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## SPIDERS OF THE *PHIDIPPUS* GROUP OF THE FAMILY ATTIDAE.

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In the following paper we have attempted to classify the spiders belonging to *Phidippus* and some related genera. Other genera must be included in this group but the work on them is not yet completed.

We are much indebted to M. Eugène Simon and to Mr. Nathan Banks for their generous assistance in lending us type species.

The drawings are by Mr. J. H. Emerton.

### *PHIDIPPUS* (C. K.) 1846.

*Megatimus* Thorell, 1891, Spindlar Nikobarerna, p. 129.

Pl. XXIII, figs. 1—1b.

Spiders above medium size, sometimes very large and hairy.

The cephalothorax is high and massive, wide and rather short. As a rule the sides round out widely both from above below and from in front to the middle point. The widening from above below is usually more pronounced in the males than in the females. The cephalic plate slants forward. The thoracic plate is short and wide. The thorax falls from the dorsal eyes, at first gradually and then more steeply.

The quadrangle of the eyes is one-third wider than long, excepting in a few species, as *arizonensis*, which is one-half, and *opifex*, which is two-thirds wider than long. It occupies about two-fifths of the cephalothorax and is plainly wider behind than in front. The eyes are small in proportion to the size of the

spiders. The first row is curved, the middle being less than twice as large as the lateral and a little separated from each other, while the lateral are separated from them by from one-third to two-thirds of their own diameter. The second row is about twice as far from the third as from the first row. The dorsal eyes are as large as the lateral and form a row which is plainly narrower than the cephalothorax at that place.

The genus *Phidippus* has many species in North and Central America, and we have one species from South America. It was formed by C. Koch in 1846, the type being *variegatus* from New Orleans, *Die Arachn.* XIII, p. 125. In our *Attidae of North America* we cited *variegatus* as a synonym of *morsitans* Wlk., but since then we have received large collections from Mexico and Texas and are satisfied that it is distinct. *Mexicanus* P., and *Howardii* P. (Pl. XXIII, fig. 5), are also very close to *variegatus* (Pl. XXIII, fig. 4).

The descriptions and drawings of *P. obscurus* and *P. Rauterbergii*, in our paper on North American Attidae, were made from badly rubbed specimens and give but an imperfect idea of these species. We therefore redescribe their coloration from perfect specimens which we have recently received from Texas.

Mr. Workman's<sup>1</sup> drawing of the type of Thorell's genus *Megatimus* (Pl. XXIII, fig. 2), drew our attention to the fact that this genus strikingly resembled *Phidippus*. Mr. Workman very kindly sent us a specimen of the spider in question and we find that it conforms in all respects to *Phidippus*.

After an exchange of fresh specimens, Mr. Emerton agrees with us that his *P. multiformis* is distinct from our *P. rufus*. *P. multiformis*, *rufus* and *ruber* are close together but their distinguishing characteristics are brought out in the key.

Mr. Nathan Banks, in *Arachnida from Baja California*, Proc. Cal. Academy of Sciences, Third Series, Vol. I, No. 7, 1898, described several new species of *Phidippus*. He has kindly sent us specimens of these. We think that his *P. funebris* belongs in the genus *Parnaenus*. *P. fraternus* we believe to be identical with *Philaeus chrysis* Wlk., and *P. disjunctus* is the same as our *Philaeus fertilis*.

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<sup>1</sup> Since the above was written arachnology has suffered a great loss in the death of Mr. Workman.

Illustrations of the palpi and epigynes of *multiformis*, *brunneus*, *galathea* (*mystaceus*), *ruber* and *morsitans* may be found in Emerton's *New England Attidae*, Pl. XVI; of the other species mentioned in this paper, in our *North American Attidae*, Plates I and II.

The structure of the bulb and tube of the palpus is so similar in *californicus*, *Tyrrellii*, *comatus* and *variegatus* that separate illustrations are not given.

The species of *Phidippus*, and especially the females, are exceedingly difficult to identify, and it is possible to do satisfactory work only where a large amount of material is accessible. While many of those described by Hentz are comparatively distinct, those of Walckenaer and Koch are frequently variations or immature forms of a single species and must forever remain uncertain. Any one working in this genus must recognize the futility of describing new species without a careful comparison of their relations, illustrated by drawings. We know of no systematic work that is more helpful, in this way, than that of Mr. J. H. Emerton.

We append a list of the species in our collection, with a key which will be found useful in determining them.

#### SPECIES IN OUR COLLECTION.

*Phidippus ardens* new, *arizonensis* P., *bardus* new, *californicus* new, *comatus* new, *cardinalis* H., *carneus* P., *farneus* P., *galathea* Wlk. (equals *mystaceus* H. and *albomaculatus* Keys.), *Georgii* P., *Howardii* P., *incertus* new, *insolens* H., *Johnsonii* P., *McCookii* P., *mexicanus* P., *miniatus* P., *montivagus* new, *morsitans* Wlk. (equals *audax* and *tripunctatus* H.), *multiformis* Em., *obscurus* P., *octopunctatus* P., *opifex* McC., *otiosus* H., *princeps* P., *Putnamii* P., *Rauterbergii* P., *rimator* Wlk., *ruber* Keys., *rufus* H., *severus* Th. (*Megatimus*), *Tyrellii* new, *variegatus* C. K., *Workmanii* new.

KEY TO NORTH AND CENTRAL AMERICAN SPECIES OF THE GENUS *Phidippus*.

## MALES.

|    |   |  |                               |
|----|---|--|-------------------------------|
| 1  | Abdomen with a covering of red hairs.   |  | 2                             |
|    | Abdomen without red hairs.  |  | 8                             |
| 2  | First leg longer than second by tarsus, matatarsus and part of tibia.                                 |  | 3                             |
|    | First leg longer than second by not more than tarsus and metatarsus.                                  |  | 4                             |
| 3  | a   | Length 5-7 mm.; palpus with longitudinal white band above; cephalothorax black.  | <i>multiformis</i>            |
|    | b   | Length about 9 mm.; palpus with longitudinal white band on upper surface of tarsus; cephalothorax (adjective omitted).   | <i>insolens</i>               |
|    | c   | Length about 13 mm.; palpus without white band on tarsus; cephalothorax black.   | <i>californicus</i>           |
| 4  | Falces with fringe of white hairs down outer edge.  |  | <i>Tyrellii</i>               |
|    | Falces without fringe of white hairs.   |  | 5                             |
| 5  | Long black hairs on first leg and on palpus; entire cephalothorax and abdomen deep red.               |  | <i>cardinalis</i>             |
|    | First leg and palpus without noticeable hairs.  |  | 6                             |
| 6  | Length 10-12 mm.; color of abdomen deep red without black bands; cephalothorax black.                 |  | <i>Johnsonii</i>              |
|    | Length 6-8 mm.; color of cephalothorax and abdomen yellowish-red.                                     |  | 7                             |
| 7  | Palpus with snow-white scales; falces dark, iridescent green.   |  | <i>rufus</i>                  |
|    | Palpus without white scales; falces brown, not iridescent.  |  | <i>ruber</i>                  |
| 8  | Abdomen black, with a large triangular white spot and one or two pairs of smaller white spots behind. |  | 9                             |
|    | Abdomen marked or colored differently from the above.   |  | 11                            |
| 9  | Cephalothorax black.  |  | <i>morsitans</i>              |
|    | Cephalothorax with white bands on sides.  |  | 10                            |
| 10 | a   | Upper surface of thoracic region black; cephalothorax massive and plainly wider than third row of eyes; size, 11-15 mm.; first leg at least 12 mm.   | <i>variegatus</i>             |
|    | b   | Upper surface of thoracic region entirely covered with white hairs; cephalothorax massive and plainly wider than third row of eyes; size, 11.4 mm.; first leg, 16.3 mm.                                      | <sup>1</sup> <i>mexicanus</i> |
|    | c   | White bands on sides of cephalothorax uniting to form a zig-zag band on upper surface of thoracic region; cephalothorax not massive and scarcely wider than third row of eyes; size 8 mm.; first leg, 10 mm. | <sup>2</sup> <i>Howardii</i>  |

<sup>1</sup> Our specimen of *mexicanus* is shrunken. When fresh it would probably measure 15 mm.

<sup>2</sup> In *variegatus* there is sometimes a little reddish color on the patella of the first leg; in *Howardii* there is a decided tendency to red on the proximal parts of all the joints. The femur is dark in both species.

|    |   |                    |
|----|---|--------------------|
| 11 | Fringes of fine, long, yellow hairs on all the legs, heaviest on those of the first pair.                   | <i>arizonensis</i> |
|    | Legs not fringed with yellow hairs.   | 12                 |
| 12 | Falces iridescent.  | 13                 |
|    | Falces with white hairs or scales; not iridescent.  | 14                 |
| 13 | First leg with very heavy fringe of white hairs; size 8.5 mm.   | <i>comatus</i>     |
|    | First leg without heavy white fringe; first and second legs distinctly thickened; size about 10 mm.         | <i>galathea</i>    |
| 14 | Falces entirely covered with long, soft, white hairs; no ridge of hairs above first row of eyes.            | <i>Putnamii</i>    |
|    | Upper two-thirds of falces covered with white scales; a ridge of rusty brown hairs above first row of eyes. | <i>obscurus</i>    |

FEMALES.

|   |  |                 |
|---|--|-----------------|
| 1 | Red hairs on abdomen.  | 2               |
|   | No red hairs on abdomen.   | 6               |
| 2 | Large spiders, more than 12 mm. long.  | 3               |
|   | Medium sized spiders, usually not more than 10 mm. long.   | 4               |
| 3 | a Tripunctate marking on abdomen consisting of a large central red spot and two smaller ones further back; red hairs on cephalic part.   | <i>miniatus</i> |
|   | b Body hairy; cephalothorax heavy and wide (4.6 mm.); falces green; first and second legs very heavy; third leg longer than second; abdomen red with central black band, and, at anterior end, a white band with a black band behind it. | <i>carneus</i>  |
|   | c Body not hairy; cephalothorax not wide (3.5 mm.) nor heavy; first and second legs not heavy; second and third legs equal; abdomen red, with central black band, and, at anterior end, a faint yellowish band with no black behind it.  | <i>ardens</i>   |
|   | d Abdomen with herring-bone stripe; body not very hairy; cephalothorax small in proportion to size of spider; falces black; second leg longer than third.  | <i>Georgii</i>  |
| 4 | Heavy looking cephalothorax which rounds out widely on the sides, and has the cephalic plate black, and the sides of a much lighter reddish brown color; legs barred with lighter and darker brown.                                      | <i>insolens</i> |
|   | Cephalothorax not heavy looking; sides rounded out but not widely, as in <i>insolens</i> .   | 5               |

|   |   |   |                     |
|---|---|---|---------------------|
| 5 | a | Color brick-red; legs barred with lighter and darker brown; first and second legs very short in proportion to size of spider (total length about 11.5 mm., first leg about 7 mm.).  | <i>rufus</i>        |
|   | b | Color varying from yellowish brown to red; <sup>1</sup> legs barred with lighter and darker brown; first and second legs not short in proportion to size of spider (total length about 9 mm., first leg about 8 mm.).   | <i>multiformis</i>  |
|   | c | Cephalothorax and legs uniform dark brown or black; palpi dark; habitat, Florida, New Mexico.   | <i>rimator</i>      |
|   | d | Cephalothorax and legs uniform dark brown or black; palpi pale brown; two bands of white, scale-like hairs on venter; habitat, Washington, California, Mexico.  | <i>Johnsonii</i>    |
|   | e | Cephalothorax with narrow white bands along lower sides and wide white bands higher up, the space between being brownish; the wide white bands cross the clypeus and are continuous over the thoracic part; cephalic plate dark brown.  | <i>montivagus</i>   |
| 6 |   | Upper surface of abdomen black with central white spot.   | 7                   |
|   |   | Upper surface of abdomen brown, grey or yellow; or if black, having a pair of white spots on middle of dorsum.  | 8                   |
| 7 | a | Abdomen with a white band around anterior end; and having a pair of white dots in front of central white spot, and two transverse or oblique white bars behind it; cephalothorax black, without white bands on the sides.   | <i>morsitans</i>    |
|   | b | Abdomen with scalloped white band almost encircling the black upper surface, a pair of white dots in front of central white spot, and a pair of oblique white bars behind it; cephalothorax black without white bands.  | <i>farneus</i>      |
|   | c | Abdomen with a central longitudinal scalloped black band enclosing a white spot; sides grey; cephalothorax black with a wide white band entirely surrounding the cephalic part.   | <i>Workmanii</i>    |
|   | d | Abdomen with a white band around the front end and two or three pairs of oblique lines or spots behind the central spot; cephalothorax with wide white bands, which pass along the sides and meet on the thorax, and a narrow white crescent, which curves forward from the dorsal eyes on to the cephalic plate. | <i>Rauterbergii</i> |

<sup>1</sup> Since the adult females of *multiformis* are usually orange or red it is classed among the red spiders, although this color is sometimes lacking.

|    |   |  |                              |
|----|---|--|------------------------------|
| 8  | Abdomen covered with yellow hairs.  |  | 9                            |
|    | Abdomen grey, brown, or black.  |  | 10                           |
| 9  | Cephalothorax dark; integument of abdomen, as well as the hair covering it, yellow; falces rufus, not iridescent.                 |  | <i>McCookii</i>              |
|    | Cephalic plate covered with yellow hairs; integument of abdomen dark red; falces iridescent.                                      |  | <i>bardus</i>                |
| 10 | a   | Markings on abdomen limited to a whitish band at anterior end and a single pair of white spots; length 8 mm. | <i>princeps</i>              |
|    | b   | Markings on abdomen limited to two pairs of white spots; length 15 mm.                                       | <i>opifex</i>                |
|    | c   | Markings on abdomen consisting of numerous white spots and bands.  | 11                           |
| 11 | Falces reddish-brown, not iridescent.   |  | <i>comatus</i>               |
|    | Falces with white hairs at upper end and brightly iridescent below.   |  | 12                           |
| 12 | First leg a little (in large specimens plainly) longer than fourth.   |  | <i>otiosus</i>               |
|    | Fourth leg longest.   |  | 13                           |
| 13 | Cephalothorax light colored and covered with short white hairs.   |  | <i>obscurus</i>              |
|    | Cephalothorax dark colored; covered with grey hairs.  |  | 14                           |
| 14 | Three white spots on cephalic plate; abdomen marked with white spots on a grey background; fourth leg scarcely longer than first. |  | <i>incertus</i>              |
|    | Cephalic plate without white spots; abdomen with white spots on dark background; fourth leg plainly longer than first.            |  | <sup>1</sup> <i>galathea</i> |

*Phidippus ardens*, sp. nov.

Pl. XXIII, figs. 7–7a.

This is a large, handsome species, with black cephalothorax and legs, and bright red abdomen.

♀. Length 14 mm. Legs 4123.

The cephalothorax is black, covered with yellowish hairs which form tufts in front of the dorsal eyes. The abdomen is bright red on the back, with a narrow black band down the middle. This band, which does not reach the anterior end, is

<sup>1</sup> When the hairs are rubbed from the abdomen of *galathea*, we have the form with the longitudinal forked band, described by Keyserling as *albomaculatus*. In other cases the posterior transverse bars are united, giving a puzzling likeness to *otiosus*.

broken at the edges by three pairs of red bars, the first pair near the middle, the others, less distinct, behind. There is a faint yellowish band around the anterior end of the abdomen, and below this and around the lower sides it is black. There is a thin covering of black and white hairs over the back. The falcies are bright green. The palpi are dark brown with black and white hairs, and the legs black with yellowish hairs.

We have a single female from Santa Fé, New Mexico.

***Phidippus californicus*, sp. nov.**

Pl. XXIII, figs. 3–3a.

A handsome spider of above medium size, with red abdomen, black cephalothorax and dark legs.

♂. Length 13. Length of cephalothorax 5.5; width 4.5.

Legs 1423; those of the first pair longer than the body.

The cephalothorax is black with a covering of coarse brownish hairs which grow long about the front part of the head. The falcies are iridescent bluish-green. The abdomen is bright red with two longitudinal black bands which are broken in two places, behind the middle of the dorsum, by red bars. There is a narrow white band, scarcely visible from above, around the front and sides. Over the back is a thin growth of long brownish hairs. The legs are very dark brown, the first and second pairs being almost black. The first legs are more heavily fringed than the others, the hairs being brown on the femur, white on the patella, brown on the tibia (this joint is black and iridescent), white on the proximal halves of the metatarsus and tarsus, and brown on the distal halves. The palpus has white hairs and scales on the femur, patella, and tibia.

*Californicus* is too large to be taken for *rufus* (8.5) or *insolens*, (9.5), both of which have the cephalothorax red, and, moreover, neither of these species has been found further west than Colorado. It is most like *Johnsonii*, which is not much smaller, and is also found on the Pacific Slope. The coloration is similar, although *Johnsonii* has the abdomen crimson rather than red, with the black bands very indistinct or entirely lacking.



They may be distinguished by two points, the shape of the cephalothorax, which in *californicus* is nearly circular, being only 1 mm. longer than wide, while in *Johnsonii* it has a less rounded appearance, being, in fact, nearly 2 mm. longer than wide, and the relative length of the first leg, which in *californicus* exceeds the second by the tarsus, metatarsus and part of the tibia, awhile in *Johnsonii* it is longer by only the tarsus and a part of the metatarsus.

We have one male from California. It may, perhaps, be the mate of *P. ardens*.

***Phidippus bardus*, sp. nov.**

Pl. XXIII, figs. 6—6a.

This rather heavy looking species is of somewhat over medium size. It is yellow, with the legs and palpi dark brown, and the falces iridescent.

