mouth parts except teeth of mandible, lower 0.2 of temple, underside of scape and pedicel, tegula, hind corner of pronotum, trochanters, fore and middle coxae, femora, front and middle tibiae, a short band at the apex of the first tergite, and a narrow apical band on the second and following tergites (interrupted sublaterally) pale yellow; hind coxa blackish or dark brown, its apical 0.3 yellow; hind tibia and tarsus pale brown; fore and middle tarsi yellowish basally, shading to pale brown apically.

Female: Colored essentially like the male but the ground color a little paler and the pale markings in large part a little less clear and less definitely bounded. Legs except for the trochanters brown, the fore leg pale brown, the middle leg a little darker, and the hind leg medium brown.

Type: ♀, swept from *Pinus contorta* bearing ripening staminate cones, strawberry Daniel Pass, Utah, VI-19-48, G. F. Townes (Townes).

Paratypes: UTAH: 1 ♂, 2 ♀♀, collected with the type (Townes). ARIZONA: ♂, collected from *Pinus ponderosa*, Workman Creek, Sierra Ancha, IV-28-47, H. & M. Townes (Townes).

NEW SPECIES AND RECORDS OF VIRGINIA HELEIDAE

(DIPTERA)

BY WILLIS W. WIRTH, *Bureau of Entomology and Plant Quarantine, United States Department of Agriculture*

Little do we ordinarily realize that unusual opportunities for insect collecting may still exist within a stone's throw of our back doors and often in areas where we believe that thorough collecting and reporting have been done. It became apparent during the summer of 1950, when I was making frequent collecting trips for biting midges in the nearby areas of Virginia, that a great portion of the material coming to hand was not only new to the National Museum collection, but also undescribed. Such an array of new records and new species was discovered that it seemed desirable to pubish them as a unit.

Probably the most interesting record was a new species of the striking, predaceous genus *Echinohelea*, which had previously been known only from four species from British Guiana and Brazil. A distinctive new species of the genus *Forcipomyia* with adorned wings and legs, and bearing abundant scales in addition to the usual hairy vestiture, also serves to emphasize the important Neotropical affinities of the Heleidae of the southeastern United States.

Unless otherwise stated, all material discussed in this paper was collected by me, principally at two locations. The first

was a strip of swampy woods about a hundred yards long and several yards wide along a small permanent stream tributary to Holmes Run about two miles southwest of Falls Church in Fairfax County, Virginia. This stream, which had just emerged from some low hills, was from one to two feet wide, with a moderate current, a sandy bottom, and low margins with frequent shallow swampy puddles overgrown with rank herbaceous vegetation. Several species of Heleidae were bred from pupae taken from the moist sand at the margins of the stream, while most were swept from the marginal vegetation. The second location, on the eastern border of the Shenandoah Mountains near Mount Solon in Augusta County, consisted of an area adjacent to Camp May Flather, a Girl Scout camp, located at the forks of the North and Little Rivers. Collecting there was done principally with light traps, three of which were operated within a few miles of each other near the river on three consecutive nights. A few collections were also made by sweeping along the river and its small tributaries within a few miles of the camp. I am particularly indebted to H. H. Stage, of the Bureau of Entomology and Plant Quarantine, for the opportunity to make the trips to Mount Solon.

Atrichopogon levis (Coquillett)

1 ♀, Mount Solon, June 21, 1950.

Atrichopogon species

A large number of specimens were collected at Falls Church by sweeping, but in view of the present unsatisfactory taxonomic condition of this genus in North America, no serious attempt was made to name them.

Forcipomyia (Forcipomyia) pluvialis Malloch

(Figure 2)

This is a tiny, whitish yellow species with dark brown, vittate mesonotum and two black spots on the costa. Malloch's brief description of external characters adequately characterizes the present material. Female tarsal ratio (length of basitarsus divided by length of second segment, hereafter abbreviated as TR) 1.0; antennal segments 3-10 each about twice as long as broad, urn-shaped, the last five about three times as long as broad, long tapering, last segment with a slender termnial style a sixth of total length of segment, all segments with quite long yellow verticils; spermathecae two, subspherical, the ducts not sclerotized. Male genitalia as in figure 2.

Ten ♂♂, 4♀♀, Falls Church, July 29, 1950; 3 ♂♂, 3 ♀♀, Mount Solon, July 11, 1950. Additional specimens seen: 1 ♂, 1♀, Baton Rouge, Louisiana, May, 1947, W. Wirth

(light trap); 1 ♂, Trinidad River, Panama, June 9, 1912, A Busck.

Forcipomyia (Forcipomyia) solonensis, new species

(Figure 1)

A rather large, dark brown, dull species with unmarked wings, yellowish hairy legs and infuscated halteres; TR 0.6.

