

* Synopsis of APHODIINI of the United States.

BY GEO. H. HORN, M. D.

OXYOMUS, Casteln.

O. opacifrons, n. sp.—Oblong; piceous black, feebly shining. Head moderately convex opaque, sparsely and finely punctured; clypeus very feebly emarginate. Thorax one half broader than long, convex, sides feebly rounded hind angles nearly rectangular, base strongly rounded and without marginal line, surface coarsely punctured, more sparsely in front, and with a moderately deep sulcus at posterior portion of median line. Elytra one-half longer than wide, sides feebly rounded, surface with nine acute costal (not counting the sutural) of which the first, second, fourth, sixth and eighth are entire; intervals deeply concave and with large punctures closely placed. Body beneath and femora coarsely punctured. Length .12 inch; 3 mm.

This is the smallest *Aphodiide*, in our fauna and may be very easily known by the generic characters and the description above given.

Occurs rarely in the Middle States.

ATÆNIUS, Harold.

Our species of this genus are less numerous than those of *Aphodius*, although much more so than any of the genera which follow. Several species are widely diffused, extending their limits from extreme northern regions in our continent southwardly in all intervening territory to Buenos Ayres, and Chili. The sexes are very troublesome to distinguish and no characters are presented in *Atænius*, that will bear comparison with some of the very remarkable ones already observed in many *Aphodini*.

The following table presents all the species known to me.

Clypeus emarginate at middle, broadly rounded on each side, never dentate nor subangulate.

Opaque species; thorax without marginal line at base.

Elytral interspaces flat.....*imbricatus*.

Elytral interspaces elevated, alternately longer.....*alternatus*.

Shining species; with basal marginal line.

Color black or piceous.

Elytral interspaces flat, striæ shallow.....*robustus*.

Elytral interspaces moderately or very convex.

Thorax evenly and densely punctured.....*gracilis*.

Thorax unequally and irregularly punctured.

Metathorax very coarsely punctured.

Elytral intervals punctured.....*oblongus*.

* Being a continuation of paper entitled "Synopsis of the Species of APHODIUS and DIALYTES of the United States," in Trans. Am. Ent. Soc. 1870 (q. v.)

- Elytral intervals smooth.....ovatus.
 Metathorax smooth.
 Thorax rounded at base.....stercorator.
 Thorax broadly lobed at base.....lobatus.
 Color ferruginous or pale castaneous.
 Elytra glabrous.
 Elytral interspaces smooth shining.....socialis.
 Elytral interspaces punctulate.....puncticollis.
 Elytra sparsely hirsute.....hirsutus.
 Clypeus deeply emarginate on each side subangulate and denticulate:
 Color black or very dark.
 Sides of thorax gradually rounded.
 Elytra oval convex, intervals sub-costiform.....lucanus.
 Elytra elongate parallel, intervals moderately convex.....abditus.
 Sides of thorax distinctly sinuate at base.....cylindrus.
 Color ferruginous. Elytra oblong convex.....desertus.

At. imbricatus, Mels. (*Aphodius*) Proc. Acad. 1844, 136. Lec. (*Euparia*) List. p. 37. Harold (*Atænius*) Catal. p. 1066; *sordidus*, Harold, Col. Hefte, p. V, p. 103.—Oblong, parallel, black with brownish or cinerous opaque coating, and very short pubescence. Head convex, rather densely punctured; clypeus broadly emarginate and rounded on each side; antennæ and palpi ferruginous. Thorax nearly twice as broad as long, sides (when viewed from above) feebly rounded, slightly broader in front, anterior angles rounded, base broadly rounded and without any marginal line; surface sub-rugose and sparsely punctured. Elytra sub-parallel, finely punctato-striate, interstices nearly flat but more convex at apex. Body beneath with metasternum and abdomen coarsely punctured. Legs rufo-piceous, tarsi paler. Length 16—18 inch; 4—4.5 mm.

Western and Southern Gulf States and extending to Mexico, Cuba and Brazil.

A typical specimen sent by Sallé enables me to fix the synonymy of Harold's species definitely.

At. alternatus, Mels. (*Oxyomus*) Proc. Acad. 1844, p. 147; Lec. (*Euparia*) List. p. 57; Harold (*Atænius*) Catal. p. 1066.—Similar to the preceding in form but always darker in color and with less surface coating and not pubescent. The striæ are not punctured and the intervals acutely convex and alternately higher especially on the back, those of the sides nearly equal. Metathorax and abdomen sparsely punctured. Length .14—,18 inch; 3.5—4.5 mm.

Occurs from Pennsylvania to Florida.