♀. Length 11. Length of cephalothorax 4.5; width, 3.5. Legs  $\overline{4132}$ .

The cephalothorax is dark reddish brown. The upper surface of the cephalic part and of the anterior thoracic, is covered with short, bright, yellow hairs. The abdomen has a dark reddish ground color entirely covered with the same gold colored hairs, which have a much brighter effect here than on the cephalothorax. Under alcohol four pairs of indistinct white bars appear on the posterior part. Around the anterior end is a light colored band which runs down, obliquely, on the sides, and further back, on each side, is another oblique light-colored band. The falces are rugose and rather short, and are brilliantly metallic, with violet and green reflections. The palpi and legs are dark reddish brown, with snow-white scales and some long white hairs. The femur, patella, and tibia of the first leg are fringed on the underside, the patella with white, and the other joints with brown hairs. The femur has also a fringe of black hairs on the upper surface.

Red and orange are not uncommon colors among the spiders of this genus, but *P. McCookii* is the only other female where the hairs are really yellow, and in that species the ground color

of the abdomen is also yellow, the cephalothorax is all dark, and the falces are rufus, and not iridescent.

We have a single female from Long Island sent to us by Col. Nicholas Pike.

***Phidippus comatus*, sp. nov.**

Pl. XXIII, figs. 8—8c.

This is a small species. The male is handsome, with gold-colored hair on the abdomen, and the first leg fringed throughout its length with long white hairs. The female is gray, with a white herring-bone stripe on the abdomen.

♂. Length 6.8. Length of cephalothorax 3.5; width, 3. Legs 1432.

♀. Length 10. Length of cephalothorax 3.5; width, 2.8. Legs 4132.

The male and female bear so little resemblance to each other that we put them together with some hesitation, although they were sent to us as one species. In the male the ground color of the cephalothorax is black. The sides are covered with white, and the eye-region with yellow hairs. In front of the dorsal eye and overhanging the eye of the second row, is a long tuft of stiff bristly hairs. The falces are slender and darkly iridescent with green and violet reflections. On the clypeus and the inner edges of the falces are long white hairs. The abdomen has a thin covering of long hairs, which look brown, yellow, or whitish, according to the way the light strikes them. Under these is a coat of shorter gold-colored hairs around the anterior end and the sides. In the middle of the dorsum are two paler spots. In our specimen there is a dark central region, scalloped at the edges, extending from these spots to the spinnerets, which is rubbed entirely bare. The legs are barred with dark brown and black. The first one has a remarkably long fringe of snow-white hairs on the underside of all the joints, even extending on to the tarsus.

In the cephalothorax of the female the integument on the eye-region and on the sides and posterior part is black, but a band of bright reddish-brown runs across just behind the dor-

sal eyes. Our specimens are rubbed, but what hairs are left on the sides are white and there is a square patch of white hairs between the dorsal eyes. Over the eye of the second row is the same long stiff tuft that appears in the male. The falces are dark reddish-brown without iridescence. The abdomen is dark gray with a white band around the anterior end, and white bars on the sides. On the anterior part are four obliquely directed white spots, and on the posterior, two pairs of transverse bars, which are sometimes continuous at their outer ends, forming the parenthesis-like mark, which is also seen in *P. obscurus*. The legs are barred with light and dark brown and the palpi with brown and white.

The male of this species is distinct from all others by the fringe on the first leg. The female, although smaller, has some resemblance to *P. obscurus*, which comes from the same locality, but the cephalothorax is of a different shape, being slender, with the sides nearly straight, while in *obscurus* it is widely rounded. It differs also in having the first legs only slightly stouter than the others; in having the color grey instead of yellowish-brown; and in having the white spots on the abdomen joined to form a stripe instead of standing separate.

We have one male and three females, sent to us by Mr. Bolter, from Las Vegas, New Mexico.

***Phidippus incertus*, sp. nov.**

Pl. XXIV, figs 1—1a.

This is a gray species with white spots.

♀. Length 9-11 mm. Legs  $\overline{41}$   $\overline{32}$ .

The cephalothorax and abdomen are black, covered with gray hairs. There are three white spots on the cephalothorax just in front of the third row of eyes, and on each side of the head are two tufts of black hairs. The abdomen has a white band around the front end, and behind this, two pairs of white spots, the second pair being the larger. From above, the posterior part of the abdomen appears to be marked with two pairs of white bars. These extend downward on each side and join, forming a curved band. The palpi are brown covered with

white hairs. The legs are brown, with dark rings, and are covered with gray hairs, the first one having besides, a fringe of short hairs, which are white on the femur and patella, while on the tibia they are whitish on the first, and dark on the second half. The face and clypeus are covered with white hairs. The falces have the upper third black, and on this section grow white hairs. The lower part is very bright, iridescent green.

This species is almost exactly like *galathea*, but is smaller, and has a different epigynum. In *galathea*, moreover, the falces are iridescent to the very top and have only a few straggling white hairs along the inner edges. In *otiosus*, which is also much larger, the coloring is different, the hairs on the palpi and the spots on the abdomen being reddish, while the cephalothorax is high and narrow on top, that of *incertus* being rather low and wide.

***Phidippus montivagus*, sp. nov.**

Pl. XXIV, figs. 3—3a.

This is a medium sized species, with a small cephalothorax and a heavy abdomen. The color is yellowish red.

♀. Length 11 mm. Legs 4123.

This species is characterized by the white bands on the cephalothorax. The cephalic plate, the middle sides, and the posterior thoracic part are dark brown, the cephalic plate having a growth of long, light brown hairs, which form tufts behind, and in front of, the dorsal eyes. Along the lower margin, on each side, is a white band and another wider band, also white, extends around the front part of the cephalothorax and upper sides. The abdomen is covered with short yellowish red hairs, and has a white band around the anterior end which extends on to the sides. There is a darker band down the middle, and on this is a pair of central spots, and, further back, two pairs of bars, the hinder pair being close to the spinnerets. These spots and bars are not white, but are made of a mixture of white and red hairs, so that they are lighter than the ground color. The clypeus has long white hairs. The falces are dark and slightly

iridescent. The palpi are dark brown with white hairs, and the legs dark brown with light brown hairs.

We have a single female from Chihuahua, Mexico, where it was found by Mr. Townsend at a height of 7,000 feet above the sea.

***Phidippus obscurus*, P.**

Pl. XXIV, figs. 2—2e.

A very handsome species of a gray or brown color, ornamented with snow-white bands and spots, which are edged with black.

♂. Length 10 mm. Length of cephalothorax, 4.8 mm.; width, 4 mm. Legs 1423; those of the first pair as long as the body.

♀. Length 10—13 mm. Legs 4132.

The cephalothorax is reddish-brown, covered with snowy white hairs. In the female there are long, stiff, black hairs around the eyes of the second row and on the middle of the cephalic part, while the male has a ridge of stout rusty-brown hairs beginning at each of the dorsal eyes and passing within the eye of the second row to just above the lateral eye, while a row of shorter hairs of the same color, above the first row of eyes, connects the ends of these two ridges. The male has also, low down on each side of the cephalothorax, between the dorsal and lateral eyes, a long tuft of the same rusty-brown hairs, and these are connected by a fringe of shorter hairs of the same color, which crosses below the first row of eyes, edging the clypeus, and hanging down over the falces. The falces are iridescent in both sexes, but while in the female there is a band of white hairs across the upper part, in the male they are almost covered with white rice-like scales passing into a stiff fringe of long white hairs, which look as if they had been cut squarely off. In our male specimen the abdomen has been rubbed, and shows only a dark brown integument with a thin covering of white hairs; it was probably like that of the female, which is of a delicate gray color. The pattern is essentially the same in both, and is made up of white bands and spots outlined in black.

There is a band around the anterior end, a pair of spots in front of the middle, a large central spot, two oblique bands on each side and a pair of spots in front of the spinnerets. The legs and palpi are brown with a good many white, scale-like hairs. The first leg in the male has, at the inner, upper part of the distal end of the femur, a bunch of hairs, which are black with white tips. Running along under all the joints of this leg are two fringes of hairs of mixed colors, white, dark and rusty-brown, these last growing white at the ends.

This species was described and named, some years ago, from a badly rubbed female specimen. It is, in reality, very distinct, the male, especially, being distinguished from all others by the hairs on the cephalothorax and falcis.

We have one male from North Carolina and several females from Texas.

***Phidippus Rautenbergii*, P.**

Pl. XXIV figs. 6—6a.

Large, handsome spiders with metallic scales and white tripunctate marking on the abdomen.

♀. Length 13—16 mm. Legs  $\overline{14}$   $\overline{23}$ .

The cephalothorax is dark brown or black, with a crescent-shaped white band which curves forward from the dorsal eyes. There are white hairs on the sides, and between the eyes of the first row. The abdomen is velvety black with a pure white band around the front end, a white, central spot, two pairs of white spots further back, and two oblique lines on each side, the front one running lower down than the other. Behind the central white spot a bronze band runs to the spinnerets, and in front of the spot there is a less distinct bronze region, which sometimes appears as three indistinct spots, as is represented in the figure, and sometimes consists of a central band crossed by a line, the dorsum being thus broken into four black patches. The legs are black, barred with reddish brown, the first one having a double black fringe under the femur, and a single fringe of long hairs under the other joints. This fringe is white on

the patella, black on the tibia, white at the proximal and black at the distal ends of the metatarsus and tarsus. The falces are iridescent green.

This may very possibly be the female of *Phidippus variegatus*. We have several specimens from Texas.

***Phidippus Tyrellii*, sp. nov.**

Pl. XXIV, fig. 4.

A medium sized species, with bands of white hairs along the outer edges of the falces.

♂. Length 9 mm. Length of cephalothorax, 4.5 mm.; width, 3 mm.

Legs 1423; first leg a little longer than the body; second leg scarcely longer than the third.

The cephalothorax is black, with wide white bands on the; sides and above the first row of eyes. Overhanging these eyes, below them on the clypeus, and hanging down between the falces, are some long, whitey-brown hairs. The cephalic plate is covered with short brown hairs. The falces are iridescent green, with a streak of snow-white hairs along the outer edge, ending at the insertion of the fang. The abdomen, in our specimen, is badly rubbed, and shows only a low band of white around the anterior end, and behind this a good many bright red hairs which probably covered the dorsal surface. Under alcohol some pale markings appear, a large, central, triangular spot, posterior to this, two pairs of transverse bars, and, between these, a central spot, all of which were very probably covered with white hairs. The legs are very dark, almost black. The first is the stoutest, and is fringed, the hairs being colored as follows: on the upper surface of the femur they are dark; on the inner face they form transverse bars of white at the extremities, with an oblique black band between; on the outer face there is a white fringe along the lower edge, overhung by some darker hairs; on the patella and the proximal end of the tibia they are white, while on the distal end of the tibia they are inky black, and grow very thick, both above and below. Both metatarsus and tarsus have the proximal ends covered with white and the distal ends with black hairs.

This species is distinguished from all others by the longitudinal bands of white hairs on the iridescent green falces.

We have one male sent to us by Mr. J. B. Tyrrell, from the Canadian Rocky Mountains.

***Phidippus Workmanii*, sp. nov.**

Pl. XXIV, figs. 5—5a.

This is a large species, the colors being gray, black, and white.

♀. Length, 14.5 mm. Legs, 4123.

The posterior thoracic part and the cephalic plate are black, the cephalic plate having a white spot in the middle. A wide band of white hairs crosses the clypeus, occupies the sides of the cephalic and anterior thoracic parts, and passes across the thorax behind the dorsal eyes. There are two tufts of black hairs on each side of the head. The abdomen is gray. Down the center is a scalloped, longitudinal black band, on which is a large triangular white spot, and further back, two pairs of white bars which touch the gray color of the sides. On each side is a pair of oblique white bars. The falces are bronze green. The palpi are yellowish, with white hairs. The first, second and third legs, excepting the metatarsi and tarsi, are rufus, the metatarsi being yellow except the distal third, which is rufus, and the tarsi being all yellow, excepting those of the first pair, which have a dark ring in the middle. The fourth leg has the femur and patella rufus, the tibia and metatarsus with the proximal half light colored, and the distal half dark brown, and the tarsus entirely light colored. All the legs are thinly covered with short white hairs.

We have a single female, in the Marx Collection, marked North America.

This species is very close to *farneus*, but the two pairs of white bars on the hinder part of the abdominal black band are transverse, not oblique, and are further apart. *Farneus*, moreover, lacks the white band on the cephalothorax.



***Phidippus translatus*, sp. nov.**

Of this species we have one female from Santarem. It is so badly rubbed that a color description is impossible, but it appears to be exactly like *P. morsitans*, excepting in the form of the epigynum. It is the only representative of this genus that we have seen from South America.

***Philaeus* (Thorell), 1870.**

Pl. XXIV, figs. 7—7c.

The cephalothorax is from moderately high to high, massive, and moderately long. The sides slant outward from the upper surface, especially in the males; they are narrowed in front and behind; in one species, *bicolor*, they are nearly parallel from just behind the second row of eyes to just in front of the posterior border, but in the others they are gently rounded. The cephalic plate is inclined forward. The thoracic plate is short and wide, the thorax slanting from just behind the dorsal eyes.

The quadrangle of the eyes is from a little more than one-third wider than long to nearly twice as wide as long, is equally wide in front and behind, or very slightly wider behind, and occupies two-fifths of the cephalothorax. The front eyes form a curved row, and are all separated, the lateral being further from the middle eyes than these are from each other. They are not large, the lateral being more than half the size of the middle eyes. The second row is slightly nearer to the first than to the third. The third row is not so wide as the cephalothorax at that place.

The relative length of the legs is 1243, 1423, or 4132.

*Philaeus chrysis* has the second row of eyes plainly nearer the first than the third row, as in *Phidippus*, but we place it in this genus because the quadrangle of the eyes is but little wider behind than in front. It has, moreover, metallic scales, which are not commonly found in *Phidippus*.

In distinguishing *Philaeus* from the closely allied genera we have made the following notes:

In *Phidippus* the cephalothorax is wider and shorter; the quadrangle of the eyes is plainly wider behind than in front; the second row of eyes is twice as far from the third row as it is from the first; the thoracic part is not so steeply inclined. In *Jotus* the quadrangle of the eyes is only one-fifth wider than long. In *Dynamius* the quadrangle of the eyes is only one-fourth wider than long, and the legs are nearly equal in length, the third and fourth, however, being longer than the first and second. In *Dendryphantus* the shape of the cephalothorax is different, being lower and flatter, without the distinctly raised cephalic plate. In *Servaea* the cephalothorax is not high as it is in *Philaeus*, and its upper surface is flattened. *Simaetha* has the lateral eyes of the first row widely separated from the middle eyes. In *Thyene* the cephalothorax is more rounded and has its highest point well behind the dorsal eyes.

Our collection has the following species belonging to the genus *Philaeus*: *chrysops* Poda, Dalmatia; *chrysis* Wlk., Guatemala; *bicolor* Wlk., France; *sanguinolatus* Wlk., Dalmatia; *fartilis* Peckham, Mexico; and *mexicanus* Peckham, Mexico. *Pl. orichalceus* C. K., which we formerly put into *Phidippus*, and *Phid. fraternus* Banks, are synonyms of *Philaeus chrysis*. *Phid. disjunctus* Banks is identical with *P. fartilis*.

### ***Zenodorus* Peckham, 1885.**

Pl. XXV, figs. 1—1e.

In 1881 Thorell formed the genus *Ephippus* for *d'Urvillei* Walck. The name was preoccupied, and *Zenodorus* was substituted in 1885. It is characterized by the shape of the cephalothorax, which is very wide in front and narrow behind, and by the large eyes of the first row.

The cephalothorax is wide in front, and is high at the third row of eyes, from which it slants steeply in both directions. All of these points are exaggerated in the male. The quadrangle of the eyes is one-fourth wider than long, is wider in front than behind, and occupies one-third of the cephalothorax. The anterior eyes are in a plainly curved row, and are all large, the lateral being three-fourths as large as the middle. The

middle eyes are subtouching, the lateral a little separated from them. The second row is halfway between the first and the third, and the third is much narrower than the cephalothorax at that place.

We have only the type, from Murray Island, sent to us by Mr. Workman.

***Parnaenus* Peckham, 1896.**

*Attidae of Central America*, Occ. Pap. Nat. Hist. Soc. of Wisconsin, Vol. 3, No. 1, p. 37, Plate XXV, figs 2—2c.

The characteristic thing about this genus is that the front part of the cephalothorax is widely swollen, so that the greatest width is just behind the second row of eyes, this peculiarity being as marked in the female, at least in the type species, as in the male. Of other genera which resemble it in this respect *Thyene* is much smaller and is found in another part of the world, *Hyllus* has a differently shaped cephalothorax, with a high raised cephalic plate, and *Zenodorus* has the quadrangle of the eyes wider in front. *Parnaenus* is found in Texas, Mexico, Central America and South America. The spiders are large and handsome, the males being darker colored than the females, and, usually, having their first legs ornamented with fringes of hair.

The cephalothorax is high and massive, and when looked at from in front the sides are seen to bulge out on each side of the first row of eyes. The cephalic part is inclined. Behind the dorsal eyes is a depression and then a slight hump, from which the thorax falls in one slope to the margin. The lower outline of the sides is not far from circular, but there is a distinct bulge just behind the first row of eyes where the cephalothorax is widest. They round out widely from above downward so that although the dorsal eyes are on the sides, they form a row which is much narrower than the cephalothorax at that place. The quadrangle of the eyes is from slightly to plainly wider behind than in front, is barely one-fourth wider than long, and occupies about two-fifths of the cephalothorax. The first row is curved, the middle eyes being slightly separated, while the lateral are placed further back, with a distinct space between them and

the middle eyes. The middle eyes are nearly twice as large as the lateral. The second row is plainly nearer the first than the third. In the male the falces are strong and projecting, with a long fang, in *cyanidens* and *funnebris*, but vertical in *griseus*. In both males and females, so far as we know them, the first leg is plainly the longest, and the fourth next.

