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NEW SPECIES OF FLIES (DIPTERA) FROM
CALIFORNIA

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Family ANTHOMYIDÆ

In this paper are presented descriptions of some species of Anthomyiidae from the collections of the California Academy of Sciences, in the museum of which institution the types are deposited. In all cases the species described are briefly compared with their nearest allies, but in addition they have been incorporated in synopses of their respective genera which I have drawn up and purpose publishing as soon as I have exhausted the material now in my hands.

1. *Hydrotæa lasiophthalma*, new species

Male.—Deep black, glossy; thorax not vittate; abdomen with pale gray pruinescence, the dorsum with a black central vitta; legs entirely black; wings slightly grayish; calyptra white; halteres black.

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Eyes densely hairy, separated at narrowest part of frons by a distance a little less than width across posterior ocelli; parafacial as wide as third antennal joint, and over half as wide as height of cheek, the latter with a glossy, strongly haired area which covers all except a narrow strip of cheek along eye-margin and a small patch behind vibrissæ; arista almost bare. Prealar absent; intra-alar bristles both long; presutural acrostichals absent; hypopleura bare. Abdomen as in *H. houghi* Malloch. Fore femur with a stout outer and a slender inner preapical ventral thorn, the inner, or anterior, one whitish; postero-ventral surface on basal half with numerous bristles, many of them short; fore tibia stout, except on basal third where it is very slender; mid-femur without strong ventral bristles; mid-tibia with two antero-dorsal and four or five postero-dorsal bristles; mid-tarsus normal; hind femur with a stout straight short double ventral spine about one-fifth from base, and four or five bristles on apical half of antero-ventral surface; hind tibia with one or two postero-dorsal bristles, and long hairs on apical half on all surfaces except postero-dorsal, those on antero-dorsal extending almost to base. Venation as in *H. houghi*.

Type, male, 6 mm. long, No. 523, C. A. S., Fallen Leaf Lake, near Lake Tahoe, Calif., July 15, 1915; E. C. Van Dyke, collector.

This species is most closely allied to *occulta* Meigen, but may be separated from it by the larger size, different armature of the hind tibia and several other characters.

2. *Helina fuscomarginata*, new species

Female.—Bluish black, with distinct, but not dense grayish pruinescence. Ocellar triangle shining; antennæ and palpi black; thorax quadrivittate; abdomen without markings; legs black; wings slightly grayish, cross-veins faintly infuscated, veins black; calyptræ gray, with conspicuous black margins; halteres black.

Eyes pubescent; frons over one-third of the head-width; each orbit with seven or eight bristles and many lateral setulose hairs, most numerous anteriorly; face concave in profile;

parafacial at base of antenna about twice as wide as third antennal joint, about half as wide at middle of face; cheek about one-third as high as eye and slightly higher than widest part of parafacial, its lower margin with two or three series of bristles, the upper series anteriorly upwardly curved; vibrissal angle in line with lower margin of eye, a few bristles above vibrissa; third antennal joint broad, about twice as long as second; arista pubescent. Thorax without strong presutural acrostichals; postsutural dorso-centrals four; prealar about one-third as long as the bristle behind it; scutellum bare below and on sides; hypopleura bare; sternopleurals 2:2, the lower anterior bristle weak. Basal abdominal sternite bare. Fore tibia unarmed at middle, with four apical bristles; mid-femur with an almost complete series of bristles on postero-ventral surface; mid-tibia with two or three posterior bristles, and about eleven apical bristles, some of the latter very long; hind femur with an almost complete series of bristles on antero-ventral surface and a few bristles on basal half of postero-ventral; hind tibia with two or three antero-ventral and antero-dorsal bristles; all tarsi longer than tibiae. Third vein with one or two weak setulae at base on under surface; costal thorn long.

Type, female, 7 mm. long, No. 524, C. A. S., San Francisco, Calif., April 15, 1919; E. P. Van Duzee, collector.

Distinguished from its allies by the presence of the setulae at base of third vein and the black-margined calyptrae.

