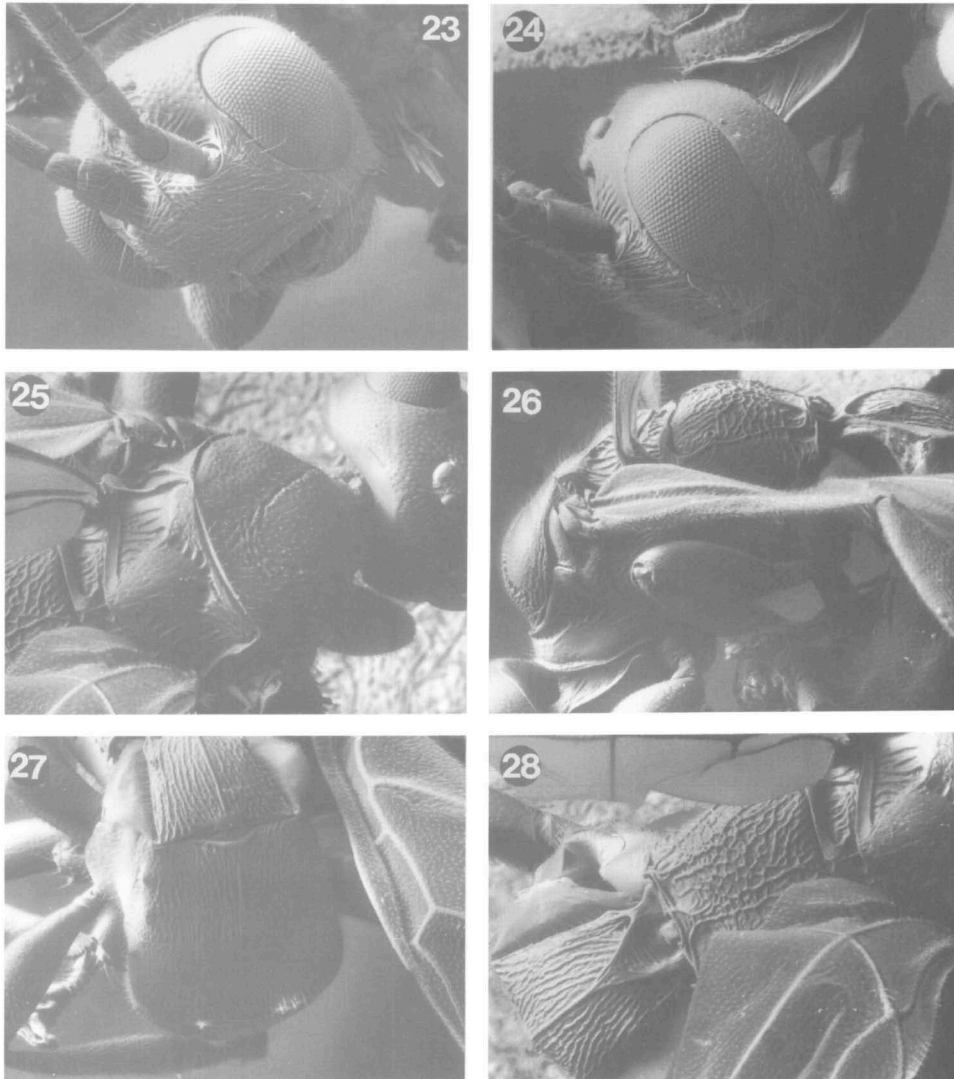
Mesosoma.— Shiny, moderately short setose with deep puncturation, 1.7 times longer than high; mesoscutum postero-medially with short transverse impressions; notauli deep, weakly crenulate, impressed on anterior 0.7 of mesoscutum (fig. 25); scutellar sulcus with 5 carinae between the 2 outer ones; median area of metanotum postero-medially with a semicircular pit (figs 25, 28); mesopleuron densely short setose; precoxal suture shallow, weakly crenulate, straight, extending 0.6 length of mesopleuron; propodeum largely areolate-rugose, antero-medially with distinct inverted 'U'-shaped carina, sublateral carinae absent (figs 26, 28).

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 4.0:0.9:1.0; vein 1-SR+M strongly sinuous (see fig. 75); vein r arising 0.45 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:0.9:0.8; lengths of veins 2-SR+M:2-M:m-cu = 1.0:2.1:1.6; lengths of veins 2-CU1:1-CU1 = 1.5:1.0; lengths of veins 2-CU1:3-CU1 = 2.9:1.0 (fig. 27); veins C+SC+R and 1-SR forming an angle of 45°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.1; vein 2-SC+R marginally longitudinal; vein SR more or less straight; vein 2m-cu interstitial (fig. 28), more or less straight, tubular 0.9 of distance to posterior wing margin, not reaching vein 2-1A; marginal cell and basal cell densely setose; base of wing moderately setose.

Legs.— Lengths of fore femur:tibia:tarsus = 1.4:1.8:1.0; fore femur 2.5 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 3.7 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 2.1:2.8:1.0; hind basitarsus 4.0 times longer than maximally deep.

Metasoma.— Metasomal tergites 1-3 densely setose; metasomal tergites 1-2 longitudinally striate; first metasomal tergite 0.9 times wider than medially long, dorsal carinae uniting anterior to level of spiracles (fig. 27), antero-medial area with short transverse carinae (fig. 28); second metasomal tergite 2.0 times wider than medially long, antero-medially with short smooth triangular area produced posteriorly to form incomplete medial carina (fig. 27); third metasomal tergite medio-basally weakly striate, 2.3 times wider than long; second suture distinctly crenulate; metasomal tergites 4-7 moderately to sparsely setose.

Colour.— Pale yellow; antennae except dorsal part of pedicellus, stemmaticum, apico-dorsal part of femurs, apex and extreme base of tibiae, apical 0.75 of hind basi-



Figs 23-28, *Y. bicoloripes* spec. nov., ♀, holotype. 23, head; 24, head, lateral aspect; 25, posterior of head, mesosoma largely; 26, habitus, lateral aspect; 27, metasomal tergites, posterior of fore wing; 28, scutellum, propodeum, first metasomal tergite, posterior of hind wing.

tarsus, metasomal tergites 7-8 (except lateral part of 8th) and ovipositor sheaths, dark brown or piceous; wings hyaline to very pale brown, setae dark brown, pterostigma and veins brown, fore wing vein C+SC+R piceous.

Variation.— (Paratype, females) Eighth metasomal tergite completely dark brown; length of body 3.9-5.4 mm; fore wing 3.2-4.2 mm; first flagellomere 1.2 and 1.3 times longer than the second and third respectively; first flagellomere 2.3 times longer than wide; third flagellomere 1.5-1.6 times longer than wide; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:3.7-4.1:1.1-1.5; height of

eye:width of face:width of head = 1.0:1.2-1.3:2.15-2.3; horizontal length of eye:horizontal length of head behind eye = 2.4-2.7:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.25-1.4:3.75-4.25; mesosoma 1.7-1.8 times longer than high; fore wing: lengths of veins SR1:3-SR:r = 4.2-4.4:0.9-1.1:1.0; vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:0.9-1.1:0.8-0.9; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.9-2.1:1.1-1.7; lengths of veins 2-CU1:1-CU1 = 1.6-1.7:1.0; lengths of vein 2-CU1:3-CU1 = 2.8-3.4:1.0; hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.2; vein 2-SC+R distinctly longitudinal; length of fore femur:tibia:tarsus = 1.4-1.6:1.8-1.9:1.0; fore femur 2.6-2.7 times longer than maximally deep; hind femur 2.8-3.1 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 2.1-2.2:2.5-2.9:1.0; hind basitarsus 3.2-4.1 times longer than maximally deep; first metasomal tergite 0.9-1.0 times wider than medially long; second tergite 1.5-1.6 times wider than medially long; third tergite 1.8-2.5 times wider than long. (Paratype, male) Length of body 6.1 mm; terminal flagellomere approximately 2.3 times longer than wide; first flagellomere 3.0 times longer than wide; third flagellomere 2.2 times longer than wide; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:6.0:2.2; height of eye:width of face:width of head = 1.0:1.4:2.4; horizontal length of eye:horizontal length of head behind eye = 1.3:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.0:3.0; fore wing: lengths of veins 2-SR:r-m = 1.0:0.7; lengths of veins 2-CU1:1-CU1 = 1.4:1.0; lengths of vein 2-CU1:3-CU1 = 3.9:1.0; hind wing: vein 2-SC+R marginally transverse; vein 2m-cu distinctly antefurcal; length of fore tibia:tarsus = 1.7:1.0; fore femur 2.9 times longer than maximally deep; hind femur 3.3 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.7:2.4:1.0.

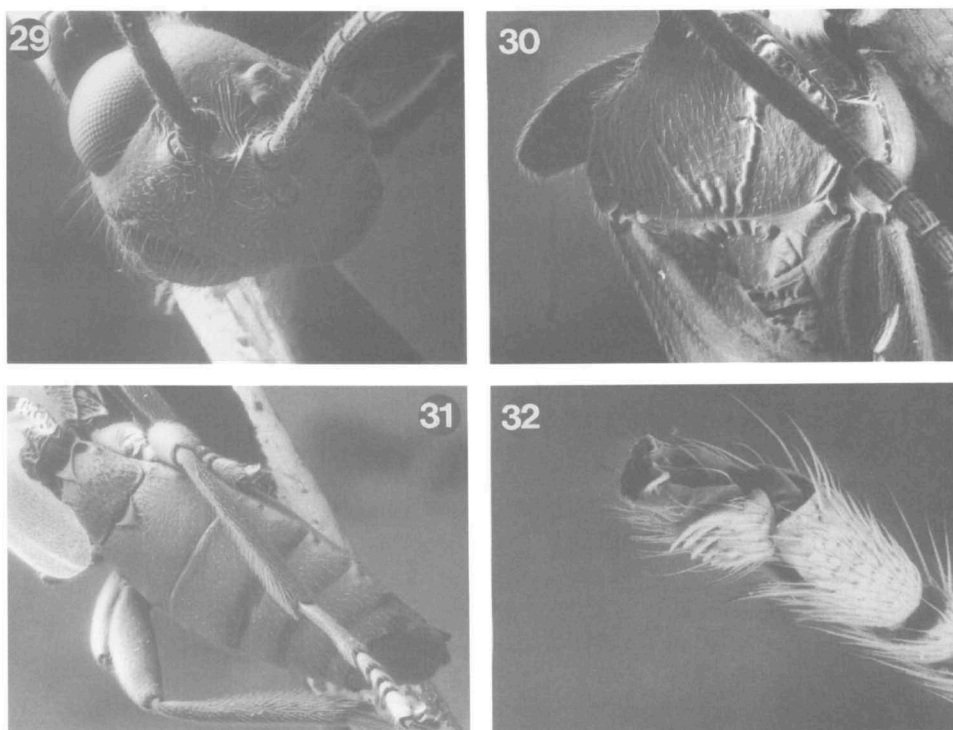
Distribution.— Costa Rica, North Panama.

Yelicones canalensis spec. nov.
(figs 7, 29-32)

Material.— Holotype, ♂ (CNCO), "PANAMA: Las Cumbres, Canal Zone, x.1982, H. Wolda".

Holotype, ♂, length of body 3.9 mm, of fore wing 2.7 mm.

Head.— Antennae with 29 flagellomeres; terminal flagellomere acuminate, approximately 2.7 times longer than wide; first flagellomere 1.1 times longer than both second and third separately; first flagellomere 2.0 times longer than wide; third flagellomere 1.8 times longer than wide; malar space moderately punctured near the edge of eye, lower half largely smooth; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:6.0:2.4; clypeus smooth except for the transverse row of long setae near dorsal margin (fig. 29); face short setose, with distinct mid-longitudinal ridge between antennal sockets extending half way to clypeus; height of eye:width of face:width of head = 1.0:1.5:2.4; length of face 0.5 times width of face; eyes glabrous; frons largely smooth, impressed behind each antennal socket, mid-longitudinal carina posteriorly absent, antero-medially with parallel, diverging carinae (fig. 29); occiput and temples moderately punctured with short setae; horizontal length of eye:horizontal length of head behind eye = 2.2:1.0; post-ocellar length:



Figs 29-32, *Y. canalensis* spec. nov., ♂, holotype. 29, head, frontal and dorsal aspect; 30, mesoscutum, scutellum, metanotum, flagellomeres; 31, metasomal tergites, hind leg; 32, claw, hind telotarsus.

transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.75:6.5; occipital carina incomplete medially.

Mesosoma.— Shiny, moderately setose with deep puncturation, 2.0 times longer than high; mesoscutum postero-medially with 2 short longitudinal grooves (fig. 30); notauli deep, weakly crenulate, impressed throughout length of mesoscutum (fig. 30); scutellar sulcus with 6 carinae between the 2 outer ones; median area of metanotum postero-medially without pit; mesopleuron densely punctured; precoxal suture deep, weakly crenulate, posteriorly wide, nearly straight, extending 0.6 length of mesopleuron; mesopleural suture weakly crenulate; propodeum areolate-rugose, without anterior inverted 'U'-shaped carina or sublateral carinae.

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 3.6:1.4:1.0; vein 1-SR+M distinctly sinuous; vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.75:0.9 (fig. 7); lengths of veins 2-SR+M:2-M:m-cu = 1.0:2.75:1.25; lengths of veins 2-CU1:1-CU1 = 2.7:1.0; lengths of veins 2-CU1:3-CU1 = 3.5:1.0; veins C+SC+R and 1-SR forming an angle of 50°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.5; vein 2-SC+R longitudinal; vein SR posteriorly weak, curved towards posterior of wing at extreme tip; vein 2m-cu antefurcal, curved towards wing base, not reaching to vein 2-1A, tubular 0.7 of distance to posterior wing margin; marginal cell, basal cell and base of wing densely short setose.

Legs.— Lengths of fore femur:tibia:tarsus = 1.3:1.7:1.0; fore femur 2.3 times long-

er than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 3.2 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.7:2.2:1.0; hind basitarsus 3.1 times longer than maximally deep.

Metasoma.— Metasomal tergites 1-6 moderately setose; first metasomal tergite substrigulate, 1.1 times wider than medially long, dorsal carinae uniting almost at same level as spiracles (fig. 31); second metasomal tergite weakly substrigulate at extreme base, 1.9 times wider than medially long, antero-medially with short smooth triangular area which is extended medially to form short longitudinal carina (fig. 31); third metasomal tergite 2.9 times wider than long; second suture smooth; metasomal tergites 7-8 largely smooth, posteriorly with sparse setosity.

