

## Order SOLIFUGÆ.

## Fam. SOLPUGIDÆ.

Stigmata on the second and third abdominal sterna opening on the posterior border of the plates, and not covered by finely toothed plates (*serrulæ*). Claws on second, third, and fourth legs with basal stalk naked. Tarsus of palp immovably fused to tibia.

The recorded Central-American genera are referable to the two following sub-families:—

- a. Mandible with feebly developed stridulating-ridges on the inner side; anterior border of carapace straight from side to side. Mandible of male without flagellum, and upper jaw untoothed . . . . . EREMOBATINÆ.
- b. Mandible with strongly developed stridulating-ridges on the inner side; the upper jaw in the male toothed and furnished with a flagellum . . . . . DÆSIINÆ.

## Subfam. EREMOBATINÆ.

*Datamina*, Kraepelin, Jahrb. Hamb. Wiss. Anst. xvi. p. 240 (1899).

*Eremobatina*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 116 (1901).

This subfamily contains the single genus *Eremobates*.

## EREMOBATES.

*Gluvia*, C. Koch, Arch. f. Naturg. viii. 1, p. 355 (1842); Uebersicht Arachn. Syst. v. p. 97 (1850) (ad max part.); Pocock, Ann. & Mag. Nat. Hist. (6) xvi. p. 94 (1895).

*Datumes*, Simon, Ann. Soc. Ent. Fr. (5) ix. p. 133 (1879); Kraepelin, Jahrb. Hamb. Wiss. Anst. xvi. p. 240 (1899) (nom. præocc.).

*Eremobates*, Banks, Amer. Nat. xxxiv. p. 426 (1900); Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 117 (1901).

Leg of first pair without claw. Tarsus of legs furnished beneath with distinct pairs of spines; tibia of second and third legs furnished above with five strong spines arranged in a single series, and three or four pairs of weaker spines below. Mandibles with only feebly developed stridulating-ridges on the anterior portion of the smooth area on the inner side of their appendages; without any flagellum, and with the upper jaw untoothed in the male.

Type *Gluvia cinerascens*, C. L. Koch.

*Distribution*. Southern States of North America and Mexico.

*Synopsis of the Central-American Species.*

- a. Upper (immovable) jaw of mandible toothless, nearly straight, and projecting almost at right angles from the basal area bearing the cheek-teeth. (Males.)
- a<sup>1</sup>. Lower (movable) jaw of mandible armed with two large teeth and one or two small teeth between them.
- a<sup>2</sup>. Patella of palp armed below with two rows of short spines; its

- tibia beset below with numerous papilliform bristles; distal tooth of lower jaw of mandible remote from the proximal . . . *cinerascens*, C. Koch.
- b*<sup>2</sup>. Patella of palp unspined below, its tibia without papilliform bristles; distal tooth of lower jaw much closer to the proximal. . . *toltecus*, Poc.
- b*<sup>1</sup>. Lower jaw of mandible with one large proximal tooth and one or two small teeth in front of it.
- a*<sup>3</sup>. Distal end of femur and proximal end of patella of palp armed below with strong spines; movable jaw of mandible with two or three small teeth in front of the large tooth, and one on its inner side . . . . . *formidabilis*, Simon.
- b*<sup>3</sup>. Distal end of femur and proximal end of patella of palp unspined; lower jaw of mandible with one small tooth in front of the large tooth, and none on the inner side.
- a*<sup>4</sup>. Mandible yellow with three dark stripes; upper jaw lightly sinuous, abruptly narrowed towards the point; upper long cheek-tooth close to base of jaw, the intervening area less than the diameter of the tooth . . . . . *elongatus*, C. L. Koch.
- b*<sup>4</sup>. Mandible without dark stripes; upper jaw almost straight, gradually tapering; upper long cheek-tooth separated from base of movable jaw by a space which is nearly equal to the basal diameter of the latter . . . . . *aztecus*, sp. n.
- b*. Upper jaw of mandible strongly toothed, its toothed area forming a continuous curve with that of the cheek-teeth. (Females.)
- a*<sup>5</sup>. Patella of palp spined below; minor teeth on the upper jaw isolated, not rising close to the base of the larger teeth . . . . . *cinerascens*, C. Koch.
- b*<sup>5</sup>. Patella of palp unspined; minor teeth on upper jaw lying close to the base of the major teeth.
- a*<sup>6</sup>. Tibia of palp furnished in its distal half beneath with about thirty lenticular papillæ . . . . . *lentiginosus*, Kraep.
- b*<sup>6</sup>. Tibia of palp without papillæ beneath.
- a*<sup>7</sup>. Tarsus of fourth leg furnished laterally with long, thick, white hairs; movable jaw with three minor teeth . . . . . *formidabilis*.
- b*<sup>7</sup>. Tarsus of fourth leg normally hairy; movable jaw only with two minor teeth.
- a*<sup>8</sup>. Mandible ornamented above with three brown stripes . . . *formicarius*, C. L. Koch.
- b*<sup>8</sup>. Mandible without trace of brown stripes above . . . . . *aztecus*, sp. n.

