NOTES ON THE HABITS OF A FEW CALIFORNIA COLEOPTERA.

BY GEO. H. HORN., M. D.

AMPHIZOA INSOLENS Lec.

The knowledge of the habits of this insect has long been a desideratum to science. The locality from which it was obtained was not even known. The specimens from which the original description was made was obtained by Dr. LeConte from Mr. Rathvon, of Lancaster, Pa., from whom no information could be obtained, except that they came from California. The first specimen sent me was from Fort Klamath, Oregon, immature and in a damaged condition. Shortly after receiving this, I went to North-eastern California, near the head waters of Pit river—a tributary of the upper Sacramento. Near Fort Crook I saw the first living specimens, though so rare and difficult to be obtained, that I was satisfied with the securing of a few specimens, without risking the loss of any in the observation of their habits. From Fort Crook I went to Surprise Valley, on the boundary line between California and Nevada. Here I found them very abundant, as well as on the western slope of the Sierras, in the creeks forming the three head branches of Pit River.

Amphizoa is as essentially sub-aquatic in its habits as any of the Parnidæ, which it closely resembles in its terrestrial and sub-aquatic motions. They occur more abundantly in stony creeks, and preferably on stones of which some portion projects from the water. This enables them to come to the surface for fresh air without detaching themselves. They live in herds, so to speak. I have found eight or ten crowded closely together, adhering to one small stone. Living in swift currents, they naturally adhere to rough stones. I have found many, however, adhering to the under side of grass sods which project from the shore into the stream.

When placed on land, they run with moderate rapidity, though rather clumsily. They are very poor swimmers, being scarcely able to make any progress, even when thrown upon still water. The lightness of their bodies keeps them from sinking, and they can only take position under water by lodging against a stone or root, and walking under. When under water, they move with much greater ease than on land, the peculiar shape of their bodies affording but little resistance even to strong currents.

When caught, they exude a greenish, milky juice, having the odor of decaying wood.

The sexes can be readily distinguished from each other. The male being narrower, and more convex.

Amphizoa resembles, to a marked extent, the genus *Nyctopetus* of the Tenebrionidæ, so much so, that, without a close examination, it has been pronounced a member of that genus.

Some discussion has arisen regarding the relationships of this curious insect. Specimens recently sent by me to Paris will undoubtedly elicit more discussion, and the proper status given the insect in relation to families already recognized. Occurs during July and August.

METRIUS CONTRACTUS Esch.

This insect occurs under stones in shady places, or in woods at a considerable elevation. I have specimens from the Coast range, north and south, from Tejon, and from the high Sierras near the head waters of King's and Kern rivers. *Promecognathus* is found like *Metrius*, but appears to be confined to the Coast range.

PSYDRUS PICEUS Lec.

Occurs at Fort Crook, California, under pine bark. They emit from the anus, with a slight explosion, a liquid similar to that emitted by the Brachini. I noticed no offensive smell connected with it. The Cychri of California have a similar habit. Their liquid is, however, emitted without explosion, and is very irritating to the eyes should any of it, by accident, come in contact with them.

ANCHOMMA COSTATUM Lec.

This insect, until my return from California, remained represented by an unique in the Cabinet of Dr. LeConte. It is found abundantly in Owens Valley under stones, and particularly those under which ants are living. They live in colonies, as many as fifty or even one hundred having been found by myself in a single colony. Specimens have occurred also at Tejon, San Felipe and San Diego. It occurs at all seasons of the year.

NOSODES SERRATA Lec.

Is found rather commonly in the mountainous regions of north-eastern California. It may be found in the flat, cottony fungi growing between the bark and wood on old pine stumps. With it may be found *Peltis Pippingskœldi* Mann. and *P. fraterna* Randall.

GYASCUTUS OBLITERATUS Lec.

From a letter lately received from Dr. Cronkhite, I learn that this

insect occurs rather abundantly during the summer, on the low willows that are so plentiful in Owens Valley. I did not find the insect while in this section.

AUCHMOBIUS INFAUSTUS Lec.