Colour.— Pale yellow; eyes dark red; scapus, pedicellus, stemmaticum, hind tarsal segments (except basitarsus), bases of metasomal tergites 5-8, ventral part of tergite 6, pale brown; flagellomeres, apex of hind tibia, hind basitarsus, dark brown or piceous; wings very pale brown; veins, pterostigma and setae dark brown.

Distribution.— Panama.

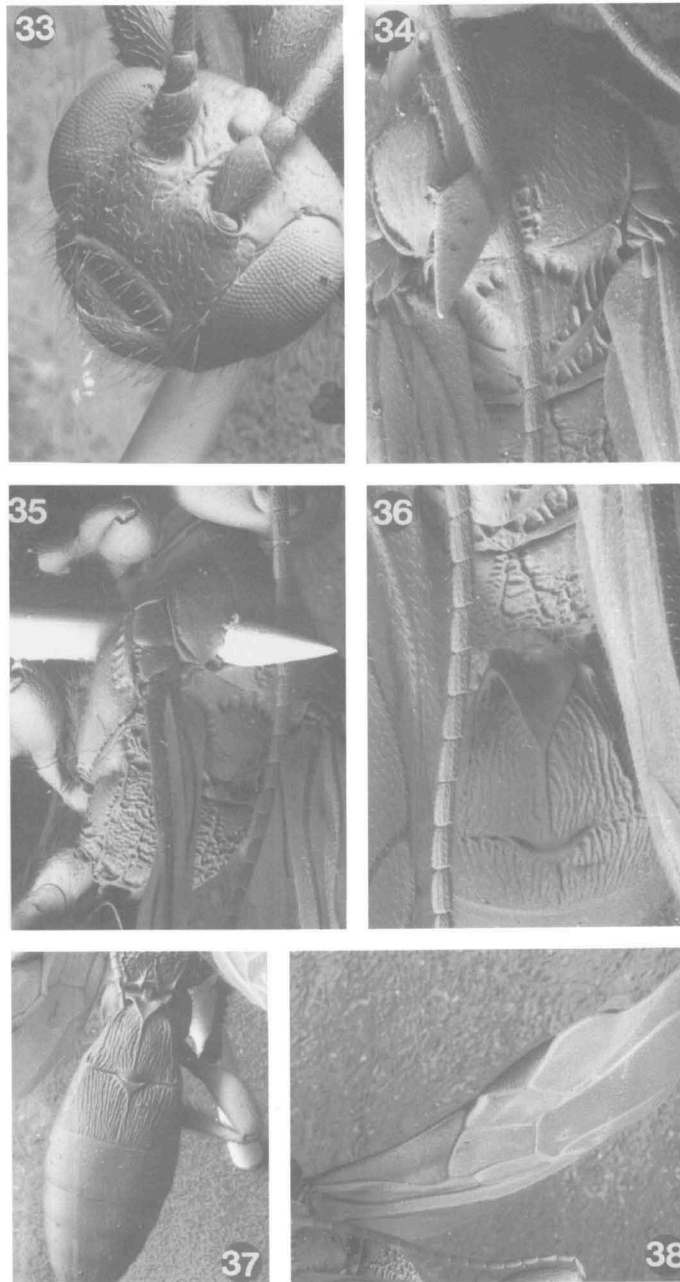
Yelicones confusus spec. nov.
(figs 3, 33-38)

Material.— Holotype, ♀ (RMNH), "Museum Leiden, M. PANAMA, Level III, Barro Colorado Isl., 9°9'30" N-79°51' W. 25-31.vii.1978, H. Wolda, at light". Paratypes (5 ♀, 27 ♂): 3 ♀, 24 ♂ (RMNH), all having same data except, 2 ♀ & 2 ♂ without Level 'III'; 7 ♂ with Level 'I'; 3 ♀ dated 16-22.v.1978, 30.v-5.vi.1978, 4-10.v.1977; 24 ♂ dated 29.vi-5.vii.1977, 3-8.viii.1977, 10-16.viii.1977, 14-20.ix.1977, 19-25.ix.1977, 2, 7-13.xi.1977, 21-27.ix.1977, 19-25.x.1977, 26.x-1.xi.1977, 23-29.v.1978, 30.v-5.vi.1978, 4, 6-12.vi.1978, 11-17.vii.1978; 2 ♀, 2 ♂ (UCD): 2 ♀ & 1 ♂, "Barro Colorado, CZ Panama, 28.v.1980, Henk Wolda"; 1 ♂, same data except, 24.vi.1980; 1 ♂ (TAMU), "MEXICO: Veracruz, Fortin, 17-18.vii.1980, at light, Schaffner, Weaver, Friedlander".

Holotype, ♀, length of body 4.0 mm, of fore wing 3.2 mm.

Head.— Antennae with 25 flagellomeres; terminal flagellomere acuminate, approximately 2.0 times longer than wide; first flagellomere 1.4 times longer than both second and third separately; first flagellomere 1.9 times longer than wide; third flagellomere 1.3 times longer than wide; malar space densely punctate; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.7:1.5; clypeus and face densely setose with deep punctation, face without mid-longitudinal carina (fig. 33); height of eye:width of face:width of head = 1.0:1.2:2.0; length of face 0.5 times width of face; eyes glabrous; frons laterally smooth, medially sparsely setose, impressed behind each antennal socket, mid-longitudinal carina complete, antero-medially with 3 diverging grooves (fig. 33); occiput and temples densely setose with deep punctures; horizontal length of eye:horizontal length of head behind eye = 3.0:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.0:2.7; occipital carina incomplete medially.

Mesosoma.— Moderately to densely setose, 1.7 times longer than high; mesoscutum postero-medially sculptured; notauli deep with carinations, impressed on anterior 0.75 of mesoscutum (fig. 34); scutellar sulcus with 5 carinae between the 2 outer ones (figs 34, 35); median area of metanotum medially with short grooves, postero-medially without pit (fig. 36); mesopleuron densely punctured; precoxal suture deep,



Figs 33-38, *Y. confusus* spec. nov., ♀, holotype. 33, head, frontal aspect; 34, mesoscutum, scutellum, metanotum, propodeum anteriorly, flagellomeres; 35, mesosoma, dorso-lateral aspect; 36, metanotum, propodeum, basal metasomal tergites, flagellomeres; 37, propodeum distally, metasomal tergites; 38, fore wing, flagellomeres.

crenulate, straight, posteriorly wide, extending 0.6 length of mesopleuron; propodeum areolate except antero-lateral parts, antero-medially with long inverted 'V'-shaped carina, sublateral carinae absent (figs 36, 23).

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 4.0:0.6:1.0; vein 1-SR+M virtually straight (fig. 38); vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:0.8:0.9; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.0:0.6 lengths of veins 2-CU1:1-CU1 = 2.2:1.0; lengths of veins 2-CU1:3-CU1 = 3.2:1.0; veins C+SC+R and 1-SR forming an angle of 45°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.2; vein 2-SC+R longitudinal; vein SR marginally curved anteriorly at extreme tip; vein 2m-cu interstitial, strongly curved towards wing base, not reaching vein 2-1A, tubular 0.75 of distance to posterior wing margin; marginal cell, basal cell and base of wing densely setose.

Legs.— Lengths of fore femur:tibia:tarsus = 1.7:1.9:1.0; fore femur 2.2 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 2.7 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.9:3.1:1.0; hind basitarsus 3.0 times longer than maximally deep.

Metasoma.— Metasomal tergites 1-2 moderately setose, with substrigulate sculpture (fig. 37); first metasomal tergite 1.1 times wider than medially long, dorsal carinae uniting at same level as spiracles (fig. 36); second metasomal tergite 2.0 times wider than medially long, antero-medial triangular area produced posteriorly to form almost complete mid-longitudinal carina (fig. 37); third metasomal tergite 2.3 times wider than long; second suture smooth; metasomal tergites 3-8 posteriorly sparsely setose.

Colour.— Pale yellow; eyes dark red; antennae except medio-lateral of scapus and pedicellus, stemmaticum, mesoscutum with its middle lobe anteriorly and lateral lobes except lateral parts), scutellum laterally, metanotum largely, mesopleuron (except postero-dorsal part), mesosternum, postero-dorsal of tibia, metasomal tergites except lateral parts and posterior parts of 3-8, ovipositor sheaths, reddish brown or piceous; wings hyaline to very pale brown, veins and pterostigma yellowish brown, setae and fore wing vein C+SC+R dark brown.

Variation.— (Paratype, females) Anterior half of propodeum, mesopleuron posteriorly, reddish brown or piceous, hind tarsus yellow; length of body 3.8-3.9 mm; length of fore wing 2.9-3.0 mm; antennae with 24-25 flagellomeres; terminal flagellomere approximately 2.4-3.0 times longer than wide; first flagellomere 1.4-1.5 times longer than both second and third separately; first flagellomere 1.9-2.0 times longer than wide; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.3-4.7:1.2-1.3; height of eye:width of face = 1.0:1.1-1.2; length of face 0.4-0.5 times width; horizontal length of eye:horizontal length of head behind eye = 3.3-3.9:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.0-1.2:2.3-2.5; mesosoma 1.8 times longer than high; precoxal suture extending to 0.5-0.6 the length of mesopleuron; fore wing: lengths of veins SR1:3-SR:r = 3.9-4.4:0.75-0.9:1.0; lengths of veins 2-SR:3-SR:r-m = 1.0:1.0-1.2:0.8-0.9; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.0-1.4:0.6-0.8; lengths of veins 2-CU1:1-CU1 = 1.6-1.9:1.0; lengths of vein 2-CU1:3-CU1 = 2.6-3.0:1.0; hind wing: vein 2m-cu distinctly postfurcal (see fig. 3), posteriorly extremely weak, reaching to vein 2-1A, 0.85 of distance to posterior wing margin; length of fore femur:tibia:tarsus =

1.8-1.9:2.1-2.2:1.0; fore femur 2.2-2.3 times longer than maximally deep; hind femur 2.8 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 2.0:3.2-3.3:1.0; hind basitarsus 3.1-3.2 times longer than maximally deep; first metasomal tergite 1.1-1.2 times wider than medially long; second tergite 1.9 times wider than medially long, only anteriorly substrigulate, medial carina not complete, posteriorly absent; third tergite 2.0-2.3 times wider than long. (Paratype, males) Tibia and metasomal tergites completely reddish brown or piceous, one specimen with first metasomal tergite yellow; length of body 3.9-4.3 mm; terminal flagellomere approximately 3.3-3.7 times longer than wide; first flagellomere 1.2 and 1.2-1.3 times longer than both second and third separately; first flagellomere 2.2-2.3 times longer than wide; third flagellomere 1.7 times longer than wide; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.3-5.3:1.3-1.7; height of eye:width of face:width of head = 1.0:1.2-1.3:2.2-2.3; horizontal length of eye:horizontal length of head behind eye = 2.0-2.1:1.0; post-ocellar length:shortest distance between posterior ocellus and eye = 1.0:2.8-3.0; fore wing: lengths of veins SR1:3-SR:r = 3.5-4.1:0.8-1.1:1.0; lengths of veins 2-SR:3-SR:r-m = 1.0:0.9-1.3:0.9-1.0; lengths of veins 2-SR+M:2-M = 1.0:1.6; length of fore femur:tibia:tarsus = 1.6-1.7:1.8-1.9:1.0; fore femur 2.7-2.8 times longer than maximally deep; hind femur 2.6-3.0 times longer than maximally deep; lengths of hind tibia:basitarsus = 2.7:1.0; hind basitarsus 3.2-3.6 times longer than maximally deep; second tergite 1.9-2.0 times wider than medially long; third tergite 2.25-2.4 times wider than long.

Distribution.— Panama, Mexico.

Yelicones crica spec. nov.

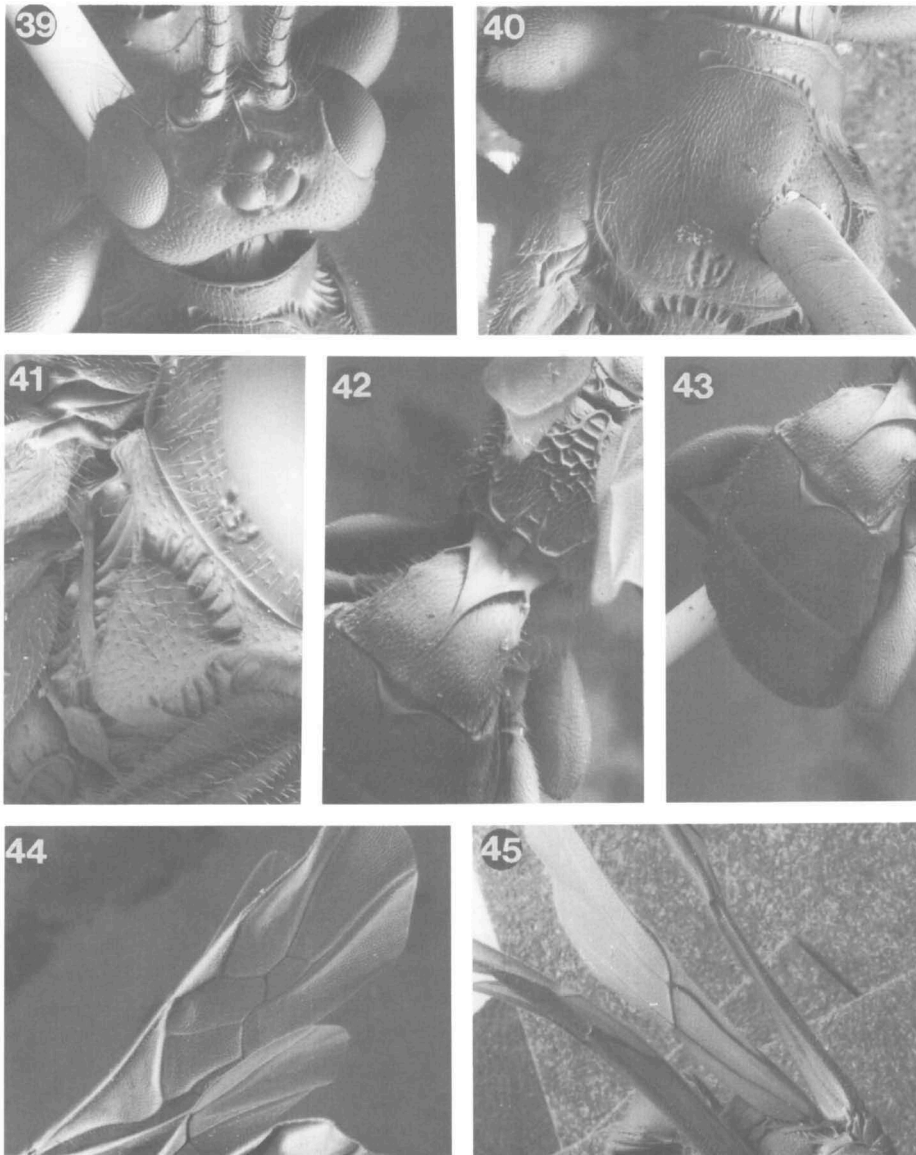
(figs 5, 39-45)

Material.— Holotype, ♀ (BMNH), "COSTA RICA: 800 m, Guanacaste Pv., Volcan Orosi", "Mariksa, I. Gauld, iv-v.1986".