3. *Limnophora incrassata*, new species

Male.—Black, subopaque, owing to the dense covering of pale gray pruinescence. Orbits, face, and cheeks with silvery tomentum; antennae and palpi black; thorax with a faintly indicated brown dorso-central vitta; abdomen with a pair of subtriangular black spots on the basal three tergites, those on second and third extending from near base to apex, fourth tergite with the spots almost obsolete; legs black; wings clear, veins black; calyptrae white; halteres yellow.

Eyes separated by a little more than width across posterior ocelli; orbits much wider than the linear interfrontalia, with

slender bristles to level of anterior ocellus; parafacial at base of antenna almost as wide as third antennal joint, slightly narrowed below; cheek about three times as high as width of parafacial, vibrissal angle produced; third antennal joint rounded at apex; arista pubescent; presutural acrostichals slender, long, two-rowed; postsutural dorso-centrals four; disc of scutellum with numerous long hairs; lower posterior sternopleural weak. Abdomen cylindrical, slightly tapered posteriorly, fourth tergite and sternite the longest; hypopygium not exerted; fifth sternite almost transverse apically. Fore tibia without median bristle; mid-tibia with one or two posterior bristles; hind femur rather abruptly thickened at base ventrally, and distinctly thicker near base than at middle, the antero-ventral surface with three bristles near apex; hind tibia with one median antero-dorsal bristle. Fourth vein with but little indication of the forward curvature so distinct in allied species.

Female.—Similar in color to the male, but the thorax has three brown vittæ, the central one not extending over scutellum.

Profile as in male; frons over one-third of the head-width; each orbit with six or seven bristles and a few lateral hairs. Apical genital segment with numerous stiff, short bristles below. Tibial bristles as in male but there is very often an antero-ventral bristle on hind tibia.

Length, 5–6 mm.

Type, male, No. 525, C. A. S., Huntington Lake, Calif., altitude 7000 feet, July 28, 1919; Mrs. E. P. Van Duzee, coll., and allotype, female, No. 526, C. A. S., also one male and one female paratype, topotypical, all from same locality. There are also three males, paratypes, taken July 16, 17 and 22, 1919, at same place by E. P. Van Duzee, and one female taken July 29, 1919, by E. P. Van Duzee at Cascada, Calif., alt. 5000 feet.

A female taken at same place as type differs in being much darker and in having two antero-dorsal bristles on hind tibia.

From other species of *Limnophora* this species may readily be distinguished by the peculiar shape of the hind femur. It belongs to the group which has the ventral plate of prothorax with setulose hairs along its margins and the third vein setulose at base.

4. *Limnophora magnipunctata*, new species

Male.—Deep black, shining. Orbits and parafacials with white tomentum; thorax black, with slight grayish pruinescence, most distinct on lateral margins anteriorly and on pleuræ; abdomen with the usual paired black dorsal spots very large, similar to those of *L. nobilis* Stein, but separated by a pale line in centre; legs black; wings infuscated, most noticeably so basally, veins black; calyptre and halteres yellow.

Eyes separated by a little less than width across posterior ocelli; orbits linear above, with numerous long bristles and hairs extending to anterior ocellus; parafacial almost as broad at base of antennæ as the rather narrow third antennal joint, not narrowed below; cheek about three times as high as width of parafacial, with several series of bristles along lower margin, the upper two or three series upwardly curved, those near anterior margin strong, vibrissal angle slightly produced; arista rather densely pubescent, the longest hairs a little longer than its basal diameter. Thorax with the presutural acrostichals rather long, fine, four-rowed; postsutural dorso-centrals three; anterior sternopleural short, lower posterior one very weak. Abdomen narrowly ovate, fourth tergite a little longer than third; hypopygium small; fifth sternite with a rather deep, basally truncate posterior excision, the angularly produced lateral extremities with a few bristly hairs. Fore tibia without a median bristle, the apex with a long dorsal and a short posterior bristle; mid-femur with bristles on both antero- and postero-ventral surfaces, the former very short, the latter long basally; mid-tibia with three or four posterior bristles; hind femur with long bristles on apical half of antero-ventral surface and a few on basal half of posterior; hind tibia with two antero-dorsal and one or two antero-ventral bristles, and one or two postero-dorsal setulæ; hind tarsus longer than tibia. Costal thorn very short.

