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A STUDY OF THE SPIDER FAMILY SELENOPIDAE IN NORTH AMERICA, CENTRAL AMERICA, AND THE WEST INDIES

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Spiders of the monotypical family Selenopidae are primarily tropical or subtropical. Their natural range in the Western Hemisphere seems to extend from northern Argentina and Paraguay in South America, northward through tropical and subtropical America to Florida, Texas, New Mexico, Arizona, and southern California in North America. Certain species may, however, be artificially distributed on tropical fruits but seemingly they do not survive long outside their normal range. Comstock (1940) recorded *Selenops aissus* Walckenaer from a banana storeroom at Ithaca, New York. In the present study *Selenops candidus*, new species, and *Selenops insularis* Keyserling are recorded from bananas in New York City, and *Selenops galapagoensis* Banks is recorded on the basis of a specimen taken at the Pacific Fruit and Produce Company in Seattle, Washington.

Most species of the family are recorded as sedentary and secretive in habit. They have been collected under bark, under or on stones, logs, and debris on the ground, and between the bases of the leaves of tropical plants. Their ability to hide in narrow cracks and crevices or escape detection in shallow depressions has been recorded by Cambridge (1905), Petrunkevitch (1930), and Comstock (1940). They hide away during the day and come out at night to hunt and wait for prey. At least two species are recorded as inhabiting the artificial environ-

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ment of human habitations. Macleay (1839) reported *Selenops celer* Macleay as common on the inside walls of buildings in Cuba. In his book "American spiders" Gertsch (1949) mentioned a *Selenops* (probably *mexicanus* Keyserling) as a common house spider in Panama that plays a role in insect control comparable to that of the tropicopolitan *Heteropoda venatoria* Linneaus. In Arizona the resident species of *Selenops* are frequently found inside and outside houses and other buildings, on wooden and stone fences, on tree trunks, on rocks along roads, and on the walls near the entrances of caves. On Bimini Island in the Bahamas the same species so common on the palms and trees is also found on the outer and inner walls of the laboratory buildings. All known species are reported to be amazingly swift and agile in capturing prey or escaping from the collector. They are best collected at night with the aid of a headlamp.

Taxonomic history of the genus began in 1819 with the generic description of *Selenops* by Latreille. In 1837 Walckenaer published the first systematic study of the then known species and divided the genus into three groups, the Omalosomes, the Aisses, and the Aphartes, on the basis of difference in leg length, labial outline, and cheliceral form. Simon in 1880 listed the known species of the genus but stated that he was unable to verify the group characters used by Walckenaer. Simon cited differences in comparative eye size for distinguishing Old and New World species. The first systematic treatment of species confined to the Western Hemisphere was made in 1905 by Cambridge, who, considering only material from Central America and Mexico, utilized eye size and position and genitalic differences in distinguishing species. Petrunkevitch (1925 and 1930) worked with species from Panama and Puerto Rico and decided that leg proportions were of group and specific importance. Aside from these six studies, taxonomic work has been confined to the scattered description of new species.

During the course of the present study specimens from North America, Central America, South America, the West Indies, Galápagos Islands, Africa, India, and Japan have been examined. Several institutions and individual arachnologists have cooperated in lending study specimens, and their cooperation and generosity have been greatly appreciated: the American Museum of Natural History; California Academy of Sciences, San Francisco, California; Cornell Museum, Cornell University, Ithaca,

New York; Museum of Comparative Zoölogy, Cambridge, Massachusetts; United States National Museum, Washington, D. C.; Harriet Exline Frizzell, Rolla, Missouri; and H. K. Wallace, University of Florida, Gainesville, Florida.

Special assistance has been given by Dr. Max Vachon of the Muséum National d'Histoire Naturelle in Paris, Dr. G. Owen Evans of the British Museum (Natural History) in London, and Dr. W. J. Gertsch of the American Museum of Natural History. Dr. Vachon sketched the genitalia of several type specimens for comparative study; the male palpus of *Selenops nigromaculatus* Keyserling has been reproduced here. Dr. Evans sketched the epigyna of *Selenops minutus* Cambridge and *marginalis* Cambridge for reproduction in this paper. Dr. Gertsch suggested the need for this study, made many helpful suggestions during the course of it, and criticized the manuscript.

FAMILY **SELENOPIDAE**

GENUS **SELENOPS** LATREILLE, 1819

Selenops LATREILLE, 1819, Nouveau dictionnaire d'histoire naturelle, vol. 30, p. 579.

Hypoplatea MACLEAY, 1839, Ann. Mag. Nat. Hist., vol. 2, p. 6.

Species of the family and genus are characterized by the presence of six eyes in the anterior eye row and two in the posterior row. Carapace and abdomen are robust and strongly depressed. Cephalic portion of the carapace is distinct, limited by cephalic furrows and narrowed, with the clypeus usually narrower than the diameter of an anterior intermediate eye. Thoracic portion of the carapace is strongly convex laterally, with a median longitudinal furrow and radiating furrows. Chelicerae are elongate and oblique, with distinct lateral condyles and toothed furrows. Subparallel endites are provided with terminal scopulae. Labium is as wide as or wider than long. Sternum is circular or slightly ovate and extends between posterior coxae. Legs are moderately long and laterigrade, with the tarsi of the first and frequently second pair provided with a scopula. Tarsal claws are pectinate or smooth. Trichobothria are present on all leg segments. Abdomen is ovate in outline and slightly truncate posteriorly. Colulus absent. Six spinnerets are present, with the anterior pair adjacent.

There is a general similarity in the coloration and markings of preserved specimens of the genus. Carapace coloration within

a species may vary from a dusky yellow through an orange-red to mahogany brown. Usually the carapace is seamed and margined with black or dark gray, the eyes are circled with black, and faint to distinct dusky bars radiate from the median furrow. In many instances the bars are more distinct submarginally, forming a pair of indistinct, curved, longitudinal, submarginal stripes. Chelicerae vary from dusky yellow to mahogany red. The endites, labium, sternum, and coxae vary from light yellow to dusky brown. Legs may vary from yellow to dark brown, with indistinct to distinct dusky bands, two or three on the femora, two on the tibiae, and two on the metatarsi. These bands are usually more distinct on the dorsal and anterior faces of the segments. Usually the tarsi are somewhat darker than the other segments. Dorsal abdominal coloration may vary from a nearly uniform fawn color, with a light or dusky, basal, median, lanceolate mark, to a mottled brown and black. The posterior lateral margins of the abdomen are usually dark gray or black, giving the apex a festooned appearance. Spinnerets are a clear or dusky yellow, and the venter of the abdomen is usually pale. Specificity is exemplified in striking carapace or dorsal abdominal markings or in the leg bands.

Size, within the genus, is quite variable. The smallest species occurring in the study area is *Selenops simius*, new species, with a male measuring only 4.8 mm. long. *Selenops mexicanus* Keyserling is the largest species, with some females measuring 17.0 mm. Size specificity exists, but in some species the range is wide.

In the present study careful examination of a large number of specimens representing 35 species occurring in the Western Hemisphere indicates the existence of at least six closely related subgeneric groups. The principal characters demonstrating this grouping are relative leg lengths, comparative eye size and position, and general genitalic similarities. Each of these characters is, however, subject to some variation and possible misinterpretation. Supporting group characters are given under the group diagnoses.

Species representing five groups occur in the geographic regions considered in this paper. At the present time a sixth group, which includes the species allied with *spixii* Perty, seems to be restricted to South America. Several species do not seem to have clear-cut affinities with any of the known groups and

are placed in a separate section as unassociated species. One species, *Selenops celer* Macleay, is so inadequately described and figured that it is not possible to identify it without an examination of the type, which apparently is in Australia.

All measurements, illustrations, and descriptions of specimens reported here are of preserved material observed under ethyl alcohol. Body and carapace lengths exclude chelicerae. Leg formulas represent direct comparisons of the appendages excluding the coxae. Comparative eye sizes and positions are those seen from a face view.

KEY TO GROUPS

1. Tibia of male palpus much longer than tarsus. Median guide of only known female epigynum diamond-shaped posteriorly and slender and line-like anteriorly ..... *banksi* group
   Tibia of male palpus shorter or only slightly longer than tarsus. Median guide of female epigynum variously developed but not as above 2
2. Fourth legs longer than others. Ectal tibial process of male palpus biramous or broadly saddle-like apically. Female epigynum provided with a median rod-like or subquadrate guide, except on *abyssus*, new species ..... *debilis* group
   Second legs longer than others. Ectal tibial process of male palpus uniramous and variously developed apically. Female epigynum lacking a median rod-like or quadrate guide 3
3. Fourth legs shorter than others. Median apophysis of male palpus uniramous. Female epigynum lacking auxiliary concavities and with spermathecal openings adjacent or nearly so ..... *insularis* group
   First legs shorter than others. Median apophysis of male palpus biramous or elongate and hook-like. Female epigynum provided with a pair of auxiliary concavities or with spermathecal openings widely separated 4
4. Ectal tibial process of male palpus broad and flattened with a twisted apex. Female epigynum with or without auxiliary concavities but with spermathecal openings widely separated ..... *lindborgi* group
   Ectal tibial process of male palpus finger-like apically. Female epigynum with a pair of auxiliary concavities and spermathecal openings nearly adjacent 5
5. Embolus of male palpus needle-like apically. Auxiliary concavities of female epigynum adjacent ..... *spixii* group
   Embolus of male palpus finger-like apically. Auxiliary concavities of female epigynum widely separated ..... *mexicanus* group

Mexicanus GROUP

The species included in this group are *mexicanus* Keyserling, *tehuacanus*, new species, *galapagoensis* Banks, and *gracilis*, new species.

General characteristics of the group include the leg formula

2341, a straight or nearly straight eye row formed by the anterior median and intermediate eyes, and the fact that the anterior median eyes are two-thirds to three-fourths as large as the anterior intermediate eyes. The clypeus is usually slightly narrower than the diameter of an anterior median eye, the labium is wider than long, and the sternum is as wide as long. Ventral spination of the tibiae and metatarsi of legs 1 and 2 are the same in the male as in the female, tibiae 2-2-2, metatarsi 2-2. All the species included in this group at the present time are moderate to large in size.

Male genitalic characters are remarkably constant within the group. The ectal tibial process of the palpus is long, slender, and blade-like, extending well beyond the base of the cymbium. Basally the ectal tibial process extends to the ventral surface of the segment and at its ventral end projects distally. Unexpanded bulb with the two-branched median apophysis located medially near the ectal margin. The embolus is finger-like. A thin, sheet-like, terminal apophysis extends beyond the embolus.

Epigynal characters are relatively constant. A pair of widely separated concavities or pits are located in the caudal half of the epigynum near the lateral margins. The spermathecal openings are located at the caudal end of the epigynal guide, which is ovate or cordate in some species and roof-like in others.

TYPICAL SPECIES: *Selenops mexicanus* Keyserling.

KEY TO SPECIES OF *Mexicanus* GROUP

MALES

1. Ectal tibial process of palpus in ectal view broad and evenly curved or at most only slightly sinuate ..... *gracilis*, new species
   Ectal tibial process of palpus in ectal view slender and strongly S-shaped ... 2
2. Mesal arm of median apophysis of palpus hooked ventrally and twisted mesally, ectal arm gradually tapered from base to apex ..... *galapagoensis* Banks
   Mesal arm of median apophysis of palpus hooked ventrally but not twisted, ectal arm slender for most of its length 3
3. Mesal arm of median apophysis of palpus short, broad, and abruptly hooked apically ..... *mexicanus* Keyserling
   Mesal arm of median apophysis of palpus elongate, slender and gradually curved from base to apex ..... *tehuacanus*, new species

FEMALES

1. Epigynum with a moderately elevated, median, diamond-shaped, or roof-like guide ..... *gracilis*, new species
   Epigynum with a slightly elevated, median, ovate, or cordate guide 2

2. Lateral pits of epigynum wide, occupying about one-fourth of the total length of the epigynum.....*mexicanus* Keyserling
Lateral pits of epigynum narrow, occupying much less than one-fourth of the total length of the epigynum.....*galapogoensis* Banks

Selenops mexicanus Keyserling

Figures 1–4

Selenops mexicanus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, p. 228, pl. 6, figs. 125, 125a (male and female).

Selenops mexicanus CAMBRIDGE, 1905, Biologia Centrali-Americana, Arachnida, vol. 2, pp. 116, 117, pl. 8, figs. 17, 17a, 17b, 18, 18b (male and female).

MALES: Total length, 11.0 to 14.0 mm. Carapace 5.5 to 6.3 mm. wide and 5.0 to 6.0 mm. long.

Coloration typical of genus. Basic color of carapace and legs varies from dusky orange in some specimens to a dark mahogany red in others. Chelicerae are usually dark brown or mahogany red. Dusky markings on carapace usually distinct but sometimes masked by numerous white setae. Dusky bands on legs usually indistinct. Tarsi not normally darker than other segments. Abdominal coloration quite variable. Base color varies from a dusky tan to a dark gray. Typical markings include a light, basal, lanceolate stripe, subapical dusky chevrons, and scattered dusky spots. Commonly the lanceolate stripe is terminated in a wide distinct chevron, and there is a pair of triangular spots on each side of the stripe near the middle.

Structure typical of the genus and group. Specific characters include the strongly S-shaped ectal tibial process of the palpus, the flattened, robust, mesal branch of the median apophysis of the palpus, and the finger-like embolus. Additional specific palpal characters are illustrated in figures 1 and 2.

FEMALES: Total length, 12.0 to 17.0 mm. Carapace 5.9 to 7.9 mm. wide and 5.7 to 6.6 mm. long.

Coloration typical of the genus and similar to that of the male. Colors and markings are usually darker and more distinct than on the males. Leg bands are distinct, with three usually distinguishable on the femora. Carapace markings frequently masked by the setal clothing. Abdominal markings on some specimens wide, giving a mottled appearance; other specimens have the dorsum light fawn colored with an indistinct rusty mottling. The venter of some specimens is mottled with dusky markings. Structure typical of genus and group. Specific characters include wide

lateral pits of the epigynum, a cordate median guide, and a deeply notched or scalloped caudal margin of the epigynum. There is some variability in epigynal characters. The typical form and one variation are shown in figures 3 and 4, respectively.

REMARKS: This species apparently is widely distributed in Mexico and Central America. Cambridge's (1905) records of the species must, however, be doubted, as his remarks concerning fully developed epigyna on immature specimens leaves little doubt that he had a heterogeneous mixture of this species and *S. galapagoensis* Banks which is smaller.

This is the largest North American species of the genus. It seems to be more variable in the southern part of its range.

TYPE LOCALITY: Male and female types from Mexico are in the collection of E. Simon in the Muséum National d'Histoire Naturelle, Paris.

