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JOURNAL
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ACADEMY OF NATURAL SCIENCES
OF
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APRIL, 1823.

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Descriptions of several new species of Ascidia. By C. A. Lesueur. Read March 25, 1823.

GENUS ASCIDIA, *Lin.*

1. *A. atra.* *Body* subcylindric, elongated, arquated, sessile; the superior part more slender, terminated by two unequal tubes, slightly separate and parallel; these tubes have each a terminal opening, which in the shorter tube is closed by five, and in the longer one by six, triangular valves; the substance of the exterior sac is very firm, almost smooth, opaque, and very deep violaceous or blackish.

It occurs attached to rocks, amongst *Opuntia*, many species of *Sertularia* and broken shells. Its position is inclined, being adherent by the side of the base, which is a little more inflated than the other parts of the body.

We observed this species at the isles of St. Vincent and Guadaloupe, where, however, it is rather rare. Whilst dredging in the bay of Calicoua, we drew this species from the bottom of the water, with many other objects, amongst which was a beautiful *Holothuria*, marbled with brown, red, white and blackish, which had the property of dissolving so rapidly as to be observed with difficulty. Pl. 1, fig. 2.

2. *A. cavernosa.* *Body* oblong, irregular, terminated by two unequal tubes; that of the branchia and mouth much longer than the other, and directed upwards; that of the oviduct and excretions situated

at the base of the first and lateral; their apertures are entire, without marginal elevation, or apparent hair, and of a deep colour within; the exterior envelope is coriaceous, thick, very firm, opaque, rugous and folded, particularly towards the base, where the folds, united in fasciculi, form three points of attachment, by means of which the animal secures itself firmly to the interior of cavities in rocks and old *madrepores*; the colour is that of burnt terra-sienna.

This species is found only within the cavities of rocks, which are generally covered with *ulvæ* and other marine plants, at the island of St. Bartholomew's. Length 2 inches 5 lines, breadth 1 inch and a half. Pl. 1, fig. 1.

3. *A. albeola*. *Body* subpyriform, more inflated above, terminating in two apertures, that of the branchia rather more elevated; base destitute of a peduncle, but spreading a little outwards to increase the surface of attachment; *colour* white, diaphanous, exhibiting an interior globular, red, point. This species being small, measuring but a single line in height, presented less obvious characters than the preceding species; it is gregarious, attached to the surface of rocks, upright, and presents a peculiar aspect, which at once distinguishes it from any of the other species described in this paper; it may possibly be the young of a larger species.

Inhabits Guadaloupe. Pl. 2, fig. 1.

4. *A. multiformis*. *Body* variable in form, sometimes depressed or orbicular; sometimes elongated and projecting two long unequal tubes, which, as in

the other species, are distant when collapsed and divergent when projected; the opening of one of these is furnished with four, and of the other with five, triangular lips; *base* sessile, discoidal, forming an attaching surface wider than the body; substance soft, diaphanous and tinted with red; length about 5 lines, breadth 2 lines.

Many specimens are much smaller than the size here indicated; but whether or not these are young, or varieties, can only be determined by a series of regular and constant observations. Like the preceding they are gregarious, attaching themselves to rocks on the shore of the island of Guadaloupe. Pl. 2, fig. 2, natural size; fig. 3, magnified.

Var. a. Differs in being much larger, more solid and more opaque; the apertures are entire; the interior of the opening is black and the general exterior colour, gray; the almost smooth surface is interrupted by a few wrinkles; it was found covered with *alvæ*, and resembled a beautiful green *lycopodium*; the foot was less dilated than that of the species; the apertures are terminal, conic, divergent, sometimes rectilinear and sometimes recurved.

It is a native of the coast of Guadaloupe. Pl. 2, fig. 4, natural size.

5. *A. variabilis*. *Body* variable in form, oblong, sessile; *base* inflated and adherent to extraneous bodies; *apertures* large, distant, deep red, with five brighter spots within, and each placed upon a conic protuberance, with their margins hardly divided

as in the other species by four or five valves; the conic protuberances are unequal, the surface in common with that of the whole body is rugous, of a grayish colour in some, and brownish in other individuals, somewhat in appearance like a truffle. (Tuber.)

This species lives in society, attached to madrepores, rocks, shells, and each other; grouped with them are smaller ones, of nearly the same form, and of a beautiful red colour; but not having particularly examined these smaller specimens, I am not certain of their being the same species with their larger associates.

Length, about one and a half inches, by one inch in breadth.

Inhabits the bay of the Island of St. Thomas.
Pl. 2, fig. 5.

6. *A. claviformis*. *Body* small, sub-cylindric, elongated, larger towards the extremity, or sub-clavate, terminated by two small, unequal, approximate tubercles open at their summit; *substance* gelatinous, diaphanous, glabrous. It lives in society, attached by the base to fuci and other marine bodies, and is also found thus attached floating on the surface of the water.

Inhabits the bay of St. Vincent, in the West Indies. Length about one inch, breadth 2 lines.
Pl. 1, fig. 3.

7. *A. plicata*. *Body* ovate, sessile, *surface* subglabrous, but with many large inflated folds on the side of the inferior aperture, crossed by smaller folds, pre-

senting on that side the appearance of small imbricated dilatations; the remaining part of the body is covered with much smaller folds; *apertures* approximate, unequal, terminal; but being much compressed by their position in the preserving liquor, I am unable to determine their natural form; *substance* opaque, readily yielding to pressure; *colour* white; when air is forcibly introduced into the body, the latter becomes inflated like a small vesicle.

Length about two inches.

Cabinet of the Academy.

This species was found attached to the bottom of a vessel in this port. Pl. 3, fig. b.

8. *A. ovalis*. *Body* sessile, resembling the preceding species, but smaller, less rugged, being destitute of large inflated folds, with some slight, irregular wrinkles on the surface; *apertures* large, distant, placed at the extremity of two short, plaited tubes; the skin which margins the apertures is very thin, and apparently divided into many small, obsolete angles; one of these apertures is placed lower than the other and lateral; *colour*, in the alcohol, white; nearly the size of *plicata*.

Cabinet of the Academy:

The base of this specimen is surrounded by numerous individuals of a species of *lepas*, which covered the bottom of the vessel on which it was found. Pl. 3, fig. a.

9. *A. proboscidea*. An elongated *proboscis* containing the two tubes; extremity obliquely trun-

cated on each side; *apertures* subequal, placed on the summit of the proboscis, and separated only by a membrane, which extends the whole length of the tubes, and projects a short distance beyond the apertures; *colour* white; *surface* glabrous.

I have seen the proboscis only, of this animal. It was drawn up from the bottom of an estuary on the coast of Georgia, by the fluke of an anchor, imbedded in mud and fragments of shells. It was communicated to me by Mr. Say, as one of the interesting objects, collected by Messrs. Maclure, Ord, Say and Peale, on their voyage to Florida, and now forms part of the collection of the Academy. Pl. 4, fig. 4, natural size; fig. 5, transverse section.

10. *A. lobifera*. *Body* sessile, subglobular, with approximate, unequal apertures, concealed in the midst of many irregular fleshy lobes.

This species which I have seen only in the preservative liquor, was contracted and appeared to me to have been somewhat proportionably longer in the living state. It seems to have been attached to a sandstone.

The distinguishing peculiarity of this species, is the thick, fleshy and irregular lobes which defend the apertures. I think it probable that the apertures were capable of being elevated, at the will of the animal, above the lobes which protect them when at rest. The colour in its present state is a dull black, and the surface is wrinkled.

Transverse diameter, one and a half inches, height also one and a half inches.

List of additional new species observed chiefly in the Pacific ocean, during a voyage of discovery to Terra Australis; from the manuscripts and drawings of Peron and Lesueur.

- 1 *Ascidia marginella*, Decrés', King's and Josephine's Islands, in New Holland.
- 2 *vermiculata*, King's and Decrés' islands.
- 3 *anatifoidea*, Isle of France.
- 4 *confederata*, King's island.
- 5 *trinema*, bottom of Géographe bay, Leuwin's land.
- 6 *fragum*, Elephant bay, King's and Decrés' islands.
- 7 *truncata*, Bass' strait.
- 8 *rapuliformis*, Endracht's land.
- 9 *gigantea*, Bougainville's bay, Decrés' island.
- 10 *lithopoda*, Decrés' island.
- 11 *rhizophora*, Endracht's land.
- 12 *rosea*, Bougainville's bay, Decrés' island.
- 13 *alba*, Bougainville's bay.
- 14 *barbata*, coast of Nice, Europe.
- 15 *filosa*, Isle of France.
- 16 *fasciata*, do.
- 17 *radiata*, coast of Havre, Europe.
- 18 *diaphana*, King's island.
- 19 *phyllostoma*, King's, Decrés' and Josephine's islands.
- 20 *tetraodon*, Josephine's island, Napoleon's land.
- 21 *peniformis*, Port of King George, Nuyt's land.
- 22 *australis*, Oyster bay, in Maria's island.
- 23 *lithoidea*, Leuwin's land.
- 24 *nigrita*, Edel's land.
- 25 *rizophora*, Napoleon's land.
- 26 *antropocephala*, St. Francis' and St. Peter's islands and port of King George.
- 27 *nasuta*, north-west coast of New Holland.
- 28 *democratica*, St. Francis' and St. Peter's islands.
- 29 *verrucosa*, King's island.
- 30 *polyatoma*, do.

Descriptions of Dipterous Insects of the United States. By Thomas Say. Read Dec. 24, 1822.

The dipterous insects, from which the following descriptions are drawn out, were chiefly collected by myself, during the late expedition to the Rocky mountains under the command of Major Long, and patronage of Mr. Calhoun, the present Secretary of War.

Of these insects, many appear to be common inhabitants of the United States, throughout the immense region included by the Rocky mountains and the Atlantic ocean, between the parallels of latitude 35° and 41° north; others are probably restricted to the western states, and some were seen only in the vicinity of the Missouri river; along the base of the great northern Andes, where numbers of new and highly interesting animals and plants were for the first time detected by the party, interesting animals of the order under consideration were also collected. The specimens are in my cabinet.

CULEX, *Lin.*

1. *C. punctipennis*. Body dark rufous, covered with cinereo-ferruginous hair; feet elongated; wings maculated.

Inhabits the United States.

Orbits, bright cinereous; *eyes* deep black; *antennæ* and *proboscis* deep fuscous or blackish immacu-

late; *thorax* dark rufous, with obsolete blackish lines, and covered with cinereo-ferruginous hair; *wings* hairy, dusky, with a hardly perceptible pale band beyond the middle, and obsolete dusky spots; *scutel* glabrous, dark rufous, with a longitudinal bluish vitta; *halteres* yellow at base; *feet* elongated, deep fuscous or blackish; *pectus* each side above the posterior feet plumbeous.

It is probable this is the species which Fabr. considers as the same with the *pulicaris* of Europe; it is common on the Mississippi, and troublesome to travellers. When the insect is at rest, the wings being incumbent one on the other, the pale band is very distinct; when recent, the eyes are greenish-blue. I observed this species in considerable numbers on the Eastern shore of Maryland. The dusky spots on the wings of this species, are occasioned by the thicker growth of hair in those parts.

2. C. 5-*fasciatus*. Body clothed with cinereous hair; abdomen annulate with blackish.

Inhabits the western states.

Eyes deep black; *antennæ* fuscous, region of the base paler; *proboscis* black; *thorax* with a dilated dorsal fuscous vitta; *pectus* each side varied with blackish; *halteres* entirely whitish; *scutel* glabrous; *wings* with dusky nervures, immaculate; *feet* moderate, fuscous; *thighs* whitish; *abdomen* cinereous; *tergum* with five black, broad, fasciæ; *tail* black above.

Length about one-fifth of an inch; proboscis one-tenth of an inch.

This is an exceedingly numerous and troublesome species. We found them in great numbers on the Mississippi in May and June. The hairy covering is very deciduous, and when an individual is caught by hand, the back of the thorax, in consequence of being denuded by the touch, exhibits the dorsal vittæ of a blackish colour confluent at the base, with an oval black spot on each side. The abdominal annuli are sometimes fuscous or even light brown.

Legs much shorter than those of the preceding species, but like them in not being annulated.

3. *C. damnosus*. Rostrum and tarsi annulate with white.

Inhabits Pennsylvania.

Head above with rather long yellow-ferruginous hair; *antennæ* pale-brownish; *rostrum* blackish, with a broad white band on the middle; *thorax* black, with three cinereous lines, and clothed with yellow-ferruginous short hair; *scutel* dull testaceous; *pleura* grayish; *feet* pale, covered with blackish hair; joints of the tarsi, excepting the first, whitish at their bases; *tergum* brown, basal margins of the segments cinereous-whitish.

Length a quarter of an inch.

This is one of the most common and troublesome of our mosquitos. It seems to correspond in some degree with the *cingulatus* Fabr., although we must infer from his description, that the posterior tarsi

only are annulated. Wiedemann considers the *cingulatus* as the male of his *molestus*, of which all the tarsi are annulated, like those of our species. I feel however perfect confidence in the description of Wiedemann, and therefore must consider our species distinct, inasmuch as the thorax is not "lateribusque niveis;" and from the laudable accuracy of that author, I cannot suppose that he would have overlooked the annulation of the proboscis, which certainly exists in this species.

4. *C. triseriatus*. Anterior margin of the wings fuscous; tergum with white spots on each side.

Inhabits Pennsylvania.

Body brown; *stethidium* livid-brown; *thorax* with white hair each side; *pleura* with two spots of white hair; *feet* pale, covered with dusky hair; *thighs* naked, blackish above near the tip; *tergum* with a triangular white spot at the base of each segment on each side; each of these spots extends upon the venter in the form of a band, interrupted each side of the middle; thus forming three spots on each series upon that part, the middle ones of which are almost connected into a longitudinal line.

Length one-fifth of an inch. ♀

The white spots contrast strongly with the brown colour of the abdomen.

CHIRONOMUS, Meig., Wied.

1. *C. lobiferus*. Segments of the abdomen with a lobe at their bases.

Inhabits the United States:

Antennæ yellowish-brown; *thorax* pale-cinereous, the three lines testaceous; *scutel* and *meta-thorax* testaceous; *wings* white, with a pale-brownish obsolete point near the middle; *pectus* testaceous; *feet* pale-yellowish; *tergum* somewhat glaucous, the segments with their bases and obsolete longitudinal line black; on the middle of the base of the second, third, fourth and fifth segments is a small longitudinally oval, slightly elevated lobe, extending nearly one-third the length of the segment.

Length three-tenths of an inch.

2. *C. festivus*. Body pale, when recent light green; *pectus*, three thoracic lines and *scutel* testaceous; *wings* white.

Inhabits the United States.

Body pale yellowish-brown, when recent pale-green; *head* at base of the *antennæ* testaceous; *antennæ* light brown; *eyes* deep black; *thorax* trilineate with testaceous; *scutel* testaceous; *wings* white, immaculate; *pectus* testaceous between the two anterior pairs of feet; *feet* pale, hairy; *thighs* green; *tarsi* dusky at the incisures; *anterior*s nearly naked with hairy *tarsi*; *abdomen*, second, third, fourth and fifth segments tipped with blackish above

Length of female, seven-twentieths of an inch.

Observed particularly in the state of Illinois.

3. *C. modestus*. *Stethidium* yellowish, *abdomen* pea-green.

Inhabits Pennsylvania.

Eyes black; *antennæ*, shaft brown, whitish at base; *humerus*, *scutel*, and intervals between the dilated lines of the thorax pale; *wings* immaculate, costal edge near the tip somewhat dusky; *feet* greenish-white, anterior tibia and the tarsi dusky.

Length one fifth of an inch. ♂

4. *C. geminatus*. Thorax fuscous; pleura gray; abdomen white, annulate with black.

Inhabits Pennsylvania.

Humerus gray, the colour being a continuation of that of the pleura; *pectus* livid; *feet* white; *thighs* blackish, pale at base; *tibia* at base and tip, and *tarsi* at tip fuscous; *abdomen* with three broad double bands, formed thus, second segment fuscous with the exception of the posterior margin, third segment fuscous on the basal margin, fourth segment fuscous excepting the posterior edge, fifth segment fuscous on the basal half, sixth and seventh segments entirely fuscous.

Length three-twentieths of an inch.

5. *C. lineatus*. Wings white; stethidium yellowish testaceous, a fuscous longitudinal line on the anterior dilated line.

Inhabits Pennsylvania.

Thorax pale-greenish, the dilated lines yellowish testaceous, a longitudinal narrow line very distinct and fuscous on the anterior dilated line, and green rather obsolete behind; *scutel* pale; *wings* immaculate; *feet* whitish, incisures of the knees of the intermediate and posterior feet brown; *tergum* greenish, posterior margins of the incisures dusky.

Length ♀ nearly three-tenths of an inch.

6. *C. stigmaterus*. Tergum pale, towards the tip glaucous.

Inhabits the United States.

Antennæ pale yellowish-brown; *thorax* pale cinereous, the lines very pale testaceous, sometimes tinged with dusky; *scutel* yellowish; *metathorax* reddish-brown; *wings* white with a fuscous sub-central stigma; *pectus* testaceous; *feet* pale-yellowish; *tergum*, basal segments pale reddish-brown with whitish tips, terminal segments somewhat glaucous.

Length three-tenths of an inch. ♂

TANYPUS, *Meig.*

1. *T. annulatus*. Tergum annulate with dusky; wings clouded with dusky and with three or four blackish points.

Inhabits Pennsylvania.

Head and *stethidium* red-brown; *thorax*, the anterior dilated line with a brown line along its middle; *feet* white, *thighs* having an annulus near the tip, and *tibia* with one at base and two near the tip fuscous; *wings* with large obsolete dusky spots or clouds, and three or four black-brown points, of which two are towards the middle of the wing, and the remainder on the costal margin near the tip; *tergum*, segments with a dusky annulus at their bases.

Length about three-twentieths of an inch. ♂

2. *T. tibialis*. Thorax reddish-brown; tibia white

at base; abdomen white, a double band on the middle and the tip black.

Inhabits Pennsylvania.

Wings immaculate; *poisers* white; *feet* fuscous, basal half of the tibia white; *tergum*, second joint with a spot each side, two middle segments with each a band of which the anterior one is much broader, and terminal segments, deep fuscous; *pleura* yellowish.

Length ♂ more than one-twentieth of an inch.

CORETHRA, Meig.

C. punctipennis. Whitish; wings and feet punctured with fuscous.

Inhabits Pennsylvania.

Hair of the *antennæ* yellowish-white, the centres of the whorls being fuscous, the shaft of the *antennæ* has a decidedly annulated appearance; *eyes* black; *thorax* with three pale yellowish-brown abbreviated broad lines, the middle one originating before and terminating at the centre of the disk, the lateral ones originating rather before the middle; *feet* with numerous small brown punctures; *wings* with many very obvious brown spots.

Size of *C. culiciformis*, Degeer, Meig.

MYCETOPHILA, Meig.

M. ichneumonea. Pale yellowish-brown; wings with a fuscous spot; *tergum* dusky above.

Inhabits Pennsylvania.

Head tinged with rufous; *eyes* black; *thorax* a little hairy, immaculate; *feet* whitish; *tarsi* dusky; *wings* pellucid, *nervures* pale brown, a fuscous spot on the connecting *nervures*; *abdomen* fusiform, somewhat compressed, second, third and fourth segments, particularly the former, reddish-brown above.

Length three-twentieths of an inch.

This belongs to Meigen's first division of the genus.

CAMPYLOMYZA, Meig. Wied.

C. scutellata. Black, *scutel* testaceous; *feet* yellowish; *wings* hyaline, *nervures* at the base, pale-yellowish; *poisers* yellowish.

Inhabits Missouri.

Length nearly one-twentieth of an inch.

ERIOPTERA, Meig.

E. caliptera. Wings fuscous, spotted with white; intermediate and posterior thighs biannulate with black.

Inhabits Missouri.

Body pale-yellowish; *thorax* with two fuscous lines above, and one on each side before the wings; *wings* dark brown, about thirteen spots arranged along the margins, and numerous somewhat smaller ones on the disk, white; *nervures* hairy; *anterior*

thighs with a blackish line near the tip; *intermediate* and *posterior thighs* with an annulus on the middle and another near the tip, blackish; *abdomen* tinged with brownish, a darker dorsal line and lateral longitudinal incisures.

Length more than three-twentieths of an inch.

CTENOPHORA, Meig.

1. *C. fuliginosa*. Dusky, wings spotted with white; abdomen lineate with yellow.

Inhabits Missouri.

Body dark brown; *thorax* lineate with yellowish before; *wings* fuliginous, with about three white spots on the anterior margin, and a transverse oblique one on the disk attaining the thinner margin; *feet* short, pale testaceous, tips of the thighs and of the tibia and tarsi blackish; *tergum* fuscous; with two dilated yellow lines; *venter* yellow, obsolete central vitta and posterior margins of the segments, blackish.

Length about seven-tenths of an inch.

2. *C. abdominalis*. Abdomen bright fulvous, margined with black; wings spotted with fuscous.

Inhabits Pennsylvania.

Head dull yellowish; *rostrum*, *palpi*, and *antennæ*, dark fuscous; *front* with a transverse black line at the base of the antennæ, and another each side from the antennæ to the rostrum; *occiput* dusky; *thorax* cinereous, a double black longitudinal line abbreviated behind, and three black spots on each

side, whereof two are oblong, and the intermediate one subquadrate; *collar* pale, with three black spots; *scutel* dirty yellowish, an oblique black spot on each side of it; *pleura* gray, with a longitudinal vitta from the head to the abdomen; *wings* with four fuscous spots on the costal margin, and a minute one beyond the carpus; *nervures* fuscous, slightly margined, the middle farcate one submargined with white, costal margin between the spots white, posterior margin from the ultimate nervure to the apex with alternate fuscous and white spots; *tergum* bright fulvous, basal and apical segments, and a wide lateral vitta black; *venter* paler fulvous, posterior segments, shaded with dusky and with a longitudinal black line; *feet* black, a white annulus at base of the tibia; *thighs* pale with a black annulus at tip.

Length one and a half inches.

This is one of our largest and finest species of Linnæan Tipula.

LIMNOBIA, Meig.

1. *L. fasciapennis*. Wings white, with four fuscous, marbled bands; feet pale, blackish at the tips of the thighs.

Inhabits the United States.

Body above, rufo-cinereous; *eyes* deep black; *antennæ* fuscous, first and second joints black, third and fourth, yellowish; *palpi* black; *wings* white,

with about four, much dilated, marbled, dark brown bands, of which one is terminal, and one elongated to the base, a small costal spot between the second and third bands; *halteres* dusky, *capitulum* white; *feet* pale rufous, *thighs* tipped with fuscous; *abdomen*, segments with an obsolete, brown, cruciate mark on each, of which the transverse line is black.

Length of female, three-fifths of an inch, male rather shorter.

This species occurs not unfrequently on the banks of the Mississippi. The nervures of the wings correspond with those of the wing represented on tab. 6, fig. 4, of Meigen's descriptions of European Diptera.

2. *L. macrocera*. Blackish-piceous, polished; wings three-spotted; antennæ longer than the body.

Inhabits East Florida.

Rostrum, first and second joints of the antennæ, and the inferior portion of the front, yellowish; *vertex* piceous; antennæ hairy on all their length, third and fourth joints with a small vertical spine at tip; *halteres* and *feet* yellowish-white; *thighs* and *tibia* at tip dusky; *wings* with three large fuscous spots, of which one is near the base, the second on the middle of the costal margin not attaining to the edge, and the third forms nearly a band across on the connecting nervures; *abdomen* less intensely coloured than the thorax, the three or four middle segments, pale-yellowish at base.

Length three-tenths of an inch.

The disposition of the wing nervures differs from

any of those represented by Meigen, but they are more like those of fig. 7. pl. 5, than any of the others.

3. *L. tenuipes*. Thorax livid; humerus yellowish; wings dusky.

Inhabits Pennsylvania.

Antennæ long, blackish; *vertex* fuscous; *thorax* livid; *humerus* reddish-yellow; *nervures* arranged as in Meigen's fig. 2, pl. 6; *pleuræ* and *pectus* reddish-yellow; *feet* long and slender, blackish, pale at base; *tergum* brownish-livid, segments on their posterior margins somewhat darker; *abdomen* whitish.

Length two-fifths of an inch.

This species may be found in plenty during the autumn at Harrowgate, in humid situations, in company with *T. flavicans* Fabr.

4. *L. cinctipes*. Yellowish; wings varied with dusky; thighs bifasciate beyond the middle.

Inhabits Missouri.

Body pale-yellowish; *thorax* trilineate with black, intermediate line double, terminating at the central incisure; lateral lines interrupted before, and continued posteriorly to their union at the base of the tergum; *wings* varied with blackish; four distant spots on the costal margin, of which the terminal one is semi-circular and the penultimate one is continued in a very irregular band towards the thinner margin; thinner margin with about four much diluted spots, the terminal one being continued as a band across the tip; *abdomen* yellow, somewhat varied with

black; *thighs* with two black annulations beyond the middle.

Length about half an inch.

The nervures of the wings agree with those of Meigen's fig. 5 of tab. 6, excepting that there are three nervures on the costal margin as in his figures 5, 7 and 8 of tab. 5.

5. *L. humeralis*. Dusky, beneath pale; wings hyaline immaculate.

Inhabits Pennsylvania.

Antennæ fuscous, first joint and *rostrum* dull-yellowish; *front* and *vertex* dull cinereous; *thorax* dark livid; *humerus*, two obsolete lines, and lateral margin as far as the wings, yellowish; *pleura* and *pectus*, pale yellow; *scutel* and *metathorax* colour of the thorax; *nervures* dark brown, corresponding in arrangement with Meigen's fig. 2, pl. 6; *feet* dark brown; *tergum* dull-yellowish, with a black line; *venter* white.

Length two-fifths of an inch. ♀

6. *L. rostrata*. Feet elongated; wings spotted; *rostrum* nearly three times as long as the head.

Inhabits Pennsylvania and Maryland.

Antennæ, *rostrum* and *vertex* fuscous; *thorax* cinereous, trilineate with fuscous, the intermediate line abbreviated behind, and the lateral ones abbreviated before; *wings* with five fuscous sub-equal spots on the costal margin, the penultimate one rather largest, and a spot at each termination of a nervure at the inner

margin and apex, the connecting nervures also are margined with fuscous; *feet* pale.

Length one quarter of an inch. ♀

On flowers: this species resembles *L. longirostris* Wied. in the form of the rostrum and the arrangement of the nervures, and with that insect it seems entitled to be separated from *Limnobia* as a distinct genus.

TIPULA, *Lin. Meig.*

1. *T. cunctans*. Wings with a fuscous costal margin; tergum with a dusky line.

Inhabits Pennsylvania.

Rostrum, *mouth* and *base of the antennæ* pale reddish-yellow, *flagellum* dusky; *front* and *vertex* cinereous; *collar* pale, with a dusky line; *thorax* brown, two pale distant lines on the disk, confluent behind, and another on each side passing over the wings; *wings* dusky; *nervures* fuscous; the fuscous costal margin is interrupted near the stigma, by an obsolete, pale spot; *poisers* dusky, *stipes* yellowish; *feet* blackish; *thighs* and *tibia*, paler at base; *pleura* gray; *abdomen*, pale brownish-yellow, with a distinct dusky line on the tergum, the segments of which are also margined behind with dusky.

Length four-fifths of an inch.

Arrangement of the nervures like that of the preceding species.

2. *T. costalis*. Wings with a fuscous costal mar-

gin; antennæ annulate; segments of the tergum, with an interrupted transverse line.

Inhabits Pennsylvania and Maryland.

Head cinereous; *rostrum* and *antennæ* yellowish, segments of the latter, excepting the three basal ones, fuscous at base; *thorax* yellowish-brown, with a darker line; *scutel* and *metathorax* pale; *pleura* whitish; *feet* dull yellowish-brown; *wings* with a brown costal margin extending to the extremity of the carpus; *tergum* light yellow-brown, segments with a fuscous posterior margin, and two linear spots placed in a line transversely.

Length three-fifths of an inch.

The arrangement of the nervures of the wings is nearly similar to that of Meigen's fig. 9 of pl. 6.

3. *T. macrocera*. Pale-yellowish; antennæ elongated.

Inhabits Pennsylvania.

Inferior longitudinal half of the *rostrum*, reddish-brown; *palpi* dusky; *antennæ* twice the length of the head and thorax, second joint very small, third joint as long as the fourth and fifth taken together, the remaining joints a little dusky, dilated at their bases, and somewhat excavated in their middles; *wings* immaculate; *nervures*, *stigma* and interstice of the first and second nervures, dull-yellowish; *feet* pale-brownish; *abdomen* somewhat darker than the thorax, with three series of black dots, one lateral, and one ventral; *pleura* and *pectus*, whitish-yellow.

Length half an inch.

The antennæ by their length, the second and third joints, and the form of those of the flagellum show an alliance with the genus *Nephrotoma*, but as they have but thirteen joints, the insect must be regarded as a *Tipula*.

4. *T. collaris*. Thorax blued-black, lineate with yellow; tergum yellow with blackish bands.

Inhabits Pennsylvania.

Head fulvous; *antennæ*, first and second joints, rather paler than the head; *palpi* fuscous, pale at base; *occiput* black; *thorax* blued-black, the collar, two lines each side confluent before and behind, *scutel* and *metathorax*, bright yellow, the latter with two confluent blued-black spots at tip; *poisers* brown, tip of the capitulum yellowish; *wings* with a brown stigma, *nervures* brown, differing in arrangement from those of the preceding species, and from those figured by Meigen; *feet* brown, basal portion of the thighs pale; *tergum* yellow, segments black-brown on their posterior half; *venter* pale-yellow, segments dusky on their posterior half, with a silvery reflection.

Length a little less than half an inch.

5. *T. annulata*. A dark brown stigma; abdomen pale, annulate with black.

Inhabits Pennsylvania.

Antennæ fuscous, first and second joints whitish; *rostrum*, and lower portion of the front whitish; *vertex* and *occiput* dusky; *palpi* fuscous; *thorax* yellow.

lowish-brown, the indented lines paler; *metathorax* light livid; *wings* with a brown stigmata, *nervures* brown, arranged like those of Meigen's fig 9, pl. 6; *feet* dusky-brownish; *abdomen* yellowish-white, incisures and their margins black, forming annulations complete.

Length two-fifths of an inch.

6. *T. trivittata*. Wings four-banded with fuscous; tergum yellow with a dorsal and lateral fuscous vitta. Inhabits Pennsylvania.

Head dusky; *front*, *rostrum*, and base of the *antennæ* pale; *thorax* whitish-cinereous, lineate with light brown, the lines double; *collar* with a brown line, and lateral dusky spot; *scutel* and *metathorax* with a brown line; *pleura* and *pectus* gray; *poisers* whitish, *capitulum* brown; *wings* with fuscous margined *nervures*, fuscous bands and white areolæ, between the first and second band is a semi-band on the thinner margin, second band enclosing a white spot on the costal margin; *feet* dusky; *tergum* with a longitudinal fuscous line, segments with lateral fuscous triangles and a dorsal transverse abbreviated dorsal line near the middle of each.

Length one inch.

Nervures resembling those of the preceding species.

SCIOPHILA, Hoff.

S. fasciata. Pale-yellowish; *thorax* trilineate; *tergum* fasciate with fuscous.

Inhabits Pennsylvania and Maryland.

Antennæ at tip, and *vertex* fuscous; *thorax* with a double light-brown middle line attenuated and abbreviated behind, a dark chesnut dilated line on each side abbreviated before, and a small obsolete one above the origin of the wings; *pleura* with a dusky spot over the insertion of each foot, placed triangularly, the inferior one itself triangular; *tibia* and *tarsi* a little dusky; *segments of the tergum* fuscous on their posterior margins.

Length rather more than one-fifth of an inch.

RYPHUS, Latr. Meig.

1. *R. marginatus*. Wings spotted; thorax trilineate with rufous.

Inhabits Pennsylvania.

Head dull reddish-brown; *vertex* blackish; *thorax* cinereous, with three rufous lines, of which the middle one is abbreviated behind, and the lateral ones are abbreviated before; *wings* with three brownish spots on the costal margin; *feet* whitish, joints a little dusky; *tergum* blackish at tip, pale at base.

Length less than one-fifth of an inch.

The number, form and position of the wing spots, are similar to those of *Sciara punctatus*, Fabr. it differs however, from that insect, in addition to other peculiarities, by the colour of the thoracic lineations.

2. *R. alternatus*. Costal margin of the wing be-

yond the middle with three fuscous spots alternating with white ones.

Inhabits Pennsylvania.

Body blackish-fuscous; *thorax* with three black lines, of which the intermediate one is double; *feet* short; *wings* hyaline, connecting nervures slightly margined with fuscous spots on the costal margin, placed one on the middle of the length, then a white one which is very conspicuous on the edge of the wing, then a brown one, then another white one divided into two compartments by a nervure, then a third brown one terminated at the tip of the wing by a third white spot.

♀ Length to the tip of the wings a quarter of an inch.

The habit differs from that of the other species I have seen.

SIMULIUM, Latr.

S. venustum. Black; thorax, two perlaceous spots before, and a larger one behind; poisers black, capitulum bright yellow, dilated.

Inhabits Shippingsport.

Body black; *wings* whitish, with yellow, and iridescent reflexions.

MALE, *eyes* very large, separated only by a simple line, dull reddish-yellow, inferior half black; *thorax* velvet-black, a bright, oblique, perlaceous, dilated line each side before, and a large perlaceous

spot or band behind; *sides* beneath varied with perlaceous; *feet, tibia* above, and first joint of the four posterior tarsi, white; *abdomen* with an oblique lateral perlaceous line at base, and two approximate, lateral, perlaceous ones near the tip.

FEMALE, *eyes* moderate; *thorax* plumbeous-black, immaculate; *scutel* black; *abdomen* whitish beneath.

This very pretty species, perched in considerable numbers on our boat at Shippingsport, Falls of the Ohio. It ran with considerable rapidity, constantly advancing its long anterior feet. Its bite is pungent.

BERIS, *Latr. Meig.*

B. fuscitarsis. Thorax piceous-black, polished; tergum reddish-brown, inclining to yellowish on the disk, and with brown incisures.

Inhabits Pennsylvania.

Wing hyaline with a pale-brown stigma and nervures, origin yellowish-white; *thorax* with the posterior angles piceous; *feet* anterior and intermediate pairs yellowish-white; *tarsi* excepting the base of the first joint fuscous, posterior pair reddish-brown, first joint of the tarsi yellowish-white.

Length one-fifth of an inch.

The scutel of my specimen is wanting, I cannot therefore ascertain its number of spines.

NEMOLETUS, *Geoff. Latr. Meig.*

N. pallipes. Greenish-black, thorax tinged with green; nervures whitish.

Inhabits Pennsylvania.

Rostelliform process blued-black, polished; *antennæ* brown, situate at the base of the rostelliform process; *front* with a triangular white spot above the antennæ; *thorax* punctured, a testaceous line before the wings, and another each side on the basal edge; *poisers* and *scale* pure yellow-white; *costal nervures* whitish; *feet* yellowish, base of the thighs and middle of the posterior tibia black; *abdomen* blued-black, or greenish-black, posterior edges of the segments of the venter rufous.

Length three-twentieths of an inch. ♂

XYLOPHAGUS, Meig.

X. triangularis. Black, sub-glabrous; thorax plumbeous with a black line; feet testaceous.

Inhabits Missouri.

Body black; *head* pale plumbeous; *antennæ* and *palpi* black; *proboscis* pale-rufous; *trunk* black-polished; *thorax*, disk pale-plumbeous, with a longitudinal polished black line, gradually and slightly dilating behind; *nervures* fuscous; *halteres* white; *feet* testaceous, tips of the tarsi and of the posterior thighs and tibia dusky; *tergum* polished, with a large opaque triangle at the base of each segment excepting the first.