Female.—Differs from the male in having the thorax with a distinct dorso-central vitta, and a less distinct lateral vitta on each side, the abdominal spots less distinct and more widely separated, and the wings almost clear.

Eyes at vertex separated by about one-fourth of the head-width, wider anteriorly; each orbit with six or seven bristles

and some long hairs, laterad of these are some short setulose hairs. Genitalia with two long processes as in *Helina*, and without thorns or strong bristles.

Length, 5–6 mm.

Type, male, No. 527, C. A. S., Huntington Lake, Calif., altitude 7000 feet, July 9, 1919; E. P. Van Duzee, coll.; allotype, female, No. 528, C. A. S., and female paratypes, same locality, July 9, 1919 (F. C. Clark, coll.), and July 26, 1919 (E. P. Van Duzee, coll.).

This species closely resembles one before me from Labrador, which is undescribed, and is not very closely related to any described North American species, though it superficially resembles *L. nobilis* Stein.

5. *Dialyta nigropolita*, new species

Male and female.—Black, shining, almost glossy; orbits, face, and cheeks with white, almost silvery tomentum. Thorax and abdomen with slight grayish pruinescence, the former with very faintly indicated dorsal vittæ; legs black; wings grayish; calyptræ and halteres yellowish white.

Male.—Eyes separated by one-fourth of the head-width, each orbit nearly as wide as narrowest part of interfrontalia, with six or seven bristles; parafacial nearly as wide as third antennal joint, the latter about twice as long as second, extending three-fourths of the way to mouth-margin; arista with its longest hairs distinctly longer than its basal diameter; cheek a little higher than width of third antennal joint. Thorax with three or four pairs of short presutural acrostichals, three pairs of postsutural dorso-centrals, and no prealar; sternopleurals in a nearly equilateral triangle. Abdomen short and thick, cylindrical, the hypopygium very large, giving the abdomen a slightly clubbed appearance; second, third, and fourth tergites each with discal, and the third and fourth with posterior marginal bristles; fifth tergite declivitous, armed with numerous strong bristles; fifth sternite conspicuous, with a pair of long processes which are strongly bristled. All coxæ and the ventral part of sternopleura with long hair-like bristles; femora with very long fine bristles basally on postero-ventral surfaces; fore tibia with a weak antero-dorsal

and a long posterior bristle, the four apical bristles long; mid-tibia with two antero- and two postero-dorsal bristles; hind femur with fine hairs at base ventrally, the antero-ventral surface with about five long strong widely placed bristles, the postero-ventral surface with fewer bristles which do not extend to apex; hind tibia with one antero-ventral, two antero-dorsal, and two postero-dorsal bristles, tip with four long and two short bristles. Costal thorn long.

Female.—Similar to the male. The frons is one-third of the head-width, the abdomen is conical, the femoral basal bristles are shorter and stronger, and the tibial bristles stronger and usually there is an additional one basad of those present in the male.

Length, 5–5.5 mm.

Type, male, No. 529, C. A. S., Huntington Lake, Calif., alt. 7000 feet, July 9, 1919; E. P. Van Duzee, coll.; allotype, female, No. 530, C. A. S., and one paratype, topotypical, same locality; two female paratypes, same locality, July 10, 1919.

This species is much smaller than *D. flavitibia* Johannsen, the only other species of the genus described from this country, and differs from it in having the legs entirely black and with different bristling.

6. *Cœnosia alticola*, new species

Male.—Black, distinctly shining, with gray pruinescence on body, that on head whitish and dense, on thorax and abdomen darker and not so dense. Antennæ and palpi black; thorax with three brown pollinose vittæ; scutellum dorsally colored as vittæ; abdomen with a pair of brown pollinose spots on each of the basal four tergites. Legs black, the femora shining, pale at extreme apices; tibiæ yellowish testaceous; wings clear, whitish basally, veins pale brown; calyptræ and halteres whitish yellow.