This genus has for its type *Phidippus cyanidens* C. K., which we have from Texas, Mexico, Guatemala and Brazil. To this we add *Phidippus funnebris* Banks, (*Arachnida from Baja California, and other parts of Mexico*), from Vera Cruz.

***Parnaenus? griseus*, sp. nov.**

Pl. XXVI, figs. 7–7b.

I. large spiders, black below and silvery gray above.

♂. Length, 11.5 mm. Legs, 1423, first stoutest. The first is longer than the second by the metatarsus and tarsus. The second and third differ but little. The fourth is longer than the third by the tarsus and half the metatarsus.

The cephalothorax, which is not much longer than wide, is highest behind the dorsal eyes. The quadrangle of the eyes is one-fourth wider than long, is plainly wider behind than in front, and occupies scarcely two-fifths of the cephalothorax. The palpi are stout. The maxillae are widened at the end, with a projection at the outer corner. The falces are stout, vertical, and not iridescent. The cephalothorax and abdomen are covered, above, with silvery gray hairs, which reach, on the sides of the cephalothorax to a little below the eyes. The lower sides of both cephalothorax and abdomen are black. There are long brown and white hairs scattered over the whole body. The legs are black, excepting the proximal halves of the tarsi, which are light colored with white hairs. There is a short thick fringe under the first leg, which is white on the patella and black on the tibia. The palpus has white scale-like hairs, and also long white hairs, on all the joints. With some hesitation, we place this species in the genus *Parnaenus*. The widest part of the cephalothorax is just behind the dorsal eyes, not so far back as is represented in the figure.

We have one male from Las Cruces, New Mexico.

***Pardessus P., 1896.***

For illustration, see *Attidae of Central America*, Pl. III, figs. 1—1b.

Rather large, handsome spiders, with distinct patterns.

The cephalothorax is rather high, with the upper surface level, or slightly convex. The cephalic part is slightly inclined; the thoracic falls little or not at all in the first half, and then slopes, not very abruptly, to the posterior margin. The thoracic plate is bluntly narrowed behind. The sides widen out gradually from the anterior end to the middle of the thoracic part, and then contract a little. They slant outward, so that the cephalothorax is considerably wider below than above. The highest point is at, or just behind, the dorsal eyes. The quadrangle of the eyes is less than one-fourth wider than long, is about equally wide in front and behind, and occupies two-fifths of the cephalothorax. The four anterior eyes are a little separated, the lateral more widely from the middle eyes than these from each other, and form a straight row. The second row is a little nearer the first than the third, and is narrower than the third, which is, itself, plainly narrower than the cephalothorax. The type of this genus is *Plexippus mimicus*, C. K.

***Servaea Simon, 1888.***

Pl. XXV, figs. 2—2b.

*Journal Asiatic Soc. of Bengal*, Vol. LVII, part 11, No. 3, p. 283.

The name *Servaea* was substituted for *Scaea* L. Koch., 1879, *Arachn. Australiens*, p. 1142, this being preoccupied.

This Australian genus is very close to *Philaeus*, the cephalic thorax having the same long, nearly parallel sides, but the upper contour is quite different, *Servaea* having the dorsum nearly flat, while in *Philaeus* it is distinctly convex. The quadrangle of the eyes is one-third wider than long, and a little wider in front than behind, occupying two-fifths of the cephalothorax. The first row is slightly bent, with the middle eyes plainly less than twice as large as the lateral. The second row is about half way

between the other two, and the third is plainly narrower than the cephalothorax. The cephalothorax is not so high as in *Philaeus*, *Phidippus* and *Palestrina*. The cephalic part is only slightly inclined, while the thoracic is nearly flat in the first half, and then slopes off gradually.

We have specimens of *vestita*, the type, from New South Wales and Victoria. The relative length of the legs in the male is  $14\overline{23}$ , and in the female  $41\overline{23}$ .

***Mollika* gen. nov.**

For illustration see *Arachniden Australiens*, Koch and Keyserling, Plate XCIV, figs. 7, 7a, 8—8c.

The cephalothorax is high, massive, and convex, and is nearly as wide as long; the sides slant outward from the upper surface and their outline from the front to the back is gently rounded, the widest point being behind the dorsal eyes. The cephalic part is inclined, and the thoracic falls in one slope from the second row of eyes to the lower border. The quadrangle of the eyes is one-fourth wider than long, a little wider in front than behind, and occupies two-fifths of the cephalothorax. The anterior eyes form a slightly curved row, the middle ones being subtouching, and the lateral a little separated from them and two-thirds as large, the relative size being the same as in *Zenodorus*, although the eyes, as a whole, are smaller. The second row is a little nearer the first than the third. The third row is as wide as the upper surface, but not so wide as the cephalothorax because of the widening out of the sides from above below. The legs are  $14\overline{32}$ , the first being plainly the longest, while the others are nearly equal.

This genus, which we form for *Philaeus metalescens* L. K., differs from most of the larger genera of the *Phidippus* group in the sloping thorax and the larger lateral eyes of the first row. In these points it agrees with *Zenodorus*, but this genus bulges out widely at the front end of the cephalothorax while *Mollika* is widest in the middle. Into this genus we put *Jotus microphthalmus* L. K.

***Palestrina* gen. nov.**

Pl. XXVI, figs. 4—4c.

This genus, while in size and general make up it recalls *Phidippus* and *Philaeus*, has a different look about the cephalothorax. The sides are high, but instead of being rounded off, they fall in a steep, straight slant. The dorsal surface, on the contrary, is more gently rounded than in those genera, the curve of the fall behind the dorsal eyes being just about equal to that in front of them. The sides are narrow in front but bulge out behind the dorsal eyes. The quadrangle of the eyes is one-fourth wider than long, is very slightly wider in front, and occupies two-fifths of the cephalothorax. The first row is very slightly curved and the middle eyes are larger than in the allied genera, being about twice the size of the lateral eyes. The second row is nearer the first than the third, and the third row is nearly as wide as the cephalothorax. In the species that we have of this genus the relative length of the legs is  $\overline{43} \overline{12}$ , the third and fourth being plainly longest, and the first and second plainly stoutest. As compared with *Servaea*, *Palestrina* has the middle eyes of the first row relatively larger, the sides higher and steeper, and the quadrangle of the eyes wider behind.

Of this genus we have only *variegata*, a new species from Brazil.

***Palestrina variegata* sp. nov.**

Pl. XXVI, figs. 4—4c.

♂. Length 9—10 mm.

Legs  $\overline{43} \overline{12}$ , first and second pairs stoutest. The third is longer than the second by the tarsus and half the metatarsus.

The cephalothorax is entirely covered with bright golden hairs. On the abdomen these gold-colored hairs are mingled with black ones to form a beautiful mottled pattern of spots and short wavy lines, which is very effective in an unusual style. The whole face, and the clypeus are covered with long yellowish white hairs which run down on to the dark colored, strong, vertical falcies. The same hairs form a fringe on each side of the

palpus. The dark colored legs have some short snow white hairs on the tibia and metatarsus, but are not fringed. The metatarsi of the first and second, and the tarsi of the first, second, and third have the proximal ends light colored.

We have two females from Chapoda, in the Smith collection.

### ***Hyllus* C. Koch, 1846.**

For illustration of *H. pterygodes* see *Arachniden Australiens*, Pl. CXIII, figs. 6—7.

In this genus the species are large, with long bodies, and with the first legs very long, only slightly thickened, and not hairy. In some of the species, and especially in the males, there is a bulging out of the sides of the cephalothorax. It is characterized by the high cephalic plate, like that of *Amycus*. Most of the species of *Hyllus* come from the Malay Archipelago but we have one, *pratensis* P., from Guatemala and Trinidad. We have also *giganteus* C. K., *Walcknaerii* White, and *pterygodes* L. K.

The cephalothorax is very high, having the quadrangle of the eyes on a raised plate from which it slopes outward on the sides and behind. It is contracted in front and behind, the widest point being behind the dorsal eyes. The quadrangle of the eyes is one-fifth wider than long, equally wide in front and behind, and occupies two-fifths of the cephalothorax. The eyes of the first row are all separated and are large or moderately large, the middle being less than twice the lateral; they form a slightly curved row. The second row is plainly nearer the first than the third. The third row is not so wide as the cephalothorax at that place.

C. Koch founded this genus on *giganteus* in 1846. In the same year White formed the synonymous genus *Deinerosis* for *Walcknaerii*. *Hyllus quadrilineatus*, *Wagae*, *nerreankii*, *minutus*, *fuscomanus*, *Cambridgii*, *callitherinus* of Taczanowskii, and *Hyllus tenuipes* of Keyserling are in our collection, but we do not include them in this genus.

The shape of *Hyllus* is more like that of *Amycus* than anything else, but the spiders are much larger, heavier, and deeper



colored. The males somewhat resemble the male of *Parnaenus funebris*, but the shape of the cephalothorax is quite different.

***Simaetha* Thorell, 1881.**

Pl. XXV, figs. 3—3b.

This genus is identical with *Eulabes* Keys. 1882 and *Pirithous* Keys. 1883. The spiders are large, with rounded cephalothorax and long first legs, but are not so high and massive as *Phidippus* and *Philaeus*. They are characterized by the very wide quadrangle of the eyes and by the distance between the lateral and middle eyes of the first row.

The cephalothorax is moderately high and has a rounded appearance, both above and on the sides. The cephalic plate is inclined, especially in the anterior part. The thoracic part slopes off gradually in the first third and then more steeply. The highest point is at the dorsal eyes and the widest point behind them, where there is a gentle swelling out of the sides, excepting in *severa*, which is widest in front. The quadrangle of the eyes is about twice as wide as long, is much wider behind than in front, and occupies from two-fifths to one-half of the cephalothorax. The first row of eyes is straight or somewhat curved, with the middle eyes subtouching or a little separated, and more or less carried forward by a projection of the cephalothorax. The lateral eyes are separated from them by at least their own diameter. The second row of eyes is nearer the first than the third. The third row is about as wide as the cephalothorax at that place. The relative length of the legs is  $\overline{1243}$  in the males, and  $\overline{1423}$ ,  $\overline{1423}$ , or  $\overline{1342}$  in the females.

This genus was formed by Thorell for *thoracica* (Studi sui Ragni Malesi e Papuani, III, p. 520). We lack this species, the genus being represented in our collection by *paetulus* Keys. (Pl. XXV, figs. 3—3b) *tenuidens* Keys., (*Hasarius*) *barbatissimus* Keys., and *severa*, a new species. In *barbatissimus* the cephalothorax is higher than in the others, and is a little differently shaped. *Severa* approaches *Anamosa* of the *Homalattus* Group, in its long cephalic part. All these species excepting *severa* are from Australia. Possibly the type, *thoracia* (Cape York), is identical with *S. fissidens* Keys., also from Australia.

***Simaetha severa* sp. nov.**

♀. Length 6.6 mm. Legs 1423, first longest and stoutest.

In this species the quadrangle of the eyes is twice as wide as long, occupies one-half of the cephalothorax, and is much wider behind. The first row of eyes is straight; the middle eyes are large and subtouching; the lateral are nearly half as large, and are separated from them by their own diameter. The second row is very much nearer the first than the third. The cephalothorax is as wide as long, and is widest at the second row of eyes, where there is a distinct bulge. The falcies are vertical, as wide as the first row of eyes, and flattened. The maxillae are rounded. The palpus has the patella, tibia, and tarsus flattened. The color is brown, the cephalothorax being covered with yellowish hairs above, and halfway down the sides and hinder slope. Where the sides bulge out in front these hairs grow long. The abdomen, in our specimen, is rubbed bare, showing only five pairs of indented dots.

We have one female from Singapore.

***Thyene* Simon, 1885.**

Pl. XXV, figs. 4—4b.

*Bull. Soc. Zool. de Fr.* 1885, t. x, p. 4.

This genus covers several medium sized species (5—9 mm.) from the Eastern Hemisphere. In the males there is a characteristic bulging out of the sides of the cephalothorax which makes it resemble, on a much smaller scale, some of the males of *Parnaenus*, *Zenodorus* and *Hyllus*. In both sexes the sides are distinctly rounded.

The cephalothorax is highest behind, or at, the dorsal eyes. The cephalic plate is strongly inclined and the thoracic part and the sides are much rounded. The widest point is just behind the dorsal eyes, excepting in the male of *bucculentum* where it is in front of the third row. The quadrangle of the eyes is one-third wider than long, is from a little (*imperialis*) to a good deal (*bucculentum*) wider behind, and occupies two-fifths of the cephalothorax. The first row of eyes is almost straight, with

the middle fully twice as large as the lateral, all separated. The second row is nearer to the first than to the third. The third row is narrower than the cephalothorax at that place. So far as we know the relative length of the legs is 1342 or 1342 in the male and 3412 in the female.

Simon founded this genus on *imperialis* Rossi, in 1876, calling it *Thya* (*Arachn. de Fr.*, Vol. III, p. 51). The name *Thyene* was afterward substituted for *Thya*, which was preoccupied. We have the type, from France, *tamatavi* Vinson, from Madagascar, *bucculentum* Gers. from Zanzibar and Madagascar, and *varians* new from Madagascar. Simon has described *T. semicuprea*, *Bull. Soc. Zool. de Fr.*, t. x, p. 4, and *T. squamulata*, *Ann. Soc. Ent. de Fr.*, 1886, p. 347.

***Thyene varians* sp. nov.**

The males of this species are showy brown and white spiders, with a wide scalloped white band on the sides of the cephalothorax, and white hairs on the upper part of the falces. The female is indistinct.

♂. Length 5—7 mm. Legs  $\overline{1324}$ , first and third much elongated.

♀. Length 7 mm. Legs 3412, third and fourth plainly longest, and the first and second stoutest. The first and second are nearly equal in length, the third and fourth more unequal.

The first row of eyes is nearly straight and the lateral eyes are larger than is usual in *Thyene*, being more than half as large as the middle eyes. The quadrangle of the eyes is a little more than one-fourth wider than long, and is only slightly wider behind than in front.

In the male the ground color is brown. The cephalothorax has the clypeus and face white. There is a small tuft of black hairs, on each side, below the eye of the second row. The cephalic plate has a more or less triangular white spot in the middle, and two short snow white bands running back from the middle eyes of the first row to beyond the eyes of the second row. Around the lower margin is a narrow white line, and on the upper sides is a wide, scalloped, white band, which begins at

the lateral eyes, and is continuous on the hinder part of the cephalothorax. This wide band is connected with the marginal line by a white line at the back part of the thorax. The abdomen has a white longitudinal band down the middle which forms, at the anterior end, a large spot. Behind this there is an enlargement, and then a narrower part, which is crossed, back of the middle, by a curved transverse white band. The falcies are vertical, about as wide as the middle eyes, with a small fang. Their color is brown, and on the upper half is a bunch of white hairs. The palpus has white scales along the top of the femur and patella, and at the proximal end of the tarsus, and white hairs on the sides of the tibia. The femur and patella are light colored, the tibia and tarsus dark. The first leg has the femur, patella, and tibia brown, and the metatarsus and tarsus light colored. There are white hairs on the proximal two-thirds of the patella, in a line along the outer upper edge of the tibia (which is covered underneath with short brown hairs), and in a ring around the proximal end of the metatarsus. The other legs have the femur light at the proximal, and dark at the distal end, and the other joints ringed with brown and white.

In the female the cephalothorax is covered with light brown hairs, with a not very conspicuous tuft on each side below the eye of the second row. The abdomen is covered with gray hairs. On each side are two oblique white bands, and on the hinder part of the dorsum are two pairs of white spots all outlined in black. The markings are indistinct. The legs are yellow with white hairs.

We have three males and one female from Madagascar.

***Dendryphantes* (C. K.), 1837.**

For illustration of the type, see *Attidae of Central America*, Occ. Pap. Nat. Hist. Soc. of Wisconsin, Vol. III, No. 1, Pl. IV, figs. 3—3b.

This genus is widely distributed and has many species which resemble each other closely in form, color, and marking. They are usually from four to seven millimeters long. The cephalothorax is moderately high. The upper surface varies in its contour, but is never flat. Most commonly both cephalic and thor-

acic parts slope gradually from the dorsal eyes, the thoracic slant becoming steeper after the first third. The sides are but little wider below than above. They diverge very slightly from the first row of eyes, and are only a little wider than the third row, but behind this point they widen out. As a usual thing the front eyes form a curved row, the middle being less than twice as large as the lateral, and close together, while the lateral are a little separated from them. In some cases these eyes are close together in a straight row, and the middle eyes may be twice as large as the lateral. The quadrangle of the eyes is from one-fourth to one-third wider than long, is wider behind than in front, and occupies from two-fifths to one-half of the cephalothorax. The first and fourth legs are always longer than the second and third, the first leg being always longest in the male.

Hentz, in his *North American Spiders*, described a number of small *Dendryphantes* which are very difficult to identify. After comparing a large number of specimens from different parts of the country, we have concluded that *parvus* is the female of *capitatus*. Our *aestivalis* and also *aestivalis* Emerton, are identical with *capitatus*. We had supposed that *octavus* and *hebes* H. were also to be referred to this species, but Mr. Emerton writes to us as follows: "As to identification of Hentz's names it is not much more than guess work at best. I can agree with you on *capitatus* and *parvus* being probably the same species as our *aestivalis*, but *octavus* and *hebes* are quite as likely to be something else. I have just looked at the original colored figures in the Society of Natural History Library, and they are less like *D. aestivalis* than the engravings and descriptions." Our *D. alboimmaculatus* would better go into the genus *Ballus*. *D. vitis* of Cockerell, and our *D. elegans*, we now think are better placed in *Icius*. *D. bifida* Banks and *D. aeneolus* Curtis are synonyms of *D. montanus* Emerton. We have compared them carefully and the only difference is that the joints of the palpus are heavier in *montanus* than in *aeneolus*. *Montanus* was published in the latter part of 1891, *aeneolus* early in 1892, and *bifida* in 1895.