1. *Eremobates aztecus*, sp. n. (Tab. XII. figg. 2, 2 a, ♀; 3, 3 a, ♂.)

- ♀. *Colour*: carapace, with exception of the black ocular tubercle and a narrow marginal transverse line on each side of the latter, mandibles, palpi, and legs a uniform clear ochre-yellow, the tip of the tarsus of the palp only being brownish; terga of abdomen and thorax blackish, sides of these regions deep ashy-grey, sternal plates yellowish. Width of *head-plate* exceeding length of patella of palp, about equal to its tibia and tarsus, and to patella or tibia and tarsus of fourth leg; tubercle furnished in front with numerous subequal bristles. *Mandible* furnished above with simple long bristles; upper jaw armed distally with two large subequal teeth and a smaller tooth between them, proximally with one very large tooth, which bears two much smaller teeth on its anterior slope at the base, and behind it one minute tooth

just above the upper cheek-tooth of the outer row, upper cheek-tooth of inner row long; lower jaw armed with two large teeth, the distal a little smaller than the proximal, and two smaller intermediate teeth, the upper of which is situated on the anterior slope of the proximal principal tooth and the lower at its base. *Palpi* covered with longer and shorter bristles, entirely without spines, except for one long apically setiform spine on the inner side of the distal end of the femur; lower side of the tibia beset with many vertical and truncate so-called cylindrical bristles. Patella of *legs* armed beneath apically with a pair of long spines, which on that of the fourth leg are apically setiform, and one anterior setiform spine, thicker on the fourth than on the third, and very slender on the second, in the distal third of the segment; the tibia armed beneath with three anterior and four posterior slender spines (in addition to the five strong spines on the upperside of these segments on the second and third legs); tarsus of fourth with four pairs of spines, the sides and the lower surface of the segment normally bristly.

- ♂. Resembling the female in colour, but with the palpi and legs stained with brown. *Carapace* about two-thirds the length of the patella, or the tibia and tarsus of the palp and of the patella of the fourth leg, and as long as the tibia of the fourth. *Mandible* with upper fang nearly straight, gradually tapering to a point, projecting nearly at right angles from the plane of the cheek-teeth; the long upper cheek-tooth of the outer series separated from the base of the fang by a wide space, which is about equal to the diameter of the base of the fang, a minute tooth above the long cheek-tooth and three below it, the middle of which is the larger; the inner row of four teeth, the upper the largest, the third larger than the second, the fourth or lowest the smallest, and situated on the tooth above it; lower jaw armed with one large tooth, which is furnished anteriorly at the base with one minute tooth. Spine-armature of *legs* as in female.

*Measurements in mm.*—♀. Total length of trunk 27; width of head-plate 7; length of palpus 19, its patella 6; tibia and tarsus 7; fourth leg 22, its patella 7. ♂. Total length 19; width of carapace 4.5; length of palpus 19, its patella 7; tibia and tarsus 7.3; fourth leg 22, its patella 7.

*Hab.* MEXICO, Guanajuato, Atoyac in Vera Cruz (*A. Dugès*).

### 2. *Eremobates toltecus*. (Tab. XII. fig. 4, ♂.)

*Gluvia tolteca*, Pocock, Ann. & Mag. Nat. Hist. (6) xvi. p. 95 (1895)<sup>1</sup>.

*Eremobates toltecus*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 125 (1901)<sup>2</sup>.