Frons one-third of the head-width, slightly widened anteriorly; each orbit with four strong bristles and a few short hairs; ocellar bristles long; third antennal joint narrow, about twice as long as second, extending four-fifths of the distance to mouth-margin; arista pubescent; parafacial narrower than

third antennal joint; cheek about twice as high as width of parafacial; Thoracic presutural acrostichals two-rowed, rather strong; all thoracic bristles long and strong; lower stigmatal bristle long, directed downward. Abdomen broad, not much longer than thorax; fifth tergite with four long bristles and a number of short setulæ; hypopygium of moderate size, basal segment subglobose; processes of fifth sternite large, broad, rounded at apices, their length greater than their greatest width, surfaces with sparse setulæ and some moderately long bristles apically. Legs rather stout; fore tibia with the posterior median bristle short; mid-femur with a few short bristles on basal half of antero-ventral surface and three or four long widely placed bristles on postero-ventral; mid-tibia with the median bristles at nearly the same height; hind femur with three or four widely spaced bristles on antero-ventral surface and one or two on postero-ventral; hind tibia with the antero-dorsal bristle much longer than the antero-ventral, the apical dorsal bristle about one eighth from apex.

Female.—Similar in color to the male, the abdominal spots not so clearly defined and the wings not so pale. Differs from the male in having the tibial bristles all much stronger.

Length, 3.5–4.5 mm.

Type, male, No. 531, C. A. S., Huntington Lake, Calif., alt. 7000 feet, July 9, 1919, and allotype, female, No. 532, C. A. S., same locality, July 16, 1919, E. P. Van Duzee, coll.; also one female paratype, same locality, July 28, 1919; E. P. Van Duzee, collector.

An immature specimen from the same locality, July 9, may represent a distinct species.

This species resembles *C. fraterna* Malloch, but is larger and has the tibiæ entirely pale.

7. *Cænusia parvisquama*, new species

Female.—Color as in the preceding species but the thorax not so distinctly shining, and more densely pruinulent. Legs black, densely gray pruinulent, bases of tibiæ reddish.

Frons as in preceding species; antennæ short, third joint not twice as long as second, its apex about two-fifths of the

distance from mouth-margin; parafacial linear; cheek higher than width of third antennal joint; arista nearly bare. Thorax and bristles of legs as in preceding species; the hind tibia with a small bristle at middle on postero-dorsal surface.

Type, a female, 4.5 mm. long, No. 533, C. A. S., and one paratype, Huntington Lake, Calif., alt. 7000 feet, July 9, 1919; E. P. Van Duzee, collector.

This species has the calyptræ smaller than in most species of *Cœnosia*, the lower one scarcely projecting, and the hind tibia has a small bristle on the postero-dorsal surface. It may require a new genus for its reception, but until the male is found it may remain in *Cœnosia*.

8. *Macateeia atra*, new species

Male.—Black, slightly shining. Head with the interfrontalia, parafacials, and a portion of the cheeks reddish; palpi fuscous, paler basally. Thorax greasy in type but with indications of three vittæ; abdomen gray pruinescent, when viewed at certain angles with a broad indefinite black dorso-central vitta; legs black; wings clear, veins brown; calyptræ and halteres yellowish.

Eyes separated by one-third of the head-width; each orbit about one-half as wide as interfrontalia, with about six inwardly directed slender bristles on anterior half and three or four outwardly directed on posterior half; interfrontalia without cruciate bristles; arista thickened on basal third, pubescent; parafacial not as wide as third antennal joint, and as wide as height of cheek. Thorax with two pairs of presutural acrostichals; prealar over half as long as the bristle behind it; sternopleurals 2:2, the lower anterior one weak. Abdomen short and broad, fourth tergite longest; hypopygium large; fifth sternite with two long narrow processes which are not remarkably bristled. Legs stout, the femora noticeably thicker than is usual in the family; fore tibia with a weak preapical dorsal bristle; mid-femur with a few short bristles on antero- and postero-ventral surfaces; mid-tibia with a short stout bristle beyond middle on antero-ventral surface, and three or four weak posterior bristles; hind femur with a complete series of weak antero-ventral bristles, and one or two slender

bristles at base on postero-ventral surface; hind tibia with two short antero-ventral, five or six short stout antero-dorsal, and three or four slender postero-dorsal bristles; both mid- and hind tibiae with several strong curved apical bristles; tarsi shorter than tibiae. Costal thorn short; outer cross-vein straight.

