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New North American Tabanidae, VII Descriptions of Tabaninae from Mexico (Diptera)¹

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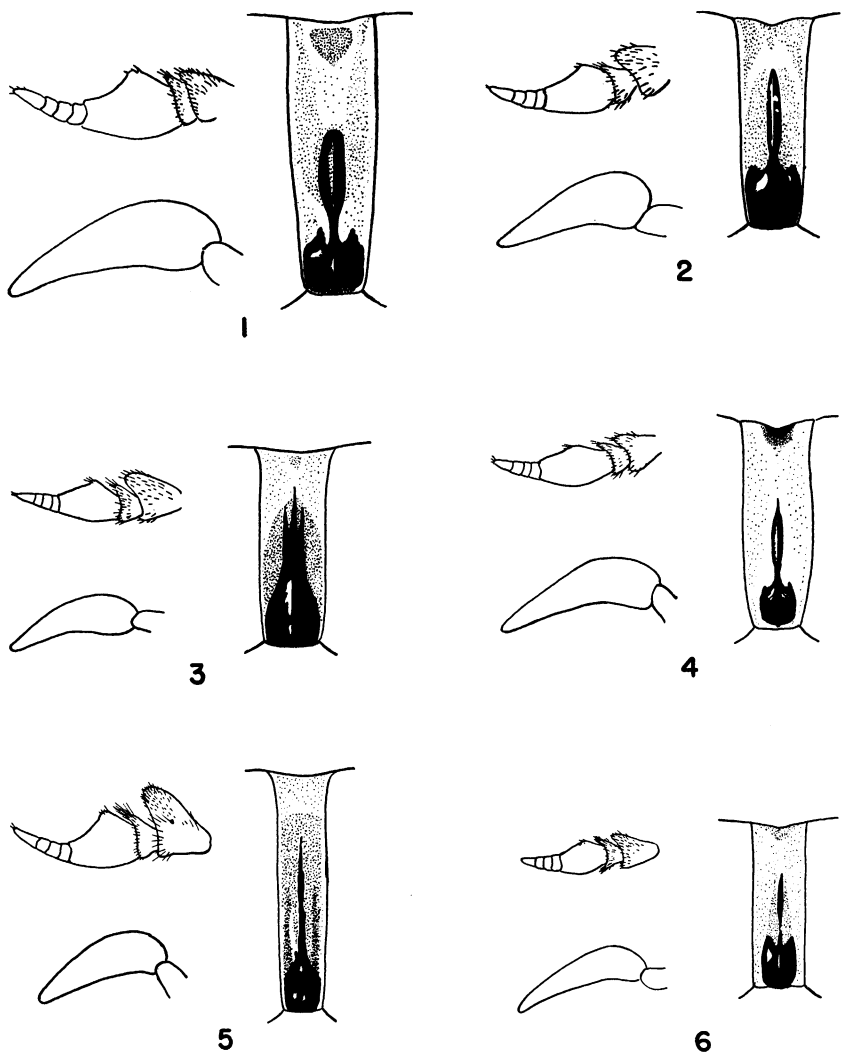
This paper provides descriptions of 14 new species and synonymizes one previously unrecognized Walkerian species, all from various localities in Mexico. The specimens discussed below were obtained chiefly through Dr. C. H. Curran from the David Rockefeller Mexican Expedition sponsored by the American Museum of Natural History, and from the collection of the late Dr. Alfonso Dampf provided through the courtesy of Drs. Luis Vargas and W. G. Downs. Drs. J. Bequaert, T. H. G. Aitken, and G. B. Fairchild also contributed specimens pertinent to this study. Where types are not in the author's collection, their location is indicated. Types from the Dampf collection are all in the author's collection by courtesy of Drs. Vargas and Downs.

The Mexican tabanine fauna is especially rich in species of *Tabanus* and *Hybomitra* with three rows of abdominal spots, and the extent of specific variation will not be known until much more adequate collecting has been accomplished.

Dr. Dampf's widow has generously made his field books available through Dr. Luis Vargas for detailed data, which unfortunately do not always agree with the more abbreviated data on labels. There is also the

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² Rocky Mountain Laboratory, Hamilton, Montana. Study of a few types in European museums mentioned herein was made possible through a grant from the American Philosophical Society.



FIGS. 1-6. Fronts, antennae, and palps. 1. *Tabanus rockefelleri*, new species. 2. *T. cazieri*, new species. 3. *T. sepiensis*, new species. 4. *T. glauconotatus*, new species. 5. *T. tumiscapens*, new species. 6. *T. mazzottii*, new species.

possibility that some handwritten labels are not always correctly interpreted. Where such difficulties have arisen the discrepancies are indicated. Eye colors are important in many Neotropical groups of the Tabaninae, but their attempted revival by relaxing has been only moderately successful in some instances, as explained below.

Tabanus rockefelleri, new species

Figure 1

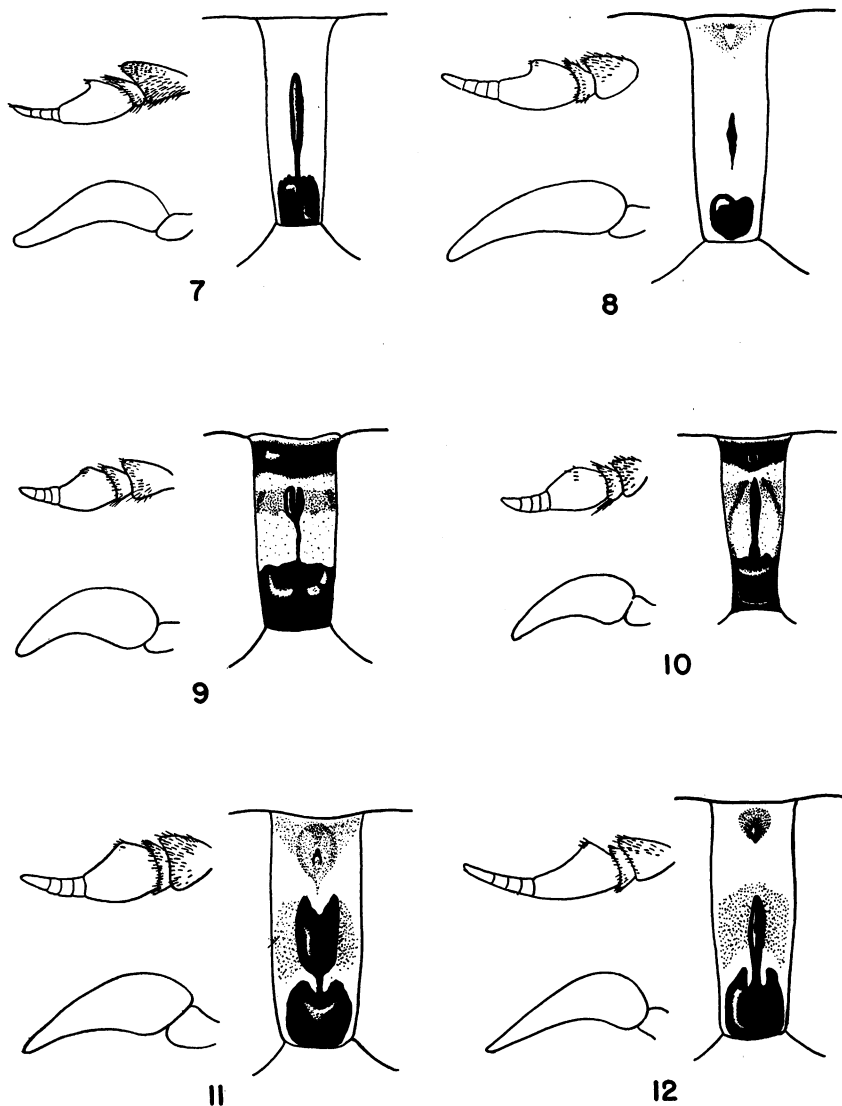
A robust, brownish fly with three rows of abdominal spots, vaguely lined thoraces, red legs but gray fore coxae, finely hirsute eyes, and some specimens with suggestions of median ocelli at the vertex but no tubercles.

