

which does not reach the sides and is interrupted medially. Under side of flagellum somewhat russet, particularly toward the tip. Wing as in typical *squamosa*. The yellow color is sulphur-yellow on head and thorax, slightly tinged with orange on abdomen.

Holotype, worker, and eight *paratypes* (workers), Tancitaro, 6600 ft., State of Michoacan, Mexico, July, 1940 (H. Hoogstraal and K. Knight). Mus. Comp. Zoöl., Cambridge, Mass. Paratypes also at Academy of Natural Sciences, Philadelphia, U. S. Nat. Museum and American Mus. of Natural History, New York.

It seems reasonable to assume that the curious reduction of the color markings of the abdomen is caused by the mountain climate. In the many workers of *V. squamosa* I have seen from the eastern United States and other parts of Mexico (Mexico City; Puebla; Hidalgo; Chihuahua), the discal transverse bands of tergites 1 and 2 are broad, connected with the yellow sides and not or very narrowly interrupted in the middle; the yellow markings of propodeum and mesopleura are also more extensive.

Seven New Millipeds from Mexico (Chilopoda).

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(Plates III and IV.)

The seven species of diplopods described as new in the present paper are based upon material collected by Harry Hoogstraal and Kenneth Knight, chiefly in June and July, 1940, on the "Third Hoogstraal Mexican Biological Expedition." Some specimens, however, as hereafter noted, were taken in June, 1938. All types are at present deposited at the University of Utah.

Order CHORDEUMIDA.

Suborder CHORDEUMOIDEA.

Family PSEUDOCLEIDIDAE.

Cleidogona nueva new species (Figs. 1, 2).

A blackish band across the dorsum of each metazonite en-

closing four light spots in transverse series, from each of which arises a seta, the lateral spot on each side more elongate; prozonite also with cross band of black embracing at middle two contiguous or sub-contiguous light spots and large lateral light area on each side more extensive than the corresponding spot on metazonite. A longitudinal dark band along the upper part of each side just below line of keels while the lower part of side is pale, the line of junction between dark and light deeply remote. Legs somewhat dusky white, darker distally. Antennae dark.

Eyes large, triangular with apex ectad, ocelli numerous and distinct, arranged in 6 or 7 series much as in *michoacana*.

Antennae slender, with articles of usual proportions, the seventh more slender and scarcely longer than the sixth.

Distinguished from *michoacana* in the form of gonopods and adjacent legs as shown in figs. 1 and 2.

Length 12-13 mm.

Locality.—NUEVO LEON: Sabinas Hidalgo; Ojo de Agua. One male taken on June 14, 1940, in decaying wood outside of a cave at an elevation of 1300 feet by K. Knight.

A lighter colored form than *C. nueva michoacana* from which it differs superficially also in color pattern; e. g., in having the pair of submedian dorsal light spots on prozonites which are wholly lacking in *michoacana*.

Cleidogona nueva michoacana new variety (Figs. 3, 4).

A black band along dorsum and a similar one along each side with upper border at or just below level of pores; on each side between dorsal and lateral dark stripes a longitudinal yellow stripe with irregular margins and the sides also light colored below lateral dark bands; the two more median setae on each segment each inserted on a small circular yellow spot; anal tergite black. Legs dusky yellow.

Eyes large and black, composed of numerous ocelli arranged in series from above below as follows: 7, 7, 7, 5, 5, 3, 1. Antennae long and slender, with the articles of the typical relative proportions.

Carinae weak, and setigerous tubercles slight.

Gonopods close to those of *nueva*, but the dorsal tooth on the basal spur appears lower and less acute.

Ninth legs of male as shown in fig. 3. Tenth legs of male as shown in fig. 4. Process of eleventh legs nearly the same as those of the tenth.

Length, about 13 mm.

Locality.—MICHUACAN: Tancitaro. Elevation, 6,500 feet. Under logs in damp ground. A male and female taken by Hoogstraal, July 22, 1940.

Order JULIDA.

Suborder SPIROSTREPTOIDEA.

Family SPIROSTREPTIDAE.

Orthoporus leonicus new species (Fig. 8).

Brown, the segments with a lighter ferruginous annulus about the caudal border and lighter brown anteriorly adjacent to each preceding segment. Legs brown of a somewhat ferruginous cast.

Head and collum smooth. Collum with form and characteristic lateral sulci as shown in fig. 8. Segmental encircling sulcus on ordinary somites deeply impressed throughout, widely and moderately excurved opposite the pore which is separated from it by about twice its diameter; longitudinal striae deep and complete up to the level of pore, above which they are abbreviated and are not present across dorsum; the metazonites appearing smooth but under the lens revealing numerous very fine punctae and slight anastomosing ridges. Last tergite with caudal portion sharply set off by transverse depression from anterior part, exceeded by the valves. Anal valves smooth, their inner borders compressed and strongly elevated.

Number of segments in female holotype, 72. In female paratypes 69 and 73 respectively.

Length, near 160 mm.; width, 9.5 mm. The two younger female paratypes are respectively 5.5 and 7.5 mm. in diameter.

Locality.—NUEVO LEON: Ojo de Agua, Sabinas Hidalgo. Elevation 1500 feet. Under damp rock near a stream. Three females taken by Harry Hoogstraal, June 18, 1938.

This is a larger, more robust form than other species heretofore reported from Mexico, apparently also quite distinct in sculpturing of collum and other segments.

Suborder SPIROBOLOIDEA.

Family RHINOCRICIDAE.

Rhinocricus potosianus new species (Fig. 9).

Olive to olive brown, the caudal borders of segments deeper

in color. Antennae and legs brown.