Female. Length 2.2 mm., wing 2.0 mm by 0.7 mm.

Head brown, vertex with long, brown hairs; antennae long, basal segments elongate vasiform, unusually long for genus, with prominent whorls of hairs twice as long as segments; the five distal segments long tapering; palpi with third segment slender, only slightly swollen at bases.

Thorax pruinose dark brown, humeri and wing bases yellowish, mesonotum and scutellum concolorous, with long, semierect, yellow hairs. Legs dull yellow, with mixed yellow and brown very long erect hairs. Wings uniformly covered with long, brown marcotrichiae. Halteres dull grayish brown. Abdomen uniform dark brown, with long brown hairs.

Male. Similar to the female, with usual sexual differences; legs somewhat paler yellow, with very long, erect hairs. Genitalia (figure 1). Ninth sternite about half again as broad as long, posterior margin bilobed mesad. Basistyles about twice as long as broad; dististyles over 0.9 as long as basistyles, distinctly sinuate with slender tips. Aedeagus strongly sclerotized, as long as basal width, the anterior arch reduced to a slightly concave anterior margin, posterior margin with a distinct sharp median point flanked by a pair of rounded sublateral lobes not nearly so long. Parameres broad and flattened, about half again as long as aedeagus, bases contiguous but not fused, gradually expanded to obliquely truncated apices about twice as broad as basal width.

Holotype ♂, allotype, Mount Solon, Virginia, July 13, 1950, W. W. Wirth (light trap) (Type no. 60970, USNM.).

The uniform brown color, with yellowish, hairy legs and dusky halteres and sinuate male dististyles is very distinctive, closely allying *solonensis* with an as yet undescribed species from California and New Mexico which differs in having shorter female antennae, TR 0.8, less sinuate dististyles, a broader bilobed aedeagus, and parameres fused at base, with attenuated tips.

Forcipomyia (Euforcipomyia) calcarata (Coquillett)

1 ♂, Falls Church, July 8, 1950.

Forcipomyia (Euforcipomyia) splendida, new species

(Figure 4)

A large black and yellow species with adorned wings, banded legs with appressed scales, and greenish abdomen; TR 1.6.

Female. Length 2.1 mm., wing 1.5 mm. by 0.6 mm.

Head brown, vertex with long, brown, bristly hairs and short, appressed, yellow hairs; antennae long, flagellar segments in proportion of 15:15:16:16:16:16:16:16:22:22:22:22:30, segments 3-10 ten-pin shaped, 11-15 long tapering, last with long termnial style. Palpal segments in proportion of 6:10:25:12:12, third segment slender, scarcely swollen at base, pit absent, long sensillae scattered along inner side.

Thorax dull brown; mesonotum and scutellum with abundant, long, suberect hairs. Legs yellowish, femora and tibiae broadly brown in middle, tarsi brown, the joints yellowish, the brown color due in large part to abundant vestiture of closely appressed brown scales; legs with strong bristles, especially on dorsal sides of tibiae. Proportions of hind leg 25:10:60:70:33:20:15:10:8.

Each wing with a prominent black costal spot over radial cells due to clump of long black hairs, anterior half of wing proximad of this spot yellowish; a prominent white costal spot with whitish macrotrichiae just beyond black spot and about of same size, other faintly indicated, light spots broadly over extreme apex in anal cell, remainder of wing grayish with fine, appressed, black macrotrichiae. Halteres whitish.

Abdomen greenish, with semi-appressed yellow hairs. Spermathecae two, large and ovoid, but very slightly sclerotized.

Male. Similar to the female, with usual sexual differences, antennal plumes black at base, distal third yellowish; bristles of legs very strong and erect; wing more extensively whitish, in some specimens creamy white except for single black costal spot. Genitalia (figure 4). Ninth sternite about half again as broad as long, posterior margin with semicircular, mesal excavation. Basistyles about twice as long as broad; dististyles as long as basistyles, slender and nearly straight. Aedeagus heavily sclerotized, with rather long basal arms, the arterior arch over half as deep as broad, distal half of aedeagus a long, slender, distally pointed, sclerotized blade with apex curved ventrad. Parameres a narrow, ribbonlike structure arched cephalad within ninth segment, posterior sclerites absent.

Holotype ♂, allotype ♀, Mount Solon, Virginia, July 13, 1950, W. W. Wirth (light trap) (Type no. 60969, USNM). Paratypes: VIRGINIA: 16 ♂♂, 6 ♀♀, same data as type; 7 ♂♂, 13 ♀♀, Falls Church, July 8, 1950; 10 ♂♂, 2 ♀♀, Mountain Lake, July 23, 1940, L. J. and M. J. Milne. MARYland: 1 ♂, Plummer's Island, Sept. 24, 1902, Barber and Schwarz. SOUTH CAROLINA: 1 ♂, Myrtle Beach, July 30, 1943, W. W. Middlekauff.