Type, male, 4 mm. long, No. 534, C. A. S., Salada Beach, San Mateo County, Calif., April 21, 1918; E. P. Van Duzee, collector.

This species has the head less elongated than has the female of the genotype (*protuberans* Malloch), but the other characters agree very closely with those of that species and it may really prove to belong to the same species.

9. *Hydrophoria seticauda*, new species

Male.—Deep black. Face, orbits, and cheeks with white pruinescence. Thorax indistinctly trivittate; abdomen with a uniformly broad dorso-central vitta which covers about one fourth of the dorsum; wings slightly brownish; calyptrae white; halteres yellowish.

Eyes separated by a little less than width across posterior ocelli; arista with its longest hairs not longer than width of third antennal joint; parafacial at base of antenna as wide as third antennal joint, not narrowed below. Presutural acrostichals weak, irregularly two-rowed; scutellum broader than long. Processes of fifth sternite very broad, very inconspicuously haired on surfaces, their inner margins with a fringe of long hairs. Mid-femur with two or three antero-ventral bristles; mid-tibia with an antero-ventral bristle; hind femur with a series of widely spaced postero-ventral bristles; hind tibia with four or five bristles on each of the following surfaces: antero-ventral, antero-dorsal, and postero-dorsal, the posterior surface with a few setulose hairs on basal half. Costal thorns of moderate size.

Female.—Frontal bristles strong. Genital thorns distinct. Length, 6-7.5 mm.

Type, male, No. 535, C. A. S., Huntington Lake, Calif., alt. 7000 feet, July 5, 1919 (F. C. Clark, coll.), and allotype,

female, No. 536, C. A. S., same locality, July 9, 1919 (F. C. Clark, coll.), paratypes, male and female, Mt. Moscow, Ida., June 4, 1910, female, same locality, July 1, 1909; J. M. Aldrich, collector.

10. *Pegomyia vanduzeei*, new species

Male.—Black, slightly shining, with slight grayish pruinescence on thorax and dense drab-gray pruinescence on dorsum of abdomen. Head black, orbits, face, and cheeks with dense but not conspicuous whitish pruinescence; antennæ black; palpi reddish testaceous; thorax faintly trivittate; abdomen with a moderately broad black dorso-central vitta; hypopygium black, the small rounded knoblike bases of the forceps yellowish testaceous; legs black, all tibiæ rufous-testaceous; wings clear, veins dark brown; calyptera and halteres yellow.

Eyes separated by about twice the width of anterior ocellus; orbital bristles extending more than midway to anterior ocellus, parafacial a little broader than third antennal joint, not narrowed below; third antennal joint nearly twice as long as second, the latter with numerous short stout hairs and some longer bristles on dorsal surface; arista nearly bare, very conspicuously swollen on basal sixth. Thorax with three pairs of long presutral acrostichals; prealar half as long as the bristle behind it; sternopleurals 1:2. Abdomen flattened, parallel-sided; second (first visible) segment longer than third; hypopygium moderate in size, bases of forceps almost globose, very noticeable owing to their pale color; fifth sternite with a number of stiff short bristles at apex of each process. Fore tibia with a posterior bristle; fore tarsus normal, much longer than tibia; mid-femur with a series of bristles extending from base to beyond middle on postero-ventral surface; hind femur with a series of very long bristles on antero-ventral surface and another on basal half of postero-ventral; hind tibia with two antero-ventral, two antero-dorsal, and two postero-dorsal bristles. Costal thorn small; veins three and four subparallel; outer cross-vein straight. Lower calypter but slightly protruded beyond upper.

Type, male, 5.5 mm. long, No. 537, C. A. S., San Francisco, Calif., March 30, 1919; E. P. Van Duzee, collector.

This species differs from any species of the genus known to me in its color, the pale bases of the hypopygial forceps being very conspicuous and characteristic.