Holotype, ♀, length of body 7.0 mm, of fore wing 5.4 mm.

Head.— Antennae with 39 flagellomeres; terminal flagellomere acuminate, approximately 2.4 times longer than wide; first flagellomere 1.3 and 1.4 times longer than the second and third respectively; first flagellomere 1.8 times longer than wide; third flagellomere as long as wide; malar space punctured near the edge of eye, lower half largely smooth; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:5.2:1.4; clypeus smooth except for the transverse row of moderately long setae with deep punctures near dorsal margin; face densely punctate, without mid-longitudinal carina; height of eye:width of face:width of head = 1.0:1.1:2.0; length of face 0.5 times width of face; eyes glabrous; frons smooth except for diverging row of setae near median ocellus, impressed behind each antennal socket, mid-longitudinal carina complete, antero-medially with some curved transverse ridges (fig. 39); occiput and temples densely short setose with punctures (fig. 39); horizontal length of eye:horizontal length of head behind eye = 2.6:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.25:2.4; occipital carina incomplete medially.

Mesosoma.— Shiny, densely setose (fig. 40), 1.7 times longer than high; mesoscu-



Figs 39-45, *Y. crica* spec. nov., ♀, holotype. 39, head, dorsal aspect; 40, mesoscutum, scutellum; 41, posterior of mesoscutum, scutellum, metanotum, anterior of propodeum; 42, metanotum, propodeum, basal metasomal tergites; 43, basal metasomal tergites, hind femur; 44, fore and hind wing; 45, hind wing medially.

tum postero-medially grooved with longitudinal and transverse carinae; notauli weak, without carination, impressed on anterior half of mesoscutum (fig. 40); scutellar sulcus with 6 carinae between the 2 outer ones (figs 40, 41); median area of metanotum weakly bordered by ridge, postero-medially with a small semicircular pit (fig. 42); precoxal suture deep, narrow, crenulate, straight and extending 0.6 length of mesopleuron; propodeum areolate-rugose except for posterior part, antero-medially with inverted 'U'-shaped carina (fig. 42), sublateral carinae more or less complete.

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 3.9:0.7:1.0; vein 1-SR+M anteriorly virtually curved toward anterior wing margin (fig. 44); vein r arising 0.45 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.0:0.9; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.4:0.9; lengths of veins 2-CU1:1-CU1 = 3.1:1.0; lengths of veins 2-CU1:3-CU1 = 1.9:1.0 (fig. 5); veins C+SC+R and 1-SR forming an angle of 45°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.25; vein 2-SC+R marginally longitudinal (fig. 45); vein SR distinctly curved anteriorly at extreme tip; vein 2m-cu interstitial, strongly curved towards wing base (fig. 44), not reaching vein 2-1A, tubular 0.9 of distance to posterior wing margin; marginal cell, basal cell and base of wing evenly short setose.

Legs.— Lengths of fore femur:tibia:tarsus = 1.8:2.1:1.0; fore femur 2.4 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 2.9 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.9:2.7:1.0; hind basitarsus 2.8 times longer than maximally deep.

Metasoma.— Metasomal tergites 1-4 densely punctured; first metasomal tergite with substrigulate sculpture, 1.3 times wider than medially long, dorsal carinae uniting almost at same level as spiracles (fig. 42); second metasomal tergite 2.1 times wider than medially long, antero-medial triangular area produced to form complete mid-longitudinal carina (figs 42, 43); third metasomal tergite 2.1 times wider than long; second suture smooth; metasomal tergites 5-7 moderately setose.

Colour.— Pale yellow; eyes, antennae, stemmaticum, oblique mark on postero-dorsal third of fore femur, apex of fore tibia (remainder reddish brown), postero-dorsal half of middle femur, middle tibia, postero-dorsal 0.75 of hind femur, hind tibia, hind tarsus, ovipositor sheaths, piceous; wings yellow except for distal margins which are infuscate, venation and pterostigma yellow.

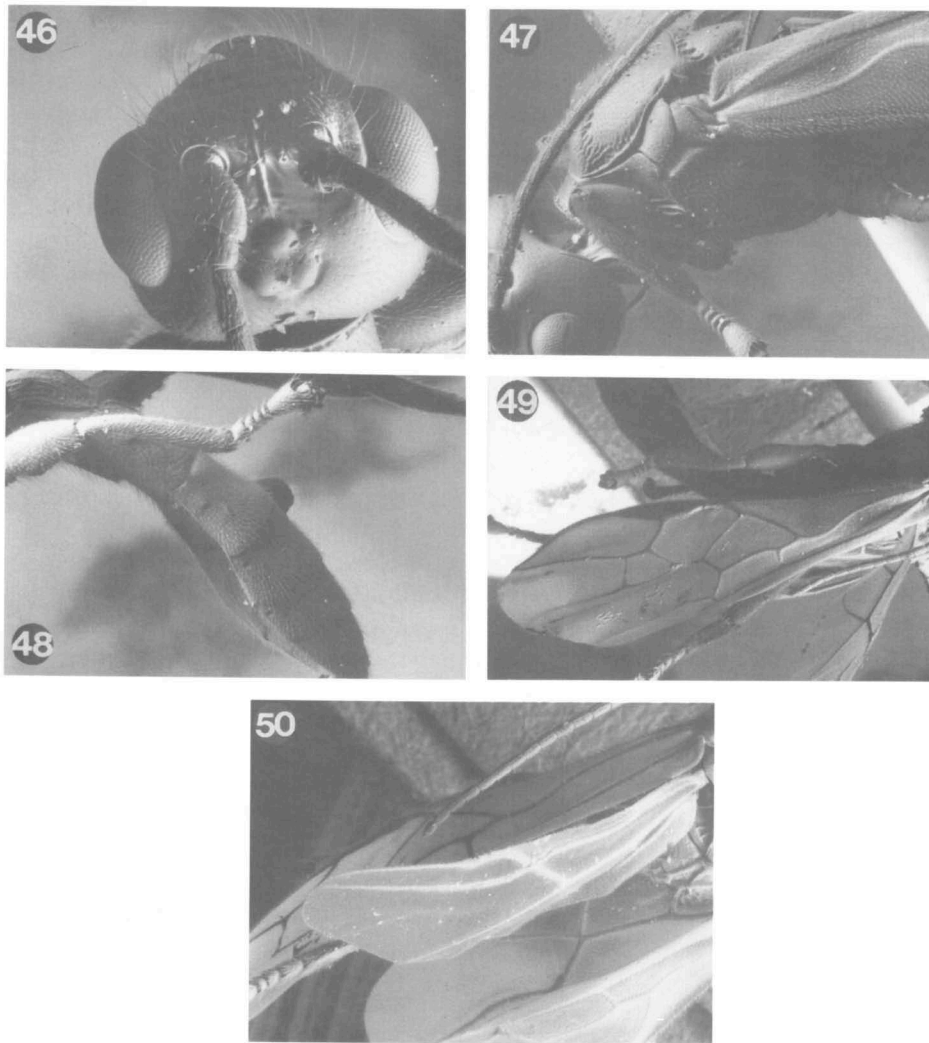
Distribution.— Costa Rica.

Yelicones howdeni spec. nov.
(figs 46-50)

Material.— Holotype, ♂ (CNCO), "El Salto de Agua, S.L.P. Mex., 28-30.vii.1960, H. Howden".

Holotype, ♂, length of body 5.4 mm, of fore wing 4.0 mm.

Head.— Antennae with 29 flagellomeres; terminal flagellomere pointed, approximately 3.75 times longer than wide; first flagellomere 1.3 and 1.4 times longer than the second and third respectively; first flagellomere 2.4 times longer than wide; third flagellomere 1.4 times longer than wide; malar space anteriorly densely punctate, lower half largely smooth; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:6.5:2.1; clypeus with a distinct transverse row of dense puncturation



Figs 46-50, *Y. howdeni* spec. nov., ♂, holotype. 46, head, dorsal aspect; 47, head, mesosoma, fore leg, mid coxa and trochanters, dorso-lateral aspect; 48, metasomal tergites, hind leg, lateral aspect; 49-50, fore and hind wing.

near dorsal margin; face densely punctate, without mid-longitudinal carina; height of eye:width of face:width of head = 1.0:1.25:2.1; length of face 0.5 times width of face; eyes glabrous; frons smooth, impressed behind the antennal sockets, mid-longitudinal complete with posterior end weak, without transverse or diverging carinae (fig. 46); occiput and temples moderately punctured (fig. 46, 47); horizontal length of eye:horizontal length of head behind eye = 1.5:1.0; post-ocular length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.4:3.5; occipital carina absent medially (fig. 47).

Mesosoma.— Shiny, densely setose with puncturation (fig. 47), 1.7 times longer

than high; mesoscutum postero-medially grooved with short rugose carinae; notauli impressed almost throughout length of mesoscutum, anterior 0.7 deep with carinations, posteriorly shallow and without crenulation; scutellar sulcus with 6 carinae between the 2 outer ones; median area of metanotum postero-medially without pit; precoxal suture deep, narrow, crenulate, more or less straight, extending 0.6 length of mesopleuron (fig. 47); propodeum areolate-rugose, antero-medially with distinct inverted 'U'-shaped carina, sublateral carinae posteriorly moderately developed, anteriorly indistinct.

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 3.2:0.7:1.0; vein 1-SR+M anteriorly straight, posteriorly weakly curving towards posterior wing margin (fig. 49); vein r arising near middle of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:0.6:1.1; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.5:0.7; lengths of veins 2-CU1:1-CU1 = 2.3:1.0; lengths of veins 2-CU1:3-CU1 = 2.3:1.0; veins C+SC+R and 1-SR forming an angle of 35°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.2; vein 2-SC+R longitudinal; vein SR more or less straight beyond middle; vein 2m-cu marginally postfurcal, posteriorly strongly curved towards base of wing (figs 49, 50), not reaching vein 2-1A, tubular 0.9 of distance to posterior wing margin; marginal cell, basal cell and base of wing densely short setose (fig. 50).

Legs.— Lengths of fore femur:tibia:tarsus = 2.2:3.0:1.0; fore femur 2.6 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 3.3 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.7:2.5:1.0; hind basitarsus 3.1 times longer than maximally deep.

Metasoma.— Metasomal tergites densely setose with deep puncturation (fig. 48); metasomal tergite 1-2 substrigulate; first metasomal tergite 1.1 times wider than medially long, dorsal carinae uniting posterior to level of spiracles; second metasomal tergite 2.1 times wider than medially long, antero-medially with short triangular area produced to form a complete mid-longitudinal carina; third metasomal tergite 2.5 times wider than long; second suture weakly crenulate.

Colour.— Brownish yellow; stemmaticum, mark on tegula, piceous; antennae, fore and middle tibia and basitarsus, apex of hind tibia, hind basitarsus except basal part, dark brown; wings hyaline, apical fifth of fore wing infuscate, veins and pterostigma yellow, setae brown except apex of fore wing which are dark brown or piceous, fore wing veins C+SC+R and 1-R1 dark brown.

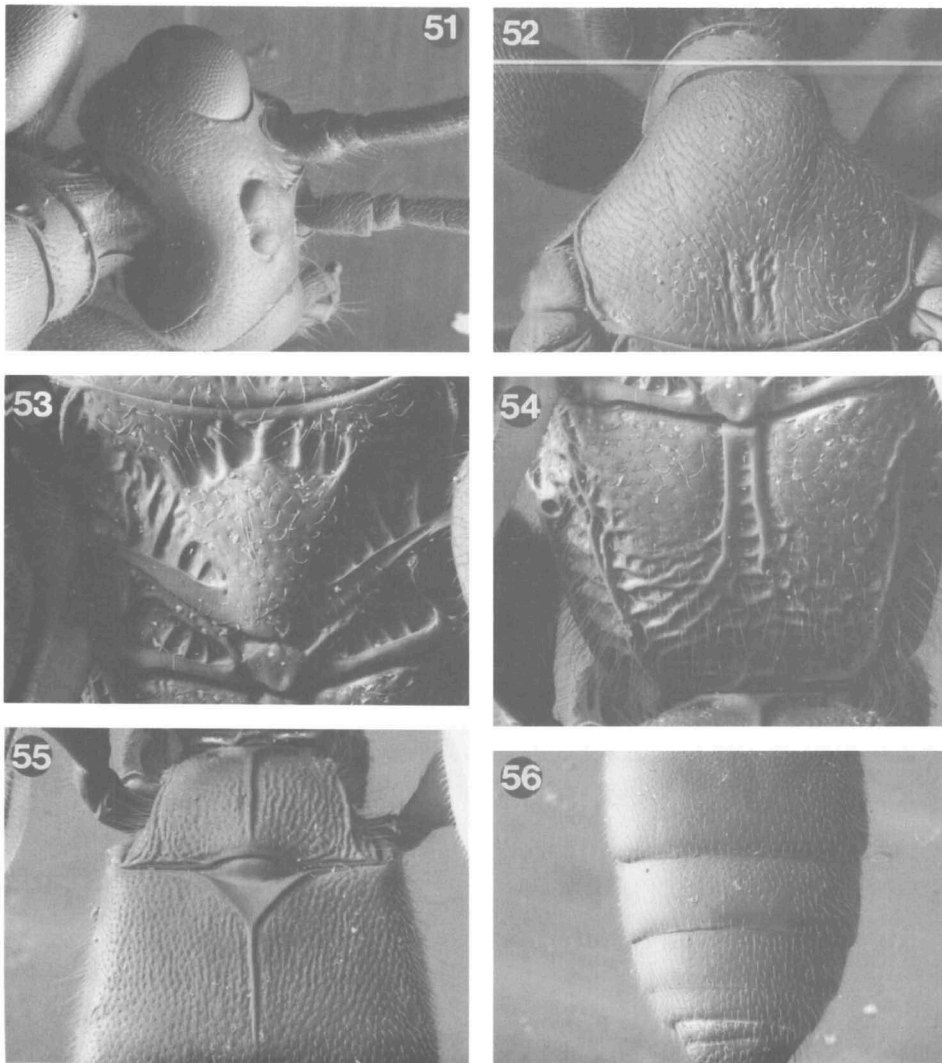
Distribution.— Mexico.