RECORDS: *Mexico:* Tamaulipas: Juarez, June 5, 1941, one male (L. I. Davis). San Luis Potosi: Valles, March 8 to April 4, 1946, three females (B. J. Dontzin and E. Ruda). Durango: Santiago, December 20, 1939, one male and one female (F. Norman). Veracruz: Alto Lucero, May 12, 1947, two males and one female (H. Wagner); Atoyac, November 13, 1941, one female (C. Bonet and F. Bonet); Carrizal, February 10, 1948, one female (H. Wagner); Fortin, June 26, 1944, one female (L. I. Davis); Jalapa, March 18, 1948, one male, March 19, 1948, one male and one female (H. Wagner). *Honduras:* Tegucigalpa, June 29, 1917, one female (F. J. Dyar). *Nicaragua:* Tolvan, one male. *Costa Rica:* San Jose, one female (Enrique Schmidt), one female (Valerio); Uricuajo, one male and seven females (Biolley and Tristan), one female (C. Burgdorf and P. Schild).

Selenops tehuacanus, new species

Figures 5–6

MALE HOLOTYPE: Total length, 9.0 mm. Carapace 4.5 mm. wide and 4.1 mm. long.

Coloration typical of genus. Carapace and appendages dusky, with markings and leg bands indistinct. Abdomen slightly damaged but apparently light fawn colored, with indistinct subapical chevrons and scattered spots. The basal lanceolate stripe of *mexicanus* Keyserling is not present.

Structure typical of genus and group. Only one first and one

second leg occur with the specimen, but their proportions agree with those of *mexicanus* except for the smaller size. The specifically different median apophysis is shown in figures 5 and 6.

REMARKS: This species is very closely related to *mexicanus*. The smaller size, lighter coloration, and slightly different median apophysis of the palpus prompt its description as a new species.

TYPE LOCALITY: Male holotype from Tehuacan, Puebla, Mexico, collected between October 17 and 24, 1944, by Helmuth Wagner and deposited in the American Museum of Natural History.

Selenops galapagoensis Banks

Figures 7–11

Selenops galapagoensis BANKS, 1902, Proc. Washington Acad. Sci., vol. 4, p. 63, pl. 1, fig. 8 (female).

Selenops mexicanus CAMBRIDGE, 1905, Biologia Centrali-Americana, Arachnida, vol. 2, p. 118 (immature examples with apparently fully developed vulva).

Selenops galapagoensis BANKS, 1930, Nyt Mag. Naturvidensk., Oslo, vol. 68, p. 276, pl. 1, fig. 6 (male).

MALES: Total length, 9.0 to 13.0 mm. Carapace 4.6 to 6.5 mm. wide and 4.2 to 6.0 mm. long.

Coloration and markings almost identical with those of *mexicanus* Keyserling but generally lighter, with markings less distinct. Distinct wide chevrons did not occur on any of the specimens examined.

Structure typical of genus and group. Specific differences between this species and *mexicanus* are largely confined to the palpus as shown in figures 7 and 8. The smaller size (a mean length of 10.9 mm. for males of this species compared to a mean of 12.3 mm. for *mexicanus*) also serves as a distinguishing characteristic.

FEMALES: Total length, 9.0 to 16.0 mm. Carapace 4.8 to 7.0 mm. wide and 4.3 to 6.3 mm. long.

Coloration similar to that of *mexicanus* except markings are generally lighter. Leg bands on tibiae and metatarsi, particularly the latter, with a tendency towards fusion into a single band. Abdomen usually fawn colored, with indistinct rusty mottling.

Structure typical of genus and group. Specific differences from *mexicanus* include the proportionately smaller lateral pits of the epigynum and weakly notched or undulate caudal margin

shown in figures 9, 10, and 11. This species is also slightly smaller than *mexicanus* in this sex (13.7 mm. mean length as compared to 14.8 mm.).

REMARKS: This species has been confused with *mexicanus* for some time. Males of the two species are more readily separated than females. Cambridge (1905) figured *mexicanus* but apparently referred small females of *galapagoensis* to that species, believing them to be immatures with variable epigyna. Petrunkevitch (1925) referred females of *galapagoensis* to *aissus* Walckenaer on the basis of leg proportions which unfortunately vary sometimes from the usual 2341 to 2314. In addition to the recorded specimens, material from Ecuador and the Galápagos Islands has been examined.

TYPE LOCALITY: Female holotype from Chatham, Galápagos Islands, collected in February, deposited in the museum of the California Academy of Sciences in San Francisco. Male allotype from Floreana collected in December by A. Wolleback and deposited in the Museum of Comparative Zoölogy in Cambridge.

RECORDS: *United States:* Washington: Seattle, May 24, 1935, one male collected at the Pacific Fruit and Produce Company. *Mexico:* July to August, 1919, one female (A. Petrunkevitch). Tabasco: Boca del Cerro, March, 1945, one male and one female (M. Guerra). Chiapas: Prusia, April to May, 1942, two females (H. Wagner); La Zacualpa, August, 1909, one female; Mapastepec, March, 1941, one female (H. Wagner); La Esperanza, September 19, 1939, two females (C. Bolivar and D. Pelaez), April 2, 1945, one female (T. C. Schneirla). *Guatemala:* El Paso, Peten, 1931, one female (C. L. Lundell). El Peten, 1922, one female (H. F. Loomis). *Panama:* Chiriqui: El Volcan, February 28, 1936, six males and five females (W. J. Gertsch). Panama City, January 25, 1945, one male (C. D. Michener). Canal Zone: Ancon, July 6, 1924, one female (W. M. Wheeler); Boquete, one male (H. Pittier).

Selenops gracilis, new species

Figures 12–14

Selenops nigromaculatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 230–232, pl. 6, fig. 126a (female, not male).

MALE HOLOTYPE: Total length, 10.5 mm. Carapace 5.3 mm. wide and 4.9 mm. long.

Coloration typical of genus. Carapace markings indistinct except for the black seam. Legs banded, but the pair on the tibiae and metatarsi of legs 1 and 2 are usually distinct and fused, particularly on the anterio-ventral surface, into a single band. Dorsal abdominal markings typical but indistinct medially.

Structure typical of genus and group. Specific characters on the palpus include the broad, slightly sinuate, ectal process of the tibia in ectal view, the short blunt embolus, and the slender, evenly curved branches of the median apophysis. These characters are illustrated in figures 12 and 13.

FEMALES: Total length, 11.0 to 15.0 mm. Carapace 5.3 to 6.6 mm. wide and 5.1 to 6.3 mm. long.

Coloration similar to that of male. Colors and markings are darker and more distinct than on the males. Fused leg bands on tibiae and metatarsi of legs 1 and 2 are strikingly distinctive.

Structure typical of genus and group. Epigynum typical of group but specifically distinct as shown in figure 14. The guide is membranous except at the extreme ectocaudal angles. The caudal fourth of the epigynum is elevated above the anterior portions including the guide. Females examined had a mean length of 12.7 mm.

REMARKS: This species is more closely related to *galapagoensis* Banks than to the other known species of the group. Although the male described was not associated with a female, the distinctive coloration prompted this placement. Keyserling's original figure of the epigynum and a more recent sketch of the epigynum of the type by Dr. Max Vachon indicate that the female of *nigromaculatus* Keyserling is this species.

TYPE LOCALITY: Male holotype from Ayotzinapa, Guerrero, Mexico, collected January 11, 1941, and female allotype from Taxco, Guerrero, Mexico, collected April, 1946, by Leo Isaacs and deposited in the American Museum of Natural History.

RECORDS: *Mexico:* Michoacan: Janitzio, October 13, 1940, three females (J. A. de Villar). Guerrero: Taxco, June 5, 1943, one female (F. H. Pough); October, 1945, two females (Leo Isaacs). Morelos: Cuernavaca, one female.

Debilis GROUP

Nine species are included in this group at the present time: *debilis* Banks, *actophilus* Chamberlin, *nesophilus* Chamberlin,

lepidus, new species, *salvadoranus* Chamberlin, *buscki*, new species, *scitus*, new species, *bifurcatus* Banks, and *abyssus*, new species.

Several characteristics of the group include a leg formula of 4321, a lightly recurved eye row formed by the anterior median and intermediate eyes, and the fact that the anterior median eyes are about half as large as the anterior intermediate eyes. The clypeus is usually wider than a diameter of an anterior median eye, the labium is as wide as long, and the sternum is longer than wide. Ventral spination of the tibiae and metatarsi of legs 1 and 2 are the same in the male as in the female, tibiae 2-2-2, metatarsi 2-2. Species of this group vary from large to small in size.

Male genitalic characters are usually constant within the bulb, with distinct specific differences being largely confined to the ectal process of the tibia. This process is saddle-like apically, with a ventral branch supporting a thin, flag-like lamina. The ventral crescent-shaped process of the tibia is not, or indistinctly, connected by a carina to the ectal process. Unexpanded bulb with the single branched median apophysis located at the middle or in the distal half near the ectal margin. The embolic conductor is broadly teardrop-shaped in form, with a spine-like apex. Embolus long and slender, extending at least one-third of the distance around the cymbium. Terminal apophysis lacking or at least not visible on the unexpanded bulb.

Epigyna simple and relatively constant in form within the group. The spermathecal openings are located at the caudal end of the narrow, rod-like, or subquadrate guide. There is no median epigynal guide on the divergent species, *abyssus*, new species.

TYPICAL SPECIES: *Selenops debilis* Banks.

KEY TO SPECIES OF *Debilis* GROUP

MALES

1. Apical notch of ectal process of palpal tibia in ectal view narrow and notch-like..... *lepidus*, new species
   Apical notch of ectal process in ectal view wide and saddle-like..... 2
2. Dorsal portion of ectal process indistinct and lobe-like in ectal view..... 3
   Dorsal portion of ectal process distinct and elongate in ectal view..... 4
3. Ventral portion of ectal process of usual flag-like form..... *actophilus* Chamberlin
   Ventral portion of ectal process divided into two lobes.... *bifurcatus* Banks
4. Dorsal portion of process slender and spine-like from an ectal view..... *nesophilus* Chamberlin

Dorsal portion of process broad and finger-like from an ectal view..... ..... *debilis* Banks

FEMALES

1. Epigynal guide absent, epigynum with a median pit.... *abyssus*, new species
   Epigynal guide present, epigynum without a median pit.....2
2. Epigynal guide quadrate.....3
   Epigynal guide rod-like.....5
3. Caudal margin of epigynum not distinctly notched medially..... ..... *bifurcatus* Banks
   Caudal margin of epigynum distinctly and deeply notched medially.....4
4. Median caudal notch of epigynum wide, occupying more than one-third of the epigynal width..... *scitus*, new species
   Median caudal notch of epigynum much narrower than one-third of the epigynal width..... *buscki*, new species
5. Median guide of epigynum distant from caudal margin.....6
   Median guide of epigynum adjacent to caudal margin.....7
6. Caudal margin of epigynum strongly produced over epigastric furrow..... ..... *salvadoranus* Chamberlin
   Caudal margin of epigynum not produced over epigastric furrow..... ..... *lepidus*, new species
7. Lateral margin of epigynum without a transverse carina near the caudal margin..... *actophilus* Chamberlin
   Lateral margin of epigynum with a transverse carina near the caudal margin 8
8. Lateral carina long, enclosing with the caudal margin a quadrate area as wide as or wider than long, caudal margin distinctly sinuate..... ..... *nesophilus* Chamberlin
   Lateral carina very short, enclosing a triangular area, caudal margin evenly curved..... *debilis* Banks

Selenops debilis Banks

Figures 15–18

Selenops debilis BANKS, 1898, Proc. California Acad. Sci., vol. 1, no. 7, p. 267, pl. 16, fig. 14 (female).

MALES: Total length, 8.0 to 9.5 mm. Carapace 4.3 to 5.0 mm. wide and 4.2 to 4.9 mm. long.

Coloration typical of genus. Carapace, chelicerae, endites, labium, sternum, and legs dusky yellow with markings indistinct. A pair of dusky stripes on each chelicera is the most distinct marking. The black-ringed eyes are unusually distinct. Abdominal color light gray, with typical markings including dusky apical chevrons, a pale basal longitudinal lanceolate mark with dusky margins and scattered dusky spots.

Structure typical of genus and group. Specific characters include the small angulate lamina and finger-like dorsal branch

of the ectal tibial process of the palpus from an ectal view. Additional specific palpal characters are illustrated in figures 15 and 16.

FEMALE: Total length, 8.0 mm. Carapace 4.4 mm. wide and 4.1 mm. long.

Coloration typical of genus and similar to that of males. Markings on carapace distinct, with dusky projections from marginal dark seam forming a broken longitudinal marginal stripe in addition to the usual submarginal stripe. Leg bands narrow and distinct except for those on the metatarsi. There are also additional spots on the legs. Abdomen dusky yellow, with markings the same as in the male except for the lack of distinct chevrons and more distinct scattered spots.

Structure typical of genus and group. Specificity is exhibited in the epigyna shown in figures 17 and 18. Form, placement, and configuration of the spermathecae, spermathecal ducts, and oviducts are distinctive.

REMARKS: There is some variation in the form of the epigynum of certain specimens as shown in the figures, but these do not seem to be of specific importance. Male palpi are also somewhat variable. Although not collected together the two sexes described here are well matched in structure and coloration.

TYPE LOCALITY: Female neotype from San Jose del Cabo, Mexico, collected by Gustav Eisen and Frank H. Vaslit and deposited in the Museum of Comparative Zoölogy in Cambridge. The type, which was deposited in the California Academy of Sciences in San Francisco, has been lost or destroyed, and the above paratype is designated as the neotype. Male allotype from Oro Blanco Mountains, 12 miles from Nogales, Arizona, collected July, 1937, by P. Steckler and deposited in the American Museum of Natural History.

RECORDS: *United States:* Arizona: Tucson, one female (0. Bryant); Santa Catalina Mountains, May 17, 1941, one male, (R. H. Crandall).

Selenops actophilus Chamberlin

Figures 19–22

Selenops actophilus CHAMBERLIN, 1924, Proc. California Acad. Sci., vol. 12, no. 28, p. 655, figs. 95, 96 (male and female).

MALES: Total length, 8.0 to 8.3 mm. Carapace 4.4 to 4.7 mm. wide and 4.3 to 4.6 mm. long.

Coloration typical of genus. Carapace dusky to dark yellow with broad, dark, broken, marginal and submarginal longitudinal stripes. Cheliceral stripes broad and dark. Sternum dusky at margins. Leg bands on femora and tibiae distinct; patellae and metatarsi dark basally. Abdomen dusky gray, with dark markings typical of genus and similar to those of *debilis* Banks.

Structure typical of genus and group. Specific characteristics of the palpus include the broadly angulate, dorsal branch of the ectal tibial process of the palpus, the highly arched lamina supporting branch of the process, and the slightly hooked apex of the embolic conductor. Additional characteristics of the palpus are illustrated in figures 19 and 20.