At. robustus, n. sp.—Oblong of robust facies, black sub-opaque. Head moderately convex densely punctured. Thorax nearly twice as broad as long, sides feebly rounded and very slightly converging behind basal angles broadly rounded, base broadly rounded, marginal line distinct; surface densely and equally punctured. Elytra one third longer than broad, convex, sides rounded, surface striate and with feeble punctures, intervals flat and densely punctured. Body beneath shining, metasternum and abdomen sparsely punctured. Legs piceo-rufous. Length .18 inch; 4.5 mm.

A single specimen from Missouri in the cabinet of Dr. Leconte. It may easily be distinguished from any of our species by the characters given in the table.

At. oblongus, n. sp.—Oblong, parallel, black, moderately shining. Head densely punctured. Thorax one third broader than long, convex, coarsely punctured, rather sparsely on the disc more dense and sub-confluent at the sides near the hind angles; sides feebly rounded, very slightly convergent behind, base broadly rounded, hind angles obtuse. Elytra one half longer than wide, catenulato-striate, intervals convex, punctured at apex, the inner three on each elytron entire. Metasternum and abdomen, the latter especially, coarsely punctured. Legs black, femora coarsely punctured, tarsi piceous. Length .24 inch; 6 mm.

This species is especially remarkable for the very coarse punctuation of the abdomen.

One specimen in the cabinet of Dr. Leconte from California, without more specific designation of locality.

At. gracilis, Mels. (*Oxyomus*) Proc. Acad. 1844, p. 137; Lec. (*Euparia*) List. p. 36; Harold (*Atænius*) Catal. p. 1066.

This species is so widely diffused and so well known that it appears to me unnecessary to add anything to the characters given in the table. The surface of the thorax in the large majority of specimens is rather densely punctured, the punctures being of nearly equal size and very evenly distributed, on the sides scarcely more dense than on the disc.

It may readily be known by its slender form from all the species with a similarly formed clypeus. Length .12—.16 inch; 3—4 mm.

This species occurs on the entire American Continent wherever *Aphodiini* occur.

A. ovatulus, (Harold, MSS.)—Black, shining, elongate oval. Head moderately convex, punctured, more densely and coarsely on the occiput and sides. Thorax convex sides feebly rounded and slightly narrower behind, one half broader than long, base broadly rounded, surface unequally punctured, disc sparsely, sides and base more coarsely and densely. Elytra sub-oval, convex, deeply striate intervals convex and not punctured. Metasternum and abdomen moderately punctured. Legs rufo-piceous. Length .14 inch; 3.5 mm.

A very distinct species by the characters enumerated briefly above. The name under which it was sent us by Sallé is preserved.

Occurs from Pennsylvania to Louisiana.

At. stercorator, Fab. (*Aphodius*) Spec. Ins. I, p. 22; Syst. Eleut. I, p. 81; Oliv. Ent. I, 3, p. 89, tab. 17, fig. 155; Harold, (*Atænius*) Cat. p. 1067: *cognata*, Lec. (*Euparia*) Proc. Acad. 1858, p. 65. *strigatus*, Say, (*Aphodius*) Journ. Acad. 1848, p. 106.

This species is also one of those having a wide distribution. It occurs in all parts of our fauna and extends through Mexico and the

West Indies to South America, as far as Chili and Buenos Ayres. Typical specimens have been sent me through the kindness of Dr. Candeze, from the Pampas of the latter country where they appear to be as abundant as in our own regions.

♂ It is our largest species and may readily be known by its shining black color, deeply striate and crenately punctured elytra with intervals at least moderately, sometimes very, convex and smooth. The thorax is doubly punctured, that is, there are fine punctures, moderately, densely placed and much coarser and deeper punctures irregularly disposed but much more abundant at the sides and base than on the disc and in front. The thorax varies somewhat in shape being apparently broader in front in the specimens known as "*stercorator*" in our cabinets and moderately rounded and apparently narrowed in front in the types from Candeze and in *cognatus*, Lec; *strigatus*, is in all respects intermediate, in fact the variation here is no greater, if as great as in *Aphodius granarius*, which appears to exhibit slight variations in each locality when varied conditions of habitat are found. Length .16—.24 inch; 4—6 mm.

At. lobatus, n. sp.—Piceous black or brownish, shining. Head moderately convex sparsely punctured and transversely strigose in front. Thorax moderately convex, one third broader than long, sides rounded, base broadly lobed at middle; surface with sparsely placed fine punctures and very coarse, deep punctures at the sides and base not densely placed. Elytra oblong, broader behind the middle, very obtuse at apex; surface deeply striate, striæ punctured, intervals very convex, smooth. Body beneath nearly smooth, legs castaneous. Length .22 inch; 5.5 mm.