This splendidly marked species is most closely related to the squamose Neotropical species, keying out to *annulatipes* Macfie in Macfie's (1939) key. However, the structure of the male genitalia of *splendida* is quite different from that of any of the described Neotropical speecies. The third palpal segment is slender, without a pit, much as in *nigrescens* Macfie (l. c.).

Forcipomyia (Euforcipomyia) fairfaxensis, new species

(Figure 3)

A small shining black species with yellow halteres, yellowish legs, and moderately long antennae; TR 2.2.

Female. Length 1.2 mm., wing 1.1 mm. by 3.9 mm.

Head black; antannae and palpi brown, antenna moderately long, basal segments moniliform, distal segments long tapering, last segment with long distal peg; flagellar segments in proportion of 12:10:10:10: 10:10:10:12:26:30:30:30:40. Papal segments in proportion of 8:12:18: 8:10, third segment swollen, ovoid, with large, shallow, sensory area on inner side.

Thorax brownish black, mesonotum subshining black, with sparse, short, black hairs. Legs dull brownish yellow, hairs moderate, segments of hind leg in proportion of 15:7:38:38:22:10:7:6:5, empodium well developed. Claws simple, curved, and stout. Wings rather narrow for the genus, clothed rather sparsely with long black hairs. Halteres with stem brown, the knob white.

Abdomen pruinose, brownish black, with short, appressed, brown hairs. Spermatheca one, large, oval in outline.

Male. Similar to the female, with usual sexual differences. Genitalia (figure 3). Ninth sternite about half again as broad as long, posterior margin slightly bilobed; basistyles very narrow and sub-parallel, over twice as long as broad; dististyles about as long as basistyles, very slender and only slightly curved. Aedeagus about three fourths as long as basal width, the basal arms long with lateral apices, anterior arch low but distinct; posterior portion cleft mesad nearly to base, forming a pair of submedian valves with very slender tips abruptly bent laterad at about distal fourth. Sclerotized portion of parameres reduced to a very narrow ribbonlike band extending bridge-like cephaled from bases of basistyles within basal portion of ninth segment.

Holotype ♂, allotype ♀, 10 ♂♂, 4 ♀♀ paratypes, Falls Church, Fairfax County, Virginia, July, August, 1950, W. W. Wirth (Type No. 60971, USNM).

The female of *fairfaxensis* is almost identical with that of *johannseni* Thomsen, which differs notably in having different antennal proportions, segments 2-9 being 1.3 times as long as 10-14 combined. However, the male genitalia of *johannseni* are quite different, with a deeply emarginate ninth sternite, short globular basistyles, an aedeagus more like that of *Forcipomyia* s. str. and posterior sclerites of the parameres present. *F. calcarata* (Coquillett) has similar parameres, but is a larger, hairier species, dull grayish brown in color, the TR 1.5, with two spermathecae, a bell-shaped aedeagus, and short stout dististyles. *F. hirtipennis* (Malloch) has yellow body hairs and a 1.5 tarsal ratio

Dasyhelea oppressa Thomsen

4 ♂♂, 8 ♀♀, Falls Church, July 4, (hovering near tree ooze), July 29, Aug. 6, 1950.

Genus **Culicoides** Latreille

The following table shows the relative abundance of the species taken in light traps at Mount Solon, the values in the first column being the total numbers of each species taken in nine trap-nights collecting on July 11-13, 1950.

Culicoides biguttatus (Coquillett)	238	8.3%
Culicoides crepuscularis Malloch	30	1.1%
Culicoides guttipennis (Coquillett)	571	20.0%
Culicoides haematopotus Malloch	6	0.2%
Culicoides obsoletus (Meigen)	1787	62.6%
Culicoides travisi Vargas	7	0.2%
Culicoides stellifer (Coquillett)	181	6.3%
Culicoides villosipennis Root and Hoffman	37	1.3%

At Falls Church, *haematopotus* and *biguttatus* were reared from pupae taken from moist sand at the margin of the small stream, *stellifer* was swept in adjacent vegetation, and *travisi* was reared from a tree hole in the woods nearby.

Helea (Isohelea) virginiana, new species

(Figure 5)

A small, black species with brown antennae, yellow halteres and legs, and slightly infuscated wings with M_2 interrupted at base.

Female. Length 1.3 mm., wing 1.1 mm. by 0.4 mm.

Head dark brown, antennae and palpi brown; antennal flagellar segments slightly longer than broad, oval last segment not markedly tapering.

