

TEN NEW SPECIES OF EMPIDIDÆ (DIPTERA)

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In collecting any group of insects some species are rarely encountered while others are common. In the Empididæ species of *Empis*, *Hilara*, *Rhamphomyia* and *Platypalpus* are numerous and are frequently taken, but it is a fortunate day when the collector can find a *Ragas*, a *Gloma*, or an *Anomalempis*. These last three represent archaic genera, and perhaps in their conservative characters they are handicapped in competition with those genera where speciation runs rife.

In the following pages are presented descriptions of ten new Empididæ, selected because of rarity or other noteworthy interest. Unless otherwise mentioned the specimens were collected by myself and the types are in my extensive collection of this family.

Anomalempis archon, n.sp.

Female. Length 3.75 mm. Entirely black, the halteres, pulvilli, abdominal hairs and terminal fringe of abdomen alone whitish. Sides of front coarctate, at middle one-fifth the length between antennæ and front ocellus, hairs of occiput conspicuous. Dorsum of thorax and abdomen polished, pleuræ and coxæ gray pruinose, dorsocentrals in more than single row, acrostichals biseriate, notal hairs long and thin. Hairs of middle coxæ longer than trochanters, all femora with setæ underneath, each tibia with about six extensor setæ. Wings hyaline, stigma narrow, pale brown.

Holotype: Katmai, Alaska, August, 1917, received from Professor J. S. Hine.

A larger and more bristly species than *A. tacomæ* Melander from Mount Rainier, Washington, but in structure and neuration exactly resembling the figure in Genera Insectorum, fasc. 185, pl. 5, f. 39 (not f. 38, which is *Syndyas polita* Loew). In the Washington species the sides of the front are much less

bowed and the width is one-half the height; the femoral setæ are lacking, the hind tibiæ have but a single seta, and the coxal hairs are shorter.

Chersodromia megacetes, n. sp.

Length 2 mm. Body black, thinly coated with cinereous pollen except the following polished places: face, proboscis, a narrow vertical stripe on sides of lower occiput, mesonotum except a narrow margin on sides and rear, most of sternopleura, terminal plate of pygidium and side of front coxæ. Palpi yellowish. Mesonotal hairs abundant, dark, leaving two approximated glabrous stripes anteriorly, separated by the biseriate hairs of the median line; scutellum thinly cinereous, two apical scutellars. Last tergite of abdomen of male somewhat enlarged on the left side; pygidium enormous, massive, twisted to the right, ventral bowl nearly twice as long as wide, below and laterally on the right side with a few short hairs, left side above with a shining spatulate valve, terminal disk rounded triangular; last segment of female abdomen compressed and shining, as long as other single segments. Legs black, the knees, extremities of tibiæ and the tarsi fuscous; femora without bristles other than a small one near knee, hind tibiæ with a few small bristles on apical half and inwardly with a terminal lappet, middle tibiæ with a flexar comb of short setulæ. Wings and veins whitish, the costal bristle black but the minute hairs whitish, crossveins touching, or the posterior crossvein slightly before the anterior; halteres wholly white.

Type, allotype and seven paratypes: Corona del Mar, California, 28 December 1944. Seven additional paratypes from the same locality, 25 July 1942, from Laguna Beach, 25 January 1935 and 22 May 1944, and from San Clemente Beach, 23 May 1944. In all, five males and eleven females were taken. The insects occur on the dry sand above the line of washed-in seaweed. They are reluctant to fly, can be driven into the collecting net, and are prone to take refuge in the burrows of Amphipods.

The species name, while literally meaning a great whale, has been applied to anything excessively large. In the present instance the monstrous pygidium, bulking as much as the remainder of the abdomen, and relatively larger than possessed by any other fly, warrants even this hyperbolic appellation.

Chersodromia insignita, n.sp.