Holotype female, 15 mm. Eyes (relaxed) with what appear to be two green bands on a purple ground; short, rather dense hairs present. Front gently convergent below, index 1/4.5; grayish pollinose with short black hairs; two small bare spots visible among the hairs at the vertex, but no tubercle. Basal callosity deep brownish, almost black, rounded and separated narrowly from the ocular margins, narrowly connected with a slightly expanded median callus which reaches about halfway to the vertex. Subcallus peculiarly wrinkled, dull creamy pollinose, and no lateral hairs. Face and cheeks entirely whitish pilose and pollinose. Antennae red, black beyond the dorsal angle on the plate, scape not swollen, black haired; plate obtuse-angled, scarcely excavated, about one-third longer than the flagellum. Palpi swollen basally, attenuated apically, with sparse black and white hairs intermixed.

Thorax and scutellum blackish, with fine gray pile and many brassy hairs; ante-alar tubercles and pleura reddish, the latter with white pile and a few black hairs. Legs predominantly reddish, but with darker shadows on the femora, particularly the first pair, and the fore coxae gray with white hairs; hind tibial fringe with mixed black and white hairs. Wings including costal cells hyaline with faint clouds on the forks and cross veins; no spurs; cell R_5 wide open. Halteres with pale yellowish knobs.

Abdomen reddish, a broad dark collar under the scutellum on tergite 1, tergites 2 to 4 with median trapezoidal dark spots enclosing ill-defined gray triangles which almost cross the segments, and bordered by submedian, pale-haired, dull reddish dashes; predominantly blackish from tergite 5 on; all incisures narrowly pallid. Venter reddish, with pale hair, a small, anteromedian spot on sternite 2.

Allotype male, 14 mm. Except for the usual sexual differences, resembles the female in the following respects: the antennae though narrower



FIGS. 7-12. Fronts, antennae, and palps. 7. *Tabanus (Taeniotabanus) aztecus*, new species. 8. *Atylotus vargasi*, new species. 9. *Stenotabanus abacus*, new species. 10. *S. currani*, new species. 11. *Hybomitra aitkeni*, new species. 12. *H. zancla*, new species.

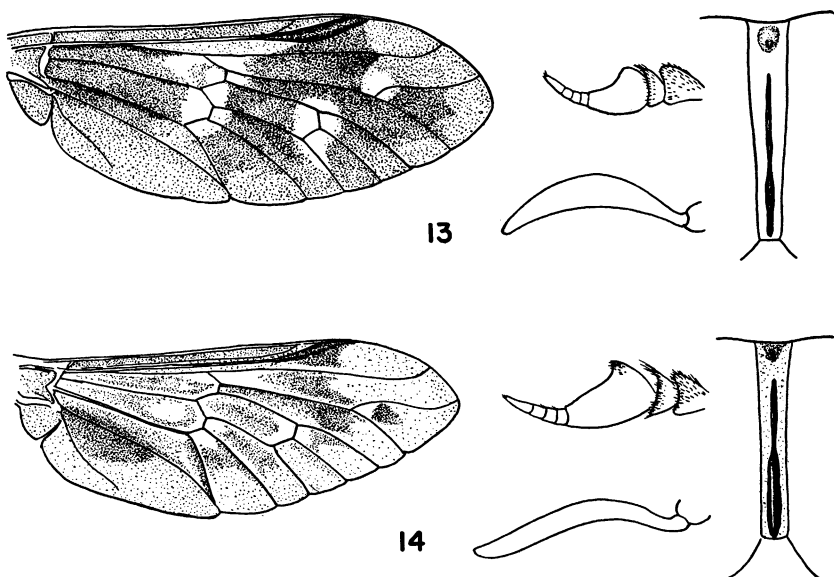
are red, black distad of the dorsal angle of the plate, the legs are red, but femora are predominantly dark and the hind tibial fringe is almost entirely black, the middorsal black spots on tergites 1 and 2 are a little more extensive, and there are narrower spots on 3 and 4, the remainder are entirely black; there are midventral spots on sternites 1 and 2 as in two paratypes. Owing to wear, the thorax is darker on the disc compared to that of the holotype, and the integumental red and black colors of the abdomen are brighter, but there are suggestions of the three rows of pale-haired triangles. The upper eye facets are not greatly enlarged; there are a rather dense short pilosity and two green bands (relaxed). The occipital tubercle is raised above the adjacent eye levels, dull brownish pollinose and pilose, and with a suggestion of vestigial ocellus. The apical palpal segments are flesh colored, about twice as long as thick, and with blunt downward-pointed nipples, predominantly white-haired, with a few interspersed black ones. Face and cheeks entirely pale pilose and pollinose. Faint clouds only on the forks, wings otherwise hyaline.

Though the infuscation of the femora is more extensive in this allotype, the locality data and other characters leave little doubt of its proper association here.

TYPE MATERIAL: Holotype, female, allotype, male, collected at Madera, Chihuahua, Mexico, July 6, 1947, 7200 feet (David Rockefeller Mexican Expedition, collectors Cazier and Michener), in the American Museum of Natural History. Three paratypes, all collected on the David Rockefeller Mexican Expedition: one female topotype (Gertsch); one female, collected 2 miles west of Matachic, Chihuahua, Mexico, July 7, 1947, 6400 feet (Cazier); one female collected at Palos Colorados, Durango, Mexico, August 5, 1947, 8000 feet (Gertsch); all deposited in the collections of the American Museum of Natural History and the author.

The following variation from the holotype is noted, in part due to differences in wear: The small bare spots at the vertex are more pronounced and a vestigial ocellus may be seen on one. The frontal callosity may be brown or even yellowish and is often more broadly attached to the median callus. The black median spots on tergites 3 and 4 may be reduced, or wanting, and represented by geminate black-haired spots only. The distinctness of the faint clouds on the cross veins varies. The femora are entirely reddish in one specimen. Size varies from 15 to 17 mm. It is believed that these represent one species, however, and similar variation may be seen in others of the *gilanus*-group of horseflies to which this is related.

The species is named for Dr. David Rockefeller.



FIGS. 13-14. Fronts, antennae, palps, and wings. 13. *Tabanus (Philipotabanus) caliginosus* Bellardi. 14. *T. (P.) enigmus*, new species.

Tabanus cazieri, new species

Figure 2

A medium-sized, brownish species allied to *T. rockefelleri* (above), with three rows of triangles on the abdomen, red legs including the coxae, black hind tibial fringe, bare eyes, and brown antennal plates.

Holotype female, 14 mm. Eyes (relaxed) with two green bands on a purple ground. Front parallel-sided, index $1/4$; pinkish pollinose, plain at the vertex, with short, sparse black hairs; basal callosity deep brown, subrectangulate, taller than broad, barely separated from the ocular margins, and connected narrowly to the linear median callus which reaches two-thirds of the distance to the vertex. Subcallus dull pinkish pollinose, no lateral hairs. Face pinkish pollinose and pilose; cheeks gray pollinose, with dark integument beneath, black haired above, pallid below. First two antennal segments pale reddish with black hairs, the scape not swollen; plate brown, longer than the black flagellum, with a low obtuse angle behind the middle and gently excavated. Palpi concolorous pinkish, with the face, only moderately swollen basally, pointed apically, predominantly shaggy, black haired.