This species may readily be known from *stercorator*, by its brown color. As compared with the latter species the thorax is shorter the sides more rounded and the base more distinctly lobed. The coarse punctures of the thorax are much fewer and never densely placed. The punctures of the striæ are smaller never so closely placed and have a tendency to become evanescent. The elytra in *stercorator*, are parallel in the present species rounded on the sides broader behind the middle and more convex both transversely and longitudinally.

Occurs rather abundantly in the Peninsula of Lower California.

At. socialis, n. sp. (Harold & Chevr. mss.)—Oblong, subparallel, shining, ferruginous with occiput, disc of thorax, suture and apex of elytra darker. Head moderately convex, sparsely punctured. Thorax one fourth broader than long, sides feebly rounded; surface sparsely punctured, punctures coarser at the sides and base. Elytra twice as long as broad, parallel, striate, striæ feebly punctured, intervals moderately convex and smooth. Body beneath smooth shining, similar in color to the upper surface. Length .18—.20 inch; 4.5—5 mm.

This species is very easily known by its color smooth elytral interspaces without pubescence.

Occurs in Georgia and Louisiana. I preserve the name under which it has been distributed by Chevrolat and which appears to have been adopted by Harold.

At. puncticollis, Lec. (*Euparia*) Proc. Acad. 1858, p. 66; Harold (*Atenius*) Catal. p. 1067,—Oblong, ferruginous, feebly shining. Head sparsely punctured anteriorly sub-rugose. Thorax one fourth broader than long, sides feebly rounded and very slightly narrower behind; surface rather densely punctured, punctures nearly equal in size and very evenly distributed. Elytra subparallel moderately striate, striæ impunctured intervals nearly flat biserially punctured. Body beneath rather darker and sparsely punctured. Length .16 inch; 4 mm.

The length given by Leconte ".4 inch" is an accidental error meaning evidently mm.

One specimen from El Paso, Texas.

At. hirsutus, n. sp.—Oblong, ferruginous brown, subparallel, feebly shining. Head moderately convex, sparsely punctured, rugulose anteriorly. Thorax one third broader than long, convex sparsely punctured with coarse and fine punctures intermixed; sides moderately, base broadly rounded. Elytra nearly twice as long as wide, sides feebly rounded, deeply striate and with coarse punctures; interspaces convex, finely biserially punctulate each puncture with a short yellowish erect hair. Body beneath sparsely punctured, legs paler. Length .16—.18 inch; 4—4.5 mm.

The punctuation of the thorax in this species resembles that of *stercorator* but the coarser punctures are larger and more evenly diffused over the surface. The base of thorax is more rounded than usual in the other species but less so than in *lobatus*. Its color seems hardly to warrant its being placed in association with the two preceding species but the characters above given will enable it to be readily known whether placed near *lobatus* or in its present position.

Two dead and mutilated specimens from Camp Grant, Arizona.

The species which follow are known from all the others in our fauna by the form of the clypeus which is deeply emarginate, subangulate on each side of the emargination and usually with a small tooth at the angulation formed by the upturned edge of the clypeus and at times scarcely seen except by a view in front.

At. lucanus, n. sp.—Oblong, dark brown, shining. Head moderately convex sparsely punctured, anteriorly scarcely rugulose. Thorax moderately convex, sides feebly rounded and slightly narrower in front; surface coarsely but not densely punctured, punctures somewhat finer anteriorly and very evenly disposed. Elytra oblong oval, one third longer than wide, wider behind the middle. Surface deeply striate, striæ at bottom impunctured; intervals very convex and on each side below the apex a row of moderately coarse punctures

Mesosternum, abdomen and femora coarsely but sparsely punctured. Length .16 inch; 4 mm.

One specimen from Cape San Lucas, Lower California.

At. additus, Hald. (*Aphodius*) Journ. Acad. 1848, p. 106; Lec, (*Euparia*) List. p. 36; Harold (*Atænius*) Catal. p. 1066.—Elongate, parallel, black, shining. Head moderately convex sparsely punctured and in front rugulose. Thorax moderately convex, rather densely and coarsely punctured, at the sides becoming confluent; sides feebly rounded and at base narrowed; hind angles broadly rounded. Elytra nearly twice as long as broad, deeply striate, striæ punctured, intervals nearly flat usually biserially punctulate. Metasternum and abdomen sparsely punctured, femora nearly smooth. Length .14 inch; 3.5 mm.

Occurs from the Atlantic to the Pacific coast.