Yelicones infuriatus spec. nov.
(figs 51-56)

Material.— Holotype, ♀ (CNCO), "MEXICO: Chiapas, Lago de Montebello, 1-14.viii.1969, W.R.M. Mason".

Holotype, ♀, length of body 5.7 mm, of fore wing 4.8 mm.

Head.— Antennae with 37 flagellomeres; terminal flagellomere acuminate, approximately 2.5 times longer than wide; first flagellomere 1.3 times longer than both second and third separately; first flagellomere 1.6 times longer than wide; third flagellomere 1.3 times longer than wide; malar space moderately punctured; height



Figs 51-56, *Y. infuriatus* spec. nov., ♀, holotype. 51, head, anterior of mesosoma, fore femur, dorsal aspect; 52, mesoscutum, fore femur, tegula; 53, scutellum, metanotum, prebasal of propodeum; 54, metanotum, propodeum; 55, basal metasomal tergites; 56, posterior metasomal tergites.

of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.0:1.0; clypeus and face densely punctate; height of eye:width of face:width of head = 1.0:1.1:1.9; length of face 0.5 times width of face; eyes glabrous; frons glabrous, impressed behind each antennal socket, mid-longitudinal carina complete, with at least 3 curved transverse carinae (fig. 51); occiput and temples densely setose; horizontal length of eye:horizontal length of head behind eye = 2.5:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:2.25:4.0; occipital carina incomplete medially (fig. 51).

Mesosoma.— Moderately to densely setose with deep puncturation (figs 52-54), 1.8 times longer than high; mesoscutum postero-medially with 3 irregular longitudinal impressions (fig. 52); notauli shallow, weak, without carination, impressed on approximately anterior half of mesoscutum (fig. 52); scutellar sulcus with 4 carinae between the 2 outer ones (fig. 53); median area of metanotum postero-medially without pit (figs 53, 54); precoxal suture crenulate, more or less straight, anteriorly narrow and shallow, posteriorly wide and deep, extending 0.5 length of mesopleuron; propodeum anteriorly smooth becoming transversely substrigulate on posterior half, antero-medially with long inverted 'U'-shaped carina, sublateral carinae more or less complete (fig. 54).

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 5.2:0.9:1.0; vein 1-SR+M strongly sinuous; vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:0.9:0.9; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.9:1.1; lengths of veins 2-CU1:1-CU1 = 2.5:1.0; lengths of veins 2-CU1:3-CU1 = 2.5:1.0; veins C+SC+R and 1-SR forming an angle of 45°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.1; vein 2-SC+R longitudinal; vein SR more or less straight; vein 2m-cu marginally postfurcal, strongly curved towards base of wing, reaching vein 2-1A, tubular posterior wing margin; marginal cell densely setose; basal cell and base of wing with reduced setosity as compared to marginal cell.

Legs.— Lengths of fore femur:tibia:tarsus = 1.8:1.9:1.0; fore femur 2.0 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 3.0 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.5:2.1:1.0; hind basitarsus 3.5 times longer than maximally deep.

Metasoma.— Metasomal tergites densely setose (figs 55, 56); metasomal tergite 1 completely and second largely substrigulate (fig. 55); first metasomal tergite 1.3 times wider than medially long, dorsal carinae uniting at same level as spiracles; second metasomal tergite 1.9 times wider than medially long, antero-medial triangular area produced posteriorly to form a complete mid-longitudinal carina (fig. 55); third metasomal tergite 2.8 times wider than long; second suture smooth.

Colour.— Head, flagellomeres (scapus and pedicellus brownish red), anterior half of pronotum, ovipositor sheaths, black or piceous; mesosoma, metasomal tergites, brownish yellow; legs, brownish red (fore coxa and trochanter, mid trochanter, whitish-yellow, mid and hind coxa dark reddish brown to piceous); wings including veins, pterostigma and setae, brown.

Distribution.— Mexico.

Yelicones longulus spec. nov.

(figs 1, 8, 57-64)

Material.— Holotype, ♀ (RMNH), "Museum Leiden, N. PANAMA, 1050 m. Fortuna, Chiriqui 8°44' N-82°15' W. 25.iv-1.v.1978, H. Wolda, at light". Paratypes: 2 ♂ (RMNH), same data as holotype except dates, one with 17-23.x.1978; second, 6-12.vii.1977".

Holotype, ♀, length of body 4.8 mm, of fore wing 3.0 mm.

Head.— Antennae with 36 flagellomeres; terminal flagellomere acuminate, approximately 2.5 times longer than wide; first flagellomere 1.0 times longer than both second and third separately; first flagellomere 2.1 times longer than wide; third

flagellomere 2.3 times longer than wide; malar space sparsely punctured (fig. 59); height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:3.6:1.25; clypeus and face moderately setose with shallow punctures, face without mid-longitudinal carina (fig. 57); height of eye:width of face:width of head = 1.0:1.1:2.0; length of face 0.5 times width of face; eyes glabrous; frons sparsely punctured, impressed behind the antennal sockets, without mid-longitudinal carina and transverse carinae; occiput and temples moderately setose (fig. 58); horizontal length of eye:horizontal length of head behind eye = 2.4:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:2.0:6.0; occipital carina complete (fig. 58).

Mesosoma.— Moderately to densely setose, 1.7 times longer than high; mesoscutum postero-medially rugosely sculptured (fig. 60); notauli deep with carinations, impressed throughout length of mesoscutum (fig. 60); scutellar sulcus with 5 carinae between the 2 outer ones; scutellum coarsely sculptured medio-posteriorly (fig. 62); median area of metanotum subposteriorly with a deep circular pit (figs 62, 63); mesopleuron glabrous between anterior of pleural suture and middle of precoxal suture; precoxal suture deep, wide, crenulate, curved, extending 0.75 length of mesopleuron (fig. 61); propodeum areolate-rugose, antero-medially with distinct inverted 'V'-shaped carina, sublateral carinae absent (figs 62, 63).

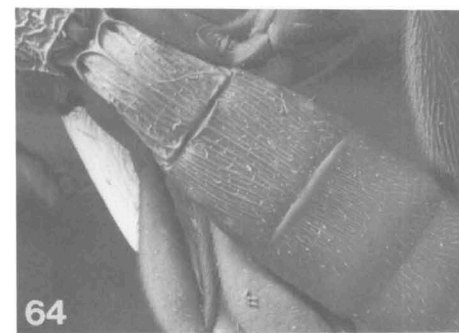
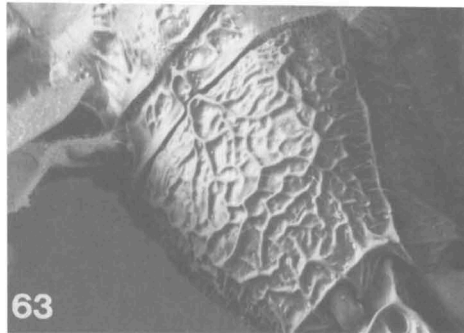
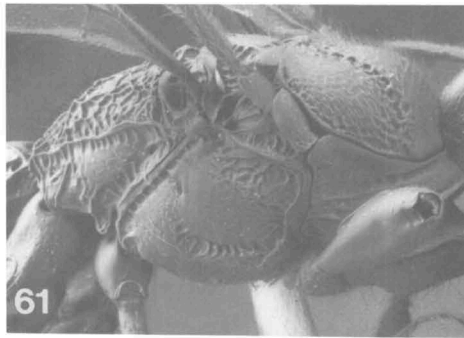
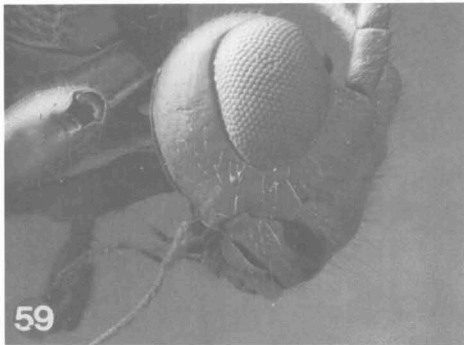
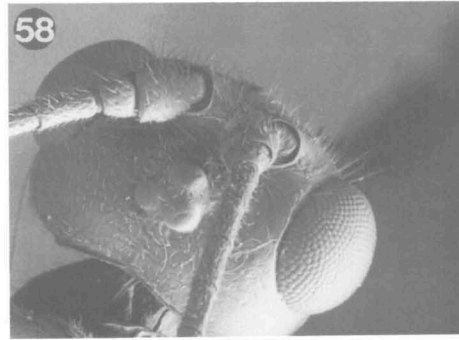
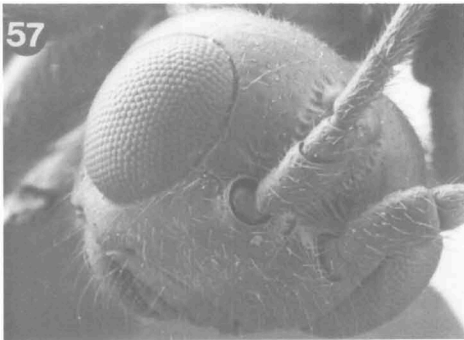
Wings.— Fore wing: lengths of veins SR1:3-SR:r = 3.7:1.0:1.0; vein 1-SR+M strongly sinuous; vein r arising 0.5 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.3:1.3; lengths of veins 2-SR+M:2-M:m-cu = 1.0:2.6:0.75; lengths of veins 2-CU1:1-CU1 = 2.5:1.0; lengths of veins 2-CU1:3-CU1 = 4.6:1.0 (fig. 8); veins C+SC+R and 1-SR forming an angle of 60°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.3; vein 2-SC+R longitudinal; vein 2m-cu far antefurcal (fig. 1), straight, not reaching vein 2-1A, tubular for 0.9 of distance to posterior wing margin; marginal cell, basal cell and base of wing densely short setose.

Legs.— Lengths of fore femur:tibia:tarsus = 1.6:2.0:1.0; fore femur 3.1 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 3.5 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.7:2.3:1.0; hind basitarsus 3.9 times longer than maximally deep.

Metasoma.— Metasomal tergites 1-4 moderately setose and punctured; metasomal tergites 1-2 longitudinally striate (fig. 64); first metasomal tergite 0.9 times wider than medially long, dorsal carinae uniting far anterior to level of spiracles (fig. 64); second metasomal tergite 1.6 times wider than medially long, antero-medially with short smooth triangular area produced posteriorly to form distinct almost complete mid-longitudinal carina (fig. 64); third metasomal tergite 1.8 times wider than long, basal half with fine longitudinal striations; second suture smooth; fourth metasomal tergite with weak longitudinal striations on basal 0.25; metasomal tergites 5-8 posteriorly moderately setose.

Colour.— Head dark brown; antennae, mesosoma, metasomal tergites and ovipositor sheaths piceous; legs light brownish except dorsal part of all femurs and of hind tarsus which are brown; wings pale smoky hyaline; veins, pterostigma and setae dark brown.

Variation.— (Paratype, males) Hind femur and hind tibia completely brown; length of body 4.3-4.5 mm; fore wing 3.1-3.5 mm; antennae with 37 flagellomeres;



terminal flagellomere approximately 3.5 times longer than wide; first flagellomere 1.0 times longer than both second and third separately; first flagellomere 2.6 times longer than wide; third flagellomere 2.6 times longer than wide; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:3.2:1.2; height of eye:width of face:width of head = 1.0:1.2:2.1; frons with weak mid-longitudinal and transverse carinae; horizontal length of eye:horizontal length of head behind eye = 1.9:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.0:4.0; mesosoma 1.8-1.9 times longer than high; fore wing: lengths of veins SR1:3-SR:r = 3.7-3.9:0.5-0.9:1.0; vein r arising 0.4-0.5 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:0.7-1.5:1.0-1.2; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.7-2.4:0.9-1.1; lengths of veins 2-CU1:1-CU1 = 2.6-2.9:1.0; lengths of vein 2-CU1:3-CU1 = 4.3-5.2:1.0; length of fore femur:tibia:tarsus = 1.3:1.6:1.0; fore femur 3.7 times longer than maximally deep; hind femur 2.9-3.2 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.8:2.4:1.0; hind basitarsus 4.4-4.5 times longer than maximally deep; first metasomal tergite 0.7-0.8 times wider than medially long; second tergite completely striate, 1.4-1.5 times wider than medially long; third tergite with its anterior half striate, 1.6-1.7 times wider than long.

Distribution.— North Panama.

Yelicones luteus spec. nov.
(figs 65-69)

Material.— Holotype, ♀ (RMNH), "Museum Leiden, N. PANAMA, 1050 m. Fortuna, Chiriqui 8°44' N-82°15' W. 7-13.ii.1978, H. Wolda, at light". Paratypes: 4 ♀, 2 ♂ (RMNH); same data as holotype except; ♀ dated, 11.x.1976, 12.x.1976, 28.ii-6.iii.1978, 14-20.iii.1978; ♂♂ dated, 24.ix.1976, 26.ix.1976.

Holotype, ♀, length of body 6.9 mm, of fore wing 5.7 mm.

Head.— Antennae with 29 flagellomeres; terminal flagellomere pointed, approximately 3.0 times longer than wide; first flagellomere 1.1 and 1.2 times longer than the second and third respectively; first flagellomere 1.6 times longer than wide; third flagellomere 1.2 times longer than wide; malar space sparsely punctured; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.3:1.5; clypeus and face densely long setose, face with distinct mid-longitudinal carina from antennal sockets half way to clypeus (fig. 65); height of eye:width of face:width of head = 1.0:1.5:2.5; length of face 0.4 times width of face; eyes glabrous; frons glabrous, impressed behind each antennal socket, mid-longitudinal carina complete, with at least 3 incomplete curved transverse carinae (fig. 65); occiput and temples densely short setose (fig. 66); horizontal length of eye:horizontal length of head behind eye = 1.4:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.4:4.3; occipital carina incomplete medially.

Mesosoma.— Densely short setose (fig. 66), 1.6 times longer than high; mesoscu-

Figs 57-64, *Y. longulus* spec. nov., ♂, paratype. 57, head, fronto-dorsal aspect; 58, head, dorsal aspect; 59, head, lateral view; 60, mesoscutum, scutellum, fore femur, dorsal aspect; 61, mesosoma, lateral aspect; 62, posterior of mesoscutum, scutellum, metanotum, anterior of propodeum; 63, scutellum, metanotum, propodeum; 64, posterior of propodeum, anterior of metasomal tergites.

tum postero-medially with one longitudinal crenulate groove (fig. 66); notauli anteriorly distinct, shallow and crenulate, impressed on anterior 0.5 of mesoscutum (fig. 66); scutellar sulcus with 5 carinae between the 2 outer ones (fig. 66); median area of metanotum postero-medially without pit (fig. 66); precoxal suture shallow, medially wide, curved, extending 0.6 length of mesopleuron; propodeum largely punctate, antero-medially with distinct inverted 'Y'-shaped carina, and with a well developed pair of curved carinae between this and complete lateral carinae (fig. 66).