Thorax subshining brownish black, with sparse, long, light brown hairs; scutellum with four, long, fine, light brown hairs. Coxae brown, remainder of legs yellow; femora slender, proportions of segments of hind legs 20:10:55:50:20:10:5:4:6, claws apparently equal, moderately long on fore and mid legs, shorter on hind legs. Wings brownish semitranslucent, all veins brown; macrotrichiae absent; first radial cell greatly narrowed, apparently obsolete, second radial cell long and narrow, length subequal to first; costa to two-thirds wing length; r-m crossvein oblique; M_2 interrupted on basal third. Halteres yellowish white. Abdomen velvety, deep brownish black.

Male. Similar to the female with usual sexual differences; antennal plumes dark brown. Genitalia (figure 5) short and broad; ninth sternite twice as broad as long, spiculate; ninth tergite tapered, apicolateral processes very prominent, exceeding basistyles, tapered to slender apices.

Basistyles curved, over twice as long as broad; dististyles bowed slightly, slender, as long as basistyles, pointed at apices. Aedeagus about as long as basal width, shield-shaped, with rounded basal arch to a third total length; apex rounded, the lateral margins strongly sclerotized and somewhat folded. Parameres fused at bases, with notch on anterior side between bases; posterior portions consisting of a pair of nearly straight, stout, apicolaterally directed arms with bluntly pointed tips.

Holotype ♂, allotype ♀, Mount Solon, Virginia, July 11, 1950, W. W. Wirth (Type no. 60972, USNM). Paratypes: 1 ♂, Falls Church, July 8, 1950; 1 ♀, Plummer's Island, Maryland, May 14, 1914, R. C. Shannon.

The bright yellow legs, brownish wings and characteristic male genitalia will distinguish *virginiana* from all other known Nearctic *Helea* with interrupted M_2.

Serromyia crassifemorata Malloch

8 ♀ ♀, Falls Church, May 21, 1950. This series agrees well structurally with Malloch's description and with specimens from Illinois determined by him, but the coloration is much darker than in typical *crassifemorata*. The body and hind legs in the present material are shining jet black, while the antennae and fore and mid legs are brownish and the wings are deeply infuscated, especially on the anterior margins.

Echinohelea lanei, new species

(Figure 6)

A strikingly marked, spiny species; mesonotum orange yellow with four silvery patches; pleura with transverse brown band; legs yellow, with many long spines, in male with extremely long, wavy hairs; wings unmarked, abdomen blackish.

Female. Length 1.8 mm., wing 1.8 mm. by 0.5 mm.

Head orange yellow including antennal scape, palpi and antennal flagellum brown, the segments of the latter in proportion of 22:13:15:15:15:15:18:18:27:27:25:25:20, verticils about as long as penultimate segment. Clypeus dark amber, with four long fine brown setae, proboscis brown, as long as clypeus. Palpi slender, segments in proportion of 4:6:12:8:10, third segment, not swollen, with a very small shallow circular pit.

Mesonotum orange yellow, two pairs of lateral silvery areas, one on humeral angle, other just in front of wing bases, two submedian rows of fine, black setae and scattered, long, black setae along lateral margins; about ten in a clump above wing and 5-8 in an irregular, transverse row in front of scutellum. Scutellum yellowish, with marginal row of about ten. long, black hairs. Postscutellum and pleura dull yellow, the latter with a black, transverse line just above coaxae. Legs dull yellowish, hind tibia broadly dark in middle; with numerous, long black

spines, 4 ventral and 3 anterior on fore femur; 10 ventral on mid femur; 4 ventral, 4 anterior and 1 dorso-apical on posterior femur; 6-7 antero-dorsal on mid tibia, and 4 dorsal, 5 anterior and 4 ventral on posterior tibia; mid basitarsus with a long sub-basal and shorter, subapical ventral spines; in addition many scattered long, fine hairs on legs. Proportion of segments of hind legs 40:15:70:80:32:12:10:7:13, fore and hind femora rather stout, but not swollen, claws long and toothed, equal on fore legs, very unequal, the inner about three times as long as outer, on mid and hind legs.

Wings brownish hyaline, anterior veins and membrane between them brownish infuscated, especially at first radial cell which is 0.37 as long as second, the latter ending 0.8 way to wing tip. Halteres dull brown, ends of knobs lighter.

Abdomen dull yellowish, lateral and posterior margins of segments dark brown, each segment with a transverse row of long, brown hairs. Abdomen broad and flattened dorsoventrally, normally curved down under body, last segment prominent, strongly sclerotized; spermathecae one, subspherical, with a very slender, sclerotized duct half as long as diameter of spermatheca.