At. cylindrus, n. sp. *Oxyomus cylindrus*, Dej. Catal.

This species is closely allied to the preceding but differs by the following characters.

Sides of thorax moderately rounded, scarcely narrower behind and distinctly sinuate at the hind angles; surface rather densely and evenly punctured, with punctures not confluent at the sides. Elytra oblong, sides moderately rounded; surface deeply catenulato-striate, intervals very convex and distantly uniserially punctulate. Body beneath and femora sparsely punctured. Length .16 inch; 4 mm.

Resembles *ovatulus*, in general aspect but differs in the form of front and by the situation of the hind angles.

Occurs in South Carolina, Georgia and Florida.

At. desertus, n. sp.—Ferruginous or pale castaneous, oblong oval, shining. Head sparsely punctured at occiput, vertex and front rugulose. Thorax one half broader than long, moderately convex, sparsely and unequally punctured, coarser punctures very sparsely placed but more numerous at the sides; sides feebly rounded and slightly narrower in front. Elytra moderately rounded on the sides, slightly broader behind the middle, deeply striate, striæ coarsely punctured, intervals moderately convex, smooth. Body beneath very sparsely punctured, femora smooth. Length .16—.18 inch; 4—4.5 mm.

Not rare in the desert regions around and to the eastward of Fort Yuma, California

In some of the larger specimens the elytral intervals are very finely biserially punctulate.

EUPARIA, Lepellet.

E. castanea, Lep. Ency. Method. X, p. 357; Westwood, Trans. Ent. Soc. IV, 4, 1847, p. 239, pl. 17, fig. 3.—Piceous black, shining. Head very broad, sparsely punctured; clypeus feebly emarginate and on each side a moderately deep incisure, lateral angles acute. Thorax twice as broad as long, slightly broader in front, sides margined strongly explanate in front; anterior angles very broad, hind angles obtuse, base at middle broadly lobed; surface sparsely muricately punctured, each puncture, with a short yellowish hair. Elytra par-

allel, narrower than thorax, one third longer than wide, at base deeply emarginate, angles very prominent anteriorly; sides nearly straight, slightly sinuate near the humeri; surface feebly striate, striæ punctured, intervals flat, biserially punctulate and each puncture with an erect hair. Body beneath very sparsely punctured. Length .20—.22 inch; 4—4.5 mm.

Occurs in the Gulf States, usually with ants.

RHYSSEMUS, Muls.

Three species are known to me in our fauna. The genus may be easily known by the characters given in the table from all excepting possibly *Psammodius*. In *Rhyssemus*, the hind tarsal joints are flattened and subtriangular as in *Psammodius*. The latter has the margin of thorax fimbriate but with slender hairs, and in the present genus they are clavate. The hind femora in *Rhyssemus*, are more slender than those of the first pair, and the spurs slender and acute while the reverse is the case in *Psammodius*. In the latter genus the transverse elevations are smooth and the grooves punctured in *Rhyssemus*, the former are made of larger tubercles while smaller ones fill the interspaces. These characters will serve to distinguish the two genera without recourse to that derived from the external maxillary lobe which although more to be depended on is difficult to observe without dissection.

Rh. scaber, Hald. Journ. Acad. 1848, p 107.—Black; subopaque. Head coarsely verrucose, clypeus emarginate and on each side obtusely rounded, behind the emargination depressed, margin of head rufous. Thorax moderately convex, with four transverse elevated ridges interrupted at middle and smoother, intervals with rather fine granules, more opaque than the ridges. Elytra oblong sides moderately rounded, striate, striæ not punctured, intervals with an acute elevated ridge sub-serrate at apex and a line of elongated tubercles. Body beneath shining, sparsely punctured, legs rufo-piceous. Length .14—.16 inch; 3.5—4 mm.

Occurs in wet places along the Atlantic region.

Rh. californicus, n. sp.—Black opaque. Head sparsely verrucose, clypeus emarginate and on each side distinctly sub-angulate. Thorax one fourth longer than wide and distinctly narrowed at base, sides (viewed laterally) nearly straight, disc convex, and with four very indistinct transverse ridges interrupted at middle, and a distinct impression at each anterior angle, surface with moderately fine granules. Elytra oblong, subparallel, striate, striæ punctured, intervals flat distinctly biserially tuberculate. Body beneath more shining sparsely punctured. Legs rufo-piceous. Length .12—.16 inch; 3—4 mm.

Occurs in sandy places on the margins of streams near Visalia, Cal.

Easily known from *scaber*, by the very indistinct thoracic elevations by the elytral sculpture and the pure blackness and opacity of surface.