Thorax dark cinereous, with reddish longitudinal lines its full length, covered with mixed dark and brassy hairs; ante-alar tubercles and scu-

tellum reddish, the latter with a darker margin. Pleura reddish, with mixed pale and black hairs. Legs including the fore coxae entirely reddish, the fore tibiae distally and fore femora a little darker; hind-tibial fringe black. Wings hyaline, the costal cells faintly yellow and a faint cloud at the fork; no spurs. Knobs of halteres yellow.

Abdomen reddish, with a median row of geminate, dark dashes nearly divided by prominent, almost equi-angular, pale triangles, a row of sub-lateral, pale-haired, rhomboidal spots on either side, flanked on the sides by black-haired, anterolateral maculations; no evidence of black integumental median spots beneath the triangles seen in *T. rockefelleri*. Venter pale reddish and pale haired.

TYPE MATERIAL: Holotype, female, collected at Canon Prieto near Primavera, Chihuahua, Mexico, July 2, 1947, 6500–6800 feet (David Rockefeller Mexican Expedition, collector Cazier), in the American Museum of Natural History. The species is named after Dr. Mont A. Cazier. Nine paratopotypes (Michener and Gertsch): 21 female paratypes collected at Santa Clara, Chihuahua, Mexico, July 2, 1947 (Gertsch); three female paratypes from Encino, Durango, Mexico, July 27, 1947, 6200 feet; all deposited in the collections of the American Museum of Natural History and the author.

Some of the paratypes are a little worn, so that the abdominal pattern is not so plain, the callosity often merges more broadly with the median callus, the notum is sometimes less obviously lined, more uniformly brown, and the plates of the antennae are occasionally reddish, hardly excised, and the annuli brown. There seems, however, little doubt of their conspecificity.

This has obvious affinities with the preceding species but is distinguished by several characters including completely bare eyes, sides of front subparallel, not bowed, red scutellum, and more prominent median row of broader triangles, especially from tergites 3 caudad, without underlying dark, median, integumental spots.

Tabanus sepiensis, new species

Figure 3

A graceful-appearing, chocolate brown fly with clouds on the cross veins of the wings, and three rows of paler brown spots on the abdomen, the lateral ones accentuated and the median ones small.

Holotype female, 12 mm. Eyes bare, green, with one purple stripe (relaxed). Front parallel-sided, index 2/6.5; pale brown pollinose, darker about the median callus; the basal callosity reddish brown, a little taller than wide, touching the ocular margins and merging broadly and grad-

ually with a blunt median callus, reaching a little over halfway to the vertex. Subcallus dull reddish. Face grayish yellow pollinose and pilose. Antennae brown, darker distad of the outer half of the plate; scape a little taller than the plate and black haired; upper angle of plate low obtuse, with slight excavation; flagellum rather chunky, about two-thirds of the length of the plate. Palpi rather slender, blunt; white hairs predominating basally, black ones apically.

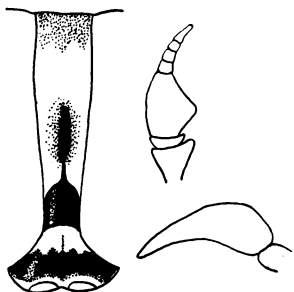


FIG. 15. Front, antennae, and palp of *Tabanus* (*Taeniotabanus*) *rhizonshine*, new species.

Thorax and scutellum brown, with lines almost imperceptible, colored with short black and pale hairs, entirely white haired on the sides and venter. Legs entirely brown, with mostly black hairs except on the coxae. Wings tinted, the costal cells and margins of the cross veins and fork darker. Subepaulets hairy. Knobs of the halteres pale yellow.

Abdomen brown, with mostly black hairs, a median row of small white-haired triangles, one-half or less of the length of the tergites, and submedian rows of rather large, rhomboidal, pale brown spots resting broadly on the incisures but not quite reaching the anterior margins. Venter brown, with pale hairs.

TYPE MATERIAL: Holotype, female, collected at Rascon, between San Luis Potosi and Tampico, Mexico, August, 1911, "Purpus S.V."

Tabanus tumiscapens, new species

Figure 5

A reddish-bodied species with a single row of pale triangles, dark notum, narrow front, and unusually swollen antennal scapes.

Holotype female, 12.5 mm. Eyes with imperceptible hairs, green with one purple stripe (relaxed). Front narrow, index $1/5.6$; parallel-sided, yellowish pollinose, gray at the vertex, basal callosity dark brown, a

little taller than broad and narrowly separated from the ocular margins, merging broadly into a narrowing median keel three-fourths of the distance to the plain vertex. Subcallus yellowish pollinose, no lateral hairs. Face and lower cheeks grayish pollinose and pilose, yellowish above. Scape, pedicel, and base of plate reddish, scape hood-like, about one-third taller than the plate, with black hairs above; plate with prominent dorsobasal tooth, moderately excavated; flagellum nearly as long. Palpi yellowish red, with black hairs, robust but not swollen basally, blunt apically.

Thorax dark on the notum and scutellum, with a grayish yellow bloom, unlined, short yellow and black hairs; laterally margined with red, a color that continues onto the pleura, with mostly pallid hairs. Legs reddish, the fore femora, bases of the mid and hind femora, and apical third of the fore tibiae blackish, yellow hairs predominating, the hind tibial fringe black. Wings tinted, the costal cells pale yellow, cell R_5 wide open, no spurs. Knobs of halteres pale yellow.

Abdomen red, a median row of pale triangles crossing tergites 3 to 5, and probably tergite 2, though this is obliterated by wear, leaving a small, blackish integumental spot anteriorly. No evidence of lateral spots, though blackish hairs predominate. Venter red, with yellowish hairs.

TYPE MATERIAL: Holotype, female, collected at Mecatan, Nayarit, Mexico, May 23, 1949, 800 feet (Bradt), in the collection of the American Museum of Natural History.

There are several Mexican species with enlarged antennal scapes, but this species is distinguished by its combination of very narrow front, tinted wings, and single row of triangles on the abdomen.

Tabanus glauconotatus, new species

Figure 4

A rather small, dark fly with three rows of contrasting steel-gray triangles on the abdomen, dark antennae and femora, reddish tibiae, and the frontal callosities of the females small and rounded.

Holotype female, 12 mm. Eyes glabrous, one purple stripe (relaxed). Sides of front bowed, index $1/3.5$; appearing rather narrow because of the wide head; a depressed notch at the vertex in which is situated a small dark spot; otherwise gray pollinose, and with sparse, short gray hairs. Basal callosity small, black, rounded, and widely separated from the ocular margins, extended above as a narrow black keel halfway to the vertex. Subcallus gray pollinose, no lateral hairs. Face and cheeks yellowish gray pollinose and pilose. First two antennal segments dark reddish with black hairs, the scape not swollen; plate and flagellum

black, the latter hardly two-thirds of the length of the former, dorsal angle very low and in the middle, excavation slight. Palpi robust, pinkish, and with intermixed black and yellow hairs.

Thorax gray, with an abundance of creamy pile giving a plainly lined appearance. Ante-alar tubercles and scutellum concolorous. Pleura pale yellowish pollinose and short pilose. Fore coxae and femora dark, with mixed yellow and black hairs; tibiae reddish except at the apices, the hind tibial fringe pallid on the basal two-thirds. Wings hyaline, the costal cells faintly tinted. Cell R_5 wide open, no spurs. Halteres brownish.

Abdomen proportionately rather large, with three rows of prominent gray-haired triangles, the median ones crossing the segments, the lateral ones diagonal, the dark intervals (as gently curved dashes) and basolateral spots black haired. Venter dusky gray, with mostly yellow, some black, hair.