Length two-fifths of an inch.

The nervures of the wings are arranged in a similar manner with those of *X. ater*, Fab. Meig.

PANGONIA, Latr.

P. incisuralis. Thorax dusky glaucous with dirty yellowish hair; abdomen dark chesnut with whitish incisures.

Inhabits Arkansa.

Front ocraceous; *ocelli* distinct; *hypostoma* dusky; *palpi* and *setæ* of the *proboscis* testaceous; *proboscis* black; *antennæ* pale-yellowish; *occiput* with very short greenish-yellow hair; *thorax* with two distant obsolete lines; *wings* reddish-brown; *feet* yellowish, *thighs* dark chesnut at base; *tergum* and *venter* ♀ dark chesnut polished, the posterior margins of the segments whitish and slightly hairy; ♂ pale testaceous with short hair.

Length thirteen-twentieths of an inch.

The only species yet known to inhabit North America. It was brought from the Arkansa by Mr. Thomas Nuttall.

TABANUS, L. Latr.

1. *T. molestus*. Thorax cinereous, lineate with fuscous; scutel cinereous; abdomen black-brown, a dilated dorsal vitta.

Inhabits Missouri.

A frontal, blackish-brown, glabrous, oblong callos, with a dilated obscurely rufous glabrous line above, terminating in a smaller dilatation; *antennæ* black; *proboscis* black; *palpi* testaceous; *thorax*

cinereous, with four reddish-brown lines; *wings* dusky, *nervures* dark-brown, blackish towards the tip, a black carpal line, and slight anastomosis; *scutel* cinereous; *pectus* pubescent, cinereous; *feet* black, *tibia* obscure ferruginous; *tergum* black, a dilated, cinereous, dorsal vitta, consisting of dilated triangular spots on the third, fourth, fifth and sixth segments, the larger ones before; *incisures* cinereous.

Length less than four-fifths of an inch.

This is one of the species which are called *prairie flies*; it is numerous in the prairies of the state of Missouri, and is very troublesome to the cattle. I have seen cattle in the forests which margin the prairies, when attacked by these insects, start suddenly and plunge into the thickets that the branches may divest them of their enemies. Travellers are much incommoded by them; many cover their horses with canvas, &c. to shield them from their attacks, or rest in some shaded and secluded situation, during that part of the day when they are most abundant.

2. *T. annulatus*. Thorax cinereous-plumbeous; wings immaculate; *tergum* blackish; *incisures* cinereous; *tibia* white.

Inhabits Missouri.

Body somewhat pubescent; *head* beneath cinereous downy; *antennæ* rufous; *palpi* white; *proboscis* black at tip; *thorax* cinereo-plumbeous, testaceous in the middle, and clothed with short prostrate hairs; *pectus* colour of the thorax, downy; *feet* dusky; *tibia* white with the exception of the

tips; *wings* slightly dusky, immaculate, *nervures* brownish, immarginate; *abdomen* blackish-brown, incisures cinereous.

Length of the body more than two-fifths of an inch.

Smaller than *T. lincola*.

3. *T. stygius*. Violet-black; thorax pale chestnut.

Inhabits Arkansa.

Hypostoma and *front* dirty yellowish; *antennæ* and *palpi* black, callous of the front quadrate, chestnut, with a simple slightly dilated line above; *thorax* with five cinereous lines; *scutel* pale chestnut; *wings* ferruginous, with three fuscous spots; *abdomen* immaculate; *tibia* dull chestnut at base.

Length nearly nine-tenths of an inch.

CHRYSOPS, *Meig. Latr.*

C. quadrivittatus. Cinereous; tergum with four series of brown lines.

Inhabits near the Rocky Mountains.

Length to the tip of the abdomen nearly two-fifths of an inch.

Body cinereous; *head* with three black frontal spots placed in a transverse series, the intermediate one smallest, and a larger black spot above the *antennæ*; *antennæ* dark reddish-brown, terminal joint black at tip; *thorax* blackish, with five narrow cinereous lines; *wings* with a large costal spot, anastomosis and obsolete spots fuscous; *feet* yellowish-

brown, tips of the tibia and of the tarsal joints black; *tergum* with four series of fuscous abbreviated lines, the two dorsal series approximate, the lateral ones distant, between the dorsal series tinged with yellowish-brown.

LEPTIS, *Fab. Meig.*

1. *L. ornata*. Velvet black; thorax and abdominal bands with whitish hair; wings hyaline; feet white.

Inhabits Pennsylvania.

Hypostoma and *front* with silvery white hair; *thorax* more especially on its lateral margins with silvery hair very slightly tinted with yellow; *pleura*, *pectus* and *coxae* black; *feet* pale yellowish, *tarsi*, except at base, fuscous; *poisers* pale yellow; *tergum*, basal segment nearly all covered with silvery hair, remaining segments with each a silvery band behind, occupying nearly one half of its length, and interrupted in the middle; *venter* immaculate.

Length ♂ nine-twentieths of an inch.

This species resembles *L. thoracica* Fabr. but the wings are not obscure as those of that species, the thighs as well as the tibia are pale, the bands of the *tergum* are much broader, the thoracic hair differently coloured, and the *hypostoma* and *front* are covered with silvery hair.

2. *L. punctipennis*. Blackish; wings spotted; abdomen pale at base.

Inhabits Pennsylvania.

Hypostoma dark cinereous, with a fringe of long hair each side; *antennæ*, *palpi* and *rostrum* black; *vertex* blackish-fuscous; *stethidium* black; *thorax* varied with cinereous lines; *pleura*, *pectus* and *coxæ* dark cinereous; *feet* pale brownish, *thighs* more dusky; *poisers* yellowish-white; *wings* hyaline, tip margin, connecting nervures, margin of the nervures near the thinner edge of the wing, costal margin ending in a carpal spot, fuscous; *tergum*, four basal segments pale-yellowish, with a dusky basal margin and triangular spot, remaining segments black.

Length ♂ more than one-fifth of an inch.

3. *L. quadrata*. Pale yellowish; thorax lineated; abdomen fasciated; wings with a large spot.

Inhabits the United States.

Body pale-yellowish; *head* very slightly tinged with plumbeous, excepting the *antennæ* and mouth; *thorax* with three dilated longitudinal brown lines, of which the lateral ones are interrupted; *scutel* immaculate; *wings* whitish, with a brown subquadrate spot, extending from the margin to the centre of the wing, and from near the anterior inner angle of the spot an oblique brown line extends to the thinner margin, *nervures* brown, white at base; *pectus* and *feet* immaculate; *tergum* with a black band at the base of each segment; *halteres* with a dusky capitulum.

Length to the tip of the wings more than seventieths of an inch.

This insect is most closely allied to the *Atherix oculata*, Fab. It occurs in Pennsylvania as well as in the state of Missouri.

4. *L. basilaris*. Blackish-fuscous; wings hyaline, base or neck only fuscous.

Inhabits Pennsylvania.

Hypostoma in a particular light cinereous; *antennæ* dark testaceous; *thorax* and *scutel* with scattering golden-yellow hairs; *pectus* and *pleura* brown; *feet* white, *thighs* at base and tips of the *tarsi* brown; *tergum* on the posterior margins of the basal segments with yellow hair; *venter* immaculate, paler at base; ♀ *head* cinereous, vertex and occiput spotted with black.

Length ♀ one-fifth of an inch. ♂ rather less.

The nervures of the wings are disposed as in Meigen's second division.

5. *L. rufithorax*. Yellowish-testaceous; wings dusky; *tergum* with a series of black spots.

Inhabits Pennsylvania.

Antennæ dull testaceous, terminal joint black; *labia* fuscous; *thorax* in a particular light with two dusky obsolete lines; *poisers* fuscous; *wings* fuliginous, particularly on the costal edge, the antepenultimate nervure uniting with the preceding one before it attains to the inner edge of the wing; *tibia* and *tarsi* dusky, *hind feet* elongated, *tibia* and tip of the *thighs* above blackish, the *tarsi* paler; *tergum*

with a longitudinal fusiform black line on each segment, those on the two basal segments rounded and central, posterior segments blackish on their basal margins.

Length two-fifths of an inch.

Belongs to Meigen's first division.

6. *L. fumipennis*. Wings dusky; tergum brown, annulate with pale testaceous.

Inhabits Pennsylvania.

Hypostoma cinereous; globular prominence, *proboscis* and *antennæ* yellowish; *thorax* fuscous, posterior edge dull testaceous; *scutel* pale testaceous, fuscous at base; *wings*, inner and terminal margins hyaline; *poisers* brown; *scapus* whitish; *feet* white; *pleura* and *pectus* yellowish-testaceous; *tergum* fuscous, segments yellowish-testaceous on their posterior margins; *venter* yellowish.

Length rather more than one-fifth of an inch.

Belongs to Meigen's second tribe.

7. *L. fasciata*. Velvet-black; thorax with golden-yellow hair; tergum fasciate with white; wings hyaline with a large brown stigma.

Inhabits Pennsylvania.

The fundamental colour of the thorax does not differ from the other parts of the body; *hypostoma* in a particular light cinereous; *pleura* and *pectus*, dark lurid; *poisers* fuscous; *scapus* whitish; *nervures* of the wings brown, *stigmata* rather large, brown and distinct; *tergum* on the posterior margin of each segment banded with yellowish-white; *ven-*

ter immaculate; *feet* whitish, *thighs* reddish-brown towards their bases, *tarsi* dusky at tip.

Length ♂ rather more than a quarter of an inch.

The nervures of the wings are arranged as in Meigen's second division, and the insect has much the appearance of *L. thoracica*, of Fabricius.

8. *L. vertebrata*. Tergum with three lines of fuscous spots; wings immaculate; tips of the thighs black.

Inhabits Florida.

Head black; terminal joint of the antennæ, excepting the seta and the palpi, pale; *stethidium* blackish; *thorax* with two cinereous obsolete lines, and a pale humeral spot; *scutel* and *poisers* pale-yellowish; *wings* hyaline, costal margin tinged with testaceous, *nervures* brown; *feet* pale testaceous; *coxæ*, *tarsi*, half of the posterior thighs and of the posterior tibia, black; *tergum* yellowish, segments each with a fuscous spot above, and a dilated line on the lateral edge, the dorsal spots on the posterior segments are extended into bands; *venter*, terminal joints black.

Length two-fifths of an inch. ♂

This belongs to Meigen's first tribe.

9. *L. albicornis*. Tergum with three lines of fuscous spots; wings spotted and tipped with fuscous; pectus and feet whitish, tarsi dusky.

Inhabits Pennsylvania.

Body above rufo-yellowish; *hypostoma* chesnut; *antennæ* yellowish-white; *seta* black; *palpi* and *rostrum* white; *gena* glaucous, with whitish hair;

thorax three or five lineated, the three intermediate lines being obsolete; *scutel* immaculate; *wings* hyaline, costal margin tinged with yellowish, *nervures*, particularly those of the inner margin, the transverse ones, stigmata, and tip of the wing fuscous; *tergum* with a large rounded spot on each segment, and a series of smaller marginal ones on each side.

Length ♂ nine-twentieths of an inch.

This species is closely allied to the *L. scolopacea*, Fab. but it may be distinguished by the colour of the stethidium, antennæ, feet, &c.

10. *L. plumbea*. Blackish-plumbeous; wings clouded; poisers pale-yellow.

Inhabits Pennsylvania.

Thorax brown, with five obsolete cinereous lines; *wings* with a fuscous costal margin, and four dusky arquated bands which do not attain the inner margin, the terminal one is obsolete and the basal one very short and also obsolete; *feet* reddish-brown, *tibia* pale.

Length a quarter of an inch nearly.

Nervures of the wings as in *albicornis*.

THEREVA, Meig.

1. *T. tergisa*. Wings spotted; tergum silvery pruinose.

Inhabits East Florida.

Body blackish; *head* blackish-brown, with white hair beneath; *antennæ*, basal joint cinereous with black hair; *palpi* pale; *proboscis* dusky; *thorax*

blackish-brown; *wings* slightly tinged with brownish, and with several brown spots, and brown stigma; *feet* pale, dusky at the joints; *tergum* dull testaceous, darker at base, and with a bright silvery reflection in a certain position, posterior margins of the segments white.

Length more than seven-twentieths of an inch.

The reflected colour of the *tergum* is very similar to that of *Musca anilis*, Lin. It seems to be closely allied to *T. pictipennis*, Wied. but is larger, destitute of bands on the wings, and the colour of the antennæ, feet, &c. is different.

2. *T. nigra*. Black; incisures of the *tergum* and lateral spot on the fifth segment gray.

Inhabits Pennsylvania.

Head glabrous, polished; *hypostoma* and all beneath, with gray minute hair; *antennæ* with minute gray hair, and longer sparse black hair on the basal joint; *occiput* velvet black; *wings* pellucid, *stigmata* and *nervures* brown, costal edge beyond the *stigmata* pale, each of the two ultimate pairs of *nervures* uniting before they attain the edge of the wing; *poisers* brown; *scapus* pale; *pleura*, *pectus* and *coxæ* somewhat glaucous; *feet* blackish, *tibia* and *tarsi* excepting at tip pale, anterior *tibia* at tip and *tarsi* blackish; *tergum* polished, posterior edges of the third or fourth basal segments gray, spot each side of the fifth segment oblong-oval oblique.

Length three-tenths of an inch.

STYGIA, Meig.

S. elongata. Blackish, polished; abdomen elongated, incisures yellowish.

Inhabits Pennsylvania.

Antennæ yellowish-white, the third joint dark fuscous, not longer than the preceding joint, but terminated by an elongated style, the second joint is somewhat more robust than the first, which last is not remarkably dilated at tip, neither is it perceptibly obliquely truncated; *occiput* plumbeous; *thorax* piceous-black; *humerus* with a dull rufous spot, which is continued by a curved line to the origin of the wings; *pleura* with a silvery line; *wings* hyaline, *nervures* brown; *poisers* yellowish-white; *feet* including the coxæ white, *tarsi* dusky; *abdomen* elongated, depressed; *tergum* blackish-brown, darker towards the tip, first segment yellowish at base and tip, second segment yellowish on the posterior margin, the two succeeding segments with a spot on each side at tip, terminal segments immaculate; *venter* with more of the yellowish colour than the back.

Length rather more than three-tenths of an inch.

The third nervure of the costal margin is much less distant from the second, than the corresponding nervures of *S. sabæa* Meig. and the first basal cellule is much less elongated, and the superior branch of the apical fork is much less arquated than in that insect.

ANTHRAX, *Latr.*

1. *A. morioides*. Black, with numerous ferruginous hairs; wings deep black with white at tip.

Inhabits the United States.

Body black, covered with short prostrate ferruginous hair on the sides of the stethidium; *eyes* chestnut-brown, widely emarginate behind; *wings* deep black, opaque, posterior margin from near the tip to the inner angle hyaline white, black portion occupying nearly two-thirds of the wing, and deeply dentate at tip, an obsolete hyaline spot near the base, about three in the middle placed transversely, and one near the tip of the opaque portion; *poisers* pale; *capitulum* black beneath, and near the tip above; *feet* pale, *tarsi* and *anterior thighs* dusky; *tergum* with silvery hairs each side at base, and each side near the tip.

Length three-tenths of an inch.

Very closely allied to *A. morio*, Fab. I observed this species in considerable numbers near Merrimac river, Missouri. The terminal joint of the antennæ is rather short, by which character it may be distinguished from *A. fulvohirta*, Wied. It is referable to the fifth tribe of the genus anthrax, agreeably to Wiedeman's divisions.

2. *A. lateralis*. Black; wings hyaline; sides with fulvous hair; tergum banded.

Inhabits Pennsylvania and Maryland.

Hypostoma and *occipital orbits* with white hair; *stethidium* with fulvous hair, particularly on the sides of the thorax, on the pleuræ and collar; *wings* as far as the basal transverse nervure fuscous, costal nervures fuscous, the included areola yellowish-brown; *feet*, the hair with a whitish reflexion; *tergum* with a band of prostrate yellowish hair at the base of each segment, and with long fulvous hair each side as far as the middle of the length.

Length nearly one-fourth of an inch.

It belongs to Wiedemann's fifth tribe.

3. *A. scripta*. Wings varied with black and hyaline; tergum with four series of silvery points.

Inhabits Pennsylvania.

Head reddish-brown, obscure covered by yellow ferruginous hair, intermixed with longer black hairs, a black band on the hypostoma, a black spot on each frontal orbit, and vertex black; *thorax* dusky, or blackish, with three black vittæ, sides before the wings dull cinereous, bounded beneath by another black line, beneath the posterior angles is a fascicle of gray hairs, above which are a few ferruginous hairs; *scutel* reddish-brown, with short black hair, and a small white spot at the subangulated tip; *pleura* and *pectus* reddish-brown; *feet* reddish-brown, *tarsi* blackish; *wings*, costal areola with a small hyaline spot, which is the termination of a band extending in a slightly arquated direction to the inner angle of the wing, and interrupted by the nervures into five compartments; the three larger

cellules of the binder margin, with the exception of the margins of the nervures, hyaline; a hyaline rounded spot occupying the exterior half of the central cellule, with a smaller spot on each side of it; sometimes obsolete or double; above this central cellule, and near the costal nervures, are two double distant small hyaline spots; tip of the wing hyaline, the two nervures margined with blackish, the margin of the superior one is generally interrupted in the middle; *tergum* reddish-brown, covered with black hair, first segment with cinereous hair each side of the scutel; second and third segments with each four small white spots on the posterior edge, the lateral ones on former linear; fourth with but two, the lateral ones being obsolete; fifth with a transverse line each side, sometimes crossed by a longitudinal line extending on the posterior segments, and exhibiting a cruciform mark, these marks and dots have a silvery brilliancy.

Length seven-tenths of an inch.

This species seems to come nearest to Meigen's second tribe, but it differs by having an additional cellule under the large central cellule of the wing. I labeled in my cabinet with the Fabrician name of *capucina*, but I cannot identify it with the somewhat detailed description which Meigen quotes from Fabricius, nor yet with Pallas's description of the *caloptera*, that both Meigen and Wiedemann quote, and regard as synonymous with the *capucina* which they believe to be a native of Europe.

That our insect is totally different from the *caloptera* no one will for a moment doubt, for the latter is no larger than the *morio*, whereas our insect is nearly equal to the *cerberus* in size.

In deference therefore to the opinion of the authorities above referred to, I describe this species as distinct, though it seems probable that Fabricius had this species in view when he referred to North America as the native country of the *capucina*.

4. *A. analis*. Black; wings hyaline at tip; tail silvery.

Inhabits Georgia.

Body deep black; *wings* brown-black opaque, posterior third hyaline; *anterior* and *intermediate tibia* piceous on the upper edge; *tergum* brilliant silvery at tip, and with a white fascicle each side at base.

Length seven-twentieths of an inch.

I am indebted to Mr. August G. Oemler, of Savannah, for this fine species. It belongs to Wiedemann's fifth division.

5. *A. alternata*. Body villous, above black, beneath and sides cinereous; *tergum* fasciate with cinereous.

Inhabits the United States.

Head black; *eyes* chesnut; *front*, beneath the antennæ bright cinereous; *proboscis* concealed in a groove to the tip; *palpi* distinct, exterior; *thorax* cinereous, tinged with fulvous each side, and at the scutellar suture; *wings* dusky, pellucid, *nervures*

blackish-brown; *base* to the first transverse nervurés brown-opaque; *pectus* cinereous; *feet* blackish; *scutel* edged with cinereous; *abdomen* each side with dense long hair, which is cinereous on the first and second segments, but on the remaining segments alternating with black; *tergum* with six or seven cinereous lineolar bands; *venter* cinereous; *segments*, particularly the third, black at base.

Length of body more than eleven-twentieths of an inch.

Found in Pennsylvania, and also in Missouri. It belongs to Wiedemann's fifth tribe.

6. *A. irroratus*. Black; wings hyaline, with numerous black punctures.

Inhabits near the Rocky Mountains.

Body deep black, hairy; *eyes* reddish-brown, tinged with golden; *wings* hyaline, with numerous, irregular, unequal dark fuscous spots, of which those near the costal margin are larger than those near the posterior margin and tip, the spots along the costal margin are quadrate and alternate somewhat regularly with their hyaline intervals.

Length one-fourth of an inch.

The nervures of the wings are nearly similar to those of the wing fig. 22, pl. 17 of Meigen's *Diptera Europea*—(Europäischen zweiflügeligen.)

7. *A. caliptera*. Fundamental colour brown; wings with three-brown bands, and a silvery spot on the costal base.

Inhabits Arkansa.

Thorax black-brown, with very short yellowish hair, and longer hair on the anterior edge, a pale fundamental spot on the posterior angle; *feet* pale reddish-brown; *poisers* yellowish; *scutel* reddish-brown; *wings* brown at base, then a hyaline arquated equal band divided by nervures into five compartments, then a brown band bifid on each margin, and rather narrower in the middle, then an irregular hyaline band very narrow towards the costal margin, abruptly produced in the middle to the tip of the central cellule, then an irregular brown band including a hyaline triangular spot on the inner margin of the wing, and another at the costal margin which almost separates a portion of the band into a distinct triangular spot, lastly an irregular hyaline spot at tip, costal margin, excepting where it is crossed by the first hyaline band, brown; *tergum*, fundamental colour yellowish-brown, with very short black hair, first segment black, second with white hair on the basal half, and a large black spot on the middle, third with a black spot on the middle, and a white hairy spot on the posterior angle, fourth with a black spot.

Length nearly seven-twentieths of an inch.

Belongs to Wiedemann's third tribe.

ASILUS, *Lin. Meig.*

1. *A. vertebratus*. Tergum pale cinereous; segments blackish at base; tibia testaceous.

Inhabits Missouri.

Head yellow; *proboscis* and *antennæ* black; *thorax* yellowish-cinereous, the dusky line divided by a cinereous one; *wings* reddish-brown; *feet* black, with cinereous hair, *tibia* and *tarsi* above testaceous; *tergum* whitish-cinereous, with a large transverse blackish subtriangular spot at the base of each segment, terminal anal segments black; *venter* immaculate.

Length to the tip of the wings one inch and twentieths.

This species belongs to the second tribe in Wiedemann's division of this genus.

2. *A. sericeus*. Sericeous, somewhat golden; thorax with a dilated brown vitta; colours of the tergum changeable.

Inhabits Pennsylvania.

Antennæ dull yellowish; *thorax*, vitta attaining the scutel, and in a particular light changing to bright yellow; *wings* ferruginous, areolæ of the thinner margin, and of the tip dusky; *feet* light chesnut, somewhat sericeous; *tergum* dark-brown, with bright yellow posterior margins to the segments when viewed from behind or above, bright yellow or golden, with brown posterior margins to the segments when viewed from before; *venter* blackish-brown, in a particular light ferruginous.

Length rather more than one and one-tenth inches.

This beautiful species is referable to Meigen's first tribe.

OMMATUS, *Wied.*

O. tibialis. Black-brown; abdomen black; tibia white.

Inhabits Pennsylvania.

Front and *hypostoma* golden-yellowish; *vibrissæ* gray, near the antennæ black; *occiput* silvery, nearly glabrous; *thorax* dark brown, approaching black, with an obsolete narrow brown line on the middle; *scutel*, *metathorax*, *pleuræ*, *pectus*, and *coxæ* silvery; *wings* pellucid, with black nervures; *thighs* dark chesnut; *tibia* white, intermediate and posterior ones near the tip, and *tarsi* brown.

Length eleven-twentieths of an inch.

DIOCTRIA, *Meig.*

1. *D. 8-punctata*. Subglabrous, black; abdomen with four white spots on each side.

Inhabits the United States.

Body black, nearly glabrous, polished; *front* yellowish; *thorax* with three yellow lines, of which the exterior ones are dilated before, and include a dusky spot; *feet* testaceous, *tibia* and tarsal joints tipped with blackish; *tergum* punctured, and with a white spot at the lateral tip of the second, third, fourth and fifth segments.

Length three-tenths of an inch.

This species is an inhabitant both of the western and eastern states. The first joint of the antennæ is

considerably longer than the second, though not double its length, and the terminal joint is elongated, subcylindrico-compressed, obtuse at tip, with a short spine on the superior surface rather beyond the middle, and a small oblong-ovate denudated space on the inner surface. The wing nervures are arranged as in *Dioctria* and *Dasypogon*.

GENUS. *DASYPOGON*, *Meig.*

1. *D. 6-fasciatus*. Cinereous abdomen black, with a white band on each segment.

Inhabits Missouri.

Body black, densely covered with short cinereous hair; *head* with longer silvery hair; *antennæ* black; *nervures* fuscous; *tergum* black, polished, each segment with a white band at tip, a little dilated in the middle, and occupying about one-third of its proper segment; *thighs* and *tibia* testaceous at base; *halteres* pale.

Length seven-twentieths of an inch.

2. *D. abdominalis*. Yellow; thorax cinereous; wings dusky.

Inhabits Pennsylvania.

Body cinereous; *head* with an impressed line between the antennæ; *antennæ* and *rostrum* black; *thorax* with an abbreviated brown line before and a lateral interrupted one; *wings* dark brown, immaculate; *abdomen* bright yellow, very slightly tinged with rufous, immaculate; *feet* pale rufous, *tibia*

dusky at tip, tip of the posterior ones dilated, and first joint of the posterior tarsi also dilated and as long as the three following segments united.

Length less than three-tenths of an inch.

The head is very wide, the eyes being proportionally very large, the vertex deeply concave, and the stemmata placed on a common elevation.

3. *D. trifasciatus*. Cinereous; tergum black, trifasciate with whitish.

Inhabits Pennsylvania and Maryland.

Antennæ black, first joint of the style longer than the second; *wings* dusky, hyaline, *nervures* as in Meigen's fig. 10, pl. 20, excepting that the central cellule is rather more elongated; *tergum* velvet-black, a cinereous band at base, a linear one near the middle, and a dilated silvery one on the middle, tip of the tergum cinereous; *venter* somewhat livid, immaculate.

Length ♂ two-fifths of an inch; ♀ half an inch.

Found sometimes in sandy districts. The ground colour of the body is black, but this colour is concealed by a pruinose covering.

4. *D. argenteus*. Cinereous, immaculate; poisers pale yellowish.

Inhabits Pennsylvania and Maryland.

Antennæ black, second joint as long, or slightly longer than the first, first joint of the style longer than the second, which is acicular and minute; *mys-tax*, and hair of the genæ, pure white; *vibrissæ*

none; *wings* hyaline, *nervures* light brown, arranged as in Meigen's fig. 11, pl. 20.

Length from three-tenths to seven-twentieths of an inch.

Like the preceding insect, the ground colour is black, but this colour is concealed by a universal pruinose covering, which has almost a silvery brightness when the animal is living and under the influence of the sun's rays.

5. *D. politus*. Tergum blackish-blue; posterior half of the wings fuscous.

Inhabits Pennsylvania and Maryland.

Hypostoma and *front* golden-brown; *mystax* and *vibrissæ* yellowish-brown; *vertex* brown; *genæ* pure white; *antennæ* black, first joint of the style longer than the second, which is acicular and minute; *thorax* golden-brown, a double black line abbreviated behind, and a lateral broad dusky line approaching behind near to the scutel; *feet* rufous, *thighs* black; *wings*, basal half hyaline, a hyaline spot on the carpus, and a smaller obsolete one near the apex, *nervures* arranged nearly as in Meigen's fig. 11, pl. 20; *tergum* fine blackish-blue, the segments with lateral marginal cinereous triangles.

Length nine-twentieths of an inch.

6. *D. cruciatus*. Thorax margined and spotted with yellow; abdomen black, annulate with yellow.

Inhabits Arkansa.

Hypostoma yellow; *stethidium* black; *thorax* broadly margined with yellow, a humeral triangular

spot and a spot each side of the middle connected by a line with the margin, yellow; *wings* ferruginous, *nervures* like those of the preceding species; *feet* ferruginous; *pleura* spotted with yellow; *abdomen* black, segments with a broad yellow posterior margin.

Length nine-tenths of an inch.

A large and fine species, very readily distinguished from others.

GENUS. LAPHRIA, *Fab. Latr.*

1. *L. fulvicauda*. Black, with cinereous hair; wings blackish; tergum fulvous at tip.

Inhabits Missouri.

Body black, with long cinereous hair; *head* large, transverse; *eyes* deep black; *thorax* varied with black and cinereous, and with short black hair, two distinct longitudinal dorsal black lines, a more distinct cinereous band in the middle, interrupted by the dorsal lines, and two cinereous obsolete points each side behind; *wings* blackish; *halteres* pale at tip; *abdomen* depressed, above and beneath subglabrous, hairy each side, two terminal segments of the tergum with a common fulvous spot.

Length about three-fifths of an inch.

I found an individual of this species at *Cote Sans Dessein*, on the Missouri River.

2. *L. glabrata*. Black, polished; posterior edges of the segments of the tergum white.

Inhabits the United States.

Body with very short prostrate indistinct hair, punctured; *hypostoma* silvery; *tubercle of the vertex* brown; *occiput* plumbeous; *collar*, and line upon the *thorax* each side before the wings cinereous; *pleura* and *pectus* with a cinereous reflexion; *wings* immaculate, *nervures* brown, nearly resembling in their arrangement Meigen's fig. 20, pl. 20; *poisers* whitish; *feet* reddish-brown, the middle of the *thighs*, tips of the *tibia* and *tarsi* darker, posterior feet beneath densely hairy; the basal and terminal segments of the *tergum* destitute of the white edge.

Length one-fourth of an inch.

Var. a. feet pale.

I have a specimen in which the external branch of the terminal furcate nervure is continued a short distance beyond its connexion, as in Meigen's fig. 23. The antennæ of this species are like those of *Dioctria 8-punctata*, excepting that they are acute at tip, and the arrangement of the nervures, decides the generic affinity of this insect.

[TO BE CONTINUED.]

Dissection of a Batracian Animal in a living state.

By Richard Harlan, M. D. Professor of Comparative Anatomy to the Philadelphia Museum. Read February 5, 1823.

The specimen was sent from Georgia to Dr. Mease of this city. An account of a similar animal has lately

been published under the name of "*Chrysodonta larvaeformis*."*

Having of late been familiar in the dissection of Proteiform animals, "*les reptiles douteux*" of Humboldt, and having had the opportunity of observing and dissecting this specimen in a living state, I experience less hesitation in making the following observations, more especially as the account alluded to above, is by no means free from imperfection and error.

The animal I dissected was eighteen inches in length; the branchial cartilages are four in number, united to each other at their inferior end, but unconnected with the other parts of the skeleton; the branchial orifice is situate between the two inferior, the other cartilaginous slips are covered by the internal lining membrane: these orifices cannot be considered as connected with the process of respiration, are by no means breathing holes, not being furnished membranous fringes, and would appear to subserve no other purpose than to evacuate the water taken into the mouth with the food of the animal.

The nostrils are small and situated near the point of the snout, they communicate with the fauces, opening immediately behind the palatine row of teeth.

The lower jaw contains a single row of teeth of about thirty in number; the upper jaw contains a row on the maxillaries, and another on the palatine

* Vide Medical Recorder, July, 1822, No. 19.

surface, consisting of about forty in number; they point backwards, are very minute, the tips reflect the golden rays, provided they be viewed through the medium of a microscope, they are not processes of the jaws, but are attached to the bones at their bases by a slightly moveable articulation, somewhat similar to the teeth of the shark: that is to say, neither by gomphosis or anchylosis.

On the top of the head are the orifices of two rows of glands, extending from the eyes to the tip of the nose: the eyes are covered with cuticle as in the *Siren* and *Proteus*.

The tail is short, round at its base, and flattened vertically towards the extremity.

There are no ribs, except the motionless rudiments, resembling in this respect, the *Proteus anguinus*, and differing from the *Siren* and the *Tritons*, which have moveable rudiments of ribs.

The *tongue* is cartilaginous, possessed of very little freedom of motion. In the appearance of the circulating system, the alimentary canal, the cellular lungs, and the urinary organs, this animal presents no material difference from the *Siren*.

The testicles are flat in this animal and cylindrical in the *Siren*. The parts about the region of the cloaca being somewhat mutilated, I was unable to determine exactly where the ureters entered the bladder.

This animal cannot be considered, strictly speaking, as amphibious (breathing in air or water) not

being furnished with branchiæ, and is not calculated for progression upon land. Indeed the most remarkable peculiarity in its organization, is its four *boneless* legs terminated by two toes, the external toe being the longest.

Whatever may have been the case during the early settlements of North and South Carolina, at present this animal is certainly rare, as none of our museums contain a single specimen, nor was I aware that a specimen had ever been sent to Europe, until I was informed by Dr. De Kay of New York, (after having finished this description) that a similar animal had been noticed by Dr. Garden in "*Smith's correspondence of Linnæus,*" under the name of "*Amphiuma means,*" on referring to which work I found that this animal had indeed been noticed under that name.*

* Extract from a letter of Dr. Alexander Garden, to Mr. Ellis, dated Charlestown, May 15th, 1773.

"I have not as yet been able to procure another of the *Amphiuma means*, which he (Linnæus) calls *Sireni simile*. This appeared to me to be a still more singular animal than the *Siren*, as you might observe by my remarks, &c. &c."—Vol. I. p. 599.

In a letter to Linnæus, with which he sends a specimen, Dr. Garden gives the following descriptions of the *Amphiuma*.

"I must now say something of an unknown animal, which you will find in a glass bottle, and which I have no doubt will afford you much satisfaction; the specimen here sent is the only one I ever saw, and I shall think myself fortunate if it reaches you in safety.

"When I first received it, the length was 37 inches, though the animal was then become somewhat contracted. At first sight I

It will be observed that the description of Dr. Garden agrees with mine, with the exception of a

suspected it to be another species of Siren, but upon nearer examination I found so many differences, that there proves to be no relationship whatever between them. Can this animal form a link between the Lacertæ and Serpentes? is it allied to *Anguis quadrupes*?

“It differs in many particulars from the Siren, most evidently in the following. This animal has four feet, with two toes to each, without claws. The Siren has only two feet. It wants the gills and their wing-like coverings. It has no scales, nor, which seems to me very singular, any tongue! all which are found in the Siren. I have opened the throat, and satisfied myself respecting the presence or absence of the gills. The following are the characters I have drawn up of this ugly animal.

“*Head*, rather long, depressed, tapering, serpent-like.

“*Mouth*, extending half the length of the head.

“*Lower jaw*, furnished with a single row of sharp, distinct teeth.

“*Upper*, with four rows with similar curved teeth.

“*Upper lip*, covering the under one.

“*Tongue*, none. *Nostrils*, two openings at the very extremity of the upper lip.

“*Eyes*, dull, at the upper part of the head, on each side, covered with a thick tunic.

“A thin retractile membrane covers each cartilaginous lateral spiracle or orifice, by which the animal breathes.

“*Body*, thick, nearly cylindrical, tapering and keeled at each side, beyond the vent. Tail recurved. There is no *lateral line*. *Vent.* a large opening immediately behind the hinder legs.

“*Feet*, four, two of them before, close to the spiracles, each with two toes, destitute of claws, two behind, at the bottom of the belly, with similar toes.

“Inhabits deep ditches, and lakes of fresh water.”—Vol. I. p. 333.

few minor differences as respects the tongue, the pulmonary system, &c. Dr. Garden did not seem to be aware that the *Amphiuma* respired with two cellular lungs; by his own account, the specimen he described had been *preserved in spirits*, which circumstance will sometimes give rise to inaccuracies.

From the above description, the "*Amphiuma*" must be acknowledged as generically distinct from the Batracian animals hitherto described; the similarity of internal organization would place it between the *Proteus* and *Siren*.

This very curious animal lived for several weeks in the possession of Dr. Mease, by whose request a drawing of the living animal was taken by Mr. C. A. Lesueur. To the former gentleman, who has shown himself on many occasions active in the cause of science, I am indebted for the opportunity of dissection.