Rh. riparius, n. sp.—Brown opaque. Head rather coarsely verrucose, vertex with two short elevated ridges converging above without joining, clypeus emar-

ginate and on each side distinctly subangulate. Thorax slightly broader than long, broadest at middle, sides short, viewed laterally slightly sinuate; hind angles and base broadly rounded; surface rather coarsely verrucose, and with three transverse grooves, the posterior two interrupted at middle. Elytra oblong, sides moderately rounded, striæ deep with coarse punctures, intervals flat, finely biserially granulate. Body beneath subopaque and slightly rugose. Length .12 inch; 3 mm.

The transverse grooves of the thorax although less distinct than in *scaber* are more so than in *californicus*. The anterior groove is shallow but entire, the second close to the first and visible only at middle, the third is interrupted at middle and much the deepest and most distinct, the fourth is very faint. The elytral intervals are very distinctly biserially tuberculate at basal half but the arrangement becomes confused near the apex. The granules of the thorax are all distinct moderately distant from each other and proportionately larger than in either of the preceding species.

One specimen in my cabinet, from under chips at the margin of San Pedro River, Arizona.

PLEUROPHORUS, Muls.

P. cæsus, Panz. (*Scarabæus*) Faun. Germ. 35, 2; Fab. (*Aphodius*) Syst. El. 1, p. 82; Muls. (*Pleurophorus*) Col. Fr. Lamell. p. 312; Harold (*Psammодиус*) Catal. p. 1068.—Elongate, subparallel, feebly convex, black, shining. Head moderately convex, nearly rounded or very feebly emarginate in front, surface shining covered with convex verrucæ. Thorax slightly broader than long; sides feebly rounded; surface with large punctures very widely and irregularly scattered and with two transverse shallow grooves visible only at the sides, the anterior being the deeper, and longitudinally broadly canaliculate at posterior portion of median line. Elytra sub-crenulate striate, intervals moderately convex smooth. Length .12 inch; 3 mm.

Several specimens collected in the Middle States are referred to this species. They resemble in general appearance *Atænius gracilis*, but may readily be known by the verrucose head and the transverse sulci of the thorax. The tarsal claws are moderate and the first joint of hind tarsus longer than the longest spur. The genus seems as worthy of adoption as distinct from *Psammодиус*, as do *Oxyomus* and *Dialytes* from *Aphodius*.

PSAMMODIUS, Gyll.

Five species in our fauna distinguished as follows:

Clypeus emarginate rounded or subangulate on each side.

Transverse ridges distinct.

Four discal ridges; color piceous.....*ægialioides*.

Five discal ridges; color ferruginous.....*quinqueplicatus*.

Transverse ridges very indistinct obliterated at middle.

Three ridges; color piceous.

Elytra cylindrical.....**interruptus**.
 Elytra inflated, broadly oval**cælatus**.
 Clypeus with a distinct tooth on each side. Thorax without ridges.....**bidens**.

Ps. ægialioides, Hald. Journ. Acad. 1848, p. 107.—Oblong oval, piceous, shining, elytra slightly paler. Head coarsely verrucose, clypeus emarginate, margins slightly reflexed and rufous. Thorax nearly twice as broad as long, broadest at middle, sides rounded; disc with four elevated transverse ridges, smooth, the hinder two interrupted by a longitudinal groove, intervals between the grooves very coarsely punctured. Elytra gradually wider behind, deeply striate and punctured, intervals convex smooth. Body beneath piceous, sides of metasternum coarsely punctured, abdomen nearly smooth: legs brownish femora sparsely punctured. Length .16 inch; 4 mm.

Middle and Southern States, not common.

Ps. quinqueplicatus, n. sp.—Oblong oval, ferruginous, shining. Head verrucose in front, occiput smoother, elypeus rather deeply and acutely emarginate, margin slightly reflexed. Thorax one half broader than long, sides moderately rounded, disc with five transverse ridges indistinctly marked, the hinder three interrupted at middle, smooth at tip, intervals very coarsely punctured. Elytra oval broader behind, striæ moderately deep crenately punctured, intervals moderately convex, impunctured. Body beneath ferruginous, abdomen with a few coarse punctures. Length .14 inch; 3.5 mm.

This species is easily known from the preceding by its much paler color, more indistinct thoracic ridges, more deeply emarginate clypeus and more robust form. The hind tibiæ are much less muricate.

Two specimens collected by Major Webb, of the U. S. and Mex. Boundary Survey probably in Arizona, or Western Texas.