TYPE MATERIAL: Holotype, female, collected 44 kilometers west of Toluca, Mexico, June 28, 1948, 8220 feet (Route 4 km. 109) in a pasture (Nutting, Werner), in the Museum of Comparative Zoölogy, Cambridge. One female paratopotype deposited in the collection of the writer through the kindness of Dr. J. Bequaert.

Paratype in close agreement except a little smaller, the thoracic lines less evident because of wear, and the lateral dark spots on the abdomen not so plain. The abdominal pattern is somewhat like that of the Nearctic *Hybomitra astuta* group without underlying lateral red coloration. Named for the cold or almost bluish gray markings.

Tabanus mazzottii, new species

Figure 6

A distinctive, slender, pale, reddish-bodied fly with three rows of abdominal triangles, the median row of geminate spots accentuated, clouds on the cross veins of the wings, and closed cell R_5 .

Holotype female, 11 mm. Eyes glabrous and unbanded. Front parallel-sided, index $1/4.2$; dark brown pollinose, with short black and some pale hairs; vertex depressed below adjoining eye levels, no tubercle. A narrow median keel not connected with basal callosity, which is relatively small, brown, and widely separated from the eye margins. Subcallus brown, dull gray pollinose; cheeks and face concolorous with it, creamy haired. Antennae dark brown to blackish, with black hair; almost no dorsal angle on the plate which tapers gradually to a point at the apical annulus; flagellum nearly as long as the plate. Palpi slender, elongate almost to the tip of the proboscis, with pale and black hairs intermixed.

Thorax gray, with four prominent, dark brown, black-haired lines its

full length, the median gray interval very narrow; hairs on gray lines mixed black and yellowish. Scutellum dark brown on the disc, with black hairs. Thorax gray on the margins, with pale hairs. Pleura pale reddish, darker below, with short yellowish hair. Legs brown, with yellow and black hairs, the tibiae lighter basally, and no marked hind tibial fringe. Wings with whitish cells, the veins accentuated brown, the costal cells tinted, and clouds on all cross veins and the forks; cell R_5 closed and petiolate. Halteres pale yellow.

Abdomen yellowish, with a prominent row of brown geminate spots on all tergites and lateral shadows giving an effect of three rows of spots. Venter reddish, with pale hairs.

TYPE MATERIAL: Holotype, female, collected at Solio, Hidalgo, Mexico, October 10, 1928. From the Dampf collection, No. "M. F. 1334."

This very distinctive fly would be placed unnaturally in the subfamily Bellardiinae in Kröber's system. It is, however, like *T. petiolatus* Hine, obviously not to be separated from *Tabanus* merely because of the closed first posterior cell. Named in honor of Dr. Luis Mazzotti, an active student of medical entomology in Mexico.

Tabanus craverii Bellardi

Two cotypes labeled "Mexico" have been seen in Bellardi's collection in the University of Turin Zoological Museum. Both are soiled and have some broken appendages. The head characters justify Bellardi's reference to affinities to *Atylotus rusticus* of Europe, but the presence of small but prominent ocelligerous tubercles makes this species an intermediate with *Hybomitra* and further complicates the difficulties of keying these variants from the genus *Tabanus*. The cotypes are in only fair, somewhat soiled condition but represent two different though closely related species. A lectotype is herewith designated and redescribed to establish the species.

Lectotype female, 15 mm. Eyes plainly gray pubescent. Front grayish yellow pollinose, slightly convergent below; index 1.75/5.50; at vertex, a small, raised brown tubercle bearing an anterior vestigial ocellus; a small, ovoid, median, brown callus not connected with a larger, rounded, rugose, reddish callosity below, which is barely separated from the eye margins. Subcallus and face grayish buff pollinose, and the latter predominantly pale pilose with a few scattered brown hairs, especially laterad of the antennae. Cheeks pale pollinose and pilose. Antennae with the first two segments and base of third reddish, darker brownish beyond; hairs predominantly black. Plate rather slender, a little over a third longer than the annuli. Palpi elongate, swollen basally, attenuated

apically, flesh pink, pale pilose, with a few scattered black hairs basally.

Notum and scutellum blackish brown. Ante-alar tubercles and pleura dull reddish, predominately straw-yellow haired. Legs including the fore coxae reddish, the fore tibiae distally and tarsi darker brownish; hind tibial fringe pallid, with a few black hairs. Wing hyaline (one missing). The veins yellow, no spur vein, cell R_5 wide open.

Abdomen soiled dorsally so that no distinct pattern can be discerned, but probably there is a median row of paired dark dashes; integument brownish, grading to yellowish red on the sides of tergite 2. Venter brownish, entirely pale haired.

One of the two cotypes of *T. craverii* from Mexico has been labeled as lectotype.

The other specimen agrees with a related species described below and figured as *Atylotus vargasi*, new species. It differs in having an indistinct linear median callosity, blackish scape, pedicel, fore coxae and femora, greenish face and palpi, and darker body with only the abdominal incisures narrowly red. The flagella are missing, but in a paratype of *vargasi* agreeing with this cotype but not in agreement with the above lectotype, the plates are shorter in relation to the annuli and are more excised dorsally.

Tabanus carneus Bellardi

Three cotypes, a male and two females from Mexico, also are in the Bellardi collection. All are somewhat bleached and reddened through age and original wear. However, it is obvious that only the male represents the present conception of the species as keyed and described by Fairchild (1942a), and it is herewith designated as lectotype.

Lectotype male, 10.5 mm. Area of enlarged facets extensive and sharply demarcated, bare, brown, occupying about two-thirds of the upper eye area and separated from the occipital margin by a narrow band of small facets. Occipital tubercle small, depressed below the eye level. Antennae entirely red, the plate slender and elongate, about a third longer than the annuli, dorsal angle obtuse, the tooth low, hardly excised, evenly and gently curved below. Apical palpal segments ovoid, moderately swollen, no apical nipple. Fore coxae, base of fore tibiae, and two hind pairs of legs red; fore femora, fore tibiae, and tarsi dark brown but not black. Wings slightly tinted, costal cells yellow; no spurs on R_4 . Scutellum entirely reddish. Abdomen red, a broad, even median yellow band and two even sublateral ones, vestiture worn away. No median dark integumental spots above or below.

"Mexico, Sallé" (lectotype label).

The area of enlarged facets is not quite so extensive as in some specimens compared from farther south, and the fore femora are neither so black as in some nor so red as in others. The dorsal tooth of the plate is less prominent than in most other specimens, and there is no evidence of an angle below as often observed in specimens assigned to this species.

The two female paratypes, while worn so that the the abdominal pattern is obscured (which undoubtedly confused Bellardi), are comparable to a specimen of *Tabanus yucatanus* Townsend I have from Chichen Itza, Yucatan. The antennae are thus chunkier than in the lectotype, the annuli dark, and the palpi obviously more slender.

Tabanus (Taeniotabanus) trivittatus Fabricius

Study of three cotypes in the Fabricius collections (two in the University of Copenhagen Museum and one, damaged, in the Kiel Museum) reveals the necessity for establishing a lectotype in this species also. Hine (1920) and Bequaert (1926) correctly identified the species among Brazilian material, but Kröber (1934) failed to recognize it, but had described it as *T. fumatipennis* in 1933. The type of *T. callosus* Macquart from Brazil in the British Museum (Natural History) also is probably the same, though the flagella are missing and the wings are not so deeply tinted, which creates a doubt as to the correctness of the synonymy.

One of the two cotypes in Copenhagen which agrees with Hine's previous diagnosis is herewith designated lectotype. It has the completely denuded subcallus, elongate antennal plates, and tinted wings of the form found in Brazil. A specimen from French Guiana is in close agreement as is the incomplete cotype in the Kiel Museum.