This specimen is deposited in the Philadelphia Museum, under the name of *Amphiuma means*. (*Garden.*)

Description and Analysis of the Zirconite of Buncombe County, North Carolina. By Lardner Vanuxem. Read April 8, 1823.

The discovery of this locality of the Zirconite, which is the richest known for the quantity and

goodness of the crystals, we owe to Dr. T. D. Porter, tutor in the South Carolina College.

In the fall of 1822, I visited the locality of this mineral, and succeeded in obtaining a considerable number of crystals; on my return, I was induced to examine it chemically, wishing to confirm the opinion I had given of it when first discovered, as to its real nature, or species to which it belonged.

The Zirconite is found in loose soil, on a small mountain principally composed of gneiss, and appears to be a dependant upon the mountains known by the name of Saluda; being of analogous composition, and constituting a part of our great gneiss formation. The Zirconite mountain is on the road leading from the Saluda Gap to Ashville; and is the first elevation to the left, after passing Green River. The mountain is almost entirely covered with vegetable earth, arising from the decomposition of the rocks which compose it, and the forest which covers it. The rocks are Gneiss-greisen (Quartz and Mica) Sienite, and a rock composed of feldspar and quartz, with here and there a few detached scales of mica; the rock is singular from the manner in which the feldspar has decomposed, part of it having been removed, so as to present a cellular texture; the quartz is highly vitrious. Gneiss is the predominant rock, the others exist as its subordinates, and form but partial masses. Besides the minerals which constitute the above rocks, there are found small red garnets in rhomboidal dodecahedrons, oligiste iron,

sulphuret of iron or pyrites, and the epigene pyrites in cubes. I was not able to find a single crystal of Zirconite in its gangue, all of them occurring in an insulated state. I am however induced to believe that they were imbedded in the aggregate of feldspar and quartz, from the following circumstances: first, they are more numerous on the part of the mountain where this rock is most abundant: secondly, some of the crystals have small portions of feldspar and quartz attached to them: and thirdly, this rock appears to be more susceptible of decomposition than any other observed, which well accounts for the occurrence of Zirconite in detached crystals.

The Zirconite of Buncombe has only been found in crystals, presenting the form of a double four-sided pyramid, whose bases repose upon a four-sided prism, forming the *prismé* of Haüy; this is the common form. Many of the crystals have a narrow and highly inclined face separating the pyramids from the prism, some are striated in the same direction, whilst others are perfectly smooth and sharp edged. The angles of these crystals are the same as those given by Haüy; determined by the ordinary and reflecting goniometers. In the last edition of Professor Cleaveland's Mineralogy, it is stated, on the authority of Professor Silliman, that the angle which connects the pyramids with the base, is about 135° instead of $131^{\circ} 25'$.

Beside the *prismé* I found an elongated octohedron; also a group of crystals composed of four oc-

tohedrons, which by admeasurement proved to be the primitive form of the Zirconite, the angle agreeing with those of the pyramids of the prismé.

All the crystals of the Zirconite are opaque, usually of a dirty cream or ash colour; many of them are intermixed with red, which is not uniformly distributed throughout the crystal; few of the crystals are of a light dun colour. The size of the crystals of the Zirconite vary considerably; from the almost microscopic, to three-fourths of an inch in length. They are not often perfect, owing to their having been partially penetrated by their matrix, or from having been grouped with one another. Their specific gravity I found to be 4.4375, the mean of two experiments, the one giving 4.453, the other 4.422.

ANALYSIS.

By a preliminary examination, I found that siliceous earth, zircon and iron, were the sole constituents of the Zirconite; so that its analysis was conducted in the manner usual for that mineral. That no doubt should exist as to the presence of zircon, it may be necessary to mention, that I found its salts readily decomposable by heat, that it was soluble for the greater part in an excess of carbonate of ammonia, that its sulphate was but partially soluble in water, and that it was extremely difficult to free it from iron.

Sixty grains of the mineral finely pulverized, in the way usual to all minerals of great hardness, were

treated with 320 grains of pure caustic potash prepared with alcohol, and kept at a red heat for two hours; from a light dirty-yellow, which was the colour of the powder, it became white; water was added to the mass in great quantity, according to the recommendation of Vauquelin, that the zircon might not be enveloped by the silex, when separating from the alkali on the addition of an acid. The alkali was saturated with an excess of muriatic acid, which dissolved every particle of the mineral, giving a clear solution. As it is difficult with a naked fire to evaporate the water without decomposing the muriate of zircon, a water bath was used, and the liquor was kept at such a temperature, as merely sufficed for expelling the water and the excess of acid, so that the decomposition of the salt of zircon should be prevented; after the desiccation of the mass, acidulated water was added, and heated; then filtered, well washed, and calcined, the silex separated in this manner, weighed 19.25 grains, or 32.08 per cent. It was perfectly pure, as examined in the mode directed.

To separate the iron in the liquor from the zircon, I had recourse to the method pointed out by The-
nard, that of adding hydro-sulphate of ammonia, as long as any black precipitate took place: I found on using this reagent, that the precipitate was dark coloured as long as precipitation continued, so that it was perfectly ineffectual. The liquor was filtered, well washed, dried and repeatedly calcined with ni-

tric acid, to expel all the sulphur ; it weighed 40.25 grains, or 67.07 per cent. It was slightly coloured of a reddish tinge.

In order to separate the iron from the zircon, the 40.25 grains were put into a platina crucible with acid sulphate of potash, and heated to a full red heat, it exerted a considerable action upon it, the part attacked became of a beautiful white ; this same was repeated with fresh portions of acid sulphate, as long as there remained a particle unattacked. The zircon was no doubt partly converted into a sulphate, for on the addition of water it was in part dissolved ; the liquor was acid. To throw down the soluble part, and to keep the iron in solution, the super-carbonate of potash was added, which appeared to succeed, for the zircon separated by decantation, dried and calcined, was white with merely a slight tinge of gray.

To the liquor a solution of galls was added, which gave a black colour ; but so feeble as to induce a belief that the iron was in too small an amount to be ascertained in an analysis of 60 grains, and it is of little consequence, as it cannot be said to be an essential ingredient of the Zirconite.

The result of the analysis gives us, silex,	32.08
Zircon with an inappreciable portion of iron,	67.07
Loss,	.85

100.

Observations on Fossil Elephant Teeth, of North America. By RICHARD HARLAN, M. D. Read May 6, 1823.

Having been latterly employed in the examination of fossil Elephant teeth found in different parts of the United States, I trust the following observations will not be uninteresting to naturalists.

For a full description of the distinctive characters of fossil Elephant teeth, I must refer to Cuvier,* who has treated the subject in detail: I have here only to state, that this naturalist concludes that the fossil Elephant resembles the Asiatic more than the African, yet is specifically distinct from either, which is proved. 1. By the plates being thinner, and consequently more numerous in a similar space, in the fossil teeth. 2. The lines of enamel which separate the layers of the plates are thinner and less scolloped in fossil teeth than in others.

These, together with corresponding differences in the jaws and cranium, Mr. Cuvier thinks sufficient to establish the fossil as a distinct species. The only exception to these rules, he continues, is presented by a tooth disinterred near Porentrui, in the department of Upper Rhine, in which specimen the plates are still larger than in the other fossil teeth.

Thus far Mr. Cuvier's description corresponds pretty accurately with those fossil teeth of the Uni-

* Des Animaux Fossiles, tom. 2.

ted States, which I have observed, with the exception of a remarkable variety from the western part of the state of Pennsylvania, of which I shall speak more particularly hereafter. Of those I have examined, ten specimens belong to the Museum of the Philosophical Society; three to the Philadelphia Museum; one to the Cabinet of the Academy of Natural Sciences, Philadelphia. The first are of various sizes, and of different ages, and were found in Kentucky, North and South Carolina, and Ohio. The second are old teeth, one of them from the Santee Canal, S. C. Third, a young tooth from South Carolina.

Fig. 1st, is the tooth just mentioned as remarkable; it is an old tooth of the upper jaw, the grinding surface, seven inches in length, is no wise scolloped, as is common; the layers of enamel and cement being very indistinct. A space of five inches of grinding surface, contains thirteen plates, and fourteen layers of cement. The greatest diagonal length of the tooth is eleven and a half inches.

Fig. 2d, is from Santee Canal, S. C. a lower jaw tooth; grinding surface nine inches in length, five inches of which contains six plates, and seven layers of cement, greatest diagonal length fourteen and an half inches.

One specimen in the Museum of the Philosophical Society, of the upper jaw, nearly resembles that represented by fig. 1st.

A fossil Elephant tooth was lately presented to the Academy of Natural Sciences, with a portion of the

cranium, from Santee Canal, S. C. with an arrangement of enamel somewhat remarkable. The enamel, instead of being arranged in distinct plates, is continuous, passing from one plate to the other, at the inner margin; which can be better understood by referring to fig. 3.

A similar peculiarity is described by Parkinson* as occurring in three specimens of fossil teeth of Elephants, which induced this oryctologist to refer them to a distinct species.

But that this peculiar arrangement of enamel is a mere deviation from the natural structure, and by no means characteristic of a distinct species, will at once be acknowledged by reference to fig. 4, where the same variety is observed on the anterior tooth of the lower jaw of a *recent* Asiatic Elephant; which is the portion of a whole skeleton belonging to the Philosophical Society's Museum.

I have thus endeavoured, first, to make it appear probable that there is at present discovered in the United States, two distinct species of the fossil Elephant.

Second, That the peculiar continuous arrangement of enamel which occasionally occurs in the fossil Elephant teeth, is not characteristic of a distinct species, being only an accidental variety.

Mr. Titian Peale has kindly favoured me with the annexed drawings.

* Vide vol. 3, foss. organ. rem. p. 346.

Description, Analysis, &c. of a Lamellar Pyroxene.

By LARDNER VANUXEM. Read May 20, 1823.

This mineral was brought last year from West Point, by Professor Keating and myself; the locality hitherto unpublished, having been shown to us by captain Douglass, Mathematical Professor of the Military Academy.

The lamellar Pyroxene is found about three miles above West Point, on the western side of the river, and near to the waters' edge. It is associated with hyaline Quartz, black and bronze coloured Mica, and Feldspar; the latter but in small quantity. These minerals form an aggregate of limited extent, which is a dependant of our Sienitic formation; which there, covers the whole of the country included under the name of the Highlands of the North River.

The lamellar Pyroxene of West Point, is identical in all its characters, both external and chemical, with that mineral of Brandywine (Delaware State) which was first considered to be Hypersthene, from similarity of colour, and from its presenting the same lamellar structure in one direction, as exhibited by the Labrador mineral: the same which subsequently was analyzed and described as an Amphibole by Mr. H. Seybert; whose account was published in the Journal of the Academy, vol. 2, p. 139; and to which more recently, Mr. Nuttall and Dr. Torrey, have proposed to give the name of *Maclureite*, supposing

it to be a new mineral. (See Silliman's Journal, vol. 5, p. 246.)

Those to whom the characters of these minerals are familiar, will have much less difficulty in identifying the mineral in question with Pyroxene, than with either of the other two minerals, with which it has been confounded; and further, will have no reason for believing that it should not be classed with Pyroxene, in the present state of our mineralogical knowledge: this being admitted, its new name of Maclureite becomes superfluous and objectionable. To American mineralogists, this circumstance cannot but be a subject of regret, for it is not the only attempt* that has been made, to confer this merited tribute of respect, to our illustrious president; and to no one is it more justly due, than to Mr. Maclure.

The West Point mineral occurs principally in lamellar masses; also but more rarely in crystals, which though not very perfect, yet are sufficiently well characterized to enable an observer to refer them to the species to which they belong.

* Vide Silliman's Journal, vol. 5. No. 2, for Mr. H. Seybert's account "of the Maclureite, or Fluo-Silicate of Magnesia, a new mineral species." This is the substance called Condrodite, which, as Mr. Seybert found it to contain fluoric acid, he judged it to be different from the Condrodite of Europe. Since that paper was sent for publication, the same chemist has discovered that this acid likewise exists in the European mineral, so that his proposed name of Maclureite is inadmissible, the substances being the same.

The form of the crystals is an octagonal prism, whose angles are about 136° and 134° ; the terminations are too imperfect to ascertain their nature. There are several cleavages, two of which are parallel to four of the alternate sides of the octagon, producing a prism, with a rhombic base; these two cleavages are not very easy to obtain, their surface being rough, with but a feeble lustre; the angles which these cleavages form as determined by the solid so generated, and the measure of their corresponding faces in the crystals, are about 92° and 88° . This prism may again with ease be divided in the direction of the *smaller* diagonal, the surfaces produced are very smooth, and of considerable lustre; *this is the cleavage to which the mineral owes its highly lamellar structure.* In the direction of the larger diagonal, there are indications of a fourth cleavage, but none parallel with the base.

The lamellar masses rarely exceed two inches in their greatest dimension, generally elongated and prismatic, of a dark green colour with a tinge of yellow and bronze. The shades of these colours frequently vary in the same specimen. Scratches glass with ease; fusible before the blowpipe into a shining black globule. Specific gravity about 3.24.

To the result of the analysis* of the lamellar Py-

* The analysis of the mineral was made in the following manner, having previously ascertained that it was composed of silica, lime, magnesia, alumina and oxide of iron, with a trace of

roxene of West Point, is adjoined that of Delaware by Mr. H. Seybert, in order to show the complete chemical identity of the two minerals.

	WEST POINT.	DELAWARE.
Silex	51.00	52.166
Lime	21.00	20.000
Magnesia	11.50	11.333
Alumine	3.50	4.000
Deutoxide of Iron with a trace of manga- nese	11.53	10.733
Water	1.00	1.266
Loss	47	502
	<u>100.00</u>	<u>100.000</u>

The mineral of West Point differs from Hypersthene in the angles given by their cleavages, which are different; those of Hypersthene being as the numbers 100, 80, and 50; and also in the latter, being infusible and different in its composition.

From Amphibole, because there are but two cleavages in this mineral, obtainable with the same ease, and both possessing the same degree of smoothness

manganese. Pulverized and calcined a portion of the mineral for water; fused another portion with potash in order to decompose the mineral; dissolved the whole in nitro-muriatic acid, then evaporated to dryness; added acidulated water, and filtered, this gave the silex; precipitated the metals and alumine by hydrosulphate of ammonia; separated the alumine by potash; threw down the lime by oxalate of potash, and obtained the magnesia by boiling the liquor with potash.

and lustre, in short, absolutely identical. The angles which they form are those of $124^{\circ} 34'$, and $55^{\circ} 26'$, angles which do not occur in the West Point mineral. The chemical elements of Amphibole and Pyroxene are the same, the difference being in the proportion of their constituents.

The essential character of Pyroxene is derived from its crystallization. The primitive form determined by its cleavages, and with the aid of its secondary forms is an oblique prism, with a rhombic base, angles of the prism, by the common goniometer 92° and 88° , or more accurately by the secondary forms, joined to certain theoretical considerations, $92^{\circ} 18'$, and $87^{\circ} 42'$. The cleavages of Pyroxene as given by its several varieties, are parallel to the faces of the prism, and diagonals of the base. One of the secondary forms of the Pyroxene is an octagonal prism, with angles of 136° and 134° by the goniometer, or corrected in the aforementioned manner $136^{\circ} 09'$ and $133^{\circ} 51'$. The degree of smoothness and facility of obtaining the different cleavages of Pyroxene, vary considerably in the different varieties of this mineral. Sometimes a cleavage which is very evident in one variety is indistinct or scarcely to be perceived in another. Thus in certain volcanic Pyroxenes, the cleavage parallel to the larger diagonal, is the most lamellar (according to Haüy,) and none exists in the direction of the base, whilst in other Pyroxenes that of the base is pre- eminent, so that this character, in all cases, must be considered as very secondary in value to the character which depends

upon the angles of the cleavages and those of the crystals.

Thus the mineral of West Point and of Delaware corresponds with Pyroxene in the *form and value of the angles of the primitive form, and those of the octagonal prism; in the cleavages parallel with the sides of the primitive form, and diagonals of the same; in hardness, action with the blowpipe, specific gravity and chemical composition.* The only difference being this, that its *lamellar structure* is parallel to the smaller and not to the larger diagonal, as in volcanic Pyroxene, a circumstance which cannot be considered of specific importance.

Descriptions of Dipterous Insects of the United States. By THOMAS SAY. Read Dec. 24, 1822.

(CONTINUED FROM PAGE 54.)

3. *LAPHRIA macrocera.* First joint of the antennæ elongated; body black.

Inhabits Pennsylvania.

Body somewhat polished, with short, prostrate, grayish hair; punctured; *antennæ*, first joint more than four times as long as the second; *wings* a little dusky, *nervures* nearly as in the preceding species; *poisers* pale-yellowish; *feet* black, *tibia* and *base* of the *tarsi* pale testaceous; *tergum* on each side and at tip margined with testaceous.

Length one-quarter of an inch.

This insect closely resembles the preceding species,

but the elongated first joint of the antennæ, the want of white posterior edges to the abdominal segments, together with the colour of the lateral margin and tip of the abdomen, prove it distinct. I had formerly placed both this insect and the preceding under the genus *Dioctria*, but the disposition of their wing nervures is precisely as in *L. ephippium*.

4. *L. sericea*, above, hair golden yellow, beneath whitish, thorax dark blue.

Inhabits Arkansa.

Head black; *hypostoma* and *gena* with grayish hair, that of the former tinged with dull yellowish; *vertex* and *occiput* with black hair; *thorax* dark blue, with golden yellow hair rather longer and somewhat more dense behind, a fringe of longer black hairs over the insertion of the wings; *pleura* blackish, a few long pale hairs near the *poisers*; *poisers* pale; *pectus* and *feet* black, hairy, hair of the *pectus* long, hair beneath the anterior and intermediate feet whitish; *scutel* dull chesnut; *wings* hyaline, *nervures* fuscous, broadly but faintly margined with yellowish-brown as well as the inner edge; *tergum* dark chesnut-blue, thickly covered by golden-yellow silky hair; *anus* black, naked; *venter* black-brown, nearly naked, the segments pale on their posterior margins; *abdomen* cylindrical depressed.

Length ♂ four-fifths of an inch.

Nervures of the wings arranged like those of *L. ephippium*, Fab. Meig.

5. *L. tergissa*, thorax and three middle segments of the *tergum* with yellowish hair.

Inhabits Pennsylvania.

Head black, *vibrissæ* and long hair of the cheek pale yellowish; *thorax* dark blue, slightly tinged by cupreous, and covered by pale yellowish hair, which, on the anterior part, and on the lateral edge is tinged with ferruginous; *pleura* blackish-piceous, with two fascicles of ferruginous hair; *wing nervures* brown, margined; *scutel* blackish, ciliated with dusky hair; *feet* blued-black, two *anterior pairs* of *tibia* with yellowish hair, *posterior thighs* clavate, *anter or pair* of *coxæ* concealed by yellowish hair; *tergum* blackish, the three intermediate segments with dense pale yellowish hair, which is interrupted in the middle, and does not occupy the basal edge.

Length one inch and one-tenth.

This is a large robust species, and the nervures of its wings are arranged like those of *L. ephippium*, Fab.

LEPTOGASTER, Meig.

L. annulatus. Feet whitish, annulate with rufous.

Inhabits Pennsylvania.

Antennæ and *trophi* whitish; *thorax* pale cinereous, with three dilated pale brown lines; *wings* hyaline, immaculate; *anterior* and *intermediate feet* white, extremities of the joints tinged with rufous or yellow, *posterior feet* more robust and elongated, joints yellow, white at base, *thighs* clavate, bifasciate with rufous near the tip, *tibia* trifasciate with

rufous; *abdomen* cylindric, elongated, dilated at tip, segments yellow-brown, dark reddish-brown at base and on the terminal submargin, terminal margins white.

Length two-fifths of an inch nearly.

The nervures of the wings of this insect, do not perfectly correspond with those of *L. tipuloides*, which circumstance, combined with another highly important difference that this insect exhibits, in having but two nails to the tarsi, would justify the generic separation of the *annulatus* from the *tipuloides*, and its reference to a distinct genus.

Is it not a *Phtiria* of Wiedemann?

HYBOS, Meig.

H. thoracicus. Thorax ferruginous, trilineate; abdomen piceous.

Inhabits Pennsylvania.

Antennæ and *rostrum* yellow, pale; *thorax* ferruginous, with three dilated black lines; *wings* obscure, a dark red-brown stigmata; *feet* reddish-brown, the posterior pair darker than the others, *tarsi* yellowish; *abdomen* dull piceous.

Length rather more than one-fifth of an inch.

BIBIO, Latr. Meig.

1. *B. pallipes*. Black; tergum with a yellowish-piceous lateral margin.

Inhabits Pennsylvania.

Body hairy; wings hyaline, a large fuscous stigma,

interstice of the first and second nervures yellowish; *feet* whitish-yellow, spines of the *anterior tibia* equal; *posterior tibia* somewhat dilated.

Length one-quarter of an inch ♂.

2. *B. heteropterus*. Black; wings with a fuscous anterior margin and nervures.

Inhabits Maryland.

Body immaculate with dusky hair; *feet* rather long, *posterior tibia* at tip, and *first* and *second joints* of the *tarsi* dilated; *wings* brown, the costal margin fuscous, *nervures* differing somewhat in their arrangement, and the inferior branch of the lower furcate nervure curves backwards at the inner margin so as almost to meet the succeeding nervure at the edge of the wing.

Length more than three-tenths of an inch, ♂.

3. *B. albipennis*. Black; wings white, with a fuscous stigma.

Inhabits Pennsylvania.

Body with cinereous hair; *head* above with black hair; *halteres* fuscous, *scapus* brown; *nervures* brown; *tarsi* black-brown, exterior spine of the *anterior tibia* much larger than the interior one.

Length three-tenths of an inch.

This is a very common insect. The wings have a white appearance, and are strongly contrasted with the colour of the body, and the brown and definite stigma. The *posterior tibia* of the male are much more dilated towards the tip than those of the female.

4. *B. articulatus*. Black, thorax and feet rufous.

Inhabits Pennsylvania.

Wings brownish, more particularly at the costal margin, and with a very distinct stigma; *poisers* pale, dusky at tip; *feet* pale rufous, *joints* and *anterior tibia* reddish-brown, *tarsi* dusky at tip, spines of the *anterior tibia* subequal.

Length ♀ rather more than one-quarter of an inch.

5. *B. orbatus*. Black, immaculate; wings fuscous, the central connecting nervure wanting.

Inhabits Pennsylvania.

Feet and *coxæ* piceous; *humeral tubercle* piceous; *wings* dusky, the costal margin particularly; the transverse nervure of the disk, that in other species connects the inner branches of the two bifurcated nervures together, is entirely wanting.

Length one-fifth of an inch.

SCIARA, Meig. Weid.

S. femorata. Black; thighs pale.

Inhabits Pennsylvania.

Wings hyaline, *nervures* fuscous; *poisers* large; *coxæ* and *thighs* pale, or yellowish-white; *abdomen* dirty yellowish obscure, lateral margin and posterior margins of the segments blackish.

Length less than one-tenth of an inch.

DILOPHUS, Meig. Wied.

1. *D. stigmaterus*. Black; stethidium and thighs rufous; two series of spines on the thorax, wings whitish with a dusky costal spot.

Inhabits Missouri.

Body deep black; *head* elongated; *antennæ* black, basal joint pale; *eyes* oblong-oval; *thorax* pale rufous, a transverse, uninterrupted series of approximate acute spines on the collar, and a series of rather smaller ones over the insertion of the anterior feet; *wings* whitish with a distinct black spot on the middle of the costal margin; *feet* black, *trochanters* and *middle* of the *thighs* pale rufous; *anterior tibia* with a series of prominent acute spines, on the anterior middle and tip, spines piceous at tip.

Length one-quarter of an inch nearly.

Taken at Engineer Cantonment.

2. *D. spinipes*. Black; stethidium and thighs rufous; two series of spines on the thorax of which the anterior one is interrupted in the middle; wings fuscous.

Inhabits Missouri.

Body black; *head* elongated; *thorax* pale rufous, a transverse series of approximate spines on the collar interrupted in the middle, and a series of smaller ones over the insertion of the anterior feet; *wings* blackish, costal margin darker; *feet* black, *thighs* and basal joints of the anterior pairs pale rufous; *anterior tibia* with a series of acute prominent spines near the base, middle and at tip.

Length from the eyes to tip of the wings three-tenths of an inch.

Found near Fort Osage.

Differs from the preceding species in being much larger, in having the anterior series of thoracic spines

interrupted in the middle, and in having a triple series of spines on the anterior tibia.

3. *D. thoracicus*. Black; stethidium, and two anterior pairs of thighs pale rufous; the anterior series of thoracic spines uninterrupted.

Inhabits Pennsylvania and Maryland.

Thoracic spines, scutel and metathorax black; *pluræ* and *pestus*, excepting the incisures, black; *wings* fuscous, stigma darker; *poisers* black; *anterior coxæ* and *thighs*, excepting the basal and apical incisures, pale rufous; *intermediate thighs*, excepting the base and tip, also very pale rufous; *anterior tibia* spinous before, and beyond the middle and at tip.

Length to the tip of the wings nearly one-quarter of an inch.

Distinguishable from *spinipes* by its inferiority in size, and from *stigmaterus* by its dark coloured wings, &c.

MYOPA. *Fab. Latr.*

1. *M. vesiculosa*. Head beneath vesicular and white; wings whitish at base.

Inhabits Pennsylvania.

Body rather robust; *rostrum* dark reddish-brown; *hypostoma* and *cheeks* vesicular, white, slightly tinged with yellow; *front* and *occiput* yellowish-brown, the former with two dilated dark lines; *antennæ* reddish-brown, third joint yellowish-white; *thorax* reddish-brown obscure, varied with blackish, beneath the scutel deep black; *poisers* pale yellow;

wings a little dusky, slightly darker on the middle of the costal margin, base whitish; *pleura* and *pectus* reddish-brown; *feet* dark reddish-brown, *knees*, base of the *tibia* and *tarsi*, excepting the points of the articulations, yellowish-white; *tergum* blackish-brown, paler on the margin; ♂ ♀.

Length nearly three-tenths of an inch.

2. *M. longicornis*. Body black, hairy; wings dusky, pale at base; antennæ as long as the head.

Inhabits Missouri.

Antennæ pale on the inner side and beneath; *hypostoma* pale, with a silvery reflection; *front* and *vertex* dusky; *proboscis* black; *thorax* with two obsolete pale lines; *wings* blackish, pale towards the base; *poisers* whitish; *anterior pairs* of *feet* with the thigh beneath, at base, and leg, pale; *anterior pair* of *trochanters* pale, with a silvery reflexion; *posterior feet*, *thighs* pale on the basal moiety; *abdomen* clavate and hamate at tip.

Length about three-tenths of an inch.

3. *M. biannulata*. Thorax dark brown; *tergum* pale testaceous, annulate with dusky; hind thighs biannulate with brown.

Inhabits Pennsylvania.

Hypostoma pure silvery; *front* yellowish rufous; *vertex* blackish-brown, obscure in the middle; *antennæ* white at base, third joint yellowish-rufous, the extreme point dusky, style situate near the tip, porrect, black; *rostrum* nearly as long as the body, blackish, at base white; *thorax* margined with white; *pleura*, *pectus* and *anterior pairs* of *feet*

white ; *poisers* fuscous ; *posterior thighs* tinged with rufous on the middle, and with a brown annulus each side of the middle, *posterior tibia* at tip, together with their *tarsi* fuscous ; *tergum* reddish-yellow, posterior margins of the segments brown ; *venter* narrow, white, ♀ *oviduct* fuscous on its posterior half.

Length ♂ nearly three-tenths, ♀ more than seven-twentieths of an inch.

The habitus of this insect is entirely different from others of the genus. The body is slender, and not incurved, the rostrum much elongated, and the oviduct of the female resembles an attenuated continuation of the abdomen.

CONOPS. *Fab. Latr.*

1. *C. marginata*. Black, slightly hairy ; an interrupted line upon the thorax before, and abdominal sutures yellow ; costal moiety of the wings fuscous.

Inhabits Missouri.

Body black, with fine hairs ; *head* yellowish-white ; *vertex* black, a longitudinal line bifarious at the antennæ, and transverse above ; *hypostoma* with an impressed black sagittate spot, near the inferior tip of which on each side is a small black triangular spot ; *eyes* chesnut ; *proboscis* black ; *antennæ* black, basal and terminal joints pale beneath ; *vertex* black, hardly elevated above the eyes ; *thorax*, a yellow, anterior, transverse line interrupted in the middle ; *scutellum* ferruginous ; *wings* costal moiety black ; *halteres*

whitish; *feet* pale reddish-brown; *abdomen* clavate, incurved at tip, segments, excepting the ultimate one, margined at tip with yellow; *central connecting nervure* of the wing minute.

Length more than two-fifths of an inch.

2. *C. sagittaria*. Black, slightly hairy; humeral tubercle ferruginous; nearly two-thirds of the wing fuscous.

Inhabits Pennsylvania.

Body with short hairs; *head* yellowish white; *vertex* in one sex black, in the other dirty whitish; *front* with a longitudinal black line bifarious at the base of the antennæ, and a transverse one above; *hypostoma* with an impressed sagittate spot, on each side near the base of which, is a black spot; *proboscis* testaceous, blackish at tip; *antennæ* dusky above, beneath terminal joint rufous; *scutel* dirty rufous; *feet* rufous; *abdomen*, segments obsolete edged with yellowish, that of the petiole with dull cinereous; *central connecting nervure* of the wings very obvious.

Length eleven-twentieths of an inch.

This is a larger species than the preceding, with a much more considerable portion of the wings obscured, no interrupted thoracic fascia, and a much longer connecting nervure on the centre of the wing.

ZODION. *Latr.*

Z. fulvifrons. Cinereous, front fulvous; thorax with two distant brown lines.

Inhabits Maryland and Pennsylvania.

Head beneath, *mouth*, *hypostoma* and *orbital line*, pure white; *proboscis* black; *antennæ* fulvous, first joint ferruginous, second with a dusky line on the superior edge; *occiput* blackish; *poisers* pale yellowish, *style* rufous; *feet* dull rufous, *tibia* white on the exterior edge; *tergum* with two irregular blackish lines, terminal segments testaceous.

Length rather more than three-tenths of an inch.

On flowers.

2. *Z. abdominalis*. Testaceous; thorax dusky; proboscis black.

Inhabits near the Rocky Mountains.

Body with numerous short hairs; *head* silvery; *vertex* testaceous; *antennæ* pale rufous; *eyes* and *stemma* reddish-brown; *proboscis* black; *thorax* dusky cinereous, with two dorsal abbreviated fuscous lines, and an obsolete intermediate one; *wings* hyaline, immaculate, *nervures* at base testaceous, towards the tip fuscous; *abdomen* and *feet* testaceous.

Length to the tip of the abdomen rather more than one-fourth of an inch.

I obtained an individual at Engineer Cantonment, less than half the above mentioned size.

DOLICHOPUS, *Fab.*

1. *D. siphon*. Green; wings bifasciate; feet whitish.

Inhabits the United States.

Body green brilliant; *hypostoma* pruinose; *front* blue; *antennæ* and *palpi* black; *proboscis* yellowish; *thorax* tinged with blue; *scutel* blue; *wings* with two brown or fuliginous, somewhat oblique bands beyond the middle, which do not attain the thinner margin and are connected on the costal margin by a dilated line of the same colour, forming a siphon-like mark; *pectus* on each side with a somewhat silvery reflection; *feet* whitish; *tarsi* dusky.

Length one-fourth of an inch.

Not uncommon; the terminal segments of the *tergum* of the male are tinged with golden, but the ultimate segment in each sex is blue. Central nervure furcate, the exterior branch widely angulated and terminating near the tip of the preceding nervure.

2. *D. unifasciatus*. Bluish-green; a white band at the base of the abdomen.

Inhabits Pennsylvania.

Body bluish-green, polished, slender; *antennæ*, *palpi* and *proboscis* whitish; *scutel* blue; *wings* immaculate; *feet* whitish; *tergum*, first segment and half of the second whitish, posterior half of the second segment and third segment much tinged with blue, remaining segments green.

Length one-fourth of an inch.

Central nervure of the wing furcate, the exterior branch widely angulated and terminating near the tip of the preceding nervure, which is curved very considerably inwards, towards its tip.

4. *D. obscurus*. Blackish-brassy; wings dusky; feet pale.

Inhabits Pennsylvania.

Head dark-silvery; *antennæ* black-brown; *mouth* blackish; *thorax* and *scutel* dark-brassy; *wings* dusky; *feet* white, a little dusky on the *tarsi*; *poisers* white; *tergum* rather darker than the *thorax*.

Length less than three-twentieths of an inch.

The central nervure of the wing is nearly rectilinear, being hardly perceptibly reflected.

5. *D. femoratus*. Green; *tibia* and *tarsi* whitish.

Inhabits Pennsylvania.

Body brilliant green, with bluish reflexions; *front* pruinose; *antennæ* blackish; *proboscis* yellowish; *wings* hyaline; *scutel* blue; *thighs* green and excepting the posterior ones, whitish at tip, *tibia* white, *tarsi* dusky; *tergum*, ultimate joints cupreous at their bases.

Length three-twentieths of an inch.

The brilliancy and shade of green in this insect are similar to *D. siphon*; when living, and in the sun's rays it resembles burnished gold, nervures nearly as in *siphon*.

6. *D. cupreus*. Green, varied with cupreous; *feet* whitish, tipped with dusky.

Inhabits Maryland.

Front pale, with minute silvery hairs; *vertex* purple-blue; *antennæ* pale, yellowish, black on the upper edge and at tip; *palpi* and *proboscis* pale-yellowish; *thorax* cupreous; *scutel* greenish-brassy; *feet* whitish, dusky at tip; *tergum* green, varied with cupreous, posterior margins of the segments cupreous.

Length one-fourth of an inch.

This species is more robust than the preceding ones. I obtained several specimens on the Eastern shores of Maryland and Virginia. Central nervure abbreviated, but angularly connected near its tip to its parallel branch, by a short nervure, which inclines a little towards the base of the wing.

7. *D. patibulatus*. Green; wings bifasciate; feet black.

Inhabits E. Florida.

Body green, brilliant; *hypostoma* pruinose; *antennæ* and *palpi* black; *proboscis* piceous-black; *wings* with two brown or fuliginous bands beyond the middle, perpendicular to the costal edge, not attaining to the inner margin, and connected on the costal margin by a dilated line of the same colour; *feet* black; *thighs* and *coxæ* blackish-blue.

Length rather more than three-twentieths of an inch ♂.

This species closely resembles *D. siphon*, but it is much smaller, the bands of the wings without any obliquity, and the feet entirely coloured.

SARGUS, Latr. Meig.

S. viridis. Body green, polished; wings dusky; eyes above brassy.

Inhabits the United States.

Body green, polished, varied with brassy and in a certain light purplish, and covered by very short hair; *eyes* very large, brown, when recent deep-green, polished beneath, above tinged with brassy, sub-opaque,

and separated from the green of the inferior portion, by a red line; *antennæ* black; *labia* pale; *tibia* blackish.

Length seven-twentieths of an inch.

Var. a. Bluish-purple.

Var. b. Bluish-purple; abdomen green.

A very pretty species, I found it near Cincinnati, perched upon a leaf; it is also an inhabitant of the Atlantic states. It has a bright-green appearance, although covered with very short hairs, but these are hardly discernible to the unassisted eye. It is closely allied to *S. xanthopterus*, Fab. but the joints of its feet are not yellowish, as those of that species are.

SCÆVA, *Fabr. Latr.*

1. *S. polita*. Thorax with a yellow line each side, and a cinereous dorsal one; tergum with bands and quadrate spots yellow.

Inhabits the United States.