FEMALES: Total length, 9.2 to 13.0 mm. Carapace 5.3 to 5.8 mm. wide and 5.1 to 5.5 mm. long.

Coloration typical of genus and similar to that of male except the ground color is darker and the markings are more distinct. The bands on the femora of legs 1 and 2 are frequently fused ventrally into a single band. Additional leg spotting occurs on several specimens.

Structure typical of genus and group. Specific characteristics are found on the epigynum which is slightly variable. Two variations are shown in figures 21 and 22. Females examined averaged 11.1 mm. in length.

REMARKS: This species seems to be the most common and widely distributed species of the *debilis* group.

TYPE LOCALITY: Male holotype from San Carlos Bay, Sonora, Mexico, collected July 7, 1921, by E. P. Duzee, and female allotype from San Pedro Bay, California, collected July 7, 1921, by J. C. Chamberlin, in the museum of the California Academy of Sciences in San Francisco.

RECORDS: *United States:* Arizona: Madera Canyon, February to April, 1931, two females (Jorns). California: Santa Barbara, one female. Texas: Valentine, Presidio County, June, 1948, one male and three females (Reagan and Flury). *Mexico:* Sonora: Guaymas, June 23, 1943, one female (F. H. Pough). Baja California: San Jose del Cabo, one female; Sierra Laguna, one female; San Miguel de Horcasitas, one male and one female.

Selenops nesophilus Chamberlin

Figures 23–26

Selenops nesophilus CHAMBERLIN, 1924, Proc. California Acad. Sci., vol. 12, no. 28, p. 656, figs. 97 and 98 (male and female).

MALE ALLOTYPE: Total length, 9.6 mm. Carapace 5.6 mm. wide and 5.3 mm. long.

The specimen is somewhat wrinkled and faded by preservation and rubbed, but the coloration and marks on other specimens seem to be nearly identical with those of *actophilus* Chamberlin.

Structure typical of genus and group. Palpal differences between this species and *debilis* Banks are illustrated in figures 23 and 24. They include the spine-like dorsal branch of the ectal process of the tibia from an ectal view, the trapezoidal lamina of the ventral branch of the process, and the apically angulate, ventral process of the tibia.

FEMALES: Total length, 11.5 to 14.0 mm. Carapace 5.9 to 6.5 mm. wide and 5.6 to 6.1 mm. long. Holotype has smaller measurements.

Holotype somewhat mutilated and distorted, but the coloration and gross structure of the other specimens appear to be typical of genus and group. Coloration is more distinct than on the male.

Details of the epigynum (figs. 25 and 26) are specifically different from those of *actophilus* Chamberlin. The sinuate caudal margin and distinct lateral carina are the most distinctive characters.

REMARKS: This species is closely related to *debilis* Banks but is readily distinguished in the male sex. Females seem to be somewhat variable for this species, as evidenced by the epigynum of a female from Pima County, Arizona, which is illustrated in figure 26.

TYPE LOCALITY: Female holotype and male allotype from Tortugas Island, Mexico, collected May 11, 1921, by J. C. Chamberlin, in the museum of the California Academy of Sciences, San Francisco.

RECORDS: *United States:* Arizona: Pima County, Esperero Canyon, one female (C. M. Bogert); Pinal County, Superior-Thompson Southwestern Arboretum, May 11, 1940, one female (D. C. Lowrie). *Mexico:* Gulf of California, Tortuga Island, May 11, 1921, two males; Granite Island, May 2, 1921, one female; Santa Catalina Island, June 12, 1921, one male (J. C. Chamberlin).

Selenops lepidus, new species

Figures 27–29

MALE HOLOTYPE: Total length, 5.1 mm. Carapace 2.5 mm. wide and 2.5 mm. long.

Coloration typical of genus but with some modification. Base color of carapace and appendages dusky yellow, with carapace and particularly chelicerae somewhat darker. Dark markings on carapace distinct, especially the marginal stripe. Area between submarginal stripes of the carapace generally dusky, with radiating lines slightly darker. The sternum is faintly dusky. Leg markings are somewhat atypical. Femora, patellae, and basal ends of tibiae dusky on the anterio-ventral surfaces. Dusky bands on anterior surfaces of femora four in number, narrow and distinct, with the alternate intervals somewhat clouded with a dusky shading. Tibiae dusky on anterior surfaces at the basal ends. The basal leg segments are also irregularly marked with dusky spots. Dorsum of abdomen with a dark folium that is broadest at the posterior end. Folium with a pale, narrow, basal, lanceolate stripe and margined with pale yellow forming a W-shaped mark just in front of the spinnerets.

Structure typical of genus and group but somewhat divergent from the mean of the group. Aside from the very small size divergent characters include a clypeal width of nearly twice the diameter of an anterior median eye and a labium that is wider than long. Typical species of the group have the clypeus only slightly wider than the diameter of an anterior median eye and the labium as long as wide. Specific characters of the palpus include the narrow apical notch of the ectal process of the tibia, the stout, spine-like appearance of the dorsal portion of the process from an ectal view, and the distinctive embolic conductor which seems to be intermediate between the typical *debilis* form and that of the *insularis* group. These characters and others are illustrated in figures 27 and 28.

FEMALE ALLOTYPE: Total length, 7.0 mm. Carapace 3.0 mm. wide and 3.0 mm. long.

Coloration similar to that of male except the leg markings are more extensive, covering more of the leg surfaces, the sternum and labium are distinctly dusky, and the folium of the abdomen is broader and indistinct at the lateral margins.

General structure typical of genus and similar to that of male.

Specific characters are found on the epigynum which is shown in figure 29.

REMARKS: This tiny species has been placed in this group because of its structural affinities. In so far as size and similarity of coloration are concerned it seems to be related to *scitus*, new species, and *minutus* Cambridge. When males of *scitus* have been identified and the types of Cambridge studied, these three species may form a separate group within the genus.

TYPE LOCALITY: Male holotype from Manzanillo, Colima, Mexico, collected June 17, 1941, by L. I. Davis and female allotype from San Blas, Nayarit, Mexico, collected August 6, 1947, by C. J. Goodnight, M. L. Goodnight, and B. Malkin; both deposited in the American Museum of Natural History.

Selenops salvadoranus Chamberlin

Figure 30

Selenops salvadoranus CHAMBERLIN, 1925, Bull. Mus. Comp. Zool., vol. 67, no. 4, pp. 218–219 (female).

FEMALE HOLOTYPE: Total length, 12.5 mm. Carapace 6.2 mm. wide and 6.0 mm. long.

Coloration typical of genus. Carapace and chelicerae reddish brown. Legs, endites, labium, and sternum dusky yellow, with the endites and labium somewhat darker. Leg bands distinct and accompanied by indistinct scattered spots. Abdomen light grayish brown, with only the caudal festoon distinct.

Structure typical of genus and group. The epigynum is distinctly different from that of any other species of the group. As shown in figure 30 the median guide is well removed from the caudal margin which is strongly convex, extending well beyond the epigastric furrow.

REMARKS: The male of this species is unknown. The females seem to be closely related to the female of *bifurcatus* Banks.

TYPE LOCALITY: Female holotype from San Salvador collected in January, 1920, and deposited in the Museum of Comparative Zoölogy, Cambridge.

RECORDS: *San Salvador:* January, 1920, six females and one young male.

Selenops buscki, new species

Figure 31

FEMALE HOLOTYPE: Total length, 8.5 mm. Carapace 4.1 mm. wide and 4.1 mm. long.

Coloration typical of genus. Carapace, chelicerae, and endites darker yellow than sternum or legs. Chelicerae with dusky U-shaped marks on anterior faces. Sternum immaculate. Leg markings fused into stripes on anterio-ventral surfaces of segments and indistinct above. Abdomen damaged but apparently similar in coloration and markings to that of *debilis* Banks.

Structure typical of genus and group. Distinctive specific characters are found in the epigynum shown in figure 31. The median guide is subquadrate but small, and the median notch of the caudal margin is bilobed.

REMARKS: This species is closely related to *scitus*, new species. As yet the males of these two species are unknown.

TYPE LOCALITY: Female holotype from Taboga Island, Panama, collected June, 1911, by August Busck and deposited in the United States National Museum.

Selenops scitus, new species

Figure 32

FEMALE HOLOTYPE: Total length not measurable as the abdomen is crushed, but a penultimate female measures 6.0 mm. in length. Carapace 3.0 mm. wide and 2.8 mm. long.

Coloration typical of genus and very similar to that of *lepidus*, new species. Principal differences from that species are the absence of leg spots, less extensive leg bands, the absence of duskiness on the sternum, and the apparent lack of a light-margined dorsal, abdominal folium and light, W-shaped caudal mark. The abdomen seems to be reticulate and spotted with dark gray.

Structure typical of genus and group. Epigynal structure unique. Caudal margin with a broad deep notch. Median guide subquadrate and located almost medially in the epigynum. Spermathecae large, ovate, located near the lateral margins and indistinctly visible through the integument. Epigynum shown in figure 32.

REMARKS: This species has affinities with the *debilis* group, but the distinctively different epigynum raises some doubt as

to its true position. Two species, this one and *buscki*, new species, are divergent in epigynal structure and when males have been found may form another group within the genus.

TYPE LOCALITY: Female holotype from Mexcala, Guerrero, Mexico, collected in August, 1946, by C. J. Goodnight and deposited in the American Museum of Natural History.

RECORDS: *Mexico:* Guerrero: Mexcala, July 2, 1941, one penultimate female (L. I. Davis).

Selenops bifurcatus Banks

Figures 33–35

Selenops bifurcatus BANKS, 1909, Proc. Acad. Nat. Sci. Philadelphia, vol. 61, p. 214, pl. 5, fig. 3 (male and female).

MALES: Total length, 8.0 to 9.7 mm. Carapace 4.4 to 5.4 mm. wide and 4.3 to 5.0 mm. long. Holotype has larger measurements. Coloration typical of genus. Carapace, chelicerae, sternum, labium, endites, and legs light yellow, with the carapace and chelicerae darker. Chelicerae with a dusky U-shaped mark. Carapace with black-ringed eyes and dark marginal seam distinct. There are also faint dusky stripes over the cephalic and thoracic furrows and a dusky reticulation on the cephalic area. Leg bands faint except on the anterioventral faces of the anterior femora. Dorsally abdomen light, with dusky reticulation and spots, a light median basal stripe, an interrupted caudal chevron, and a dark laterocaudal festoon. Venter light, with two narrow, longitudinal, convergent, dusky lines.

Structure generally typical of genus and group. Ectal process of palpal tibia saddle-like apically, with the dorsal branch short and rounded and the ventral branch elongate, lightly curved, and acutely pointed. There is a short acute spur bearing a thin lamina at about the middle of the ventral margin of the ectal process. Ventral tibial process elongate, reclining, and sinuate along its free margin. Median apophysis of bulb biramous. Embolic conductor broadly wedge-shaped, with a nearly circular ectobasal notch. Other palpal characters are illustrated in figures 33 and 34.

FEMALE TYPE: Total length, 10.6 mm. Carapace 3.7 mm. wide and 3.8 mm. long.

Coloration typical of genus and similar to that of male. Carapace and leg markings more distinct than in male. Abdo-

men exhibits traces of a white reticulation, and the dark lines on the venter are broadened into irregular spots.

Structure typical of genus and similar to that of male. The epigynum as shown in figure 35 varies from that usually found in the group. A subquadrate guide is present and is situated in a median pit. There is also a pair of small accessory pits just laterocaudad to the guide.

REMARKS: This unusual species has definite affinities with the *debilis* group. Several palpal characteristics are slightly divergent, however, and are strongly reminiscent of the *insularis* group. The female does not possess the epigynal structure of the latter group so the species is placed here for the present.

TYPE LOCALITY: Male and female types from Uricuajo, Costa Rica, collected by Biolley and Tristan and deposited in the Museum of Comparative Zoölogy, Cambridge.

RECORDS: *Guatemala:* Chiquimula, July 21 to 23, 1947, one male (C. and P. Vaurie).

Selenops abyssus, new species

Figure 36

FEMALES: Total length, 11.0 to 16.0 mm. Carapace 4.6 to 6.9 mm. wide and 4.7 to 7.2 mm. long. Holotype has smaller measurements.

Coloration variable but typical of genus. Most of the coloration and markings are quite similar to those of *lepidus*, new species. Exceptions are found on the sternum which is not dusky and on the dorsum of the abdomen which is uniformly dusky gray or brown except for a narrow, light, median, lanceolate stripe, three pairs of small, median, light spots, and one or more indistinct caudal chevrons. There is no distinct laterocaudal festoon.

Structure typical of genus and generally typical of group. The epigynal structure is atypical; there is no median rod-like guide. Epigynum as shown in figure 36.

REMARKS: The epigynal structure of this species is quite similar to that of members of the *insularis* group. The known range of the species does not, however, correspond with that of that group. Further, the leg formula, eye relationships, and clypeal width fit those of the present group. Collection of or correlation with males will be necessary before its affinities can be defi-

nitely determined. It is possible that this is the female of *morosus* Banks, the type of which has been lost or destroyed.

TYPE LOCALITY: Female holotype and female paratype from Jalisco, Mexico, collected on January 6, 1943, by F. Bonet and deposited in the American Museum of Natural History.

RECORDS: *Mexico:* Nayarit: vicinity of Campostela, October 16, 1935, one female.

Insularis GROUP

Eight species are definitely included in this group: *insularis* Keyserling, *trifidus* Bryant, *submaculosus* Bryant, *simius*, new species, *alemani*, new species, *vinalesi*, new species, *candidus*, new species, and *vexillarius*, new species. In the absence of males two closely allied species which may later prove to belong to a separate group are also placed here for the present: *aissus* Walckenaer and *lunatus*, new species.

General characteristics of the group include the leg formula 2314, a lightly recurved eye row formed by the anterior median and intermediate eyes, and the fact that the anterior median eyes are subequal to, or only slightly smaller than, the anterior intermediate eyes. Width of the clypeus is slightly to distinctly less than a diameter of an anterior median eye, the labial width is equal to the length, and the sternum is as wide as long or slightly narrower. Ventral spination of the tibiae and metatarsi of legs 1 and 2 is different in the two sexes. Males have the tibiae spined 2-2-2-2 and the metatarsi 2-2, whereas the females have the tibiae 2-2-2 and the metatarsi 2-2. Leg bands may be indistinct or absent. These species range from small to moderate in size.

Male genitalic characters are somewhat variable but possess group similarities. The ectal tibial process of the palpus is broad, generally spatulate, and extends to or slightly beyond the base of the cymbium. Ventral tibial process not or only indistinctly connected to the ectal process. Median apophysis of unexpanded bulb usually with a single hooked branch. Its position is variable. The embolic conductor is spur-like apically and supported by a median stalk which gives it a pickaxe-like appearance. Embolus long and slender, extending at least half the distance around the cymbium. Terminal apophysis apparently lacking, not visible on the unexpanded bulb.

