

[Reprinted from PSYCHE, Vol. XXIII, No. 2]

NEW ENCYRTIDAE FROM NORTH AMERICA.

By A. A. GIRAULT,

Bureau of Entomology, U. S. Department of Agriculture.

Signiphora flavopalliata occidentalis Howard.

Two females from *Chrysomphalus aurantii citrinus*, Avondale, Cal., October 24, 1911. P. H. Timberlake. 14527 D.

Signiphora thoreauini sp. nov.

Female: Length, 0.55 mm. Differs markedly from *aleyrodus* in having the antennal club all black, the cephalic part of the mesoscutum is only slightly darkened, the band on the abdomen is slightly shorter. From *basilica* in lacking the disto-marginal spot on the abdomen, the less colored cephalic thorax, the wholly black club and its greater length. From *lutea* as from *aleyrodus* and in its greater slenderness.

From one female on a slide labelled "From *Aspidiotus hederæ* on Soy, Santa Barbara, Cal., November 14, 1911. P. H. Timberlake. 14594 C." *Type:* Catalogue No. 19209, U. S. N. M., the above specimen.

Neosigniphora elongata sp. nov.

Female: Length, 1.35 mm. Rather long in proportion to its width. Agrees with the description of *Signiphora australica* Girault (the legs, however, dark except the yellow tarsi and the yellow dusky front legs); fore wings clearer near tip and under all of submarginal vein; the marginal cilia at apex are over half the greatest wing width. Hind wings broad. Differs notably from *australica* in the antennal club which is slender, six or more times

longer than wide. Scape long and slender, the pedicel not half its length.

Described from one female on a slide labelled "Webster No. 11824, Elkpoint, S. D., March 28, 1914. Reared from a coccid on *Muehlenbergia*, C. N. Ainslie." The four ring-joints in the genotype are verified. *Type*: Catalogue No. 19210, U. S. N. M., the foregoing female.

***Aneristus oculatipennis* sp. nov.**

Female: Length, 1.65 mm. Black, the tarsi white; apex of scutellum very narrowly around the margin and a broad band across the scutum just back of the cephalic margin, yellowish white; band on scutum occupying somewhat over a third of the surface. Propodeum centrally at apex suffused with yellowish. Body very finely scaly, the head and thorax with numerous, small setigerous punctures, densest on the scutum. Cephalic femora strongly compressed. Fore wings hyaline but with a large, three-fourths-complete circular smoky ring from somewhat less than the distal two thirds of the marginal vein and extending beyond the venation, its open fourth facing the caudal wing margin and partly closed by a fainter dusky stripe opposite the opening and along the caudal margin; the distal margin of the ring is less than its width (not diameter) from the blade's apex; this ring makes a central, large ocula some distance distad of middle, opposite distal marginal vein. Stigmal vein sessile, minute, globular. Middle tibial spur long and *stout* as in normal encyrtids. Axillæ advanced. Parapsidal furrows mere sutures. Caudal femora and tibia compressed, the tibiæ with stiff black bristles dorsad and with two stout, black, subequal spurs. Mandibles broadly subtruncate but bidentate as in *Baoanusia*, the first tooth shorter than the large truncate second one. Scape pale beneath; flagellum subcylindrical, the funicle joints a little flattened, 1 nearly as long as the scape, three-fourths longer than wide at apex, 3 a little longer than wide, much larger than the pedicel; club 1 slightly wider than long. One distinct ring-joint. Maxillary palpus 2-jointed, the second joint ending in a long slender bristle; labials 1-jointed and similarly terminated. Club well-defined.

From five females reared from *Saissetia olea*, Catacaos, Peru. The date of the rearing is September 14, 1912. Rust, collector.

Types: Catalogue No. 19211, U. S. N. M., four females on two tags plus a slide bearing appendages.