- ♂. *Colour* practically the same as in *E. aztecus*. Width of *head-plate* as compared with the length of the segments of the palpi and the fourth legs greater than in that species, more than three-quarters the length of the patella, and about three-fourths that of the tibia and tarsus, about three-fourths the length of the patella of the fourth leg, and as long as the tibia. Upper jaw of *mandible* not so straight and gradually tapering as in *E. aztecus*, very lightly sinuous, its upper edge somewhat abruptly bent downwards towards the apex; distance between the upper long tooth of the outer row of cheek-teeth almost as wide as the base of the upper fang, two minute teeth above it, this tooth not so large as in *E. aztecus*, cheek-teeth of the inner row practically as in that species; lower jaw very differently armed from that of *E. aztecus*, furnished with two large teeth, the proximal larger than the distal; two small teeth between them, both set upon the anterior slope of proximal tooth, the upper of the two very much larger than the lower, which is minute. *Palpi* and legs as in *E. aztecus*, but shorter (*cf.* measurements).

*Measurements in mm.*—Total length 16; width of head 4.3; length of palpus 17, its patella 6; tibia and tarsus 6.5; fourth leg 19, its patella 6.

*Hab.* MEXICO<sup>1 2</sup>.

### 3. *Eremobates cinerascens*. (Tab. XII. fig. 5, ♂.)

*Gluvia cinerascens*, C. Koch, Arch. f. Naturg. viii. 1, p. 355 (1842)<sup>1</sup>; Die Arachn. xv. p. 96, fig. 1484 (1848)<sup>2</sup>.

*Eremobates cinerascens*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 122 (1901)<sup>3</sup>.

*Datames pallipes* (Say), Simon, Ann. Soc. Ent. Fr. (5) ix. p. 140 (1879) (♀, nec ♂)<sup>4</sup> (nec *D. pallipes*, Say).

- ♂. *Colour* much the same as in the two preceding species. Upper jaw of *mandible* long, slender, straight,

separated by a deep and wide notch from the row of cheek-teeth, which project far forward beyond its base, those of the outer row consisting of three longish teeth, the upper the longest, one minute tooth at the bottom, and one or two minute teeth between the large upper tooth and the base of the fang; lower jaw with two large teeth, the distal the smaller of the two, and lying about midway between the proximal and the tip of the fang; the proximal tooth large, conical, with one or two small teeth at its base. *Palpi* with tibia beset above and below with numerous cylindrical bristles, and also bearing beneath in its distal two-thirds about sixty lenticular papillæ; the patella armed below with two often irregularly arranged rows of short spines interspersed amongst the cylindrical bristles, and about as long as the diameter of the segment; some weak spines also on the upperside of the femur. Fourth *leg* with its tibia armed below with four or five pairs of spiniform bristles, its inner border without a long row of nine spiniform setæ beneath.

♀. Like the male in most characters. The upper jaw of the *mandible* normally toothed and arched; its intermediate smaller teeth almost isolated; lower jaw likewise with two intermediate teeth, of which one is very small. Tibia of *palp* with only a few lenticular papillæ between the cylindrical bristles, patella spined as in the male. Fourth *leg* with its tibia spined as in that sex.

Length up to 15-16 mm.

*Hab.* NORTH AMERICA, Colorado, Utah, Nevada, Kansas<sup>4</sup>.—MEXICO<sup>1 2 3</sup>.

#### 4. *Eremobates lentiginosus*.

*Datames lentiginosus*, Kraepelin, Jahrb. Hamb. Wiss. Anst. xvi. p. 244 (1899)<sup>1</sup>.

*Eremobates lentiginosus*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 124 (1901)<sup>2</sup>.

♀. Apparently resembling the preceding species in *colour*. As in *E. cinerascens*, the tibia of the *palp* furnished beneath with lenticular papillæ, these papillæ about thirty in number and confined to the distal half of the segment, which is beset with scattered cylindrical bristles; no spines on the palpi. Dentition of the mandible apparently as in *E. cinerascens*, but the two minor teeth in the upper jaw not so isolated.

Length up to 20 mm.

*Hab.* MEXICO<sup>1 2</sup>.

#### 5. *Eremobates elongatus*. (Tab. XII. fig. 6.)

*Gluvia elongata*, C. L. Koch, Arch. f. Naturg. viii. 1, p. 355 (1842)<sup>1</sup>.

*Eremobates elongatus*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 126 (1901)<sup>2</sup>.

*Colour*: mandible yellow, with three brown spots; carapace brownish-red; abdominal tergal plates infusate; palpus from the distal end of the femur to the extremity lightly infusate; legs tinted like the palpus. Upper jaw of *mandible* lightly sinuous, somewhat abruptly narrowed at the extremity, the groove on its inner side extending almost to the base; the upper cheek-tooth lying close to the base of the fang, the intervening space exceedingly narrow, much less than the diameter of the tooth or of the jaw; lower jaw armed with one very large tooth preceded by a small denticle situated in the angle formed where the tooth arises from the jaw.