The other Copenhagen cotype with completely pollinose subcallus is related to the difficult *dorsiger-curtus* group and can be conveniently disregarded for purposes of establishing the name *T. trivittatus*.

A small related trivittate fly from the west coast of Mexico has been assigned to *T. callosus* Macquart, a group with which it has affinities because of its partially denuded subcallus. Study of the above types has revealed that it represents an unnamed species, as described below.

Tabanus (Taeniotabanus) rhizonshine, new species

Figure 15

A small species with trivittate abdomen, partially bare subcalli, short, wide, entirely red antennae, swollen, pointed palpi, and blackish scutellum, fore coxae, and femora. The bare snout suggested the barbarous name.

Holotype female, 10 mm. Eyes bare, with the usual *lineola*-like, three

green bands (relaxed), the upper one short, on a purple ground. Front narrow, slightly convergent below, index $1/6.5$; no ocelli or tubercle at vertex; basal callosity black, taller than broad, touching eye margins, and narrowly connected above to a moderately expanded black median callus. Subcallus shining black across the lower half, gray pollinose above. Face and cheeks pale pollinose and pilose. Antennae entirely red, black hairs above on the two basal segments, the plate wide, nearly as tall as long, a little longer than the annuli; the upper angle obtuse, no excision. Palpi pale yellow, swollen, and pale haired basally, pointed and black haired apically. Notum and scutellum black, without lines, covered with appressed, brassy hairs; ante-alar tubercles dark red; pleura dark, with pale pile. Legs including fore coxae black, the fore tibiae on basal half and mid and hind tibiae reddish, a few black hairs intermixed in the hind tibial fringe. Wings hyaline, no spurs on R_4 .

Abdomen blackish above and below, a narrow, rather even pale gray, middorsal stripe, with pale hairs, and a pair of sublateral, reddish yellow stripes to the fifth tergite, not step-like; intervals on tergite 2 deep reddish brown. Venter with two dull reddish, sublateral lines attenuated caudally on sternite 4; predominantly pale haired.

Allotype male, 10 mm. Like the female in important respects except for usual sexual differences, and with the reddish brown of the abdomen accentuated over all. Eyes bare, area of enlarged facets sharply demarcated in the upper three-fourths, rounded rather than flattened on the disc, a rather wide occipital margin of small facets, no tubercle visible in the occipital notch. Frontal triangle gray pollinose, not bare at the vertex. Face and cheeks pale pollinose and pilose. Flagella missing. Palpi pale yellow, moderately swollen, about twice as long as thick, blunt apically, and entirely whitish pilose. Coxae dark grayish pollinose, remainder of the fore legs missing. Mid and hind femora dark brown, grayish pollinose and yellow pilose, reddish at the knees and on the tibiae. Abdomen with the three lines yellowish, the two sublateral ones essentially even and more prominent than the narrower median line which is composed of a series of elongate, truncated triangles suggested in only one of the paratype females below. Venter entirely reddish, a faint, dark median line seen when viewed from behind.

TYPE MATERIAL: Holotype, "16 mi. N. W. Tepic, Nayarit, Mex., 7-19-53, Univ. Kan. and Mex. Expedition"; in the collection of the University of Kansas. Allotype, male: same data, in the University of Kansas. Paratypes: female, "3 mi. W. Jacona, Mich., Mex. VII-18-53, U K Mex. Exp.," in the collection of the author; two females, "Guadalupe, Mexico, McConnel 1909, H. Kahl Coll'n. Carneg. Mus. Acc.

12676," in the collections of the Carnegie Museum and of the author. One of the latter is more brownish, with red callosity and subcallus, orange red antennae, and more red basally on the abdomen and apically on the mid and hind femora; the venter is reddish, with a narrow, ill-defined, dark, median line. The palpi of another are entirely pale haired. Two have slightly excised plates, and there are occasional suggestions of expansions of the midline on the incisures, but not so pronounced as in the allotype.

Compared to *T. trivittatus*, this species has a less protuberant subcallus, with a wider upper band of gray pollen, the plates are broader, more disc-like, and shorter in proportion to the annuli, the palpi are more swollen basally, and the wings untinted. The unrecognized, trivittate species "1" discussed by Bequaert (1926), and *T. callosus* of Fairchild (1940) may be related, with their short, wide antennal plates, but the wide band of gray pollen on the upper subcallus is not mentioned. *Tabanus lucidecallosus* Fairchild has a more divergent front above.

Tabanus (Taeniotabanus) vittiger, subspecies *caymanicus* Fairchild

The horseflies with lined abdomen placed in *Taeniotabanus* Kröber (*Neotabanus* Lutz, not Ricardo) present perhaps the most difficult problems of identity in the American tabanid fauna, as the wealth of applicable specific names and synonyms attests. Fairchild (1942a) has assigned four subspecies to *T. vittiger* Thomson in addition to the typical form from Galapagos. Unfortunately topotypic males have never been taken in those islands, but this sex is available for all the subspecies and is indispensable for adequate diagnostic study. The Caribbean form he named subspecies *caymanicus* on characters which Bequaert (1944) considered inadequate to distinguish from the widespread subspecies *guatemalanus* Hine on the mainland. Specimens seen by the writer from the Bahamas and both sexes from Puerto Rico have more brownish rather than grayish bodies which Fairchild used for key separation, but they do have the rather indistinct abdominal lines, the grayish median one consisting of a series of truncated triangles and the yellowish (not gray) lateral ones, a series of jagged dashes. The frontal callosities are brown, as also described by both authors. There are in addition distinct brown lines the full length of the thorax which are much more accentuated than those seen on mainland *guatemalanus*, including two paratypes available to the writer, and the appressed pale brassy hairs on the notum of the latter are hardly or not evident on the Caribbean specimens.

To be noted here are two specimens from widely separated localities on the mainland that have all of these insular characters which give them

a somewhat different appearance than typical *guatemalanus*. One is from Campeche, Mexico; the other, from Belize, Honduras. The median dark lines on the notum fade about midway, leaving a large patch of dull brown in front of the scutellum. The sublateral jagged lines on the abdomen also are yellow and indistinct. The antennal plate of the Mexican specimen is a third longer than the annuli; these elements are subequal in most specimens of these two subspecies.

The writer lacks sufficient material in either to decide on the validity of *caymanicus*, but these two mainland specimens at least indicate that a similar form also occurs in the Caribbean whether or not they can be identified with the reportedly more grayish lined, typical *caymanicus*.

A male each from Veracruz and Chihuahua, Mexico, are probably *guatemalanus* with unlined thoraces. However, the Chihuahua specimen has the irregular median and lateral lines seen on specimens discussed above. The above Puerto Rican male has a much browner thorax (though lines not so distinct as in the female), and the abdominal lines much less distinct.

Tabanus (Taeniotabanus) aztecus, new species

Figure 7

A rather slender, dark fly with dull reddish sides on the first two tergites, a contrasting, chalk-white, middorsal line of truncated triangles, no lateral spots, clear wings, bicolored legs, and black third antennal segments.

Holotype female, 12 mm. Eyes bare (relaxed), green above, purple below, with one band each of green and purple across the middle. Head noticeably broadened and shallow, flattened across the top from front view. Front practically parallel-sided, index $1/4$; no tubercle or bare spot at the vertex, covered with short black hairs and grayish pollen which acquires a buff tint viewed from above; basal callosity black, very narrowly separated below from the ocular margins, narrowed above, and the black, median callus narrowly joined to it and reaching about two-thirds of the distance to the vertex. Subcallus and upper cheeks buff pollinose. Lower cheeks and face whitish pollinose and pilose, sparse brown hairs on either side of the antennae. Two basal segments of antennae dark reddish, the scape moderately enlarged and hood-like, plate a little narrower, and much longer than the annuli, the dorsal tooth rectangular, excision moderate, the entire third segment black. Palpi flesh-colored, but little swollen basally and blunt apically, covered with sparse white and black hairs.