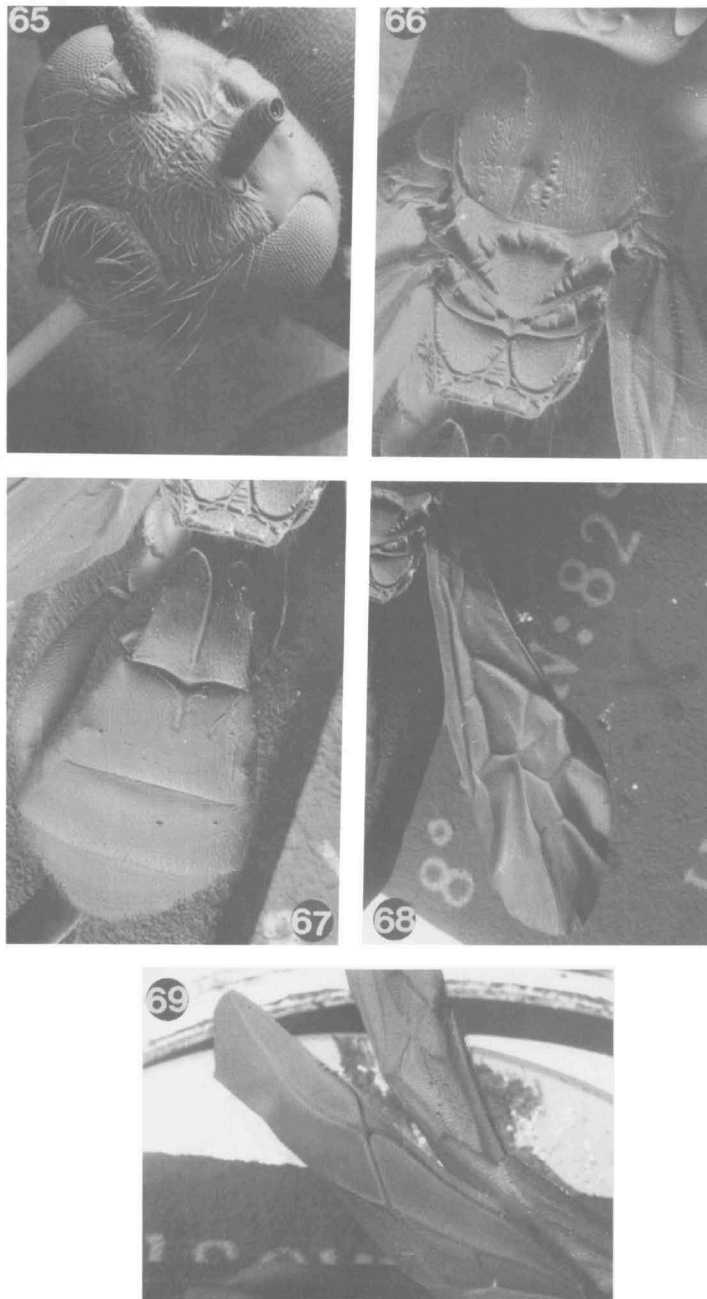
Wings.— Fore wing: lengths of veins SR1:3-SR:r = 4.2:1.6:1.0; vein 1-SR+M distinctly sinuous (fig. 68); vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.9:1.2; lengths of veins 2-SR+M:2-M:m-cu = 1.0:2.9:1.1; lengths of veins 2-CU1:1-CU1 = 1.5:1.0; lengths of veins 2-CU1:3-CU1 = 2.8:1.0; veins C+SC+R and 1-SR forming an angle of 40° (fig. 68). Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.0; vein 2-SC+R longitudinal; vein SR curving anteriorly (fig. 69); vein 2m-cu more or less interstitial, strongly curved towards base of wing, not reaching to vein 2-1A, tubular 0.8 of distance to posterior wing margin (fig. 69); marginal cell and basal cell moderately setose; base of wing with comparatively reduced setosity.

Legs.— Lengths of fore femur:tibia:tarsus = 1.6:2.1:1.0; fore femur 2.5 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 2.9 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 2.1:2.8:1.0; hind basitarsus 3.3 times longer than maximally deep.

Metasoma.— Metasomal tergites densely punctured (fig. 67); first metasomal tergite as long as wide, dorsal carinae uniting almost at same level as spiracles; second metasomal tergite 2.0 times wider than medially long, antero-medially with a small triangular area produced posteriorly to form a mid-longitudinal carina which almost reaches midlength of tergite (fig. 67); third metasomal tergite 2.7 times wider than long; second suture smooth.

Colour.— Yellow; eyes dark red to piceous; antennae (except mark on scapus and pedicellus brownish-yellow), apex of femur, tibia apically except apico-ventral half, tarsus, ovipositor sheaths, black or piceous; metasomal tergites marked with dark yellow patches; wings including veins, pterostigma and setae, pale yellow.

Variation.— (Paratype, females) Length of body 6.4-7.3 mm; fore wing 5.2-6.0 mm; terminal flagellomere approximately 2.0-2.2 times longer than wide; first flagellomere 1.0-1.2 and 1.3-1.4 times longer than the second and third respectively; first flagellomere 1.7-1.9 times longer than wide; third flagellomere 1.3 times longer than wide; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:3.75-4.0:1.5-1.75; height of eye:width of face = 1.0:1.5-1.6; horizontal length of eye:horizontal length of head behind eye = 0.9-1.5:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.1-1.5:3.7-5.0; mesosoma 1.5-1.6 times longer than high; fore wing: lengths of veins SR1:3-SR:r = 3.9-4.1:1.4:1.0; lengths of veins 2-SR:3-SR:r-m = 1.0:1.7-2.2:1.0-1.2; lengths of veins 2-SR+M:2-M:m-cu = 1.0:2.6-2.7:1.0; lengths of veins 2-CU1:1-CU1 = 1.3-1.4:1.0; lengths of vein 2-CU1:3-CU1 = 2.6:1.0; hind wing: lengths of veins 1r-m:SC+R1 = 1.0:0.8; length of fore femur:tibia:tarsus = 1.6-1.7:1.8-2.1:1.0; fore femur 2.4 times longer than maximally deep; hind femur 2.8-2.9 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.8-1.9:2.3-2.4:1.0; hind basitarsus 3.8 times longer than



Figs 65-69, *Y. luteus* spec. nov., ♀, paratype. 65, head; 66, posterior of head, mesosoma, dorsal aspect; 67, posterior of propodeum, metasomal tergites, hind femur; 68, fore wing; 69, fore and hind wing.

maximally deep; first metasomal tergite 0.95-1.1 times wider than medially long; second tergite 2.2 times wider than medially long, antero-medially with a short smooth triangular structure extended to form a complete longitudinal carina; third tergite 2.7-2.8 times wider than long. (Paratype, males) Pale yellow; fore and mid tarsus dark brown; first flagellomere 1.1 times longer than the third; first flagellomere 2.0 times longer than wide; third flagellomere 1.8 times longer than wide; height of clypeus:inter-tentorial distance = 1.0:3.6-3.7; height of eye:width of head = 1.0:2.4; mesosoma 1.7 times longer than high; fore wing: lengths of veins SR1:3-SR:r = 3.5-3.8:0.9-1.4:1.0; lengths of veins 2-SR:3-SR:r-m = 1.0:1.4-1.9:1.2-1.25; lengths of veins 2-SR+M:2-M = 1.0:2.5-2.75; lengths of vein 2-CU1:3-CU1 = 2.2-2.4:1.0; length of fore femur:tarsus = 1.8-1.9:1.0; fore femur 2.4-2.6 times longer than maximally deep; hind femur 2.6-2.9 times longer than maximally deep; hind basitarsus 3.7-3.8 times longer than maximally deep.

Distribution.— North Panama.

Yelicones nigrigaster spec. nov.
(figs 9, 70-76)

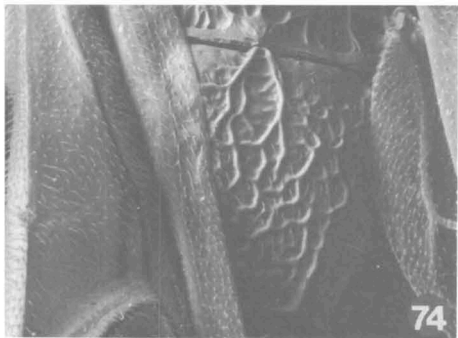
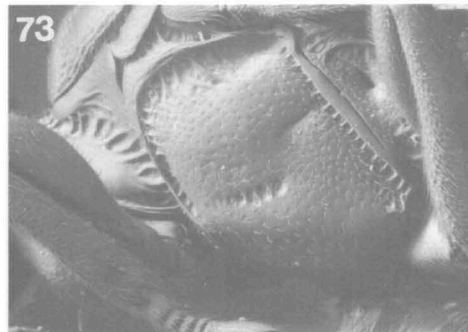
Material.— Holotype, ♂ (CNCO), "Rep. Dominicana, La Cumbre, 600 m, 22.ix.1978, L. Masner".

Holotype, ♂, length of body 4.7 mm, of fore wing 3.5 mm.

Head.— Antennae broken; first flagellomere 1.1 and 1.2 times longer than the second and third respectively; first flagellomere 2.6 times longer than wide; third flagellomere 2.0 times longer than wide; malar space anterior half densely punctured, posterior half largely glabrous; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:3.75:1.2; clypeus and face densely punctured, face without mid-longitudinal carina; height of eye:width of face:width of head = 1.0:1.1:1.9; length of face 0.4 times width of face; eyes glabrous; frons glabrous, impressed behind each antennal socket, mid-longitudinal ridge weak, more or less complete, antero-medially with 2 diverging carinae on either side (fig. 70); occiput and temples moderately setose with deep puncturation (fig. 70); horizontal length of eye:horizontal length of head behind eye = 2.3:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.1:1.2; occipital carina incomplete medially.

Mesosoma.— Shiny, densely setose (fig. 71), 1.9 times longer than high; mesoscutum postero-medially with area of irregular sculpture (figs 71, 72); notauli deep, crenulate, impressed on anterior 0.5 of mesoscutum (fig. 71); scutellar sulcus with 8 carinae between the 2 outer ones (fig. 72); median area of metanotum postero-medially without pit (fig. 72); precoxal suture moderately deep, anteriorly weak, weakly curved, extending just behind middle of mesopleuron (fig. 72); propodeum areolate-rugose except anteriorly, antero-medially with inverted 'V'-shaped carina (fig. 74),

Figs 70-76, *Y. nigrigaster* spec. nov., ♂, holotype. 70, head, dorsal aspect; 71, mesoscutum; 72, posterior of mesoscutum, scutellum, metanotum, propodeum basally; 73, pronotum, mesopleuron, fore and middle leg; 74, metanotum, propodeum, dorsal aspect; 75, anterior of metasomal tergites, fore wing medially, hind leg basally; 76, posterior of metasomal tergites, distal half of fore wing.



sublateral carinae more or less complete but irregular.

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 4.1:0.9:1.0; vein 1-SR+M anteriorly virtually curving towards anterior wing margin, posteriorly straight (fig. 75); vein r arising 0.5 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.1:0.9; lengths of veins 2-SR+M:2-M:m-cu = 1.0:2.0:1.0; lengths of veins 2-CU1:1-CU1 = 2.1:1.0; lengths of veins 2-CU1:3-CU1 = 3.1:1.0 (figs 9, 75); veins C+SC+R and 1-SR forming an angle of 50°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.5; vein 2-SC+R longitudinal; vein SR curving anteriorly at extreme tip; vein 2m-cu antefurcal, strongly curved towards base of wing, not reaching to vein 2-1A, tubular 0.75 of distance to posterior wing margin; marginal cell, basal cell and base of wing evenly densely setose.

Legs.— Lengths of fore femur:tibia:tarsus = 1.7:2.1:1.0; fore femur 2.4 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 2.9 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.7:2.4:1.0; hind basitarsus 3.4 times longer than maximally deep.

Metasoma.— Metasomal tergites moderately setose, less so behind 4th (figs 75, 76); metasomal tergites 1-2 with substrigulate sculpture (fig. 75); first metasomal tergite as long as wide, dorsal carinae uniting near level of spiracles; second metasomal tergite 2.0 times wider than medially long, antero-medially with a short, smooth triangular area which is posteriorly produced to form complete mid-longitudinal carina (fig. 75); third metasomal tergite 2.3 times wider than long; second suture smooth.

Colour.— Pale yellow; flagellomeres brownish yellow; eyes, stemmaticum, scutellum (except postero-medial part) and axillar area, small mark on tegula, piceous; area from frons to middle of occiput, metasomal tergites 2-8, brownish-red; hind tibia, hind basitarsus, brown; wings hyaline; veins, pterostigma, and setae dark brown.

Distribution.— Dominican Republic.