Head yellow, above the *antennæ* dusky silvery; *thorax* somewhat olivaceous, a yellow line above the wings and a dorsal cinereous one; *scutel* dusky yellowish, with a paler margin; *feet* whitish; *tergum* black, basal segment with a basal and lateral edge; second segment with a transverse yellow band on the middle; third and fourth segments with a band and longitudinal line, each side of which latter is a large transverse subtriangular spot, yellow, fifth segment with the yellow spots and base, but destitute of the longitudinal line.

Length about three-tenths of an inch.

2. *S. obliqua*. Thorax greenish bronze, with a yellow dot before the wings; tergum banded and spotted with yellow.

Inhabits the United States.

Head yellow, a dusky line above the antennæ; *orbits* yellow to the vertex; *antennæ* blackish on the superior edge; *thorax* dark green-bronze, a large yellow spot before the wings; *scutel* bright-yellow; *feet* whitish, *anterior tibia* and *tarsi* a little dilated, the latter with short joints, *posterior thighs* with one obsolete band and *tibia* two banded, extremity of all the *tarsi* dusky; *tergum* black, first segment with a yellow basal edge; second segment with a band at the base, interrupted into two oblong triangles, a broader one on its middle, yellow; third segment with one band which is sometimes double; fourth and fifth segments each with an oblique oblong oval spot each side, and two longitudinal lines on the middle, yellow.

Length about three-tenths of an inch.

Resembles the preceding, but there is no line upon the thorax, and the markings of the tergum are different.

3. *S. concava*. Thorax bluish-green, tergum with four yellow bands.

Inhabits Pennsylvania.

Head whitish, sericeous; *antennæ* pale testaceous; margin of the mouth dusky; *thorax* bluish-green, with pale cinereous hairs; *scutel* dusky, somewhat livid; *feet* whitish, dull rufous at base; *pectus* dark glaucous; *tergum* black, quadrifasciate with yellow;

first band interrupted, triangular each side, the others concave behind, terminal one narrow.

Length more than seven-twentieths of an inch.

Very much resembles *S. ribesii* of authors, but the second and third bands of the tergum are widely concave behind, instead of being almost acutely notched, as in the common European species. I obtained several pupæ, of this insect, adhering by the inferior part of the abdomen to the rails of a fence. The included insect was evolved on the 22nd of April.

4. *S. quadrata*. Thorax bluish-bronzed; abdomen with eight very large quadrate yellowish spots.

Inhabits the United States.

Head bluish-bronze, with short cinereous hair; frontal elevation dusky; *antennæ* dark reddish-brown; *thorax* and *scutel* bluish-bronze, polished, immaculate; *feet* testaceous; *anterior tibia* and *tarsi* of the male dilated, the joints of the latter much shortened; first and last joints of the posterior tarsi blackish; *tergum* with eight very large, quadrate, fulvous spots, occupying nearly all the surface, leaving only a dorsal line, and incisures black, the two spots of the penultimate segment are hardly separated, sometimes united into a continuous band, and the ultimate or anal segment is immaculate, somewhat livid; *venter* yellow, whitish at base.

Length one-third of an inch nearly.

This insect is very nearly related both in form and colours to *S. mellina*, Fab. but the spots of the tergum occupy a far greater portion of that part.

5. *S. emarginata*. Thorax dark green, with a yellow margin; tergum banded with yellow.

Inhabits E. Florida.

Front yellow; *antennæ* on the superior margin fuscous; a double blackish spot above the base of the *antennæ*; *thorax* dark-green, a yellow line each side; *scutel* yellow; *feet* yellow, *posterior thighs* and *tibia* dusky in the middle; *tergum* black; first segment yellow on the exterior edge; second segment with a transversely oblong oval spot on each side, attaining the exterior edge; third segment with the edge of the basal angles, emarginate band on the middle, not attaining the lateral edge, and posterior edge yellow; fourth segment with the edge of the lateral angles (which joins the tip of the preceding segment to form a narrow band,) band on the middle not attaining the lateral edges, and most profoundly emarginate behind, and posterior edge yellow; fifth segment with a triangular basal spot each side, and tip, yellow.

Length to the tip of the wings half an inch.

It requires some examination to perceive the difference between this insect and the *S. corollæ* of Fabr. but on inspecting the third and fourth segments of the tergum, it will be observed, that there are at least two more bands on our species; these bands are narrow and are formed by the confluence of the yellow and posterior edges of those segments with the yellow basal angles of the succeeding segments.

It is highly probable that the band on the middle

of the fourth segment, and perhaps also that on the third are sometimes entirely separated by their posterior emargination, each into two oval spots.

6. *S. marginata*. Thorax blackish, with a yellow margin; tergum spotted, banded and edged with yellow.

Inhabits the United States.

Head yellow, a blackish line above the antennæ; *thorax* blackish, tinged with olivaceous or glaucous, a lateral yellow line continued to the scutel and an obsolete dorsal cinereous one; *scutel* yellow; *feet* pale, *posterior tarsi* a little dusky at tip; *tergum* blackish, edged with yellow; first segment with a yellow basal edge; second segment with a yellow band on the middle; third and fourth segments each with a dorsal line and somewhat oblique spot each side confluent with the base yellow, sometimes tinged with rufous; fifth segment with two oblique yellow spots confluent at tip.

Length rather more than one-fifth of an inch.

This insect is smaller than the preceding ones, and may be readily distinguished from them by the yellow abdominal edge, as well as by the different arrangement of its spots. It is subject to vary in the character of its tergum, in having the spots sometimes almost confluent with each other, or in being coloured with rufous.

7. *S. gemminata*. Thorax with a yellow margin; tergum spotted and banded with yellow.

Inhabits the United States.

Head yellow silvery, at its junction with the tho-

rax glaucous; *antennæ* yellow; *thorax* bronze-blackish, a yellow line each side, and an obsolete cinereous dorsal one; *scutel* colour of the thorax, with a yellow margin; *feet* pale, posterior pair with the *thighs* and *tibia* arquated, the former blackish at tip, the latter sub-bifasciate with brown; *tergum* black; first segment yellow on the basal edge; second segment with a yellow band on the middle; third and fourth segments with each a central longitudinal line, and two triangular spots on each side; fifth segment four spotted.

Length about one-fifth of an inch.

About equal in size to *S. marginata* S. from which it may be known by its double lateral spots of the tergum, as well as by the absence of a yellow edging upon this part of the body.

9. *S. affinis*. Thorax blued-black; tergum black with three yellow lunules on each side.

Inhabits Arkansa.

Head whitish, between the superior angles of the eyes black; *antennæ* fuscous; frontal elevation, superior oral angle, and *proboscis* black; *thorax* and *pectus* blued-black, with long dense whitish hair each side; *nervures* testaceous; *scutel* pale testaceous; *feet* whitish, dusky at base; *tergum* black, with three lunules on each side, and the two terminal segments edged with yellow; *venter* yellowish, exterior edge and disks of the segments black.

Length to the tip of the wings three-fifths of an inch.

Size of *S. transfuga* Fab. which it very closely

resembles, and is to be distinguished by the somewhat darker colouring. Is it not a variety of that species?

RHINGIA, *Fab.*

R. nasica. ♂ Tergum yellow, incisures and dorsal line black.

Inhabits the United States.

Front yellow, beneath the mouth dusky; *nasus* prominent; *thorax* bronze, with two obsolete cinereous lines on the anterior margin; *scutel* pale testaceous, a large brown spot on each side; *feet* pale yellowish, *thighs* dull red brown at base, *posterior tibia* in the middle and first joint of the tarsi dusky; *tergum* black, a large transversely oblong quadrate yellow spot occupies each side of the disk, and extends to the lateral edge of each of the three basal segments.

Size of *S. rostrata*, *Fab.* to which it is very closely allied, but it has a larger portion of black upon the tergum, the incisural lines and the dorsal line being wider, and of a much more intense colour; the fourth segment also is much darker than in that insect. I have a female still more like the *rostrata*; the colour and markings of the head, thorax and scutel being similar, and the fourth segment of the tergum is much tinged with yellow, but still the above remark respecting the intensity of the colour of the sutures and dorsal lines apply to this specimen.

SICUS, *Meig.*

S. fenestratus. Blackish; feet pale, thighs with a black line.

Inhabits the middle states.

Antennæ yellowish-white; *palpi* pure white; *proboscis* colour of the *antennæ*; *thorax* piceous-black; *scutel* bi-spinous; *wings* a little dusky; *feet* whitish, *anterior thighs* dilated, with generally a black serrated curved line on the inner side, *anterior tibia* and *posterior thighs* and *tibia* with a blackish line on each side, a black spot generally on the first joint of the *anterior coxæ*; *tergum* brown, last joint black.

Length three-twentieths of an inch.

EMPIS, *Fab. Lat.*

1. *E. 5-lineata.* Body blackish-cinereous; *thorax* five-lined; *feet* dull testaceous.

Inhabits Missouri.

Eyes sanguineous; *front* beneath the *antennæ* cinereous; *proboscis* dark-brown; *thorax* with three longitudinal, hairy, brown, dorsal lines, obsolete behind, and a lateral one each side; *wings* brown, somewhat paler at base; *feet* brown-testaceous; *tarsi* black.

Length to tip of wings nearly half an inch.

The nervures of the wings are like those of *Tachydromia nigripennis*, *Fab.*

2. *E. cillipes.* Body cinereous; *thorax* quadri-lineate with black; *wings* brown, paler at base.

Inhabits Ohio.

Body blackish-cinereous; *eyes* red-brown, those of the male occupying nearly all the head; *stemma-ta* black; *antennæ* black, first and second joints with short cinereous hairs; *proboscis*, corneous, black, polished; *thorax* hairy, two longitudinal, dorsal black lines, obsolete behind, and a lateral one each side; *wings* brown, paler at base; *nervures* dark brown; *feet* black; *posterior tibia* in the male, dilated towards the tip and deeply hairy above, hairs cinereous; *abdomen* black, densely ciliated with cinereous hair, attenuated to an acute tip in the female, and in the male the tip is dilated, and abruptly reflected.

Length of the body three-tenths of an inch.

A rather common insect, about the 16th of May, near Cincinnati. The nervures of the wings are like those of the preceding species, from which it may be distinguished by being smaller and having one line less on the thorax, &c.

3. *E. scolopacea*. Cinereous, with a silvery reflexion; feet reddish-brown.

Inhabits Pennsylvania and Maryland.

Head black; *antennæ* dark reddish-brown; *proboscis* yellowish; *thorax* slightly trilineate; *tergum* immaculate silvery, reflexion brighter than that of the thorax; *wings* immaculate, nervures pale; *feet* dull reddish-brown.

Length rather more than three-twentieths of an inch.

On flowers.

CALOBATA, Latr. Meig.

1. *C. antennæpes*. Black; feet pale, anterior tarsi white, posterior tarsi white at base.

Inhabits the United States.

Body elongated, slender, deep black, immaculate; *eyes* chesnut-brown; *antennæ*, terminal joint white; *thorax* deep-black, with a plumbeous tinge; *feet* elongated, *anterior pair* moderate, shorter than the body, black, pale at base, *tarsi* pure white, *intermediate* and *posterior pairs* much longer than the body, pale, *thighs* beyond the middle, and near the tip annulate with black, *tibia* black, somewhat pale towards the tip, *tarsi* black, of the intermediate ones pale on the terminal joint, of the posterior ones, basal joint pure white; *abdomen* deep black, polished, *venter* pale beneath on the middle segments.

Length of the body three-tenths, of the posterior feet less than three-fifths of an inch.

The anterior pair of feet, when compared with the others, are very short, and being extended before the head, considerably elevated above the plane on which the insect moves, and also being constantly vibrated, they assume the appearance of antennæ. The whiteness of the anterior tarsi is very distinct and characteristic.

This species occurred in the State of Illinois, it is also found in Philadelphia.

2. *C. pallipes*. Black; mouth, antennæ and feet yellowish-white.

Inhabits Missouri.

Body black, elongated, slender; *front*, *antennæ* and *mouth* yellowish-white; *vertex* velvet-black, opaque, margined each side by a silvery line; *thorax* with a whitish line each side before the wings; *nervures* pale; *feet* including the *coxæ* yellowish-white.

Length to the tip of the abdomen, more than one-fourth of an inch.

A much smaller species than the preceding.

LOXOCERA, Latr.

L. cylindrica. Yellowish-rufous; feet paler.

Inhabits Pennsylvania.

Body yellowish-rufous; *head* obsoletely varied with dusky behind the vertex; *antennæ* fuscous, pale at base, beneath the head whitish; *thorax* with an undulated band on the anterior margin, dorsal line and an obsolete line before the wing, black; *wings* a little dusky, particularly at tip; *feet* whitish; *abdomen* immaculate.

Length less than three-tenths of an inch.

Var. a. Lineations of the thorax obsolete or wanting.

About the size of *L. ichneumonea*, Fab. but it differs from that insect in many characters.

PYROPA, Illig.

P. furcata. Yellowish, hairy; below the scutellum pale plumbeous; wings with two dusky anastomoses.

Inhabits Missouri.

Body pale yellowish-brown, hairy; *head* beneath the antennæ, and narrow orbits yellowish-white, a little polished; *antennæ*, and large spot above bifurcated at tip, rufous; *proboscis* piceous; *thorax* lineated obsoletely with brown; *wings* with two blackish anastomosis; beneath the scutel tinged with pale plumbeous extending downward to the origin of the posterior feet; *tergum* densely hairy; *feet* hairy, particularly the anterior pair, the thighs of which are marked by a dilated dusky line above.

Length to the wing tips from two-fifths to nine-twentieths of an inch.

Rather less than *P. lutaria*, which it very strongly resembles, but may be distinguished by the dusky mark on the anterior thighs.

OCHTHERA, Lat.

O. empiformis. Whitish; *tergum* black; *head* cinereous; *eyes* very large, black.

Inhabits Illinois.

Body whitish; *head* cinereous, sub-globular; *eyes* oval, very large, approximating beneath the origin of the antennæ black; *antennæ* whitish, abruptly broken outwards at the third joint; *rostrum* pale; *thorax* dusky above; *feet* white, *anterior*s, *thighs* dilated, robust, emarginate behind the inferior middle, for the reception of the tips of the tibia, and armed beneath with distant, equidistant, rather long setæ, *tibia* incurved at tip and mucronate, armed beneath with

approximate, short, setæ, *intermediate* and *posterior* feet white, tips of the *tarsi* blackish; *abdomen* deep black, immaculate.

Length of the body one-tenth of an inch.

SCENOPINUS, *Latr. Fab.*

S. pallipes. Thorax black, a little metallic, a small rufous tubercle on the edge near the humerus; feet pale.

Inhabits Pennsylvania.

Head black, slightly metallic, with numerous short hairs, giving it a granulated appearance, a glabrous polished frontal and orbital line; *thorax* with numerous short hairs and with the scutel appearing granulated, an obsolete rufous tubercle on the lateral edge near the humerus; *wings* a little dusky, *nervures* brown; *poisers* yellowish, on the superior surface dark-brownish; *feet* pale-yellowish, *tarsi* dusky; *tergum* black, transversely grooved, polished; *venter* black, with a metallic tinge.

Length ♀ less than one-fifth of an inch.

This species is very closely allied to *S. fenestratus*, *Fab.*

BACCHA, *Meig.*

B. fuscipennis. Bronzed; wings dusky, with a whitish spot at the extremity.

Inhabits Pennsylvania.

Body dark bronzed; *head* yellowish, above the

antennæ bronzed; *wings* dark fuliginous, with a hyaline marginal on the thinner margin near the tip and near the base; *feet* dull testaceous, posterior pair much the longest; *abdomen* elongated cylindric, tinged with rufous.

Length two-fifths of an inch.

HELEOMYZA, Fall.

H. 5-punctata. Light reddish-brown; wings with a few fuscous spots; tergum fasciate with black.

Inhabits Missouri.

Body pale reddish-brown; *vertex* tinged with fulvous; *eyes* dull sanguineous; *antennæ* reddish-brown, *seta* black, plumose, at base separated by a slightly elevated, obtuse, abbreviated carina; *front* yellowish-testaceous; *gula* and *jugulum*, whitish; *thorax* with numerous black points, and two dorsal series of setæ; *wings* dusky, five blackish spots, of which two are on the anastomoses and three at the tip, costal edge with short rigid setæ; *pectus*, *venter* and *feet* whitish-testaceous, three terminal tarsal joints black; *tergum* paler than the thorax, posterior margins of the segments with a definite black band.

Length to the tip of the wings seven-twentieths of an inch.

Very common on the Missouri, I observed it particularly above Cow-Island.

OLFERSIA, Leach.

O. albipennis. Blackish-brown; wings whitish.

Inhabits *Ardea herodias*.

Mentum white; *thorax* with the cruciate lines distinct, the longitudinal line tinged with yellow, humeral tubercle prominent, pale, obtuse; *scutel* with an impressed line; *nervures* brown, inner cellule less than half as long as the preceding one which extends to the base of the wing; *pectus* with a prominent angle each side between the anterior pairs of feet; *tergum* pale-brownish, with a black base, disk and tip.

Length one-fifth of an inch.

ORNITHOMYIA, *Latr. Leach.*

1. *O. nebulosa*. Head yellow; feet pale; tibia with two reddish-brown lines.

Inhabits *Strix nebulosa*.

Eyes blackish-brown; *vagina* and *hypostoma*, pale; *thorax* reddish-brown, with a large yellowish humeral spot and three longitudinal lines, of which the intermediate one includes an impressed line, which interrupts a transverse impressed line; *humeral angle* prominent, subacute; *spiracle* white; *marginal nervures* blackish-brown, those of the disk brown; *scutel* reddish-brown, varied with yellow at base; *pectus* yellow-white, anterior margin bifurcated; *tarsi* dark reddish-brown, *nails* black; *abdomen* pale-brownish, with black hair, first segment on its anterior face pale-yellow.

Length three-tenths of an inch.

2. *O. pallida*. Pale; intermediate cellule of the wing extending nearly to the tip of the outer cellule.

Inhabits *Sylvia sialis*.

Eyes blackish-chesnut; *antennæ* chesnut, tip white; *labrum* bifurcated, white; *hypostoma* whitish; *front* yellow-white, a brown lunule above the hypostoma and spot on the vertex; *throat* and *cheeks* white; *thorax* variegated with pale-yellowish and pale honey-yellow, impressed cruciform lines distinct; *scutellum* pale honey-yellow, edged with pale-yellow; *costal nervures* dark-brown, at base, and those of the disk brown, the transverse nervure of the intermediate cellule is in contact with that of the preceding cellule; *pectus* and *feet* white, *tibia* with a brown line, *tarsi* tinged with green; *nails* black; *abdomen* yellowish-white.

Length less than one-fifth of an inch.

3. *O. confluenta*. Reddish-brown; costal nervures of the wing confluent before their termination.

Inhabits *Ardea candidissima*.

Vertex with a deeper brown spot; *occiput* pale yellowish; *humerus* with a pale spot, the angles not at all produced, obtuse; *costal nervures* fuscous; *feet* yellow-brown, *tibia* with a dark-brown line, *nails* black.

Length rather more than one-tenth of an inch.

The remarkable character of the costal nervures of this species sufficiently distinguish it from others; these nervures are confluent about half the length from the termination of the first cellule to their tip.

MELOPHAGUS, *Latr. Leach.*

M. depressus. Pale testaceous; eyes subovate.

Inhabits *Cervus virginianus*.

Body polished, a little hairy, but appearing perfectly glabrous to the eye; *hypostoma* yellow, with two brown lines; *vertex* dusky, with three indented punctures; *thorax* unequal, with an impressed line in the middle, with a dark reddish-brown posterior and lateral edge; *feet* slightly hairy, claws black; *pectus* with transverse rows of very short black spines; *tergum* depressed, punctured, two impressed lines diverge from near the base to the margin, beyond the middle; *venter* paler than the tergum, with short prostrate black hair-like spines, and an arquated series of spines near the base.

Length less than three-twentieths of an inch.

This appears to be a much smaller species than the *Hippobosa cervi* of Oliv. to which it is very probably allied, though on comparison with Oliver's description I conclude it is very sufficiently distinct. It has like that insect slight rudiments of wings.

Account of the Pyroxene of the United States, and descriptions of some new varieties of its crystalline forms. By G. TROOST, M. D. Read June 10, 1823.

Pyroxene like Quartz, has become the Proteus of mineralogy, and perhaps with the exception of Quartz, no mineral offers more apparent anomalies: we find it in black rough crystals, as the volcanic Augite, and in smooth, shining, polished, transparent, green crystals, as the Diopside; we find it again forming crumbling greenish black masses, as the Cocolite, and composing probably the substance of which the hard compact Basalt is formed. It required the skilful and penetrating eye of a Haüy, to discover under all these metamorphoses, the same substance, and to make of it one extensive family, under the name of *Pyroxene*; the correctness of which arrangement has been more and more established by the subsequent controversy which it has occasioned between those distinguished crystallographers, Abbe Haüy and Count de Bournon.

Our country, which has of late contributed as much to mineralogy as any other part of the world, has afforded several new varieties of Pyroxene. Who would have thought the white crystals which are found near Baltimore, Maryland; Kingsbridge, New York; and Delaware county, Pennsylvania; to be Pyroxene? Who would have supposed the crystals lately brought from Franklin, New Jersey, by Mr.

Jessup, for siliceous oxide of Zinc, and some other crystals, not yet named, from the same place, to belong to the same family? nevertheless, a close examination of their crystalline forms will convince us that this is the case.

In examining the different varieties of Pyroxene of the United States, I have discovered some new forms, and I now offer to the Academy a description of them, and will add the figures of some already long known, which I have thought necessary, in order to explain why I have added to the Pyroxene family a substance, which some months ago was described in our Journal as a new mineral, under the name of Jeffersonite.

In 1821, Messrs. John P. Wetherill and Benjamin Say, presented me with a mineral unknown to them, which they had collected near Sparta, New Jersey. This mineral being in prismatic crystals, having a lamellar structure, the lamina forming an angle of nearly 106° with the sides of the prism, I conjectured to be *Pyroxene*. I neglected afterwards to investigate whether my conjectures were well founded, until I became acquainted with a paper written by Professor William H. Keating, on a mineral called *Jeffersonite*, when I examined my specimens, expecting to find them to be the same, but found that my first conjecture was true in relation to their being *Pyroxene*. Lately having obtained some well defined crystals and fragments of what is called Jeffersonite, I submitted them, together with a mineral from Compton hill, New

Jersey, to a close examination, and found that they all coincided with the first specimen which I received of Messrs. J. P. Wetherill and B. Say, and that they offered some new varieties of crystalline form of Pyroxene, as well as some of the already described and secondary forms of Häüy.

The specimens presented to me by Messrs. W. and S. are composed of crystals of Scapolite dioctædre, small hexaèdral prisms of green phosphate of Lime, hexaèdral laminæ of Graphite and Pyroxene. This latter is crystallized in perioctaèdral crystals, and a new variety formed by an eight-sided prism, terminated with four-sided pyramids. These crystals have a remarkably foliated structure, and are easily broken in the direction of their lamina. They form an angle of 106° and 84° with two of the sides of the prism that is with face *r*, fig. 2. and of course are parallel to the base of the rhomboidal prism or nucleus; this induced me at first to suppose it to be Pyroxene, although apparently different from it. The crystals have a green-gray colour, inclining somewhat to whitish-gray, sometimes to blackish-gray; they are hard enough to scratch glass, but are acted upon by a file, when they give a grayish-white powder; its external lustre is shining, sometimes rough and dull; it melts before the blow-pipe with difficulty; it is in one direction (that is parallel to the bases of its nucleus) foliated, which folia have the thickness of from one-twentieth to one-sixteenth of an inch. The transverse fracture is rough.

Some of the edges of the crystals are very much

rounded, which gives them the appearance of cylinders, and those groups broken across the crystals resemble very much the fracture of *Pyroxene mussite*.

As this in its external appearance so much differs from known varieties, I would propose the name of FOLIATED PYROXENE.

Shortly after I obtained the above variety, a paper was published by Professor William H. Keating, on the Jeffersonite, a mineral discovered at the Franklin iron works, near Sparta, by L. Vanuxem and W. H. Keating. The specimens of this substance were at that time very rare, but this place having been subsequently visited by Mr. Jessup, it is to his generosity I owe the specimens which have been the subject of my researches.

These examinations show this new mineral to be *Pyroxene*, and that some of its crystalline forms are those described thirty or forty years ago, by the father of crystallography, Romé de Lisle, under the name of *Schorl noir en prisme octaédre*. Tom. 2. p. 398.

It seems Professor Keating was led into error by mistaking the base of the primitive form, for one of the sides; "It presents, he says, (Journal of the Academy of Natural Sciences, vol. 2. p. 196,) three distinct cleavages, two of which are considerably easier than the third; these cleavages lead us to a primitive form, which is a rhomboidal prism, with a base slightly inclined. The angles of the prism are 106° and 74° , those of the inclination of the base are $94^\circ 45'$ and $85^\circ 15'$." According to my observations,

he mechanical division of the crystals leads to a rhomboidal prism, one of the edges of which forms with the base an angle of 106° and the opposite edge an angle of 74° . The cleavage parallel to the base and two of the sides are easily obtained, offering very smooth surfaces; the third cleavage is very difficult to obtain, offering an apparently smooth, though (when examined by a magnifying glass) rough surface, which will give at one time angles of 92° and 88° , at other times, angles of different inclinations, so that I have had recourse to the secondary forms to determine those angles, from which it appears that the primitive form is an oblique rhomboidal prism, in which the smaller angle, that is, the angle M upon M (fig. 1,) is $87^\circ 42'$, and the larger $92^\circ 18'$. The angle which the base P makes with the edge H is $106^\circ 6'$ and of course with the lower base $74^\circ 54'$. I found also one perfect cleavage, parallel to the larger diagonal of this prism, so that its primitive form perfectly coincides with that of Pyroxene, (Haüy *Traité de Mineralogie*, Tom. 2. p. 407, seconde édition) and as all its secondary forms, amounting, as far as I know, to four, correspond perfectly with those of Pyroxene, I will now describe it under the name of *Foliated Pyroxene*.

This mineral occurs in large crystallized masses; Mr. Jessup has one in his possession which is 14 inches in length, and contains crystals of from 2 to 6 inches in diameter. The interesting collection of Mr. Joseph Cloud includes large and well defined

groups ; it occurs also, in large lamellar masses of more than a foot in length, and several inches in breadth and thickness, the lamina being more perfect in one direction, that is, parallel to the bases of its crystalline nucleus, which makes it very much resemble the roofing slate.

Its specific gravity varies from 3.45 to 3.56.

Its colour is sometimes dark olive-green, passing into different shades of brown, from light yellowish to blackish-brown and even perfect black.

The thinnest lamina of the specimens I have in my possession, is perfectly opaque, even at its edges.

The fracture is lamellar in two directions (more perfectly in one than the other) the cross fracture is uneven.

As to its hardness, it does not coincide with the other varieties of Pyroxene, being one of those which seems to be susceptible of decomposition, it varies from soft (that is susceptible of being scratched by the finger nail) to a hardness sufficient to scratch glass.

The colour of the powder differs according to the degree of hardness of the mineral, the hard dark green variety giving a light green.

The degree of fusibility differs also, according to the degree of hardness, the hard green variety melts with some difficulty, the soft is infusible.

As to its chemical composition, it certainly differs from the known varieties. The constituent parts are, according to the analysis of Professor Keating,

Silex	56.0
Lime	15.1
Protoxide of Manganese	13.5
Peroxide of Iron	10.0
Oxide of Zinc	1.0
Alumine	2.0
Loss by calcination	1.0
Loss	1.4
	100.0

As to the *silex*, this corresponds nearly with other varieties, which amounts in the different analyses made by *Vauquelin*, *Klaproth* and *Laugier* from 50.0 to 51.0. *Lime* in the above mentioned analyses, from 9.0 to 24.0, that of Professor Keating, is 15.1. *Magnesia* amounts from 10.0 to 19.0, it is entirely wanting in the analysis of Professor Keating. *Alumine*, from its entire deficiency as in *Pyroxene Muscite*, to 7.25, in our variety it enters only 2.00. *Oxide of iron*, from 2.00 to 16, in that of Professor Keating 10.0. *Oxide of manganese*, in the above mentioned analyses, from its entire want, as in the lamellar *Pyroxene* of *Klaproth* to 3.00; in the analysis of Professor Keating 13.5. In the analysis of Professor Keating, *oxide of zinc* enters 1.00. We see here that *magnesia* is wanting in the analysis of Professor Keating, whilst we find in the *Sahlite*, *Malacolithe* and *Mussite* as much as 19.0. But *Haüy* has already remarked the existence of sometimes a greater and at others of a smaller proportion of *magnesia* in *Pyroxene*, *mussite* and *sahlite*. "Tis true," says he, (*Tabl. Compar. pag. 178*) "the *mussite* and *sahlite* have given upwards of one-third

more of magnesia than the other varieties, but we know the reason of it, at least respecting muscite, the only one of which the mineralogical position is perfectly known, because according to Mr. De Bonvoisin the environs are composed of serpentine rocks." Now we know that in the vicinity of Sparta and Franklin, no magnesian rocks occur, and though it is uncommon to find Pyroxene without magnesia, nevertheless, there are instances in which, as in our Pyroxene, the magnesia is wanting, as is seen in an analysis performed by Roux of a crystallized variety of Pyroxene, from Arendal, and in another by Klaproth of a slaggy variety of Pyroxene from Sicily, in which only 1.75 enters. As to the zinc, this is probably ascribable to the red oxide of Zinc, which is abundant in that vicinity; it seems all the minerals from that locality are more or less impregnated with zinc, we know that the oxidulated iron of that place has given much zinc,* and has been made (for that reason) a new species, under the name of Franklinite; we find the Spinel zincifere, and I do not doubt but that in many other minerals of that locality, zinc will also be found, without its being considered as a necessary constituent. Most mineral substances are, I think, influenced by the locality in

* In a variety of iron ore of this locality, which I examined, I did not discover zinc, but titanium, so that there are two varieties of iron ore at that place, the one zinciferous oxide of iron (Franklinite) the other titaniferous oxide of iron; the latter is crystallized in regular octahedrons, the edges of which are emarginated.

which they are found, which is perhaps more perceptible in substances with a lamellar or foliated structure, than those of a more compact texture; we scarcely find any thing except silex in crystallized Quartz, in whatever locality it may occur.

It is perhaps to this difference in chemical composition that we have to ascribe its decomposibility. It is generally supposed that Pyroxene is not easily decomposable, at least heat seems to have only a feeble action upon it. It is known that the acid vapours of volcanoes do not act upon Pyroxene until after a long time. Nevertheless instances of Pyroxene in a state of decomposition occur, and according to some mineralogists, it offers two different states of decomposition. In the one it becomes of a rusty or earthy yellow, preserving its lamellar structure and is friable: some naturalists have made of it a species under the name of Limbilité; the lavas of Brigsaw, Bourbon and Teneriffe offer instances of this kind. The other state of decomposition which the Pyroxene undergoes is this; it becomes green, with an earthy aspect, loses its internal structure and other characters, but preserves its form; this kind of decomposition we observe in transition rocks of the nature of Wacke, as is seen in the rocks composing mount Pazza, in the valley of Fassa, in Tyrol. The rock is a Wacke which contains crystals of Pyroxene (var. *bisunitaire*) thus altered and transformed into a kind of green earth or Chlorite of Verona, (green fossil, Werner.)

These facts would induce us to believe that there exist two different varieties of Pyroxene, the one

easily decomposable, and the other not: the Pyroxene now under examination, seems to belong to the first or easily decomposable varieties, and perhaps corresponds with that which is called *limbilitite*. We find it, as I have stated, of an ochrey yellow colour, an earthy appearance, and sufficiently soft to be scratched with the finger nail, having, nevertheless, preserved its lamellar structure. By dividing mechanically a crystal in order to detect the direction of the lamina, I cut it upwards of one-eighth of an inch deep with a common knife, without injuring its edge; it then became harder and harder, and at last hard enough to scratch glass: in all these stages of decomposition, the structure was preserved: this is probably ascribable to its chemical composition, perhaps to the absence of magnesia, or the presence of zinc. Those varieties which are slightly decomposed have all the appearance of a variety of earthy oxide of manganese, the structure excepted; they offer a dull brownish black earthy surface, soil the fingers before the crystals are washed or rubbed. The edges of the crystals, as in some varieties of *P. coccolite*, are very much obliterated, as if they had undergone a partial fusion.

The gangue upon which these crystals occur, is a granitic mixture of lamellar Feldspar, and the same lamellar Pyroxene; in some places the Feldspar, in others, the Pyroxene predominates; sometimes they are found in it, in nearly equal parts, and of course it belongs to those rocks which are

called *Dolerite* or *Mimose* ;* we find it also associated with Garnet, zinciferous and titaniferous oxide of Iron, Zircon, Scapolite, Amphibole, &c.

* This rock is generally supposed to belong exclusively to volcanic formations, and as a type of it, the rock is given, which covers the top of the Meisner in Hessa, and which is found also at Guadaloupe, among the volcanic productions of Houelmont. In this variety, as in ours, the lamellar Feldspar and Pyroxene, are often enveloped by a yellow or brown earthy substance, which is here the Pyroxene in a state of decomposition, and not an earthy Dolerite, as is supposed in regard to the variety of Guadaloupe. This rock is probably abundant in the United States, perhaps the rocks in the vicinity of the Franklin iron works, described as a Sienite, are of this nature ; certain it is that large masses are found in that vicinity, of the same rock as that which I have described. The rock in which Mr. Jessup obtained some of his specimens, is a block, according to his recollection, of from 1500 to 2000 cubic feet ; where the surface offered an area of perhaps 150 square feet, which was studded over with crystals of Pyroxene, some of which were six and eight inches in diameter. According to the observations of Mr. Lardner Vanuxem, the granitic formation, extending from near Richmond, Virginia, to Columbia, South Carolina, contains near the latter place, two veins of Pyroxene. We also find a granitic rock, composed of Pyroxene, lamellar brown Feldspar and Quartz, at the Brandywine creek, near Wilmington, Delaware State ; near West Point, New York State ; and at Compton hill, New Jersey ; those places have no appearance of being volcanic ; and without entering into the Volcanic or Neptunian controversies, or the discussion whether those or other substances are produced by fire or water, I think for my part, that the presence of Pyroxene favours neither the one nor the other system. It seems only that those rocks in which the Pyroxene occurs, are

Let us now see what regular crystalline forms we find in this variety, and which have convinced me that it is Pyroxene. Besides some new or undescribed forms, I found the *bisunitaire* of Haüy, fig. 3. pl. vi. and the *triunitaire* of Haüy, fig. 4, forms which have been described by Romé de Lisle.

I found also a form, which has not as yet, to my knowledge, been described, and which I call

PYROXENE TRIUNITERNAIRE.

M¹H¹ G¹ P E¹ E²A³ fig. 5. pl. vi.
M r e P s u

The prism of this crystal is contracted in the direction of its axis, being only one inch in height, whilst it is elongated in the direction of the face P, being in that direction two inches and one-fourth, which would induce the belief that it is an eight-sided prism, terminated by a pyramid, formed by the faces M r and u, and would of course be denominated *triunitaire anamorphique* (inverted form) as the crystal cannot be placed in its apparent natural position, without inverting the nucleus. The surface of the crystal, of which I have only one termination perfect, is rather rough, and studded over with minute

not of the oldest granite formations, but of a formation immediately following; and as to its abundance in volcanic substances, this is only a sign that the craters of these volcanoes are situated in those strata in which the Pyroxene exists, which have been fused and ejected with the a priori existing and unaltered crystals of Pyroxene.

crystals of Zircon, (var. *prisme*) of a hyacinth and gray colour. This crystal was first found by Messrs. Vanuxem and Keating.

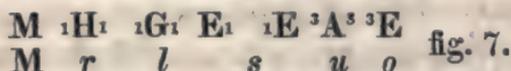
PYROXENE UNITAIRE.

M H₁ E
M r o fig. 6.