Ps. interruptus, Say, Bost. Journ. I, p. 178.—Piceous, elytra paler, moderately shining. Head verrucose, clypeus deeply emarginate, margins rufous and slightly reflexed. Thorax nearly twice as broad as long, broadest behind the middle, surface with three very indistinct transverse elevations which are sparsely punctured intervals coarsely punctured. Elytra oblong not broader behind, striæ moderately deep catenulate, intervals flat with a series of punctures. Body beneath somewhat paler in color than the upper surface, abdomen with a few coarse punctures. Legs brownish, middle and hind femora with a marginal line behind and a few coarse punctures arranged in line near the apex. Length .13 inch; 3.25 mm.

One specimen from the Middle States, is referred to the species. It is more parallel and cylindrical than any other in our fauna.

Ps. cælatus, Lec. (*Ægialia*) Pacif. R. R. Rep. 1857, App. I, p. 42.—Oval convex, piceous shining. Head verrucose, clypeus emarginate obtusely rounded each side. Thorax twice as broad as long, sides moderately rounded above with three indistinct transverse ridges interrupted at middle, smooth; intervals coarsely punctured, that between the second and last ridges deeper. Elytra broadly oval very convex, scarcely one fourth longer than broad; striate, striæ punctured, intervals nearly flat impunctured. Body beneath piceous, abdomen with few punctures; legs ferruginous, hind tibiæ stout. Length .13 inch; 3.25 mm.

Abundant on the sea coast near San Francisco, California.

This species was placed in *Ægialia*, by Leconte, but the mandibles are entirely concealed beneath the clypeus. It may readily be known from all our species by its strongly inflated elytra. The body is apterous.

Ps. bidens, n. sp.—Oblong oval, piceous moderately shining. Head verrucose, clypeus emarginate and on each side with an acute vertical tooth. Thorax one half broader than long, sides moderately rounded, surface nearly smooth and with very few moderate punctures near the base and a short transverse impression at the anterior angle punctured at bottom. Elytra striate, striæ punctured intervals very feebly convex and smooth. Abdomen with few punctures; legs brownish; tibiæ stout. Length .14 inch; 3.5 mm.

This species is abundantly distinguished by the bidentate clypeus and the total obliteration of the transverse ridges of the thorax, the only trace of this sculpture remaining is the very short groove near the anterior angles.

Two specimens from the Southern States, probably Georgia.

Aphodius clypeatus, Say, Long's Exped. II, p. 277.—Which is at present unknown to us appears to belong rather to the present genus than *Ægialia*.

ÆGIALIA, Latr.

Our species are but four and may be distinguished in the following manner.

Spurs of hind tibiæ slender acute at tip.

Intervals of elytra punctured **cylindrica**.

Intervals smooth, impunctured **lacustris**.

Spurs of hind tibiæ (inner especially) thin and very broad **conferta**.

Spurs of hind tibiæ obtuse, but not explanate **crassa**.

Æ. cylindrica, Esch. (*Psammodytes*) Entomog. I, p. 11; Mann. (*Oxyomus*) Bull. Mosc. 1843, II, p. 262; *id.* (*Ægialia*) 1853, III, p. 220.—Piceous black, moderately shining, oblong. Head very coarsely and sub-confluently punctured, clypeus very broadly emarginate. Thorax broader than long, slightly broader behind, sides moderately rounded margins crenulate; surface coarsely but regularly punctured and with a slight median impression behind. Elytra oblong, striate, striæ punctured, intervals feebly convex biserially punctulate. Legs piceo-rufous, hind tibiæ moderately stout terminated by slender spurs. Length .20 inch; 5 mm.

Typical specimens are before me from Mannerheim, collected in Alaska. It may be known from all our species by the punctulate elytral intervals and rather strongly crenulate margin of thorax.

Æ. lacustris, Lec. Agass. Lake Superior, p. 225.—Oblong, black, moderately shining. Head coarsely punctured at vertex, verrucose in front; clypeus emarginate. Thorax one third broader than long, sides moderately rounded, surface coarsely punctured, more sparsely in front and with a shallow broad impression near each anterior angle. Elytra oblong, oval, somewhat broader behind, surface deeply striate, striæ punctured, intervals convex, smooth. Hind tibiæ rather slender, with slender spurs. Length .18—.22 inch; 4.5—5.5 mm.

This is our largest species and is more deeply striate than any other in our fauna.

Collected in the Lake Superior region.

Æ. crassa,, Lec. Pacif. R. R. Rept. App. I, p.—Black, shining, form robust, elongate oval. Head entirely verrucose, clypeus feebly emarginate. Thorax short, more than twice as wide as long, sides rounded narrowing to the front, surface with coarse punctures at middle basal region, smoother and less punctured at the sides and anteriorly and with a shallow impression at the hind angles. Elytra very convex, one half longer than wide, striæ not deep, moderately and rather distantly punctured; intervals flat impunctured. Hind tibiæ stout, spurs moderately thick, curved, and obtuse at apex. Length .16—.18 inch; 4—4.5 mm.