Epigyna characterized by a single median pit in which the

spermathecal openings are located. Spermathecae and frequently also the spermathecal ducts are usually visible through the integument.

TYPICAL SPECIES: *Selenops insularis* Keyserling.

KEY TO SPECIES OF *Insularis* GROUP

MALES

1. Tibia of palpus provided with three distinct distal processes 2
   Tibia of palpus provided with two distinct distal processes 3
2. Median distal process of tibia short and acuminate . . . *candidus*, new species
   Median distal process of tibia long and rounded apically . . . . . *vexillarius*, new species
3. Median stalk of embolic conductor long and slender, embolus extending three-fourths of the distance around the cymbium 4
   Median stalk of embolic conductor short, embolus extending about half of the distance around the cymbium 5
4. Ectal tibial process with a transverse carina on the inner surface . . . . . *submaculosus* Bryant
   Ectal tibial process without a transverse carina on the inner surface . . . . . *simius*, new species
5. Ventral extension of ectal tibial process apically blunt from an ectal view . . . . . *insularis* Keyserling
   Ventral extension of ectal tibial process acuminate from an ectal view . . . . . *trifidus* Bryant

FEMALES

1. Median pit of epigynum wide, more than one-third as wide as the epigynum 2
   Median pit narrow, much less than one-third as wide as the epigynum 4
2. Epigynal spermathecae and ducts not distinctly visible through integument. Caudal margin of epigynum distinctly notched . . . . . *vinalesi*, new species
   Epigynal spermathecae and ducts distinctly visible through integument. Caudal margin of epigynum not or weakly notched 3
3. Median pit nearly as wide and as long as epigynum . . . . *alemani*, new species
   Median pit about one half as wide and one-third as long as epigynum . . . . . *submaculosus* Bryant and *simius*, new species[1]
4. Caudal margin of epigynum notched medially but not produced or elevated . . . . . *insularis* Keyserling
   Caudal margin of epigynum produced or elevated posteriorly and notched medially 5
5. Caudal margin of epigynum distinctly notched and strongly produced medially . . . . . *aissus* Walckenaer
   Caudal margin of epigynum slightly produced and distinctly elevated medially but not always distinctly notched . . . . . *lunatus*, new species

[1] These two species are very closely related and are best distinguished by the smaller size of *simius*, new species, and differences in the convolutions of the spermathecal ducts.

Selenops insularis Keyserling

Figures 37–40

Selenops insularis KEYSERLING, 1882, Verhandl. Zool.-Bot. Gesellsch. Wien, vol. 31, p. 311, pl. 11, fig. 28 (female).

Selenops insularis PETRUNKEVITCH, 1930, Trans. Connecticut Acad. Arts Sci., vol. 31, p. 31, figs. 21–25 (male and female).

MALES: Total length, 8.5 to 11.0 mm. Carapace 4.7 to 5.8 mm. wide and 4.6 to 5.7 mm. long.

Coloration typical of genus. Carapace, endites, labium, sternum, and legs dusky yellow, with markings indistinct or missing. Distal segments of legs slightly darker than basal segments. Chelicerae dark mahogany red. The black-ringed eyes and carapace seam are distinct by contrast. Abdomen light gray or tan above, with markings indistinct except for a pair of small, dark median spots and the black laterocaudal festoon. Ventrally the abdomen is dusky, with two pairs of thin, light, longitudinal stripes.

Structure typical of genus and group. Characters permitting specific differentiation include the spatulate, three-lobed apex of the ectal tibial process and the long, slender, ventral, tibial process. Palpal structure is illustrated in figures 37 and 38.

FEMALES: Total length, 9.5 to 12.5 mm. Carapace 4.8 to 5.6 mm. wide and 4.6 to 5.4 mm. long.

Coloration typical of genus and similar to but darker than that of males. Markings faint but more distinct than on males. Legs of some specimens usually darker on distal segments. Dorsal, median, lanceolate stripe distinguishable on most specimens.

Structure typical of genus and group. Median pit of epigynum small and varying from a crescentic to a cordate form. Extremes in epigynal variation are illustrated in figures 39 and 40.

REMARKS: This seems to be the most common and widely distributed species in the West Indies. It is somewhat variable. Two specimens examined were taken from bananas, indicating that the species lives on plants.

TYPE LOCALITY: Female type from Puerto Rico, West Indies, in the Museum of Comparative Zoölogy, Cambridge.

RECORDS: *Puerto Rico:* Mayaguez, August, 1935, two females (K. H. Bartlett); Coamo Springs, June 5 to 7, 1915, one female; Utuado, August, 1922, two females (W. A. Riley); San Juan, May 26 and 27, 1915, one female; Rio Riedras, 1919, one male

and two females (Barker); Toa-Baja, 1915, one male (G. Garb); Lares, Farm Lumen Mendez, November 7, 1935, one female (M. R. Smith). *Mona Island:* August, 1944, one male and five females (H. Beatty), May 5, 1944, one female (Serralles). *Cuba:* Two females (N. Banks); Havana, one male and one female (N. Banks); Santiago de las Vegas, two females (N. Banks); Santiago de las Vegas, one female (Maker); San Francisco, Santa Martha, January 3, 1944, one male and one female. *Jamaica:* Kingston, March 1, 1935 to 1937, one female (Blackwelder and Chapin); near Kingston, June, 1912, one female (C. J. Brues); 1934, one male and four females (L. Perkins); 1935, four males and two females (L. Perkins). *Haiti:* Furay, March 23, 1940, one female (Folk); Grand Ausé, one male and one female (Uhler). Port-au-Prince, one female (Crew). *United States:* Florida: Key West, June 24, 1934, one female (E. L. Pierce, Jr.), July 1, 1935, one male (H. K. Wallace); Plantation Key, February 29, 1936, one male. District of Columbia: on bananas, one female (N. Banks). New York: New York, on bananas, matured January 24, 1939, one female (B. J. Kaston).

Selenops trifidus Bryant

Figures 41, 42

Selenops trifidus BRYANT, 1948, Bull. Mus. Comp. Zool., vol. 100, no. 4, p. 415, figs. 98, 100 (male).

MALE HOLOTYPE: Total length, 7.8 mm. Carapace 4.5 mm. wide and 4.3 mm. long.

Specimen somewhat bleached and faded by alcohol but apparently typical of genus and group. Carapace, chelicerae, endites, labium, sternum, and legs rusty yellow. Markings on carapace obscure except for black-ringed eyes. Chelicerae with an indistinct dusky stripe. Leg bands very indistinct. Abdomen brownish gray, but markings are indistinct due to shriveling. Latero-caudal festoon distinct.

Structure typical of genus and group and very similar to that of *insularis* Keyserling. This species can be distinguished by the quadrate base of the median apophysis of the palpus and by the spine-like ventral lobe of the ectal tibial process. Other more minute differences are illustrated in figures 41 and 42.

REMARKS: This species is very closely related to *insularis* Keyserling. It is quite possible that divergent females of *insularis* are in reality females of this species.

TYPE LOCALITY: Male holotype from Navassa Island, West Indies, collected on January 1 to 9, 1930 (Clench, Schevill, and Rehder), and deposited in the Museum of Comparative Zoölogy, Cambridge.

Selenops submaculosus Bryant

Figures 43–45

Selenops submaculosus BRYANT, 1940, Bull. Mus. Comp. Zool., vol. 86, no. 7, p. 406, pl. 13, figs. 177, 184 (male and female).

MALES: Total length, 7.8 to 8.5 mm. Carapace 3.9 to 4.0 mm. wide and 3.7 to 3.8 mm. long.

Coloration typical of genus but with specific variation. Carapace, chelicerae, endites, labium, sternum, and legs light yellow. Carapace with eyes ringed with black, a black marginal seam, a short black stripe over the median furrow, and a pair of black spots just anterior to the median furrow. Chelicerae reticulate, dusky on their anterior faces. Sternum, endites, and labium immaculate. Leg bands indistinct. Dorsum of abdomen with a light, dusky-margined, basal, lanceolate stripe surrounded by a light yellow halo, median muscle impressions dark and a rosy tinge in the space between the lanceolate stripe and the black laterocaudal festooning. Venter immaculate light yellow.

Structure typical of group and genus. The most striking specific characters are the greatly developed pickaxe form of the embolic conductor and the unusual transverse ridge on the inner face of the ectal tibial process. Other specific characters are illustrated in figures 43 and 44 of the palpus.

FEMALES: Total length, 8.0 to 8.2 mm. Carapace 4.1 to 4.4 mm. wide and 3.8 to 4.2 mm. long.

Coloration similar to that of the male except the leg bands are distinct and united by a stripe on the anterio-ventral faces of the femora.

Structure typical of genus and group. Median pit of epigynum slightly less than one-half as wide as the epigynum. Spermathecae and at least two turns of the spermathecal ducts are usually clearly visible through the integument. Epigynum as shown in figure 45.

REMARKS: This species is very closely related to *simius*, new species, and somewhat less to *alemani*, new species, and *vinalesi*, new species. Its affinity with the latter two cannot be fully under-

stood until males have been taken. Some variation, particularly in the contours of the ectal tibial process of the male palpus, occurs in this species. Collected material was too limited to permit analysis of the variation.

TYPE LOCALITY: Female holotype from Isla de Piños, Sierra de Casas, collected in 1915 by Barbour and Brooks, and male allotype and two male and four female paratypes from Soledad, Cuba, collected in February, 1925, by Salt and deposited in the Museum of Comparative Zoölogy, Cambridge.

RECORDS: *Cuba:* Havana, one female; Cabo Cruz, 1913, one female; Soledad, March 10, 1925, one female (Salt); August, 1932, one female (B. B. Leavitt), February, 1924, one male, one female, and two young (Salt and Meyers). *British West Indies:* Bimini Island, July, 1947, one male and one female (C. M. Breder, Jr.); Lerner Marine Laboratory, February to March, 1948, one male (C. M. Breder, Jr.); South Bimini, May, 1951, one male and five females (W. J. Gertsch and M. A. Cazier), June 12, 1950, one male and three females (M. A. Cazier and F. Rindge), June, 1951, five males and 10 females (M. A. Cazier and C. and P. Vaurie), July, 1951, one male and five females, August 2 to 9, 1951, three males and one female (C. and P. Vaurie); North Bimini, June 1, 1950, one male (M. A. Cazier and F. Rindge).

Selenops simius, new species

Figures 46–48

MALES: Total length, 4.8 to 5.8 mm. Carapace 2.6 to 2.8 mm. wide and 2.4 to 2.7 mm. long. Holotype has larger measurements.

Coloration typical of genus and very similar to that of *submaculosus* Bryant, with the most striking difference being an increased number of small dusky spots on the legs and margin of the venter.

Structure also very similar to that of *submaculosus*. It differs from that species in its small size, longer embolus, and the lack of a transverse carina on the mesal surface of the ectal tibial process. Other minor palpal differences are shown in figures 46 and 47.

FEMALES: Total length, 5.9 to 7.5 mm. Carapace 2.9 to 3.5 mm. wide and 2.8 to 3.3 mm. long. Allotype has larger measurements.

Coloration similar to that of males, with most markings more

distinct; leg bands occasionally are faint, lacking additional spots.

Structure typical of genus and group and very similar to that of *submaculosus* Bryant. The spermathecal ducts are differently convoluted and extend into the posteriorly produced caudal margin of the epigynum as shown in figure 48.

REMARKS: To date no specimens of this species have been taken except in association with *submaculosus* Bryant. Structural differences, however, make separation of the two species relatively easy.

TYPE LOCALITY: Male holotype, female allotype, and male and female paratypes from South Bimini, Bahama Islands, collected in May, 1951, by W. J. Gertsch and M. A. Cazier and deposited in the American Museum of Natural History.

RECORDS: *British West Indies:* Bahama Islands, South Bimini, June, 1951, three males (M. A. Cazier), June, 1951, five females (M. A. Cazier and C. and P. Vaurie), July, 1941, one female (C. and P. Vaurie), August 2 to 9, 1951, one female (C. and P. Vaurie).

Selenops alemani, new species

Figure 49

Selenops celer BRYANT, 1940, Bull. Mus. Comp. Zool., vol. 86, no. 7, p. 404, pl. 13, fig. 178 (female), not *celer* Macleay.

FEMALES: Total length, 7.0 to 8.5 mm. Carapace 3.6 to 3.8 mm. wide and 3.3 to 3.6 mm. long. Holotype has larger measurements.

Coloration similar to that of *submaculosus* Bryant. Principal differences from that species are a forward extension of the median dark stripe of the carapace to the anterior pair of dark spots, separation of the femoral leg bands into narrower paired bands and a fading of all abdominal markings except the median pair of black spots, a black spot just anterior to the spinnerets, and the dark laterocaudal festoon. One female examined was much darker than the others, with an indistinct mottling on the carapace and abdomen, but the described markings were still distinguishable. This specimen was the female from Soledad, Cuba, discussed by Bryant.

Structure typical of genus and group. Specific differences are found in the epigynum shown in figure 49. The median pit is

nearly as wide as the epigynum and extends nearly to the caudal margin. The spermathecae and one curved loop of the spermathecal ducts are clearly visible through the integument.

REMARKS: The dark coloration of one of the examined specimens indicates color variation within the species. Collection of additional specimens of the closely related species *vinalesi*, new species, may demonstrate a similar variation.

Placement of this species, *submaculosus* Bryant, and *vinalesi*, new species, must remain in doubt until an examination of the type of *celer* Macleay has been made.

TYPE LOCALITY: Female holotype and two female paratypes from Santa Clara, Las Villas, Cuba, collected July 10, 1942, by Aleman and deposited in the American Museum of Natural History.

RECORDS: *Cuba:* Soledad, August 3, 1931, under bark in sugar field, one female (L. G. Worley); Santiago de las Vegas, one female (Baker).

Selenops vinalesi, new species

Figure 50

FEMALE HOLOTYPE: Total length, 8.5 mm. Carapace 3.8 mm. wide and 3.3 mm. long.

Coloration nearly identical with that of *submaculosus* Bryant. All markings are lighter, with the basal lanceolate stripe of the abdomen very indistinct and the dorsum more yellow than rosy.

Structure typical of genus and group. Median pit of epigynum is nearly three-fourths as wide as the epigynum, and there is a distinct median notch in the caudal margin of the epigynum. Spermathecae and spermathecal ducts are differently placed and convoluted than in *submaculosus* and are not clearly visible through the integument. Epigynum as shown in figure 50.

TYPE LOCALITY: Female holotype from 7 kilometers north of Vinales, Cuba, collected between September 16 and 22, 1913, and deposited in the American Museum of Natural History.

Selenops candidus, new species

Figures 51, 52

MALES: Total length, 9.0 to 11.0 mm. Carapace 5.3 to 5.6 mm. wide and 4.9 to 5.4 mm. long. Holotype has smaller measurements.