This crystal offers an instance of an opposite operation in the formation of crystals; it is contracted in the direction of the edge *x*, in consequence of which the faces *o*, *o*, are narrow and the faces *M m* nearly linear, forming thus a kind of tabular hexaèdral crystal, with two of the sides bevelled; the face *r* offers a surface of nearly one inch by one inch and a half, the thickness of the crystal is more than one-eighth of an inch. I owe to the kindness of Mr. Jessup, the discoverer of this variety, a group, in which the crystals are very much bent; they are implanted with emarginated octaèdrons of oxidulated iron (probably titaniferous) in a gray lamellar Carbonate of lime, which has also this remarkable quality, that it is as easily divisible in the direction of the larger diagonal of the primitive rhomboid as in the direction parallel to its sides. These crystals were supposed to be siliceous oxide of Zinc, perhaps because its form had some resemblance to a crystal of that mineral, (Zinc oxide unitaire, Haüy) which actually occurs there. in an amorphous and crystalline state. But subjecting the same to measurement, I soon discovered that it was not the case, the summit of the oxide of Zinc forming an angle of 120° and of

M with r an angle of 130° ,* which is not the case with the form now before us; the inclination of o upon o is $95^\circ 28'$, from M upon o $145^\circ 9'$.

PYROXENE PYRAMIDE.



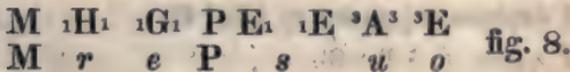
This form belongs to a group, which I owe to the generosity of Messrs. John P. Wetherill and Benjamin Say, and it was the first, to my knowledge, discovered there. The crystals have a remarkably foliated structure, the lamina are situated in an oblique

* We see here the effects of the want of a good crystallographical treatise in our language, the knowledge of crystallography being of much importance in the determination of the family to which a mineral belongs. I know that those who are not favourable to this science, say, that one might travel from Philadelphia to Florida and find scarcely any crystals; whereas they would find amorphous minerals at every step; but I ask those, if the knowledge of crystallography does not teach them to extract by cleavage, the primitive nucleus of minerals, by which they may determine to what family a specimen belongs? an amorphous mass of lamellar Feldspar, Amphibole, Pyroxene, Carbonate of lime, Gypsum, &c. gives the same nucleus or primitive form as one of their best defined crystals. Thus (in one of the numbers of this Journal) Mr. H. Seybert, regarding only chemical composition, placed a mineral, which was supposed to be Hypersthene with Amphibole, whilst Mr. L. Vanuxem, from its crystalline structure, has been enabled to ascertain its true nature, and has proved it to be Pyroxene. Haüy long before the constituent parts of many minerals were known, combined and separated them into families, and the correctness of his arrangements have been subsequently fully confirmed by chemical analyses.

direction, forming with one of the sides an angle of 106° , and with the opposite side, an angle of 74° ; it is an eight-sided prism, terminated by four-sided pyramids, two of these sides being bevelled at their bases. They are imbedded in lamellar Carbonate of lime, and associated with Scapolite (*dioc-taèdre*) green Phosphate of lime, (*primitive*) and Feldspar, all interspersed with lamellar Graphite, which often occurs in hexaèdral plates.

In the same group occurs the *perihexaèdre*, fig. 2. and the *perioctaèdre*, the same form as the former, having the edges between M M replaced by a face formed by the decrement of one row of molecules to the right and left of the edge G, fig. 1; they have a grayish-green colour, approaching sometimes to grayish-black; the external lustre of some crystals is sometimes smooth and shining, sometimes cariated and dull; the internal lustre is dull. Its fracture resembles, in some parts, the fracture of some varieties of muscite; the crystals are from a small size, to upwards of an inch in length.

PYROXENE EPOINTE.



At Compton hill, about sixteen miles north-west of the Falls of the Passaic, New Jersey, a substance was found which was believed to be green Feldspar. I received, eleven or twelve years ago, a specimen as such; it was a mass of Carbonate of lime, presenting here and there, the lamellar green mineral, by dissolving the Carbonate of lime in acid; I disengaged

the crystals, and saw from their form, that they could not be referred to Feldspar, but that they were Pyroxene of an uncommon form. They have the appearance of a rectangular four-sided prism, the faces *M*, fig. 8, being nearly linear, terminated by a four-sided pyramid, whose faces have a different inclination with the sides, and having the apex truncated by an inclined plane, which makes with *r* an angle of 10° , and of course is parallel to the base of the primitive nucleus. The faces *ss* and *uu*, are sometimes small, the crystal approaching in that case to the *perioctaèdre*, having four bevelments on the base. They offer a lamellar fracture, the lamina being parallel to the bases of the primitive form, in other directions the fracture is rough.

Among the crystals of this form, are also some which belong to the variety *soustractive*, fig. 10.

In order not to be prolix, by repeating the different angles, I give here the inclinations of the same :

M upon *M*, $87^{\circ} 42'$

M the opposite face, $92^{\circ} 18'$

M *P*, $101^{\circ} 5'$

M the opposite face of *P*, $78^{\circ} 55'$

M (opposite) upon *c*, $121^{\circ} 48'$

M upon *l*, $136^{\circ} 9'$

M upon *o*, $145^{\circ} 9'$

M upon *r*, $133^{\circ} 51'$

M upon *s*, $121^{\circ} 48'$

M (opposite) upon *s*, $101^{\circ} 12'$

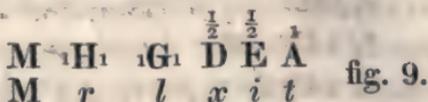
M upon *t*, $101^{\circ} 5'$

P upon *p*, $147^{\circ} 48'$

P	<i>l</i> , 90°
P	<i>r</i> , 106° 6'
P	<i>s</i> , 150°
P	<i>t</i> , 147° 48'
<i>i</i>	<i>l</i> , 139° 6'
<i>i</i>	<i>r</i> , 100° 28'
<i>l</i>	<i>o</i> , 132° 16'
<i>l</i>	<i>r</i> , 90°
<i>l</i>	<i>s</i> , 120°
<i>l</i>	<i>u</i> , 114° 26'
<i>o</i>	<i>o</i> , 92° 28'
<i>o</i>	<i>r</i> , 118° 59'
<i>o</i>	<i>s</i> , 156° 39'
<i>o</i>	<i>u</i> , which is contiguous to it 112°
<i>r</i>	<i>s</i> , 103° 54'
<i>r</i>	<i>t</i> , 106° 6'
<i>r</i>	<i>u</i> , 126° 36'
<i>r</i>	<i>x</i> , 126° 36'
<i>s</i>	<i>s</i> , 120°
<i>s</i>	<i>u</i> , 129° 30'
<i>u</i>	<i>u</i> , 131° 8'
<i>t</i>	<i>r</i> , 106° 6'
<i>x</i>	<i>x</i> , 131° 8'

Besides these, we find some very remarkable varieties of Pyroxene in the United States. It is in our country only that a variety of greenish-white Pyroxene is found, which is sometimes mistaken for Scapolite and Feldspar. Haüy has recognized amongst them a new crystalline form, which he has described in the *Annales du Museum d'Histoire*

Naturelle, Tom. 19, p. 257, he calls it *epimeride*. It is formed by the following decrements :



It was found near New York, in flat eight-sided prisms. I have found, besides *epimeride*, the *perioctaèdre* in Chester county, Pennsylvania.

At Newberg, New York, a singular variety of Cocolite occurs; it is of a white, sometimes grayish-white colour, the grains which are not firmly agglutinated have a lamellar structure; in the same locality occurs the dark green variety. I owe to the kindness of Dr. J. Torrey, the specimens which I possess of this substance.

The vicinity of Lake Champlain has of late become distinguished as a locality of Pyroxene *coccolite*; it occurs there of different shades, of green, intermixed with the resinous Garnet (*colophonite*) and the Silico-calcareous oxide of titanium, which are unequally mixed; sometimes it forms masses of resinous Garnet of different shades of red, interspersed here and there with grains of Pyroxene *coccolite* and Silico-calcareous oxide of titanium. Other specimens offer masses of Silico-calcareous oxide of titanium, composed of agglutinated crystals, intermixed here and there with a few grains of Pyroxene *coccolite*, and resinous Garnet. Again it occurs in masses of Pyroxene *coccolite*, in which the Titanium and Garnet seem only accidental intermixtures: a fine series of these varieties is in the collection of

Mr. J. Cloud, which exhibits all these different intermixtures.

The Pyroxene *sahlite* occurs also abundantly in our country. At Rodger's Rock, near Ticonderoga, it occurs in large crystals. Mr. J. Cloud has one in his possession, which is between seven and eight inches long, and of a proportionate diameter; it is an eight-sided prism, the summits are wanting. I owe to the kindness of Dr. M'Euen, a specimen in which the crystals are nearly all cylindrical but one, which belongs to the *bisunitaire*, fig. 3, and is one inch and one-fourth in length. I have also in my possession, eight-sided prisms, terminated by inclined planes, forming an angle of 106° with one of the faces, and of course belonging to the variety *perioctaèdre* of Haüy. These crystals which belong to the variety called *sahlite*, are sometimes held together by Quartz, and occasionally nearly agglutinated by argilaceous oxide of iron; those masses are intermixed with lamellar Graphite, which has sometimes the *hexaèdral* form, and with Silico-calcareous oxide of titanium, which are sometimes remarkably regular, possess a brilliant surface, and belong to the variety *unitaire* of Haüy.

One of our members, Mr. L. Vanuxem, has made us acquainted with another variety of Pyroxene, which perhaps it would be proper to call *Resplendent Pyroxene*, having a remarkably greenish, metallic lustre, which for a time gave it a place with *Hypersthene*, till it was removed by Mr. H. Seybert on account of its chemical composition, and final-

ly placed in its proper situation, by the ulterior researches of Mr. L. Vanuxem. This is the mineral which occurs at the Brandywine creek, near Wilmington, Delaware. When I first became acquainted with the paper in which that gentleman made known his researches, I was induced to suppose him in error, but have since convinced myself of his correctness, and have obtained cleavages parallel to the sides of a rhomboidal prism of 92° and 88° , with a base inclined to one of the edges of the prism, at an angle of 106° , and another parallel to one of the diagonals; and the analysis of Mr. H. Seybert, coinciding with those of Pyroxene, it undoubtedly belongs to that family. It occurs in a granitic rock, at the above named place, of from such a size as to be only perceptible by means of a magnifying glass, to that of from two to three inches, associated with a beautiful brown lamellar Feldspar. It occurs also sometimes in masses of the size of two or three inches, with Quartz. This variety occurs also at West Point, New York; and I have in my collection, a mass of the same variety, being a granular concretion of which the grains are from one-ninth to one-eighth of an inch in diameter, and which occurs at Ironhill, Delaware.

Observations on the genus Oryzopsis. By T. NUTTALL. Read July 1, 1823.

This genus, very inaptly named *Oryzopsis* by Michaux, was founded upon a single species, to which, with additional ambiguity, he applied the specific name of *asperifolia* and gave a figure in the ninth plate of his American Flora. Mr. Pursh found this species afterwards on the mountains of Pennsylvania, and for some reason or other, not very apparent, recommends the use of its seeds as a grain. In this respect, however, as in almost every other, it is far excelled by numerous species of *Bromus*, (or Cheat) and *Festuca*. This species is omitted by Muhlenberg, in his *Descriptio Graminum*, and a distinct one given by the name of *melanocarpa*, page 79; at the close of which description he very justly considers it as congeneric with *Milium paradoxum*, as it agrees very generally with the figure and description given by Scopoli in his Flora Carniolica, vol. i. p. 58, 59, tab. 1, in which plant also, as well as in that of America, the seeds gradually become brownish-black.

Professor Sprengel, misled apparently by the deceptive name of *Oryzopsis*, hastily refers the plant of Michaux to his natural section of the grasses called ORYZEÆ, and considers it even as an *Oryza*! Nothing, however, can well be further removed from this genus than the plants in question; they are, in fact, a mere subdivision of the genus *Stipa*, of the natural section AVENACEÆ, and differ only in the shortness of the corolla and its corresponding awn. Sir J. E. Smith with much more accuracy, in Rees'

Encyclopædia, refers *Oryzopsis melanocarpa* to the genus *Milium*, justified, no doubt, by its resemblance to *M. paradoxum*. Having recently discovered a third species, I shall now endeavour to reform the specific characters, and add such remarks as may be necessary more effectually to distinguish them.

1. *ORYZOPSIS* **parviflora*, culmo nudiusculo paniculato, corolla villosa brevissime aristata, calyce retuso excedente.

DESCRIPT. Perennial. Culm about one foot high, naked nearly two-thirds of its length, somewhat compressed and smooth, presenting a single node towards its base. Leaves two or three, pungent at the point when dry, smooth, but a little asperate on the sheath, the uppermost leaf almost wholly confluent in the sheath, and seldom more than half an inch long. Ligula membranaceous, subovate, decurrent along the margin of the sheath. Panicle small and subdivided, producing from about twenty-five to thirty flowers, scarcely half the size, but about double the number of the other species of the genus. The calyx is membranaceous and retuse, sometimes lacerated on the margin, and sensibly shorter than the lanceolate corolla. Corolla villous, valves coriaceous, pale green, the outer one larger and terminated by a deciduous awn scarcely more than half its length. Anthers whitish, naked. Styles two, closely approximating at the base; stigmas feathered.

The smallness and superior number of the villous flowers, obtuse calyx, and very short awn distinguish this species at the first inspection.

HAB. In a pine forest, four miles from Bellows' Falls, on the river Connecticut. Rather abundant, and flowering in May.

2. *ORYZOPSIS asperifolia*, culmo nudiusculo subracemoso, corolla glabra calyce acuto subæquali, arista corolla duplo longiore.

ORYZOPSIS asperifolia, culmo subnudo, foliis subpungentibus asperis. MICH. Flor. Boreal. Amer. vol. i. p. 51, t. 9.

OBSERVATION. In this species the leaves are still less apparent than in the preceding; the flowers are almost simply racemose and scarcely more than from nine to twelve in number. The calyx is acute and marked with numerous nerves. Valves of the corolla whitish and coriaceous, slightly pubescent; the awn is nearly straight and about twice the length of the corolla.

HAB. From the mountains of Hudson's bay, and through New England to Virginia.

3. *ORYZOPSIS melanocarpa*, culmo folioso, panícula patente pauciflora, arista prælonga recta, seminibus lanceolatis nigrescentibus.

ORYZOPSIS melanocarpa MUHL. Gram. Descript. p. 79.

Milium racemosum. SMITH in Rees' Encycl. l. c. Described from a depauperated and imperfect specimen in which the panicle was unexpanded.

DESCRIPT. Perennial. Culm terete, having two or three nodes, and somewhat decumbent towards its base. Leaves three or four in number, lanceolate and broad, beneath pubescent, the uppermost as long as

its sheath. Ligula obsolete. Racemed panicle at length, spreading, bearing from about fifteen to twenty flowers, all of them approximating towards the extremities of the branchlets. Calyx terete, acute, marked with about seven nerves. The seed is of a lanceolate form, included in the calyx somewhat pubescent, becomes at length almost black, and is terminated by a nearly straight deciduous awn, more than twice its length.

HAB. In shady woods and rocky situations, from Pennsylvania to New England. Flowering in June.

4. *ORYZOPSIS paradoxa*, culmo folioso, panicula patentissima pauciflora, arista prælonga undulata, seminibus ellipticis nigrescentibus.

Milium paradoxum, floribus paniculatis aristatis.

Lin. Sp. Pl. (Ed. iii.) p. 90. Flor. Carniol. i. p. 58. tab. 1.

Agrostis paradoxa, racemis ternatis, pendulis; spiculis aristatis; arista undulata longa. Flor. Carniol. p. 186. Excluding the synonym and figure in Pluk. Alm. 174, t. 32, f. 2, which appears to belong to some actual species of *Agrostis*, and not to the present plant.

HAB. In the South of France.

This species is so very nearly related to the preceding that it is impossible to hesitate about the genus, I may add as an additional distinction according to Scopoli, that the calyx is compressed and only three-nerved, with the ramuli also almost pendulous.

On the Marmolite of Mr. Nuttall. By LARDNER VANUXEM. *Read July 2, 1823.*

The description and analysis of this mineral was published by Mr. Thomas Nuttall, in Vol. iv. No. 1. of the *American Journal of Science and Arts*.

Having last summer visited with Professor Keating the Hoboken locality of Serpentine,* I was enabled to make a number of observations; the communication of which I hope will not be uninteresting, or considered unimportant by the Academy.

For some years past considerable doubt has prevailed among many of the best mineralogists, with

* The author of the paper on the Marmolite considers the Serpentine of Hoboken, (N. J.) to "appertain rather to the transition than the primitive range;" on what ground, I know not, further than the circumstance of a part of it being in fragments, and these fragments connected together so as to form a Breccia: but this fact is susceptible of an explanation by which the primordial character of the mass remains in all its integrity. Serpentine like many other rocks, is split or cracked in various directions; in some parts of the Serpentine of Hoboken, the cracks or fissures are very numerous, of course the fragments are small; these fissures in many instances are filled with carbonate of lime, so that the fragments form one solid mass. Now this fact is analogous to those parts of a rock, one of the primitive class for example, which are traversed in different directions by veins in series; and no one ever supposed that the intervening masses lost their primitive character from the presence of such veins.

respect to the propriety of retaining Serpentine as a mineral species, having few or none of those external characters required to substantiate its claim to such a rank. By some, Serpentine has been considered as a rock, whose substance appeared to be the result rather of a mixture of different minerals, or the elements of different minerals, melted and deposited in a confused state, than an homogeneous substance or simple mineral, whose aggregate has been effected by the power of chemical affinity. That it is not generally regarded to be a mineral, *sui generis*, it will be sufficient for my purpose, to quote two authorities, Haüy and Mr. Brochant: the former considered it as a rock, and hence it has no place in his mineralogical method; and by the latter, it was (improperly) arranged, (1819) as a sub-species of Talc, under the name of *Talc esquilleux*, i. e. scaly or rather splintery Talc.

From the difference of opinion with respect to the rank and place which Serpentine ought to hold in our mineralogical systems; it is really a desideratum that all obscurity upon this subject should be removed; Serpentine being important from its great abundance, and the many uses to which it is, and may be applied. The object of this communication is to make known the real character of Serpentine, which the writer believes he has ascertained, and submits his views with all due deference to the Academy.

It is to Mr. Nuttall, whose zeal and talents as an observer of nature are well known, and whose con-

contributions to natural history have already been so respectable, that we owe the introduction of a mineral to our notice, which in my opinion throws such light upon this hitherto obscure subject, as to enable us to assign to Serpentine its proper place in the systems of mineralogy, and thereby to remove a part of the confusion existing in that almost, as we might say, chaotic science.

The Marmolite, the mineral alluded to, possesses those external characters which are acknowledged by all mineralogists to be typical of a species; and is moreover uniform in its composition, as ascertained by the analysis of specimens from two localities that are nearly two hundred miles from each other; and has the same analogy to Serpentine, that all the lamellar or crystalline minerals have to their compact varieties.

The description which Mr. Nuttall has given of Marmolite is as follows: "the texture is foliated, with the lamina thin, and often parallel, as in Diallage. Sometimes also cleaving in two directions parallel to the sides of an oblique and compressed four sided prism. These lamina, sometimes a quarter of an inch broad, are commonly collected into radiating or diverging clusters, of a pale green or greenish gray colour and a pearly submetallic lustre, soft enough to be easily cut by a knife, and almost perfectly opaque, inflexible, and brittle. Its powder is unctuous and shining. By the influence of the weather it becomes whitish and more brittle. Its specific gravity by Nicholson's balance was 2.470."

“Chemical characters. Before the blowpipe it decrepitates, hardens, and slightly exfoliates without showing any signs of fusion.”

To the above description I have but a few observations to make; 1st. That no notice is taken of the cross fracture of the Marmolite, which, in the fresh specimens, is important, from its identity to the precious serpentine, i. e. compact, and presenting those minute scales or splinters, which result from small portions in part detached from the mass, exhibiting the appearance of wax when broken.—2dly. I was not able, in any of the specimens in my possession, either in those from Hoboken or Bare Hills, to discover natural joints in more than one direction, namely that which gives the lamellar structure to it.—3dly. With respect to the opacity of the mineral, it is true that all those specimens are opaque in mass which have been exposed for a long time to the action of the atmosphere; but these if put into water become transparent, and the fresh specimens possess a considerable degree of translucency.

Of the composition of the Marmolite. I was induced to undertake the analysis of the Bare Hill variety, from a desire of knowing the proportion of each of its constituents, the quantity of siliceous earth only, being given by Mr. Nuttall, and finding a difference between his result and my own, I was led to examine that also of Hoboken, particularly as Mr. Nuttall had a loss of $2\frac{1}{2}$ per cent.; he omitting to deduct from the 46 parts of magnesia, the 2 parts of lime which he found in it.

I should offer my result with diffidence, if I had not assured myself by repeated analysis, of the exact quantity of silex, water, and iron, in each of them. I did not find any lime in the Hoboken mineral, though I tried by one of our most delicate tests, namely oxalate of ammonia. I made no search for chrome, the discovery of atoms being of no consequence in the point in question.

The *modus operandi* was to calcine a portion for water; to digest another portion with nitro-muriatic acid until every particle was attacked; then to evaporate to dryness by a gentle heat, so as not to decompose the salts of iron, and magnesia, in setting the silex free; to dissolve the salts with acidulated water, and filter. The iron was separated from the liquor by succinate of ammonia; and the magnesia as the residue, was obtained by evaporating the liquor, and then calcining.

In the same manner, I also analysed the beautiful precious Serpentine of Newburyport, (Mass.) wishing to know if in its composition it accorded with the European specimens; and also to confirm my opinion of the chemical identity of the Marmolite and Serpentine. The result of these experiments are as follows:

	Bare Hills.	Hoboken.	Precious Serpentine.
Silex	42.69	40	42
Magnesia	40	42	40
Water	16.11	16.45	14.38
Deutoxide of iron	1.16	.90	1
Loss	.4	.65	2.62
	<hr/> 100.	<hr/> 100.	<hr/> 100.

By comparing the above analyses with the analyses of the precious, and all the hydrous Serpentine, no real difference can be perceived; hence we must conclude them all in that respect to be the same. Mr. Nuttall, on the ground of chemical composition, is of opinion, that Marmolite might equally "be referred to Talc or Steatite." Now all well characterized Talc contains much more silex, less magnesia, and less water, in the proportion of about 62.5 silex, 31.5 magnesia, and 6 water. As to Steatite, I can only consider it as a rock of which Talc is the basis; and hence its composition may vary by admixture with other rocks or minerals, as is the case with every great mass of mineral matter. I have no doubt that among the many analyses we have of the substances arranged under Steatite, the Marmolite may be found, and probably even also among the Diallage, Bronzites, &c. though in an impure state.

To conclude, the Marmolite corresponds with Serpentine in all its important characters, to wit, composition, infusibility, hardness, and specific gravity; also in those characters of less importance, as colour, fracture not dependent upon internal arrangement of particles, lustre of the same, &c. &c. and differs only as to crystalline structure, and lustre thereon depending; both of which circumstances belong to every mineral species which present crystallized and compact varieties.

All mineral substances are identical, that agree in composition, hardness, specific gravity, and primitive form or crystallization;—but the absence of the lat-

fer character so far from making a specific difference, is merely considered in the light of an accident. Conceiving then the identity of the Marmolite and Serpentine to be fully proved, we shall have three subspecies or varieties of this mineral, according to the idea or importance attached to these sub, or minor distinctions.

- | | | |
|---|---|--|
| 1st. Subspecies, Marmolite or lamellar Serpentine, | } | rare, forms masses not exceeding a few inches in diameter. |
| 2d. do. precious or compact translucent Serpentine, | } | more abundant, but if it forms rocks, they are of very limited extent. |
| 3d. do. common or Serpentine rock, | } | forms rocks of great magnitude, often very impure. |

Remarks on the Species of Corallorhiza, indigenous to the United States. By THOMAS NUTTALL.
Read August 5, 1823.

This genus, founded by Ruppium and adopted by Gmelin and Haller upon a single species indigenous to Europe and Siberia, was transferred by Linnæus to the genus *Ophrys*. The same plant, with two American species, were by Willdenow and Persoon added to the genus *Cymbidium* of Swartz, and these with additional species have at length been again

restored to the genus *Corallorhiza* by the celebrated Robert Brown. With the exception of the *Cymbidium hiemale*, (of which I ventured to constitute the subgenus *APLECTRUM* in the second volume of the North American Genera, page 197,) they are remarkably characterized by their coralloid, much branched and fleshy roots, and the absence of leaves. They appear also like the *Epiphegus* to be mostly parasitic at the roots of trees, and never grow out of vegetable soil.

The following species appear to be peculiarly indigenous to the United States.

1. CORALLORHIZA **verna*, aphylla, petalis omnibus lineari-lanceolatis patentibus, labello oblongo immaculato basi bidentato apice recurvo ovato calcare obsoleto innata.

Cymbidium corallorhizon, Muhl. Catal. p. 81.

Corallorhiza innata, Eaton's Manual of Botany. (Ed. III.) p. 250. excluding the synonym in Nuttall's Gen. Am. II. p. 197.

DESCRIPTION. Root perennial, coralloid or dentated with the ramifications somewhat compressed, and almost destitute of scaly cicatrizations. Scape about five inches high, producing about three sheathing stipules, and with the whole plant except the lip, of a yellowish-green colour. Bractes minute. Flowers about seven to fifteen on a scape. The three outer petals lanceolate-linear spreading; the two inner about the same length and nearly the same

figure and colour. Lip nearly white, without spots, oblong-oval, bearing two elevated palatal ridges towards its origin and with the spur so far adnate as to be almost imperceptible, the margin of the lip with a conniving or partly concave, somewhat crenulated border, and two shallow lateral incisions parallel with the internal elevations of the palate, the point ovate and reflected. Masses of pollen by pairs somewhat lenticular, and deciduous.

HABITAT. In Pennsylvania, *Muhlenberg*. Vermont, *Eaton*. Abundant in a sphagnous swamp about half a mile east of New Ipswich, (Mass.) growing in clusters at the roots of the paper birch. In flower about the middle of May, (1823.) First detected by Mr. Paul Trapier of Harvard University.

OBSERVATION. Mr. Eaton justly remarks the discrepancy of this plant with the species which I had erroneously considered the *Corallorhiza innata* of Europe. It differs also from the European specimen, which I have examined, principally in the oblong-ovate form and whiteness of the inner lateral petals, also by the lip which is obtuse and spotted, and in the connivence of the two upper and outer petals with the inner.

2. CORALLORHIZA *odontorhiza*, aphylla, labello ovali indiviso maculato, calcare obsoleta innata, capsula subglobosa.

C. odontorhiza, Nuttall's Gen. Am. II. p. 197.

CYMBIDIUM *odontorhizon*, scapo vaginato aphylla, floribus pedicellatis, petalis lanceolatis æqua-

libus, labello ovato obtuso. Willd. Sp. Pl. 4.
p. 110.

OPHRYS *corallorhiza*. MICH. Flor. Amer. 2. p. 158.

PLUK. Alm. 273. t. 211. f. 1 and 2.

HAB. Parasitic near the roots of trees from Vermont to Carolina. Flowering from September to March.

3. CORALLORHIZA **multiflora*, aphylla, scapo multifloro, (15—30) labello cuneato-ovali tripartita recurvo maculato, calcare conspicua adnata. V. Tab. vii.

CORALLORHIZA *innata*, Nuttall's Gen. Am. II.
p. 197. but not the European plant of R.
Brown.

DESCRIPTION. Perennial and leafless (as usual.) Root coralloid, profusely ramified, the joints marked with circular cicatrizations which appear to have been so many minute sheathing stipules; the flowering buds more distinctly sheathed; scape embraced by three or four closed sheaths. Raceme consisting of from fifteen to thirty flowers each subtended by a minute bracte. Three outer segments of the corolla brownish, linear-lanceolate and obtuse; the two inner nearly of the same form, but somewhat shorter and connivent with the contiguous outer segments. Lip white, spotted, and lined with purple, the form cuneate-oval, trifold; the two lateral segments short and dentiform, the middle segment broad, somewhat crenulate and reflected at the point; two ridges appear in the palate of the lip and near its origin. Nectary or spur very distinct, yellowish, and

adnate to the obovate germ, and nearly half its length.

HAB. From New England to Carolina; parasitic near the roots of trees. Flowering from July to September.

Subgenus.—APLECTRUM. *Labium anguiculatum*.

Calcare nullo.

Radix tuberosa. Folia radicalia solitaria, aut florescentia marcescens.

4.—*C. hiemalis*, folio radicali ovato, labello cuneato trifido unguiculato iammculato, petalibus erectis.

—*C. hiemalis*. NUTTALL'S Gen. Am. II. p. 198.

Cymbidium hiemale. WILLD. Sp. Pl. p. 107.

HAB. From Vermont to Florida, in shady woods. Flowering from July to August.

Descriptions of Coleopterous Insects collected in the late Expedition to the Rocky Mountains, performed by order of Mr. Calhoun, Secretary of War, under the command of Major Long. By THOMAS SAY, Zoologist to the Expedition. Read October 22, 1823.

MANTICORA. Fab.

M. Cylindriformis. Dark chesnut-brown; elytra irregularly punctured.

Inhabits Arkansa.

Body dark chesnut-brown, impunctured : *head* blackish : *labrum* bidentate : *mandibles* very strongly toothed : *thorax* narrowed behind, not elevated ; a longitudinal impressed acute line, a transverse obsolete arquated indented line before originating at the anterior angles, and a still more obsolete line also originating at the anterior angles and forming an angle behind the middle ; base not sinuated, with a marginal and obsolete submarginal indented line : *scutel* none : *elytra* joined at the suture, rather paler than the thorax ; irregularly marked with unequal punctures, many of which are preceded by a slightly elevated point ; a submarginal and marginal elevated line, line of the edge acute not more elevated than the others : *epipleura* with larger and more distinctly scabrous punctures.

Length more than one inch.

Found at the base of the Rocky Mountains. The abdomen is much less dilated than that of *M. Maxillosa*.

CICINDELA. *Lin. Latr.*

1. *C. scutellaris* green ; *elytra*, excepting the anterior portion of the suture, reddish-brassy polished.

Inhabits Arkansa.

Head and *thorax* green a little varied with violaceous : *antennæ* black at tip : *labrum* and *mandibles* at base above, white : *elytra* abruptly rounded at tip, punctured, a few larger punctures at base ; brilliant

reddish-brassy; region of the scutel from the middle of the base to beyond the middle of the suture green: *beneath* blue varied with violaceous.

Length two-fifths of an inch.

A rather small, but very pretty species; it was brought from the Arkansa by Mr. Thomas Nuttall.

2. *C. fulgida*. Above red-cupreous brilliant; elytra with two lunules and an intermediate refracted band.

Inhabits Missouri Territory.

Body, above red-cupreous highly polished: *head* hairy before, varied with green and blue each side and before: *labrum* and *exterior base of the mandibles* white: *antennæ* black at tip: *thorax*, impressed lines blue: *elytra* densely punctured; a dilated lunule at the basal margin, a dilated refracted band behind the middle, and a dilated lunule at the tip, white: *beneath*, hairy green.

Length less than half an inch.

In the dilated appearance of its lunules and band, this species very much resembles *C. formosa*, but it is a much smaller insect, much more highly polished, and not margined with white as in that insect. It inhabits near the mountains on the Nebreska (Platte) and Arkansa rivers.

3. *C. limbata*. Elytra white, suture, oblique line and dot green, exterior and basal edge bluish.

Body green, varied with blue and purple, and with cinerous hair: *antennæ* black at tip: *labrum*, and exterior and superior base of the *mandibles*, white: *thorax* hairy each side; indented lines violaceous:

elytra white, a green sutural vitta narrowed behind, an oblique irregular line behind the middle, and a small triangular dot before the middle, green; exterior edge and basal edge bluish-green or violaceous: *beneath* hairy: *venter* purplish.

Length less than half an inch.

This species, at first sight, resembles *C. dorsalis*, but is very distinct in its marking and in the form of its thorax. Found on the Nebreska (Platte) and Arkansa Rivers.

4. *C. pulchra*. Elytra red-cupreous, highly polished, exterior margin purple, with two white dots.

Inhabits Missouri Territory.

Body greenish-purpurescent: *vertex* with a large cupreous spot: *front* very hairy: *antennæ*, terminal joints black: *labrum* short, wide, hardly longer in the middle than each side; slightly 3-toothed: *mandibles* white; teeth, extremity and inferior surface, black: *thorax*, disk with a large double purplish-cupreous spot: *elytra* reddish-cupreous very brilliant; exterior margin purplish-blue, with a humeral white dot and an angular white dot near the middle; punctures numerous, larger, and more profound towards the base, obsolete at tip: *pectus* hairy each side: *postpectus* and *feet* hairy.

Var. a. Spot upon the humerus, none.

Length less than seven-tenths of an inch.

A remarkably splendid insect, and is a large species. It occurs in the country bordering the Platte and Arkansa Rivers near the mountains.

5. *C. obsoleta*. Black ; labrum and point on the elytra white ; venter purple-black.

Inhabits Missouri Territory.

Body deep black, opaque : *cheeks* tinged with purplish, polished : *antennæ*, four basal joints dark purplish : *labrum* and *exterior base of the mandibles* white : *thorax* with two transverse indented lines connected by a longitudinal one ; lateral margin with cinereous hair : *elytra* with minute profound punctures towards the base, impunctured towards the tip ; a transverse white abbreviated line on the middle of the submargin, and an obsolete apical dusky-yellowish dot : *venter* tinged with purplish.

Length four-fifths of an inch.

Var. a. Black, immaculate.

This large and fine species we observed to be not uncommon on the banks of the Arkansa River, near the mountains. It seems to be closely related to *C. tristis*, Fab. The elytra exhibit in some lights a silky appearance.

BRACHINUS, *Weber, Latr.*

B. cyanipennis. Testaceous ; elytra blackish-blue ; venter dark reddish-brown.

Length near seven-twentieths of an inch.

Body pale testaceous, with numerous minute hairs, which on the elytra are yellowish : *head* with a slight irregular frontal impressed line each side : *antennæ* brown at tip : *thorax* with a longitudinal impressed line from the head to the scutel : *elytra* black-blue,

with very obtuse hardly impressed grooves: *venter* testaceous or blackish-piceous.

This species was found by Mr. Nuttall in Missouri, and I have since observed great numbers of them near Engineer Cantonment. These chiefly occurred during the winter, in a quarry from which building stone had been taken for the use of Camp Missouri. They were found hibernating in the fissures of the rocks.

It differs from the *B. fumans* in being much inferior in point of size, in this respect approaching nearer to *B. crepitans* of Europe. The greatest width of the thorax is much more considerable in proportion to the shortest diameter, than that of the *fumans*, and of course the thorax appears proportionally wider before. The colour, also, of the head and thorax is different, and the elytra are far more slightly grooved. It possesses the singular power of crepitating common to its congeners.

FERONIA, Latr.

1. *F. superciliosa*. Apterous; black, impunctured; elytra tinged with purplish; basal thoracic lines dilated.

Length nearly two-thirds of an inch.

Body black, impunctured, glabrous: *antennæ* surpassing the base of the thorax, with brownish hair towards the tip; frontal groove much dilated: *labrum* and *palpi* piceous, the former emarginate; *thorax* wide before, much narrowed behind; dorsal

line distinct, basal lines dilated ; a very distinct anterior transverse line ; lateral edge rectilinear from near the middle to the posterior angles ; posterior angles rounded ; base wider than the petiole : *elytra* tinged with purple ; striæ profound, impunctured ; interstitial lines convex : *beneath* tinged with piceous.

This species, which seems to belong to the genus *PTEROSTICHUS* of Bonelli, is closely allied to that which I have described under the name of *stygius*, but the thorax is differently formed, being much wider before, the antennæ longer, frontal grooves more dilated, and the elytra of a different colour and more obtuse.