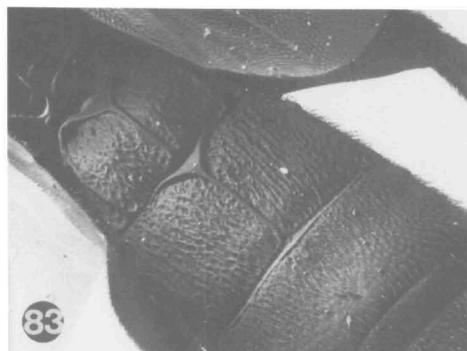
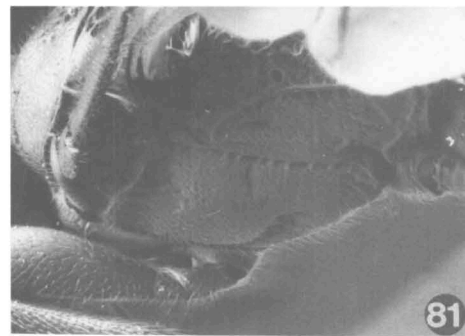
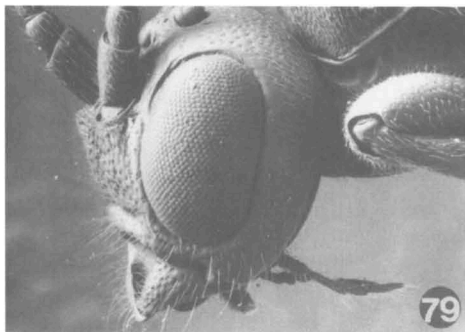
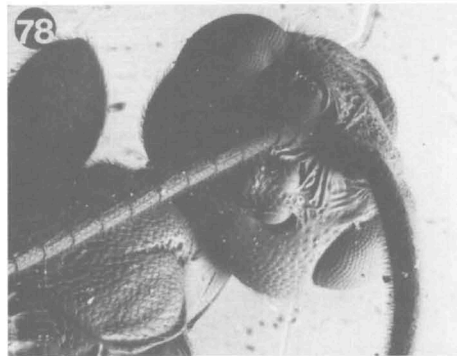
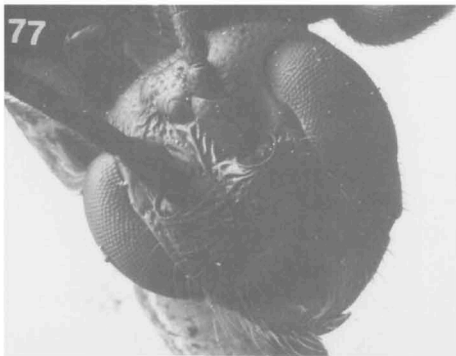
Yelicones panameus spec. nov.
(figs 77-83)

Material.— Holotype, ♂ (CNCO), "PANAMA: Las Cumbres, Canal Zone, iv.1982, H. Wolda".

Holotype, ♂, length of body 5.5 mm, of fore wing 4.1 mm.

Head.— Antennae with 33 flagellomeres; terminal flagellomere acuminate, approximately 3.0 times longer than wide; first flagellomere 1.2 times longer than both second and third separately; first flagellomere 1.75 times longer than wide; third flagellomere 1.6 times longer than wide; malar space largely moderately setose (fig. 79); height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.2:1.2; clypeus moderately long setose with deep puncturation; face punctate-reticulate, mid-longitudinal carina running from antennal sockets half way to clypeus (fig. 77); height of eye:width of face:width of head = 1.0:1.1:2.0; length of face 0.5

Figs 77-83, *Y. panameus* spec. nov., ♂, holotype. 77, head, fronto-dorsal aspect; 78, head, anterior of mesosoma, dorsal aspect; 79, head, lateral aspect; 80, mesoscutum, scutellum, metanotum, propodeum medio-basally; 81, mesosoma, lateral aspect; 82, posterior of scutellum, metanotum, propodeum, dorsal aspect; 83, posterior of propodeum, basal metasomal tergites.



times width of face; eyes glabrous; frons glabrous, with complete curved transverse carinae, impressed behind each antennal socket, mid-longitudinal carina complete (figs 77, 78); occiput and temples densely setose with deep puncturation (figs 78, 79); horizontal length of eye:horizontal length of head behind eye = 2.2:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.5:3.1; occipital carina indistinct medially.

Mesosoma.— Densely setose with deep puncturation (figs 78, 80, 82), 1.7 times longer than high; mesoscutum postero-medially with several longitudinal grooves (fig. 80); notauli deep, crenulate, impressed on anterior 0.5 of mesoscutum (fig. 78); scutellar sulcus with 3 carinae between the 2 outer ones; median area of metanotum with 3 diverging carinae, without mid-posterior pit (fig. 80); mesopleuron postero-medially smooth; precoxal suture deep, crenulate, posteriorly wide, straight, extending 0.7 length of mesopleuron (fig. 81); propodeum largely areolate-rugose, with inverted 'U'-shaped carina (fig. 82), sublateral carinae posteriorly developed and irregular, anteriorly absent.

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 4.5:0.8:1.0; vein 1-SR+M strongly sinuous; vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.1:1.0; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.1:0.7; lengths of veins 2-CU1:1-CU1 = 1.9:1.0; lengths of veins 2-CU1:3-CU1 = 2.0:1.0; veins C+SC+R and 1-SR forming an angle of 45°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.2; vein 2-SC+R more or less transverse; vein SR curving anteriorly at extreme apex; vein 2m-cu interstitial, strongly curved towards base of wing, not reaching to vein 2-1A, tubular 0.9 of distance to posterior wing margin; marginal cell and basal cell densely setose, base of wing comparatively with reduced setosity.

Legs.— Lengths of fore femur:tibia:tarsus = 1.6:1.8:1.0; fore femur 2.8 times longer than maximally deep; fore tibia with a distinct mid-longitudinal ridge; hind femur 3.0 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.8:2.2:1.0; hind basitarsus 3.5 times longer than maximally deep.

Metasoma.— Metasomal tergites densely setose (fig. 83); first metasomal tergite rugulose-punctate, 0.8 times wider than medially long, dorsal carinae uniting at same level as spiracles (fig. 83); second metasomal tergite rugose-punctate to longitudinally striate, 1.9 times wider than medially long, antero-medially with a short smooth triangular area produced posteriorly to form complete mid-longitudinal carina (fig. 83); third metasomal tergite anteriorly rugulose-punctate, 2.6 times wider than long; second suture smooth.

Colour.— Pale yellow; face (except edges near eyes), top of head, dark red to piceous, temples, eyes, dark reddish; antennae, 0.8 postero-dorsal part of fore femur, dorsal part of fore tibia, mid leg except trochanters, hind leg, metasomal tergites 5-8, brown; wings brown; veins, pterostigma, setae, dark brown.

Distribution.— Panama.

Yelicones setosus spec. nov.
(figs 84-89)

Material.— Holotype, ♂ (TAMU), "MEXICO: Jalisco: 17 mi. N Guadalajara (Hwy 54), 6.vii.1984, 84/019, Schaffner, Woolley, Carroll, Friedlander". Paratypes: 2 ♂ (USNM): "Tehuantepec, Oax., 10.vii.1966, Alberto Ortiz B.", "51", "Hujintlan, Morelos, Mexico, 22.viii.1956, R. & K. Dreisbach".

Holotype, ♂, length of body 6.4 mm, of fore wing 5.5 mm.

Head.— Antennae with at least 37 flagellomeres (tips broken); first flagellomere 1.1 times longer than both second and third separately; first flagellomere 1.7 times longer than wide; third flagellomere 1.6 times longer than wide; malar space moderately setose; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.3:1.7; clypeus and face densely setose with deep punctures, face with mid-longitudinal ridge running from between antennal sockets almost half way to clypeus (fig. 84); height of eye:width of face:width of head = 1.0:1.2:2.0; length of face 0.4 times width of face; eyes glabrous; frons glabrous, impressed behind each antennal socket, mid-longitudinal carina anteriorly distinct, posteriorly with at least 3 diverging transverse grooves on either side (fig. 84); occiput and temples densely setose (fig. 85); horizontal length of eye:horizontal length of head behind eye = 2.0:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.75:4.0; occipital carina incomplete medially (fig. 86).

Mesosoma.— Largely densely setose, 1.8 times longer than high; mesoscutum postero-medially rugosely carinate (fig. 86); notauli deep, crenulate, impressed on anterior 0.75 of mesoscutum (fig. 86); scutellar sulcus with 7 carinae between the 2 outer ones; median area of metanotum postero-medially without pit (fig. 88); precoxal suture deep, crenulate, posteriorly wide, more or less straight, extending 0.7 length of mesopleuron (fig. 87); propodeum medially, posteriorly and laterally largely rugose, antero-medially with inverted 'Y'-shaped carina, sublateral carinae posteriorly 0.75 of entire length (fig. 88).

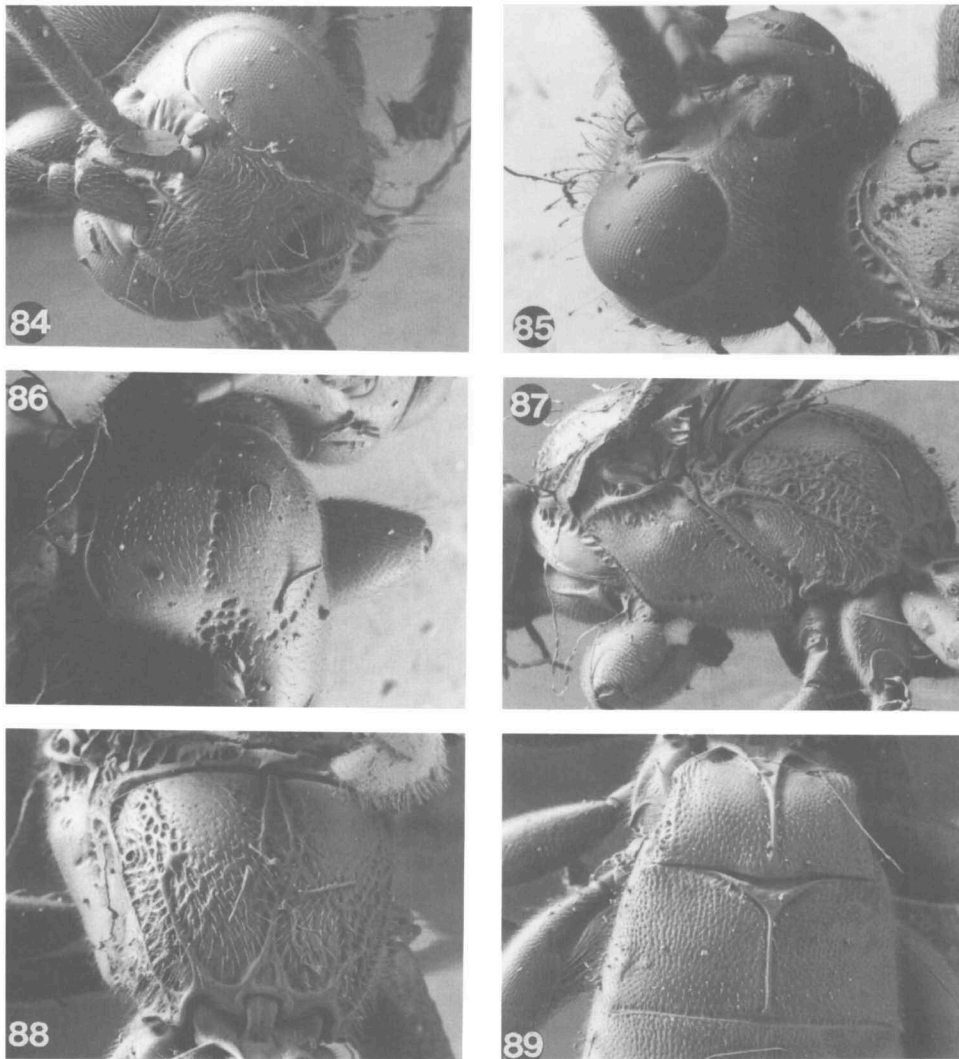
Wings.— Fore wing; lengths of veins SR1:3-SR:r = 4.3:0.8:1.0; vein 1-SR+M straight; vein r arising 0.5 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:0.8:0.7; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.9:0.9; lengths of veins 2-CU1:1-CU1 = 2.8:1.0; lengths of veins 2-CU1:3-CU1 = 2.2:1.0; veins C+SC+R and 1-SR forming an angle of 60°. Hind wing; lengths of veins 1r-m:SC+R1 = 1.0:1.1; vein 2-SC+R longitudinal; vein SR weakly curving anteriorly; vein 2m-cu postfurcal, strongly curved towards base of wing, not reaching to vein 2-1A, tubular 0.9 of distance to posterior wing margin; marginal cell densely short setose, basal cell comparatively with reduced setosity, base of wing moderately setose.

Legs.— Lengths of fore femur:tibia:tarsus = 1.9:2.3:1.0; fore femur 2.4 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 2.9 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.9:2.8:1.0; hind basitarsus 3.6 times longer than maximally deep.

Metasoma.— Metasomal tergites densely short setose with deep puncturation (fig. 89); first metasomal tergite 1.3 times wider than medially long, dorsal carinae uniting posterior to level of spiracles (fig. 89); second metasomal tergite largely punctate with weak carinations, 2.3 times wider than medially long, antero-medially with short smooth triangular area produced posteriorly to form complete mid-longitudinal carina (fig. 89); third metasomal tergite 2.7 times wider than long; second suture weakly crenulate (fig. 89).

Colour.— Orange red; head (malar space yellow), legs (setae yellow), piceous red to black; wings brown; veins, pterostigma, setae, fore wing vein C+SC+R, dark brown.

Variation.— (Paratypes, males). One male with clypeus and median supra-cly-



Figs 84-89, *Y. setosus* spec. nov., ♂, paratype. 84, head, 85, head, anterior of mesoscutum, dorso-lateral aspect; 86, mesoscutum, dorsal aspect; 87, mesosoma, fore leg, basal of mid and hind leg, lateral aspect; 88, metanotum, propodeum, dorsal aspect; 89, basal metasomal tergites.

peal area yellowish; length of body 6.9 mm; fore wing 5.4-6.0 mm; first flagellomere 1.1-1.2 and 1.2-1.3 times longer than the second and third respectively; first flagellomere 2.0-2.3 times longer than wide; third flagellomere 1.3-1.7 times longer than wide; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.6-4.7:1.2-1.6; 1 male, face with complete mid-longitudinal ridge; height of eye:width of face:width of head = 1.0:0.9-1.1:1.5-2.1; length of face 0.4-0.5 times width; horizontal length of eye:horizontal length of head behind eye = 1.7-2.2:1.0; post-ocular length:transverse diameter of posterior ocellus:shortest distance between posterior

ocellus and eye = 1.0:1.2-1.5:1.6-2.8; mesosoma 1.8-1.9 times longer than high; precoxal suture basally absent; fore wing: lengths of veins SR1:3-SR:r = 4.5-4.6:0.9-1.0:1.0; lengths of veins 2-SR:3-SR:r-m = 1.0:1.0-1.2:0.9-1.0; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.4-2.0:0.8-1.0; lengths of veins 2-CU1:1-CU1 = 3.5-4.6:1.0; lengths of vein 2-CU1:3-CU1 = 2.2-2.3:1.0; hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.3; vein SR distinctly curved posteriorly at extreme tip; length of fore femur:tibia:tarsus = 1.5-1.6:1.8-1.9:1.0; fore femur 2.3-2.4 times longer than maximally deep; hind femur 2.9-3.0 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.8-2.5:2.6-3.4:1.0; hind basitarsus 2.4-3.8 times longer than maximally deep; second tergite 2.3-2.4 times wider than medially long; third tergite 2.4-3.1 times wider than long.

Distribution.— Mexico.