Key to some of the males of the genus *Dendryphantes*, includ-

ing *felix*, *prosper*, *faustus*, *albopilosus*, *vigens*, *ruber*, *nitidus*, *laetabilis*, *octopunctatus*, *limbatus* Banks, *cuprinus* Tacz., and *tropicus*. In all of these species the first leg is longer than the second by the tarsus, metatarsus and part, or all, of the tibia. In several other species the first leg is longer than the second by the tarsus and metatarsus, but in these all of the legs are relatively short, there being no appearance of a long first leg.

1. Falces long, horizontal and parallel, *felix* and *prosper*.

The general appearance of these species is almost exactly alike, but the relative length of the legs is 1423 in *felix* and 1432 in *prosper*, and the palpi are perfectly distinct, the tube being straight in *felix* and curved in *prosper*.

2. Falces moderately long to long, and oblique, *militaris*, *limbatus*, *nitidus* and *laetabilis*.

The falces of *laetabilis*<sup>1</sup> are stout and round, less than twice as long as wide, with two teeth on the lower side, and a long apophysis from the middle of the inner edge of each falx. The first leg is longer than the second by the tarsus, metatarsus, and nearly all of the tibia. There is no white band on the cephalothorax.

In *nitidus*<sup>2</sup> and *limbatus* the falces are long and rather slender, more than twice as long as wide, and the first leg is longer than the second by only the tarsus and metatarsus. *Nitidus* has a white band around the lower edge of the cephalothorax, but none on the upper sides, while *limbatus* has the marginal band, and wider ones running backward from the lateral eyes on to the thorax. *Militaris* differs from the other three in having white bands on the upper sides of the cephalothorax and across the cephalic part above the first row of eyes. For a good drawing of the falces of this species, see Emerton's *New England Attidae*, Pl. XVII, figs. 1b, 1c.

3. Falces swollen, vertical or slightly inclined, with white hairs on the front face, *albopilosus*, *vigens*, *faustus* and *octopunctatus*.

*Albopilosus* is distinguished from *vigens* by its coloring, from

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<sup>1</sup> See Attidae of Central America and Mexico, Pl. IV, fig. 6a.

<sup>2</sup> See Attidae of Central America and Mexico, Pl. IV, fig. 8a.

*faustus* by having only one apophysis on the tibia of the palpus, and from *octopunctatus* by having the tube of the palpus long and spirally curved, instead of short and straight. *Vigens* is distinguished from *faustus* by having only one apophysis on the tibia of the palpus, and from *octopunctatus* by the tube of the palpus being curved. *Faustus* is distinguished from *octopunctatus* by having two apophyses on the tibia of the palpus.

4. Falces vertical or slightly inclined, not swollen, without white hairs on the front face, *cuprinus*, *tropicus* and *ruber*.

*Tropicus* is distinguished by the short curved horn on the under proximal part of each falx. *Ruber* is distinguished from *cuprinus* by having the falces equally wide throughout their length, instead of wide at the base and narrow at the end.

This leaves us a number of American species in which the first leg of the male is not strikingly long, the spiders being rather small, from 4.5 to 5.5 millimeters long. These species are *vegetus*, *perfectus*, *pernix*, *bisquipunctatus* Tacz., *montanus* Em., *capitatus* Hentz, *arizonensis*, *Manii*, *proxima*, *hondurensis*, *flavipedes*, *centralis* and *Smithii*. Of these, *vegetus* is distinguished by its golden-green coloring, without white bands; *perfectus* by the white band down the middle of the abdomen; *pernix* by the two pairs of curved white bands on the posterior part of the dorsum; *bisquipunctatus* by the curved horn (similar to that of *tropicus*) on the falces. The remaining species are very similar in form and coloring, and are best distinguished by the differences in the palpus. *Capitatus* has the tube doubled, coming off from the end of the bulb. *Montanus*, *proxima* and *hondurensis* have all a stout, straight tube from the end of the bulb, and must be separated by their specific descriptions. *Manii* and *Smithii* have a straight, slender tube from the end of the bulb, *Smithii* being distinguished from *Manii* by having the apophysis on the tibia of the palpus larger, and curved. In *arizonensis* there is a stout, curved tube from the side of the end of the bulb. In *centralis* the tube also comes from the side of the end, but is slender and curved. In *flavipedes* the tube is bifurcated to its insertion at the end of the bulb. This species has the first and second pairs of legs light brown with a black line along the anterior faces of the femur, patella and tibia.

***Dendryphantes felix*, sp. nov.**

Pl. XXVII, figs 6—6a.

♂. Length 5.5 to 6.5 mm. Falces 3 mm. Legs 1423 first stoutest and much longer than the others, the first being longer than the second by the tarsus, metatarsus and part of the tibia. The coxa and trochanter are elongated. In *A. diolenii* these joints reach to about half the length of the falx, in this species just to the base, while in *D. prosper* the coxa and trochanter are scarcely visible from above, and are much thicker than in *felix*.

The cephalothorax is plainly longer than wide; the cephalic part is slightly inclined, and the thoracic falls a little in the first two-fifths and then drops abruptly. The quadrangle of the eyes is one-third wider than long, is a trace wider behind than in front, and occupies two-fifths of the cephalothorax. The first row of eyes is straight, the middle are twice as large as the lateral, the former touching, the latter subtouching. The second row is nearer the lateral. The third is about as wide as the cephalothorax at that place. The falces are bronze brown in color, and are long, parallel, horizontal and cylindrical, with a very long fang. The maxillae are more than twice as long as the labium, divergent and rounded. The color of the cephalothorax is bronze, with red, iridescent scales on the upper surface, and around the first row of eyes, the scales being much more distinct in some lights than in others. There is a white spot just above the first row of eyes, and another further back and between the eyes of the third row. There are white bands on the upper sides, starting from the lateral eyes of the first row; they do not unite behind. The abdomen is bronze brown, with an encircling white band, which is not continuous behind. The bronze brown along the middle of the abdomen is much brighter and more iridescent than that on the sides. The first legs are dark, except the last joint, which is pale. The trochanters and proximal parts of the other three legs are light; the rest of the legs are dark until the metatarsi, the last two joints growing paler, the depth of color varying in different specimens and also on the different legs. All the legs have white hairs.



The femur and patella of the palpus are covered with white scales. The tube of the palpus distinguishes this species from *D. prosper*.

We have this species from San Rafael, Mexico, sent us by Mr. C. H. Tyler Townsend.

***Dendryphantes prosper*, sp. nov.**

Pl. XXVII, figs 5—5a.

♂. Length 6 mm.; length of cephalothorax 3 mm. Falces 2.5 mm. Legs 1432; first and second stoutest and first much longer than the others.

The cephalothorax is plainly longer than wide. The cephalic part is slightly inclined, and the thoracic falls a little in the first half and then drops abruptly. The quadrangle of the eyes is one-third wider than long, is wider behind than in front, and occupies two-fifths of the cephalothorax. The first row of eyes is straight, with the middle eyes sub-touching and twice as large as the lateral, which are separated from them. In our specimens the scales and hairs are so nearly gone that it is impossible to get a good idea of the coloration, but the cephalothorax seems to have been bronze, with red, iridescent scales on the cephalic plate, white bands on the upper sides, and a white spot between the dorsal eyes, while the abdomen is brown, with an encircling white band. The falces are bronze brown in color and are long, horizontal, cylindrical, and parallel, with a very long fang. The maxillae are more than twice as long as the labium, and are rounded and divergent. The legs are brown, the first and second pair darkest, with some close white scales. The palpus is brown, with short white hairs on the patella.

The general appearance of this species is exactly like that of *D. felix*, although there is a slight difference in the relative length of the legs, but the palpi are perfectly distinct, the tube being straight in *felix* and curved in *prosper*.

We have two males from San Antonio, Texas.

***Dendryphantes limbatus* Banks.**

*Arachnida from Baja, California, and other parts of Mexico.* Proc. California Academy of Sciences, Third Series, Vol. I, No. 7, p. 282.

This species, which Mr. Banks places in the genus *Philaeus*, seems to be identical with *Philaeus consimilis* Banks, described in the same paper, p. 283.

♂. Length 5 mm.; ♀ 5 mm. Legs ♂ 1423; first plainly the longest; ♀ 1423. Falces, ♂ 2.5 mm.; fang as long.

The cephalothorax is moderately high and has a rounded appearance, being nearly as wide as long. The first row of eyes is almost straight, the middle being subtouching and less than twice as large as the lateral, which are a very little separated from them. The second row is a very little nearer to the first than to the third, and the third is narrower than the cephalothorax at that place. The quadrangle of the eyes is one-third wider than long, and is wider behind than in front. The cephalic part is a little inclined, and the thoracic falls scarcely at all until the last third, when it drops abruptly. In the male the whole body is bronze. The eye-region and a central band down the dorsum of the abdomen are covered with green metallic scales. The cephalothorax has a white line around the margin, and a white band starting from the lateral eye and running back on to the thorax, but not quite uniting with its fellow of the opposite side. The abdomen has a white band around the base and sides, which does not reach the spinnerets. The female is similar, but lacks the white bands. The falces of the male are long, oblique, and divergent, with a strong tooth underneath, and a long, slender fang. In the female they are vertical and parallel. The coloring is bronze, with iridescent scales. The legs are dark brown with the tarsi pale, and the proximal ends of the femora lighter, especially in the third and fourth. The palpi are dark brown, those of the male having white scales and a row of short black spines on the rather elongated patella.

*D. laetabilis* has no white band on the cephalothorax and has the falces not long and slender, but heavy, with two teeth on the lower side, and a long apophysis from the middle of the inner edge of each falx.

In *D. nitidus*, which is a larger species, the patella and tibia of the palpus are longer than the tarsus, the tibia alone being more than half as long, while in *limbatus* the patella and tibia are shorter than the tarsus, the tibia being about one-fourth as long. *Nitidus* lacks the white bands on the upper sides of the cephalothorax.

We have one female and many males from Vera Cruz and San Rafael, Mexico, and Rocks Reseca, Texas.

***Dendryphantes albopilosus*, sp. nov.**

Pl. XXVII, figs. 2—2c.

Length, ♂ 5—7 mm.; ♀ nearly 8 mm. Legs, ♂  $\overline{1234}$ ; the first much longer than the others, which are nearly equal. The first leg is 7.5 mm. long through the elongation of the coxa and trochanter, and is plainly the stoutest. It exceeds the second by the tarsus, metatarsus and nearly all of the tibia. ♀. 1423, first stoutest.

The quadrangle of the eyes is plainly wider behind, where it is one-third wider than long, and it occupies two-fifths of the cephalothorax. The anterior eyes are in a straight row, the middle subtouching and less than twice as large as the lateral, which are well separated from them. The second row is a little nearer the first than the third, and the third is nearly as wide as the cephalothorax at that place. The whole cephalothorax is rounded, the widest point being at the dorsal eyes, with the sides a little wider below than above.

The cephalic and thoracic parts of the male are covered, above, with chestnut colored hairs, excepting a square white spot on the front middle part of the eye-region. The sides are covered with white hairs, excepting on the posterior lower parts which are bare. (It may be that in our specimens the hairs have been rubbed away.) The narrow clypeus is dark under the middle eyes, and white under the laterals. The abdomen is chestnut, with a white band around the front end which runs on to the sides, and a white band down the middle, crossed by two widely opened chevrons of white hairs. The legs are brown,

darker in some specimens than in others, with white scales on all the joints. The first has the tarsus and the proximal ends of the patella, tibia, and metatarsus light colored, while the other parts are darker. The others have the metatarsus and tarsus light, and the other joints dark. The palpus is brown, with white scales on all the joints, especially on the femur and patella. There is a pointed apophysis on the tibia. The falces are vertical and bulge out in front, more in some specimens than in others. They are brown, the front faces being covered with white scales. The maxillae are rounded. The female has the whole cephalothorax mottled with white and chestnut hairs, the white predominating. The abdomen is similar, with the color inclining to grayish. On the posterior half of the dorsum are two short, longitudinal, dark bands, each crossed by three transverse white bars. Between the bands the dorsum is sometimes bronzy. The dark bands sometimes run forward nearly to the front end, when they have a fourth pair of white bars. The legs are dark brown, excepting that the second, third and fourth pairs have the proximal two-thirds of the femur pale. The falces are slightly swollen and covered with white scales.

We have one male in which the first leg on one side is scarcely longer than the second. It has probably been broken off and replaced. Some of the males are colored like the females.

This species is distinguished from *vigens* by its coloring, from *faustus* by having only one apophysis on the tibia of the palpus, and from *octopunctatus* by having the tube of the palpus long and spirally curved, instead of short and straight.

We have numerous examples from Chapoda, Para, Sao Paulo, and Paraguay.

***Dendryphantes vigens*, sp. nov.**

Pl. XXVII, fig. 3.

♂. Length 5 mm. Legs 1423; first stoutest and much the longest; others not very unequal. The first exceeds the second by the tarsus, metatarsus and nearly all of the tibia.

The quadrangle of the eyes occupies two-fifths of the cephalothorax and is plainly wider behind, where it is one-third as wide

as long. The anterior eyes form a curved row, the middle being less than twice as large as the lateral and subtouching, while the lateral are a little separated from them. The second row is nearer the first than the third, and the third is not so wide as the cephalothorax at that place.

The cephalothorax has the upper surface and the lower sides bronze. A white band passes backward from the lateral eye along the upper side on to the thorax, but does not unite with its fellow of the opposite side. The abdomen is bronze, with a white encircling band which grows narrower toward the spinnerets. On the dorsum are four pairs of indented dots. The legs are bronze, with all the joints darkening toward the distal ends. The femur is nearly black in the first leg, while in the others it is dark with a pale proximal end. There are white scales on all the joints. The palpus is brown. It looks rather like that of *octopunctatus*, but is not so long and slender, the tibia being shorter and broader (plainly smaller than the tarsus), with a longer and slightly curved apophysis. The tube from the end of the bulb is somewhat curled, while in *octopunctatus* it is straight. The falces are vertical and are swollen, like those of *octopunctatus*, *faustus*, and *albopilosus*, with white scales all over the front. The clypeus is narrow and dark. The maxillae are widened at the tip and are about twice as long as the labium, which is longer than wide.

The color of this species is entirely different from that of *albopilosus*. It is distinguished from *faustus* by having only one process on the tibia of the palpus, and from *octopunctatus* by the difference in the palpus.

We have one male from Para.

***Dendryphantes faustus*, sp. nov.**

Pl. XXVII, figs. 1–1b.

Length, ♂ and ♀, 6 mm. Legs, ♂ and ♀, 1423; the first very long (9 mm.) in the male.

In the male the cephalothorax and abdomen are bronze-brown, the cephalothorax with white hairs on the sides, and the abdomen with an encircling white band. On the clypeus and around the eyes of the first row are bright golden-red hairs.

The falces project slightly, and are divergent, and flattened on the inner side, with a rather long fang. On the flat inner sides, and along the inner edges, are pure white hairs, which have a very ornamental effect. The legs are brown, paler toward the terminal joints. The first leg has the coxa and trochanter elongated and visible from above, the coxa alone being longer than the coxa and trochanter of the second taken together. There are some short white hairs on the upper side of the femur, and under the patella. The palpus has two apophyses on the tibia, one long and blunt, one short and pointed. The maxillae are pointed.

The female has a brown cephalothorax, which seems to have been covered with white hairs, and there are long white hairs on the face and clypeus. The abdomen is reddish brown, with some white hairs at the anterior end. The sides are mottled with pale streaks. On the dorsum are two dark longitudinal bands, upon which are three pairs of pale dots, and, behind these, two pairs of pale bars. The falces are shaped somewhat like those of the male, but are vertical and have a short fang. On the inner faces are some short white hairs. The legs and palpi are barred with light and dark brown.

In its elongated first leg and general coloring, *faustus* resembles *Avitus diolenii*, but in that species the cephalothorax is much narrower behind than in front, and the middle eyes of the first row are twice as large as the lateral eyes.

***Dendryphantes tropicus*, sp. nov.**

Pl. XXVII, figs. 8–8b.

Length, ♂ 4 mm.; ♀ 5.5 mm. Legs, ♂ 1423; first stoutest and exceeding the second by the tarsus and metatarsus; ♀ 1423, first stoutest.

The quadrangle of the eyes is one-fourth wider than long, occupies about half of the cephalothorax, and is equally wide in front and behind. The first row of eyes is straight, the eyes all close together, the middle being barely twice as large as the lateral. The second row is nearer the first than the third, which is plainly narrower than the cephalothorax at that place. The sides round out, being widest at the dorsal eyes.

Our specimens are rubbed. In the male the cephalothorax is dark brown and seems to have been covered with bronze scales. There are indications of a white encircling band. The lower margin has a very narrow white line. The abdomen is brown, the dorsum surrounded by a white band. The legs and palpi are of a medium brown with some darker bars. The palpus has a long, spiral tube. The falces are divergent, nearly vertical, with a fang as long as the falx; on the under proximal part just beyond the point of the maxilla, is a short curved horn, pointing toward the base. This is a characteristic point, as the only other species having such a process is *bisquelpunctatus*, which is larger with a different palpus.<sup>1</sup> The falces are brown with brown hairs. The labium is a little longer than wide and a little less than half as long as the maxillae, which are excavated, truncated, and projecting at the outer corner. The female has the cephalothorax with light bronze scales, the sides and clypeus being white. The abdomen is brown with a central longitudinal band of light bronze, and an encircling band of yellowish white. In front of the spinnerets are two pairs of oblique white lines running from the central band to the white on the border.