Length of body 11.5 mm.

*Hab.* MEXICO<sup>1 2</sup>.

The above-given description is abridged from Kraepelin's monograph, the species being unknown to me.

#### 6. *Eremobates formicarius*.

*Gluvia formicaria*, C. L. Koch, Arch. f. Naturg. viii. 1, p. 353 (1842)<sup>1</sup>; Die Arachn. xv. p. 99, fig. 1487 (1848)<sup>2</sup>.

*Eremobates formicarius*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 126 (1901)<sup>3</sup>.  
 ? *Datames geniculatus*, Simon, Ann. Soc. Ent. Fr. (5) ix. p. 138, t. 3. fig. 31<sup>4</sup> (nec *Gluvia geniculata*, Koch).

♀. *Colour*: mandibles yellow or yellowish-red, with brown stripes; carapace dark yellowish-red; abdomen with infuscate tergal and yellow sternal plates; palpi yellowish-red, darker distally; legs yellowish-red. *Mandible* with upper jaw normally formed and normally toothed, the minor teeth lying close to the base of the major teeth. *Tibia of palp* without papillæ and without spines, studded ventrally with strong cylindrical bristles; patella unspined, bearing above and below short and long bristles, and above also some fork-shaped hairs; femur bristly below. Protarsus of fourth *leg* with four or five pairs of spines, on the inner side beneath no conspicuous long row of strong spiniform bristles.

Length of body 9 mm. in type (young), up to 16 mm. in *E. geniculatus* (Simon).

*Hab.* NORTH AMERICA, Texas<sup>4</sup>.—MEXICO<sup>4</sup>.

### 7. *Eremobates formidabilis*. (Tab. XII. fig. 7, ♂.)

*Datames formidabilis*, Simon, Ann. Soc. Ent. Fr. (5) ix. p. 136, t. 3. figg. 25, 26<sup>1</sup>.

*Eremobates formidabilis*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 127, fig. 95 (1901)<sup>2</sup>.

*Datames striatus*, Putnam, Proc. Davenport Acad. Sci. iii. p. 255 (1883)<sup>3</sup>.

*Colour* of carapace and mandibles yellowish-red, the former lightly infuscate; tergal plates of abdomen dark, sternal plates yellow, lateral membrane violet-grey dorsally; palpi uniformly yellowish-red in female, the protarsus dark reddish-brown in male; legs uniformly coloured, except the fourth pair in the male, which are darker in the middle of their length.

♂. Upper jaw of *mandible* straight, slightly expanded in the middle, its inner side grooved throughout its length, in the basal third of its lower edge forked, hollowed out into a longitudinally elliptical area into which the enlarged tooth of the lower jaw fits, the cheek armed with two larger and two or three smaller teeth on each side; lower jaw with one large proximal tooth and two smaller distal teeth, the proximal of these two rising from the base of the larger tooth in front, on the inner side of the large tooth arises a tooth-like tubercle. *Tibia of the palp* without papillæ and true spines, but studded externally with numerous cylindrical bristles, covered dorsally only with fine bristles; patella armed below in the basal half with about six spines arranged irregularly in two rows, and beset, in addition, with cylindrical and other bristles; bearing short and long bristles above; femur with some spines at the distal end of the lower surface. Protarsus of fourth *leg* with four or five pairs of spiniform setæ beneath, and on the inner border with some additional spiniform setæ.

♀. Upper fang of *mandible* normally toothed and normally shaped, with two or three small teeth rising from the base of the principal teeth. *Palpi* as in the male, but the femur and patella armed beneath with spiniform setæ instead of with spines. Protarsus of the *legs* of fourth pair armed beneath with four or five pairs of spines, without conspicuous longitudinal row of nine equally strong spiniform setæ on the inner edge below.

Length, ♂ ♀, 27 mm.

*Hab.* NORTH AMERICA, California and Arizona<sup>3</sup>.—MEXICO<sup>1</sup>, Guanajuato (*Mus. Brussels* & *Mus. Simon*<sup>1</sup>).

Of the following species no description has been published:—

### *Eremobates caspari*.

*Datames caspari*, Marx, Proc. Ent. Soc. Wash. ii. no. 2, p. 254 (1891)<sup>1</sup>.