2. *F. heros*. Apterous, black ; mandibles striated ; thorax contracted abruptly at base, posterior angles acute ; elytral striæ slightly impressed, punctured.

Length rather more than nine-tenths of an inch.

Body black, and glabrous : *mandibles* much and deeply striated : *thorax* large, convex, rather abruptly contracted at the basal margin ; dorsal and anterior and basal lines distinct, basal margin depressed, near the angles rugose ; an elevated line on the basal margin near to, and parallel with, the lateral edge ; basal angles rectangular : *elytra* very slightly striated ; striæ acute, punctured, punctures obsolete towards the tip ; interstitial lines flat : *beneath* black.

Brought from the Arkansa by Mr. Thomas Nuttall. It is the largest native species I have seen of this genus, and is probably referable to the genus *PTEROSTICHUS* of Bonelli.

3. *F. maculifrons*. Black; thorax narrower than the elytra; vertex with two obsolete piceous spots; elytra with acute impunctured striæ.

Length more than two-fifths of an inch.

Body black, glabrous: *vertex* with two obsolete piceous spots, placed near the eyes, and very distinct in a particular exposure to the light: *antennæ* piceous, the joints paler at their bases, towards the tip with light brownish hair: *palpi*, tip of the *mandibles* and of the *labrum* piceous, the former tipped with pale yellowish: *thorax* narrower than the elytra, longitudinally suborbicular; lateral edge a little recurved, particularly at the hind angles, which are not excurved, but obtusely rounded; dorsal line and anterior transverse line impressed, basal lines almost obsolete in the concavity of the lateral base, which is not rugose: *elytra* with a very slight cupreous reflection; striæ acute, impunctured, interstitial lines flat: all *beneath* piceous.

This insect was found in the Arkansa Territory by Mr. Thomas Nuttall. It is so closely allied to the species which I have named *placida*, as not to be, at first sight, distinguished from it; nevertheless, on comparing it with that species, it will be discovered to be distinct by the spots on the vertex, the somewhat differently formed thorax, and by the perfect smoothness of the cavities of the lateral angles, which have not the slightest appearance of rugosity.

4. *F. scutellaris*. Black; posterior thoracic angles rounded; region of the scutel much impressed.

Length two-fifths of an inch.

Body depressed, black, immaculate : *antennæ* black : *thorax* with a narrow margin ; dorsal line distinct ; basal lines dilated, so as to resemble large impressed spots ; lateral edge regularly arcuated, not excurved behind ; basal angles rounded : *elytra*, striæ obsoletely punctured ; interstitial lines a little convex ; region of the scutel much impressed ; humerus gibbous : *coxæ* and *tarsi* piceous.

5. *F. errans*. Green, polished, beneath black ; feet, base of the antennæ, and of the palpi rufous.

Body above polished green : *labrum* dark reddish-purple : *antennæ* fuscous, basal joint rufous : *palpi* fuscous : *thorax* obviously wider than long ; dorsal line distinct ; basal lines much dilated and with a few punctures ; an obvious narrow margin, and reflected edge ; lateral edge not excurved behind ; posterior angles rounded ; base much wider than the petiole : *elytra* with a very slight reddish reflection ; striæ very narrow, impunctured ; interstitial lines flat : *beneath* black : *feet* rufous.

This species resembles *F. nutans*, Say, but may be distinguished by a shorter thorax, which is margined and at base wider.

6. *F. constricta*. Apterous, black ; thorax much contracted behind ; *elytra* with punctured striæ.

Length half an inch.

Body apterous, black : *antennæ* fuscous, piceous at base : *labrum* and *palpi* piceous : *mandibles* striated obliquely : *thorax* convex, wider than long, rather abruptly contracted at the posterior margin,

which is depressed ; dorsal, basal, and anterior lines distinct, impunctured, the former attaining the base ; basal lines double ; lateral edge much rounded, abruptly excurved at the posterior margin ; basal angles rectangular, acute ; base much narrower than the elytra : *elytra* with punctured striæ, punctures small ; interstitial lines slightly convex : *beneath* dark piceous or blackish.

The form of the body and the curvature of the thorax are very similar to those of *F. unicolor*, Say, nevertheless it is a much smaller insect, the thoracic base is depressed and the posterior angles are acute, and the striæ of the elytra are more deeply impressed than in that insect. It was found on the Arkansas river near the rocky mountains. It belongs to the genus *PTEROSTICHUS* of Bonelli.

ZABRUS, *Clairv.*

Z. avidus. Black ; feet rufous ; base of the thorax and striæ of the elytra punctured.

Length seven-twentieths of an inch.

Body deep black : *labrum* deep piceous : *antennæ* and *palpi* rufous : *thorax* short and wide, with a few punctures before, and numerous ones on the posterior depressed margin ; dorsal line very distinct : *elytra* punctured ; interstitial lines depressed a little convex : *beneath* black : *venter* deep piceous at tip : *feet* rufous.

CALOSOMA, *Lin. Lat.*

1. *C. obsoleta*. Brownish-black; elytra reticulated and with three series of impressed bluish spots.

Inhabits Arkansa.

Body brownish black: *mandibles* rugose and convex on the superior surface: *thorax* obtusely and minutely rugose, impunctured; region of the posterior angles indented; an abbreviated impressed dorsal line; posterior angles rounded, extended backward a little beyond the basal line: *elytra* reticulate; longitudinal lines slightly impressed, not more dilated than the transverse ones, which are mostly continuous, their points of intersection marked by a puncture; three series of impressed bluish or violaceous obscure spots on each elytron; lateral margin in a certain light very obscurely purplish.

Length seven-tenths of an inch.

Found near the Rocky mountains.

2. *C. luxata*. Brownish-black; elytra reticulate; head and thorax minutely punctured.

Inhabits Arkansa.

Mandibles flattened above, rugose, with oblique lines: *head* punctured: *antennæ*, second joint half as long as the third: *thorax* minutely punctured, punctures larger and confluent on the lateral margin; posterior angles rounded, extending backwards a little beyond the basal line; an impressed longitudinal line: *elytra* suborbicular, reticulate; longitudinal lines not more dilated or profoundly impressed than

the transverse ones, which are not continuous, the points of intersection not distinguished by a puncture; the three punctured striæ obsolete, their traces hardly discernable in a certain light and not differently coloured.

Length more than three-fifths of an inch.

This insect has the short, transverse thorax of CALOSOMA, but the proportions which the joints of the antennæ bear to each other are similar to those of many CARABI; the transverse lines are dislocated by the longitudinal ones.

CARABUS, *Lin. Latr.*

C. externus. Winged, black, margined with purplish; elytra with three series of obsolete punctures.

Length one inch and three-twentieths.

Body elongated, deep black: *antennæ* brown at tip: *thorax* punctured, margined with bluish-purple; lateral edge regularly curved to the base; dorsal and basal lines distinct; basal angles obtusely rounded: *elytra* striate; striæ well impressed, much narrower than the interstitial lines, and with conspicuous, definite punctures; interstitial lines convex, equal, the fourth, eighth, and twelfth each with a series of obsolete small punctures, which do not interrupt them; exterior margin bluish-purple.

A large species, brought from Arkansa by Mr. Thomas Nuttall. It somewhat resembles *C. silvosus*, but is larger, the striæ of the elytra are much more regular, exhibiting nothing of the granulated appear-

ance of those of that insect, and the curve of the exterior edge of the thorax is regular, or without any tendency to excurvature near the base.

BEMBIDIUM, Latr.

1. *B. coxendix*. Greenish-brassy, beneath green; tibia and anterior trochanters, testaceous; thorax, basal line oblique each side.

Length one-fourth of an inch.

Body greenish-brassy, polished: *labrum* green: *antennæ* dull green, covered with light brownish hair; basal joint testaceous before and greenish behind: *palpi* greenish, hairy, testaceous on the inferior base: *thorax* with a green exterior margin; exterior edge excurved at base; dorsal line slightly impressed, narrow; transverse basal line very distinct; basal margin a little rugose particularly near the angles; angles acute: *elytra* with a green margin; *striæ* with rather large punctures: *beneath* dark green: *coxæ*, *tibiæ*, and *knees* beneath, testaceous.

Var. a. *Feet* entirely pale rufous.

2. *B. inæqualis*. Bronzed; *elytra* of unequal surface, and two impressed spots on each *elytron*.

Length less than one-fourth of an inch.

Body bronzed above; beneath blackish-green; base of the *antennæ* and of the *palpi* pale rufous: *thorax*, dorsal impressed line, and anterior and posterior lines very distinct: *elytra*, surface uneven, with two very obvious dilated impressed spots on the third interstitial line; *striæ* widely and pro-

foundly punctured, the fourth stria undulated: *feet* blackish-green, rufous at base.

This is a very distinct species; it occurred near Engineer Cantonment.

OMOPHRON, *Latr.*

O. tessellatus. Pale, varied with green; elytra somewhat tessellate with green.

Inhabits Missouri.

Body pale rufous, punctured: *head* green behind, between the eyes a longitudinal and oblique dilated line united in the form of a W: *labrum* white: *thorax* with a green disk and longitudinal impressed line: *elytra* with punctured striæ, green; margin, two undulated bands and tip, pale rufous: *pectus* and *postpectus* darker rufous: *feet* whitish.

Length more than one-fourth of an inch.

I observed this species in plenty on Elk-horn Creek. The elytra have a tessellated appearance in consequence of the undulations of the bands being subquadrate, particularly the two nearest to the disk.

COLYMBETES, *Clairv.*

C. venustus. Reddish-yellow; thorax at tip and base black; elytra dusky olivaceous with a pale external margin, interrupted base and abbreviated subsutural line.

Body reddish-yellow: *vertex* dusky: *thorax*, an-

terior margin to the eyes on each side, and posterior margin as far as the middle of the base of each elytron, black : *elytra* dusky olivaceous or blackish ; a yellowish exterior margin attenuated towards the humerus, and a whitish external submargin composed of three somewhat oblique approximate lines, of which the inner one is abbreviated before the middle ; a dilated subtriangular white line from the humerus to the middle of the base, where it abruptly terminates ; a subsutural white line from near the base is attenuated and terminated before the middle ; disk with two obsolete interrupted lines : *venter* each side dusky.

Length one third of an inch.

Found many specimens in a pond near Bowyer Creek, Missouri. It is also an inhabitant of the Atlantic states. I think it probable that this is the *DYTISCUS interrogatus* of Fabricius.

HYDROPORUS, Clairv.

1. *H. parallelus*. Black ; elytra lineate with yellowish.

Inhabits Missouri.

Body black : *head* before, and a small obsolete spot on the vertex, rufous : *antennæ* pale at base, dusky at tip : *palpi* pale, tip black : *thorax* varied with reddish yellow : *elytra* with several longitudinal reddish-yellow lines, the exterior and interior ones interrupted : *feet* pale testaceous.

Length less than one-fifth of an inch.

This species, like many other species of this genus, varies in the number of visible lines of the elytra and in their being more or less interrupted, but the abbreviated lines into which they are sometimes interrupted do not form bands, and at least one line is continuous to near the tip, a character which distinguishes it from the following species.

2. *H. undulatus*. Rufo-testaceous; elytra blackish-olivaceous, literate with testaceous.

Inhabits Upper Missouri.

Dytiscus undulatus, Melsh. Catal.

Body rufo-testaceous: *thorax*, anterior margin black on the middle, posterior margin black in the middle as far as opposite the middle of the base of each elytron: *elytra* blackish, an irregular marginal spot extends from the humerus to nearly one third of the length of the elytron, and obsoletely communicates at its dilated middle with a band composed of two or three longitudinal abbreviated lines, of which the inner one is subsutural; a smaller, marginal, irregular literate band behind the middle, and an irregular spot at tip.

Length more than three-twentieths of an inch.

Found in a pond near Bowyer Creek, Upper Missouri. It is not uncommon in Pennsylvania.

PCEDERUS, *Fabr.*

P. binotatus. Reddish-yellow; head, a part of each elytron and the tail, black; feet pale.

Body pale yellowish-red, with numerous very short

hairs ; punctured : *head* black, larger than the *thorax* : *antennæ* and *trophi* pale : *thorax* longitudinally subovate, punctures dense : *elytra* each with a large black spot on the exterior side towards the tip : *abdomen*, terminal segment and tail black : *feet* whitish.

Length three-twentieths of an inch.

Found near the Missouri above the confluence of the Platte. It is also an inhabitant of the Eastern States.

OXYTELUS, *Gravenh.*

1. *O. pallipennis.* Testaceous ; head black ; tip of the clypeus elevated and bidentate ; thorax wider than long, with an impressed line.

Body pale testaceous, punctured, with very short hairs : *head* black, punctures sparse before : *eyes* black, with a golden reflection : *clypeus* at the middle of the tip, elevated, prominent and bidentated : *antennæ* and *carina* at base, rufous pale : *mandibles* porrected, piceous, bifid to the middle ; superior segment or tooth rather shorter than the other : *palpi* pale : *thorax* wider than long, reddish-brown with an impressed dorsal line : *elytra* dusky at tip and on the sutural edge : *feet* whitish.

Length about seven-twentieths of an inch.

On the banks of the Missouri below the confluence of the Platte river.

2. *O. armatus.* Pale reddish-brown : head black ; *carina* at base of the *antennæ* piceous at tip.

FEMALE. *Body* light reddish brown, punctured, a little hairy: *head* black, punctures obsolete; an abbreviated, vertical carina over the anterior portion of the eye, terminating abruptly at the origin of the antennæ, and piceous at tip; anterior angles of the clypeus reflected: *antennæ* and *palpi* pale rufous: *mandibles* piceous: *thorax* length and breadth subequal, with a longitudinal impressed line; punctures sparse; edge blackish: *elytra*, punctures distinct, numerous; sutural edge blackish: *thighs* testaceous.

Length from one-fifth to one-fourth of an inch.

MALE. Rather paler than the female; a tubercle between the eyes: *thorax* with a longitudinal impunctured, dorsal line: *tergum* darker at tip.

Length one-fifth of an inch.

3. *O. melanocephalus*. Pale testaceous; head and postpectus black; suture dusky.

Body pale testaceous, or whitish: *head* deep black: *antennæ* and *mouth* pale testaceous: *mandibles* unarmed: *elytra*, suture blackish: *postpectus* black.

Length nearly one-tenth of an inch.

Var. a. Abdomen reddish-brown.

On the banks of the Missouri above the confluence of the Platte river.

4. *O. fasciatus*. Blackish; *elytra* pale yellowish; abdomen reddish-yellow, obsoletely fasciate with dusky.

Inhabits Missouri.

Body blackish, punctured, hairy: *head* black, impunctured, covered with very minute granules: *antennæ* and *mouth* testaceous; *mandibles* piceous:

thorax piceous-black; rather large distinct punctures; posterior edge rounded without angles, and distinct from the elytra: *elytra*, pale yellowish, dusky at the interior base and suture; numerous rather large distinct punctures; tip obtusely rounded: *beneath* reddish-brown: *feet* rather paler: *tergum* reddish; segments each with a definite, dusky band at tip: *venter*, each segment with an obsolete blackish transverse line on the middle.

Length less than three-twentieths of an inch.

Found near Engineer Cantonment.

ALEOCHARA, *Gravenh.*

A. bimaculata. Black; elytra each with an obsolete, yellowish, subsutural spot behind.

A. bimaculata. Knock in Melsheimer's Catalogue.

Body black, slightly punctured, hairy: *front* each side excavated from the insertion of the antennæ to the mouth: *palpi* pale, maxillaries dusky above: *thorax* each side and angles regularly rounded, slightly hairy; two longitudinal, dilated, hardly impressed, punctured lines behind: *scutel* transversely triangular: *elytra* not covering half of the *tergum*, with very numerous, prostrate hairs; a large obsolete, yellowish, subsutural spot at the tip of each: *feet* dark piceous towards the tips.

Length less than one-fifth of an inch.

Found above Fort Osage.

TACHINUS, *Gravenh.*

T. atricaudatus. Rufous, impunctured; head and middle of the antennæ and postpectus black; elytra behind, and tip of the abdomen, dark blue.

Body yellowish-rufous, impunctured, with few hairs; polished: *head* black: *labrum* and *mouth* testaceous: *antennæ* testaceous; from the fifth to the tenth joints inclusive, black: *thorax* with a few indistinct hairs: *elytra* with a large deep blue spot on each, the anterior edge of which curves from behind the humerus, to behind the middle of the sutural margin; a subsutural series of remote punctures, and a series exterior to the middle: *postpectus* black, with large, slightly impressed punctures: *feet* pale testaceous: *abdomen* with a few hairs, and distant, larger black ones on the posterior margins of the segments; terminal and anal segments deep blue.

Length nearly one-fifth of an inch.

Found on the Konza river.

ANTHOPHAGUS, *Gravenh.*

A. brunneus. Reddish-brown; feet and abdomen paler; an impressed thoracic line and dot at base.

Body reddish brown, punctured, with numerous short hairs: *head* unequal, indented between the eyes and between the antennæ: *antennæ*, *palpi*, and *feet* testaceous: *mandibles* piceous at tip: *thorax*

densely punctured, subrotund; posterior angles rectangular; a dorsal impressed line, terminated on the posterior submargin by an impressed dot: *elytra* densely punctured, posterior lateral angles rounded, sutural tip acute: *abdomen* pale reddish-brown, segments margined round with dusky, a dusky spot near the tip of the tergum.

Length less than one-fourth of an inch.

On the banks of the Missouri above the confluence of the Platte river.

BUPRESTIS, *Lin. Lat.*

1. *B. confluenta*. Green, polished, punctured; *elytra* with confluent yellow spots.

Inhabits Missouri.

Body bright green, punctured: *head* densely and confluent punctured; an obsolete impressed longitudinal line: *antennæ*, basal joint rufous, terminal ones purplish: *thorax* densely and confluent punctured, punctures sparse on the middle: *scutel* convex, rounded: *elytra* striate, tinged with violaceous; *striæ* and *interstitial* lines slightly punctured; numerous transversely confluent light yellow dots: *tip* slightly obliquely truncate, acute at the suture; edge not serrated: *tarsi* purplish-brown.

Length seven-tenths of an inch.

Var. a. Thorax and vertex purplish.

A very beautiful species, found at Fort Osage, and communicated to me by Lieut. Scott of the Rifle regiment. I subsequently obtained two specimens

during our journey to the mountains. The thorax varies in being sometimes of a bright blue colour.

2. *B. lateralis*. Black; head and thorax dull brassy, the former canaliculate, the latter with a posterior dorsal and anterior lateral indentation.

Inhabits Missouri.

Body elongated, black, scabrous: *head* dull brassy, superficially punctured; a profoundly impressed line abbreviated before: *antennæ* blackish: *thorax* dull brassy, somewhat scabrous; a round indented spot behind the middle, and an oblique profound oblong one each side, at the anterior termination of which the thoracic edge is dilated; basal edge sinuous: *scutel* black, subtriangular: *elytra* scabrous, entire, slightly indented at base: *tail* rounded.

Length one-fifth of an inch.

Distinguishable by the dilatation of the lateral thoracic edge.

3. *B. atropurpureus*. Black, slightly tinged with bronze or purplish; *elytra* serrate and mucronate.

Inhabits Arkansa.

Body punctured: *antennæ* black: *labrum* piceous: *thorax* with elevated obtuse punctures and slightly impressed dilated ones each side; an indented spot on the middle of the basal margin: *elytra* scabrous with minute reflected and depressed points; lateral edge regularly serrated; tip mucronate: *beneath* dark purplish.

Length less than three-tenths of an inch.

Taken near the Rocky Mountains. The colour to the eye is black, but upon attentive observation it will be perceived to be tinged with purplish.

4. *B. 6-guttata*. Black-brassy; elytra each with three indented cupreous spots.

Inhabits the United States.

Buprestis 4—*maculata*, Melsh. Catal.

Body blackish with a strong brassy tinge: *head* punctured; a profound sinus each side for the reception of the antennæ; tip emarginate: *labrum* green: *antennæ* brassy-green: *thorax* short, transverse, densely punctured; not wider behind, angles rounded: *scutel* triangular, green: *elytra* with three or four elevated longitudinal lines on each, and three impressed reddish-cupreous spots placed one at the base, one rather before the middle, and the third behind the middle; edge minutely serrate.

Length seven-twentieths of an inch.

I have been under the necessity of applying another name to this insect, as that given by Mr. Melshheimer is pre-occupied by a different species. We found this species during our expedition to the Missouri, and it is also an inhabitant of the Atlantic states.

5. *B. gibbicollis*. Black; elytra each with two large yellow spots.

Inhabits Arkansa.

Body black, with a slight violaceous tinge, and with very numerous very short hairs; punctured: *thorax* gibbous, arising into a very obtuse obsolete tubercle each side above; covered with dense hair; posterior edge rectilinear, angles rounded: *scutel* orbicular: *elytra* punctured, destitute of striæ; posterior edge finely serrated; tip entire; a very large

elongated spot extending from the base to the middle, and a smaller orbicular one towards the tip : *venter* violaceous.

Length less than three-tenths of an inch.

A very pretty insect ; but a single specimen was procured. Can this be the *B. valvulus*, Fab.?

6. *B. granulata*. Green, granulated ; elytra with an elevated line, and serrodentate at tip.

Inhabits Missouri.

Body cylindrical, olive-green, granulated : *head* punctured, with a profound sinus each side for the reception of the antennæ ; tip rounded : *eyes* whitish, with a black, oblong moveable pupil : *thorax* with an oblique indented line each side, and a longitudinal dorsal one ; basal edge sinuated : *scutel* transversely elongated, with an impressed transverse line behind : *elytra* scabrous or granulated, without striæ or punctures ; an elevated longitudinal line, and an indented large spot at base ; tip serrodentate.

Length two-fifths of an inch nearly.

7. *B. viridicornis*. Head and thorax red-coppery ; antennæ green ; elytra obscure, entire.

Inhabits Missouri.

Body somewhat depressed : *head* reticulate, red-coppery : *eyes* rather large : *antennæ* green : *thorax* transversely indented each side behind the middle ; red-cupreous, reticulated ; posterior edge rectilinear : *scutel* triangular : *elytra* obscure or slightly brassy, slightly rugose, destitute of striæ, rounded at tip, entire or obsoletely serrated : *beneath* dark brassy, brilliant : *tail* rounded, entire.

Length rather more than one-fifth of an inch.

8. *B. geminata*. Greenish, scabrous; thorax subinequal; elytra entire, indented at base.

Inhabits Missouri.

Buprestis viridis. Melsh. Catal.

Body greenish or dull cupreous, scabrous: *head* densely punctured; an indented line on the vertex: *antennæ* blackish-green: *thorax* subinequal; a double obsolete indented spot placed longitudinally on the back, and a lateral oblique one; a carinate line at base near the posterior angles, which are acute; posterior edge sinuate; surface with numerous, somewhat irregular, transverse slightly elevated, abbreviated, confluent lines: *elytra* scabrous, greenish tinged with violaceous.

Length more than one-fifth of an inch.

The *B. viridis* of Melsheimer is the same with this or a mere variety. I have been under the necessity of changing the name, his being already occupied.

9. *B. divaricata*. Greenish-cupreous above, beneath cupreous; elytra attenuated and divergent at tip.

Inhabits the United States.

Head numerously and confluently punctured: *mandibles* black: *eyes* pale yellow, or brownish with a black orbit; oval: *thorax* confluently punctured, subinequal, indented before the scutel: *scutel* orbicular, disk impressed: *elytra* striate, confluently punctured, and with some elevated blackish, abbreviated lines; tips narrowed, elongated, divergent; at the termination truncate, and submucronate on

the inner side : *beneath*, excepting the venter, canaliculate.

Length seven-tenths of an inch.

Remarkable by the divarication of the tip of the elytra. It very much resembles *B. lurida*, Fab. in general appearance.

10 *B. longipes*. Black ; immaculate, surface granulated ; elytra terminating in an abrupt short point.

Inhabits the United States.

Body deep black, immaculate : *thorax* with an obsolete indented line : *scutel* small, subangulated : *elytra* finely granulated ; an obtuse, obsolete, elevated line from the shoulder to the tip ; tip abruptly terminated by a small spine in the centre : *beneath* polished, slightly tinged with violaceous : *tarsi* of the intermediate and posterior feet elongated, as long or longer than the tibia ; first joint equal to the three following ones conjunctly ; fourth joint bilobate, very short.

Length half an inch nearly.

Found in Pennsylvania and in the western states.

11. *B. cyanipes*. Elytra at tip narrowed, entire and divaricated ; *scutel* transverse.

Inhabits Missouri.

Body dark cupreous, tinged with greenish : *head*, before the antennæ, green : *antennæ* dark green : *thorax* confluent punctured : *scutel* large, angulated each side behind, and excavated in the middle : *elytra* with darker abbreviated, elevated irregular lines ; tips very slightly recurved, divaricated, entire or ob-

solely truncate : *beneath* bright cupreous, not canaliculate ; tail deeply emarginate : *tarsi* blue.

Length two-fifths of an inch.

This specimen was brought from the Missouri by Mr. Thomas Nuttall. It resembles the *divaricata* in the manner of terminating of the elytra.

12. *B. campestris*. Elytra serrate, quadrilineate ; beneath canaliculate.

Inhabits Arkansa.

Body brassy : *head* with large confluent punctures : *front* indented : *antennæ* black ; first and second joints greenish-cupreous : *thorax* with dilated, excavated, confluent punctures ; canaliculate ; posterior angles acute : *scutel* very small, suborbicular-transverse, indented in the middle : *elytra* with short irregular transverse lines, and four more elevated longitudinal ones ; exterior edge serrated from near the middle to the tip ; *beneath* cupreous, polished : *tarsi* dusky, bluish.

Length four-fifths of an inch.

One of our largest species ; has an obsolete large impressed space on the elytral disk rather behind the middle, and another still less obvious near the base.

MELASIS, *Oliv.*

1. *M. nigricornis*. Black, cylindrical, punctured ; thorax with indented transverse and longitudinal lines.

Inhabits Missouri Territory.

Body deep black, opaque, immaculate, scabrous :

head with an impressed longitudinal line : *clypeus* with a very profound sinus over the insertion of the antennæ, before which it is triangular : *antennæ*, first and second joints simple ; remaining ones dilated cordate, the inner lobe more prominent ; terminal joint simple, oval, acute : *palpi*, terminal joint, oval : *thorax* convex, transversely quadrate, not narrowed before ; a longitudinal indented line ; two abbreviated somewhat oblique ones at base, and a transverse one on each side of the middle ; anterior margin obsoletely tinged with reddish ; an impressed point each side of the middle of the posterior margin : *elytra* striate, striæ acute ; interstitial lines convex, densely punctured : *tibia* piceous : *tarsi* rufous ; the penultimate one a little dilated, hairy beneath, and extended beneath the base of the terminal one, but not bilobate.

Length more than one-fifth of an inch.

Of this species I found but a single specimen. It seems to approach nearest to Fabricius's description of *Elater lacunosus*, but it cannot be referred to that genus, as it is totally destitute of the pectoral spine and recipient cavity. The position of the head with respect to the thorax is precisely as in BUPRESTIS.

2. *M. ruficornis*. Black ; antennæ, feet, and base of the elytra rufous.

Inhabits Arkansa.

Body cylindrical, deep brownish-black, with very short hairs ; punctures very dense, appearing granulated : *antennæ* robust, subfusiform ; joints cordate, rufous ; inserted into a very profound sinus of the

clypeus, which is somewhat dilated before: *palpi* yellowish: *thorax* with an impressed longitudinal line; lateral edges rectilinear from before the middle to the tip of the posterior angles: *scutel* black: *elytra* striate, punctured; basal half rufous: *feet* rufous: *thighs* dark piceous: *tarsi*, penultimate joint a little dilated and extended beneath the base of the terminal one, but not bilobate.

Length more than one-fourth of an inch.

A very distinct species from the preceding. Mr. Nuttall brought two specimens from the Arkansa.

ELATER, *Lin.*

1. *E. areolatus*. Rufo-testaceous; head, scutel and elytral band black.

Inhabits Mississippi.

Body rufo-testaceous, hairy: *head* black: *clypeus* very short, obtusely rounded: *antennæ* longer than the *thorax*: *thorax* short, somewhat transverse: *scutel* black: *elytra* striate, punctured; region of the scutel and dilated band on the middle black: *feet* pale.

Length less than one-fifth of an inch.

2. *E. dorsalis*. Rufous; a thoracic fusiform line, two spots and a band on the elytra, black.

Inhabits the United States.

Body rufous, hairy, punctured: *head* deep black: *clypeus* prominent, rounded: *antennæ* pale testaceous: *thorax* longitudinally oblong; a dilated, fusiform black dorsal line; posterior angles prominent:

scutel black : *elytra* striate punctured ; an oblong spot before the middle of each, and a common band behind the middle dilated near the suture, black : *feet* pale.

Length one-fifth of an inch.

3. *E. bellus*. Black ; thorax with a rufous line ; *elytra* rufous varied with black.

Inhabits the United States.

Elater bellus, Knock in Melsh. Catal.

Body black, hairy, punctured : *clypeus* rounded before : *antennæ* pale-testaceous : *thorax* with a longitudinal vitta and posterior angles rufous ; carinated : *elytra* rufous, varied with black abbreviated lines ; tip black, enclosing a rufous spot : *feet* whitish.

Length less than three-twentieths of an inch.

Var. a. Anterior thoracic angles rufous.

This insect is not uncommon in the Atlantic states, and is also found west of the Alleghany mountains.

4. *E. recticollis*. Pale testaceous, hairy ; head blackish ; lateral thoracic edge rectilinear.

Inhabits Missouri.

Body pale testaceous, with short dense hair : *head* blackish-piceous : *antennæ* pale : *clypeus* rounded : *thorax*, lateral edge rectilinear from near the anterior angles to the tip of the posterior ones : *elytra* profoundly striate, punctured : *feet* whitish.

Length one-fifth of an inch.

5. *E. obesus*. Brown, with yellow hair ; thorax convex ; body short, somewhat dilated.

Inhabits Missouri.

Body reddish-brown, with yellowish hair, and

very minute punctures: *head* and *thorax* with polished yellow hair, and numerous exceedingly minute punctures; posterior angles prominent, excurved: *scutel* rounded, hairy: *elytra* with scattered hairs, and obsolete punctured striæ; interstitial spaces slightly convex and with minute punctures: *feet* rufous.

Length two-fifths of an inch.

6. *E. erytropus*. Reddish-brown, or blackish, punctured, hairy; posterior thoracic angles carinated; interstitial elytral lines punctured.

Inhabits Missouri and Pennsylvania.

Elater erytropus, Melsheimer's Catalogue.

Body reddish-brown, or blackish, with numerous short prostrate yellow hairs; punctured: *head* with large, profound, approximated punctures: *antennæ* rufous: *clypeus* rounded, entire: *thorax* with large confluent punctures on each side, and small more distant ones on the posterior disk much smaller than those of the head; posterior angles not excurved, but nearly rectilinear with the posterior half of the lateral edge of the thorax, and carinated above; posterior edge slightly bidentate in the middle: *scutel* rounded at base: *elytra* with punctured striæ, interstitial lines punctured.

Length three-tenths of an inch.

A species not distinguished by any remarkable peculiarity.

7. *E. convexa*. Thorax black, hairy; posterior edge of the thorax with a fissure each side, and tri-

dentate in the middle; elytra reddish-brown; feet rufous.

Inhabits Missouri.

Head and *thorax* not visibly punctured to an ordinary magnifier; covered with dense prostrate yellow hair: *antennæ* rufous: *clypeus* rounded: *thorax* convex; posterior angles very short, carinated only on the exterior edge; posterior edge tridentate in the middle, and with a fissure on each side near the angle: *scutel* hairy, cordate, emargined at base: *elytra* reddish-brown, somewhat hairy, with punctured striæ; interstitial lines impunctured: *beneath* reddish-brown, covered with prostrate hair: *feet* yellowish-rufous.

Length more than three-tenths of an inch.

Var. a. Black; feet dark rufous. Length less than three-tenths of an inch.

The interstitial lines of the elytra are totally destitute of punctures, at least none are perceptible even with an ordinary magnifier; the thorax is very convex, and equally impunctured, and marked by four fissures in the posterior edge.

8. *E. triangularis*. *Clypeus* with a very profound sinus each side, for the reception of the antennæ; elytra not striate.

Inhabits Missouri.

Body black, slightly hairy, minutely punctured: *head* with crowded minute punctures; a very profound sinus each side over the insertion of the antennæ, anterior to which the clypeus is dilated; triangular and truncated at tip: *antennæ* dark pi-

ceous; half as long as the body; first joint cylindrical; second, small piceous; third as long as the fourth and fifth conjointly: *thorax* convex; punctures very minute and numerous; lateral edges from near the anterior angles to the posterior ones, rectilinear: *elytra* not distinctly striated, but irregularly punctured: *feet* pale rufous.

Length rather more than three-twentieths of an inch.

A small insect, remarkable for the very profound sinuses over the insertion of the antennæ. It varies in having the elytra striated, and dull rufous at the base; the third joint of the antennæ also is not so long as the two following ones together.

9. *E. mancus*. Clypeus truncated; body punctured; thorax with an impressed line behind the middle; posterior angles slightly excurved.

Inhabits Missouri.

Body black, punctured, with short hair: *head* with large, profound dense punctures: *clypeus* elevated, emarginate each side near the antennæ, and truncated before: *antennæ* and *palpi* rufous: *thorax* with an impressed line behind the middle; punctures numerous, profound, equal to those of the head, but not so dense; posterior angles prominent, very slightly excurved, carinate above; posterior edge slightly bidentate near the middle; an elevated, abbreviated line on the posterior margin near the lateral carina: *scutel* entire at base: *elytra*, punctures of the striæ oblong and approximate; interstitial lines with minute punctures furnishing hairs: *feet* rufous.

Length seven-twentieths of an inch.

Var. a. Reddish-brown; thorax with a paler anterior margin.

An obscurely characterized species, equal in size to *convexa* and *mendica*, but differing from them, besides other characters, in having the lateral elevated line on the posterior margin, and from the former by the conspicuously punctured and less convex thorax.

10. *E. basilaris*. Deep black; clypeus emarginate; first and second joints of the antennæ and feet pale.

Inhabits Missouri.

Body deep black, hairy, cylindrical, polished, punctured: *head* subinequal: *clypeus* broad and subemarginate at tip: *antennæ*, first and second joints pale rufous: *thorax* convex, with minute equally distributed punctures, much more distant than the length of their diameters; lateral edge rectilinear from near the anterior angles to the tip of the posterior angles, which are piceous and rather short: *scutel* oval: *elytra* striate, the striæ punctured: *feet* pale rufous.

Length less than one-fifth of an inch.

11. *E. auripilis*. Above with dense golden hair; clypeus emarginate; antennæ black.

Inhabits Arkansa.

Head covered with golden hair: *clypeus* emarginate: *antennæ* black; basal joint rufous: *thorax* convex, rather narrower at the base, covered with golden hair; a dorsal indented line; posterior angles

very short, not excurved, but complying with the curve of the lateral edge: *elytra* less densely covered with golden hair, excepting at the base; with punctured striæ: *beneath* black, covered with very short prostrate somewhat silvery hair: *feet* dull rufous.

Length two-fifths of an inch.

I have seen but a single specimen, which was brought from the Arkansa by Mr. Thomas Nuttall. The hair is much more yellow and less dense than that of *E. pennatus*, Fab.

12. *E. abbreviata*. Black, hairy, short; thorax convex, with an impressed longitudinal line; clypeus rounded.

Inhabits Missouri.

Body short, thick, punctured, hairy: *head* with profound but not dilated punctures; clypeus regularly rounded at tip, and not emarginate each side: *antennæ* black, basal joint piceous: *thorax* convex; an impressed longitudinal line from base to tip; punctures numerous, profound, small; posterior angles slightly excurved, carinated; posterior margin with a slight carina near the posterior angle: *elytra* with profound striæ not perceptibly punctured; interstitial lines hardly punctured: *feet* testaceous.