We have two males and a female from Chapoda.

***Dendryphantes cuprinus* Tacz.**

Pl. XXVII, fig. 7.

Length, ♂ 5 mm.; ♀ 6 mm. Legs, ♂ 1243; first stoutest and longer than the second by the tarsus, metatarsus and nearly all of the tibia; second, third and fourth nearly equal; ♀  $\overline{14} \overline{23}$ , first much the stoutest.

The cephalothorax is narrow in front, widening out to a point behind the dorsal eyes. The sides are a little wider below than above. The quadrangle of the eyes is one-fourth wider than long, a very little wider behind than in front, and occupies nearly one-half of the cephalothorax. The anterior eyes are close together in a curved row, the middle being less than twice as large as the lateral. The second row is plainly nearer the first than the third, which is narrower than the cephalothorax.

The male has the whole body bright brown, covered with golden hairs which have a slight metallic lustre. The cephalo-

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<sup>1</sup> *Mohica Moenkhausii* has a horn under the falx like that of *bisquelpunctatus*.

thorax has white bands along the upper sides which unite behind and has some reddish hairs around the front eyes. The abdomen is encircled by a white band, and has, on the dorsum, eight indented dots, and a narrow streak of mixed black and white hairs down the middle of the posterior half. The legs are brown with some small white scales, those of the first pair being the darkest. The palpi are yellowish-brown with white scales on the femur and patella, and are marked by a very small apophysis on the femur, and a larger one on the tibia. The tube is narrow and straight. The falces are brown. They are vertical, stout above, but narrow at the end, where there is a little tooth. The fang is long and slender, the whole falx resembling that of *tropicus*, which, however, lacks the little tooth, and has a small curved horn on the upper part. The maxillae are twice as long as the labium, with projections at the outer corners. Our female is too badly damaged to describe, but the cephalothorax seems to have been dark brown with some iridescent red on the eye-region. According to Dr. Taczanowski's description the whole body is covered with fawn colored hair, the abdomen having a longitudinal brown band which is enlarged at the extremities and in the middle, and is bordered by a white line.

We have a male and female from Lima, sent to us by Dr. Taczanowski.

***Dendryphantes pernix*, sp. nov.**

Pl. XXVIII, figs. 5—5a.

Length, ♂ 5.5 mm. ♀ 6.5 mm. Legs, ♂ and ♀ 1423, first stoutest in both sexes, with a distinct enlargement of the femur and tibia, which is more marked in the male than in the female.

The cephalothorax is nearly flat on the upper surface from the front row of eyes through two-thirds of the thoracic part, although there is a slight rounding up toward the dorsal eyes, in both directions. It widens out a little behind the middle, and is not much wider below than above. The front eyes form a very slightly curved row, the middle ones touching and less than twice as large as the lateral, which are separated from them. The



quadrangle is one-fourth wider than long occupies more than two-fifths of the cephalothorax, and is but little wider behind than in front.

We have no perfect specimen, but the coloring seems to be as follows: The hairs on the sides of the cephalic part, and in a band along the upper sides of the thoracic, are white; on the upper surface of the cephalothorax, on the lower sides of the thoracic part, and in a median band on the slope of the thorax, separating the extremities of the white band, they are yellow. On the clypeus they are long, thick and white; and around the middle eyes of the front row they are yellowish. There is a narrow white line around the lower margin of the cephalothorax. The front end and the sides of the abdomen are covered with snow-white hairs. The dorsum shows traces of yellow hairs. On the posterior part there are two pairs of slightly curved transverse white bands which come up from the sides, very much as in *D. dubitabilis* and in several species of *Zygoballus*. In the male the first leg has the femur dark brown with a row of brown hairs, not thick enough to be called a fringe, above, and another below. The patella is light, the tibia dark with a fringe of brown hairs on the inner side, the metatarsus light in the proximal and dark in the distal end, and the tarsus dark. The second has the femur dark, the patella light but darkening a little at the distal end, the tibia dark and the metatarsus and tarsus light. The third and fourth have the femur dark, tending toward lighter at the proximal end, the patella and tibia light, darkening at the distal ends, and the metatarsus and tarsus light. In the female the first leg is dark except the metatarsus and tarsus, which are lighter, and the second, third, and fourth are light brown, the joints tending to grow a little darker at the distal ends. The falces project a little, and are brown, with some yellowish hairs on the inner face. The palpus is brown with white hairs on the femur, these being more marked in the male than in the female. The maxillae are truncated and project at the outer corner. They are twice as long as the labium which is but little longer than wide.

We have numerous examples from Chapoda.

***Dendryphantes perfectus*, sp. nov.**

Pl. XXVII, figs. 4—4a.

♂. Length 6 mm. Legs  $\overline{1423}$ , the first longer than the second by the tarsus and metatarsus.

The cephalothorax is a little wider below than above, and the sides widen out slightly to a point behind the dorsal eyes. The quadrangle of the eyes occupies two-fifths of the cephalothorax, is one-third wider than long, and is wider behind than in front. The front eyes form a curved row, the middle being close together and less than twice as large as the lateral, which are a little separated from them, and placed further back.

The cephalothorax is dark reddish brown, with white bands along the upper sides which do not unite behind. The abdomen is bronze with a white band down the middle of the back, on each side of which is a pair of white spots. Around the front end and sides is a white band, which throws up two little points or projections on each side, at the posterior end. The legs are dark brown, the first pair almost black. The maxillae are short and rounded. The falces are brown, vertical, and have a small tooth on the inner side at the end. The palpus is dark brown with the tarsus as long as the patella and tibia together. There is a process on the tibia, and the tube, coming off from the end of the bulb, is straight and narrow.

This species, of which we have one male from Para, sent to us by Mr. Moenkhaus, is near *cuprinus*, *tropicus* and *ruber*. Of these *cuprinus* and *ruber* have the first leg longer than the second by the tarsus, metatarsus, and nearly all of the tibia, and *ruber* has the patella and tibia of the palpus plainly longer than the tarsus, while *tropicus* may be distinguished by the falces.

***Dendryphantes vegetus*, sp. nov.**

Pl. XXVIII, figs. 7—7a.

♀. Length 4.5—5 mm. Legs  $\overline{4132}$ , first a little the stoutest.

The cephalothorax is small in proportion to the abdomen, and has the sides nearly parallel, there being a slight widening behind the dorsal eyes. The cephalic part is plainly inclined.

The thoracic falls gradually in the first third, and then steeply. The quadrangle of the eyes occupies two-fifths of the cephalothorax, is one-third wider than long, and is a little wider behind than in front. The front eyes are small, and form a slightly curved row; they are all close together, and the middle ones are less than twice as large as the lateral. The second row is nearer the first than the third, and the third is nearly as wide as the cephalothorax at that place. The whole spider is covered with bright greenish golden hairs, the green tint being less marked on the abdomen than on the cephalothorax. When the hairs are rubbed off, the abdomen is light brown with two darker bands on the anterior part, which merge into dark chevrons behind, and dark oblique streaks on the sides. The falces are light brown, vertical, and rather long. The legs and palpi are yellow with some white scales. The lip is wide and short, the maxillae twice as long, and rounded.

We have many females from San Rafael, Mexico, sent to us by Mr. Townsend.

***Dendryphantes odiosus*, sp nov.**

Pl. XXVIII, figs. 6—6a.

♀. Length 4.5—5.5 mm. Legs  $\overline{41} \overline{23}$ , first stoutest.

The cephalothorax is very little longer than wide; the widest point is behind the dorsal eyes; the upper surface rounds off gently in each direction from the dorsal eyes, the thoracic slope becoming steeper after the first half. The sides are not much wider below than above. The quadrangle of the eyes is one-third wider than long, wider behind than in front, and occupies two-fifths of the cephalothorax. The front eyes are rather small and form a straight row, the middle ones touching, and a little less than twice as large as the lateral, which are separated from them. The second row is a little nearer the first than the third, and the third is nearly as wide as the cephalothorax at that place. We have no perfect specimen, but in one which is in fairly good condition the upper surface of the cephalothorax seems to have been entirely covered with yellow hairs, excepting a white spot between the dorsal eyes, and the sides are entirely covered with

white hairs. Around the two middle eyes of the first row the hairs are reddish, but on the clypeus and the upper part of the falces they are yellowish white. The abdomen seems to have had the dorsum with yellow hairs, and four or five pairs of white spots, while the sides are brown with oblique white bands. The legs are brown with white scales and hairs, and the palpus is brown with thin white hairs on the tarsus. The maxillae are rounded, with a projection at the outer corner, and are twice as long as the labium, which is as wide as long.

We have four females from Chapoda.

***Dendryphantes fortunatus*, sp. nov.**

Pl. XXVIII, figs. 8—8a.

A very distinct and handsome little species.

♀. Length 4 mm. Legs 1432, first darkest and having the femur, patella and tibia enlarged.

The cephalothorax is plainly longer than wide. It is narrow in front, widening a little beyond the third row of eyes. The quadrangle of the eyes is one-third wider than long, occupies nearly one-half of the cephalothorax, and is very slightly wider behind than in front. The anterior eyes are all near together in a straight row, the middle being nearly twice as large as the lateral. The second row is nearer the first than the third, and the third is almost as wide as the cephalothorax. The cephalothorax is red brown above, with two dark spots on the eye-region, and has the sides and clypeus covered with white hairs. The abdomen has an encircling band of silvery white, and above this, on each side, a brown band speckled with white, which has a raised appearance, and which is cut by three narrow, oblique, strips of white. Down the middle, between the two dark bands, is a light brown, somewhat metallic, band. The first leg is dark, the second pale, the third and fourth yellow, excepting the femoral joints, which are dark. The palpus is pale yellow. The falces are dark brown, short, vertical, and rounded.

We have a single female from Brazil.

***Dendryphantes Manii*, sp. nov.**

Pl. XXVIII, figs. 1—1a.

♂. Length 4 mm. Legs 1423.

The front eyes are in a curved row, the middle ones close together and twice as large as the lateral, which are well separated from them. Our specimen is rubbed badly. The cephalothorax has the eye-region dark brown, and slightly iridescent, with two black spots in the middle. There is a white line around the margin and white hairs grow all over the sides, and on the posterior thoracic part. The abdomen is encircled by snow white hairs. The dorsum shows a yellow background with a dark longitudinal line crossed by a shorter one in the anterior part and three dark chevrons behind. The legs are yellow with brown marks, the femur of the first being brown. There are white hairs on the clypeus and around the front eyes. The falces are oblique and divergent, with a long tooth at the distal end, opposite the insertion of the fang. On the the inner faces are snow white hairs. The palpus is yellow except the tarsus, which is dark brown. The maxillae are nearly three times as long as the labium, and are truncated, with projections at the outer corners. The labium is about as long as wide.

We have one male from Arizona, sent to us by Mr. Alfred Mann.

***Dendryphantes arizonensis*, sp. nov.**

Pl. XXVIII, fig. 2.

♂. Length 5 mm. Legs 1423.

The cephalothorax is narrow in front but widens in the thoracic part. The quadrangle of the eyes is one-fourth wider than long, is wider behind than in front and occupies two-fifths of the cephalothorax. The front eyes form a curved row, the middle subtouching and twice as large as the lateral, which are a little separated from them. The cephalothorax, including the clypeus, seems to have been entirely covered with yellowish white hairs. The abdomen is encircled with a band of the same color. The middle part of the dorsum, in our specimens, is

rubbed bare, but under alcohol, it shows on the anterior part, a dark, diamond-shaped spot on a lighter background, and further back, three dark chevrons. The posterior part has three pairs of black spots just at the edge of the white. The legs are brown, darkest at the distal ends of the femoral joints. The palpi and falces are brown, the falces projecting and diverging, with two teeth on the lower margin. The maxillae are truncated, with a projection at the outer corner, and are a little more than twice as long as the lip, which is about as long as wide. In *D. Manii*, which is somewhat like this species, the maxillae are nearly three times as long as the lip.

We have one male from Arizona.

***Dendryphantes proxima*, sp. nov.**

Pl. XXVIII, figs. 3—3a.

Length, ♂, 5 mm. ♀, 5 mm. Legs, ♂ 1423, ♀ 4132, first stoutest.

The quadrangle of the eyes is one-fourth wider than long, occupies two-fifths of the cephalothorax, and is wider behind than in front. The front row of eyes is bent, the middle close together, and nearly twice as large as the lateral, which are a little separated from them. The coloration is very like that of *D. capitatus*. In the male cephalothorax the upper surface is covered with white hairs excepting a yellow patch in the middle, just above the front eyes. On the sides, the cephalic part is covered with white hairs, which, on the thorax, narrow into bands along the upper edge, not meeting behind. In *capitatus* there are distinct white bands running back from the lateral eyes. The abdomen has a white band high up on the front end and sides, not continuous behind. Below this the brown color is plainly visible. Within the white band is a less distinct blackish band, and, from both, there are projections rising toward the middle, so that on the posterior part of the abdomen there is a succession of white spots barred off with black, on each side. In *capitatus* the white band runs low down on the sides, no brown showing beneath it. The clypeus is brown with a fringe of white hairs. The falces are vertical and brown. The legs are barred with light and dark, and have short white hairs. The

palpus has white hairs on the femur and patella, and a few on the tibia. Our female is in a rather damaged condition. The cephalothorax is covered, on top, with a mixture of white and yellow hairs. The sides have yellow hairs with white bands above, not meeting behind, and there is a white line around the margin. The abdomen has no distinguishable markings when dry, but seems to have been covered by white and yellow hairs. Under alcohol the ground color is white or pale, with three longitudinal dark streaks, the middle one taking something like the herring-bone pattern, while those on the sides run off into oblique markings. The clypeus is covered with long white hairs, and there is a bar of white hairs across the upper part of the face of the falces, which are brown. The legs and palpi are yellow, the legs with short, and the palpi with long white hairs.

We have one male and one female from Cuba.

***Dendryphantes Smithii*, sp. nov.**

Pl. XXVIII, figs. 4—4a.

Length, ♂, 4 mm. ♀, 4.5 mm. Legs, ♂ 1423, ♀  $\overline{14} \overline{32}$ , first stoutest.

The cephalothorax is rounded, the widest point being behind the dorsal eyes. The cephalic part is inclined; the thoracic slants very slightly in the first two-thirds, and then drops. The quadrangle of the eyes occupies about half of the cephalothorax. It is wider behind than in front, and is one-third wider than long. The front eyes are rather small, the middle being less than twice the size of the lateral, and touching, while the lateral are a little separated from them. This row is slightly curved. The second row is nearer the first than the third. The third row is nearly as wide as the cephalothorax. Under alcohol the cephalothorax is red brown with two black spots on the eye-region, and the abdomen paler with a dark herring-bone stripe in the female, and three pairs of large dark spots, barred off with white, in the male. When dry the male has the cephalothorax covered with fawn colored hair, and the abdomen with light, iridescent scales, while in the female the cephalothorax has white bands on the upper sides, and the top and lower sides, as well as the abdomen, covered with yellow hairs. The legs and palpi are

yellow with white hairs. The clypeus is brown but has a fringe of white hairs hanging down over the falces. The falces are brown, those of the male being oblique and divergent, while in the female they are vertical and parallel. The maxillae are twice as long as the lip, and truncated.

Of this species we have a male and female from Chapoda, sent to us by Mr. Herbert H. Smith, for whom we have named it.

***Selimus*, gen. nov.**

Pl. XXVIII, figs. 10—10c.

While this genus shows a great similarity to *Dendryphantes* in its marking and coloration, it is quite distinct from it in the shape of the cephalothorax, which widens out plainly both from the front end backward, and from above, below. The outline is rounded, the cheeks being swollen, and the widest point is at the dorsal eyes, which form a row much narrower than the cephalothorax. The upper surface is nearly flat, there being a slight rounding up toward the dorsal eyes in both directions. The posterior half of the thoracic part falls more steeply. The quadrangle of the eyes is one-fourth wider than long, is a little wider behind than in front, and occupies two-fifths of the cephalothorax. The front eyes are large, in a slightly curved row, the middle being nearly twice as large as the lateral and close together, while the lateral are a little separated from them. In the male the relative length of the legs is 1423, the first being the stoutest and much longer than the others.

***Selimus venustus*, sp. nov.**

Pl. XXVIII, figs. 10—10c.

♂. Length 8.5 mm. Legs 1423, the first stoutest, and exceeding the second by the tarsus, metatarsus, and half of the tibia.

This species looks very much like *Dendryphantes militaris*, but it is larger and differently shaped. The cephalothorax is dark brown with wide white bands, not meeting behind, along the upper sides. Around the lower margin is a black line between two white lines. The abdomen is dark brown with a



metallic luster down the middle of the dorsum, and has a wide silvery white band around the front end and sides, reaching nearly to the spinnerets. The legs are all dark brown without white hairs or scales excepting a small tuft of long, pure white hairs on the inner side of the proximal end of the patella of the first. The palpi, falces, and clypeus are dark brown without conspicuous hairs. The falces are robust and vertical. The maxillae are broad and heavy, three times as long as the lip, and truncated.

We have a single male from Sao Paulo, Brazil, sent to us by Mr. Moenkhaus.

***Admirala*, gen. nov.**

Pl. XXVIII, figs. 11–11c.

Rather small, graceful spiders with the first leg longest, stoutest, and darkest.