Length 2 mm. Body black, overlaid with brownish gray pruinosity, the sternopleura mostly polished; hairs and bristles black; base of legs dark; wings maculate. Front about twice as long as width at middle, sides of face diverging below, the face about three times as long as width at antennæ; two vertical bristles, one pair each of converging and diverging ocellar bristles; antennæ black, third joint orbicular, style subdorsal, about three times length of third joint; proboscis black, but little projecting beyond the palpi, which are large, flat, orbicular and glistening white in the male and dusker but glistening in the female. Two dorsocentrals, one humeral, three intra-alar, one post-alar, scutellum with two bristles and two small lateral hairs. Abdomen of male stoutly cylindrical; seventh tergite oblique, lengthened on right side and with hind margin setose, eighth segment filling in the shortened left side of the seventh segment as a shining black triangular plate which is long-setose behind; abdomen nearly bare; pygidium massive, shining above, the globular ventral part pruinose like the preceding abdominal segments, claspers wide and stout. Coxæ mostly blackish, legs robust, all femora stout, piceous, knees, tibiæ and base of tarsi brownish; front tibiæ swollen and bearing a preapical flexar bristle, middle tibiæ with two widely separated extensor bristles, of male narrowed on apical third where there is a flexar strigil of about ten short spines, hind tibiæ with about ten irregular bristles toward tip; metatarsi cylindrical, the front ones two-fifths the tibial length. Wings fully developed, basal half whitish hyaline, with a strong sudden infumation in marginal cell beginning opposite crossveins and diminishing but pervading apical half of wing, veins white to, and including, crossveins but apically brownish, costal ratio 12:4:6:3, basal costal bristle black, costal hairs black, hairs of hind margin pale, second vein noticeably diverging from third, sections of fifth vein 5:4; halteres black, the short stalk brown; alulæ and hairs blackish.

Monterey, California; 25 September 1934, twelve specimens.

This is the only species of *Chersodromia* having an extended stigmatic spot on the wings.

Coloboneura nubifera Coquillett, from Alaska, likewise possesses a dark wing-cloud. It measures three to four millimeters and differs in having the darkening of the wings restricted to

the anterior distal quarter of the wing and in having the second basal cell shorter than the first.

Chersodromia cana, n.sp.

Female. Length 1.4 mm. Body and legs wholly black, more or less overlaid with white-gray pruinosity which is dense on the thorax except the sternopleural spot; all hairs white, all bristles short and black; halteres and palpi white. Front twice as long as width at bottom, face with coarctate sides, five times as long as narrowest width, two pairs of verticals, one of frontals; second joint of antennæ nearly equal to the rounded third joint, style subapical, about twice as long as the third joint; proboscis retracted. Dorsum of thorax rather evenly covered with appressed white hairs, scutellum with two bristles and two lateral white hairs, one each of humeral, notopleural, propleural and intra-alar. Vestiture of abdomen sparse, last segment compressed. Middle tibiæ with two extensor bristles, hind tibiæ with two extensors near middle and three before tip, front tarsi shorter than tibia, the joints almost globular, the first joint not twice as long as wide. Wings milky white, no stigma, basal costal bristle black, all hairs of wing margin small and white, veins white on basal half and gray on apical half, costal ratio from humeral crossvein 8:3:5:3, crossvein near middle of fifth vein.

Holotype: Laguna Beach, California, 25 January 1935.

In the European species, likewise, when the dorsocentral bristles are not developed the notal hairs are pale. Our species differs in having the legs completely black. The distinction between bristles and hairs is clearly indicated by the color.

It is worth recording that a specimen of *Chersodromia* which I collected on the beach near St. George, Bermuda, on February 1, 1934, appears to be identical with *Ch. beckeri* Melander from the Baltic Sea. Unfortunately the Bermuda as well as the Baltic specimens are known from females only. It may be that the discovery of males will enable a distinction to be made.

KEY TO THE AMERICAN SPECIES OF *CHERSODROMIA*

1. Mesonotum shining black, no dorsocentrals; pygidium about as large as the rest of the abdomen; legs blackish; halteres white. Cal. *megacetes*, n.sp.
Body overlaid with grayish pollen. 2.
2. Hairs of mesonotum white, bristles black, no dorsocentrals; legs blackish; halteres white. Cal. *cana*, n.sp.

- Hairs and bristles of thorax black, dorsocentrals present though sometimes small. 3.
3. Wing with darkening on apical half; legs fuscous; halteres black; two scutellars; second basal cell longer than first. Cal. *insignita*, n.sp.
Wings without cloud, uniformly whitish; legs and halteres yellowish. 4.
4. Bristles and hairs of costa and notum black; second basal cell shorter than first. North Atlantic Coast. *Houghii* Mel.
Bristles and hairs of costa and notum pale; basal cells equal. Fla. *nana* Coq.

Ragas primigenia, n.sp.

Male. Length 2 mm. Black, with a thin coating of fine brownish pollen. Hairs of lower occiput silky; eyes fully contiguous along the front; ocellar triangle prominent, with five setæ; third antennal joint triangular, twice as long as deep, style one-fourth the length of the third joint, thick, with a small apical seta; proboscis shining, incurved, sharp, in length one-third the head-height. Notum and pleuræ bare of hairs, lateral bristles very small, single hum., ia., and npl., 6 scutellars, dorsocentrals uniseriate, sparse, short, the posterior three longer, acrostichals biseriate, sparse and short. Abdomen nearly bare, pygidium small and open, its valves bifurcate and forcipate. Legs nearly bare, slender, front coxæ studded anteriorly with six stubby spines, front trochanters large and furnished with a curved row of about ten spinous bristles, middle femora beneath near middle with two strong bristles. Wings infumated, veins heavy and dark, stigma strong and elliptical, second basal cell a little longer than the first and parallel-sided, discal cell large, acutely pointed at base, the underside one-fourth its length, third vein ending just beyond tip of wing, its sections 2.5 : 1, sections of fourth vein 1 : 5 : 5, of fifth vein 1 : 2, axilla rounding into the prominent anal lobe; halteres blackish.