Male. Similar to female in coloration, but differing markedly in structure. Antennae not plumose, the verticils arranged as in the female but the longest about twice as long as penultimate segment; flagellar segments in proportion of 20:12:12:13:15:16:18:18:20:20:25:25:20. Legs with spines as in the female, but the pilose hairs strikingly elongated to over twice the diameter of a femur, with apices distinctly wavy or curled. Tarsal claws toothed and equal on all legs.

Genitalia (figure 6). Very prominent and globular, abruptly bent under abdomen. Ninth segment reduced, the basistyles fused together at bases and entirely separating the reduced sternite and tergite. Sternite crescentic, the posterior margin indented half-way to base; tergite extremely narrow, over twice as long as broad, with a few distal bristles and a pair of triangular, apicolateral lobes. Basistyles very regularly oval, disistyles about two-thirds as long as basistyles, saber-shaped, inner margins of each with long fine hairs and a single minute distal tooth. Aedeagus (figure 6a) a mirror image of ninth sternite at base, but apex conically attenuated to a pair of very fine contiguous recurved points. Parameres (figure 6b) a pair of small sclerotized rods with lateral basal tooth, apices abrutly expanded and recurved ventro-laterad in the form of a broad, rounded, beak-like blade.

Holotype ♂, allotype ♀, Falls Church, Virginia, July 8, 1950, W. W. Wirth (Type no. 60973, USNM). Paratypes: 26 ♂ ♂, 38 ♀ ♀, same data as type, dates from July 4 to July 29, 1950; 1 ♂, 4 ♀ ♀, Mount Solon, July 11, 1950.

The genotype, *ornatipennis* Macfie, is similar to *lanei* in the markings of the body and the structure of the antennae and claws, but differs in its well-marked wings, short hairs on the legs of the male, and in the male genitalia, with a more

complex aedeagus and fused parameres without curved tips. *E. richardsi* Macfie, known only from the female, has unmarked wings and claws as in *lanei*, but is smaller and darker with fewer spines. *E. smarti* Macfie has the female claws equal on all legs and the legs of the male have short hairs. *E. macfiei* Lane is nearest *lanei*, but has fewer hairs and spines, and the clypeus is darker. I take great pleasure in naming this striking Virginia species in honor of my good friend, Dr. John Lane of the University of Sao Paulo, Brazil, the foremost authority on Neotropical Heleidae.

Stilobezzia mallochi Hoffman

20 ♂♂, 25 ♀♀, Falls Church, July, Aug., 1950. This species was found in large numbers together with *Echinohelea lanei*, which it superficially resembles in size, proportions, and color.

Stilobezzia bulla Thomsen

18 ♂♂, 21 ♀♀, Falls Church, July, Aug., 1950.

Clinohelea bimaculata (Loew)

(Figures 9, 10, 11)

11 ♂♂, 22 ♀♀, Falls Church, July, Aug., 1950. Apparently the pupa of *Clinohelea* has not previously been described. A pupa from which this species was reared was collected from the sandy margin of the small stream at Falls Church. *Pupa* 3.5 mm. long, color light brown; respiratory organ (figure 11) moderately long and slender, about five times as long as apical width, with ten spiracles at apex; operculum (figure 10) narrow, 0.9 times as broad as long, with a pair of round tubercles bearing a long seta, surface with very coarse shagreening, especially at distal margins and between the tubercles; body segments with low, crescentic tubercles, those of lateral margins sharp and setose; anal segment (figure 9) about twice as long as broad, finely shagreened, the apicolateral processes about a third total length, with subapical shagreening and sharp sclerotized apices.

Clinohelea species 1

Two females from Falls Church, July 4, 1950, differ considerably from any described North American species, although falling closest to *nubifera* (Coquillett) from Florida and *dimidiata* (Adams) from Arizona. In view of the unsolved problems of variation in the Nearctic species of this genus it is not advisable to name the limited material available. The legs are very dark, but not so much as in *dimidiata;* coxae brown, yellowish toward apices, legs, yellow, mid femur brown on distal fourth, hind femur black on distal three-

fourths, fore tibia brown, mid black except on distal fourth, hind entirely black. Wings suffusedly smoky brown, two darker spots over cross vein and at end of third vein, connected along costa; other veins bordered with dark brown.

Palpomyia plebeia (Loew)

12 ♂♂, 24 ♀♀, Falls Church, July 29, Aug. 6, 1950; 4 ♂♂, 2 ♀♀, Mount Solon, July 11, 1950.

Palpomyia stonei, new species

A large species with shining black mesonotum; legs, abdomen, scutellum, halteres and base of antenna yellow; fore femora slender, each with seven ventral spines.

Female. Length 2.8 mm., wing 2.8 mm. by 0.9 mm.