Coloration typical of genus. Carapace, sternum, labium, endites, and legs dusky yellow, with most markings indistinct or missing. Distal segments of legs darker than basal segments. Chelicerae light reddish brown, with an indistinct dusky reticulation on the anterior faces. On the carapace the most distinct markings are the black-ringed eyes, the black marginal seam, and a dark submarginal stripe on each side just laterad of the cephalic area. Leg bands quite indistinct. Dorsum of abdomen light yellow,. with markings indistinct except for the laterocaudal festoon and two pairs of dark median spots. Sternum and venter immaculate light yellow.

Structure typical of genus and group except that the clypeus is much narrower than a diameter of an anterior median eye. Specifically differential characters are found in the palpus. The most striking characters are a short triangular spur lying between the ectal and ventral processes of the tibia and a needle-like mesal spur of the embolus. Additional palpal characters differentiating the species are shown in figures 51 and 52.

REMARKS: The coloration and palpal structure of this species prompt its placement here for the present. The narrow clypeus and embolic spur seem to be the only characters divergent from the group.

TYPE LOCALITY: Male holotype from Jamaica collected in 1935 by L. Perkins and deposited in the Museum of Comparative Zoölogy, Cambridge. Male paratype from New York, New York, collected December 11, 1912, by Wilbur Baldwin and deposited in the American Museum of Natural History.

Selenops vexillarius, new species

Figures 53, 54

MALE HOLOTYPE: Total length, 8.0 mm. Carapace 4.0 mm. wide and 3.8 mm. long.

Specimen somewhat bleached but coloration apparently typical of genus. Carapace light yellow, with only the dark eye rings and carapace seam distinct. U-shaped cheliceral marking indistinct. Sternum and venter immaculate. Abdomen light yellow, with no distinct markings on dorsum and an irregularly margined indistinct laterocaudal festoon.

Structure typical of genus and group. The species is characterized by the extremely long, mesally curved ectal tibial pro-

cess, an apically rounded mesal tibial process, and an acutely pointed ventral tibial process of the palpus. Other specific characters are shown in figures 53 and 54 of the palpus.

REMARKS: This is an unusual species which seems to have its closest relationship with *candidus*, new species. The female is not known.

TYPE LOCALITY: Male holotype from Spanish Wells, Eleuthera Island, Bahamas, is deposited in the United States National Museum, Washington.

Selenops aissus Walckenaer

Figure 55

Selenops aissus WALCKENAER, 1837, Histoire naturelle des insectes, aptères, vol. 1, p. 547 (female).

Selenops aissus SIMON, 1880, Actes Soc. Linnéenne Bordeaux, vol. 34, p. 232 (female).

Selenops aissus KEYSERLING, 1884, Verhandl. Zool. Bot. Gesellsch. Wien, vol. 32, p. 683, pl. 21, fig. 30 (female).

Selenops confusus PETRUNKEVITCH, 1925, Trans. Connecticut Acad. Arts Sci., vol. 27, p. 133 (new name for *aissus* Keyserling).

Selenops timidus BRYANT, 1940, Bull. Mus. Comp. Zool., vol. 86, no. 7, p. 407, pl. 13, fig. 183 (female).

FEMALES: Total length, 7.5 to 12.0 mm. Carapace 4.2 to 5.6 mm. wide and 4.0 to 5.3 mm. long.

Coloration typical of genus and somewhat variable. Carapace varying from a light orange-brown to dark red-brown. Sternum, labium, and endites light yellow to light brown. Legs yellow to brown, with the distal segments darker than the basal segments and the leg bands light or indistinct. Carapace with dark marginal seam and eye rings broader and more distinct than usual. Other carapace markings include a dark spot on each side of the cephalic area and a posteriorly pointing, small, dark triangle over the anterior end of the median furrow. Abdomen mottled light gray to brown, with the most prominent markings being the black laterocaudal festoon, one or two indistinct caudal chevrons, and a pair of dark median spots. Venter of abdomen light to dark gray, with two pairs of narrow, posteriorly converging lines.

Structure typical of genus but slightly atypical of this group. The clypeus is decidedly narrower than the diameter of an anterior median eye, and the spermathecal ducts are not visible through the integument. Specifically distinctive characters are

found on the epigynum (fig. 55) which is strongly produced posteriorly and provided with a U-shaped median pit.

REMARKS: The identity of this species has long been in doubt. Walckenaer (1837) described the species from Trinidad, and the range apparently extends across the West Indies to the Tortugas of Florida from which Keyserling (1884) recorded the species. Petrunkevitch (1925) questioned the identity of Keyserling's record because of differences in leg measurements and renamed it. The species described by Bryant (1940) is apparently the same as Keyserling's. All these decisions and findings have complicated the problem. Simon (1880) indicated that the type was in a bad state, but Walckenaer's distinct description of the epigynum plainly is that of this species. Vachon (correspondence, 1951) states that there is no adult of *aissus* Walckenaer in the collection. It must, therefore, be assumed that Walckenaer's original specimen has been lost or destroyed.

TYPE LOCALITY: Type of *aissus* Walckenaer from Trinidad, West Indies, deposited in the Muséum National d'Histoire Naturelle, Paris. Female type of *confusus* Petrunkevitch from Tortugas, Florida, deposited in the United States National Museum in Washington. Female holotype of *timidus* Bryant from Ensenada de Cochinos, Cuba, collected March 2, 1917, by Barbour and Brooks and deposited in the Museum of Comparative Zoölogy, Cambridge.

RECORDS: *Cuba:* Cienfuegos Bay, Cayo Ocampo, July 11, 1947, one female on agave stump (W. L. Nutting). *British West Indies:* Grand Bahama, West End Settlement, June 5, 1949, two females (J. A. Oliver and B. Cooper). Long Island, Simons, July 19, 1936, one female. *United States:* Florida: Key West, one female.

Selenops lunatus, new species

Figure 56

Selenops aissus PETRUNKEVITCH, 1925, Trans. Connecticut Acad. Arts Sci., vol. 27, p. 134, figs. 53, 54, not figs. 51, 52 (not *aissus* Walckenaer).

FEMALE HOLOTYPE: Total length, 14.5 mm. Carapace 5.8 mm. wide and 5.2 mm. long.

Coloration typical of genus. Carapace, labium, endites, sternum, and legs rusty yellow. Chelicerae reddish brown. Leg bands indistinct. Carapace dark seamed, eyes black ringed and

median, cephalic and radial furrows of carapace darker than surrounding area. Abdomen light yellow, with an indication of a basal lanceolate stripe and a distinct black laterocaudal festoon. Venter light yellow.

Structure typical of genus and similar to that of *aissus* Keyserling. Clypeus much narrower than a diameter of an anterior median eye. Specific differentiation is found in the epigynum (fig. 56).

REMARKS: Petrunkevitch's (1925) epigynal figures 53 and 54 of this species indicate some intraspecific variation or the confusion of two or more closely related species. Unfortunately Petrunkevitch confused *galapagoensis* Banks with this species and his figures 51 and 52 are of that species.

There is quite a similarity of coloration and structure between the female described here and the male described as *candidus*, new species. Additional collections may prove them to be the two sexes of the same species.

TYPE LOCALITY: Female holotype from Jamaica collected in 1934, by L. Perkins and deposited in the Museum of Comparative Zoölogy, Cambridge.

RECORDS: *Jamaica:* Manchester, Mandeville, February 14, 1946, one female (B. Heineman). One female in the United States National Museum bears the locality label "San Bernardino Mts. Cal." This record must be questioned until additional material has been taken.

Lindborgi GROUP

Two species from the West Indies, *lindborgi* Petrunkevitch and *formosus* Bryant, are assigned to this group. One South American species, *hebraicus* Mello-Leitao, also seems to belong here.

General characteristics of the group include the leg formula 2341, a lightly recurved eye row formed by the anterior median and anterior intermediate eyes, and the fact that the anterior median eyes are subequal to, or slightly smaller than, the anterior intermediate eyes. The clypeal width is distinctly less than a diameter of an anterior median eye. The labium is wider than long, and the sternum is as wide as long. Ventral spination of the tibiae and metatarsi of legs 1 and 2 is 2-2-2 and 2-2, respectively. Coloration is remarkably similar within the group, and known species are all moderate to small in size.

Male genitalic characters of *lindborgi* Petrunkevitch may, for the present, be considered those of the group. The ectal tibial process of the palpus in ectal view is short, broader than long, and provided with an acute terminal projection. Ventral tibial process distinctly a continuation of the ectal process. Median apophysis of unexpanded bulb elongate and hook-like and usually located basally. Embolic conductor much like the pickaxe type of the *insularis* group but with the apex short and blunt. Basally the embolus is elevated into a distinct curved ridge. Terminal apophysis not visible on the unexpanded bulb.

Female genitalia are characterized by a divided or "winged" median guide of the epigynum, widely separated spermathecal openings, and the presence or absence of auxiliary concavities. The spermathecal ducts are clearly or indistinctly visible through the integument for at least a part of their length.

TYPICAL SPECIES: *Selenops lindborgi* Petrunkevitch.

KEY TO SPECIES OF *Lindborgi* GROUP

FEMALES

Median guide of epigynum divided into two indistinct ovate elevations . . . . . *lindborgi* Petrunkevitch

Median guide of epigynum winged anteriorly but linear and ridge-like posteriorly . . . . . *formosus* Bryant

Selenops lindborgi Petrunkevitch

Figures 57–59

Selenops lindborgi PETRUNKEVITCH, 1926, Trans. Connecticut Acad. Arts Sci., vol. 28, pp. 55–57, fig. 16 (female).

Selenops longipes PETRUNKEVITCH, 1930, Trans. Connecticut Acad. Arts Sci., vol. 31, pp. 36–38, figs. 26, 27 (male).

Selenops lindborgi PETRUNKEVITCH, 1930, Trans. Connecticut Acad. Arts Sci., vol. 31, pp. 38–39, figs. 28, 29 (female).

Selenops lindborgi BRYANT, 1942, Bull. Mus. Comp. Zool., vol. 89, no. 7, pp. 349–351, figs. 29, 37 (male and female).

MALE HOLOTYPE OF *longipes* PETRUNKEVITCH: Total length, 6.5 mm. Carapace 3.5 mm. wide and 3.3 mm. long.

Coloration typical of genus. Leg bands are quite indistinct. A pair of small dark spots is the only distinct, dorsal, abdominal marking; the laterocaudal festoon is indistinct.

Structure typical of genus and group. Specific characters include a median, triangular projection on the ectal tibial process of the palpus and the roughly triangular, ventral, tibial process. Other characters are illustrated in figures 57 and 58.

FEMALES: Total length, 9.0 to 12.3 mm. Carapace 3.6 to 4.5 mm. wide and 3.1 to 4.3 mm. long. Holotype has larger measurements.

Coloration typical of genus. Carapace, chelicerae, sternum, labium, endites, and legs dusky yellow, with the carapace and chelicerae slightly darker. Chelicerae with two narrow, convergent dusky lines. The most striking carapace markings are the broad, black, marginal seam and the black-ringed eyes, but there are faint dusky indications of the cephalic and thoracic furrows. Leg bands are distinct, with those on the anterior femora fused into a longitudinal stripe on the anterio-ventral surface. Dorsally the abdomen is light yellow to fawn colored, with an irregular, dusky, median stripe, a caudal, "chevron-like," interrupted mark, and a laterocaudal festoon that is not clearly defined along its dorsal margin. Venter light.

Structure typical of genus and group. Anterior median eyes slightly smaller than anterior intermediate eyes. Median guide of epigynum divided into two oval, diagonal, elevated areas lying just anterior of the crescent-hooded spermathecal openings. Posterior margin of the epigynum (fig. 59) with a deep, narrow, median notch.

REMARKS: The two species *lindborgi* Petrunkevitch and *longipes* Petrunkevitch undoubtedly are the same or very closely relaetd. At present they are considered the same, but one of the females collected with the allotype is variant, and further collections may demonstrate the existence of a complex.

TYPE LOCALITY: Female holotype from Santa Maria Bay, St. Thomas, Virgin Islands, collected under bark July 28, 1925, and deposited in the Museum of Comparative Zoölogy, Cambridge. Male allotype and three females from Christiansted, St. Croix, Virgin Islands, deposited in the Museum of Comparative Zoölogy. Male type of *longipes* from Puerto Rico, West Indies, collected by R. W. Miner and deposited in the American Museum of Natural History.

RECORDS: *Virgin Islands:* St. Croix, summer, 1941, one female and one young male (Beatty).

Selenops formosus Bryant

Figure 60

Selenops formosus BRYANT, 1940, Bull. Mus. Comp. Zool., vol. 86, no. 7, p. 405, fig. 181 (female).

FEMALES: Total length, 6.5 to 8.0 mm. Carapace 3.2 to 4.1 mm. wide and 3.0 to 3.8 mm. long. Holotype has smaller measurements.

Coloration typical of genus and similar to that of *lindborgi* Petrunkevitch. It differs from that species in having a narrow dusky stripe over the median furrow of the carapace, two small dark spots at the anterior end of the stripe, the leg markings more distinct, and the dorsum of the abdomen with the latero-caudal festoon clearly defined along its dorsal margin.

Structure typical of genus and group. Anterior median eyes distinctly smaller than anterior intermediate eyes. The median guide of the epigynum is a parallel-sided ridge posteriorly but is broadly "winged" anteriorly, extending to the widely separated spermathecal openings. There is an approximate pair of hooded, accessory pits just in front of the shallow median notch of the caudal margin of the epigynum. Other epigynal structure is shown in figure 60.

REMARKS: Although this species seems to be closely related to *lindborgi* it may, as suggested by Bryant (1940), be near *insularis* Keyserling. A study of males will be necessary before its affinities can be definitely determined.

TYPE LOCALITY: Female holotype from Soledad, Cuba, collected at a quarry, August 4, 1931, by L. Worley and deposited in the Museum of Comparative Zoölogy, Cambridge.

RECORDS: *Cuba:* Soledad, February, 1924, one female (Salt and Meyers).

Banksi GROUP

At present only two species from the study area can be definitely assigned to this group. They are *banksi*, new species, and *micropalpus*, new species. *Selenops minutus* Cambridge has been tentatively placed here, but a study of the type must be made before its true affinities can be determined. At least one South American species, *aculeatus* Mello-Leitao, also seems to belong in the group.

General characteristics of the group include the leg formula 2314, a lightly to strongly recurved eye row formed by the anterior median and intermediate eyes, and the fact that the anterior median eyes are slightly smaller or larger than the anterior intermediate eyes. The clypeus is distinctly less than a diam-

eter of an anterior median eye in width, the labium is about as wide as long, and the sternum is slightly longer than wide. Ventral spination of the tibiae and metatarsi of legs 1 and 2 are the same in the two sexes, tibiae 2-2-2, metatarsi 2-2. Coloration is somewhat specifically variable, and size is also variable within the group.