Holotype: La Jolla, California, 1 January 1935.

This is the first valid occurrence of this genus in America, the previous citations of *Ragas* having been assigned to other genera. There is only one other known species, *R. unica* Walker, from Europe. It is smaller than our form, lacks the armature of the legs, and has thinner veins. Otherwise the two species are closely related. In Curran's book on the genera of North American Diptera *Ragas* would lead to couplet 33 on page 211, differing in having an almost straight complete auxiliary vein and a full anal angle to the wing.

Gloma fuscipes, n.sp.

Length 3 mm. Body of male piceous black, legs light fuscous; body of female more or less testaceous below, legs mostly yellowish, bristles and hairs shorter than in male. Face deeply recessed; occiput of both sexes blackish, nearly bare behind the orbital fringe; antennæ short, the arista arising from the base of the deflected reniform third joint; proboscis short and fleshy, palpi black and hairy. Humeri marked with a fuscous point, 1 hum., 3 npl., 3 ia., acrostichals long and scattered, biseriate. Abdomen of male shining; hairs at incisures nearly as long as the segments, two irregular intermediate rows of shorter hairs. Hind tibiæ with about seventeen extensor hairs. Wings somewhat smoky, stigma darker, base in female paler than in male, veins thin and piceous, basal cells coextensive, auxiliary vein evanescent toward tip, alulæ pale, the fringe dark.

Type male: Puget, Washington, 4 July 1925; allotype: Potlatch, on Hoods Canal, Washington, 28 July 1917. Four male and three female paratypes, Canyon Creek, 26 July 1925, and Mount Constitution, 31 July 1908, both in Washington; Mount Hood, Oregon, at 3000 ft., 29 July 1921; Moscow Mountain, Idaho, 10 August 1924, and Lookout Mountain, Priest Lake, Idaho, 20 August 1919.

The genus *Gloma* is remarkable in the Empididæ in having the arista truly dorsal on the small stubby reniform third joint. The South American *Hyperperacera* Collin, which also has a dorsal arista, has bristly metapleuræ.

The species of *Gloma* are rarely encountered, and occur in the forests of the Pacific North-west. But three species exist in the American fauna, the earlier references to *Gloma* pertaining to Oreogeton, with *Gloma phthia* Walker belonging in *Syneches*.

Gloma pectinipes, n.sp.

Length 4 mm. Similar to the preceding species, but larger and with the hairs and bristles abundant and prominent. Lower occipital hairs numerous. Thorax thinly overlaid with cinereous pollen, a fuscous point on the humeri. Abdomen subshining. Fringe of the hind tibiæ with about twenty hairs. Wings somewhat smoky, stigma darker, veins piceous, alulæ dusky; halteres black. The distinctive characters are given in the following table.

Type and allotype: Seward, Alaska, 26 July 1921, J. M. Aldrich (U.S.N.M.). A paratype, Anchorage, Alaska, 20 July, also from my friend, the late Dr. Aldrich.

KEY TO THE AMERICAN SPECIES OF *GLOMA*

1. Posterior terminal prong of basal valve of pygidium slender and as long as the bunch of preapical hairs (in the European *fuscipennis* Meig. the posterior prong is very thin and much longer than the anterior); coxæ and legs black; radial and cubical veins distinctly stronger than the medial. Wash. *luctuosa* Mel.

Posterior prong stout and short, about half as long as the hairs of the preapical group; radial and cubital veins scarcely stronger than the medial. . . 2.

2. Eight or more scutellar bristles, ten or more dorsocentrals; coxæ and legs dark fuscous, both sides of hind femora of male fringed with long hairs, under side of middle femora with about five hairs along the apical half; female black; length 4 mm. Alaska. *pectinipes*, n.sp.

Four scutellars, eight or fewer dorsocentrals; coxæ and legs light fuscous, of female paler, hairs of under side of femora not longer than diameter of the femur; female body more or less testaceous; length 3 mm. Ida., Wash., Oreg. *fuscipes*, n.sp.

Oreogeton xanthus, n.sp.