Length less than one-fourth of an inch.

A short, dilated species; the impressed line of the thorax extends the whole length of that part of the body; the *antennæ* are black.

13. *E. bisectus*. Testaceous; head, thoracic line, and suture black.

Inhabits Missouri.

Body densely hairy ; punctured ; rufo-testaceous : *head* black : *clypeus* prominent ; rounded : *antennæ* pale : *thorax* with a longitudinal, dorsal, black line ; posterior angles prominent, excurved : *scutel* black, convex, rounded : *elytra*, striæ indented ; punctures rounded ; suture with a common black line, not attaining the tip, dilated at the scutel and at its extremity : *postpectus* and *venter* black : *feet* whitish.

Length one-fourth of an inch.

14. *E. corticinus*. Reddish-brown, hairy, punctured ; *clypeus* prominent, rounded ; lateral thoracic edge rectilinear.

Inhabits the United States.

Elater corticinus. Knock in Melsh. Catal.

Body reddish-brown, hairy, punctured : *clypeus* prominent ; rounded, or very obtusely subangulated before, and each side : *antennæ* longer than the *thorax* : *thorax*, hair each side behind the middle prostrate inwards towards the middle ; lateral edge perfectly rectilinear from the anterior tip to the tip of the posterior angles ; basal margin with an obsolete indented line : *elytra* striate, punctured : *beneath* covered with short, prostrate hair : *feet* rather paler.

Length about three-fifths of an inch.

Remarkable for the perfectly rectilinear lateral edges of the thorax, and by having the hair of the posterior part of the thorax inclining inwards from each side towards the middle of the width.

15. *E. semivittatus*. Piceous-black ; thorax obsoletely testaceous each side ; *elytra* whitish, with a dusky suture and abbreviated line.

Inhabits Missouri.

Body hairy, punctured, dark piceous or blackish-brown: *thorax* with an impressed dorsal line; lateral margin as far as behind the middle, obsoletely testaceous; posterior angles excurved: *elytra* whitish; suture and line from the humerus to the middle of the disk, reddish-brown obscure: *beneath* piceous: *feet* paler.

Length less than two-fifths of an inch.

This species at first sight resembles *E. nigricollis* of Melsheimer's Catalogue; but it may be readily distinguished by the bicoloured thorax, and the abbreviated and sometimes interrupted line on the elytra.

16. *E. lobatus*. Pale brownish, covered with short hair; feet whitish, penultimate tarsal joint elongated beneath the terminal one.

Inhabits Mississippi.

Body brownish, covered with dense prostrate hair: *clypeus* broad, rounded before: *antennæ* pale rufous: *thorax* very minutely punctured; posterior angles prominent, acute, subcarinate above: *scutel* convex: *elytra* with profound, punctured striæ, punctures oblong, approximate: *feet* pale, yellowish-white; penultimate tarsal joint elongated and expanded beneath the terminal joint, and very obtusely rounded at tip.

Length eleven-twentieths of an inch.

This species is sufficiently remarkable by the singular expansion of the penultimate tarsal joint. It

is an inhabitant of Pennsylvania as well as of the western states.

17. *E. nigricollis*. Black; elytra whitish.

E. nigricollis. Melsh. Catal.

Inhabits the United States.

Head and *thorax* black, punctured, somewhat hairy; posterior angles carinate above: *scutel* black: *elytra* whitish or pale testaceous, with punctured striæ: *feet* rufous.

Length from two-fifths to nine-tenths of an inch.

Var. a. Suture and tip of the elytra black.

Specimens occurred on the Missouri.

18. *E. cylindriciformis*. Obsoletely metallic; antennæ compressed; thorax with an impressed line.

Inhabits the United States.

E. cylindriciformis. Knock in Melsh. Catal.

Body subcylindric, slightly metallic, hairy, punctured: *head* confluent punctured; a prominent edge above the antennæ, which disappears before; blackish-brassy: *antennæ* rufous, compressed, longer than the thorax: *thorax* blackish, tinged with brassy or violaceous; punctures profound, subequally distributed; an indented longitudinal line obsolete on the anterior margin; posterior angles prominent, ex-curved, slightly carinated: *elytra* with equally distributed hairs; dusky reddish-brown with a slight brassy tinge, and with punctured striæ; interstitial lines with minute punctures furnishing hairs: *beneath* black polished: *feet* and *caudal margin* rufous.

Length nine-twentieths of an inch.

This insect is not uncommon; it may be distin-

guished from *E. metallicus* of Melsheimer's Catalogue by its much less dilated form of body.

19: *E. sanguinipennis*. Black; elytra sanguineous; arsi piceous.

Inhabits the United States.

Elater sanguineus. Melsh. Catal.

Body black, polished. punctured: *antennæ*, second and third joints obscure rufous: *elytra* sanguineous, striate; interstitial lines punctured: *tarsi* piceous.

Length three-tenths of an inch.

This species approaches *E. sanguineus*, Lin. I found a specimen in the state of Illinois, and it occurs occasionally in Pennsylvania.

20. *E. rubricollis*. Black; vertex and thorax rufous; elytra striated.

Inhabits the United States.

Elater rubricollis. Melsh. Catal.

Body black, punctured: *vertex* obsoletely rufous: *antennæ*, second joint rufous: *thorax* rufous, edged with black; posterior spines black; a slightly impressed longitudinal dorsal line: *elytra* striate; interstitial lines convex; punctured: *postpectus*, disk obsoletely rufous: *venter*, with an interrupted obsolete rufous line on each side.

Length eleven-twentieths of an inch.

An inhabitant of Pennsylvania, which I also found in the state of Illinois.

LYCUS, *Fab.*

1. *L. terminalis*. Black; thorax yellow, with a black line; elytra yellow, tip black; wings yellowish at outer base.

Inhabits Missouri and Arkansa.

Body black: *antennæ* serrate beneath: *thorax* carinate, black; lateral margin yellow; posterior angles very acute: *scutel* black: *elytra* sulcate; grooves rugose; surface yellow; tip black; humeral edge prominent over the epipleura: *wings* black, yellowish at the basal outer margin.

Length, male half an inch, female seven-tenths of an inch.

Var. a. Thorax black, immarginate.

Rather common in the prairies on plants; found near the Kouza village. This may possibly be the *dimidiatus* of Fabr. but he describes his insect as having flabellate antennæ; whereas those of *terminalis* are only compressed and serrate.

2. *L. sanguinipennis*. Thorax black, lateral margin yellowish; elytra pale sanguineous, immaculate.

Inhabits Arkansa.

Body deep black: *thorax* not narrowed before; lateral margins yellowish; posterior angles prominent, acute: *scutel* black: *elytra* diluted red; region of the scutel dusky; a few slightly elevated lines, between which are irregular reticulations; beneath black.

Length less than half an inch.

Found near the Rocky Mountains.

LAMPYRIS. *Lin.*

L. nigricans. Brownish-black; thorax with a rufous spot each side within the margin.

Inhabits the United States.

Lampyrus nigricans. Knoch in Melsh. Catal.

Mandibles piceous: *antennæ* compressed, very slightly serrated: *thorax* with a rufous oblong-oval spot each side, which does not attain either the anterior or basal edges; margin uninterrupted; disk black *elytra* minutely scabrous, with about two obsoletely elevated lines: *pectus* with two rufous spots corresponding with those of the thorax.

Length less than one-fourth of an inch.

Var. a. Larger and deeper black.

Length three-tenths of an inch.

Differs from *corrusca* in being much more oblong, much smaller, the thoracic spots never attaining the edge of the thorax in any part. The variety is found on the Missouri.

CANTHARIS, *Lin. Fab.*

1. *C. modestus.* Black; front, feet, and margin of the thorax, yellowish; elytral margin and suture pale; second joint of the *antennæ* as long as the third.

Inhabits Missouri.

Body black : *face*, first joint of the *antennæ*, and base of the *palpi*, yellowish : *clypeus* at tip dusky : *thorax* quadrate ; anterior angles rounded ; posterior edge and dilated lateral margin yellowish-rufous : *elytra* slightly and obtusely scabrous, somewhat polished ; margin and suture whitish : *wings* black : *feet* and *pectus* yellowish-rufous : *venter*, posterior edge of the segments and lateral edge, yellowish : *nails* armed with a robust tooth beneath the tip.

Length three-eighths of an inch.

We have several species of this genus, which, in common with the individual above described, have a very distinct and robust tooth beneath the terminal nails of the tarsi. This character will serve as the basis of a very convenient division of the genus.

2. *C. angulatus*. Black ; thorax rufous on the lateral margin.

Inhabits the United States.

Body black, not distinctly punctured : *antennæ*, second joint half as long as the third : *thorax*, anterior and posterior angles equally rounded ; lateral margin dull rufous : *elytra* obtusely scabrous, or with dilated, confluent, slightly impressed punctures : *nails* with a robust tooth, or angle beneath.

Length one-fourth of an inch.

Var. a. Base of the *antennæ*, mouth, and tibia, dirty rufous.

Differs from *C. diudema*, Fab. which I suppose to be synonymous with *C. angusticollis*, Helw. in Melsh. Catal. in being smaller, in the proportions of the second and third joints of the *antennæ*, &c.

3. *C. basilaris*. Blackish; thorax rufous, with a black spot; elytra, margin, tip, and suture, yellowish. Inhabits the United States.

Cantharis Pennsylvanica. Knoch in Melsheimer's Catalogue.

Head black, confluent punctured; before the antennæ a pale spot: *antennæ*, joints pale at their bases: *thorax* short, transverse, rufous; a large black spot on the middle, which often attains the anterior and posterior edges; anterior edge rectilinear, not arquated: *elytra* minutely and confluent punctured; a yellow exterior margin, suture, and tip: *beneath* brownish-black: *pectus* and *thighs* pale: *postpectus* and *venter* generally with the segments edged with pale.

Length from two-fifths to more than half an inch.

One of our largest species. As it is very distinct from the *Pennsylvanicus* of Degeer, I take the liberty of changing the name given by Professor Knoch.

4. *C. fraxini*. Entirely brownish-black, immaculate.

Inhabits the United States.

Necydalis fraxini. Melsh. Catal.

Body black: *head*, a spot before the eyes, and mandibles, yellowish: *palpi* piceous: *thorax* with a minute angle at the basal angles: *elytra* obtusely scabrous, or with dilated, confluent, slightly impressed punctures, forming irregular transverse lines: *feet* blackish-brown.

Length nearly one-fourth of an inch.

5. *C. rufipes*. Black; thorax margined with rufous; elytra with a pale margin and suture.

Inhabits the United States.

Cantharis rufipes. Melsh. Catal.

Body black: *head*, spot before the eyes and mandibles, yellowish: *palpi* pale piceous-brown: *thorax* with a much dilated rufous lateral margin: *elytra* with a pale yellowish exterior margin, tip, and suture: *feet* pale yellowish: *thighs* in the middle black.

Length one-fourth of an inch nearly.

Var. a. Exterior margin of the elytra only, yellowish.

6. *C. bilineatus*. Rufous; elytra black; thorax with two black lines.

Inhabits the United States.

Cantharis marginalis. Knoch in Melsh. Catal.

Body pale rufous: *head*, a band between the eyes, *antennæ*, excepting the basal joint, and *palpi*, black: *thorax* with two parallel abbreviated dilated black lines: *elytra* black; exterior basal margin pale: *postpectus* behind the intermediate feet black: *tibia* and *tarsi* black.

Length seven-twentieths of an inch.

I change the name, as that of Knoch has been previously employed for a different species.

MALACHIUS, Latr.

1. *M. tricolor*. Head, postpectus, and feet, black; labrum and thorax rufous; abdomen rufo-testaceous.

Inhabits the United States.

Head black: *labrum*, *clypeus* on its anterior margin, and *palpi* at base, pale rufous: *antennæ* pale rufous, dusky at tip: *thorax* transverse, rather short, rufous, immaculate: *elytra* dark bluish-green, or somewhat violaceous; middle of the lateral edge obsolete piceous: *postpectus* and *feet* deep black: *venter* testaceous.

Length one-fifth of an inch nearly.

Taken on the Mississippi. It is as large as *M. 4-maculatus*, Fab. and somewhat resembles *M. thoracicus*, Fab. but is larger. I also found specimens near the Rocky Mountains.

2. *M. nigriceps*. Thorax rufous, with a large black spot; *elytra* blue; *venter* sanguineous.

Inhabits the United States.

Head deep black, pale testaceous or rufous before: *thorax* rufous, with a large black spot, sometimes composed of two dilated confluent ones, and not attaining the anterior margin: *elytra* violaceous-blue, or greenish: *pectus* rufous; origin of the feet black: *postpectus* black: *feet* black: *thighs* sometimes rufous, particularly the anterior ones: *venter* sanguineous.

Length nearly one-fifth of an inch.

About equal in size to the preceding, and may be readily distinguished from it by the black thoracic spot; the thorax also in this species is proportionally longer than in that insect. In the male the second joint of the antennæ is dilated and irregular. This species varies in having the thorax entirely black.

3. *M. nigripennis*. Thorax rufous, with a dilated longitudinal line; antennæ and elytra black.

Inhabits the United States.

Malachius thoracicus. Melsh. Catal.

Body black, inconspicuously hairy: head with three obtuse indentations between the eyes: antennæ black: labrum and clypeus before, rufous: thorax rufous, with a much dilated black line from the anterior to the posterior edge: elytra black, with a very slight violaceous tinge: pectus pale rufous, or testaceous; origin of the feet black: postpectus black; venter black, segments with more or less dilated sanguineous margins; sometimes entirely sanguineous: feet black; anterior thighs sometimes pale.

Length less than three-twentieths of an inch.

Readily distinguishable from the preceding as well by its inferior size and blackish elytra and antennæ, as by the black line or spot of the thorax being continued to the anterior edge. This may possibly be the *M. labiatus* of Fabr. The name *thoracicus* is pre-occupied.

4. *M. vittatus*. Thorax rufous, with a large black spot; elytra blue, margin and suture rufous.

Inhabits Mississippi.

Head black: labrum and base of the antennæ rufous: thorax rufous, with a dorsal black spot composed of two confluent ones, not attaining the anterior margin: elytra bright greenish-blue; exterior margin, suture, and tip, rufous; a little dilated behind the humerus: pectus rufous; base of the feet black: postpectus and venter black, incisures of the latter

edged with testaceous: *feet* black; anterior pairs of tibia often piceous.

Length less than one-fifth of an inch.

Rather smaller than *M. 4-maculatus*. The second joint of the antennæ of the male is dilated and irregular. For this species I am indebted to Mr. Thomas Nuttall.

5. *M. circumscriptus*. Black; thorax rufous each side; elytra margined with yellow.

Inhabits Missouri.

Body black; region of the mouth and basal joints of the antennæ beneath pale: *thorax* rosaceous, with a dilated black spot attaining both extremities: *elytra* margined all around, excepting at base, with yellow: *thighs* pale at base: *venter*, segments edged with whitish.

Length less than three-twentieths of an inch.

6. *M. bipunctatus*. Thorax rufous, with two remote black spots; elytra blue; abdomen sanguineous.

Inhabits Arkansa.

Head black; all before a line drawn between the anterior canthus of the eyes, yellow: *mandibles* and *terminal joints of the palpi* black: *thorax* rufous, two remote rounded black dots: *elytra* blue or greenish: *pectus* rufous: *postpectus* and *feet* black: *abdomen* sanguineous.

Length one-fourth of an inch.

This is the largest North American species I have seen. I obtained it near the Rocky Mountains.

PTILINUS, *Fabr. Latr.*

1. *P. ruficornis*. Black; antennæ, tibia, and tarsi, rufous; antennæ with much elongated processes.

Inhabits Kentucky.

Body black, immaculate, rugose with minute, slightly elevated, acute tubercles: *head* with a very slightly elevated longitudinal line on the vertex: *eyes* black-brown: *antennæ*, the processes very much elongated and the joints short; rufous: *tibia* and *tarsi* rufous: *elytra* with numerous impressed punctures, which are irregular near the base, and hardly arranged into striæ near the tip: *thorax* convex, elevated.

Length three-twentieths of an inch.

2. *P. serricollis*. Blackish; elytra chesnut, sericeous; feet pale.

Inhabits Missouri.

Blackish-brown, sericeous, punctured: *head* with minute tubercles: *eyes* deep black: *antennæ* pale rufous; seven second anterior processes, each one longer than its respective joint: *palpi* whitish: *thorax* slightly convex, deflected at the anterior angles; basal edge sinuate, minutely dentate, and with three small salient angles over the scutel; posterior lateral angles acute: *scutel* distinctly cordate: *elytra* rather pale chesnut-brown, with slightly impressed punctured striæ: *beneath* rufous: *pectus* each side black.

Length one-fourth of an inch.

ANOBIUM, *Fab.*

A. carinatum. Brown; thorax carinate behind; elytra punctate striate.

Inhabits Mississippi.

A. pertinax. Melsheimer's Catalogue.

Body brown: eyes black: antennæ and palpi rufous: clypeus, labrum, and base of the mandibles, piceous; the latter tipped with black: thorax declivous towards each margin; carinate behind, and with an impressed line terminating at the carina; carina dilated and bifid near the middle of the back; an oblique obsolete abbreviated line near the posterior angles; lateral edge about half as long as the central diameter: scutel rounded at tip: elytra profoundly striate; striæ obtuse, punctured; punctures transverse, dense: beneath blackish-brown.

Length more than one-fourth of an inch.

Found on the Mississippi above the mouth of the Ohio. This species approaches *A. pertinax*, *Fab.* but (as Mr. J. F. Melsheimer, in a letter to me, remarks) it is longer, the thorax differently formed, and always destitute of the fulvous spots sometimes so remarkable in the European specimens.

ENOPLIUM, *Latr.*

1. *E. marginatum.* Black; thorax red, with two black lines; elytra margined with yellowish.

Inhabits the United States.

Tillus marginatus. Knoch in Melsh. Catal.

Body black, hairy, punctured: *labrum*, and basal joints of the *palpi*, pale: *thorax* red, with two dilated longitudinal black lines confluent behind: *elytra* with a yellowish margin, suture, and base: *thighs* pale.

Length two-fifths of an inch.

Specimens occurred in the state of Ohio, and it is also an inhabitant of the Atlantic states. Differs from *Lampyris pilosa* of Forster, in having a differently coloured margin, &c.

2. *E. thoracicum*. Black; *thorax* rufous, slightly edged with black.

Inhabits the United States.

Tillus thoracicus. Melsh. Catal.

damicornis, Fab.?

Body black, hairy, punctured, cylindrical: *thorax* rufous, lateral and posterior edges black: *pectus* rufous: *elytra* entirely black, immaculate; punctures large, profound, approximate, and behind the middle small, confluent.

Length three-twentieths of an inch.

This species often occurs in the Atlantic states, and specimens were obtained on the Missouri. I should consider it the same as the *Tillus damicornis* of Fab. but that in the description of that insect, the author mentions but two dilated joints of the antennæ; whereas in ours there are three dilated joints.

3. *E. 4 punctatum*. Black; *elytra* sanguineous, with four black dots.

Inhabits the United States.

Tillus 4-punctatus. Melsh. Catal.

Body black, somewhat hairy, punctured: *thorax* depressed, subquadrate, not contracted behind, angles rounded, punctures confluent each side: *scutellum* black: *elytra* sanguineous, each with two black, round, subequal dots, one placed before and the other behind the middle.

Length more than one-fifth of an inch.

The specimens from the Arkansa vary a little from those of Pennsylvania, in having the elytral spots larger.

TRICHODES, *Fab.*

(*Clerus*, Latr. Leach.)

1. *T. ornatus*. Brassy-blackish; *elytra* with a humeral spot and two bands pale yellow.

Inhabits Arkansa.

Body dark brassy, slightly varied with a tinge of violaceous and bluish; hairy: *antennæ* and *palpi* rufous: *elytra* somewhat rugous, impunctured; a large, somewhat irregular spot exterior to the middle of the base, and including a humeral black oval spot; a small longitudinal oval spot before the middle; an oblique band on the middle hardly attaining the suture, and another oblique band before the tip also hardly attaining the suture, pale yellow: *tarsi* dark rufous.

Length seven-twentieths of an inch.

Found near the Rocky Mountains.

CLERUS, *Fabr.*

1. *C. rosmarus*. Rufous ; elytra with black and yellowish bands ; rufous at base ; feet, and abdomen, black : *head* immaculate.

Inhabits the United States.

Clerus rosmarum. Knoch in Melsh. Catal.

Body rufous, punctured, hairy : *head* immaculate : *eyes* deep black : *antennæ* dusky at tip : *elytra* rufous at base ; a black band before the middle, sometimes wanting or obsolete ; a yellowish-white band on the middle, covered with whitish hair, and pointing backwards at the suture ; a dilated black band behind the middle ; and a pale rufous tip, covered with pale rufous hair : *tibia* and *venter* deep black.

Length one-fourth of an inch nearly.

Observed in the state of Ohio. It also occurs in the Atlantic states. The tip of the elytra, as well as the band in the middle, is of the same colour with the hair which covers it.

2. *C. nigrifrons*. Rufous, elytra with black and cinereous bands, and rufous base ; postpectus, venter, and frontal spot, black.

Inhabits the United States.

Body rufous, hairy ; punctures indistinct : *head* with a black spot between the eyes : *eyes* black : *antennæ* and *palpi* blackish-piceous : *elytra* with a rufous base, occupying more than one-third of the length ; a very narrow black band before the middle ;

a narrow whitish band on the middle covered with cinerous hair, and curving backward at the suture; a dilated black band behind the middle; tip black, covered with cinerous hair which conceals a whitish spot sometimes wanting: *feet, postpectus, and venter,* deep black.

Length about one-fourth of an inch.

It inhabits the Atlantic states, and I also observed it on the Ohio.

3. *C. nigripes.* Rufous; head immaculate; feet black; elytra rufous at base, and with black and cinerous bands.

Inhabits the United States.

Body pale rufous: *head* immaculate: *eyes, antennæ, palpi,* and tips of the *mandibles,* black: *elytra* with a rufous base occupying more than one-third of the length; a very narrow black band before the middle; a narrow whitish band on the middle, covered with cinerous hair, and curving backward at the suture; a dilated black band behind the middle; tip black; covered with cinerous hair, which conceals a whitish spot which is sometimes wanting: *feet* black.

Length less than one-fourth of an inch.

This species is very similar to the preceding, and differs in having a rufous postpectus and venter, and immaculate front. It also resembles *Clerus dubius,* Fab. but differs from it, if I am not mistaken in that species, by being much smaller; and besides other differences, by the central band of the elytra curving backward, and not towards the head as in *dubius.*

4. *C. humeralis*. Black; humerus with a large rufous spot.

Inhabits the United States.

Body black, hairy: *head* greenish-black: *antennæ* pale, the three terminal joints forming an oval mass: *palpi* pale: *thorax* greenish-black, dilated each side before the middle into a very obtuse tubercle: *elytra* violaceous-black, with dilated confluent punctures; a large humeral rufous spot: *anterior tibia* either entirely or only on the inner edge rufous.

Length from more than three-twentieths to one-fifth of an inch.

From Missouri; and is also an inhabitant of the Atlantic states.

SILPHA, *Fab. Latr.*

1. *S. caudata*. Black; with short cinerous hair; *elytra* sinuate at tip, three elevated lines and intermediate series of tubercles.

Inhabits Missouri.

Body black, above opaque and covered with dense very short prostrate cinerous hair: *thorax* with a few blackish dots which are not elevated: *scutellum* with two large obsolete dark spots, lateral edge piceous: *elytra* with sparse shorter hairs than the thorax; three longitudinal elevated acute lines, on each of which the exterior one is shortest and the interior one is sinuated at tip; interstitial lines with a series of elevated tubercles: *tip* sinuate.

Length more than half an inch.

Found by Mr. Thomas Nuttall on the Upper Missouri, and by myself near the Rocky Mountains. It is closely allied to *SILPHA sinuata*, but the thorax is destitute of elevations.

2. *S. ramosa*. Black; elytra with three elevated branched lines.

Inhabits Missouri.

Body black, confluent punctured, immaculate, dilated: *thorax* destitute of elevations: *elytra*, with three longitudinal elevated lines; with numerous small lateral branches, which pass over the interstitial spaces; interstitial spaces minutely scabrous, with elevated points.

Length more than three-fifths of an inch.

Next in magnitude to *americana*, Fab. but more closely related to *inequalis*, from which it is at once distinguishable by the branched lines of the elytra. Found by Mr. Thomas Nuttall on the Upper Missouri.

3. *S. truncata*. Elytra smooth; truncate at tip.

Inhabits Arkansa.

Body oblong, blackish-brown; numerous minute punctures, furnishing short black hairs: *thorax* plane; an oblique impressed line each side; basal edge profoundly sinuated: *elytra* dark reddish-brown; shorter than the abdomen; transversely truncate at tip; the exterior angles rounded; surface entirely destitute of elevated lines; a transverse slight elevation on the submargin behind the middle.

Length three-fifths of an inch.

I found but a single specimen of this insect near

the Rocky Mountains. Its elytra are truncated like those of the *NECROPHAGI*. It belongs to Wilkins' genus *NECRODES*.

CATOPS, Payk.

C. basilaris. Black, covered with very short, yellowish hair; elytra, brown, paler at base.

Inhabits Missouri.

Body black, covered with numerous, short, yellowish hairs: *eyes* fuscous: *antennæ* blackish; two basal joints yellowish-white; eighth joint very small, transverse, shortest; preceding and three terminal joints largest, the latter somewhat piceous: *thorax* transverse-quadrate, convex, rather narrower before; lateral edge regularly arquated; basal and anterior edge subrectilinear; angles rounded: *scutel* triangular: *elytra* brownish, paler at base: a distinct subsutural, impressed line: *labrum* and *palpi* pale piceous; *beneath* blackish piceous; *feet* dark piceous.

Length fourteen-hundredths of an inch.

Found under wood at Engineer Cantonment on the Missouri.

CERCUS, Latr.

1. *C. pallipennis*. Black; elytra pale, testaceous. Inhabits Arkansa.

Body deep black, punctured; numerous short yellowish hairs: *antennæ*, pale, rufous: *elytra*, pale, testaceous, immaculate, transversely truncated at tip:

tergum, two terminal joints equal in length : *feet* and *venter* pale rufous.

Length less than three-tenths of an inch. Taken near the Rocky Mountains.

2. *C. niger*. Black, punctured, hirsute ; mouth, antennæ and feet, yellowish red.

Inhabits the United States.

Nitidula nigra, Melsh. Catal.

Body short, oval, brownish-black, hirsute, punctured ; hairs very short, yellowish ; punctures dilated, dense : *head* confluent punctured, punctures small : *labrum* piceous : *antennæ* piceous, third joint but little longer than the second ; *clava* dusky with pale hair : *thorax* much wider at base ; anterior angles rounded, posterior ones acutely and prominently angulated, with an indented oblique line above ; punctures dilated : *scutel* rounded at tip, base punctured, tip impunctured : *elytra* covering half of the abdomen, truncate or very obtusely rounded at tip ; punctures dilated, distinct, forming regular, approximate series : *feet* yellowish-red, ciliate.

Length about three-twentieths of an inch.

Inhabits Missouri and Pennsylvania.

ENGIS, *Fabr.*

1. *E. confluenta*. Black ; *elytra* testaceous, apex and about three spots on each black ; margin black.

Inhabits Missouri.

Head, *thorax* and *scutel*, black, punctured ; *elytra* yellowish or testaceous ; apex black ; exterior edge undulated with black ; a common line at base about

one half the length of the suture, with a small lateral spot ; humerus, and larger spot on the middle of each elytron communicating with the margin, black.

Length more than one-fifth of an inch.

This species was found by Mr. Thomas Nuttall.

2. *E. heros*. Black ; elytra bifasciate with rufous, the anterior band with an angular black spot.

Length three-fourths of an inch.

Body black : *thorax* slightly punctured at the anterior angles, and with dilated confluent punctures in the indented basal lines : *elytra* impunctured with two broad rufous undulated bands, interrupted at the suture ; basal band broadest, with an angular black spot near the humerus, and a common transversely oblong-quadrate black spot behind the scutel.

It occurs on the Missouri, and is a fine insect, probably one of the largest of the genus. In the colours and form of body it most strikingly resembles *E. fasciata*. Fabr. but it is much larger, and there is not the slightest appearance of punctures on the elytra ; the humeral black spot is angular, and its anterior angle is extended towards the humeral angle ; the basal portion of the basal band is extended very near to the scutel so as the more completely to inclose the transverse black spot. In the *fasciata* the elytra are distinctly punctured in striæ, the humeral spot is orbicular, and the basal portion of the basal band does not extend towards the scutel further than the middle of the base. In the Philadelphia Museum is a fine specimen of this insect, which was probably caught in Pennsylvania.

BYTURUS, *Latr.*

B. unicolor. Reddish-yellow, hairy; thorax each side depressed; tergum dusky.

Inhabits Arkansa.

Eyes black; *thorax*, posterior angles broadly depressed and slightly reflected, the depression continued on the side, but narrowed towards the anterior angles; *wings* dusky.

Length three-twentieths of an inch.

This species is most closely allied to *B. tomentosus* of authors. A single specimen was brought from the Arkansa by Mr. Nuttall.

DERMESTES, *Lin. Latr.*

D. marmoratus. Marbled with blackish-brown, and cinereous or ferruginous hair, with a large cinereous humeral spot.

Inhabits the United States.

Antennæ reddish-brown: *thorax* indented before the scutel: *pectus* blackish: *postpectus* and *coxæ* with dense white hair: *feet* blackish; intermediate and posterior thighs with a white band before; spot on the lateral basal margin of the elytra, large, angular: *venter* with dense white hair; anal segment and lateral spots black-brown.

Length from three-tenths to nine-twentieths of an inch.

This insect is of frequent occurrence in Missouri and Arkansa, and is a large species.

SCAPHIDIUM, *Fab.*

1. *S. 4-guttatum*. Black; thorax with an undulated series of large punctures; elytra with four rufous spots, anterior one panduriform.

Inhabits the United States.

Scaphidium 4-guttatum. Knoch in Melsh. Catal.

Body black: *head* with minute obsolete punctures; mouth and base of the antennæ piceous: *thorax* obsoletely punctured: an indented undulated transverse line of large profound punctures at base: *elytra* with a series of dilated profound punctures at base, abbreviated at the humerus; an impressed subsuteral slightly crenated striæ; two or three obsolete much abbreviated series of punctures near the middle, and two rufous spots, of which one is subbasal, transverse, panduriform, originating at the exterior edge and extending more than half across the elytron; the other spot subterminal, obtusely lunate.

Length one-fifth of an inch nearly.

Var. a. Elytral spots obsolete.

2. *S. 4-pustulatum*. Black; thorax with an undulated series of large punctures; elytra with four rufous obtusely lunate spots.

Inhabits the United States.

Scaphidium 4-pustulatum? Knoch in Melsh. Catalogue.

This species is similar to the preceding, excepting that the anterior elytral spot is very obtusely lunate, being emarginate only on the anterior side, a cha-

racter which, as far as my observation has extended, is invariable.

HETERO CERUS, *Bosc. Fab.*

1. *H. pallidus*. Thorax livid-brown, margin whitish; elytra whitish, lineate, and spotted with dusky.

Inhabits Missouri.

Head dark livid: *clypeus* paler, transverse-quadrate, truncate before: *labrum* prominent: *eyes* black: *antennæ* whitish: *mandibles* elongated, slightly arcuated; exterior base deeply ciliated; a slight tooth and emargination before the middle; inner edge bidentate near the tip; posterior tooth small: *scutel* long, triangular, minute: *elytra* whitish, slightly striated; striæ near the suture obsolete dusky; three undulated, dilated, obsolete, dusky bands: *feet* white; anterior pair dilated, compressed, and furnished on the exterior and rounded tip with about thirteen prominent spines; spines of the posterior pairs of feet less robust: *pectus* and *venter* pale yellowish or whitish.

Var. a. Dusky; the bands occupy nearly the whole surface of the elytra, leaving only a few obsolete whitish spots.

Length rather more than one-fifth of an inch.

Very common on the Missouri. Near Engineer Cantonment I observed a great number of this species in October, flying in the evening, near a sand bar. I obtained a different species, a few years since, on Senipuxten, eastern shore of Maryland.

2. *H. pusillus*. Dark reddish brown impunctured, hairy, hairs short, rather rigid, reflected, whitish : eyes pale reddish-brown : beneath blackish ; carina of the *pectus* piceous : *thighs* reddish-brown.

Length less than one-tenth of an inch.

This species was obtained on the shores of the Missouri river below the entrance of the Platte.

ELOPHORUS.

E. lineatus. Greenish ; thorax with five longitudinal impressed lines ; elytra grayish.

Elophorus griseus? Herbst in Melsh. Catal.

Head rugose with approximate elevated punctures, and tinged with bright green : eyes black : *antennæ* pale testaceous ; clava dusky pubescent : *palpi* pale testaceous, dusky at tip : *mandibles* varied with purple and green above : *thorax* greenish, sometimes varied with cupreous ; rugose, with approximate elevated punctures ; transverse-quadrate ; anterior angles advanced, posterior ones acute ; lateral edge excurved near the base ; disk with five, equidistant, longitudinal, strongly impressed lines : *scutel* minute suborbicular, cupreous : *elytra* yellowish-gray or whitish-testaceous ; striate, striæ with dilated, transverse punctures : *pectus* reddish yellow : *postpectus* and *venter* dusky : *feet* pale testaceous.

Length less than three twentieths of an inch.

Found in the river near Engineer Cantonment.

The name of *griseus* has been applied to another species. It is a native also of the Atlantic States.

HYDROPHILUS, *Fab.*

1. *H. triangularis*. Olivaceous-black; postpectus and sides of the venter with dull yellowish hair.

Inhabits the United States.

Hydrophilus ater? Melsh. Catal.

Body elongate-oval, black, tinged with olivaceous: *head* with two diverging frontal series of impressed punctures; punctures before the eyes and on the orbits: *antennæ*, *palpi* and suture of the clypeus yellowish: *thorax* with a few punctures each side, and an abbreviated oblique series of punctures each side before the middle: *elytra*, each with four series of punctures, the exterior one double: *beneath* black: *pectus* with very short dense yellowish hair before; a bifid prominence for the reception of the anterior tip of the sternum: *postpectus* covered by short dense yellowish hair: *sternum* grooved before, rounded at the anterior tip, and elongated, subulate, perfectly rectilinear behind: *abdomen* glabrous, with a triangular marginal spot of short yellowish hair on each segment.

Length from one and one-fifth to one and two-fifths of an inch.

I think this a different species from the *H. ater* of Oliv. inasmuch as no notice is taken, in the description of that insect, of lateral ventral triangles which are so conspicuous in our specimens. It is also a more elongated insect than Olivier's figure represents the *ater* to be; in this respect approaching

much nearer to his figure of *oblongus*, which, however, is said to have ferruginous thighs, and a but slightly canaliculated sternum.

In a certain light, the elytra appear, under a lens; to be marked by seven or eight capillary reddish lines. It is rather rare in Pennsylvania, but I obtained several specimens near the Rocky Mountains.

2. *H. obtusatus*. Black, convex, rounded behind; sternum with a slight prominence at the anterior tip.

Inhabits the United States.

Hydrophilus carabæoides, Melsh. Catal.

Body oblong-oval, convex, black: *head*, a lunate indented line of confluent punctures before the eyes on each side; orbits punctured: *palpi* and base of the antennæ, dark rufous: *thorax* with a very much abbreviated line of impressed punctures each side before the middle, and a few lateral punctures: *elytra* very obtusely rounded behind; four series of punctures furnishing minute hairs, the outer one double: *beneath* sericeous, with minute yellowish hairs: *pectus*, prominence not bifid; *sternum* narrow and not canaliculate before, slightly emarginate near the anterior tip; posterior moiety a little flattened, with an impressed line; posterior tip rounded and hardly extending beyond the base of the postpectus: *feet* dark piceous.