This rare insect, of which the type has for years been lost, has occurred in my collection from Tejon, and may possibly be found in those from Owens Valley. It occurs in early spring under stones and fallen logs, with *Eurymetopon* and *Coniontis*. The Tenebrionidæ of California can be the better collected during the early spring; and to such as have the opportunity, I would strongly urge attention to that part of the year immediately succeeding the rainy season, while the ground is still moist. At this period, all the insects appear to be more abundant. Many of the Tenebrionidæ live during several seasons, and these, together with the new brood, appear as before indicated. Though no specimens of *Craniotus* and *Auchmobius* were in Dr. LeConte's Cabinet at the time of the preparation of his classification of the Tenebrionidæ of North America, the positions assigned these genera are undoubtedly correct, and they may be readily recognized by the characters given.

CRANIOTUS PUBESCENS Lec.

Dead specimens of this rare insect were found at Vallecito. Living specimens occurred on the Maricopa desert, under dead stems of Cereus giganteus, in the months of March and November.

DACODERUS STRIATICEPS Lec.

This insect and *Arræoschizus costipennis* Lec. may be found in small colonies, under stones in very dry places during March and April. The specimens of *Docoderus*, found by Dr. LeConte at Fort Yuma, occurred under Cottonwood bark. This was evidently an accidental occurrance, as I found a pair under my medicine chest while camped at the same place. *Dacoderus* and *Arræoschizus* have, evidently, the habits of the Stenosiini of South America, of which Lacordaire says, "they live in small colonies under stones, and are, in their movements, moderately agile." This latter is not the case with our species. Though I have seen probably a dozen of each, I have never been able to make them walk; they feign death. A new species of *Arræoschizus?* occurred very abundantly in Owens Valley, California, under stones, generally with ants; this moves very slowly, and carries its antennæ directly in front and parallel to each other.

APOCRYPHA ANTHICOIDES Esch.

Occurs under chips, etc., in very dry places. It is difficult of capture as it is exceedingly agile in its movements. It occurs at Tejon during April and May.

The Eleodes of California, more especially the elongate forms, *dentipes*, *gracilis*, *longicollis*, *grandicollis*, etc., have the habit, if disturbed while walking, of elevating the hinder portion of the body so as to make them stand almost vertically. In this position they will remain sometimes for hours. If handled they emit an offensive, oily liquid from the anus, staining the hands, of a somewhat reddish color, becoming brown on the attempt to remove it with soap.

CONONOTUS SERICANS Lec.

Adheres to the under side of stones. Occurs in very dry places and is more abundant in early Spring. They are generally in colonies, and have their heads all in one direction. They move almost as rapidly in hot weather as *Telephanus velox*. To secure a whole colony the head one must be taken first, for if one be disturbed and runs forward among the others, all start.

CYSTEODEMUS ARMATUS Lec.

Very abundant during March and April. I have found it ranging over an extent of country equal to nearly three hundred miles, from the great bend of the Gila to Vallecito, California. During life this insect is covered with a whitish efflorescence, forming a band suggestive of the marking on the elytron of Megetra. This insect also lives on the Greasewood bush, a fact reported also by Dr. LeConte, in the original description of the insect. It is rather remarkable, that of an insect of which millions could be collected in season, so few remains are found in the fall.

TEGRODERA EROSA Lec.

Occurs rather abundantly in Owens Valley during the latter part of June, on a low plant bearing a blue flower. Though winged, I have never seen it fly. This insect was described from specimens brought from San Diego. It is a remarkable fact that many of the species previously reported from San Diego, and even from Arizona and New Mexico, have been sent me from Owens Valley since my departure from it.

The numerous species of vesicants (*Lytta*, *Epicauta*, etc.) of California are found infesting the various species of Lupin, (Astragalus,) so common all over the State. *Lytta vulnerata*, however, occurred on Composite plants only.

PHODAGA ALTICEPS Lec.

This insect has also been reported from Owens Valley. Never having found it there I do not know its habits in that particular region. While travelling through Arizona I found specimens in the neighborhood of Greasewood or Creosote bush (Larrea mexicana). It flies but feebly, appearing rather to sustain itself in the air and to be blown about by the wind, than to make any actual progression by its own flight. Occurs in March and April.