Length 7 mm. Male entirely luteous, subshining, female with head and antennæ sometimes blackish, with thin dust; bristles and hairs black. Third antennal joint about as long as deep, shorter than the basal two together, arista apical; proboscis small, fleshy, palpi with numerous bristles. Valves of pygidium deeply emarginate at middle above, the apical corner bluntly digitate, posteriorly with numerous hairs. Middle coxæ with blunt setæ, those of hind coxæ short; male with eight to ten flexar setæ on middle femora rather uniformly distributed, the middle tibiæ pectinate within with fine setæ, and only slightly bent at middle; tarsi simple, last two joints fuscous. Wings with yellowish tinge, stigma slightly darker, veins yellow, the first, second and third setulose above and the second and fourth underneath, sections of fifth vein subequal.

Type and allotype: Mount Baker, Washington, Skyline Trail, 10 August 1925. Six male and five female paratypes: topotypic, and also from Mount Rainier, at White River, 20 July 1924, and Everett, Washington, 4 July 1924.

In the table of species in Fascicle 185 of the *Genera Insectorum*, page 99, *xanthus* leads to *capnopterus*, but is readily distinct in its yellow color and in having many setæ under the middle femora of the male. *Xanthus* is the only species having

the apical finger of the pygidial valves twisted inward. In all the others (male of *rufus* not in collection) the valve ends in a continuous thin blade-like triangle or hook.

***Hilara cavernicola*, n.sp.**

Length 2.25 mm. Testaceo-fuscous, head and genitalia becoming fuscous; all bristles short. Front of female twice as long as wide, of male two and one-half times, middle frontal seta minute, face as wide as front, gray-dusted, occipital row of brownish hairs inconspicuous, ocellar bristles shorter than style; basal joints of antennæ yellowish, third joint brown, triangular, scarcely longer than deep, style slightly longer than third joint; proboscis brown, palpi yellow, with a single small pale seta and a few small hairs. Thorax dusted with concolorous pollen, not vittate, pleuræ concolorous with dorsum, dorsocentrals uniseriate, about ten in number and similar to the acrostichals which are in four rows with about eight to the inside row, four scutellars. Abdomen of male with yellowish incisures, of female wholly fuscous, hairs sparse, short and pale, pygidium about the size of the fifth segment, the valves with hook-like process at anterior apex. Legs without bristles, slender in all parts, coxæ and legs pale yellow, becoming slightly darker distally where the ends of the tarsi may be light brown, tibiæ almost equal in length to tarsi which are simple and slender, the metatarsi about equal to the two following joints. Wings hyaline, stigma very faint, veins very thin and light brownish, sections of third vein proportioned 1:7:5, of fourth vein 1:4:6, of fifth vein equal; halteres pale yellow, alulæ and fringe pale.

Over one hundred specimens mounted, from Lucerne, Lake Chelan, Washington, 29 July 1919.

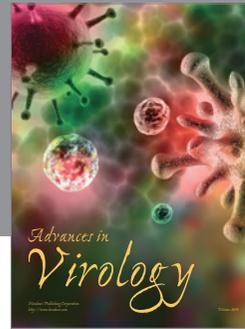
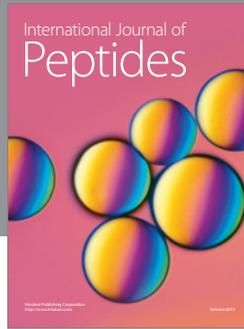
Most of the species of *Hilara* are characterized by their males having enlarged front metatarsi. In Europe there are only some half-dozen species which have slender tarsi, and in the United States but one, *H. johnsoni*. The discovery of an additional species which has probably reverted to this generalized condition therefore carries unusual interest. Nearly all the species of *Hilara* frequent open water, over which they weave their aerial dance. The present species was found swarming in an abandoned mine, evidently attracted there by the enclosed darkness rather than by any dampness.

Empis (Enoplempis) ctenocnema, n.sp.

Length 7 mm. Thorax cinereous piceous, notum quadrivittate with brown; four small scutellars. Abdomen with a few lateral setulæ in vertical row on first two segments. Legs including coxæ testaceous, tarsi apically piceous, hind femora slightly swollen and bent at apical fifth but without any hairs at swelling, hind tibiæ with slight swelling on underside toward knee corresponding with femoral bend and with a slight depression corresponding with femoral swelling, fringed on both sides with close black hairs; when the knee is flexed the femoral twist lies between the two fringes.

Two males, one female, Tuxedo, New York, 29 May 1926.

Very close to *E. nodipes* Melander, from New Mexico, to which it leads in the table of species of Empis, Trans. Am. Ent. Soc. xxviii, p. 284 (1902). It differs from the description on page 324 only in the structure of the knee specialization of the hind legs.



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