*Hab.* MEXICO, Villaldama<sup>1</sup>, Nuevo Leon.

Only the habits of this species were recorded by Marx, although it was marked with the symbol "*n. sp.*"

Subfam. *DÆSIINÆ*.

*Dæsinae*, Kraepelin, Jahrb. Hamb. Wiss. Anst. xvi. pp. 208, 221; Das Tierr., Palpigradi et Solifugæ, p. 83 (1901).

Recognizable from the Eremobatinæ by the presence of well-developed stridulating-ridges on the inner surface of the mandibles, by the presence of the flagellum and of teeth on the upper jaw of these appendages in the male, by the convex procurvature of the anterior border of the carapace, and by the presence of only three spines on the upperside of the tibia of the third leg.

The three genera known from Central America may be diagnosed as follows:—

- a.* Tarsus of second and third legs one-jointed; of fourth three- or one-jointed.
- a'.* Tarsus of fourth leg one-jointed . . . . . *Hemiblossia.*
- b'.* Tarsus of fourth leg three-jointed . . . . . *Ammotrecha.*
- b.* Tarsus of second and third legs two-jointed; of fourth four-jointed . . . . . *Dæsia.*

## AMMOTRECHA.

*Gluvia*, C. L. Koch, Arch. f. Naturg. viii. 1, p. 355 (1842)<sup>1</sup>; Uebersicht Arachn. Syst. v. p. 97 (1850) (part.)<sup>2</sup>.

*Cleobis*, Simon, Ann. Soc. Ent. Fr. (5) ix. p. 145 (1879) (part.)<sup>3</sup>; Pocock, Ann. & Mag. Nat. Hist. (6) xvi. p. 96 (1895)<sup>4</sup>; Kraepelin, Jahrb. Hamb. Wiss. Anst. xvi. p. 238 (1899)<sup>5</sup>.

*Ammotrecha*, Banks, Amer. Nat. xxxiv. p. 426 (1900)<sup>6</sup>; Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 109 (1901)<sup>7</sup>.

Tarsi of second and third pairs of *legs* one-jointed, of fourth leg distinctly three-jointed, the second segment short and annuliform, the entire tarsus of this leg slender, elongate, five or six times as long as high; femur of fourth leg expanded; tibia of second and third pairs of legs without distinct row of spines on the upperside. Upper jaw of *mandible* toothed in both sexes, armed with two large distal teeth, preceded by a third large tooth, in front and behind which there is a small tooth; upper edge of the jaw crested. *Flagellum* membranous, elongate, articulated to the inner border of the upper jaw in the male.

Type *A. limbata*, Luc. (sub *Galeodes*).

*Distribution.* Southern States of North America, Central America, Antilles, and northern parts of South America.

*Key to the Species.*

- a.* Patella of palp armed beneath with a row of seven or eight short spines . . . *peninsulana*, Banks.
- b.* Patella of palp unarmed beneath.
- a'.* Upperside of abdomen with scarcely a trace of median dorsal pale band; flagellum of male with its upper and lower edge curled over and almost in contact; sixth tooth of upper jaw in male much smaller than fourth . . . . . *limbata*, Lucas.
- b'.* Upperside of abdomen with broad median yellow band; upper and lower edges of flagellum widely separated; sixth tooth of upper jaw in male as large as the fourth.
- a'.* Mandibles and head-plate yellow, a distinct clear yellow ring round the distal end of the patella of the fourth leg . . . . . *stolli*, Poc.
- b'.* Mandibles and head-plate uniformly chocolate-brown; no pale band round the distal end of the patella of the fourth leg . . . . . *picta*, sp. n.

1. *Ammotrecha stolli*. (Tab. XII. figg. 8, 8 *a, b*.)

*Cleobis stolli*, Pocock, Ann. & Mag. Nat. Hist. (6) xvi. p. 97 (1895)<sup>1</sup>.

*Ammotrecha stolli*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 115 (1901)<sup>2</sup>.