ULOCHÆTES LEONINUS Lec.

This insect makes its first appearance during the latter part of July. I found a specimen at Fort Crook, under pine bark, and also a pupa which I was unable to bring to maturity. It is not rare.

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On USECHUS LACERTA Motsch.

BY GEO. H. HORN, M. D.

This insect was originally described by Motschulsky, in Bulletin Moscow, 1845, I, p. 79, and has remained unknown to American entomologists until very recently. A few years since Motschulsky (Etudes Entomologiques, Ann. V, p. 22) made the statement that *Usechus lacerta* was identical with *Rhagodera tuberculata* Mann. This mistake could have occurred only by a confusion of types, as the original description of Mannerheim could not be applied to the insect as figured by Motschulsky. The one is a Colydiide and the other a Tenebrionide. The object of the present paper is to establish the relationships of *Usechus*, as Motschulsky omits all mention of the position it should occupy in a systematic arrangement.

A single specimen of this rare insect is in my collection. For it I am indebted to Dr. J. G. Cooper, by whom it was collected near Santa Cruz, California. It probably occurs under the bark on oak stumps.

The figure given by Motschulsky of this insect, though badly executed, serves to give an idea of its general appearance.

The hind margins of the ventral segments are all corneous, and the middle coxæ are squarely closed externally, not allowing the trochanters to become visible. These characters seem to fix its position as a member of the Sub-family of Tentyriidæ.

The apex of the ligula is visible beyond the mentum, which is rhomboidal, with the anterior angles broadly rounded. The bases of the

maxillæ are exposed. The gular peduncle distinct. Epistoma scarcely emarginate; apex of labrum alone visible. Head immersed in thorax as far as the eyes, which are round and very coarsely granulated as in the Stenosiini, not narrowed behind the eyes. Thorax truncate anteriorly, with deep antennal grooves extending from the anterior angles to nearly the middle of the lateral margin. Coxæ widely separated. Tarsi not sulcate beneath. Antennæ 11-jointed, joints distinct, the last three broader. The pores of the antennæ occupy spongy patches at the anterior distal angles of the ninth and tenth, and a similar position on the last joint, though extending towards the apex.

The above assemblage of characters, though pointing to affinities with the Zopherini, require the formation of a separate tribe for the reception of this genus. The name USECHINI is, therefore, proposed for the tribe, the position of which is undoubtedly near the ZOPHERINI, from which it may be readily distinguished by the rounded and coarsely granulated eyes. To enable this tribe to occupy its proper position, the following modification of the table of tribes, as given by Dr. LeConte, (*Class. Coleop. N. A.*) is proposed:

Tibial spurs very minute.
Anterior coxæ widely separated.
Eyes transverse, finely granulated.....**Zopherini.**
Eyes rounded, coarsely granulated.....**Usechini.**
Anterior coxæ narrowly separated; antennæ 11-jointed.....**Stenosiini.**
Anterior coxæ contiguous; antennæ 10-jointed.....**Dacoderini.**

On RHAGODERA TUBERCULATA, Mann.

BY GEO. H. HORN, M. D.

Having in the preceding paper made mention of the confusion of two distinct insects, members of different families, I have thought it of importance to entomological science to give more at length than has been done in American publications, a description of this genus and species, and briefly describe a new one from Arizona. The first notice of this genus occurs in the second Catalogue of Dejean. Erichson in his Insecten Deutchlands, III, p. 255, makes short mention of it, while Mannerheim (Bull. Mosc. 1843, p. 300,) gives a short description of the species.

Generic characters.—Mentum transversely quadrate, rounded in front. Ligula rounded anteriorly, scarcely visible beyond the mentum. Lateral processes of the gula exceeding the mentum, moderately broad.