Nebaocharis gen. nov. (Ectromini)

Female: In Ashmead's table runs to *Anusia* Foerster but differs in having the antennal club solid, the ovipositor exerted for three fourths the length of the abdomen, wings are present in the shape of large scales and the head is not so long, not so narrowed beneath the eyes, the cheeks short. Also the pronotum is less conical, shorter than the scutum or scutellum. Abdomen slender, depressed, its segments very indistinct. Head subquadrate but somewhat narrower toward the mouth (cephalic aspect), the face lenticular but the short, rather shallow scrobes forming a short semi-circle. Axillæ apparently rather widely separated. Hind tibial spur single. *Type:* *N. hemipterus*, sp. nov.

Nebaocharis hemipterus sp. nov.

Length, 1.00 mm. Dark brown, the abdomen, antennæ, extruded valves of the ovipositor and the hind legs, purplish black; scutellum nearly black. Legs, including the caudal tibia just below knee and the caudal tarsus, yellow. Body glabrous or nearly but the head coarsely scaly. Pedicel not flattened, slightly longer than wide, slightly longer than funicle 3 which is slightly the longest, 6 subequal to 2, 1 cupshaped and smallest, all wider than long and compressed; club conical, no wider than the funicle and about half its length. Scape greatly dilated. Flagellum clothed with very short hairs.

Described from one female in the U. S. N. M. collections, labelled "Colorado, 2019. C. F. Baker." *Type:* Catalogue No. 19312, U. S. N. M., the specimen on a tag, the head and a hind leg on a slide.

Xanthoencyrtus Ashmead (= *Scelioencyrtus* Girault).

The original description of *Xanthoencyrtus* disagrees with my own of *Scelioencyrtus*, which is correct. The club is 2-jointed, and the genus must at present be regarded as an Ectromine. *Xanthoencyrtus nigroclavatus* Ashmead appears to be common in the United States; through the Bureau of Entomology I have seen a series of both sexes labelled Webster No. 11811, Elkpoint, S. D.

C. N. Ainslie, collector. Parasite reared from *Panicum coccid.*" The male club is solid, the funicle joints distinctly longer than wide, with scraggly hairs. There are three Australian species.

***Epanusia albiclava* sp. nov.**

Female: Length, 1.20 mm. Dark metallic purple, the fore legs (except the coxæ) reddish brown, the middle tibiæ and tarsi and the club yellowish white. Head sculptured as in the genotype. Fore wings embrowned from near base to apex and crossed by a broad, naked hyaline band from all of the marginal and as much of the submarginal veins. Oblique hairless line not differentiated. Head bombyciform (as in the honey bee), a distinct carina between the antennæ, the scrobes running half way up the face but not joining, the face sublenticular. Axillæ slightly separated. Dorsal thorax sculptured and clothed as in the genotype. Marginal vein two and a half times longer than wide, postmarginal vein a little longer than the stigmal, somewhat shorter than the marginal. Fore wings rather narrow for the family but still large. Funicle widest at 2, 1 triangular and longest, widest distad, 6 smallest of the funicle, slightly longer than wide; club cylindrical. Mandibles small, their equal teeth acute. Ovipositor as in *Anagyrodes*.

From a female in the U. S. N. M. collection, taken by sweeping in the fair grounds, D. C., October, 1883. *Type:* Catalogue No. 19313, U. S. N. M., the above specimen and a slide bearing a head, fore wing, antenna and portion of a hind leg.

***Epidinocarsis subalbicornis* sp. nov.**

Female: Length, 1.50 mm. Dull black, including the venation, the wings hyaline, the antennæ distad of funicle 1 pure white; also the apex of the pedicel obliquely ventro-proximad and a stripe across the scape near its apex. Mesopleurum orange yellow, except at caudal margin. Tegulæ white at base. Propleurum whitish. Legs white except hind coxæ. Marginal vein a little over twice longer than wide, subequal to the stigmal, the post-marginal very short; hairless line closed caudad, rather broad, the wing ciliated proximad of it to base. Pedicel over twice longer than wide at apex, somewhat shorter than funicle 1 which is fully $2\frac{1}{2}$ times longer than wide and longest. Funicle 6 a third longer than wide. Thorax very densely, minutely scaly and hispid, the

very short stiff hairs white; a carina between the axillæ. Abdomen and head sculptured like the thorax, the head pubescent like the thorax. The apex of the acutely triangular scutellum reaches base of the abdomen. Scrobes distinct yet the head sublenticular. Frons moderately broad, the lateral ocellus its own diameter from the eyes.