♀. *Colour*: head-plate pale yellow, ocular tubercle black with a median pale stripe; mandibles yellow, with the fangs ferruginous; upperside of abdomen with a median yellow stripe, the sides of the tergal plates fuscous, the fuscous area on each side about as wide as the median stripe or rather narrower, on the posterior terga the median stripe gradually dies away; lateral integument of abdomen ashy or violet-grey above adjacent to the terga, the sides of the thoracic terga also infuscate; palpi mostly yellow, with distal end of femur and tibia lightly infuscate, the distal half of the tibia and the tarsus more deeply infuscate; first leg pale, second only lightly infuscate, third more strongly infuscate on femur, patella, and tibia, with an indistinct pale ring round the end of the patella; fourth leg with the femur, patella, and tibia strongly infuscate, with a distinct and broad yellow ring round the tip of the patella. Width of head equal to length of patella of palp, slightly shorter than its tibia and tarsus and the patella of fourth leg. *Mandible* with upper fang armed distally with three large subequal teeth and a small one between the second and third set almost upon the base of the anterior side of the latter; lower fang with two larger subequal teeth and a small tooth between them nearer the base of the inner. *Palpi* without spines on femur and patella; tibia with five pairs of strong short spines beneath, and furnished with numerous cylindrical bristles. Third and fourth pairs of legs with three anterior and one posterior distal spine beneath; tarsus with four pairs of spines beneath.

♂. Like the female in colour, but smaller, and with longer appendages. Width of head much less than length of patella or tibia and tarsus of palp or than patella of fourth leg. Upperside of the tibia and the lower side of the patella of the palp with cylindrical bristles. *Flagellum* elliptically elongate, its upper and lower edges widely separated.

*Measurements in mm.*—♀. Total length of body 18; width of head 4.3; length of palp 15, its patella 5; tibia and tarsus 5.3; of fourth leg 16, its patella 5. ♂. Total length 12; width of head 2.5; length of palp 15, of fourth leg 15.

*Hab.* GUATEMALA (*Sarg*), Retalhuleu (*Stoll*<sup>1</sup>); NICARAGUA<sup>2</sup>; COSTA RICA<sup>2</sup>.

2. *Ammotrecha picta*, sp. n. (Tab. XII. figg. 9, 9 *a*.)

♀. Differing from *A. stolli* principally in colour; head-plate deep chocolate-brown, ocular tubercle black, without median pale band; mandibles infuscate above, with three deeper-coloured dark stripes; abdomen coloured like that of *A. stolli*, but the lateral integument adjacent to the tergal plates paler, hence the dark area of the plates stands out more boldly as a pair of isolated bands; palpi entirely infuscate, except the basal half of the femur; first leg lightly infuscate, second, third, and fourth legs deeply infuscate, with no distinct pale ring round the distal end of the tibia of the fourth leg. *Mandibles* with dentition as in *A. stolli*. Length and spine-armature of legs as in that species.

♂. Resembling the female in colour, and like the male of *A. stolli*, but the cylindrical and other bristles on the palpi less numerous.

*Measurements in mm.*—♀. Total length 18; width of head 4; length of palp 12, of fourth leg 14. ♂. Total length 15; width of head 3; length of palp and of fourth leg 16.

*Hab.* GUATEMALA (*Sarg*).

3. *Ammotrecha peninsulana*.

*Ammotrecha peninsulana*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 290 (1898)<sup>1</sup>; Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 112 (1901)<sup>2</sup>.

♀. *Colour*: head-plate and mandibles yellowish-red, lightly infuscate; abdomen with a narrow, brown, median, dorsal stripe, lighter brown elsewhere; palpi with femur yellowish-brown; patella brownish-red in the middle, with yellower distal and proximal ends; tibia yellowish-brown at the base, becoming darker

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reddish-brown distally; first leg yellow, not infuscate, the rest yellowish-red; ocular tubercle with only two principal bristles, without subordinate bristles. *Mandible* with upper fang normally toothed, its upperside with a deep, obtusely angular notch at its base. *Palp* with patella armed below with a row of eight spines; tibia also armed below with a row (? two rows) of seven or eight short spines, both these segments beset above and below with cylindrical hairs, the femur bearing cylindrical and other hairs below and short forwardly directed bristles above. Fourth *leg* with cylindrical hairs on the upperside of the patella and tibia.

Length of trunk 12 mm.

*Hab.* LOWER CALIFORNIA, San José del Cabo <sup>1</sup>.—MEXICO, Hermosillo in Sonora <sup>1</sup>.

This species is unknown to me. The description is adapted from Kraepelin's monograph.

#### 4. *Ammotrecha limbata*.

*Galeodes limbatus*, Lucas, Mag. Zool. iv. Cl. viii. t. 5 (1835) <sup>1</sup>.