The cephalothorax is rather long and only moderately high. The sides are not far from parallel but widen a little behind the dorsal eyes. They are a little wider below than above. The upper surface is broad, and has a level look, although there is a slight rounding off in both directions from the dorsal eyes. After the first half the thoracic part falls steeply. The quadrangle of the eyes is one-third wider than long, occupies nearly one-half of the cephalothorax, and is a little wider behind than in front. The anterior eyes are large, in a row which curves downward, and are all close together. The middle eyes are at least twice as large as the lateral. The second row is nearer the first than the third, and the third row is nearly as wide as the cephalothorax at that place. The legs, so far as we know them, are 1423 in both sexes.

***Admirala lepida*, sp. nov.**

Pl. XXVIII, figs. 11–11c.

♂. Length 5.5 mm. Legs 1423, first much the stoutest.

The body is covered with a mixture of white and golden hairs. There is a white line around the margin of the cephalothorax, and the clypeus is covered with white hairs. On the front part of the abdomen are two pairs of white spots. Behind the mid-

dle there is a median band of metallic yellow, and on the sides of this, three pairs of brown spots divided by transverse white bands. The first legs are brown with many white scales. The other legs are yellow with black spines. The palpi are light brown with white hairs. The falces are light brown and vertical. The maxillae are rounded and about twice as long as the lip.

We have one female from Brazil.

***Admirala regia*, sp. nov.**

Pl. XXVIII, figs. 12—12a.

♂. Length 5 mm. Legs 1423. The first is much the darkest, and although not very long, exceeds the second by the tarsus, metatarsus, and nearly all of the tibia. It is plainly the stoutest.

The cephalothorax has purplish metallic scales on top, and, on the upper sides, white bands which do not meet behind. The lower sides are brown. The abdomen is entirely encircled by a white band, and has a median longitudinal band of iridescent scales. Between this and the white, on either side, is a dark brown band, upon which, at the very posterior part, are three blackish spots. The first legs are dark brown with many snow-white scales. The other legs are yellow with black spines. The clypeus is covered with white hairs. The falces are short and nearly vertical; they are wide at the proximal end and narrow at the tip, the fang being short and crescent shaped. In color they are brown. The palpi are brown with some white hairs. The maxillae are truncated and have a slight projection at the outer corner. The lip is as wide as it is long.

We have a single male from Rio Janeiro.

***Jotus*, L. K.**

For illustration of type, see *Arachniden Australiens*, Koch and Keyserling, Pl. CVI, fig. 1—1d.

Of the species described under this genus by its author, we have the type, *auripes*, *ultimus* and *microphthalmus*. Of these we leave only *auripes* in *Jotus*, using *ultimus* as the type of a new genus, *Viroqua*, and referring *microphthalmus* to a new

genus, *Mollika*, of which the type is *metalescens* L. K. We have also two species, sent to us by Mr. Frost, which are described below.

The spiders are of medium size with the cephalothorax high and convex, the cephalic part being inclined, moderately in *auripes*, and very steeply in *Frostii*. The sides are nearly vertical and parallel in front, but widen out somewhat behind. The quadrangle of the eyes is one-fifth wider than long, and occupies two-fifths of the cephalothorax. It is a little wider in front than behind. The anterior eyes, which are all well separated, form a straight or slightly curved row, and the lateral are more than half as large as the middle eyes. The second row is about halfway between the first and the third, and the third row is as wide as the cephalothorax at that place.

All of our species are from Australia and are represented only by males, two of which, *auripes* and *Frostii*, have the legs and palpi heavily fringed.

***Jotus Frostii*, sp. nov.**

Pl. XXV, fig. 12; Pl. XXVI, figs. 9—9a.

♂. Length 6 mm. Legs  $\overline{1423}$ . (The male of *auripes* has the relative length of the legs  $\overline{4312}$ .)

This is a very striking and distinct species, from the shape of the cephalothorax. The dorsum is level through half the thoracic and about a fifth of the cephalic part, and from this point the cephalic plate, which is wedge-shaped and highly iridescent, slopes very steeply forward. The sides widen just behind the dorsal eyes, and then narrow again behind. The first row of eyes is straight. The falcies are weak, vertical, and light brown in color.

The lower sides of the cephalothorax are reddish brown, with wide snow white bands. The upper sides and the dorsum are dark and iridescent. The clypeus seems to have been covered with white hairs, and the eyes of the first row are of a deep violet color. The abdomen, which under alcohol shows a dark longitudinal central band, with a whitish region on each side, when dry, seems to have been covered with a mixture of white and pale yellow hairs, which form no distinct pattern. The legs

are reddish brown, contrasting with the darker body. All of them have the femur darker colored than the other joints and highly iridescent, and in the first leg it is much thickened. The first leg has, on the femur, a heavy fringe of dark hairs above, and of pure white hairs below. The patella has a short white fringe, and the tibia a longer, scanty one of smoky colored hairs. The palpus has, across the proximal end of the tarsus, a wide, transverse band of pure white hairs. This point alone would serve to easily distinguish this species from *auripes*, in which the palpus has a long fringe of brown hairs on each side.

We have one male, from Victoria, sent to us by Mr. Frost, to whom we are indebted for a large number of Australian Attidae.

***Jotus arci pluvii*, sp. nov.**

Pl. XXV, fig. 16; Pl. XXVI, figs. 5—5a.

♂. Length 6 mm. Legs  $\overline{1432}$ .

This species has the cephalic part very slightly inclined and the thoracic slopes only very slightly in the first third, and then rather steeply.

The cephalothorax is black, with a band of white hairs around the lower sides. The hairs, above, are mostly rubbed off, but form a scalloped gold-colored band around the eye region, and grow yellow and thick on the face and clypeus. The abdomen is black with two transverse white bands, one near the front end, and one behind the middle, back of which are several transverse white lines. The bands are made of scale-like hairs, which also grow scattered over the dorsum, and in tufts on each side of the spinnerets. The lower part of the front end is black. The legs are pale, excepting on the tibiae and distal ends of the metatarsi of the first and second, which are smoky-colored, with dark hairs, and the distal ends of the femora of the third and fourth, which are dark. The palpi are pale brown.

We have one male from St. Cruz, Australia.

***Viroqua* gen. nov.**

For illustration, see *Arachniden Australiens* Koch and Keyserling, Plate CVIII, figs. 2—2d.

This genus, while in many ways like *Jotus*, lacks the delicate, graceful appearance of *auripes* and of *Frostii*, being rather heavily formed. The lateral eyes of the first row are more widely separated from the middle eyes and are relatively smaller, being scarcely more than half as large, and they are placed further back. The thoracic part of the cephalothorax looks higher than in *Jotus*, falling, as it does, in a graceful slope from the dorsal eyes for a short distance, and then in a steep slope, while the cephalic part is strongly inclined forward.

The cephalothorax is long, the sides being nearly parallel, but wider below than above, and swollen out in front to form cheeks. The quadrangle of the eyes is one-fifth wider than long, occupies two-fifths of the cephalothorax, and is wider in front than behind. The first row is curved; the second row is about halfway between the first and third; and the dorsal eyes, which are small, form a row not quite so wide as the cephalothorax. The slope of the cephalic part is so steep that the clypeus is very narrow. The legs of the first pair are plainly longer than the others, but are not much stouter.

This genus is founded upon *Jotus ultimus* L. K., of which we have several specimens, both males and females, sent to us by Mr. Frost, from Victoria.

***Escambia* P., 1896.**

*Attidae of Central America and Mexico*, Occ. Papers Nat. Hist. Soc. of Wisconsin, Vol. III, p. 41, Plate III, figs. 3—3e.

This genus, which is very like *Dynamius*, is found in Central and South America and Mexico. The spiders are of medium size and have the third and fourth pairs of legs not very different, in length and thickness, from the first and second. They are also characterized by iridescence on the cephalothorax and legs.

The cephalothorax is moderately high and convex, and is usually not much wider in one part than in another, although

some of the species (especially *conspecta*) broaden out a little behind the dorsal eyes. The sides are not far from vertical, widening a little from above below; in the cephalic part they are sometimes slightly concave. The cephalic part is plainly inclined forward. The thoracic always falls, although sometimes only slightly, from the dorsal eyes, and in this respect *Escambia* differs from *Dynamius*, in which genus the thoracic part does not fall backward for some distance, although it may round off on the sides. The quadrangle of the eyes is equally wide in front and behind or a little wider in front; it is about one-fourth wider than long, and occupies two-fifths, or a little more, of the cephalothorax. The anterior eyes are rather large and are usually a little separated. They form a straight or very slightly curved row (in *Dynamius* the first row is more distinctly curved), of which the middle eyes are nearly twice as large as the lateral. The second row is halfway between the first and the third. The third row is as wide or nearly as wide as the cephalothorax at that place.

This genus presents some difficulties, as there is a good deal of variation, not only among the different species, but between the two sexes. The males fall more steeply than the females behind the dorsal eyes, and have the sides more rounded out.

We have three old species, *conspecta*, *alacris*, and *parvula* (described in *Attidae of Central America*, Nat. Hist. Soc. of Wisconsin, 1896), and two new ones which are described below.

***Escambia valida*, sp. nov.**

Pl. XXVI, fig. 6; Pl. XXV, figs. 13–13c.

Length, ♂ 7 mm.; ♀ 8 mm. Legs, ♂ and ♀  $\overline{34} \overline{21}$ .

This handsome species is the only one that we have from Brazil.

In the male all the legs have a fringe of black hairs on the patella and tibia. This fringe is heaviest on the third pair, where it runs down on to the metatarsus, and is very light and inconspicuous on the fourth. The metallic lustre is most brilliant on the tibia of the first and second pairs. The tarsi are all pale yellow, contrasting with the dark color of the other joints.

In our specimens the cephalothorax, although badly rubbed, shows patches of yellowish white hairs on the cephalic part and behind the dorsal eyes. Hairs of the same color surround the eyes of the first row, while across the lower edge of the clypeus is a row of pure white hairs. The falces have some white hairs on the front surface. The abdomen is brown, with a wide, white, transverse band of scales near the anterior end, another, narrower, just behind the middle, and two pure white spots, one on each side, just above the spinnerets. In some cases there is a slender line of small yellowish chevrons running forward from the spinnerets to the posterior band.

In this species the cephalic part is strongly inclined and the eyes of the first row are large and close together, forming a somewhat curved row.

We have one male and three females from the Amazon.

In general appearance the female of *E. valida* much resembles that of *Dynamius placatus*, but in the former species there are two white dots above the spinnerets, which have the form of bars in *placatus*.

***Escambia electa*, sp. nov.**

Pl. XXVI, figs. 11–11c.

Length, ♂ 6.5 mm.; ♀ 5.5 mm.

Legs, ♂  $\overline{34} \overline{21}$ ; ♀ 3412. The first and second pairs are a little the stoutest.

This species is very like *valida*, the male having fringes of black hairs on the first three legs, metallic lustre on the first and second, and all the tarsi pale. In both sexes the cephalic plate has a covering of yellowish scales, while the thoracic part shows patches of white hairs; there are wide white bands on the sides. The rings around the eyes of the first row are distinctly yellowish, but the hairs all over the clypeus and the front faces of the falces are white. Under alcohol the abdomen has a dark background with a white transverse band near the anterior end, and two white horseshoe shaped marks behind, which begin on the dorsum, curve down low on the sides and then bend up again in front of the spinnerets. When the spider is dry, these white

markings change to a pale golden color, and are seen to be formed of scales, while between them the surface of the abdomen is covered with hairs of a rusty red hue.

The anterior eyes, which form a curved row, are not strikingly large, as in *valida*. The cephalic plate is more strongly inclined in the male than in the female.

We have two males and two females from New Grenada.

***Dynamius* Simon. 1887.**

Ann. de la Soc. Ent. de France, *Arachn. de l'Amerique Centrale et des Antilles*, p. 204.

Type, *Jotus opimus* Peckham, Proc. Nat. Hist. Soc. of Wisconsin, 1885, p. 71. The drawing shows the spider as it appears under alcohol, the pattern not coming out distinctly.

This genus is found in Central and South America and the West Indies. The spiders are usually of medium size or a little smaller, with long, rather heavy legs which are not very unequal in length, the most common leg formula being 3412. It is very close to *Escambia*.

The cephalothorax is high, convex, massive, and long. The sides, which slant outward from the upper surface, are nearly parallel until just in front of the posterior border in the type, and are always widest behind the dorsal eyes. The males have a cheek-like swelling in front. The cephalic part is strongly inclined. The thoracic never falls directly from the dorsal eyes, some species having a short rounded thoracic plate, while others are flat for a considerable distance.

The quadrangle of the eyes is only about one-fourth wider than long, is equally wide in front and behind or a little wider in front, and occupies barely two-fifths of the cephalothorax. The eyes of the first row are large and form a curved line. In *opimus* they are all well separated but in the other species they are near together. The middle eyes are plainly less than twice as large as the lateral. The second row is variable in position. The third row is narrower than the cephalothorax at that place.

Of this genus we have in our collection *opimus*, the type, from



Guatemala, *metallicus* P., from St. Vincent, and five new species described below. M. Simon writes to us that he has more than fifteen species from Brazil.

*Dynamius* is distinguished from *Escambia* by having the first row of eyes plainly curved, with the lateral eyes of the first row larger, relatively to the middle eyes; and by the shape of the thoracic part, which, in *Escambia*, falls more or less steeply from the dorsal eyes. *Jotus*, which it also resembles, is found only in Australia. From *Philaeus* it is easily distinguished by the greater relative length of the third and fourth pairs of legs.

In all our species of *Dynamius* there is a metallic lustre on the integument of the cephalothorax (even where this is covered with scales or hairs), and, to a greater or less extent, on all the joints of all the legs, especially on the tibiae and metatarsi of the first and second pairs. This lustre is also found in *Escambia*.

The color and marking of the different species are very similar, consisting of white transverse banding on a dark background.

***Dynamius blandus*, sp. nov.**

Pl. XXVI, fig. 1; Pl. XXV, figs. 9–9b.

Length, ♂ 6.5 mm.; ♀ 8 mm.; ♀ 10 mm.

Legs, ♂  $\overline{34} \overline{21}$ , ♀  $\overline{34} \overline{12}$ , first, second, and third, a little the stoutest.

The cephalothorax seems to have been covered with a mixture of white and yellowish hairs. Around the eyes of the first row and on the cheeks and clypeus are red hairs. There are white bands around the sides. The abdomen is dark colored in the male but in the female is sometimes brown flecked with white. The markings are formed by scales and are white or yellowish. They consist of a band on the anterior part, of a wide transverse band behind the middle, and of a pair of spots at the posterior end. Behind the band is a dark region which is divided into two parts by a slender line of tiny white chevrons running forward from the spinnerets. The first, second, and third pairs of legs have slight fringes of dark hairs on the inner and outer sides. The palpus has white hairs on the femur and

patella. The falces are vertical and rather stout, with a few white hairs or bristles. The quadrangle of the eyes is widest in front, and the second row is half way between the first and the third.

We have numerous examples from Port of Spain, Trinidad sent to us by Mr. Broadway.

In distinguishing *blandus* from *placatus*, we notice that in *placatus* the first and second legs are relatively shorter. In *placatus* the third leg is longer than the second by the tarsus and nearly all of the metatarsus, while in *blandus* it is longer by scarcely more than the tarsus.

***Dynamius placatus*, sp. nov.**

Pl. XXV, figs. 11–11c; Pl. XXVI, fig. 1 (fig. 2).

Length, ♂ 6–7 mm.; ♀ 7–8 mm.

Legs, ♂  $\overline{34} \overline{12}$ , ♀  $\overline{34} \overline{12}$ , first and second plainly the stoutest.

Our specimens have suffered much from rubbing. The cephalic part is dark and iridescent; the thoracic lighter, reddish brown, with white bands around the sides. There are some patches of light golden scales. On the clypeus and cheeks and around the eyes of the first row are bright red hairs, the clypeus having white hairs on the lower edge. The small vertical falces have white bristles on the front surface.

The ground color of the abdomen is black, and the markings vary from white to light golden, and are formed by scales. On the anterior part are two irregular spots, sometimes united to form a band; behind the middle is a wide transverse band, in which is sometimes seen a small dark triangular spot; above the spinnerets are two small spots, the inner sides of which touch a slender central line which runs forward to the transverse band mentioned before. This often gives a distinctly anchor-shaped figure. The whole abdomen is thinly clothed with long, coarse, white hairs.

The legs are reddish brown, paler toward the ends. In the male the tibial joint of the first and second legs shows beautiful, iridescent, violet reflections, which are also found less distinctly on the patella, and there are two fringes of black hairs, one on the outer and one on the inner side of the tibia and metatarsus of the first and second legs.

The second row of eyes is halfway between the first and the third, and the quadrangle is equally wide in front and behind. The thoracic part, while it does not slant backward for some distance behind the dorsal eyes, rounds off on the sides.

We have two males and several females, sent to us from Trinidad, by Mr. Broadway.

***Dynamius fimbriatus*, sp. nov.**

Pl. XXV, figs. 10—10a; Pl. XXVI, fig. 12.

♂. Length, 7 mm. Legs  $\overline{3421}$ .

This handsome spider has a heavy fringe of black hairs along the front sides of all the legs, especially heavy on those of the second pair. The first and second legs are enlarged, and have the tibia and the distal end of the patella, brightly iridescent. The integument of the cephalothorax is iridescent, the cephalic part being black and the thoracic brown. There are wide white bands on the sides, and the upper surface was probably covered with yellowish scales of which a few patches remain. Around the eyes are rings of reddish hairs. The falcis are brown, slightly iridescent, vertical, and moderately stout, with little white bristles on the front face. The abdomen seems to have been covered with yellowish white scales. Under alcohol it appears whitish, with a wide transverse brown band in front of the middle, and two large brown spots on the posterior part. There is a long flat thoracic plate and the first row of eyes is distinctly curved. The quadrangle of the eyes is wider in front than behind, and the second row is a little nearer the first than the third.