11. *Hylemyia recurva*, new species

Male.—Black, slightly shining, densely yellowish gray pruinulent. Head black, interfrontalia slightly reddish. Thorax not vittate; abdomen with a black dorso-central vitta; legs black, tibiae reddish, usually entirely so, but in some specimens only so at bases; wings clear, calyptrae and halteres pale yellow.

Eyes separated by a little more than width of anterior ocellus; parafacial nearly as broad as third antennal joint; arista with its longest hairs a little shorter than width of third antennal joint. Presutural acrostichals irregularly two-rowed; prealar bristle minute or absent; sternopleurals 1:2. Abdomen slender, depressed, segments subequal; hypopygium small; fifth sternite with sparse, slender bristles on outer half. Fore tibia with a median posterior bristle, the apical posterior bristle of moderate length, slender, not blunt at apex; mid-tibia with a posterior bristle about two-fifths from apex, and beyond it on the postero-dorsal surface two long strong bristles; hind femur with fine bristles on entire length of antero-ventral surface which are short at base; hind tibia with three postero-dorsal and two antero-dorsal bristles, the longest of the latter just beyond middle and a little less than half as long as the tibia; in addition to these bristles there is a series of four or five long bristly hairs running diagonally from anterior surface at tip basad and on to antero-dorsal surface, the anterior surface with the hairs longer than usual. Costal thorn small.

Length, 5-5.5 mm.

Type, male, No. 538, C. A. S., Huntington Lake, Calif., alt. 7000 feet, July 27, 1919; E. P. Van Duzee, coll.; two paratypes, both males, topotypical, and one male, same locality, July 10, 1919; F. C. Clark, collector.

This species is one of a group of three all of which are undescribed and have either one or two very strong bristles on postero-dorsal surface of mid-tibia near apex.

In order to make clear the relationships of the new species and its most closely related forms I append a synopsis of the characters for the separation of the three species now before me. As they are all similar in color and habitus it is unnecessary that they be described in full.

1. Hind tibia with two antero-dorsal and three postero-dorsal bristles, no long slender recurved bristles near apex on antero-dorsal surface; sternopleurals three in number (1:2)...*normalis*, new species
- Hind tibia, in addition to the normal antero-dorsal and postero-dorsal bristles, with about four long slender recurved bristles in a diagonal series which begins at tip on anterior surface and runs diagonally basad on to antero-dorsal surface.....2
2. Sternopleurals two in number (1:1); hind tibia with three very long slender bristles on antero-dorsal surface, the longest one distinctly proximad of middle and over half as long as tibia.....*extremitata*, new species
- Sternopleurals three in number (1:2); hind tibia with two long slender bristles on antero-dorsal surface, the longest one distad of middle and less than half as long as tibia...*recurva*, new species

12. *Hylemyia normalis*, new species

Male.—Similar to *H. recurva* in color. The hind tibia differing as stated in synopsis and having the setulose surface hairs shorter.

Length, 5 mm.

Type, Armstead, Mont., July 3, 1913, in collection of Montana Agricultural Experiment Station. Paratypes, three males, Dillon, Mont., July 5, 1913; ten males, Lima, Mont., July 1, 1913; two males, Powderville, Mont., July 6, 1916; one male, Bozeman, Mont., July 7, 1902; one male, Blitzen River, Ore., July 6, 1906; one male, East Flathead, Mont., July 25, 1902, and one male, Musselshell, Mont., July 30, 1917.

Two paratypes from Lima, Mont., deposited in Calif. Acad. Sci., No. 539.

13. *Hylemyia extremitata*, new species

Male.—Similar in color to *H. recurva*. Differs from *recurva* as stated in synopsis and also in having the hairs on anterior and antero-ventral surfaces of hind tibia much longer.

Length, 5 mm.

Type, Gallatin County, Mont., July 19, 1911, in collection of Montana Agricultural Experiment Station. Paratype, Bozeman, Mont., July 25, 1915.