Yelicones tricolor spec. nov.
(figs 90-95)

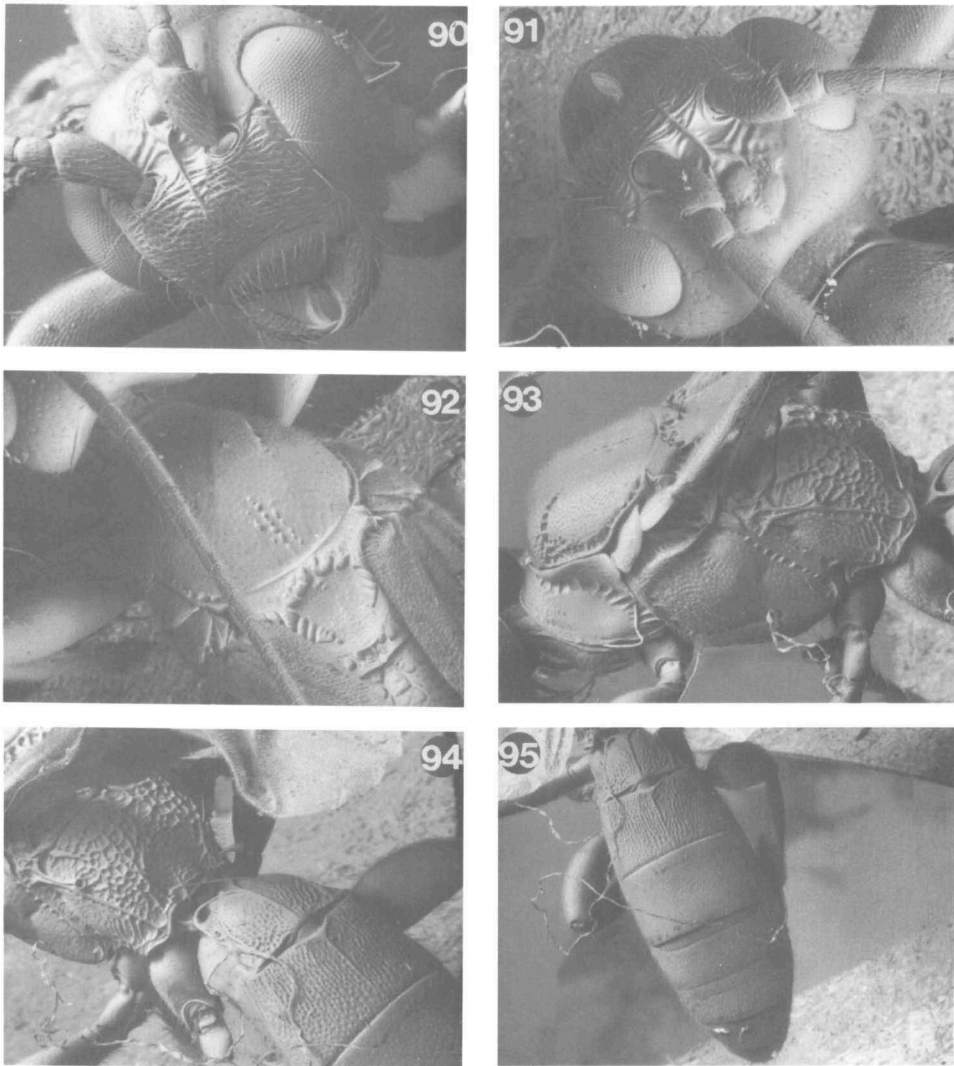
Material.— Holotype, ♀ (CNCO), "Costa Rica: Alajuela Penas blancas, 700 m, ii.1987, E. Cruz NT". Paratype: 1 ♂ (CNCO), "MEX: Chiapas, 4 mi. SW Palenque Ruins, 30.vii.1983, R. Anderson".

Holotype, ♂, length of body 6.6 mm, of fore wing 4.8 mm.

Head.— Antennae with 35 flagellomeres; terminal flagellomere acuminate, approximately 3.0 times longer than wide; first flagellomere 1.0 and 1.2 times longer than the second and third respectively; first flagellomere 2.2 times longer than wide; third flagellomere 1.8 times longer than wide; malar space moderately setose; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.5:1.4; clypeus moderately long setose (fig. 90); face densely setose, antero-medially with short transverse carinae, mid-longitudinal ridge running from antennal sockets half way to clypeus (fig. 90); height of eye:width of face:width of head = 1.0:1.3:1.6; length of face 0.5 times width of face; eyes glabrous; frons glabrous, impressed behind the antennal sockets, mid-longitudinal carina posteriorly incomplete, posteriorly with curved transverse ridges (figs 90, 91); occiput and temples moderately setose with deep puncturation (fig. 91); horizontal length of eye:horizontal length of head behind eye = 1.9:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:2.3:5.3; occipital carina complete medially.

Mesosoma.— Shiny, densely setose with deep puncturation, 1.9 times longer than high; mesoscutum postero-medially with 3 longitudinal crenulate grooves (fig. 92); notauli anteriorly distinct, deep, crenulate, impressed on anterior 0.4 of mesoscutum; scutellar sulcus with 4 carinae between the 2 outer ones; median area of metanotum postero-medially without pit (fig. 92); mesopleuron postero-medially smooth; precoxal suture deep, crenulate, posteriorly wide, weakly curved, extending 0.65 length of mesopleuron (fig. 93); propodeum areolate, antero-medially with inverted 'U'-shaped carina, sublateral carinae absent (figs 92, 94).

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 4.2:1.5:1.0; vein 1-SR+M strongly sinuous; vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.2:0.8; lengths of veins 2-SR+M:2-M:m-cu = 1.0:2.4:1.1; lengths of veins 2-CU1:1-CU1 = 1.5:1.0; lengths of veins 2-CU1:3-CU1 = 2.6:1.0; veins



Figs 90-95, *Y. tricolor* spec. nov., ♂, holotype. 90-91, head: 91, dorsal aspect; 92, meoscutum, scutellum, metanotum, antero-medial of propodeum, dorsal aspect; 93, mesosoma, lateral aspect; 94, propodeum, basal metasomal tergites, dorso-lateral aspect; 95, metasomal tergites, hind femur and tibia, dorsal aspect.

C+SC+R and 1-SR forming an angle of 35°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.6; vein 2-SC+R longitudinal; vein SR distinctly curved posteriorly at extreme tip; vein 2m-cu postfurcal, distinctly curving towards base of wing, not reaching to vein 2-1A, tubular 0.85 of distance to posterior wing margin; marginal cell densely setose, basal cell and base of wing with comparatively reduced setosity.

Legs.— Lengths of fore femur:tibia:tarsus = 1.4:1.7:1.0; fore femur 2.7 times longer than maximally deep; fore tibia without mid-longitudinal ridge; hind femur 2.8 times

longer than maximally deep; lengths of hind femur:tibia:basitarsus = 2.0:2.7:1.0; hind basitarsus 3.5 times longer than maximally deep.

Metasoma.— Metasomal tergites 1-4 densely setose; metasomal tergites 1-2 longitudinally substrigulate (figs 94, 95); first metasomal tergite 1.1 times wider than medially long, dorsal carinae uniting anterior to level of spiracles (figs 94, 95); second metasomal tergite 1.9 times wider than medially long, antero-medially with short smooth triangular area produced posteriorly to form nearly complete mid-longitudinal carina (figs 94, 95); third metasomal tergite 1.8 times wider than long; second suture smooth (fig. 94); metasomal tergites 5-8 largely moderately setose (fig. 95).

Colour.— Head (malar space, clypeus, brownish-yellow), propodeum, legs (fore and mid coxae with trochanters, yellow), metasomal tergites piceous or black; mesosoma yellow; wings brown; veins, setae, dark brown; fore wing vein C+SC+R, parastigma, pterostigma, piceous.

Variation.— (Paratype, male) Dark brown to piceous; lateral and posterior part of face, propodeum medially and posteriorly, lateral part of metasomal tergites 1-5, base of first tergite, yellow; length of body 5.25 mm; fore wing 3.7 mm; first flagellomere 1.1 times longer than the third; first flagellomere 2.1 times longer than wide; third flagellomere 2.0 times longer than wide; height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:4.4:1.3; height of eye:width of face:width of head = 1.0:1.1:2.0; horizontal length of eye:horizontal length of head behind eye = 2.1:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.6:3.0; mesosoma 1.7 times longer than high; fore wing: lengths of veins SR1:3-SR:r = 3.25:1.4:1.0; vein r arising 0.5 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.6:1.0; lengths of veins 2-SR+M:m-cu = 1.0:1.0; lengths of veins 2-CU1:1-CU1 = 3.0:1.0; lengths of vein 2-CU1:3-CU1 = 4.2:1.0; hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.4; length of fore femur:tibia:tarsus = 1.9:2.2:1.0; fore femur 3.1 times longer than maximally deep; hind femur 2.9 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 2.2:3.0:1.0; hind basitarsus 3.1 times longer than maximally deep; first metasomal tergite 1.2 times wider than medially long; second tergite 1.8 times wider than medially long, mid-longitudinal carina complete; third tergite 2.3 times wider than long, anteriorly finely substrigulate.

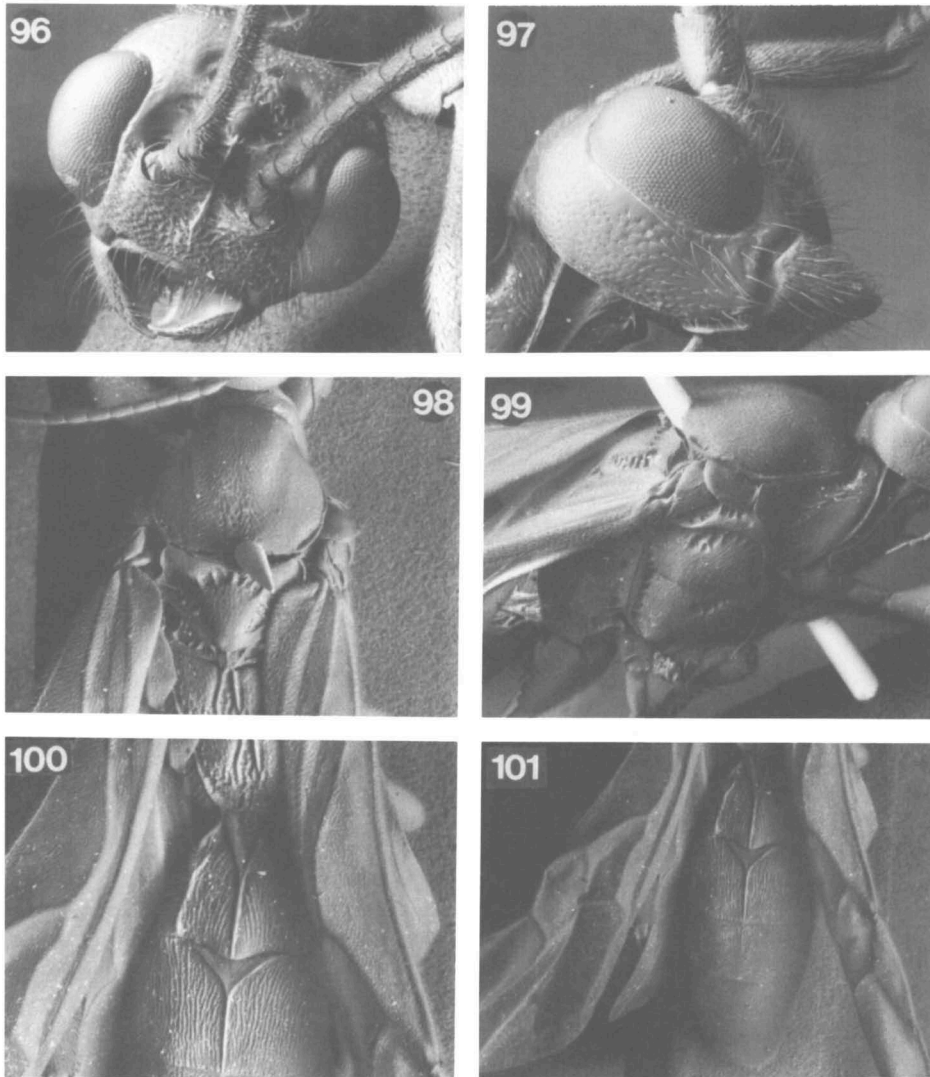
Distribution.— Costa Rica, Mexico.

Yelicones woldai spec. nov.
(figs 96-101)

Material.— Holotype, ♂ (RMNH), "Museum Leiden, N. PANAMA, 1050 m, Fortuna, Chiriqui 8°44' N-82°15' W, 2-8.v.1978, H. Wolda, at light".

Holotype, ♂, length of body 7.8 mm, of fore wing 6.5 mm.

Head.— Antennae with 40 flagellomeres; terminal flagellomere pointed, approximately 2.9 times longer than wide; first flagellomere 1.1 times longer than both second and third separately; first flagellomere 1.7 times longer than wide; third flagellomere 1.6 times longer than wide; malar space sparsely setose (fig. 97); height of clypeus:inter-tentorial distance:tentorio-ocular distance = 1.0:6.8:2.0; clypeus moderately long setose; face punctate-reticulate, mid-longitudinal carina running from anten-



Figs 96-101, *Y. woldai* spec. nov., ♂, holotype. 96-97, head: 96, fronto-dorsal aspect; 97, lateral aspect; 98, mesoscutum, scutellum, metanotum, propodeum anteriorly; 99, posterior of head, mesosoma, lateral aspect; 100, propodeum, basal metasomal tergites, dorsal aspect; 101, metasomal tergites, fore wing.

nal sockets half way to clypeus (fig. 96); height of eye:width of face:width of head = 1.0:1.2:1.4; length of face 0.5 times width of face; eyes glabrous; frons glabrous, impressed behind each antennal socket, mid-longitudinal carina complete (fig. 96), postero-medially with short 2-3 transverse carinae; occiput and temples densely short setose with deep puncturation (figs 96, 97); horizontal length of eye:horizontal length of head behind eye = 1.9:1.0; post-ocellar length:transverse diameter of posterior ocellus:shortest distance between posterior ocellus and eye = 1.0:1.75:4.0; occipital carina complete medially.

Mesosoma.— Densely setose with deep puncturation, 1.8 times longer than high; mesoscutum postero-medially with indistinct sculpture; notauli anteriorly distinct, weak, smooth, impressed 0.75 length of mesoscutum; scutellar sulcus with 4 carinae between the 2 outer ones; median area of metanotum postero-medially without pit (fig. 98); precoxal suture shallow, crenulate, wide, straight, anteriorly 0.25 absent, extending 0.6 length of mesopleuron (fig. 99); propodeum largely rugosely sculptured, antero-medially with inverted 'V'-shaped carina (figs 98, 100), sublateral carinae complete.