Head brown; basal flagellar segments yellow at base; last five segments black, palpi yellow. Mesonotum shining black, with fine yellowish hairs, scutellum yellow with eight, fine, yellow, marginal hairs; postscutellum and pleura shining dark brown, coxae brown, legs yellow, knees and apex of fourth trasal segment black. Femora slender, on fore legs scarcely swollen with seven, stout, black, ventral spines; proportions of segments of hind leg 40:12::110:100:45:20:10:5:10, fifth tarsal segment bare, claws a third as long as segment, black, curved, each with minute inner tooth. Wings whitish hyaline, anterior veins whitish. Halteres white. Abdomen yellowish, slender at base.

Holotype ♀, Mount Solon, Virginia, July 11, 1950, W. W. Wirth (light trap) (Type no. 60974, USNM).

Most closely resembling *plebeia* (Loew), in the shining black mesonotum, yellow legs and halteres, but the allied species has the scutellum black, distal half of the abdomen brown, and the fore femora greatly swollen with sixteen or more spines. I am happy to name this fine species after my good friend and co-worker at the National Museum, Dr. Alan Stone, who was along on the first trip to Mount Solon.

Palpomyia rufa (Loew)

10 ♀♀, Falls Church, July 8, 1950: 1 ♀, Mount Solon, July 11, 1950.

Bezzia (Pseudobezzia) dentata Malloch

(Figure 8)

6 ♂♂, 3 ♀♀, Falls Church, July 4, 8, 1950; 1 ♀, Mount Solon, July 11, 1950.

Female shining black; mesonotum with whitish pollinose area covering most of humeral depressions leaving only a narrow median shining stripe on anterior portion; all legs spiny. *Male* genitalia (figure 8). Ninth sternite about one and a quarter times as broad as long, spiculate on posterior half, with a deep, mesal notch on posterior margin to a third

of total length, in which the aedeagus normally rests when turned cephalad; ninth tergite narrow, flap-like. Basistyles globular, a fourth longer than broad, mesal margin without lobes; dististyles triangular, setose, about a third as long as basistyles. Aedeagus a long straight slender sclerotized tube half as long as basistyle, protruding ventrad from a hat-shaped transverse basal sclerite between bases of basistyles. Parameres fused in a thick, transversely flattened, bar-like sclerite protruding perpendicularly dorsad between bases of basistyles, and pushing up the narrow flap-like tergite; the basal, wing-like sclerites broad within bases of basistyles, separated and narrowed cephalad, as long as cleft of ninth sternite.

Bezzia (Pseudobezzia) flavitarsis Malloch

1 ♂, 3 ♀♀, Falls Church, July 4, 8, 29, 1950.

Bezzia (Pseudobezzia) mallochi, new species

(Figure 7)

A small, shining black, spinose species with black spinose legs, black halteres, white tarsi; male with ninth sternite entire, basistyles not lobed.

Female. Length 2.2 mm., wing 1.8 mm. by 0.6 mm.

Head black, palpi and bases of antennae brown. Thorax shining black, including humeri; mesonotum with fine appressed black hairs; 4-6 long black spines above wing base and 8-10 on margin of scutellum. Legs shining black; fore femora with subapical and fore tibiae with sub-basal and subapical narrow yellowish rings; tarsi white. Fore and hind femora each with 5-7 ventral spines; hind tibiae with strong spinose bristles above, other femora and tibiae with dense strong setae; claws strong, black, half as long as fifth segment, each with minute tooth on inner side near base. Wings grayish hyaline, anterior veins brown, first vein to half the length of radial cell, media forking slightly beyond r-m crossvein. Halteres dark brown. Abdomen shining black, with appressed, sparse, brown hairs.

Male. Similar to the female, with usual sexual differences; antennal plumes golden, distal flagellar segments black; legs with many strong spines. Genitalia (figure 7). Ninth sternite about a fourth broader than long, posterior margin entire, spiculose on posterior half; ninth tergite flap-like. Basistyles simple, about half again as long as broad; dististyles setose, triangular. Aedeagus with very broad, basal arms and a straight, median, tube-like sclerite as long as basistyles, protruding ventrad. Parameres distinctive, the basal sclerites wing-like, but compressed laterad, the median sclerite in dorsal view narrower, ten-pin shaped with rounded tip, but very much stouter in side view with obliquely truncated tip, protruding dorsad between bases of basistyles, and pushing back the flap-like tergite.

Holotype ♂, allotype ♀, Mount Solon, Virginia, July 11, 1950, W. W. Wirth (light trap) (Type no. 60975, USNM).