Male genitalic characters are slightly variable, but group similarity is strong. Most striking characteristic is the comparatively long tibia of the palpus which is longer than the tarsus. Processes of the tibia are nearly equal in size and in ectal view form a roughly crescent-shaped hollow. Median apophysis of the unexpanded bulb uniramous and variable in position. The embolic conductor is spur-like apically and has a sickle-like appearance. The embolus is short, extending only one-fourth of the distance around the cymbium. Terminal apophysis, if present, not visible on the unexpanded bulb. Female genitalia known for only one species, *micropalpus*, new species. Specimens of that species have a diamond-shaped median guide that possesses a slender anterior stalk. Caudal margin deeply but narrowly notched; the notch bears a pair of small, adjacent, secondary pits. Specimens that appear to be immature females have been collected with the males of two species, *minutus* Cambridge and *banksi*, new species. The epigynal figure of *minutus*, reportedly "not quite fully developed" by Cambridge (1900), is remarkably like that on the young female of *banksi*, new species, and reminiscent of the epigynal type found in the *lindborgi* group.

If, as indicated, the epigyna prove to be as variable as the eye relationships of the several species, it may be necessary to divide this group despite similarity of palpal structure. At present, however, the species appear to belong together.

TYPICAL SPECIES: *Selenops banksi*, new species.

KEY TO SPECIES OF *Banksi* GROUP

MALES

1. Large species, four anterior median eyes forming a slightly recurved row..... ..... *micropalpus*, new species
   Small species, four anterior median eyes forming a strongly recurved row.... 2
2. Anterior median eyes smaller than intermediate eyes. . *minutus* Cambridge
   Anterior median eyes larger than intermediate eyes. . *banksi*, new species

Selenops banksi, new species

Figures 61–63

MALES: Male holotype and paratype have the same measurements. Total length, 7.8 mm. Carapace 4.0 mm. wide and 3.7 mm. long.

Coloration typical of genus. Carapace, chelicerae, sternum, labium, endites, and legs light, dusky yellow, with the carapace and legs slightly darker. The black-ringed eyes and marginal carapace seam are the only distinct markings on the carapace. Leg bands are indistinct except on the anterio-ventral faces of the femora, patellae, and tibiae, giving the impression of longitudinal stripes. Abdomen dorsally near white to dusky white with a narrow, foliate, basal, lanceolate stripe, one or two interrupted dusky caudal chevrons, and interrupted dusky remnants of the usual laterocaudal festoon. Ventrally the abdomen is light immaculate yellow in color.

Structure typical of genus and group. Anterior median eyes larger than the anterior intermediate eyes and forming with them a strongly recurved row. Specific characters are found on the palpus (figs. 61, 62).

REMARKS: Although this species may be *minutus* Cambridge, the comparative size of the anterior median eyes and the apparently shorter embolus seem to preclude the possibility.

The underdeveloped epigynum of the young female collected with the holotype and paratype of this species is illustrated in figure 63 for comparison with that figured by Cambridge (1905) for *minutus*.

TYPE LOCALITY: Male holotype, male paratype, and immature female from Barro Colorado, Canal Zone, collected July 26 by Nathan Banks and deposited in the Museum of Comparative Zoölogy, Cambridge.

Selenops minutus Cambridge

Figures, 64, 65

Selenops minutus CAMBRIDGE, 1905, Biologia Centrali-Americana, Arachnida, vol. 2, pp. 116–118, pl. 8, figs. 19, 19a, 19b, 19c, 20, 20a, 20b (male and female).

Although this species has not been seen, Cambridge's figures indicate a long palpal tibia and an embolus of the type found in males of this group. The female apparently was immature. Copies

of Cambridge's description and figure of the male palpus from ventral view are included here for comparison. Dr. Evans of the British Museum has kindly refigured the epigynum of the female.

"Type male, cotype female, in collection Godman and Salvin. Total length, male 5, female 8 mm.

"Male and female. Carapace pale orange. Legs and sternum dull orange-yellow. The legs are tinged with dusky brown, while the femora have on the outside an irregular longitudinal dusky-brown streak. Abdomen dull yellow, with black markings, very variable in shape and extent. The paler forms exhibit a dusky central dorsal line, which expands laterally behind, while the margins of the abdomen have a few scattered spots of brown. In the darker forms the central bar is much darker and more extended behind, leaving a transverse sinuous pale bar in the form of an inverted W. The sides of the abdomen are much more deeply suffused with brown.

"The four central eyes form a strongly recurved row, the anterior centrals somewhat smaller; anterior laterals very minute and inconspicuous, situated nearer the posterior laterals than to the posterior or anterior centrals.

"Male palpus: external apophysis at the apex of the tibia bibranchiate; the upper branch slightly clavate, the lower curved, simple and semi-transparent. Tarsus nearly circular, strongly produced on the outer side at the base. The palpal organs are furnished on the inner side with a long lamelliform process curving outward and pointed at the apex. On the outer margin of the bulb is a small sinuous process.

"Female vulva (apparently not quite fully matured in any of the specimens).

"Habitat Guatemala (Sarg)."

Selenops micropalpus, new species

Figures 66–68

MALE HOLOTYPE: Total length, 11.0 mm. Carapace 5.7 mm. wide and 5.5 mm. long.

Coloration typical of genus. Carapace, chelicerae, sternum, labium, endites, and legs rusty yellow, with the chelicerae and carapace slightly darker. The eyes and margins of the carapace are seamed with black, and the cephalic area and cephalic and

thoracic sutures are a dusky rust color with the sutures darker. Leg bands are indistinguishable except on the anterior femora where they are very faint. Dorsally the abdomen is light gray, with a faint indication of the basal lanceolate stripe and interrupted dusky remnants of a laterocaudal festoon. Venter immaculate light gray.

Structure typical of genus and group. Anterior median eyes subequal in size to the anterior intermediate eyes and forming with them a slightly recurved row. Characters distinguishing the species are found on the palpus. The ectal tibial process is evenly curved and acutely pointed from an ectal view. Other features of the palpus are illustrated in figures 66 and 67.

FEMALES: Total length, 12.0 to 13.6 mm. Carapace 5.6 to 7.0 mm. wide and 5.3 to 6.6 mm. long. Allotype has larger measurements.

Coloration typical of genus and similar to that of the male. Carapace and appendages light to dark rusty yellow, with the leg bands indistinct. Abdomen light to dark grayish brown marked with the usual light basal stripe, an irregular pattern of narrow, wavy, brown lines, and a dark laterocaudal festoon. The latter markings are distinct on the allotype. Venter light to dark grayish brown marked with a pair of narrow light stripes.

Structure typical of genus and group and similar to that of the male. The epigynum is specifically differential as shown in figure 68. Epigynal structure is described in the characterization of the group.

REMARKS: This species and *banksi*, new species, appear to be closely related but are readily differentiated by the differences in size and the configuration of the tibial processes of the male palpus. The fact that this species is insular whereas the other two known species are Central American is unusual. It is possible, however, that the group is of South American origin which would explain this strange distribution.

TYPE LOCALITY: Male holotype from Laudat, Dominica, British West Indies, collected June 13, 1911, by F. E. Lutz and deposited in the American Museum of Natural History. Female allotype and female paratype from Laudat, Dominica, British West Indies, collected June 11, 1911, by F. E. Lutz and deposited in the American Museum of Natural History.

RECORDS: *British West Indies:* Dominica, Long Ditton, June 19, 1911, one female (F. E. Lutz).

UNPLACED SPECIES

The following species, because of unusual leg formulas, eye relationships, or genital structure do not seem to have clear-cut affinities with any of the species groups recognized in this study. All but *marginalis* Cambridge are known from a single sex, and it is probable that a matching of the sexes will indicate their relationships. For the present they must be considered as unrelated forms.

Selenops morosus Banks

Figures 69, 70

Selenops morosus BANKS, 1898, Proc. California Acad. Sci., vol. 1, no. 7, p. 268, fig. 16 (male and female).

MALE COTYPES: Total length, 12.3 to 10.2 mm. Carapace 6.3 to 6.8 mm. wide and 6.0 to 6.5 mm. long.

Specimen with larger carapace measurements has the abdomen shriveled.

Coloration typical of genus. Carapace, chelicerae, endites, labium, sternum, and legs dusky yellow, with the endites, labium, chelicerae, and carapace slightly darker. All markings on these structures obscure except for the dark eye rings and dusky U-shaped marks on chelicerae. Abdomen light yellow, with a faint, dusky-margined, basal, lanceolate stripe, indistinct caudal chevrons, and the laterocaudal festoon composed of scattered small brown spots. Venter with a pair of inwardly curved dusky stripes.

Structure typical of genus but not of any of the groups. Leg formula 4321. Anterior median eyes two-thirds as large as anterior intermediates. Clypeus narrower than a diameter of an anterior median eye. Sternum longer than wide. Labium wider than long. Palpal characteristics are decidely different from those of any known species and are shown in figures 69 and 70.

REMARKS: The female type has been lost or destroyed, and the females described as *abyssus*, new species, may later prove to be this species. Banks' figure of the epigynum is similar to that of *abyssus*.

TYPE LOCALITY: Two male and one young female cotypes from Tepic, Mexico, collected by Eisen and Vaslit and deposited in the Museum of Comparative Zoölogy, Cambridge.

Selenops phaselus, new species

Figures 71, 72

MALE HOLOTYPE: Total length, 8.0 mm. Carapace 4.1 mm. wide and 3.9 mm. long.

Coloration typical of genus. Carapace and chelicerae reddish brown. Endites, labium, and sternum dusky yellow. Dark marginal seam of carapace and eye rings unusually distinct. Chelicerae dusky on ectal surfaces and marked with a U-shaped stripe on anterior surfaces. Endites, labium, and sternum immaculate. Leg markings distinct, including a dorsal spot on each tarsus. Abdomen light, with a dusky reticulation on the dorsum except over a W-shaped spot just in front of the spinnerets. Latero-caudal festoon composed of a dense, dusky reticulation. Venter marked with many well-scattered, tiny black spots.

Structure typical of genus but not fitting any of the known groups. Leg formula 2341. Anterior median eyes slightly larger than anterior intermediate eyes and forming with them a slightly recurved row. Clypeal width less than a diameter of an anterior median eye. Labium wider than long. Sternum longer than wide. The palpus is unique as shown in figures 71 and 72.

REMARKS: This species exhibits affinities with the *insularis* group in the development of the embolus. It differs in leg formula, eye ratio, and development of the ectal process of the tibia of the palpus. The ectal process is reminiscent of the *banksi* group, but the tibia is shorter than the tarsus of the palpus. For the present the species must remain unassociated.

TYPE LOCALITY: Male holotype from Kenskoff, Haiti, collected between 4500 and 5500 feet elevation in September, 1934, by P. J. Darlington, Jr., and deposited in the Museum of Comparative Zoölogy, Cambridge.

Selenops pensilis, new species

Figure 73

FEMALE HOLOTYPE: Total length, 8.0 mm. Carapace 4.1 mm. wide and 3.8 mm. long.

Coloration typical of genus. Carapace, chelicerae, endites, labium, and sternum dusky yellow, with the carapace, chelicerae, and endites slightly darker. Typical markings on carapace and chelicerae somewhat obscured by an unusual number of

white setae. Leg markings obsolete, except for faint traces on the anterior faces of the segments. Abdomen a reticulate yellow above with a dark, basal, median lanceolate stripe, a narrow dark spot at each anterior ectal corner, a pair of dark spots just in front of the spinnerets, and a faint caudal festoon. Venter reticulate yellow.

Structure typical of genus but not of any of the known groups. Leg formula 4321. Sternum longer than wide. Clypeus slightly narrower than a diameter of an anterior median eye. Anterior median eyes two-thirds of the size of the anterior intermediate eyes and forming with them a lightly recurved row. Labium longer than wide. Epigynum distinctive as shown in figure 73.

REMARKS: This species has affinities with both the *insularis* and *debilis* groups but is sufficiently different to be maintained separately for the present. Collection of males may determine its position within the genus.

TYPE LOCALITY: Female holotype from Grand Ausé, Haiti, collected by Uhler and deposited in the Museum of Comparative Zoölogy, Cambridge.

Selenops marginalis Cambridge

Figures 74, 75

Selenops marginalis CAMBRIDGE, 1905, Biologia Centrali-Americana, Arachnida, vol. 2, pp. 116, 117, pl. 8, figs. 15, 15a, 16 (male and female).

This species has not been examined. It is not placed in this study because of doubt concerning its affinities. First, there is no published leg formula for the species. Second, although the palpal figure indicates that the male may have affinities with the *insularis* group, no species of that group is known to occur outside the West Indies. Last, the epigynum, if mature as figured, is strikingly different from that of other species.

Copies of Cambridge's figure of the male palpus in ventral view and descriptions are included here for comparison. Dr. Evans of the British Museum has kindly refigured the female epigynum.

"Type male, cotype female, in collection Godman and Salvin. Total length, male 9, female 10.5 mm.

"Male and female. Carapace dull orange-brown, margined with a black line. Abdomen ochreous-brown, marbled with darker brown, with a distinct diamond-shaped black mark towards the

spinners above. (The abdomen is too shrivelled to be able to describe its pattern and coloration.) Legs pale orange-yellow, faintly annulated with dusky black at the middle of the femur, the base of the patella and tibia, the middle of the latter, and at the base of the protarsus.

"The four central eyes form a row slightly recurved, the centrals being slightly smaller than the laterals. Anterior laterals small, about half the diameter of the central posteriors, situated closer to these eyes than to the lateral posteriors, less than a diameter from the former.

"The two central anteriors rather over half a diameter apart, a quarter of a diameter from the central posteriors. Lateral posteriors nearly two diameters from the central posteriors and slightly smaller than them. Clypeus equal to one-third the diameter of an anterior central eye.

"Male palpus: for a description of this and of the vulva of the female see the Table of the species.

"Habitat Mexico, Omilteme in Guerrero (H. H. Smith)."

The following are the pertinent excerpts from the table of species mentioned above. In the case of the male it is compared to *nigromaculatus* Keyserling.

MALE: "Spur of tibia shorter without any slender basal stem. Apical concavity without a central spur, but with a two-fold lower margin. Unca at external apex of the bulb, smaller, rising at right angles to the plane of the bulb, its point directed downward and backward. Its base much narrower and more cylindrical."

FEMALE: "Posterior margin of the vulva deeply emarginate, with a central rectangular chitinous piece, a little broader than long."

Selenops nigromaculatus Keyserling

Figures 76, 77

Selenops nigromaculatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 230–232, pl. 6, fig. 126 (male, not female).

Selenops nigromaculatus CAMBRIDGE, 1905, Biologia Centrali-Americana, Arachnida, vol. 2, pp. 116–117, pl. 8, figs. 14, 14a (male, not female).