Thorax bicolored, dull black above, including the scutellum, and

sharply contrasting, whitish pollinose and pilose on the pleura and pectus. Ante-alar tubercles faintly brown. Notum with sparse black, and appressed brassy, hairs, longer creamy ones around the edges behind. Coxae and femora dark, the two hind pairs with reddish shades outwardly, and covered with white hairs. Basal third of fore tibiae, and all of two hind pairs, reddish, the hind tibial fringe black. Wings including costal cells completely hyaline; cell R_5 wide open, no spur. Halteres with brown stems and pale yellow knobs.

Abdomen with a striking pattern unlike the duller colors of related species. The midline is composed of white pollinose and pilose, truncated triangles widened especially on the fourth to sixth incisures (it is doubtful if this would become indistinct by wear). On tergites 1 to 3, these triangles are narrowly margined with deep black integument and vestiture which widens outwardly on tergite 3 to include the remainder of the abdomen. No white spot on tergite 7. The sides of tergites 1 to 3 are dull reddish entirely covered with short black hairs, no pale-haired spots, although the outer corners and extreme edges are pale haired on all tergites. Venter dull pinkish and pale haired, darkening caudad of sternite 4.

TYPE MATERIAL: Holotype, female, collected at Progreso, Morelos, Mexico, July 30, 1950 (Downs). Paratype female: same data.

This has the elongated build of several Mexican species such as *T. yucatanus* Townsend and *T. haemagogus* Williston. Comparison with the type of the latter in the British Museum (Natural History) revealed similarities which suggested that if eventual intergradation is found, *aztecus* might be but a dark variant. The type of *haemagogus* differs in having a slightly wider front (index 1/3.5), with yellow callosity of equal breadth and height touching the ocular margins at the lower corners; hind femora and posterior margin of the scutellum reddish. The three rows of abdominal spots and red antennae and scutellum will at once distinguished *yucatanus*.

Tabanus (Philipotabanus) enigmus, new species

Figure 14

A small, brownish fly with punctate wings belonging to a group placed in *Phaeotabanus* by Kröber (1930) but later separated into the subgenus *Philipotabanus* by Fairchild (1942b). The wing picture is peculiarly broken with spots and dashes resembling those in *T. ebrius* Osten Sacken. The antennae, palpi, and legs are entirely reddish.

Holotype female, 10 mm. Eyes glabrous, unbanded. Front narrow, almost parallel-sided, index 1/8; this and subcallus yellowish brown pol-

linose, with a vestigial anterior ocellus and tubercle beneath the vertex; a narrow, median, bare, brown keel reaching two-thirds of the distance to the vertex and continuing as a pollinose, brown line to the ocellar callus. Face and cheeks concolorous pollinose and pilose. Antennae entirely reddish, the two basal segments with brown hairs, the plate with a prominent blunt, subrectangular, basal prominence, and gently excavate, but little broader than long, and subequal in length to the concolorous flagellum. Palpi unusually slender, yellowish red, two-thirds of the length of the proboscis, and covered with black hairs. Labellae fleshy, unusually long, over half of the length of the proboscis.

Thorax brown, with two incomplete and two lateral paler lines; vestiture mostly short, creamy; scutellum brown. Pleura brown pilose and pollinose. Legs concolorous yellowish red, including the apex of the fore tibiae and tarsi, and hind tibial fringes. Wings with broken spots and bands as figured. Halteres bright yellow.

Abdomen reddish brown without pattern, darker apically, mostly yellowish haired. Venter concolorous.

TYPE MATERIAL: Holotype, female, collected at Santa Julia, Chiapas, March 13, 1938; from the Dampf collection.

This species undoubtedly has close affinities with *T. ebrius* Osten Sacken, but the smaller size, all red antennae and legs, and more fragmented wing pattern distinguish this species. *Tabanus caliginosus* Bellardi, 12 mm., with darker flagellum and anterior legs, relates more nearly to *T. ebrius*. Perhaps more material will show this to be but a variant of *T. ebrius*, but this assumption is not warranted on the basis of present information. Except for the lack of a large spot in the anal region, the wing pattern figured by Kröber (1930) for his larger *T. ocelligerus* from Costa Rica with its isolated spot in the discal cell is closer to this than the pattern figured by Fairchild (1942b) for *T. ebrius* Osten Sacken (which he synonymized). There is an accentuated dark cloud at the base of the second anal cell in this specimen not figured by either author. The antennae are more slender and the front is proportionately wider in Kröber's figures of *T. ocelligerus*.

Tabanus (Philipotabanus) caliginosus Bellardi

Figure 13

Comparison of a specimen from Guerrero, Mexico, in the Dampf collection agrees in detail with three cotypes of this species in Turin University Museum, and also with the type of *T. alteripennis* Walker in the British Museum (Natural History) which now becomes a synonym. This specimen differs in minor respects from *T. medius* Kröber (supplied by Dr. G. B. Fairchild from Panama), as discussed below, and was

received after Fairchild's (1953a) report that the last agreed with *T. caliginosus*. Subsequent restudy of the above types has now indicated that *T. medius* is specifically distinct, with the following differences: The basal tooth on the antennal plate is more prominent in *medius*, the mid and hind pairs of legs are nearly as dark as the fore pair, and the abdomen is darker, especially on the venter, with contrasting though narrow pale incisures above and below. The hyaline spot at the fork of R_{4+5} is more nearly enclosed above in *caliginosus*, and that at the outer end of the discal cell is extended outward along vein M_3 .

Because there has been confusion regarding the identity of *caliginosus*, and *alteripennis* has remained unrecognized, the above-compared Guerrero specimen is herewith described for more adequate reference (the cotypes of *caliginosus* are not in good condition but are recognizable).

Female, 10 mm. Eyes glabrous, black unbanded. Front yellow pollinose, very narrow, subparallel sided, index $1/7$; callosity a narrow brown keel reaching three-fourths of the distance to the vertex, suggesting vestiges of an ocellar tubercle. Subcallus and face yellow pollinose, cheeks a little paler, with creamy pile. Antennae red, the flagellum sharply black, plate elongated and little excavated, but with a small, acute dorsobasal tooth, this and two basal segments black haired. Palpi pale yellow, black haired, very elongate, blunt and hardly swollen basally. Thorax and scutellum unicolorous brown, no evidence of dorsal lines, scattering black and brown hairs on the notum, pallid ones on the pleura. Fore legs dark brown, mid and hind pairs red, with concolorous vestiture. Wings as figured, the rounded hyaline spot at the fork of R_{4+5} and the one at the cross veins at the apex of the discal cell surrounded by varying shades of infuscation; a larger, more irregular spot envelops the apices of the two basal cells and the bases of the adjoining ones; cell M at the base of the wings and the anal area lightly tinted. Halteres brown, only slightly more pallid on the seam.

Abdomen above and below reddish brown, darker caudally, the incisures not more pallid; covered with brown hairs dorsally, and median patches of yellow hairs posteriorly on the first five tergites which are obviously easily obliterated by wear.

"Tierra Colorado, Guerrero-Lámpara Trampa. July 18, 1929" (pinned label states "Mexico, D.F. 1538").

Stenotabanus abacus, new species

Figure 9

A small brownish species with clear wings and long spur-vein, bare subepaulets, red antennae and legs, and basal and occipital, black callosities entirely crossing the front in the female.