Paratypes: 2 ♂♂, same data as type;1 ♂, Great Falls, Virginia, June 12, 1940, W. W. Wirth; 1 ♂, Glencarlyn, Virginia, June 7, 1925, J. R. Malloch; 3 ♂♂, Falls Church, July 8, 29, 1950.

Malloch (1915) erected the genus *Pseudobezzia* for *expolita* (Coquillett), a shining black species with petiolate media, very spiny legs, enlarged genitalia with long rod-like aedeagus and parameres in juxtaposition. Malloch's only character for the genus was the petiolate media, and since this character as well as the others given above may merge in different species into those of *Bezzia* s. str., it appears that the two genera cannot be maintained as separate. The female of *expolita*, which was described as *johnsoni* by Coquillett from a specimen collected at the same time and place as the male type of *expolita*, has the media very narrowly sessile. However, the above mentioned characters of the genotype are common to a group of closely related species for which it may be desirable to preserve the subgeneric name *Pseudobezzia*. These species may be separated as follows:

1. Male genitalia with lobe on basistyle 2
— Male genitalia without lobe on basistyle; femora and tibiae of fore legs broadly yellow-banded; male antennal plumes yellow 3
2. Lobe on dorsomesal side near apex of basistyle; femora and tibiae of fore legs broadly yellow-banded ..... *expolita* (Coquillett)
— Lobe on ventro-mesal side at about midlength of basistyle; femora and tibiae entirely black ..... *flavitarsis* Malloch
3. Ninth sternite of male with prominent mesal notch; shoulders of mesonotum pruinose ..... *dentata* Malloch
— Ninth sternite of male entire; mesonotum uniformly glossy black ..... *mallochi*, new species

Bezzia varicolor (Coquillett)

1 ♀, Mount Solon, July 13, 1950. This species appears to have the halteres occasionally dark, and the extent of the dark leg bands is also somewhat variable.

Bezzia media (Coquillett)

5 ♀♀, Falls Church, July 4, 8, 29, 1950.

Bezzia opaca (Loew)

9 ♀♀, Mount Solon, July 11, 1950, (swarming by the river).

Bezzia (Bezzia) pseudobscura, new species

A large, pruinose, grayish species with banded legs, two spines on fore femur, halteres white, abdomen whitish above.

Female. Length 3.1 mm., wing 2.5 mm. by 0.9 mm.

Head dark brown, densely gray pollinose; antennal scape light brown, segments 3-10 yellowish at bases; flagellar segments in proportion of 15:10:10:10:10:10:10:10:45:40:40:40:40. Palpal segments slender, proportions 4:10:15:10:8, third not swollen, pit absent.

Thorax dark brown, with very dense pearly gray pollen, minutely dark punctate at bases of the fine hairy vestiture; integument of scutellum slightly yellowish brown; 3-4 black spinose setae above each wing base, scutellum with four very fine, brown, marginal hairs. Legs yellow; coxae, broad subapical bands on fore mid femora, all except extreme bases of hind femora and narrow apices of bitiae black, with long gray pubescence. Femora moderately strong, fore femur with 2-3 black ventral spines at distal third; claws half as long as fifth segment, each with minute basal tooth; proportions of segments of hind legs 35:15:110:105:65:25:8:6:15.

Wings grayish hyaline, anterior veins yellowish, costa to 0.8 wing length. Halteres white.

Abdomen whitish above, venter and last tergite brownish. Spermathecae two, small slightly ovoid, with ducts sclerotized about a fourth length of spermatheca. Two pairs of long hyaline internal gland rods present.

Holotype ♀, 5 ♀ paratypes, Falls Church, Virginia, July, Aug., 1950, W. W. Wirth (Type No. 60976, USNM).

Closely allied to *Bezzia obscura* (Malloch) from New York, which however is not so markedly grayish pruinose, more as in *opaca* (Loew), the abdomen is pale only on basal half above, the fore and mid femura not darkened, the halteres brownish and the mesonotum and scutellum with strong dark hairs. *B. varicolor* (Coquillett) is also very similar, but has the hind femur dark, with dark, narrow, preapical bands on fore and mid femora and broad sub-basal and narrow, subapical dark bands on all tibiae, and the mesonotal pruinescence is lighter and sub-shining. Malloch's type of *obscura* in the Illinois Natural History Survey has been examined and possesses two distinct strong black spines on the under side of the fore femur, which Malloch must have overlooked.

In addition to the species listed here, at the Falls Church locality, I collected one new species each of *Dasyhelea* and *Alluaudomyia*, two each of *Stilobezzia* and *Monohelea*, and at Mount Solon two new speces of *Alluaudomyia*, and one each of *Stilobezzia* and *Probezzia*. These new species are being described elsewhere, more appropriately, in generic revisions.

