

**Callimya venusta** Snow.

A male and female of this species previously recorded from Shackford Head, near Eastport, Me., was collected along the Mt. Washington carriage road, above the two mile post, elevation about 3,000 feet, July 16, 1915.

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**TWO NEW TEXAN PARAJULI.**

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The type specimens of the new species of *Parajulus* here described were collected by J. D. Mitchell at Victoria, Tex., from where they were taken to the field laboratory of the United States Bureau of Entomology at West Lafayette, Ind., and there kept alive for some time. They were sent to me for determination by Mr. W. R. Walton of the bureau mentioned. Isolated descriptions of these two forms are here published in order that the names may be available for early use.

***Parajulus texanus* sp. nov.**

General color light yellowish brown. A dark median dorsal longitudinal line which is dark brown anteriorly and becomes black posteriorly. The usual series of black dots along each side over the repugnatorial glands on all excepting the first few segments; the dots small, angulate. About each segment a narrow dark annulus or line which fades out on the lower part of each side. A series of light brown spots much lighter and less conspicuous than those of the repugnatorial series occur along each side above the legs excepting on the most anterior and most posterior segments. Vertex of head and the antennæ dusky or blackish; the head below level of eyes pale.

Sulcus across vertex of head coarse; extending forwards to a deep transverse sulcus between inner angles of eyes; the transverse sulcus bent back angularly at middle.

Eye patch black; of moderate size; triangular, but with sides convex and the anterior angle truncate. Ocelli on each side in seven subvertical series in the most caudal of which there are ten



ocelli, and also forming about ten oblique series. Total number of ocelli in each patch near fifty.

First dorsal plate with the lower border straight, not at all angularly produced. Laterally distinctly margined. With two or three longitudinal striae across caudal border below on each side.

The second and succeeding segments deeply longitudinally striate below on each side. A longitudinal sulcus at level of repugnatorial pore.

Repugnatorial pore moderate or small; a little removed from the suture which is considerably excurved at its level.

Anal tergite with caudal tip acute and subspinous; straight, not at all decurved; exceeding the anal valves.

Anal valves with inner border conspicuously raised, and roughened.

Anal scale with caudal and anterior margins widely and evenly convex, not emarginate, meeting at an acute angle on each side.

Mandibular stipes of male slightly excavated. Strongly produced ventrad.

Promentum of gnathochilarium in the male much enlarged as usual; obovate in outline.

First legs in male strongly enlarged; the penult article narrowing distad, rather long, flattened, very weakly curved. Not strongly uncinata. Inner surface with numerous fine tubercles.

Coxae of second legs in male much enlarged and produced mesally in a linguiform process as usual; the process gradually but not strongly narrowing distad; not enlarged at distal end excepting for a slight extension at each angle.

Exposed part of first division of anterior gonopods of male wide proximally and strongly narrowing distad, the apex obtusely rounded; second or posterior division conspicuously exposed in lateral view, curving above base cephalomesoventrad, then bending more strongly a little caudad of mesad and then strongly back more caudad, the end flattened and the distal edge finely dentate and in contact with that of its mate, the two embracing or lying below a large conical process from the eighth segment.

Posterior gonopods sickle-shaped, crossing each other at the middle.



Number of segments in type, 52.

Length of type, 30 mm.

The description above is of a single male.

*Parajulus victorianus* sp. nov.

As the specimens of this species had been dried out through the evaporation of the alcohol, the coloration cannot be wholly determined. The dark spots along the sides are decidedly larger than in the preceding species and are less angular, being typically sub-circular; they often enclose a light area. In the types no dorsal median longitudinal dark stripe is detectable, though this may be due to the drying and shriveling of the soft parts.

Median sulcus of vertex of head geminate, each half bending sharply ectad at level of eyes and running to the inner angle of eye of the corresponding side and forming part of a transverse sulcus that is angulate at the middle as in the preceding species. Vertex caudally margined, the margining sulcus curving away from the edge on each side as it approaches the middle.

Eye area on each side subpentagonal or subtriangular with the anterior angle broadly obliquely truncate; the caudal side convex as is also the lateral; the mesal side convex or very obtusely angular; the anterior side straight, oblique. Each eye consisting of eight transverse rows of ocelli. Ocelli about 45 in number.

First dorsal plate with lateral border margined, nearly straight; not at all produced below; caudolateral angle subrectangular. Not striate.

Second segment conspicuously longitudinally striate below.

The succeeding segments striate farther dorsad and soon extending entirely across dorsum.

Repugnatorial pore moderate. Not touching the suture which is weakly excurved at its level.

Anal tergite exceeding the valves; caudal angle as a whole sub-acute, the apex, however, narrowly rounded; apex short and not extended as a spinous process, slightly depressed.

Mesal borders of anal valves scarcely elevated, roughened.

Mandibular stipes of male with caudal side straight except at distal or lower end where it is abruptly narrowed, leaving a rounded corner or angular projection.

Promentum of gnathochilarium in the male very large, broadly



oblong with the sides slightly convex and the corners somewhat rounded, also slightly wider distad.

First legs of male enlarged in the usual degree but longer than usual. The penult article exceptionally long, becoming distally much more slender than the preceding article.

Anterior division of the first gonopods conspicuously clavate; the broad distal end bent caudad, the caudal edge setiegerous; posterior division much longer than the anterior, its base broad but above this narrowing rather abruptly to a blade which curves ventromesad nearly to the middle line, with the posterior angle of the tip extended caudad in a short, slender and very acute process.

The posterior gonopods are broad plates each of which curves first cephaloventrad and then ventrocaudad, the distal portion of the blade narrower but still conspicuously broader than usual, the blade with its broad surface subvertical; the distal end characteristically bifid, the two lobes or teeth short.

The types are broken and as a result the number of segments cannot be accurately determined.

Two broken males form the basis of the description.

In the character of the anterior gonopods this species suggests *P. zakiwanus* Chamberlin, known from New Mexico, but the posterior gonopods are conspicuously different.

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## THE PUPA OF *BOREUS BRUMALIS* FITCH.

BY FRANCIS X. WILLIAMS,

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In the August number of *PSYCHE* Dohanian describes and figures *Boreus brumalis*<sup>1</sup> and states that the life-history has not been fully worked out in any species of the genus. The order to which this insect belongs, the Panorpatae, comprises a small group of neuropteroid forms, among which are the genera *Panorpa*, commonly known as scorpion-flies, *Bittacus* and *Merope*, and whose mouth-parts are borne at the end of a snout-like extension of the

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<sup>1</sup> Notes on the External Anatomy of *Boreus brumalis* Fitch, *PSYCHE*, XXII, pp. 120-123, pl. IX, 1915.



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