Occurs rather abundantly on the sea coast south of San Francisco, California.

Æ. conferta, n. sp.—Oblong, black, shining. Head rather densely verrucose, clypeus feebly emarginate. Thorax one half broader than long, sides rounded and narrowed in front, surface, coarsely punctured on the disc at the sides smoother, with a rounded impression and a slight transverse impression near the anterior angles. Elytra broader behind the middle, deeply striate, striæ punctured; intervals convex smooth. Legs piceo-rufous, hind tibiæ stout, spurs broad, leaflike at the apical half, hind femora with an entire sub-marginal row of setigerous punctures. Length .14—.18 inch; 3.5—4.5 mm.

This species is similar in form and appearance to *lacustris*, but may easily be known especially by the form of the hinder tibial spurs.

Occurs rarely in the Middle and Southern States and in Illinois.

Having thus far disposed of all the species known to me as inhabiting our fauna the following table and remarks are presented as affording ready means of determining the genera.

Mandibles visible beyond the clypeus.....**Ægialia**.

Mandibles entirely concealed beneath the clypeus.

Hind tarsi with triangular joints.....**Psammophilus**.

Hind tarsi with elongate joints, usually cylindrical.

Head asperato-granulate or verrucose.

Thorax not fimbriate; grooves short lateral.....**Pleurophorus**.

Thorax with scale like marginal hairs; grooves entire.....**Rhyssalus**.

Head punctured or slightly plicate.

Thorax broader at base than elytra, hind tibiæ spiniform at apex.....**Euparia**.

Thorax never broader than elytra.

Outer apical angle prolonged spiniform.....**Atænius**.

Outer apical angle of hind tibiæ obtuse.

Anterior tibiæ with upper teeth obsolete, the terminal tooth anterior.....**Dialytes**.

Anterior tibiæ strongly toothed, teeth external.

Elytra with costiform intervals.....**Oxyomus**.

Elytra simply striate.....**Aphodius**.

The first three genera have the maxillæ corneous and with a hook

at extremity; in the remaining genera the maxillæ are entirely membranous.

Euparia and *Atænius* have the hinder tibiæ deprived of transverse ridges and are closely allied. The former have the middle and hind tibiæ arcuate, convex inwardly, while in the latter the tibiæ are nearly straight. *Euparia* has the sides of the thorax, especially in front, explanate, and broader than the elytra.

In the last three genera the eyes are partly visible when the head is deflexed and almost entirely concealed in all the rest of the genera.

Dialytes alone has the head perfectly vertical in repose, in all the other genera the head is oblique.

The following new species have been discovered since the publication of the first part of this paper.

Aphodius ochreipennis, n. sp.—Black, shining, elytra and legs ochreous. Head black very minutely punctulate and bordered anteriorly with rufous clypeus feebly emarginate at middle, broadly rounded on each side. Thorax moderately convex, nearly twice as broad as long, sides moderately rounded slightly explanate at hind angle which is broadly rounded; surface sparsely and very finely punctulate at middle, coarsely toward the sides densely and more finely along the margin and in the concavity near the hind angles; base broadly rounded and without marginal line. Elytra ochreous broader behind middle moderately convex, finely striate, striæ finely punctured, intervals flat, punctulate. Body beneath black, sparsely clothed with yellowish hairs. Tibiæ fimbriate with unequal spinules. Length .26 inch; 6.5 mm.

One ♀ specimen from Owen's Valley, California.

By the characters above given it will be seen that this species should be placed in Group L. of *Aphodius* near *politus* with which it agrees in the absence of the basal marginal line and in the concavity near the hind angle caused by the margin being distinctly explanate.

A. rugifrons, n. sp.—Oblong, black shining, elytra black with small paler markings. Head deeply and rugosely punctured; clypeus emarginate at middle, on each side, an acute vertical tooth and externally distinctly angulate; genæ obtusely rounded not prominent. Thorax moderately convex, one-third broader than long, sides very feebly rounded, basal marginal line very indistinct: surface with moderate punctures closely placed and evenly disposed. Elytra with feebly rounded sides, black with suture and apical margins testaceous, and two subhumeral linear spots and a V shaped spot at three fourths of the same color; surface striate, striæ punctured intervals very feebly convex sparsely punctulate. Body beneath piceous, femora yellowish, tibiæ darker. Mesosternum not carinate, very sparsely punctured; tibiæ fringed with short equal spinules. Length .15 inch; 3.75 mm.