This species has not been seen, and there is question concerning its affinities. Two different species have been included under this name in the past. This is indicated in the leg formulas and

genitalia. Petrunkevitch (1925) stated that this was the only species in which the two sexes had a different leg formula. He further indicated that this might be the result of a confusion of two species. More than a dozen species are known from both sexes, and in no instance is the leg formula different between sexes. Specific confusion is further indicated by the fact that the palpal structures illustrated by both Keyserling and Cambridge are of the *debilis* or *insularis* type, whereas the epigynum figured by Keyserling seems to be that of *gracilis*, new species, a species of the *mexicanus* group. Dr. Max Vachon of the Muséum National d'Histoire Naturelle in Paris has kindly illustrated the palpus and epigynum of the types. There is no doubt that Keyserling's female type is the same as *gracilis*, new species.

Until Keyserling's male type is compared with related species, no definite placement of this species can be made. A translation of the essential parts of Keyserling's description of the male and reproductions of Vachon's figures of the male palpus are included here for the use of other workers.

"Male: Total length, 8.5 mm. Cephalothorax 4.7 mm. long and 5.0 mm. wide. Leg formula 3241.

"Cephalothorax red-brownish yellow, thinly black haired, the cephalic furrows, median furrow, and the radial furrows somewhat darker, the lateral margin longer haired and black seamed; all eyes surrounded with a black ring. Chelicerae pale red-brown, apically yellow, labium, endites, and sternum yellow. Palpi and legs reddish yellow, the latter with two or three darker bands on all segments, except the tarsi; the bands, however, are distinct only dorsally. The gray abdomen is thickly haired above and thinly haired below.

"Cephalothorax somewhat shorter than wide, only half as wide in front as between the second and third legs, width shorter than the fourth tibia, very flat, posterior margin very broad and straight, medially only slightly reflexed, rounded at the sides. Cephalic area distinctly furrowed laterally and limited posteriorly by the deep median furrow, thoracic region with the usual radial furrows, which do not extend to the lateral margins.

"The size and position of the eyes are the same as in the previous species (*mexicanus*), chelicerae, endites and abdomen also similar, except the furrow of the chelicerae is provided with two teeth on both the anterior and posterior margin. Sternum very flat, round and notched posteriorly.

"The long thin legs are especially hairy below on the distal segments. The second pair of legs somewhat shorter than the third pair, which are five times as long as the cephalothorax. Traces of a scopula are noticeable only on the tarsi of the anterior pair of legs, none are present on the other legs.

"Tibiae of the palpi somewhat longer and thicker than the patellae, produced ectally into a broad, flattened, lightly curved process which is slightly concave mesally, rounded at the distal end, provided on the distal margin in the middle with a very small flattened process, a semicircular lobe is also located on the distal margin. A tiny, flat, somewhat twisted rounded ridge is situated on the mesad margin of the concavity between the lateral processes, basally the ectal tibial process is strongly constricted."

TYPE LOCALITY: Male type from Mexico in the Muséum National d'Histoire Naturelle, Paris.

Selenops celer Macleay

Selenops celer MACLEAY, 1839, Ann. Mag. Nat. Hist., vol. 2, p. 6, pl. 1, fig. 2 (female?).

Although Macleay gave a rather detailed description of the coloration and general anatomy of his species, there is little information of specific value. The leg formula given, 3241, is entirely different from that of any Cuban group or species seen during this study. Macleay stated that the species was common in buildings in Cuba and, while only species of the *insularis* group have since been collected on the island, it cannot be assumed that his measurements were erroneous. Final placement of this species must be withheld until the type can be studied.

LITERATURE CITED

CAMBRIDGE, F. O. P.
1905. Biologia Centrali-Americana, Arachnida, Araneidea and Opiliones. London, vol. 2, pp. 1–610, pls. 1–54.

COMSTOCK, J. H.
1940. The spider book, revised and edited by W. J. Gertsch. New York, Doubleday, Doran and Co., Inc., pp. 1–729.

GERTSCH, W. J.
1949. American spiders. New York, Van Nostrand Co., Inc., pp. 1–285.

KEYSERLING, E. G.
1882. Neue Spinnen aus Amerika, III. Verhandl. Zool. Bot. Gesellsch. Wien, vol. 31, for 1881, pp. 269–314, pl. 11.

1884. Neue Spinnen aus Amerika, V. *Ibid.*, vol. 32, for 1883, pp. 649–684, pl. 21.

LATREILLE, P. A.

1819. Nouveau dictionnaire d'histoire naturelle. Paris, vol. 30, p. 579.

MACLEAY, W. S.

1839. On some new forms of Arachnida. Ann. Mag. Nat. Hist., vol. 2, pp. 1–14, pls. 1–2.

PETRUNKEVITCH, A.

1925. Arachnida from Panama. Trans. Connecticut Acad. Arts Sci., vol. 27, pp. 51–248, figs. 1–157.

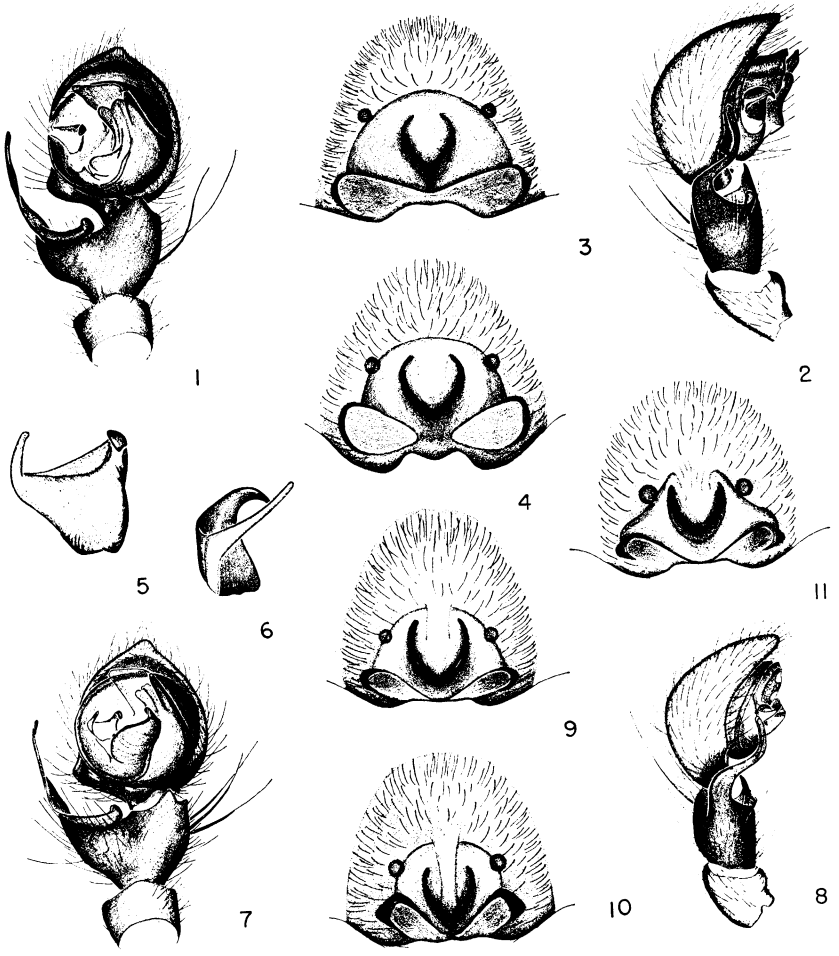
1930. The spiders of Porto Rico, III. *Ibid.*, vol. 31, pp. 1–191, figs. 1–168.

SIMON, E.

1880. Revision de la famille des Sparassidae (arachnides). Actes Soc. Linnéenne Bordeaux, vol. 34, pp. 223–256.

WALCKENAER, C. A.

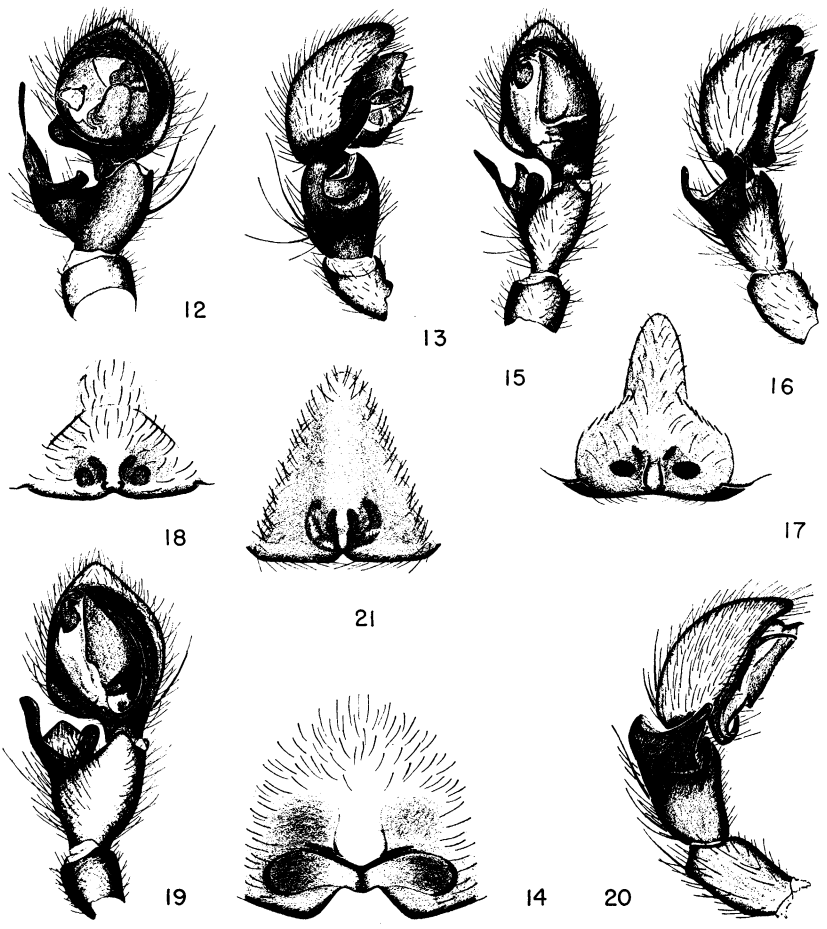
1837. Histoire naturelle des insectes, aptères. Paris, vol. 1, pp. 1–682.



FIGS. 1–4. *Selenops mexicanus* Keyserling. 1. Ventral view of male palpus. 2. Ectal view of male palpus. 3. Ventral view of epigynum. 4. Variation of epigynum.

FIGS. 5–6. *Selenops tehuacanus*, new species, median apophysis of male palpus. 5. Ventral view. 6. Ectal view.

FIGS. 7–11. *Selenops galapagoensis* Banks. 7. Ventral view of male palpus. 8. Ectal view of male palpus. 9. Ventral view of epigynum. 10, 11. Variation of epigynum.



FIGS. 12–14. *Selenops gracilis*, new species. 12. Ventral view of male palpus. 13. Ectal view of male palpus. 14. Ventral view of epigynum.

FIGS. 15–18. *Selenops debilis* Banks. 15. Ventral view of male palpus. 16. Ectal view of male palpus. 17. Ventral view of epigynum. 18. Variation of epigynum.

FIGS. 19–21. *Selenops actophilus* Chamberlin. 19. Ventral view of male palpus. 20. Ectal view of male palpus. 21. Ventral view of epigynum.

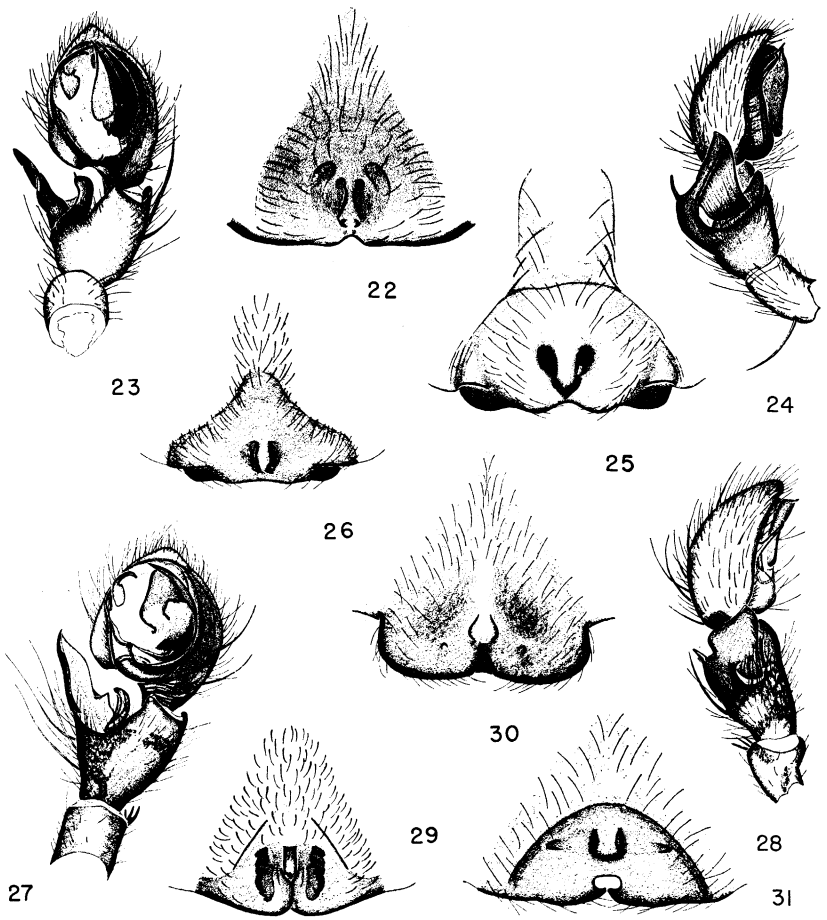


FIG. 22. *Selenops actophilus* Chamberlin, epigynum of allotype.

FIGS. 23–26. *Selenops nesophilus* Chamberlin. 23. Ventral view of palpus of allotype. 24. Ectal view of palpus of allotype. 25. Ventral view of epigynum of holotype. 26. Variation of epigynum.

FIGS. 27–29. *Selenops lepidus*, new species. 27. Ventral view of male palpus. 28. Ectal view of male palpus. 29. Ventral view of epigynum.

FIG. 30. *Selenops salvadoranus* Chamberlin, ventral view of epigynum of holotype.

FIG. 31. *Selenops buscki*, new species, ventral view of epigynum.