The fringes on the legs serve to distinguish this species. We have two males from Chapoda, Brazil, in the Smith collection.

***Dynamius parvus*, sp. nov.**

Pl. XXV, figs. 14—14c; Pl. XXVI, fig. 8.

Length, ♂ 7 mm.; ♀ 6 mm.

Legs ♂  $\overline{13\ 24}$ ; ♀  $\overline{34\ 12}$ ; all rather slender. In the female the first and second are much shorter than the third and fourth.

We have a good many specimens of this species but all have suffered more or less from rubbing. Under alcohol they show

a dark colored cephalothorax with a white band just behind the first row of eyes, another, shorter and somewhat crescent-shaped behind the third row, and wide white bands on the sides, which run forward and curve around in front of the dorsal eyes. The markings on the abdomen are less constant, although the general impression is of a dark background transversely banded with white. In some cases the anterior and posterior ends are dark beyond the white bands. The central white band is behind the middle of the abdomen. The sides are entirely white and a slender, central, longitudinal white line, which is often indistinct, runs over the dorsum throughout its length. In many specimens the white regions at the anterior and posterior ends are indistinct, and the central white band has a small dark triangular spot in the middle. In some cases the abdomen might be described as white with two dark transverse bands. There are no fringes on the legs.

When dry, the more perfect specimens show the cephalic part covered with snow white hairs, while bright red hairs grow on the clypeus and cheeks and around the middle eyes of the first row, the clypeus having an edge of white hairs. The small, vertical, iridescent falces have some short white bristles on the front surface. The palpus has snow white hairs on the femur and patella. The same joints on the first leg are of a beautifully metallic steel blue color. The abdomen is jet black with a transverse white band near, but not at, the anterior end, and another behind the middle, and a patch of white just above the spinnerets. In some specimens the black parts are covered with yellow hairs. In one male the hairs on the abdomen and the top of the cephalothorax, instead of being white, are of the soft yellowish color known as "old gold."

In this species the quadrangle of the eyes is plainly wider in front than behind, and the eyes of the second row are very slightly nearer the third than the first row.

We have two males and numerous females from Brazil, collected by Mr. H. H. Smith.

***Dynamius gratus*, sp. nov.**

Pl. XXV, figs. 8—8a; Pl. XXVI, fig. 10.

Length ♂ 5—5.5 mm. Legs,  $\overline{3421}$ .

This species is rather small for *Dynamius*. Looking at it under alcohol it has a long black cephalothorax, with wide white bands on the sides, and a short dark abdomen, with three transverse white bands, one in front, one behind, and one across the middle. All the legs are iridescent, especially the first, on the tibia and patella, but they have no heavy fringes. The thoracic part is flat for some distance behind the dorsal eyes. The eyes of the second row are halfway between the lateral and the dorsal eyes.

When the spider is dry, bright red hairs appear around the eyes of the first row, and all over the clypeus, excepting a narrow white line at the margin. We also find a few patches of white hairs left on the black cephalic part. The front part of the abdomen is occupied by a band of white hairs, behind which are some yellowish hairs, and behind this again, is a region that is jet black. Across the middle is a wide white band, then more yellowish hairs, and then an indistinct band of white hairs. The falcies are small, brown, vertical, with a few white bristles.

So far as coloring is concerned it is difficult to distinguish this species from *parvus*. In both species the cephalic part is very slightly inclined, but while in *gratus* the flat portion of the thorax occupies four-fifths of its length, in *parvus* it occupies only about one-half. The relative length of legs is different and while the white hairs on the femur of the palpus are long in *parvus*, they are short in *gratus*.

***Linus* P., 1885.**

Pl. XXV, figs. 5—5b.

The cephalothorax is very high, with the sides almost vertical and parallel. It falls sharply in both directions from the highest point, at the dorsal eyes. The quadrangle of the eyes is one-fourth wider than long, is wider in front than behind, and occupies one-half of the cephalothorax. The first row, which is

curved downward, has the eyes all subtouching, the middle ones projecting and very large, two-and-a-half times as large as the lateral. The eyes of the second row are also unusually large, and are halfway between the first and third rows. The third row is nearly as wide as the cephalothorax, which is a little wider here than at any other point. The relative length of the legs is 4123, all long and slender, particularly the metatarsi and tarsi. The abdomen, above and below, and some joints of the legs, have bunches of short stout hairs scattered over the surface.

This genus was founded by Thorell, in 1878, on *fimbriatus* Dol., under the name *Sinus*. This being preoccupied, *Linus* was substituted in 1885 (*Genera of Attidae*, p. 289).

We have the type, and *africanus* Simon, from Natal. Thorell has described *subvexus* from Sumatra and *labiatus* from Burmah under this genus.

### ***Maevia* (C. K.) 1848.**

Pl. XXV, figs. 7—7b.

The cephalothorax is moderately high and is but little longer than wide, the sides being nearly vertical and parallel in the cephalic part, and bulging out behind the dorsal eyes. The cephalic part is inclined, but the thoracic does not slope backward in the first half, although it rounds off on the sides. (In *coronigera* the thoracic part falls from the dorsal eyes.) The eyes of the first row are large, and are subtouching or a little separated, the middle ones being about twice as large as the lateral. They form a straight or slightly curved row. The second row of eyes is halfway between the first and the third or a little nearer the first. The third row is nearly as wide as the cephalothorax at that place. The quadrangle of the eyes is from one-fourth to one-third wider than long, is equally wide in front and behind or a little wider in front, and occupies two-fifths of the cephalothorax. The legs in the males are 4132, or 4123, and in the females, 4312, 4132 or 34 12.

This genus was made by C. Koch in 1848, the first species described under the name being *pencillata* (which is a synonym of *Attus vittatus* and *Attus niger* Hentz), and we therefore take

this as the type. In a recent letter M. Simon agrees to this procedure, although he formerly used the name in a different sense. Thorell bases his idea of *Maevia* upon a species described by C. Koch under *Plexippus*. The type, then, is *M. vittata* Hentz.

We have three species, *vittata* H. and *trilineata* new, which resemble each other closely, from the United States, and (*Euophrys*) *coronigera* C. K., (which differs from the other two in the sloping thoracic part), from Guatemala, Trinidad and Cayenne. We take out of this genus *californica* P., *pavesii* Simon, and *tenuis*, *fenestrata* and *Stolzmanii* Tacz.

***Maevia Poultonii*, sp. nov.**

Pl. XXV, figs. 15—15b; Pl. XXVI, fig. 3.

Medium sized spiders, plainly marked with three bright red lines down the abdomen, between which the color is silvery.

♂. Length 7 mm.

♀. Length 9.5 mm.

Legs in both sexes  $\overline{41}$   $\overline{32}$ , not very unequal, the first and second a little the stoutest.

In the male the cephalothorax is covered with white hairs above, and has a white line around the margin. The sides are rubbed, but seem to have been dark colored. Under alcohol it appears black except on the back of the thoracic part. In the female the general color is light, only the eye-region appearing black under alcohol. When dry the whole cephalothorax is seen to be covered with pale hairs. The abdomen, in both sexes, is silvery, with three longitudinal, bright red lines. These are continuous in the female, but in the male they are more or less broken by silvery bars, especially those on the sides, which form four or five elongated spots. The falcies are short and vertical, and both face and falcies are dark colored. The legs are yellow and very spiny.

We have two males and one female from San Antonio, Texas, sent to us by Mr. C. Tyler Townsend.

***Opisthonus* L. K., 1880.**

For illustration see *Arachniden Australiens*, Koch and Keyserling, Pl. CII, figs. 5—6.

Medium sized spiders.

The cephalothorax is not very high and is only a little longer than wide. It is highest and widest at the dorsal eyes, the upper surface being lightly rounded, while the outline of the sides is narrowed in curving lines, both in front and behind. The quadrangle of the eyes is from one-third wider than long to about twice as wide as long, is from a very little, to plainly, wider behind, and occupies two-fifths of the cephalothorax. The first row of eyes is straight or a little curved; the middle eyes are twice or nearly twice as large as the lateral, and are close together, the lateral being a little separated from them. The second row is from a little to very much nearer the first than the third. The third row is not so wide as the cephalothorax at that place. The relative length of the legs in the males is 1243, or 1423, and in the females, 1243 or 1423, the first being longest and stoutest and the others not very unequal.

The type of *Opisthonus* is *lineativentris* L. K., (*Arachn. Australiens*, p. 1184). This species is not in our collection, but we have *polyphemus* L. K., *alborufescens* L. K., *pallidens* L. K., *abnormis* L. K., *bitaeniatus* L. K., *parcedentatus* Rainbow, and a new species, *verisimilis*, described below. Of these *abnormis* is a small species with the first row of eyes bent downward, with the quadrangle very slightly wider behind, and with the cephalothorax higher and less widened than it should be for this genus. *Bitaeniatus* is also a poor *Opisthonus*, approaching *Simaetha* in having the lateral eyes of the first row very widely separated from the middle eyes. These species are all from Australia.

For convenience in distinguishing the species of *Opisthonus* we give the following notes.

In *alborufescens* ♂ the first row of eyes is straight; middle eyes less than twice lateral; quadrangle one-third wider than long, and plainly wider behind. In *pallidens* ♀ the relative length of the legs is 1423; first row straight; middle nearly twice lateral; quadrangle nearly twice as wide as long, and a little wider behind. In *parcedentatus* ♂ the legs are 1423;



first row straight; middle about twice lateral; quadrangle nearly twice as wide as long and plainly wider behind. In *abnormis* ♀ the first row is bent downward, the eyes are small, the middle being less than twice the lateral; quadrangle one-third wider than long, and very slightly wider behind. In *bitaeniatus* ♀ the first row is bent downward; middle eyes are twice lateral, and separated from each other; lateral separated from middle by nearly their own diameter; second row twice as far from third as from first; quadrangle about twice as wide as long, and a little wider behind.

***Opisthonus verisimilis*, sp. nov.**

♂. Length 6 mm. Legs 1243 first and second a little the stoutest.

In this species the anterior eyes are rather large, and form a straight row, the middle ones being nearly twice as large as the lateral, and more separated from them than from each other. The quadrangle of the eyes is nearly twice as wide as long, and is very slightly wider behind.

Under alcohol the cephalothorax is reddish with a dark eye-region. The abdomen is pale brown with a white region down the middle, which is covered with a network of brown lines, and has, on the front part, a brown cross. On the sides of this pale region, behind the middle, are two pairs of dark spots. The legs are brown, the femoral joints being darkest. The palpi are pale brown, long, and delicate. Our specimens are badly rubbed, but when dry they still show a few hairs, which are iridescent on the eye-region and on the sides of the upper surface of the abdomen, and white on the thoracic region and on the lower sides and middle of the abdomen. The clypeus is edged with white. The falces are brown in color and are stout, rounded, obliquely directed forward, and divergent, with a long fang.

We have two males from Victoria, sent to us by Mr. Frost.

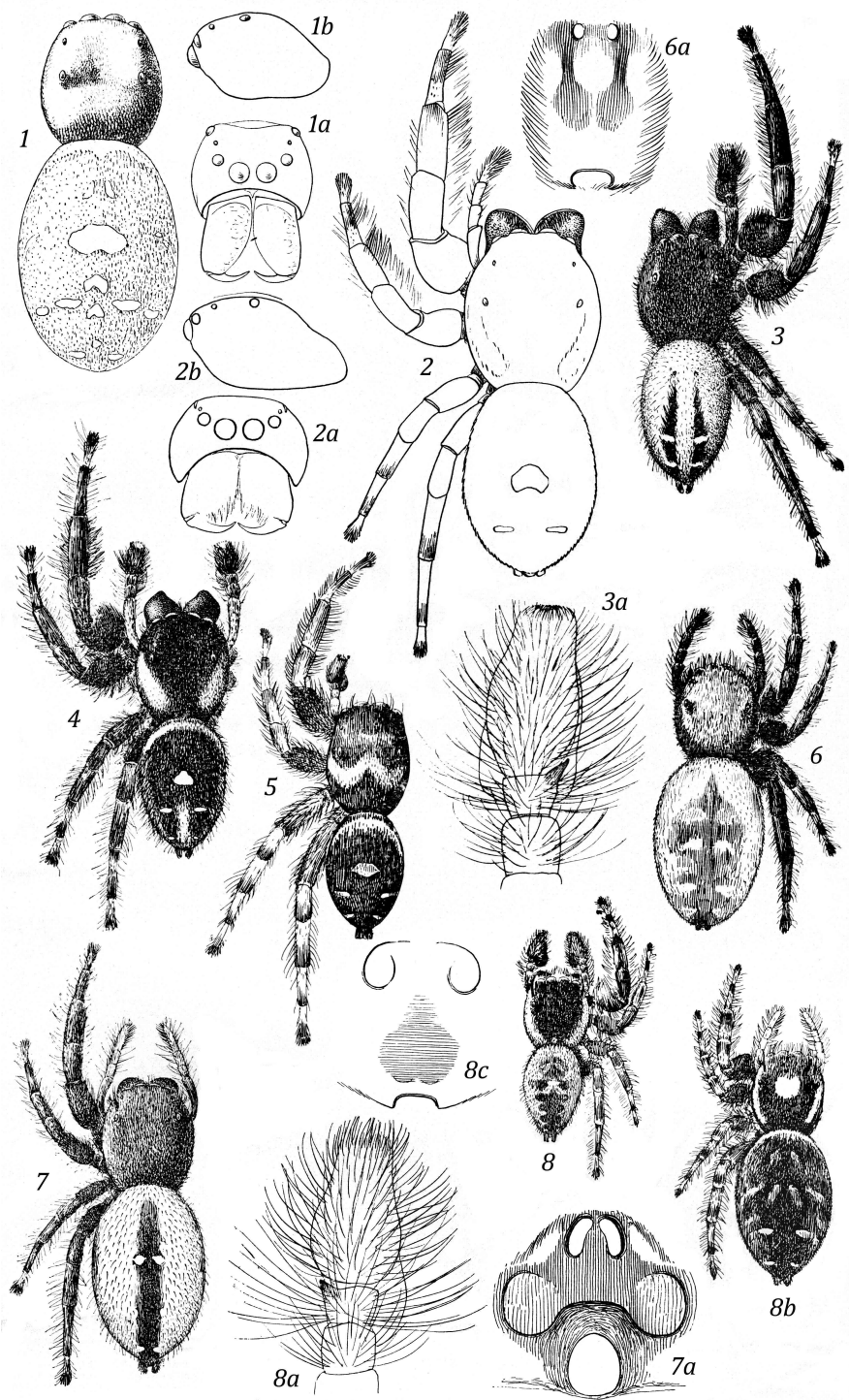
## PLATE XXIII.

In this version, pages that bear only plate numbers are omitted (except for page 347). Caption pages, but not the plates themselves, were paginated in the original document. For reference, the pagination of all sheets in the original document is given below:

| <u>PAGE</u>          | <u>DESCRIPTION</u>               |
|----------------------|----------------------------------|
| 347 (no page number) | Label only: "PLATE XXIII."       |
| 348                  | Figure captions for Plate XXIII  |
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| 349 (no page number) | Label only: "PLATE XXIV."        |
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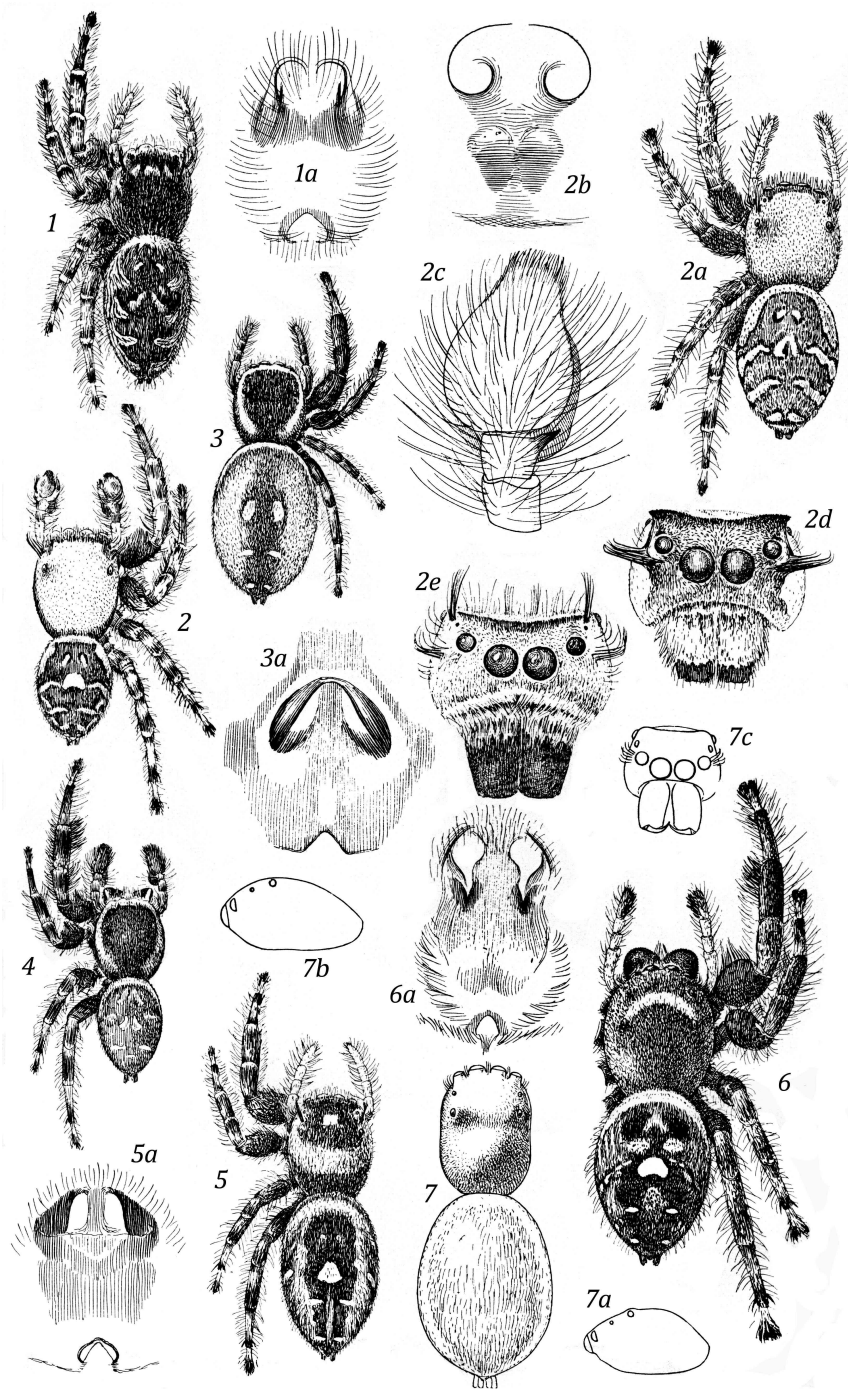
**EXPLANATION OF PLATE XXIII.**

- Fig. 1, *Phidippus morsitans*, female; 1a, face view; 1b, side view of cephalothorax.
- Fig. 2, *Phidippus (Megatimus) severus*, female; 2a, face view; 2b, side of cephalothorax.
- Fig. 3, *Phidippus californicus*, male; 3a, palpus.
- Fig. 4, *Phidippus variegatus*, male.
- Fig. 5, *Phidippus Howardii*, male.
- Fig. 6, *Phidippus bardus*, female; 6a, epigynum.
- Fig. 7, *Phidippus ardens*, female; 7a, epigynum.
- Fig. 8, *Phidippus comatus*, male, X6; 8a, palpus; 8b, female, X6; 8c, epigynum.