Wings.— Fore wing: lengths of veins SR1:3-SR:r = 5.6:1.2:1.0; vein 1-SR+M anteriorly curving towards anterior of wing, posteriorly straight; vein r arising 0.4 distance from base of pterostigma; lengths of veins 2-SR:3-SR:r-m = 1.0:1.1:1.0; lengths of veins 2-SR+M:2-M:m-cu = 1.0:1.5:0.9; lengths of veins 2-CU1:1-CU1 = 2.5:1.0; lengths of veins 2-CU1:3-CU1 = 2.8:1.0; veins C+SC+R and 1-SR forming an angle of 60°. Hind wing: lengths of veins 1r-m:SC+R1 = 1.0:1.2; vein 2-SC+R marginally longitudinal; vein SR distinctly curved posteriorly at extreme tip; vein 2m-cu marginally post-furcal, strongly curved towards base of wing, not reaching to vein 2-1A, tubular 0.9 of distance to posterior wing margin; marginal cell densely short setose, basal cell and base of wing comparatively with short setosity.

Legs.— Lengths of fore femur:tibia:tarsus = 1.6:1.8:1.0; fore femur 2.9 times longer than maximally deep; fore tibia with a distinct mid-longitudinal ridge; hind femur 3.4 times longer than maximally deep; lengths of hind femur:tibia:basitarsus = 1.5:2.3:1.0; hind basitarsus 4.7 times longer than maximally deep.

Metasoma.— Metasomal tergites densely setose with deep puncturation (figs 100, 101); metasomal tergites 1-2 and anterior half of third substrigulate (figs 100, 101), first metasomal tergite 1.2 times wider than medially long, dorsal carinae uniting at same level as spiracles; second metasomal tergite 1.7 times wider than medially long, antero-medially with a short smooth triangular structure extended to form a complete longitudinal carina (fig. 100); third metasomal tergite 2.1 times wider than long; second suture smooth.

Colour.— Black or piceous; setae on mesosoma, legs, metasomal tergites, yellow; scutellum, metanotum, propodeum, fore coxa, first metasomal tergite to anterior margin of 4th, yellow; legs dark reddish-brown; wings boldly banded yellow and brown, fore wing with basal 0.4 and band at level of second submarginal cell, yellow; pterostigma, basal 0.5 brown, distal 0.5 yellow; hind wing with basal 0.5 yellow, distal 0.5 brown.

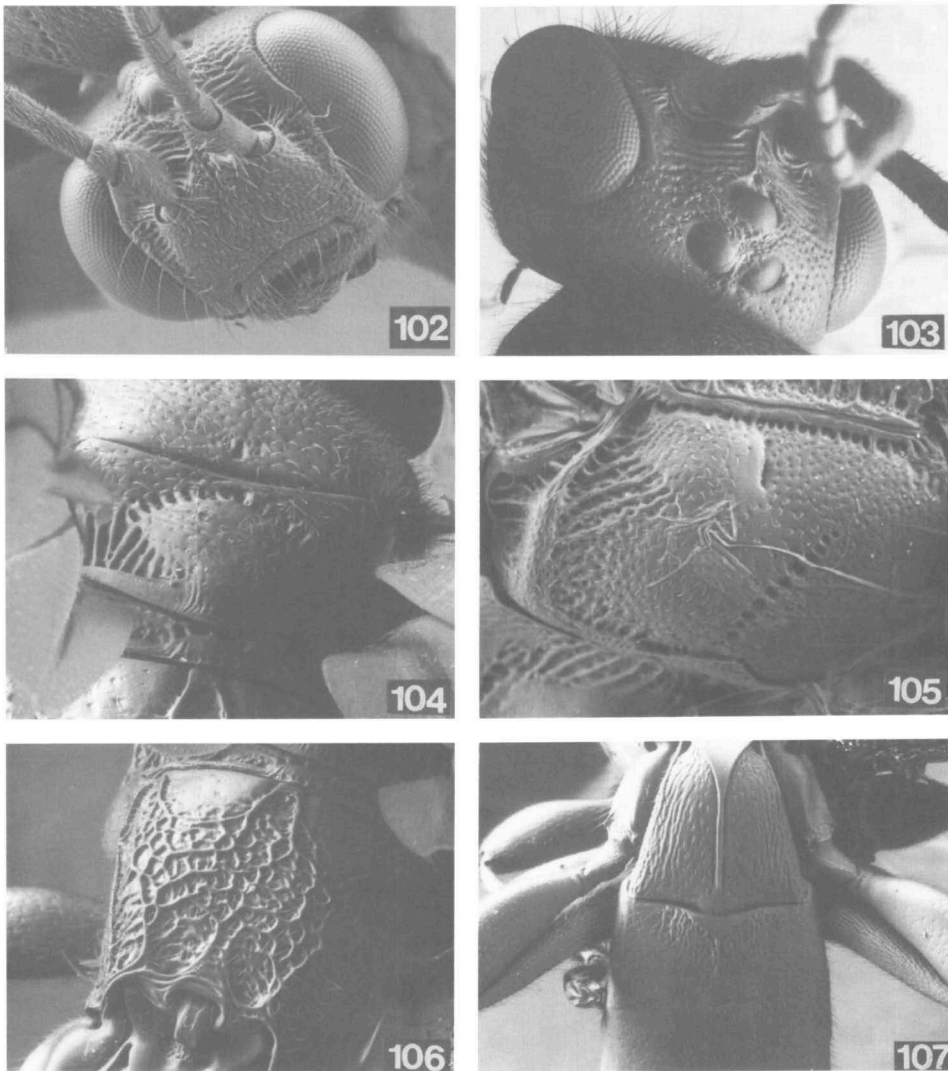
Distribution.— North Panama.

Notes on described species

Yelicones delicatus (Cresson, 1872)
(figs 6, 102-107)

Rogas delicatus Cresson, 1872: 189.

Diagnosis.— *Y. delicatus* can be distinguished from all other *Yelicones* species by the combination of a short second submarginal cell (fig. 6), long eyes and antennae



Figs 102-107, *Y. delicatus* (Cresson), ♀. 102-103, head; 104, mesoscutum posteriorly, scutellum, metanotum, propodeum basally, dorsal aspect; 105, pronotum, mesopleuron; 106, metanotum, propodeum, dorsal aspect; 107, basal metasomal tergites, middle femur, hind femur and tibia.

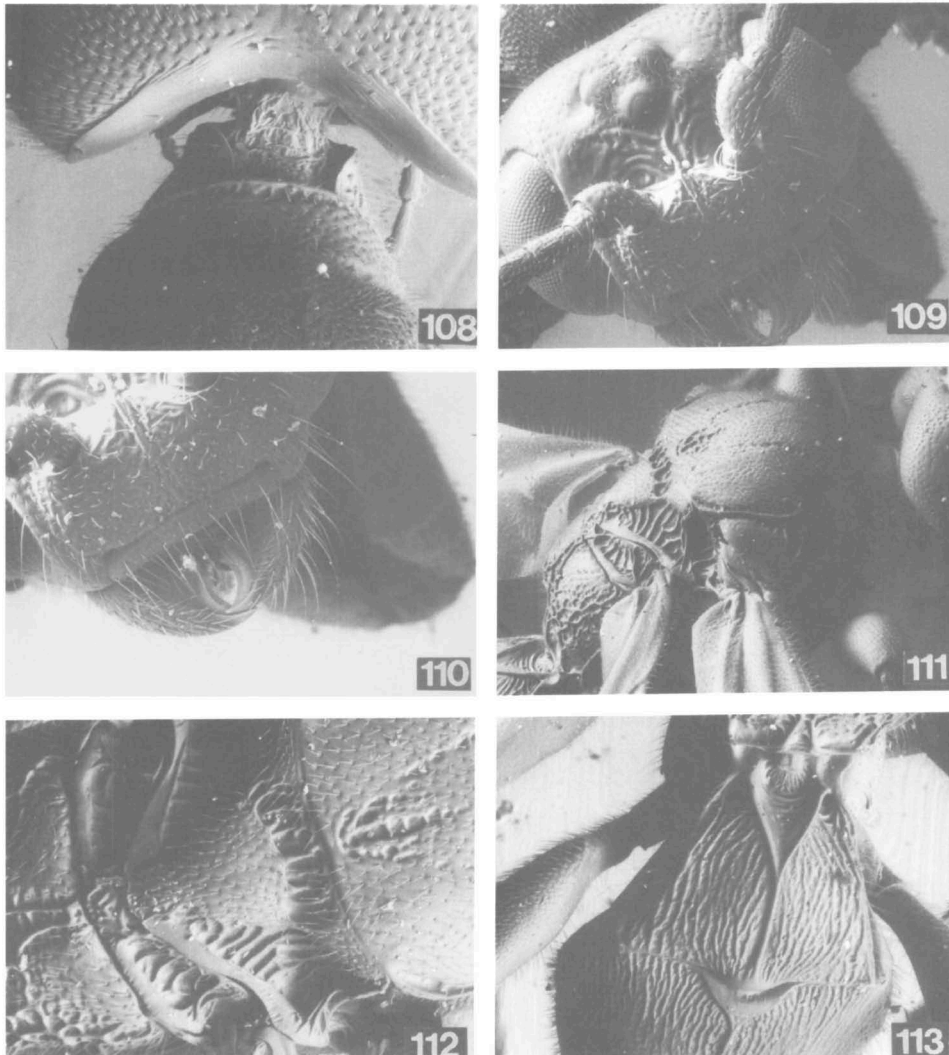
that are yellow proximally with a yellow base.

Note.— Some specimens from the Dominican Republic are uniformly darker (reddish-brown) than continental specimens and have only the very basal flagellomeres paler. *Y. delicatus* appears to be closely related to *Y. nigrigaster* spec. nov., both of which have hind wing vein M+CU about as long as or longer than 1-M. Males of *Y. delicatus* have the hind tibia somewhat swollen and thus also resemble those of *Y. longulus* spec. nov. (the male of *Y. nigrigaster* is not known).

Yelicones nigromarginatus Quicke & Kruft, 1995
(figs 108-113)

Yelicones nigromarginatus Quicke & Kruft, 1995: 135-136.

Diagnosis.— *Y. nigromarginatus* can be distinguished from *Y. crica* spec. nov., the only other species with yellow wings with a fuscous distal margin by the piceous fore wing vein C+SC+R and pterostigma.

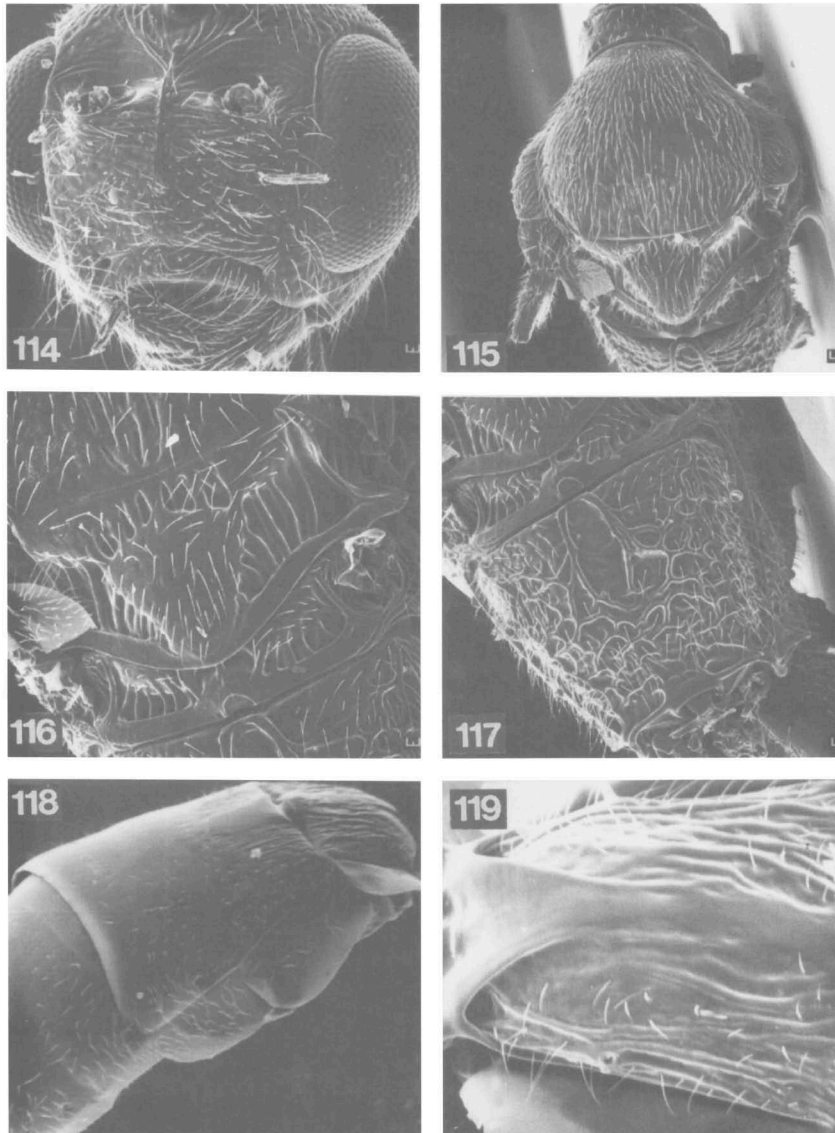


Figs 108-113, *Y. nigromarginatus* Quicke & Kruft, ♀, paratype. 108, head posteriorly, mesosoma anteriorly, dorsal aspect; 109-110, head, dorsal aspect; 111, mesosoma, anterior of first metasomal tergite, dorso-lateral aspect; 112, mesoscutum posteriorly, scutellum, metanotum, propodeum anteriorly, dorsal aspect; 113, posterior of propodeum, basal metasomal tergites, dorsal aspect.

Yelicones pilops Quicke & Kruft, 1995
(figs 114-119)

Yelicones pilops Quicke & Kruft, 1995: 136-137.

Diagnosis.— Of the North and Meso-American species of *Yelicones*, *Y. pilops* is the only one with markedly setose eyes (fig. 114).



Figs 114-119, *Y. pilops* Quicke & Kruft, ♀, paratype. 114, head, frontal aspect; 115, mesosoma, dorsal aspect; 116, posterior of mesoscutum, scutellum, metanotum, anterior of propodeum, dorsal aspect; 117, scutellum posteriorly, metanotum, propodeum; 118, basal metasomal tergites, lateral aspect; 119, first metasomal tergites, dorsal aspect.

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