This species should form a type of a group by itself near Group G. characterised by the strong angulation of the clypeus on each side of the tooth and the not carinate mesosternum. The head is unusually

roughly sculptured resembling rather an *Ægialia*, but not verrucose, the punctures being very coarse and deep and somewhat confluent. The thorax is totally black, the elytra brownish-piceous with pale patches as follows; sutural interval, apical margin extending by a narrow band half way to humerus, a very small patch on each side of scutellum, a small humeral spot at base of fifth and sixth intervals, a small linear spot on the fourth interval behind the preceding and a small V-like spot on the third and fourth intervals at about one-fourth from the apex. The markings resemble those of *congregatus* but each portion smaller. The hind tibiæ are moderately stout. Hind tarsi with first joint shorter than longer spur and not equal to the two following joints together.

In general aspect the species resembles a small dark colored variety of *pardalis* in which I had placed it previous to the present review and having been recognised as distinct was so carefully placed away as to have been practically lost at the time the *Aphodius* portion was written.

One specimen in my cabinet from California.

In the preceding portion of this paper numerous errors have been allowed to pass unnoticed some of them of trifling moment others serious. All are the result of not revising the proof after the first correction by the printer. Trans. Ent. Soc. 1870.

ERRATA.

Page 110 line before last, for speics, read species.

" 111 " 6 for Teuchestus read Teuchestes.

" 112 " 10 for insterpaces read interspaces.

" 112 " 18 after occidentalis add n. sp.

" 112 " 33 for unconspecuous read inconspicuous.

" 112 " 42 after longer and add than broad.

" 114 " 23 for uniformly read uniformly.

" 114 " 6 from bottom for rather read rarely.

" 118 " 14 for fonnd read found.

" 119 " 19 for trituuberculate read trituberculate.

" 119 " 20 for prosteriorly read posteriorly.

" 119 " 25 for testaceus read testaceous.

" 121 " 20 for intinctly read distinctly.

" 124 " 3 after *inquinatus* read but larger and.

" 124 " 13 for foward read forward.

" 124 " 24 for thier read their.

" 125 " in the description of *stupidus* read, Elytra moderately convex, sides subparallel, surface moderately striate with scarcely any traces at apex, striæ punctured; intervals flat, rugose and muricate becoming smoother toward this apices of the elytra.

In the proof sheet one entire line of MSS., was omitted and also all the interlined emendations.

Page 126 lines 7 and 8, omit striæ and all the words after it. A longer series shows this character to be fallacious.

Page 126 line 9 from bottom for testaceous read testaceous.

" 127 " 14 omit distinctly,

" 128 " 17 after ferruginous add, Head smooth, clypeus feebly emarginate at middle.

Page 130 last line, omit at base.

" 131 next to last line omit by and add a comma.

" 131 last line read comparatively and omit comma.

" 132 line 10 for within read within.

" 133 " 15 for margined read marginal.

Remarks on the Species of the Genus *ISOMALUS* Er. of the United States.

BY GEO. H. HORN, M. D.

In a pamphlet entitled "Notices Entomologiques." Mr. Albert Fauvel in an article entitled "Etudes sur les staphylinides de l'Amerique Centrale, principalement de Mexique," publishes an account of the species of *Isomalus*, of that region. As our own species are rather rare and it being impossible for me to furnish him with the necessary material for his systematic catalogue of the Staphylinidæ in general, I have thought it proper to review our four species and point out some variations exhibited by them from the present descriptions of the genus.

In the work above cited Fauvel makes the following remarks: "The species of *Isomalus* are remarkable for their extremely flattened form, indicating a priori their habit of living under bark and in the trunks of decayed trees. They are distinguished from the other Piestini by the following characters; body glabrous, smooth; head with lateral longitudinal groove; front mutic; mandibles prominent mutic; maxillary palpi with last joint somewhat shorter than the preceding; thorax not grooved, broadly sinuate behind; elytra without sutural striæ; legs mutic; abdomen strongly margined."

Our species all agree in being very much depressed, smooth and shining; thorax strongly narrowed at base and not longer than the head.

Two have a distinct sutural stria.....*nigrellus*, Lec. and *canadensis*, n. sp.

Two have no sutural stria..*pallidus*, Lec. and *fasciatus*, Lec.

By means of the groove at the side of the head they may be tabulated in the following manner;

Lateral groove above the eyes and extending slightly behind



Horn, George H. 1871. "Synopsis of Aphodiini of the United States."
Transactions of the American Entomological Society 3, 284–297.

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