Head smooth and shining; median sulcus distinct below level of antennae, but obscure across vertex.

Collum with ends widely rounded; surface smooth and shining; a fine margining sulcus about the anterior corner on each side.

Second tergite extended well below level of the collum where its anterior border is thickened and elevated. On ordinary segments the median sulcus is distinct throughout, interrupted with impressed cross lines or punctae; slightly angled at level of pore with which it is in contact; surface above smooth and shining. Scobina beginning on ninth or tenth segment, where weak and small, and continuing to about the fiftieth where they again gradually fade out. In the segments of the middle region the scobina are deeply impressed with the striae very fine and close-set, the deep lunate areas separated by somewhat less than twice their width. See further fig. 9.

Number of segments in female holotype, 60.

Length, 108 mm.; diameter, 8.8 mm.

Locality.—SAN LUIS POTOSI: Valles, 7 miles south of El Banito. Elevation, 100 feet. Under bark of fallen tree. One female taken by Hoogstraal and Knight, June 26, 1940.

In general structure possibly near to *R. aurocinctus* of Durango, but strikingly different in coloration. The scobina in form and distance apart seem distinctive.

Family SPIROBOLIDAE.

Spirobolus nigrior new species.

Deep blackish brown, nearly uniform in color. Antennae and legs also blackish.

Eyes large, ocelli distinct, about 50-55 in number; arranged in 6 series. Clypeal foveolae 4 + 4.

Collum of usual general form; surface mostly smooth; a sharply defined anterior margining sulcus from level of eye to lower caudal corner; just above and subparallel with the margining sulcus a short stria running from caudal margin forward.

Second tergite extending well below level of the collum. On ordinary tergites the primary sulcus less sharply impressed across dorsum than the one in front of it. Posterior area of segments with numerous punctae; anterior ring marked with numerous fine short curved striae; striae on sides fine but

distinct, present to level of pores. Caudal triangular portion of last tergite depressed below level of anterior portion, somewhat roughened, the anterior area smooth and shining. Anal valves with borders strongly compressed and elevated.

Number of segments, 53.

Length of female holotype, about 72 mm.; width, 7 mm. The largest paratype is 8.2 mm. in thickness.

Locality.—NUEVO LEON: Villa Santiago (Hacienda Vista Hermosa—Horsetail Falls). On arid plateau at elevation of 2500 ft. One female taken by Hoogstraal and Knight on June 18, 1938. Ojo de Agua, Sabinas Hidalgo; twelve females taken under damp rocks near stream, elevation 1500 ft., by Hoogstraal on June 12, 1938.

In large size of eyes apparently differing from other known Mexican species excepting *S. platyops* Pocock from Mescal.

It is, however, conspicuously different from that form in lacking yellow posterior borders to the segments, etc.

Messicobolus hoogstralli new species (Figs. 10-13).

Brown, in part of chestnut cast, the somites darker on sides adjacent to preceding segment. Legs light brown. Antennae somewhat chestnut brown.

Antennae obviously compressed, lying in a wide groove down side of head in front of eye and forward in mandible at side of clypeal region. Clypeal foveolae 4+4.

Collum narrowly rounded at ends; with a submarginal sulcus extending from level of eye to lower end on each side; surface smooth and shining. Second tergite produced well below level of collum; four longitudinal sulci above lower margin. On typical segments the pore lies its diameter or more in front of the segmental suture; a supplementary sulcus branches off from the suture above the level of the pore and parallels the primary suture across dorsum. Metazonites appearing smooth and shining above but under the lens showing numerous but not dense fine punctae and short impressed lines; sides longitudinally striate below level of pore.

Gonopods of male as shown in figs. 10, 11, 12, and 13.

Number of segments 48-49.

Length of male holotype, about 100 mm.; diameter, 11 mm. Diameter of female allotype, 13 mm.

Locality.—NUEVO LEON: Sabinas Hidalgo, Ojo de Agua.

Five males and one female taken by Harry Hoogstraal, June 14, 1940, under damp rocks near a stream. "Arid semi-desert."

A larger form than *M. godmani* (Pocock) with 48-49 segments as against 42, distinct also in the form of the male gonopods.

Family ATOPETHOLIDAE.

Eurelus tancitarus new species (Figs. 5-7).

The male holotype is brown with the caudal borders of somites darker. Legs and antennae brown. Some of the associated females vary to chestnut, but the dark annuli about borders of segments are conspicuous in all.

Antennae slender as usual. Ocelli 28-30 in each patch, arranged in 6 series, the eyes widely separated.

Collum smooth and shining; at ends narrowly rounded as shown in fig. 5. Second tergite extending much below end of collum, its lower posterior corner widely rounded as shown in the figure. Segmental sulcus single, distinct throughout. Pore contiguous with segmental sulcus; a short deep longitudinal sulcus behind middle at level of pore. Longitudinal striae numerous and fine beneath but not reaching level of pore by a wide distance. Surface not punctate.

In the male the claws of the first two pairs of legs enlarged. The processes of coxae of third legs much smaller than in other known species and the coxae of immediately following legs scarcely compressed and with processes obsolete.

The gonopods of the male also distinctive among the known species. See figs. 6 and 7.

Number of segments in male holotype, 43. In females, 41-42.

Length of male holotype about 35 mm.; diameter, 4.5 mm. Females up to 60 mm. long and 8 mm. in diameter.

Locality.—MICHOCAN: Tancitaro. On soil under rocks in moist woods. One male (holotype) and ten females taken by Hoogstraal on July 20, 1940.

In the reduced size of coxal processes in the male *E. kerrensis* forms a transition to the present species. *E. tancitarus* is clearly distinct from other known species also in the characters of the male gonopods.



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