Holotype female, 11 mm. Eyes bare, with what appear to be two indistinct purple stripes (relaxed). Front slightly convergent below, index $1/3.2$; yellow pollinose, a wide, shiny black band across the vertex, but no plain ocellar development; basal callosity shiny black, protuberant and quadrangular, a small, ovoid, median, bare black spot, flanked on each side when viewed from below by a band of brown pollen. Subcallus and adjacent corners of cheeks orange pollinose. Face and lower cheeks creamy pollinose and pilose. Antennae orange yellow, black hairs on the first two segments, the plate and flagellum chunky, the latter shorter than the plate which is nearly as wide as long, with a low obtuse angle and no excavation. Palpi yellowish, short, very chunky, and pointed apically, with sparse short white and black hairs.

Thorax dark on the disc, with yellowish pollen anteriorly, continuing backward as abbreviated obscure lines; covered with short brassy hairs; sides and scutellum reddish. Pleura yellowish, with concolorous pile. Legs reddish, predominantly yellow haired, a few black hairs in the hind tibial fringe, the fore tibiae darker on the apical third. Wings hyaline, cell R_5 wide open, long spurs on the forks. Halteres yellow.

Abdominal pattern discolored, predominantly brown, with pale incisures, a large pale median triangle crossing tergite 2, and suggestions of narrower triangles on the following tergites; also suggestions of larger sublateral reddish spots on each. Venter reddish with yellow hair.

TYPE MATERIAL: Holotype, female, collected at San Bernardo, Sonora, Mexico, June 25, 1935 (R. M. and G. E. Bohart); in the collection of G. B. Fairchild for eventual deposit in the Museum of Comparative Zoölogy, Cambridge, Massachusetts.

Only *S. calvitius* Fairchild of Panama is described with a similar complete occipital callus, but the body and legs are much darker, and the subcallus is denuded in that species. In reference to this distinctive upper character of the front, the name *abacus* has been adopted from terminology in the architecture of a column.

Stenotabanus currani, new species

Figure 10

A small yellowish brown species with reddish appendages and black flagellum, clear wings, long spurs on the forks, bare subepaulets, and four rows of reduced spots on the abdomen, resembling the pattern seen in *S. cribellum* Osten Sacken.

Holotype female, 10 mm. Eyes bare, three indistinct purple stripes on a bluish green ground (relaxed). Front gently convergent below, index $1/4$; yellowish pollinose; a flat ocellar triangle, but no visible ocelli on

a bare, brown transverse callus just under the vertex, a quadrangular, black, basal callosity touching the eye margins and extending upward as three narrow bare lines, expanding slightly above. Subcallus orange pollinose. Face and cheeks creamy pollinose and pilose. Antennae red, the annuli chunky and sharply black, subequal to the plate in length; black hairs on the two basal segments; plate with a low obtuse angle in the middle above, and hardly excavated, nearly as wide as long. Palpi orange, moderately swollen basally and pointed apically, with mixed black and pallid hairs.

Thorax dull brown pollinose, with short pale hairs, and three narrow yellow lines. Ante-alar tubercles and pleura reddish. Scutellum dull brown on the disc, with a pale grayish margin. Legs red, darker apically on the fore tibiae (hind pair missing). Cell R_5 wide open. Halteres yellow.

Abdomen brown, with indistinct rows of small, darker spots and narrow yellow incisures. Venter brownish red, with yellow hairs.

Allotype male, 8.5 mm. Similar to the holotype except for sexual differences. Area of moderately enlarged, brown facets in the upper half of the eyes, bare. Occipital tubercle dull brown, depressed a little below the eye level, no evidence of ocelli. Palpi yellow, subovoid, very swollen, with apical downward-pointed nipples, mostly white haired with a few black hairs intermixed. Notum darker than in holotype (possibly owing to wear), with no evidence of lines, the scutellum dark on the disc with a pale brown margin.

TYPE MATERIAL: Holotype, female, collected at San Blas, Nayarit, Mexico, April 18, 1949 (Bradt), in the collection of the American Museum of Natural History. Allotype, male, collected at Los Mochis, Sinaloa, Mexico, June 17, 1922.

This is smaller and much browner than the male of *S. cribellum* described by the writer (1941). Nevertheless, these two species have such obvious affinities that the male was erroneously assigned by the writer in the above report. In addition to the smaller size and much yellower color, the females may be distinguished by the more slender yellow palpi with black hairs in *S. currani*, the black annuli, the less prominently lined, brown thorax, and brown scutellum. The transverse callus on the vertex is narrower and less pronounced than in *S. abacus*. Named for Dr. C. H. Curran who has sent the author much interesting tabanid material.

Other species of the genus that are reported in Mexico are *S. taeniotes* (Bigot), which is the genotype, *S. flavida* (Hine), *S. fulvistriatus* (Hine), *S. pumiloides* (Williston), and *S. subtilis* (Bellardi), the type

of which Bequaert (in correspondence) studied and declared is related here. *Stenotabanus cribellum* also has been taken in Mexico. The writer has a specimen of related *Aegialomyia magnicallus* (Stone) from Veracruz and two additional species (*S. chiapasensis* and *S. litotes*), recently described by Fairchild (1953b); the latter is based in part on specimens from the Dampf collection.

Atylotus vargasi, new species

Figure 8

A peculiarly hairy, grayish, chunky-bodied species with a median row of paired, dark dashes on the abdomen, and a small blackish callosity in the females separated from a median one of variable distinctness in different specimens.

Holotype female, 12.5 mm. Eyes (relaxed) blue-green, without any indication of a stripe; distinctly pilose. Front gently convergent below, index 1/4.3; yellow pollinose and sparsely pilose; no ocelligerous tubercle, but the vestige of a minute anterior ocellus is present. Basal callosity black, subquadrate, small, with irregular upper margin; an obscure, unconnected, black line at about one-third of the distance to the vertex. Subcallus dull yellow pollinose. Face and cheeks greenish pollinose, and pale pilose, with a few black hairs on the upper genae. Antennae black, the scape and pedicel with cinereous pollen and black haired; plate and annuli bright black, the former with basal red shadings and with an acute, though not produced, dorsobasal tooth, somewhat sinuate lower margin, and chunky annuli which are about two-thirds of the length of the plate. Palpi yellowish cinereous, with yellow hairs; a little swollen basally and attenuated apically. Thorax and scutellum dark grayish, with yellow hairs which suggest lines in unworn specimens. Pleura yellow pollinose and pilose. Legs dark grayish, with mostly yellow hairs, a few black ones on the tibiae including the hind tibial fringe. Wings subhyaline, tinted anteriorly and in the costal cell; cell R_5 wide open, no spurs. Subepaulets hairy. Halteres brownish.

Abdomen hoary gray in appearance, covered with creamy hairs, a reduced row of submedian, paired, dark dashes, and the incisures very narrowly reddish. Venter gray with pallid hairs.

Allotype male, 12.5 mm. Like the female except for the usual sexual differences and readily associated. The eyes, as in males of Nearctic *A. incisuralis*, have the upper facets hardly differentiated, but there is no band visible on relaxing. The occipital tubercle is small, dull gray, with sparse creamy hairs posteriorly. Frontal triangle pearlaceous gray. Face and cheeks yellow pollinose, with black hairs above, yellow ones

below. Palpi subovoid, blunt, about twice as long as thick, yellowish gray, with mostly yellow hairs. Plate of antennae a little more reddish basally and more slender than in the female. Thorax completely unbanded. The submedian dashes on the abdomen less distinct in part because of more shaggy vestiture, and the sides with a pale pinkish tinge.