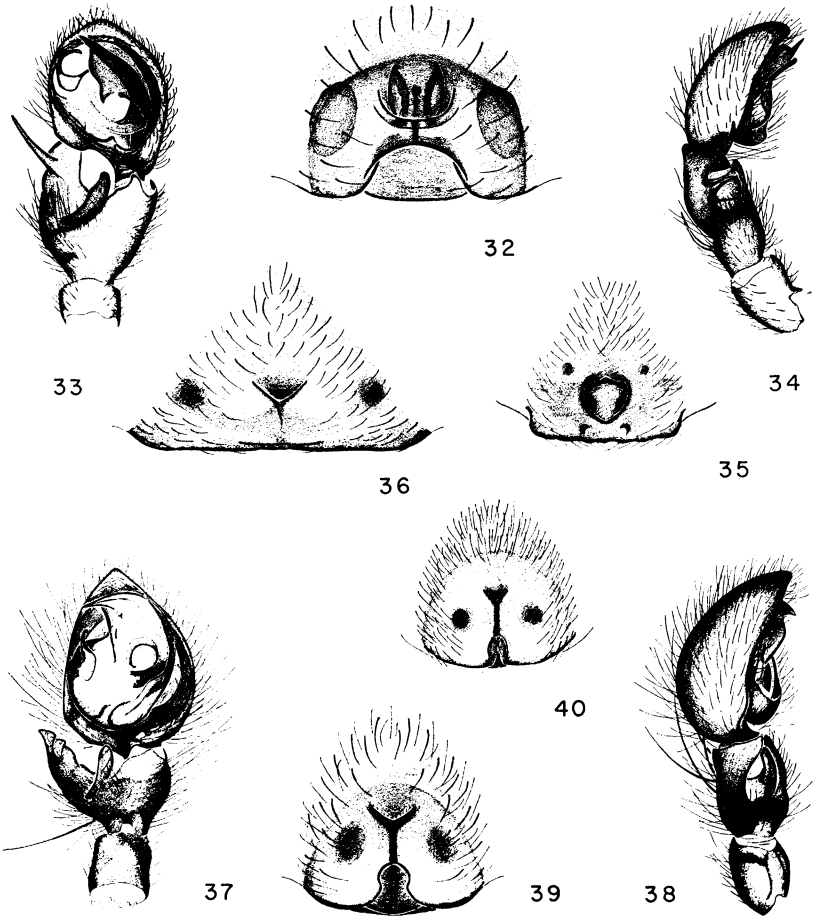
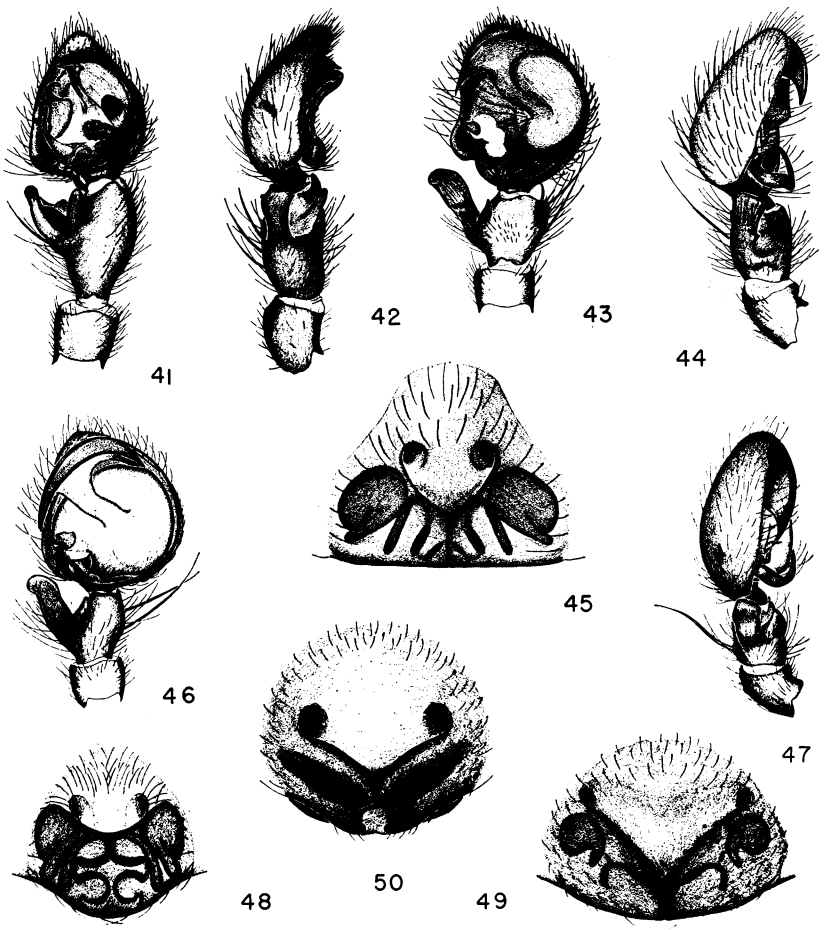


FIG. 32. *Selenops scitus*, new species, ventral view of epigynum.

FIGS. 33–35. *Selenops bifurcatus* Banks. 33. Ventral view of male palpus. 34. Ectal view of male palpus. 35. Ventral view of epigynum of type.

FIG. 36. *Selenops abyssus*, new species, ventral view of epigynum.

FIGS. 37–40. *Selenops insularis* Keyserling. 37. Ventral view of male palpus. 38. Ectal view of male palpus. 39. Ventral view of epigynum. 40. Variation of epigynum.



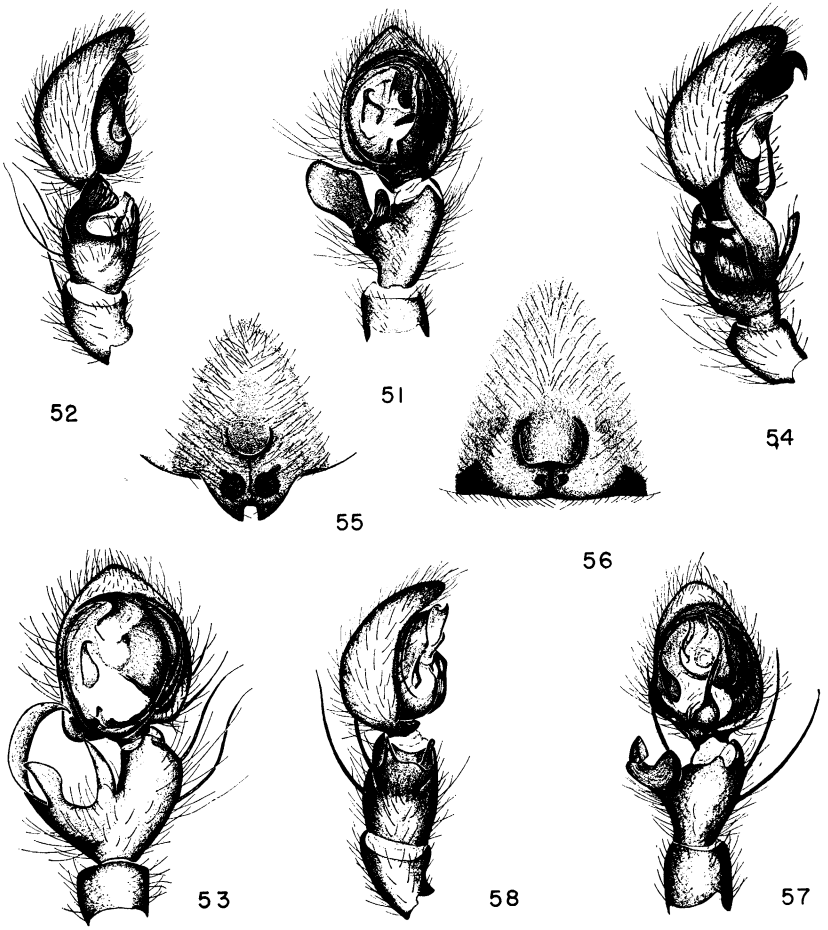
FIGS. 41–42. *Selenops trifidus* Bryant, palpus of holotype. 41. Ventral view. 42. Ectal view.

FIGS. 43–45. *Selenops submaculosus* Bryant. 43. Ventral view of male palpus. 44. Ectal view of male palpus. 45. Ventral view of epigynum.

FIGS. 46–48. *Selenops simius*, new species. 46. Ventral view of male palpus. 47. Ectal view of male palpus. 48. Ventral view of epigynum.

FIG. 49. *Selenops alemani*, new species, ventral view of epigynum.

FIG. 50. *Selenops vinalesi*, new species, ventral view of epigynum.



FIGS. 51–52. *Selenops candidus*, new species, male palpus. 51. Ventral view. 52. Ectal view.

FIGS. 53–54. *Selenops vexillarius*, new species, male palpus. 53. Ventral view. 54. Ectal view.

FIG. 55. *Selenops aissus* Walckenaer, ventral view of epigynum.

FIG. 56. *Selenops lunatus*, new species, ventral view of epigynum.

FIGS. 57–58. *Selenops lindborgi* Petrunkevitch, palpus of holotype of *longipes* Petrunkevitch. 57. Ventral view. 58. Ectal view.

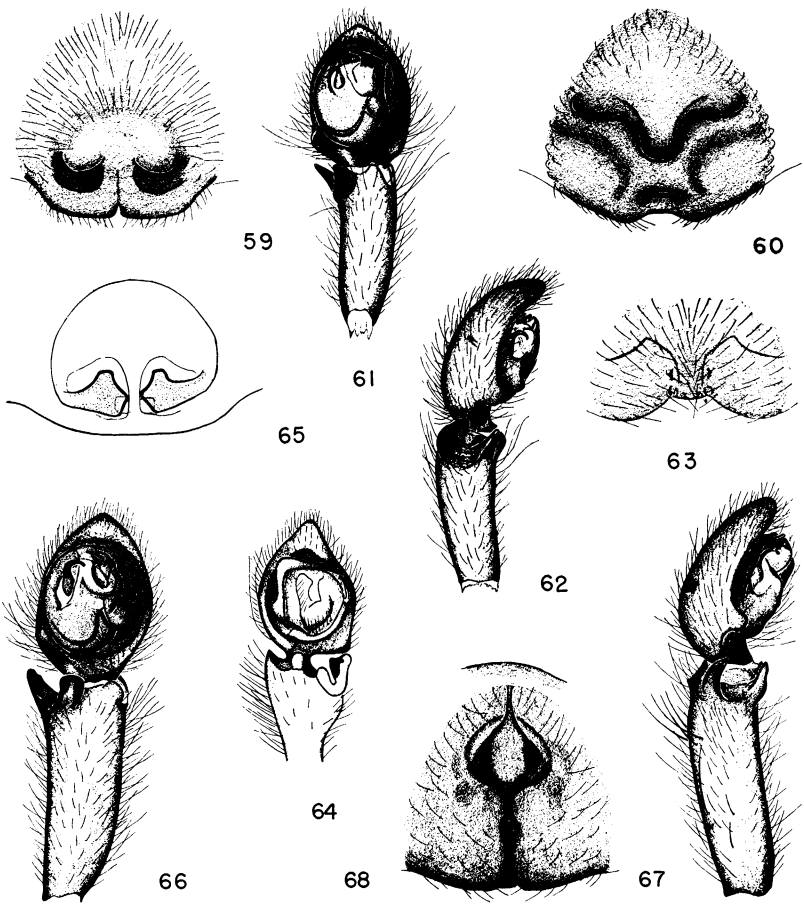


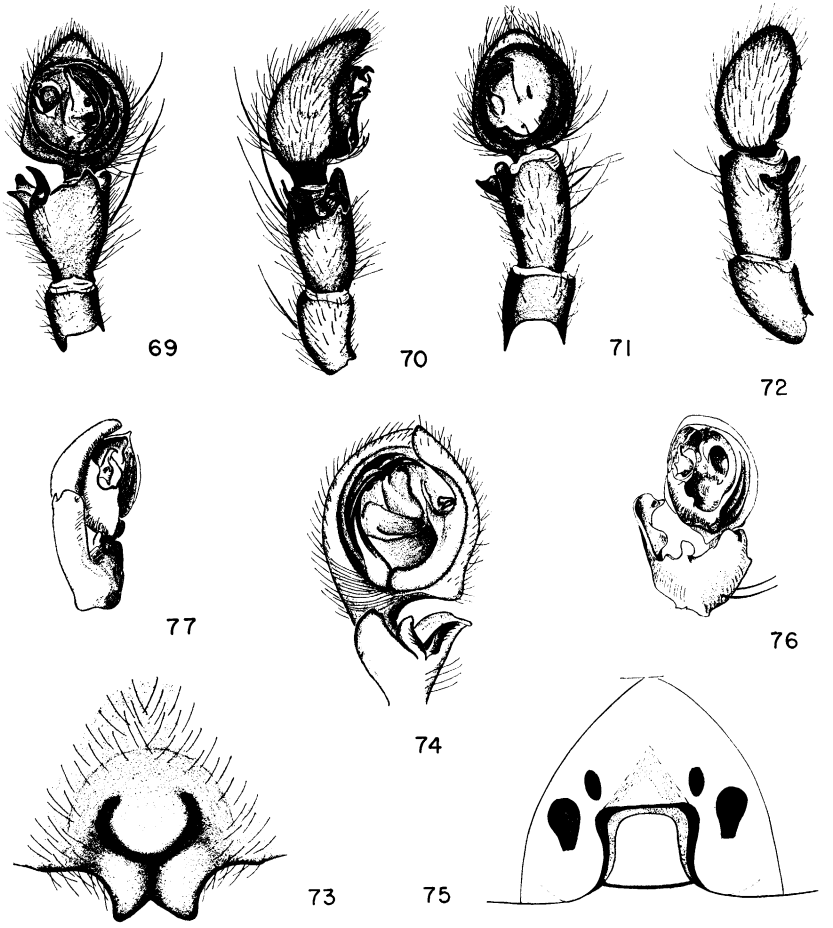
FIG. 59. *Selenops lindborgi* Petrunkevitch, ventral view of epigynum.

FIG. 60. *Selenops formosus* Bryant, ventral view of epigynum.

FIGS. 61–63. *Selenops banksi*, new species. 61. Ventral view of male palpus. 62. Ectal view of male palpus. 63. Epigynum of young female.

FIGS. 64–65. *Selenops minutus* Cambridge. 64. From photograph of male palpus from Cambridge. 65. Epigynum of female type as sketched by G. O. Evans.

FIGS. 66–68. *Selenops micropalpus*, new species. 66. Ventral view of male palpus. 67. Ectal view of male palpus. 68. Ventral view of epigynum.



FIGS. 69–70. *Selenops morosus* Banks, palpus of cotype. 69. Ventral view. 70. Ectal view.

FIGS. 71–72. *Selenops phaselus*, new species, male palpus. 71. Ventral view. 72. Ectal view.

FIG. 73. *Selenops pensilis*, new species, ventral view of epigynum.

FIGS. 74–75. *Selenops marginalis* Cambridge. 74. From photograph of male palpus from Cambridge. 75. Epigynum of female type as sketched by G. O. Evans.

FIGS. 76–77. *Selenops nigromaculatus* Keyserling, palpus of type as sketched by M. Vachon. 76. Ventral view. 77. Ectal view.