Palpi short, last joint of labial oval, acuminate; Maxillary oval, truncate. Epistoma truncate. Labrum transverse, scarcely visible. Head quadrate, lobed over the insertion of the antennæ, with supra-ocular ridge; narrowed behind into a neck. Antennæ 11-jointed, moderately robust, one-half longer than the head; first and third joints cylindrical, the others broadly conical, gradually becoming broader; last joint smaller than the 10th, rounded and free. Antennæ, in repose, received for part of their length, in deep sub-ocular grooves. Eyes round, very prominent and very coarsely granulated. Prothorax as broad as the elytra, moderately convex, with two acute ridges above, emarginate in front, lobed at middle of emargination, the lobe itself being acutely emarginate between the ends of the thoracic ridges; base with a broad median lobe, emarginate near the angles, sides moderately rounded, serrulate, beneath with a vague impression for the reception of the antennæ. Scutellum invisible. Elytra oblong, parallel, moderately convex, base emarginate at middle. Legs moderate; tibiæ slender, without terminal spines. Segments of abdomen separated by straight sutures, not emarginate, the 1—4 inclusive with a fovea on each side.

R. tuberculata.—Blackish-brown, moderately elongate and convex. Head quadrate, coarsely punctured, with lateral impressions, superciliary ridge acutely elevated above the eye. Thorax broader than long, sides moderately rounded, slightly denticulated, posterior angles rectangular. Elytra oblong, moderately convex, rounded at apex, base emarginate at middle, with nine costæ, including the sutural and marginal. The first costa entire, the second and third abbreviated; interspaces with two rows of coarse, deep punctures. Beneath coarsely punctured. Length .30—.32 inch.

This insect has been found along the west coast of North America, from Sitkha (Eschscholtz) to San Diego (LeConte), my own specimens being from intermediate points in the Coast range of California, where it does not appear to be very rare.

R. costata n. sp.

This differs from the preceding by its somewhat greater size, more depressed form, and greater prominence of all the costæ and deeper interstitial punctures. The superciliary ridge is not acutely elevated above the eyes. The thorax is more strongly rounded and obliquely narrowed behind; the posterior angles acute and produced backward. The humeral angles of the elytra are rectangular. Length .38 inch.

I found this species in Arizona, near Gila bend station, under a fallen branch of Mesquit.

The authors who have written concerning the Colydiidæ, make the

statement that the posterior coxæ are contiguous in two of the tribes, (Synchitini and Colydiini). The intercoxal process of the abdomen is well marked, and though not so broad as in Bothriderini, etc., yet separates very plainly the posterior coxæ.

Some observations on PHODAGA ALTICEPS, Lec.

BY GEO. H. HORN, M. D.

With the exception of *Eupompha fissiceps* Lec., there is no vesicant in our territories presenting so many curious characters. Between the male and female of *Phodaga* great differences exist, in the form of the legs and tarsi; the object of the present notice being to give these in detail, as no perfect male has ever been in collections until brought by myself from the deserts of Arizona. Recently specimens have been sent me from Owens Valley, California, by Dr. H. M. Cronkhite, to whom I must acknowledge great indebtedness for liberality, and who recognized the insect, though I failed to find it during a year's residence in that region.

Male.—Head sinuous behind. Vertex elevated. Front channelled longitudinally *with two prominent tubercles between the eyes and above insertion of the antennæ.* Epistoma concave. Antennæ short, eleven-jointed, first joint longer, second joint very small, Mandibles toothed at tip, deeply grooved on outer face. *Anterior tibiæ flattened,* sericeous on the inner face, densely pilose externally, *especially toward the apex;* tarsi very much compressed, *first joint much larger,* contorted, *and produced obliquely inward;* spinous beneath; claws deeply cleft, slender, and yellowish in color. Middle legs flattened; femora thicker at base; tibiæ *dilated and deeply longitudinally excavated on the inner face;* tarsi conpressed, longer than the tibiæ, first joint equalling second and third together. Posterior legs longer, tibiæ and femora slightly arcuate; tarsi compressed, first joint nearly equal to the three succeeding joints; tibial spurs long, slender and acute.

1. Front of male.
2. Profile of male.
3. Anterior tibia and tarsus.
4. Middle tibia.
5. Claw.

Female.—Excepting the particulars indicated above in italics there is no difference between the sexes. The anterior tarsi are simple, the middle tibiæ not dilated. The frontal tubercles are not present.