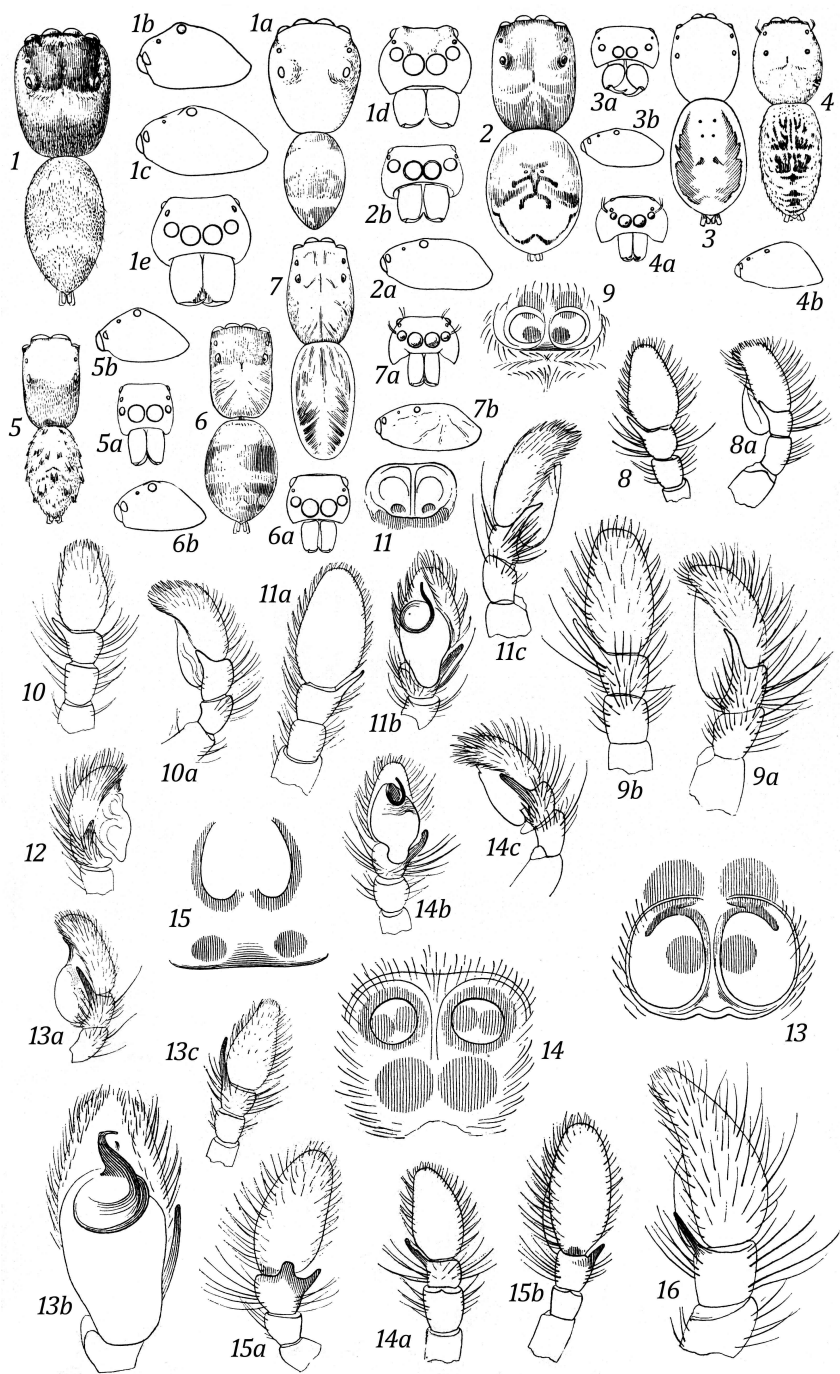
**EXPLANATION OF PLATE XXIV.**

- Fig. 1, *Phidippus incertus*, female, X6; 1a, epigynum.
- Fig. 2, *Phidippus obscurus*, male, X6; 2a, female, X6; 2b, epigynum; 2c, palpus; 2d, face view of male; 2e, of female.
- Fig. 3, *Phidippus montivagus*, female, X6; 3a, epigynum.
- Fig. 4, *Phidippus Tyrelli*, male, X6.
- Fig. 5, *Phidippus Workmanii*, female, X6; 5a, epigynum.
- Fig. 6, *Phidippus Rauterbergii*, female, X6; 6a, epigynum.
- Fig. 7, *Philaeus chrysops*, female, X6; 7a, side view of cephalothorax of male; 7b, of female; 7c, face view of female.



**EXPLANATION OF PLATE XXV.**

- Fig. 1, *Zenodorus d'Urvillei*, female, X6; 1a, male, X6; 1b, side view of cephalothorax of male; 1c, of female; 1d, face view of male; 1e, of female.
- Fig. 2, *Servaea vestita*, female, X8; 2a, side view of cephalothorax; 2b, face view.
- Fig. 3, *Simaetha paetula*; 3a, face view; 3b, side view of cephalothorax.
- Fig. 4, *Thyene imperialis*; 4a, face view; 4b, side view of cephalothorax.
- Fig. 5, *Linus fimbriatus*, female; 5a, face view; 5b, side view of cephalothorax.
- Fig. 6, *Dynamius opimus*, female; 6a, face view; 6b, side of cephalothorax.
- Fig. 7, *Maevia vittata*, female, X8; 7a, face view; 7b, side of cephalothorax.
- Figs. 8, and 8a, *Dynamius gratus*, two views of male palpus.
- Fig. 9, *Dynamius blandus*, epigynum; 9a, 9b, male palpus.
- Fig. 10, 10a, *Dynamius fimbriatus*, male palpus.
- Fig. 11, *Dynamius placatus*, epigynum; 11a, 11b, 11c, male palpus.
- Fig. 12, *Jotus Frostii*, male palpus.
- Fig. 13, *Escambia valida*, epigynum; 13a, 13b, 13c, male palpus.
- Fig. 14, *Dynamius parvus*, epigynum; 14a, 14b, 14c, male palpus.
- Fig. 15, *Maevia Poultonii*, epigynum; 15a, 15b, male palpus.
- Fig. 16, *Jotus arcu pluvii*, male palpus.





**EXPLANATION OF PLATE XXVI.**

Fig. 1, *Dynamius blandus*, male, X16.

Fig. 2, *Dynamius placatus*, female, X16.

Fig. 3, *Maevia Poultonii*, female; X16.

Fig. 4, *Palestrina variegata*, female, X16; 4a, face view; 4b, side of cephalothorax, 4c, epigynum.

Fig. 5, *Jotus arci pluvii*, male, X16; 5a, palpus.

Fig. 6, *Escambia valida*, female, X16.

Fig. 7, *Parnaenus (?) griseus*, male, X15; 7a, 7b, palpus.

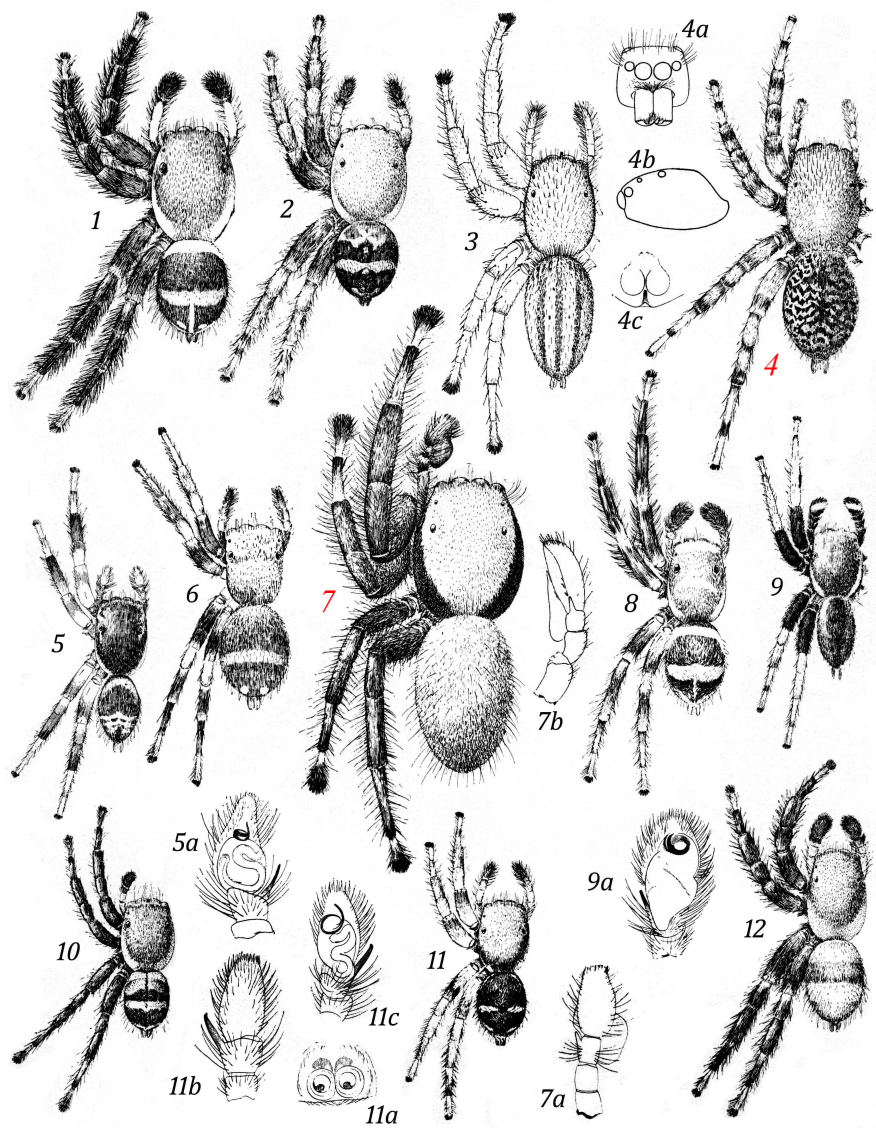
Fig. 8, *Dynamius parvus*, male, X16.

Fig. 9, *Jotus Frostii*, male, X16; 9a, palpus.

Fig. 10, *Dynamius gratus*, male, X16.

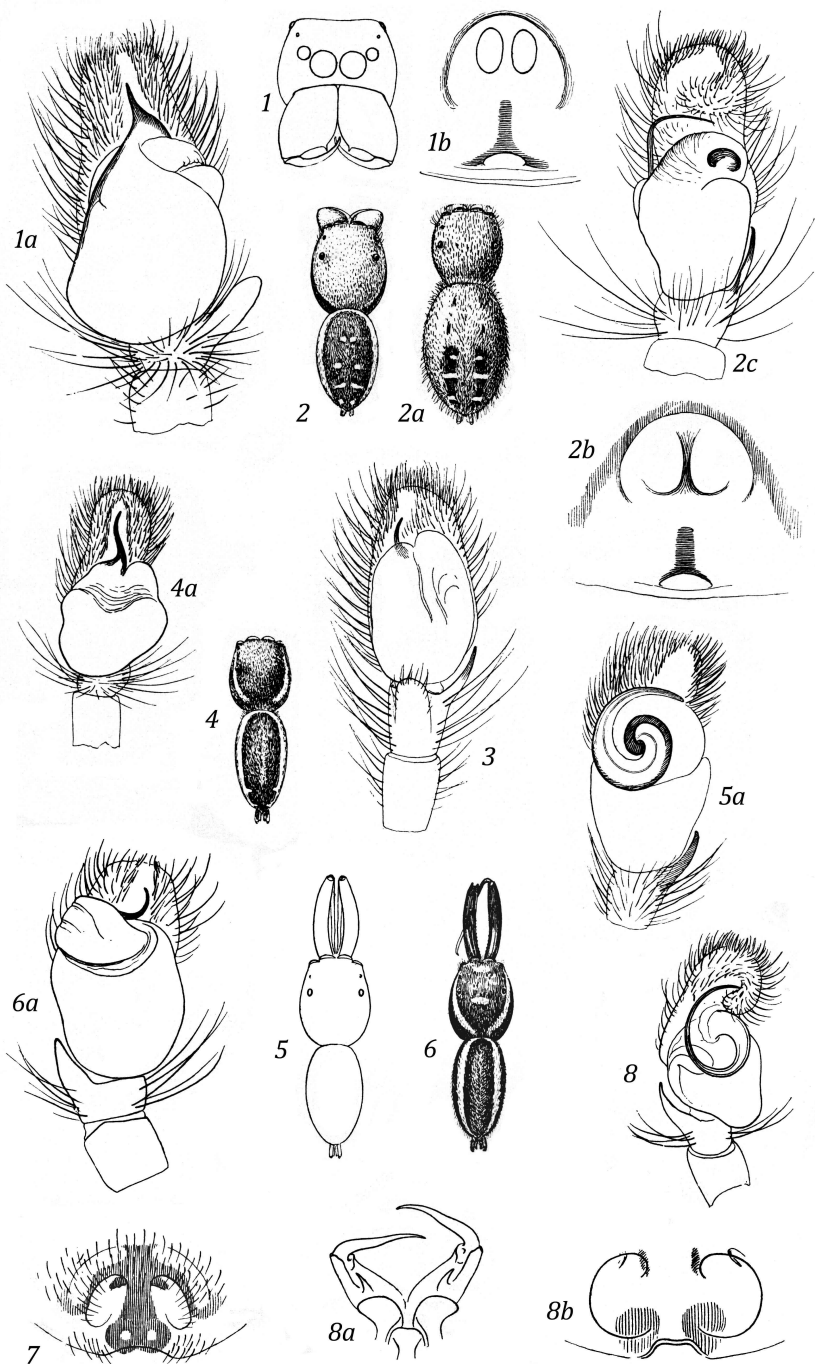
Fig. 11, *Escambia electa*, female, X16; 11a, epigynum; 11b, 11c, male palpus.

Fig. 12, *Dynamius fimbriatus*, male, X16. The fringes on the legs are heavier than they appear in the figure.



**EXPLANATION OF PLATE XXVII.**

- Fig. 1, *Dendryphantes faustus*, face of male; 1a, palpus; 1b, epigynum.
- Fig. 2, *Dendryphantes albopilosus*, male; 2a, female; 2b, epigynum; 2c, palpus.
- Fig. 3, *Dendryphantes vigena*, palpus.
- Fig. 4, *Dendryphantes perfectus*, male; 4a, palpus.
- Fig. 5, *Dendryphantes prosper*, male; 5a, palpus.
- Fig. 6, *Dendryphantes felix*, male; 6a, palpus.
- Fig. 7, *Dendryphantes cuprinus*, epigynum.
- Fig. 8, *Dendryphantes tropicus*, palpus; 8a, falces and maxillae of male, from below; 8b, epigynum.



**EXPLANATION OF PLATE XXVIII.**

Fig. 1, *Dendryphantes Manii*, male; 1a, palpus.

Fig. 2, *Dendryphantes arizonensis*, palpus.

Fig. 3, *Dendryphantes proxima*, epigynum; 3a, palpus.

Fig. 4, *Dendryphantes Smithii*, palpus; 4a, epigynum.

Fig. 5, *Dendryphantes pernix*, male; 5a, palpus.

Fig. 6, *Dendryphantes odiosus*, female; 6a, epigynum.

Fig. 7, *Dendryphantes vegetus*, female; 7a, epigynum.

Fig. 8, *Dendryphantes fortunatus*, female; 8a, epigynum.

Fig. 9, *Simaetha severa*, epigynum.

Fig. 10, *Selimus venustus*, male; 10a, face; 10b, side of cephalothorax; 10c, palpus.

Fig. 11, *Admirala lepida*, female; 11a, face; 11b, side of cephalothorax; 11c, epigynum.

Fig. 12, *Admirala regia*, male; 12a, palpus.