Described from two females labelled "State Insectary, Cal., 675 A, Fresno, Cal., associated with mealy bugs on grape." *Types*: Catalogue No. 19314, U. S. N. M., two females on tags plus a slide with female head and fore wing. One of the females is a paratype.

Formicencyrtus gen. nov. (Encyrtini)

Female: Head ant-like, held nearly horizontally. Runs close to *Anusia* Foerster but the abdomen is somewhat as in *Anastatus*, that is depressed (the ovipositor shortly extruded) but in shape it is broadly oval (dorsal aspect), the second segment occupying about half of the surface, segment 6 two thirds as long as 2, the others short. The wings are like large scales but veinless and inconspicuous. Otherwise agrees with the structural characters of *Anusia flava* Girault except that the scutellum is not triangular but round at apex and there is a minute third mandibular tooth. *Type*: *F. thoreauini*, sp. nov.

Formicencyrtus thoreauini sp. nov.

Female: Length, 1.58 mm. Reddish brown, the propodeum darker, the abdomen dorsad metallic purplish, yellowish at apex, the funicle and club black, the short, extruded part of the ovipositor whitish. Fore wing gradually narrowing distad, somewhat over three times longer than wide at base, hispid, with minute scattered marginal cilia. Mandibles with two equal acute teeth and a third very minute obtuse one. Hind tibiæ with one long, slender spur. Scutellum and axillæ lemon yellow. Body coriaceous to subglabrous, the propodeum glabrous, non-carinate, pubescent latero-dorsad. Axillæ with a very short carina between them, together with the scutellum opaque and more coriaceous than the rest of the body. Dorsal abdomen downy, the hairs white and reclining. Tegulæ large; scutellum, scutum and propodeum of about equal length. Dorsal thorax very sparsely hairy. Caudal margin of

segment 2 of the abdomen slightly concavely incised at the meson. Pedicel normal, slightly longer than wide at apex and than funicle 1, the latter longest but only slightly so, the joints all somewhat wider than long. Club obliquely truncate from the base of joint 2. Scape very greatly foliaceously dilated ventrad. Funicle compressed. Genal suture absent.

From two females on tags in the U. S. N. M. collections labelled "5817⁰². On *coccus confusus*. Mesilla Park, New Mexico. Cockerell. Emerged December 14, 1896." *Type*: Catalogue No. 19315, U. S. N. M., the two females on tags and a slide bearing a hind leg, a wing and a head. One female a paratype.

Zaommoencyrtus submicans Gen. et sp. nov. (Encyrtini)

Female: In my table of the earth's genera runs to *Zaomencyrtus* Girault but differs in having the scape foliaceously dilated, the funicle joints annular; the stigmal vein is subequal to the marginal which is twice longer than wide, twice the length of the postmarginal. Hind tibial spur short, single, distinct. The middle tooth of the mandible is distinctly longest, the first shortest, a minute tooth, distinctly shorter than the others; third tooth half the length of the middle one. Head quadrate (cephalic aspect). Frons very broad. Eyes round-oval, about as long as the cheeks. Vertex rather thin. Face in death circularly depressed, the frons depressed. Axillæ separated distinctly for some little distance, the suture separating from the scutellum delicate. Form slender, rather flattened, not elongate. Head somewhat as in *Spalangia* but shorter.

Female: Length, 1.00 mm. Shining purplish black, the wings lightly dusky from about the bend of the submarginal vein, the duskiest accented under the head of that vein and under the marginal vein; tibiæ, except just below the knees and the tarsi yellow. Venation fuscous, the stigmal vein paler. Body very delicately scaly, shining like the surface of tar. Second joint of club obliquely truncate, longest, the club enlarged and barely shorter than the funicle. Pedicel stout, slightly longer than wide; funicle joints enlarging distad, 6 over thrice the size of 1 or 2 or 3 which are annular and subequal. Pedicel over a third the length of the body of the scape. Hind wings with about fourteen rows of discal cilia. Fore wing with a white streak caudad from the proximal margin of the discal ciliation, parallel with the caudal margin.