TYPE MATERIAL: Holotype, female, collected at Xochimilco, Distrito Federal, Mexico, September 15, 1947 (Downs); in the collection of the author through the courtesy of the collector. Allotype, male, collected at Chimalhuacan, Mexico, May 31, 1946 (Dampf No. 10369). One female paratopotype (Fairchild collection); one female paratype from Distrito Federal, Mexico (Vargas collection).

In spite of the unbanded eyes, the abdominal pattern and head characters in both sexes bear a remarkable resemblance to those of common variants of Nearctic *A. incisuralis* (Walker). The darker appendages, more slender palpi, and more shaggy, gray coloration will differentiate this Mexican species. In one paratype, there is a small but definite, vestigial ocellus on a low, pollinose elevation which is not so prominent as the ocelligerous tubercle in most *Hybomitra*, but is nonetheless suggestive of variation in *H. quadripunctata* (Macquart). It is a pleasure to name this species for Dr. Luis Vargas, who has generously supplied the writer with material and data of the Dampf collection. It is hoped at a future date to provide, with him, a list of the species in the Dampf collection. *Atylotus vargasi* is related to *Tabanus craverii* Bellardi (for differentiation of which, see discussion above).

Hybomitra aitkeni, new species

Figure 11

A dark brownish fly with three rows of spots on the abdomen, the median row sometimes indistinct, the sublateral rows consisting of reduced reddish dashes, the legs, palpi, and subcallus pale yellowish red.

Holotype female, 12 mm. Eyes with one purple band on a green ground; densely hirsute (relaxed). Front nearly parallel-sided, but a little bowed in the middle, index $1/3$; gray pollinose, darker on either side of the median callosity, mostly black haired; a small but distinct ocelligerous tubercle. Median callosity subovoid, black, narrowly connected with the brownish basal callosity, which is rounded and narrowly separated from the ocular margins. Subcallus dull reddish, with no lateral hairs. Face and cheeks whitish pollinose and pilose, a few black hairs on either side of the antennae. Antennae with normal scapes; deep reddish basally, with black hairs and black distad of the dorsal angle of the third segment which is prominent and subrectangulate;

plate gently excavated, and a little longer than the slender flagellum. Palpi pinkish, swollen basally and pointed apically, covered with black and white hairs intermixed.

Thorax dark dorsally, rather plainly gray lined, clothed with blackish pile and sparse, appressed reddish hairs. Ante-alar tubercles reddish. Scutellum black. Pleura pinkish, with white pile. Legs including coxae reddish, predominantly pale haired including the basal two-thirds of the hind tibial fringes. Wings hyaline, costal cells slightly tinted; no spurs or clouds on the forks. Halteres brown.

Abdomen pinkish on the sides of the first two tergites, a black geminate spot in the middle of the second enclosing an indistinct narrow gray triangle about one-half of its length. Tergite 3 and caudad, black with narrow pale incisures, hardly apparent, median, gray triangles, and reduced sublateral pinkish dashes resting on the incisures. Venter dull reddish with pale hairs, and a dull black median band.

TYPE MATERIAL: Holotype, female, collected at "La Vewte, Distrito Federal, Mexico, May 22, 1937, Number 6605"; from the Dampf collection. Six female paratypes: collected at El Salto, Durango, Mexico, May 29, 1937, 9300 feet (Manuel), in the collections of T. H. G. Aitken and the author.

The paratypes are in essential agreement with the holotype, except the sublateral, pale abdominal spots are sometimes larger and the median spots plainer. There is superficial resemblance to some Nearctic *Hybomitra metabola* (McDunnough), but the characters of the front and legs are more like those of species of the *Tabanus gilanus* group. Comparison of a paratype by the writer with a specimen at the British Museum (Natural History) revealed that Osten Sacken's (1886) unnamed *Theriopectes* No. 3 is the same species.

Hybomitra zancle, new species

Figure 12

A dark species with three rows of pale spots on the abdomen separated by submedian paired rows of inverted, sickle-shaped (hence the name) black dashes with varying amounts of underlying red tinting on the sides of the first two tergites.

Holotype female, 12.5 mm. Eyes with two green bands on a purple ground, covered with short sparse hairs (relaxed). Front gently convergent in the lower half, parallel in the upper, index $1/4$; grayish pollinose, with black hairs a little darker in the middle and at the vertex; a distinct ocelligerous tubercle; basal callosity brownish, bowed on the sides and narrowly separated from the ocular margins, about as tall as

wide, connected between two upper short prongs to the linear, darker, median keel which reaches halfway to the vertex. Subcallus pale pinkish pollinose without lateral hairs. Face and cheeks whitish pollinose and pilose. Antennae bright red to the dorsal tooth of the plate, sharply black beyond, with black hairs on the basal segments, scape not swollen, plate a little longer than tall and longer than the flagellum, the dorsal angle obtuse but sharp, and gently excavate.

Thorax dark, with obscure gray lines and mostly yellowish hair. Scutellum black. Pleura gray, with pinkish tinges above, black and white pilose. Coxae gray, with white pile, the remainder of the legs reddish, the hind tibial fringes predominantly white. Wings subhyaline, tinted anteriorly, and the costal cells yellow, small clouds on the forks but no spurs; cell R_5 wide open. Halteres with brown stems, yellow knobs.

Abdomen gray, yellow-haired, with a median row of paired, arcuate, heavy, black-haired dashes enclosing triangles which cross the tergites, and reduced pinkish tinges on the sides of the first two tergites; incisures narrowly pallid. Venter cinereous, yellow-haired, and sublateral pinkish spots on the first three sternites.

TYPE MATERIAL: Holotype, female, collected at "Rancho Santa Lucia, Ixtlahuaca, Mexico, August 1, 1930" (the pinned label states "II-1-31"); from the Dampf collection, No. 2095. One female paratopotype, 15 mm. in length, deposited in the collection of the American Museum of Natural History; one female paratype from "Lomas Chiapas, July 14, 1942," 11.5 mm. in length.

Despite the differences in size, the writer can find no other essential characters to separate these specimens. The pinkish ground on the sides of tergite 2 and the ocelligerous tubercles are more pronounced in the paratypes.

SUMMARY

Described as new and figured are the following species of Tabaninae from Mexico: *Tabanus rockefelleri* (holotype female, from Chihuahua), *T. cazieri* (holotype female, from Chihuahua), *T. sepiensis* (holotype female, from Rascon near Tampico), *T. tumiscapens* (holotype female, from Mecatan, Nayarit), *T. glauconotatus* (holotype female, near Toluca), *T. mazzottii* (holotype female, from Solio, Hidalgo), *T. aztecus* (holotype female, from Morelos), *T. rhizonshine* (holotype female and allotype male, from Nayarit), *T. (Philipotabanus) enigmus* (holotype female, from Santa Julia, Chiapas), *Stenotabanus abacus* (holotype female, from San Bernardo, Sonora), *S. currami* (holotype female, from

San Blas, Nayarit, and male, from Sinaloa), *Atylotus vargasi* (holotype female, from Xochimilco, Distrito Federal, and male from "Chimalhuacan"), *Hybomitra aitkeni* (holotype female, from "La Vewte," Distrito Federal), and *H. zanca* (holotype female, from Ixtlahuaca). The previously unrecognized *T. (Philipotabanus) alteripennis* Walker is redescribed from a specimen from Guerrero, and synonymy with *T. caliginosus* Bellardi is revealed. Comments are made on mainland occurrence of forms related to *T. (Taeniotabanus) caymanicus* Fairchild. Lectotypes are designated for *T. craverii* and *T. carneus* Bellardi and for *T. trivittatus* Fabricius, all of which are based on cotypes of composite species.

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