*Solpuga limbata*, Gervais, Ins. Apt. iii. p. 90 (1844) <sup>2</sup>.

*Cleobis limbata*, Simon, Ann. Soc. Ent. Fr. (5) ix. p. 148 (1879) <sup>3</sup>.

*Ammotrecha limbata*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 112 (1901) <sup>4</sup>.

? *Cleobis saltatrix*, Simon, Ann. Soc. Ent. Fr. (5) ix. p. 146, t. 3. figg. 32-36 (1879) <sup>5</sup>.

*Ammotrecha saltatrix*, Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 113 (1901) <sup>6</sup>.

♂. *Colour*: head-shield yellowish-brown, mandibles yellow; upperside of abdomen with a wide black median band embracing the entire terga, the median line sometimes less thickly pigmented than the sides; lateral and ventral surfaces of the abdomen yellow; palpi brown almost throughout, the tarsi and the base of the femur somewhat paler; legs tinted like the femur; ocular tubercle black, without pale median stripe. *Ocular tubercle* furnished in front with numerous short bristles. *Mandibles* normally toothed. *Flagellum* flask-shaped, distally pointed, its edges bent over so as almost to meet, separated only by a narrow slit. *Palp* with its tibia armed below with four spines (? pairs of spines), and furnished with cylindrical bristles.

♀. Like the male, but with the tibia of the palp without cylindrical hairs, and furnished with five (? pairs of) spines below.

Length of trunk up to 17 mm.

*Hab.* MEXICO <sup>1-6</sup>; GUATEMALA <sup>3</sup>.

This species, which is unknown to me, seems to differ from *A. picta* in the indistinctness of the median dorsal abdominal pale band in both sexes, in the form of the flagellum in the male, and in the small size of the sixth tooth of the upper jaw, which is much smaller than the fourth, whereas in *A. picta* the two are subequal. The above-given description is abridged from Kraepelin's monograph.

*A. saltatrix* was regarded by Simon as a valid species on the strength of the alleged smaller size of the flagellum in the male, and of the equality in size of the three distal teeth of the upper mandibular finger. According to Kraepelin, however, these characters are not sufficiently marked in the type-specimen to justify the view that *A. saltatrix* is a valid species. Hence I have regarded the name as a synonym of *A. limbata*. The only known examples of *A. saltatrix* were from Mexico.



## HEMIBLOSSIA.

*Hemiblossia*, Kraepelin, Jahrb. Hamb. Wiss. Anst. xvi. p. 233 (1899)<sup>1</sup>; Das Tierr., Palpigradi et Solifugæ, p. 103 (1901)<sup>2</sup>.

Closely allied to *Ammotrecha*, but with the tarsus of the fourth leg short, straight, dorsally arched and unsegmented. All the legs are shorter and relatively thicker, especially the femur of the fourth. The ocular tubercle is furnished with two rows of subsymmetrically arranged bristles, of which the anterior two are considerably the longest.

Type *H. bouvieri*, Kraep.

Up to the present time only two species of this genus have been described, namely, *H. bouvieri*, Kraep., and *H. o'neili*, Purcell, both of which occur in S. Africa. Neither of these is known to me in nature; but I am unable to find in their diagnosis mention of any differential character which justifies, in my opinion, the establishment of a new genus for the Central-American species described below, strange as may seem the generic identity between the Neotropical and Ethiopian forms. Slight differences perhaps exist in the numbers of hairs upon the ocular tubercle and the nature of the hairy clothing upon the palpi; but without a careful comparison between the types of the known species it would be premature to attach a generic significance to these features.

1. *Hemiblossia vittata*, sp. n. (Tab. XII. figg. 10, 10 a-d, ♀.)

*Colour*: head, mandibles, legs, palpi, and abdomen deep blackish-brown, the abdomen with a clear white median dorsal stripe, which extends of even width from the last segment over those of the thorax up to the head; lateral integument of abdomen deep greyish-black almost down to the sternal plates, which are themselves infuscate, the posterior wholly so, the anterior with a patch at the sides and on the posterior angle; genital operculum pale; malleoli with black margin. *Head-plate* thickly beset with short, pale, blunt-tipped hairs; ocular tubercle with two rows of subsymmetrically disposed shorter hairs behind the longer stouter anterior pair. *Palpi* short; the width of the head equal to the length of the patella and half the tibia; thickly clothed with short, simply attenuate hairs, and furnished in addition with long sensory setæ; without cylindrical bristles. *Mandibles* toothed as in *Ammotrecha stolli*. *Legs* spined approximately as in the genus *Ammotrecha*, but the spines relatively stouter; all the legs short; the width of the head-plate equal to the patella and half the tibia of the fourth.