Oblique hairless line rather broad with but several lines of cilia proximad of it. Abdomen no longer than the thorax, the ovipositor tipping it.

From six females "Hopk. U. S. 10958 c., July 27, 1914. On *Nyctobates pennsylvanica*, Shiremantown, Penn. Hicoria. W. S. Fisher." *Type*: Catalogue No. 19316 U. S. N. M., a female on a tag; five female paratypes.

Ceraproceroideus Gen. nov. (Encyrtini).

Female: In my table of genera runs to *Ceraprocerus* Westwood but wingless, the head is not oblong but subquadrate (cephalic aspect) and the second segment of the abdomen occupies nearly half of the surface, the sixth next largest, two-thirds the length of the second. Pronotum extremely short. Scutum wider than long but as long or nearly as the normal scutellum whose rounded apex reaches to the base of the abdomen. Axillæ separated for some distance. Vertex flat, the face inflexed, the frons prominent. Vertex of moderate width. Mandibles with the inner two teeth formed by a concaved broad second inner tooth whose lateral or dorsal apex is acute. Fore wings mere scales which are somewhat longer than wide, with a broad costal cell and distinct submarginal and marginal veins, the latter much shorter than the former. Middle tibial spur long and stout, the caudal spur single, slender. Ovipositor slightly extruded, pointing the abdomen. *Type*: *C. cinctipes*, sp. nov.

Ceraproceroideus cinctipes sp. nov.

Female: Length, 1.10 mm. Purplish black, the scutellum except lateral and caudal margins narrowly and the rest of the dorsal thorax, except the tegulæ and much of the surface of the scutum, reddish brown. Head purplish black, the vertex bright lemon yellow, except the lateral margins unnarrowly along the eyes and the cephalic margin broadly. Face with a broadly curved, narrow lemon yellow stripe across it just under the vertex far dorsad of the antennæ, its (lateral) ends terminating under the eye ends. Lateral ocellus in the mesal margin of the lateral black border of the vertex, over its diameter from the eyes. Head finely scaly. Eyes partly on the vertex, the cheeks longer than them. Cephalic legs purple except tips of the tibiæ broadly and the four proximal tarsal joints.

Middle legs purple except the same tarsal joints and the distal two-thirds of the tibiæ, this latter white portion with a black *cinctus* at its middle. Caudal legs all purple, except the three proximal tarsal joints and a broad white *cinctus* a little proximad of the middle of the tibiæ. Abdomen shining, subglabrous. Dorsal thorax scaly, the scutellum more densely so; scutum with sparse pubescence. Antennæ wholly flat. Pedicel triangular, slightly longer than funicle 6. Scape greatly dilated. Funicle joints decreasing in width, increasing in length distad, 6 somewhat wider than long, 1 over twice so, all the joints with their distal margin concave. Club conico-cylindrical, its first joint subquadrate, largest. Fore wings with black, scattered stiff bristles disco-distad and from its cephalic margin, with a fuscous dash across at the thickening of the submarginal vein, a dusky spot against the apex of the venation and an irregular dusky blotch across the apex.

What appears to be the male is very different—winged, the marginal vein somewhat longer than wide, the postmarginal just developed, the stigmal very short, half the length of the marginal. The wings are hyaline and fully developed. Vertex flat but shorter than in the female, the frons less prominent. The antennæ are filiform, the club solid, the scape only compressed-cylindrical, somewhat shorter than the club; pedicel globular; funicle joints cylindrical, 1 longest, nearly twice longer than wide, 6 somewhat longer than wide. Funicle and club with rather long, scraggly hairs. The legs are concolorous except the proximal four tarsal joints of the first two pairs of legs, the proximal joint of caudal tarsi, the cephalic knees and tips of cephalic tibiæ, middle knees and tips of middle tibiæ and a white central *cinctus* on middle tibiæ (therefore, two concolorous *cincti*; the knees include the base of the tibiæ and the apex of the femur). The fore femur, caudal femur and tibia are compressed. The head of the male is wholly concolorous.