14. *Eremomyia major*, new species

Male.—Black, distinctly shining, slightly gray pruinulent. Head black; interfrontalia, second antennal joint, parafacial adjacent to vibrissa, and bases of palpi rufous; orbits face and cheeks with white pruinoscence; thorax with five black vittæ; abdomen without well defined markings, the dorso-central vitta hardly traceable; legs black, extreme apices of femora and all of tibiæ rufous; wings grayish, veins brown, a faint brown tinge along outer cross-vein and near base of wings; calyptra yellow; halteres brownish yellow.

Eyes separated at narrowest part of frons by a distance equal to about twice the width across posterior ocelli; orbital bristles strong, extending almost to anterior ocellus, a few weak hairs laterad of the bristles anteriorly; parafacial about 1.5 as wide as third antennal joint and nearly two-thirds as wide as height of cheek; antennæ not extending to mouth-margin, third joint about 1.5 as long as second, rounded at apex, second transverse at apex on inner side, its surface granulose, a few punctures along inner side near apex; arista almost bare, moderately swollen on basal fifth; vibrissal angle with about 20 closely placed bristles of moderate length. Thorax with three pairs of long presutural acrostichals; both posthumeral bristles long and strong, close together; prealar very long, sternopleura with three or more posterior bristles. Abdomen cylindrical, sixth tergite with long bristles; basal hypopygial segment with long hairs but no long bristles; fifth sternite with some short hairs on apical half of inner margin of each process and a number of strong bristles on outer portion of each. Fore tibia with an antero-dorsal bristle about one-fifth from apex, one postero-ventral bristle a little basad of it, and sometimes a stronger one just distad of middle; mid-tibia with one antero-dorsal, one postero-dorsal, and three or four posterior bristles; hind femur with a complete antero-ventral and a partial postero-ventral series of bristles; hind tibia with two antero-ventral, two antero-dorsal, and two

postero-dorsal bristles. Costal setulæ very short; costal thorns both long; last section of fourth vein subequal in length to preceding section.

Type, male, 10 mm. long, No. 540, C. A. S., Sonoma Co., Calif., April 16, 1911; J. Aug. Kusche, coll.

This species differs from *H. incompleta* Stein and *H. humeralis* Stein in having the second antennal joint rufous, in being larger, and in the bristling of the cheeks and tibiæ.

Family SCATOPHAGIDÆ

The species described below is the first of the genus to be recorded from America. The genus is well represented in Europe, where some of the species are very common. The adults are predaceous, feeding upon other insects.

The type of the new species is deposited in the collection of the California Academy of Sciences.

15. *Norellia occidentalis*, new species

Female.—Yellowish testaceous, shining, with gray pruinescence; abdomen with a dark fascia at base and another at apex of each tergite; wings clear, cross-veins slightly infuscated.

Each orbit with three or four bristles in front of lower supraorbital; arista with its longest hairs a little longer than its basal diameter; cheek with some pale hairs along its lower margin; no bristles at base of vibrissa. Thorax with two or three rows of weak presutural acrostichals; the dorsal bristles strong; apical scutellar bristles very small, the lateral pair long; propleural bristle long, stigmal absent; abdomen normal; fore femur with the antero-ventral bristles less than half as long as the postero-ventrals; fore tibia with four very strong postero-ventral, and four much weaker antero-ventral bristles, the postero-dorsal surface with one, and the dorsal with two fine bristles on basal half; mid- and hind femora with three bristles on apical third of antero-ventral surface; mid-tibia with one antero-ventral, two antero-dorsal, two postero-dorsal, and two or three postero-ventral bristles; hind

tibia with three antero-dorsal, and two or three postero-dorsal bristles. First vein bare.

Male.—Similar to the female. Fifth sternite with two long processes which taper slightly apically and have some long hairs along their inner margins.

Type, female, 7 mm. long, No. 541, C. A. S., Corvallis, Ore., May 2, 1915; A. L. Lovett, coll. Paratype, Beaver Creek, Newport, Ore., August 13, 1902; J. M. Aldrich, coll.



Malloch, John Russell. 1919. "New species of flies (Diptera) from California." *Proceedings of the California Academy of Sciences, 4th series* 9, 297–312.

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