*Measurements in mm.*—Total length 13; width of head 2; length of palpus 4, of fourth leg 6.

*Hab.* GUATEMALA (*Sarg.*).

Although in the general darkness of its coloration this species approaches the two South-African forms, it may be at once distinguished from them by the presence of the conspicuous median dorsal white band.

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The following species cannot be placed in any taxonomic arrangement, the description and figure being inadequate:—

*Cleobis hirsutus*, Banks, Proc. Calif. Acad. Sci. (3) i. p. 291, t. 17. fig. 31 (1898)<sup>1</sup>.—

*Hab.* MEXICO<sup>1</sup>.

## DÆSIA.

*Gluvia*, C. L. Koch, Arch. f. Naturg. viii. 1, p. 355 (1842); Uebersicht Arachn. Syst. v. p. 97 (1850) (part.).

*Dæsia*, Karsch, Arch. f. Naturg. xlvi. 1, p. 234 (1880); Kraepelin, Jahrb. Hamb. Wiss. Anst. xvi. p. 227 (1899); Das Tierr., Palpigradi et Solifugæ, p. 88 (1901).

*Biton*, Karsch, Arch. f. Naturg. xlvi. 1, p. 234 (1880).

Tarsi of second and third pairs of legs two-jointed, of fourth pair four-jointed; tibia of second leg with five, of third leg with three spines. Upper jaw of mandible in female normally toothed, with one small intermediate, one larger proximal, and two large distal teeth; in the male the upper jaw is untoothed or weakly toothed. Flagellum membranous, fastened by a pivot to the inner surface of the upper jaw, oval, posteriorly pointed, its edges incurved.

Type *D. præcox*, C. L. Koch.

*Distribution.* Southern shores of the Mediterranean; Africa; Mexico.

1. *Dæsia præcox*. (Tab. XII. fig. 11.)

*Gluvia præcox*, C. L. Koch, Arch. f. Naturg. viii. 1, p. 355 (1842)<sup>1</sup>; Die Arachn. xv. p. 95, fig. 1483 (1848)<sup>2</sup>.

*Datames præcox*, Simon, Ann. Soc. Ent. Fr. (5) ix. p. 144 (1879)<sup>3</sup>.

*Dæsia præcox*, Karsch, Arch. f. Naturg. xlvi. 1, p. 234 (1880)<sup>4</sup>; Kraepelin, Das Tierr., Palpigradi et Solifugæ, p. 98 (1901)<sup>5</sup>.

♂. *Colour*: mandibles and carapace yellow, the latter tinted with brown; abdomen black above, dark beneath with yellow borders, thickly clothed with white hairs; palp reddish-brown; legs of first, second, and third pairs yellowish, of fourth pair with femur and patella darker. *Mandible* with upper jaw slender, long, pointed, lightly arched, toothless; basal portion of the jaw furnished internally with four cheek-teeth, an upper long, sharp, and forwardly directed, and three subequal smaller teeth below; lower jaw terminating in a long, slender, and curved fang, and armed in the basal two-thirds of its length with two large teeth—an anterior directed forwards, and bearing near the base of its upperside a smaller angular tooth, and a posterior erect but curved backwards at the tip, and bearing near the base of its anterior edge a small tooth. *Flagellum* long, elliptical in its basal portion, with subparallel sides, its upper edge incurved; its extremity gradually narrowed, with a sharp and slightly upturned point. *Palp* with its tibia armed on its inner edge at the distal end beneath with three weak spines. Second abdominal *sternum* without modified bristles in front of the stigmata.

Length of body 11 mm.

*Hab.* ? MEXICO<sup>1-5</sup>.

The locality assigned to this species is probably erroneous, seeing that the remaining members of the genus *Dæsia* have been recorded only from Syria, Arabia, Cyprus, and Africa (from Algeria and Egypt to Cape Colony). But since there is in many particulars a faunistic similarity between the Mediterranean area of the Old World and the Sonoran district of North America, the possibility of the genus occurring in both continents must be borne in mind. At all events, the question as to the locality of *D. præcox* must be left undecided until the species, of which only the one typical example is at present known, has been rediscovered.