Described from two males, one female "From *Aspidiotus helianthi* Parr on *Eugerion canadense*, Wellington, Kans., October 8, 1908. E. G. Kelly." *Types*: Catalogue No. 19317, U. S. N. M., the above specimens on tags with a slide bearing a male head and fore wing and female head, legs, antenna and fore wings. One male a paratype.

Paracopidosomopsis Gen. nov. (Encyrtini).

Female: The same as *Berecynthus* Howard but the mandibular teeth are small and subequal. *Type:* *B. floridanus* Ashm.

This species is closely allied with the so-called *Copidosoma truncatellum* Dalman (at least specimens from Europe in the U. S. National Museum, so labelled) which is congeneric, but the American species differs in having a distinct, rectangular fuscous patch against the stigmal and marginal veins with a more suffused area caudad of it, while in the European species the wings are hyaline. Otherwise the two are certainly much alike. Mr. A. B. Gahan has identified a series of *floridanus* as *truncatellum* but for the present I do not think the two can be regarded as the same. These specimens were labelled "Laf. 11. Lafayette, Ind., J. J. D. Reared from cabbage *Plusia* larva."

Berecynthus Howard.

In my table of genera runs to *Copidosomopsis* Girault but differs in the following essentials: The marginal vein is somewhat longer than wide, the postmarginal distinct, about half the length of the marginal, the abdomen is broader, flat and subcordate, the stigmal vein is slightly longer than the marginal. Axillæ rather broadly joined. Mandible with the third tooth minute, the first long, over twice the length of the second which is over four times the size of the third. Ring joint very minute. Club solid, obliquely truncate. Hind tibial spur single, the middle one enlarged. Genal suture absent. Scrobes not reaching to the middle of the face yet distinct, of tolerable length, forming an inverted "V." Club wider than the funicle and about three fourths its length.

Berecynthus bakeri Howard, var. **gemma**, var. nov.

Female: Length, 1.15 mm. Metallic blue-green, the middle knees and all tarsi except the distal joint, reddish-brown, the venation blackish, the fore wings lightly infuscated from the head of the submarginal vein distad to the apex. Funicle joints increasing gradually in width distad, 1 quadrate not half the length of the pedicel, subequal to 2, 6 somewhat wider than long. Pedicel distinctly longer than wide at apex, nearly half the length of the club which is a little shorter than the body of the scape. Hind wings

with about sixteen lines of uniform discal cilia where broadest. Fore wing with only about two short lines of coarse cilia proximad of hairless line. Whole body scaly reticulate. A very short, delicate carina between the axillæ. Scutellum more finely scaly than the scutum. Ovipositor not prominent.

The male is similar to the female but the scutellum is scaly like the rest of the thorax, the funicle joints all somewhat longer, subquadrate, the club shorter; the third tooth of the mandible is longer, the other shorter. Wings hyaline.

Described from a male and a large number of females labelled "From an *Euxoa* larva, Queensboro, Ontario. A. Gibson;" also "from larva of *Hadena devastatrix*, Ottawa, Canada, July 12, 1914. A. Gibson." *Types*: Catalogue No. 19318, U. S. N. M., 8 females on five tags (seven paratypes).

Differs from the typical form in having the fore wings narrower and the venation black; both forms bear a rectangular fuscous patch along the stigmal vein. Type locality, Ottawa.

***Berecyntus bakeri* Howard var. *arizonensis* var. nov.**

Female: Differs from *bakeri bakeri* in having the fore wings distinctly more dusky, infuscated throughout from the bend of the submarginal vein.

Described from four females from Phoenix, Ariz., March 20, 1915. From *Choraxagrotis* species. H. O. Marsh, Chtn. No. 978. *Types*: Catalogue No. 19319, U. S. N. M., the above specimens on separate tags; three paratypes, one type.