Literature Cited

Macfie, J. W. S., 1939. A report of a collection of Brazilian Ceratopogonidae. Rev. Ent. 10:137:219.

Malloch, J. R., 1915. The Chironomidae or midges of Illinois. Bull. Ill. St. Lab. Nat. Hist. 10:275-543, 23 pl.

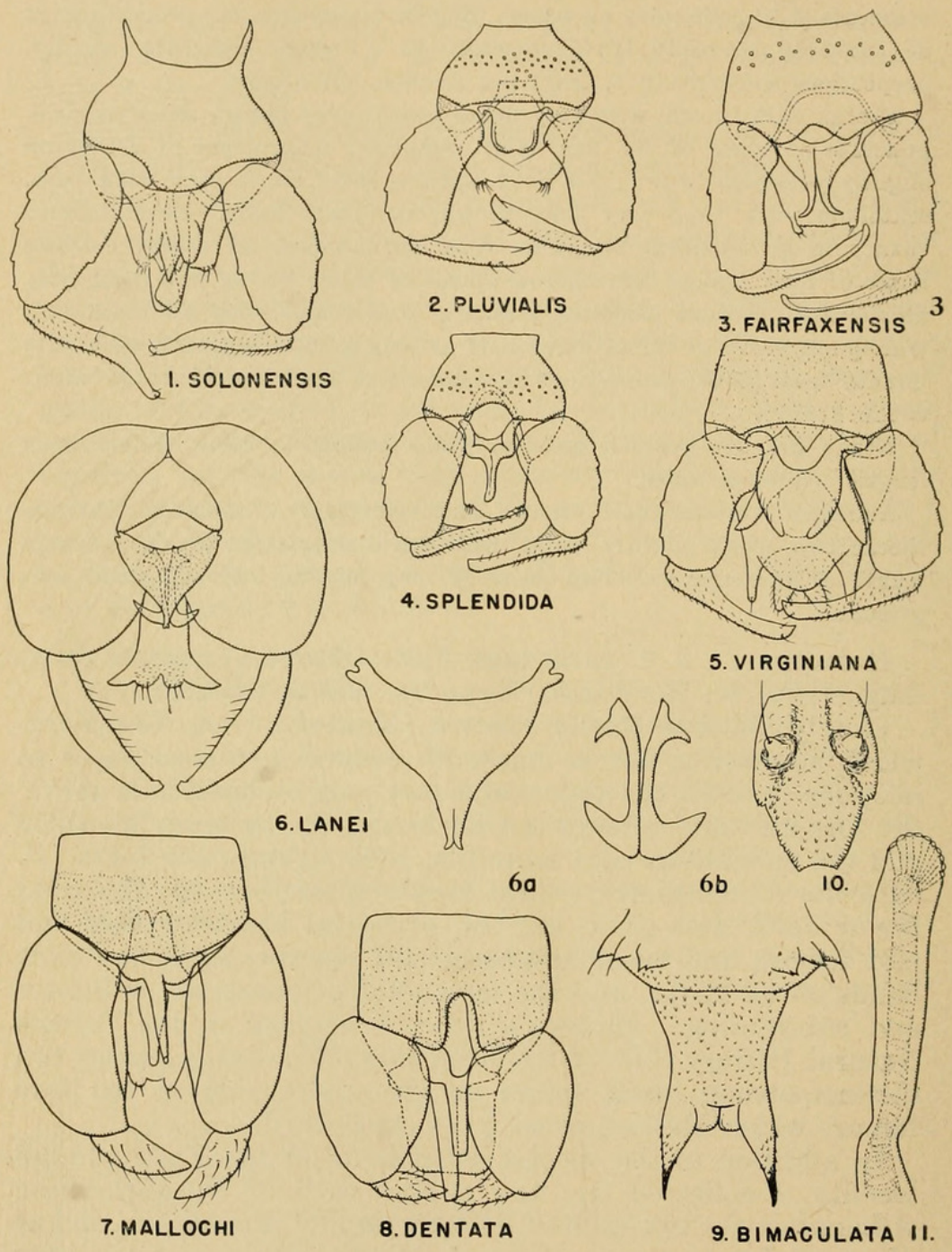

PLATE 40. MALE GENITALIA AND PUPA OF HELEIDAE

Figures 1-8, male genitalia; 1, *Forcipomyia solonensis;* 2, *F. pluvialis;* 3, *F. fairfaxensis;* 4, *F. splendida;* 5, *Helea virginiana;* 6, *Echinohelea lanei;* 7, *Bezzia mallochi;* 8, *B. dentata.* Figures 9-11, *Clinohelea bimaculata,* pupa; 9, anal segment; 10, operculum; 11, respiratory organ.