Length from three-fifths to thirteen-twentieths of an inch.

This species, which is found equally in Pennsylvania and on the Missouri, is certainly very closely allied to the *H. caraboides* of Fabr. The venter as

well as the postpectus of this species has a silky appearance in a certain light, occasioned by its minute dense hairs. The posterior termination of the body is more obtusely rounded than the head.

3. *H. nimbatus*. Black; head, thorax and elytra margined with yellowish.

Inhabits the United States.

Hydroph. nimbatus. Knoch in Melsh. Catal.

Head, two diverging punctured lines; margin yellowish: *labrum*, margin yellowish: *palpi* and base of the *antennæ* yellowish: *thorax*, a much abbreviated impressed oblique line each side before the middle, and another rather longer one on the middle of the lateral submargin; lateral margin and anterior edge yellowish-white: *elytra* minutely punctured; lateral margin yellowish-white: *beneath* black, sericeous with dull yellowish hairs: *feet* pale: *thighs* black at base: *tarsi* dusky: *pectus* with a bifid prominence: *sternum* pale, a little dilated before the intermediate feet; punctured; somewhat scabrous near the anterior tip; behind the intermediate feet attenuated, with a slightly impressed line; posterior tip elongated, acute: *venter*, terminal segments with a rufous spot each side.

Length about two-fifths of an inch.

A very pretty species and not uncommon.

SPHÆRIDIDIUM, *Fabr.*

S. apicialis. Obscure, piceous; head black; elytra pale at tip.

Body blackish-piceous, punctured, glabrous, oval: *head* equal deep black; punctures minute, distinct, dense: *antennæ* piceous; *clava* obconical, black: *maxillary palpi* pale-piceous, blackish at tip: *thorax*, angles acute; punctures minute, subequidistant: *scutel* oblong-triangular, acute: *elytra* with nine punctured striæ; exterior stria abbreviated at the middle; punctures equal, equidistant; tip and posterior outer margin pale reddish-yellow: *feet* piceous, blackish at base; anterior tibia with two robust spines at tip, and spinose ciliæ on the exterior edge.

Length three-fortieths of an inch.

Found at Engineer Cantonment. It varies in its shade of colour.

COPRIS, Geoff. Fab.

1. *C. anaglypticus*. Thorax trituberculate; head horned.

Inhabits the United States.

Scarab. anaglypticus. Knoch in Melsh. Catal.

Body black, punctured: *clypeus* emarginate at tip; horn as long as the clypeus, slightly recurved, simple; punctures confluent: *thorax* three tuberculate, densely punctured on every part; tubercles placed in a transverse series, the intermediate one transverse and profoundly emarginate; a longitudinal obsolete impressed line above; a transverse indented cavity or puncture each side, beneath which is an oblique elevated line confluent anteriorly with the edge of the thorax; anterior angles emarginate: *elytra* with pro-

found, indented, crenate, dilated striæ; interstitial spaces convex, punctured.

Length seven-twentieths of an inch.

This insect appears to be a general inhabitant of the United States; it is not unfrequent on the Upper Missouri and on the Arkansa.

It is closely allied to *COPRIS lunaris* and *emarginatus*, but may be distinguished from either by the punctured interstitial spaces of the elytra. It seems also related to *C. ammon*, but Olivier attributes to that insect the size only of *SINODERDRON cylindricum*, which is certainly less than half the magnitude of our insect. It also resembles the *janus* of Panzer, but is much larger.

The thoracic tubercles of the female are almost obsolete, and the horn of the head is transverse and much shorter than the head, but the other external characters are the same as those of the male.

2. *C. histeroides*. Dark cupreous; clypeus emarginate; antennæ yellowish.

Inhabits the United States.

Scarabæus histeroides. Knoch in Melsh. Catal.

Body punctured; above dark cupreous; beneath blackish-cupreous: *clypeus* with the punctures obsolete behind, and more distinct before; an impressed line from the anterior canthus of the eye to the lateral edge; anterior edge bidentate, teeth slightly elevated and separated by an emargination: *antennæ* yellow: *thorax* with an abbreviated impressed line from the middle nearly to the base; punctures more distinct at the base, nearly obsolete on the disk and

anteriorly; lateral submargin with an impressed dot; lateral edge not angulated: *elytra* striate; striæ profound, slightly punctured; interstitial lines flat and impunctured: *anterior* tibia with series of yellowish cilia; exterior edge four toothed, the posterior tooth minute or obsolete; terminal spine acute.

Length more than one-fourth of an inch.

This insect, which occurs in Pennsylvania, I also obtained on the Mississippi river near Cape Gerardeau.

3. *C. triangularis*. Cupreous; head horned; thorax angulated; *elytra* striated and punctured.

Inhabits Arkansa.

Body dark reddish-cupreous: *clypeus* reticulate, margined with black; horn as long as the thorax, recurved, black: *thorax* minutely scabrous, with a depressed triangular plane upon the surface; the lateral angles very prominent; a large submarginal lateral puncture: *elytra* regularly striate, with impressed slightly punctured lines; interstitial spaces punctured.

Length less than four-fifths of an inch.

This species is somewhat larger than *C. carnifex*, to which it is closely allied, but differs in colour, in having impressed striæ upon the *elytra*, and punctured interstitial spaces; whereas in *carnifex* the sides of the thorax and the *elytra* are green, and the latter have elevated striæ, and irregular elevated abbreviated lines on the interstitial spaces.

ATEUCHUS, *Fabr.*

1. *A. nigricornis*. Black, minutely scabrous; clypeus six-toothed, incisure of the posterior tooth much less profound than that of the preceding one; anterior tibia three-toothed.

Inhabits the United States.

Body deep black, immaculate, slightly scabrous with elevated points or minute lines: *head* with cupreous reflexions: *clypeus* six-toothed; the two anterior teeth more prominent, flattened, conic, slightly recurved; lateral ones smaller, more like serratures; the exterior one much the smallest, and separated from the preceding tooth by a slight incisure: *antennæ* black: *thorax* convex, with cupreous reflexions; an obsolete, indented, longitudinal, obtuse line, near the base; posterior edge regularly arquated; lateral edge angulated in the middle; anterior margin profoundly emarginate for the reception of the head: *elytra* with numerous elevated points, and with obsolete impunctured striæ: *anterior tibia* dentate upon the exterior edge, the three terminal teeth large.

Length more than one-fourth of an inch.

I observed this species near Cape Gerardeau, and in the intermediate country between that town and the Rocky Mountains; and as I formerly obtained two specimens in New Jersey, I think it probable that it inhabits a principal portion of our country; but it does not seem to be common any where. Those I observed in New Jersey were busily engaged in

rolling a small pellet of hog dung, which, however, was not shaped into the spherical form.

2. *A. obsoletus*. Cupreous polished; clypeus bidentate before; elytra obsoletely striated.

Inhabits near the Rocky Mountains.

Body entirely cupreous, polished, immaculate, with very minute punctures: *clypeus* slightly margined anteriorly with dull green; an oblique, slightly impressed, glabrous line before the eye; edge bidentate before, and with an obsolete remote tooth each side before the eyes: *antennæ* blackish: *thorax* a little angulated each side on the edge: *elytra* obsoletely striated.

Length nearly one-fifth of an inch.

This species was obtained on the river Platte near the Mountains. The punctures are so minute as not to be visible, but with the aid of a strong magnifier.

3. *A. ebeneus*. Black: clypeus six-toothed; incisure of the posterior tooth as profound as that of the preceding one.

Inhabits Missouri.

Body deep black, immaculate, scabrous, with slightly elevated, very numerous points: *clypeus* six-toothed; the two anterior teeth hardly more prominent; the fissure separating the posterior tooth more acute, and as profound as that of the preceding tooth: *thorax* convex; an obsolete, indented, longitudinal, obtuse line towards the base; posterior edge perceptibly projecting into a slight angle in the middle; lateral edge angulated in the middle, and with irregular denticles behind the middle: *elytra* with

obsolete impunctured striæ : *anterior tibia* with three large teeth.

Length two-fifths of an inch.

This species very much resembles the preceding, from which it is, however, distinguishable by its superior magnitude, by the much more numerous small tubercles with which its surface is overspread, and by the much more profound fissure which separates the two posterior teeth of the clypeus from each other; from this fissure a distinct line passes upwards and intersects a similar transverse line drawn from the inner canthus of the eye, as in many species of this genus.

SCARABÆUS, *Latr.*

S. tridentatus. Clypeus with an elevated tridentate line on the anterior submargin.

Inhabits Arkansa.

Body black, punctured : *clypeus* scabrous ; an obsolete elevated abbreviated line in the middle ; an elevated transverse tridentate line on the anterior submargin, confluent each side with the lateral reflected edge ; tip much narrowed, emarginate, reflected : *thorax*, punctures generally diffused : *scutel* impunctured : *elytra* with punctured striæ : *beneath* reddish-brown.

Length three-fifths of an inch.

The maxillæ of this insect are horny, and dentated at tip, but the mandibles are short, unarmed, ciliated on the interior and exterior sides, and not

prominent; the labrum also is concealed; the labium is conical and prominent, and the tongue is concealed. The extremity of the clypeus has very much the appearance of the labrum, as the elevated and dentated line resembles a reflected termination of the head.

A single specimen was brought from the Arkansa by Mr. Thomas Nuttall.

GEOTRUPES, *Latr.*

1. *G. excrementi*. Black-bronzed, mutic; an impressed rectangular line on the clypeus.

Inhabits the United States.

Scarabæus excrementi. Knoch in Melsh Catal.

Body above black-bronzed, punctured; beneath dark violaceous: *clypeus* confluent punctured; summit destitute of punctures; three very obtuse slightly elevated tubercles, of which one is above each eye, and consists of a more elevated portion of a raised line, which passes from above the eye to the edge of the clypeus, another tubercle is situated upon the middle; a profoundly impressed, abbreviated, longitudinal line between the eyes, which divaricates anteriorly into two lines that terminate at the tip of the elevated lateral line: *thorax* densely punctured each side, punctures rare on the disk; an impressed longitudinal obsolete line, from the base to the middle; an indented, obsolete spot on the lateral submargin, distinguished by more dense punctures; *elytra* profoundly striate, striæ slightly crenate on the inner sides.

Length about eleven-twentieths of an inch.

This species is common in various parts of the United States. It is found in Pennsylvania, and I obtained specimens at Engineer Cantonment, and at Cape Gerardeau.

The tubercles of the head are not more distinct than those of *S. stercorarius*.

It strongly resembles *S. splendidus* of Fabr. *miarophagus* of Knoch, but differs from both in colour, and from the latter, which it more closely resembles, by having the thoracic punctures less numerous, not so much dilated or so profoundly impressed; the colour of the *miarophagus* is dark piceous above and beneath, the legs are slightly violaceous.

It is very probable that the *excrementi* is allied to the *blackburnii* of Fab. if not the same.

2. *G. filicornis*. Rufous; thorax tridentate; clypeus with an elongated horn.

Inhabits Upper Missouri.

Body pale brownish-rufous: *clypeus*, anterior and lateral margins punctured, entire; horn elongated, linear, slightly recurved and compressed, longer than the greatest breadth of the head: *thorax* unequal; three tubercles, placed in a transverse series, the exterior ones compressed and longitudinal; intermediate tubercle transverse subemarginate; an indented line behind the middle tubercle, and a concavity each side: *scutel* triangular: *elytra* with punctured striæ.

Length one-fourth of an inch.

I obtained it near the Council bluff on the Missouri. Mr. T. Nuttall obtained specimens on the Arkansas. Belongs to the genus *ODONTÆUS*, Megerle.

APHODIUS, *Illig.*

1. *A. bicolor*. Above black ; beneath rufous ; clypeus widely emarginate.

Inhabits the United States.

Scarabæus bicolor. Knoch in Melsh. Catal.

Body above deep black immaculate, punctured : *clypeus* densely punctured, with a very slightly elevated, obtuse, obsolete, central tubercle ; anterior edge very obtusely and widely emarginated : *thorax* densely punctured in every part, excepting upon the anterior edge which is of a pale colour : *elytra* profoundly striated, striæ crenated ; interstitial lines minutely punctured : *beneath* pale reddish-brown : *pectus* and *antennæ* blackish : *postpectus* and *venter* punctured.

Var. a. *Elytra* with a few obsolete hardly perceptible rufous spots.

Length one-fifth of an inch.

This insect is not uncommon in various parts of the United States. I have found it in Pennsylvania and near cape Gerardeau on the Mississippi.

2. *A. strigatus*. Black, clypeus convex on the disk ; feet dark piceous:

Inhabits the United States.

Scarab. strigatus. Knoch in Melsh. Catal.

Body deep black, immaculate : *clypeus* with very minute punctures and larger ones at the base ; anteriorly emarginate ; middle of the disk convex : *thorax* with rather large punctures, which are remote on the disk and more numerous each side ; posterior angles very obtusely rounded : *elytra* profoundly

striated, striæ punctured; interstitial spaces convex: *beneath* black: *feet* piceous towards their extremities.

Length nearly one-fifth of an inch.

Rather a common species, it is found in Pennsylvania and as far west as the Rocky Mountains. It is longer in proportion to its width than *A. terminalis*.

3. *A. terminalis*. Black, tip of the elytra, and feet rufous; clypeus trituberculate.

Inhabits the United States.

Scarabæus stercoreus. Melsh. Catal.

Body black: *clypeus* with numerous distinct approximate punctures; three small tuberculi, placed in a transverse line, the intermediate one rather largest; anteriorly emarginate: *thorax* punctured, punctures subequal and equally distributed; posterior angles subangulated, not obtusely rounded: *scutel* slightly elevated into a longitudinal line on the posterior disk: *elytra* with punctured striæ; interstitial spaces perfectly flat; tip with a large, common, obscure, rufous spot, sometimes obsolete, or divided into two distant ones: *beneath* blackish: *feet* rufous, blackish at base.

Length more than three-twentieths of an inch.

The term *stercoreus* of Melsh. being pre-occupied, I have applied to this species that of *terminalis*. It is readily distinguishable from our other species by the trituberculate clypeus, and the uniformly distributed punctures of the thorax.

4. *A. tenella*. Black; elytra and feet rufous.

Inhabits the United States.

Scarabæus fimetarius. Melsh. Catal.

Body black : *clypeus* truncate or slightly emarginate at tip : *thorax* punctured, lateral margins rufous, posterior angles obtusely rounded : *scutel* blackish : *elytra* rufous, immaculate, striate, the striæ punctured; interstitial spaces very minutely punctured and but slightly convex : *beneath* blackish-piceous : *feet* rufous.

Length more than three-twentieths of an inch.

Var. a. Anterior and lateral margins of the *clypeus* rufous.

This species is an inhabitant of Pennsylvania, I also obtained specimens of it in the vicinity of Engineer Cantonment on the Missouri. It is certainly not the same with the insect which Fabricius described under the name of *fimetarius*, as it is much smaller and the *clypeus* is not tuberculated. I have therefore adopted a new name for this species.

5. *A. concavus*. Thorax impunctured on the disk.

Inhabits near the Rocky Mountains.

Body black or rufous ; *beneath* piceous : *clypeus* very obtusely emarginate before : *thorax* with rather large, distant punctures each side ; disk, impunctured ; posterior angles very obtusely rounded : *elytra*, striæ punctured ; interstitial spaces impunctured, flat : *anterior tibia* strongly tridentate.

Length three-tenths of an inch.

This species occurred on the Arkansas river near the Mountains. It is about equal in size to *A. oblongus*, but will not be readily confounded with that insect, as the disk of the thorax is impunctured, and the edge of the *clypeus* is unarmed. The lateral thoracic punctures in one specimen are obsolete.

6. *A. oblongus*. Black, punctured; clypeus with two tubercles in the anterior emargination.

Inhabits the United States.

Scarabæus oblongus. Knoch in Melsh. Catal.

Body black; beneath blackish-piceous: *clypeus* punctured, punctures confluent before; anterior edge emarginate and with a prominent acute tooth each side of the emargination; a transverse impressed line between the eyes, which is angulated in the middle: *thorax* punctured: *elytra* with punctured striæ, and very minute punctures in the interstitial spaces.

Length three-tenths of an inch.

This species appears to be common to most parts of the United States. I have found it in Pennsylvania and near the Rocky Mountains. It is readily distinguished from our other species of the genus by the bidentate anterior edge of the clypeus, and striate elytra.

7. *A. femoralis*. Blackish; margins of the elytra and of the thorax pale.

Inhabits Missouri.

Clypeus blackish-brown, minutely punctured, anteriorly emarginate: *thorax* with small punctures, which are rather more numerous each side; lateral margins dull yellowish-white, with a dusky dot: *scutel* black: *elytra* profoundly striated; striæ dilated and transversely punctured; interstitial spaces convex, narrow; colour dirty yellowish-white, with a dusky, common disk: *beneath* dark piceous: *thighs* pale, yellowish-white.

Length less than one-fifth of an inch.

Var. a. Pale margin of the thorax narrow and destitute of the dusky spot.

Found in considerable numbers on human excrement, at the Pawnee villages.

[TO BE CONTINUED.]

An ACCOUNT of the INSECT so destructive to the Peach tree. By JAMES WORTH. Read Jan. 7, 1823.

In July last, I furnished to Thomas Say the male and female of the insect so destructive to the peach tree, and he has favoured me with the following scientific description of them, viz :

ÆGERIA, Fabricius.

“*Æ. exitiosa*. MALE. Body steel blue : *antennæ* hairy on the inner side, black with a tinge of blue : *palpi* beneath, and basal band of the head above and beneath, pale yellow : *eyes* black brown : *thorax* with two pale yellow longitudinal lines and a transverse one behind interrupted above, a spot of the same colour beneath the origin of the wings : *wings* hyaline, nervures and margin steel blue, more dilated on the costal margin and anastomosing band of the superior wings : *feet, coxæ*, two bands on the tibia including the spines, incisures of the posterior tarsi and anterior tarsi behind, pale yellow : *abdomen* with two very narrow pale yellow bands, of which one is near the base and the other on the middle : *tail* fringed, the fringe margined with white each side.

“Length to the tip of the tail more than three-fourths of an inch.

“Length to the tip of the wings one-tenth of an inch shorter.

“FEMALE. Body very dark steel blue with a tinge of purple: *palpi* beneath black: *thorax* immaculate: *inferior wings* hyaline, with an opaque margin, and longitudinal line, the latter and the costal margin are dilated: *tergum* with the fifth segment bright fulvous.

“Length seven-tenths of an inch.

“The PUPA has two semifaciæ of spines upon each of the segments excepting the three terminal ones, which have a single row only.

“The FOLLICLE is brown oblong-oval, and is composed of small pieces of bark and earth, closely connected together by the web of the animal.

“The very great disparity of markings between the sexes of this destructive species, would lead us to hesitate in admitting their identity, if we were not aware that in this genus the males and females in several instances, differ exceedingly from each other. In the present instance this difference is so great, as to render it difficult to construct a specific character which shall distinguish them from all others of the genus. After a careful examination of Entomological works, I have not been able to find any notice whatever of this species, I therefore describe it as new.”

In a communication which I sometime ago made to the Agricultural Society of Bucks County, I de-

scribed the general appearance of the insect in the winged state, and made some mention of the egg; but the only opportunity which I have had of examining the egg, was in a glass tumbler, where the insect was confined; and in that case, the deposite might have been prematurely made. The eggs thus observed were oblong-oval, just discernable by the naked eye and of a dull yellow colour, and were attached to the side of the tumbler, with a glutinous substance. I have not yet been so fortunate as to ascertain satisfactorily, on what part of the tree the deposite is made. I have never seen the female at rest, except in one instance on the leaf, and it may be possible, that there is the place of deposite; but I am inclined to believe, that it is made somewhere on the trunk, and attached to it in the same manner as in the tumbler above mentioned.

The larva is white with a reddish brown head, but it is so generally known, that it is unnecessary to describe it particularly. It commences its operations the last of September and beginning of October, and appears to enter the tree a little below the surface of the ground where the bark is tender: it cuts through the bark and passes downwards into the root, then turns its course upwards and again reaches the surface by the beginning of July following. It is however sometimes difficult to discover the precise place where the worm enters, as it is then so small, that the aperture is scarcely discernible, and hence the very absurd notions that are entertained by many individuals respecting the propagation of some insects,

and the error prevalent in the present case, that the insect while in the winged state, punctures the tree and lodges the egg within the bark. The pupa state commences about the first of July, but more generally takes place about the middle of that month, and is to be found enveloped in its follicle, close to the trunk, among the gummy matter that oozes from the tree. It appears in the winged state from the tenth of July to the beginning of August, but more generally the latter part of July.

On the tenth of July last, I examined my trees, and found twenty follicles and about thirty of the larva; four of the follicles were empty, the insect having passed into the winged state; the remaining sixteen contained the pupa; the larva were near the surface of the ground, having completed their destructive career.

Many remedies have been prescribed for the disease to which that very valuable fruit tree, the peach, is subjected, by the depredation of the insect here treated of; but those remedies have been prescribed without a proper examination of the case. I will mention a few of them. Hot water, tanner's bark, and flour of sulphur have been recommended to be applied to the root of the tree; and soft soap and lime-wash to the trunk, without stating the time of application. Now, I am sure that neither of these can have any effect in destroying the insect, unless applied when it is on the outside of the tree, and coming in immediate contact therewith; nevertheless,

any thing that nourishes the tree, may enable it to resist an attack which it could not sustain in a weakly state. The boxing around the trunk, and filling with ashes, sand, or other matter, or hilling with earth, during the summer, and laying the roots bare in winter, I think a very injurious practice, and often proves fatal to the tree; it is about as natural as that a man should be clothed in warm weather, and go naked in cold; and where any good has been derived by such practice, it has not been owing to the extra covering in summer, or the exposure of the roots in winter, but simply by using some nutritious substance that gave new vigour to the tree.

The best plan of guarding against the ravages of the insect which I have found, is to examine the trees early in the month of July; take a bricklayer's trowel and opening the ground around the trunk, the lodgment of the insect will at once be discovered, by the appearance of gum, and can readily be destroyed: one person can thus examine more than one hundred trees in less than half a day, and very few, if any, of the insects will escape. But, in order the more effectually to destroy them, I would advise, that from the first to the middle of August, some swingling tow, a piece of hairy hide, (the hair inside, but turned over at top) or some other coarse thing of six or more inches in width, be tied close around the trunk of the tree, the under edge to be a little covered with earth, so as to prevent any passage beneath; about the middle of September remove the bandage, and im-

mediately give the whole trunk of the tree a covering of soft soap or lime-wash, well brushed on, that no spot from the head to the root may remain untouched. Perhaps a decoction of tobacco or some other wash might do better; even hot water would be effectual where the tree was sufficiently hardy to bear the application; or, it may be that the wash would answer the purpose without the bandage, (and I am now trying the experiment) but where the bandage is dispensed with, the wash ought, I think, to be applied about the first of September, or I should have great confidence in a bandage of tobacco leaves or stems; it should be kept on from the first of August to November, and could do no damage by being continued, provided it was not tied so close as to cramp the growth of the tree.

But there are causes of decline, other than that of the insect, and a principal one is, the not stirring of the ground; I apprehend, that the disease called "yellows" is often thus occasioned. Last year my peach orchard was considerably affected; the ground had not been ploughed for three years and had become quite covered with grass. In the spring of the current year, I had it well broken up, and kept clean during the summer: the trees soon assumed a healthy appearance and furnished a plentiful supply of fine fruit, and the whole orchard is now in the most flourishing condition, and I believe, there will be no difficulty in keeping it in that state.

Notice of the YENITE of Rhode Island, and several other American Minerals. By G. TROOST, M. D. Read Nov. 25, 1823.

Amongst the minerals which were collected by that zealous naturalist, Major *N. A. Ware*, in an excursion to Rhode Island, and presented by him to the Academy of Natural Sciences, I discovered one specimen which attracted my attention. This, as it acted upon the magnet, was considered to be Iron ore, but as its crystalline form was not similar to any of the ores of that metal, I was speedily convinced that it was some other substance, and requested of him a specimen; and it is to his generosity that I owe the opportunity of making this investigation.

The substance in question is the *Yenite*, or as some mineralogists call it, the *Lieverite*; and as far as I know, it is the first time that this mineral has been found in the United States. I beg leave to offer for our journal the following notice.

The colour of the *Yenite* of Rhode Island is perfectly black, sometimes brownish black. It is crystallized, the crystals are prismatic, very long, varying in diameter from that of a bristle to three-eighths of an inch. The form in general is a slightly rhomboidal prism longitudinally striated, and terminated by several faces. The crystals on my specimen are all fractured but one, which is the *quadriduodecimal* of Haüy; there are also some crystals which have an eight sided prism, but none of them are ter-

minated, so that I cannot decide whether they belong to the *trioctonal* or *monostique* of the same author.

The crystals when brownish, have externally a greasy lustre, and are dull when they are black. They are irregularly dispersed in a horizontal position, with some hyaline Quartz crystals, upon a granular Quartz containing minute octahedral crystals of oxidulated Iron.

The transverse fracture is uneven and rough with a resinous lustre: the longitudinal is lamellar.

It scratches glass, gives sparks with steel. It is fusible before the blowpipe into a black opaque globe; with borax it forms a yellowish green bead. It is soluble without effervescence in nitric and muriatic acid, more completely in the latter.

Some of the crystals attract the magnetic needle, which circumstance is probably ascribable to some minute crystals or particles of oxidulated Iron, which, though imperceptible, are perhaps dispersed over its surface. Some of the crystals do not act upon the magnet.

It occurs, according to Major Ware, on a farm of a Mr. Brown, in Cumberland township, Rhode Island, fifteen miles north of Providence.

I beg leave to announce at the same time that the Brucite of Cleaveland, or, as Professor Berzelius has called it, the Chondrodite, does not occur merely in grains and imperfect crystals, as is mentioned by the authors on mineralogy, but it occurs also in *mass*.

It has in this state a rough splintery fracture. Its

colour is greenish, with a tinge of yellow, and here and there intermixed with green Spinel and carbonate of Lime. Sometimes this latter fills up some cavities; and when removed by acid, it exhibits the Spinel and Brucite crystallized. The crystals of the Brucite are of the size of from one-fourth to one-half of an inch; are yellower than the amorphous mass, and coincide then with the already known Brucite: those of the Spinel are of a fine green colour; some of them of the size of one-fourth of an inch. It appears that the mass is coloured by the Spinel.

I have in my possession a specimen of the above, of upwards of six by four inches, which I owe to the generosity of its discoverer, Dr. Samuel Fowler, proprietor of the Franklin Iron Works, which have of late become so interesting to mineralogists. To Dr. Fowler, who has cultivated the science with success, mineralogy is indebted for the discovery of some other interesting minerals. He has lately presented to me the white sulphuret of Zinc in *octahedral* crystals, discovered by Mr. L. Vanuxem; Beryl of a fine apple green colour in the form of *peridodecahedral* prisms, imbedded with Brucite in carbonate of Lime, also the phosphate of Lime in *hexahedral* and *peridodecahedral* prisms, of an asparagus green colour. Some of them are half an inch long, and are associated with green Amphibole (actinolite) and Scapolite. All these minerals occur near Franklin, Sussex county, New Jersey.

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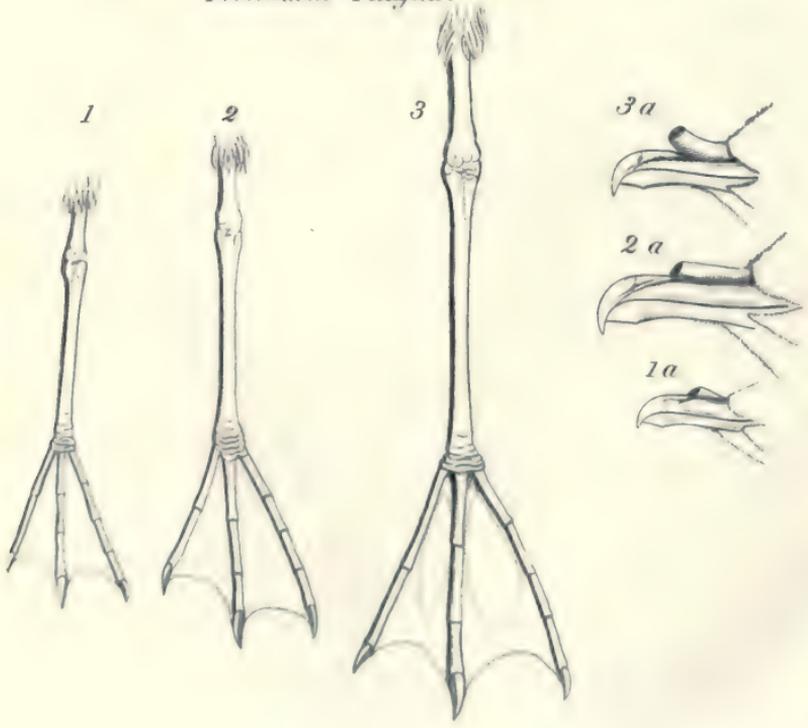
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Procellaria Pelagica.



An Account of Four Species of STORMY PETRELS.
 By CHARLES BONAPARTE. Read January 13th,
 1824.

FOUR small species of PROCELLARIA having been generally confounded, under the name of *pelagica*, (Stormy Petrel,) the object of this essay is to indicate them by distinctive characters, agreeably to Temminck; and to show that one of the number has not been recognised as a separate species by any author.

1. PROCELLARIA *pelagica*. (LINN.) Pl. VIII.

Tail even, the *wings*, when closed, extending a little beyond its tip; length of the *tarsus*, seven-eighths of an inch, (ten French lines.)

SYNONYMES.

P. pelagica, LINN.; TEMMINCK, *Manuel d'Ornithologie*, p. 810; (but not of Wilson's *Am. Orn.* who describes and figures the species to which I give his name in this essay.)

L'Oiseau de Tempete, BUFF. vol. ix. p. 327, (the description, but not the accompanying figure, nor that of the *Planches Enluminees*, No. 993, both of which represent the *P. oceanica*, Forster.)

Le Pétrel, BRISS. *Orn.* vol. vi. p. 140. pl. 13. fig. 1.

My Collection.

I insert no other synonymes, for fear of quoting

incorrectly; these small petrels resembling each other so closely, that it is almost impossible to decide upon the particular species authors had in view, from their short and unessential descriptions. The probability, however, is, that this species is the *pelagica* of the European writers.

DESCRIPTION. General colour sooty-black; *vent* each side, *rump* and *upper tail-coverts*, pure white; the tips of the last, the *tail* and *primaries*, deep black; *greater wing-coverts*, and some of the *secondaries*, tipped with whitish; *bill* half an inch long, and, with the *feet*, black; *irides* blackish. Total length five inches and three-fourths.

The **SEXES** are alike in colour. The young differ from the adults by being of a lighter tint; and by having the feathers margined with reddish-brown.

HABITAT. Probably only near the coasts of Europe, principally those of England and Scotland; common at the Orkney isles, and the Hebrides, but most abundant at the island of St. Kilda. Like its congeners, it is rarely seen inland. I cannot learn that it has been seen on the coasts of America, where a different species has been, hitherto, mistaken for it. During a protracted voyage across the Atlantic, although frequently surrounded by numbers of the two following species, I did not observe one individual of the *pelagica*.

FOOD. Small fishes, crustacea, and mollusca,

which float upon the surface of the ocean, and which, like the others of the genus, this bird seizes on the wing with great agility, without dipping in the water. It also feeds upon the seeds of seaweeds, upon the excrements of cetaceous animals, and upon the greasy substances thrown from vessels.

PROPAGATION. According to Temminck, they breed in the fissures and holes of rocks; and lay but one egg, which is almost round, and of a pure white.

2. *P. Leachii*, (TEMME.) Pl. IX.

Tail forked, the *wings*, when closed, not extending beyond its tip; length of the *tarsus* one inch, (eleven French lines.)

SYNONYME.

P. Leachii, TEMMINCK, *Man. d'Orn.* p. 812.

Philadelphia Museum, and my Collection.

DESCRIPTION. General colour brownish-black, tinged with cinereous; *primaries* and *tail* somewhat darker; *vent* each side, and *upper tail-coverts*, white, with brown shafts; *wing-coverts*, some of the *secondaries*, and of the *scapulars*, gradually changing to dirty white at the tip, forming a broad band across the wings; *bill* VERY ROBUST, full three quarters of an inch long, and, with the *feet*, black. Total length eight inches.

SEXES, alike in colour.

HABITAT. Almost the whole extent of the Atlantic ocean. I killed a few individuals on this side of the Banks of Newfoundland, though this species is much less common, near the American coast, than the following, which seems to increase in number in proportion as the other becomes rare.

FOOD and PROPAGATION as in the preceding species.

OBSERVATION. I at first supposed this species to be new, and intended to give it the name of *P. Atlantica*; the circumstance of the species which Temminck dedicated to Dr. Leach having been restricted by the former to the vicinity of the island of St. Kilda, while mine is diffused almost all over the Atlantic, contributed chiefly to the formation of this opinion. But as the accurate description which that learned naturalist gives of his species quadrates with mine, I no longer hesitate to consider them the same. In order, however, to preclude any doubt on this subject, it is only necessary to compare the length and thickness of the bill. An individual of Temminck's species having been, as he states, killed on the coast of Picardy, and that described above having been observed by myself almost all over the Atlantic, I conclude that this bird has been generally mistaken for the preceding, and that a specimen from St. Kilda only was submitted to accurate examination, thus taking its station among



Procellaria Leachii.



Procellaria Wilsonii.

the species. A similar remark may be made with respect to the following species, which, though known, perhaps, for centuries, has always been confounded with the *pelagica*.

3. *P. Wilsonii*, (*nobis*.) Pl. IX.

Tail nearly even, the *wings*, when closed, extending a little beyond its tip; length of the *tarsus* nearly one inch and a half, (sixteen French lines.)

SYNONYMES.

P. pelagica, WILSON'S *American Ornithology*, vol. vii. p. 90. pl. 60. fig. 6. And probably the *pelagica* of other authors, who have written on the subject of American birds.

Philadelphia Museum, and my Collection.

DESCRIPTION. General colour deep sooty-black; *vent* each side, and *upper tail-coverts* totally white; *primaries* and *tail* deep black; *greater wing-coverts*, and some of the *secondaries*, tipped with whitish; *bill* five eighths of an inch long, black; *feet* black, with a large oblong, yellow spot on the membranes. Total length nearly seven inches.

SEXES alike in colour.

HABITAT. On the coast of North America very common; less abundant east of the Banks of Newfoundland. I have never learnt that it has been seen on the coasts of Europe. I killed one, that had probably strayed, near the Azores.

FOOD, as in the preceding.

PROPAGATION. Breeds, according to Wilson, in great numbers, on the rocky shores of the Bahama, and the Bermuda islands; and in some places on the coasts of East Florida and Cuba. Like the bank swallows, they breed in communities, and make their nests in the holes and cavities of the rocks, above the sea. They are said to feed their young only at night, they being during the day occupied in wandering over the ocean, in pursuit of food.

OBSERVATION. When I first procured this species, I considered it a nondescript, and noted it as such; the citation of Wilson's *pelagica*, among the synonymes of the true *pelagica*, by the most eminent ornithologist of the age, M. Temminck, not permitting a doubt of their identity. But having an opportunity of inspecting the very individual from which Wilson took his figure, and drew up his description, I was undeceived, by proving the unity of my specimens with that of Wilson, and the discrepancy of these with that of Temminck. The latter had certainly never seen an individual from America, otherwise the difference between the two species would not have eluded the accurate eye of this naturalist. I propose for this species the name of *Wilsonii*, as a small testimony of respect to the memory of the author of the American Ornithology, whose loss science and America will long deplore. The yellow spot upon the membrane of the feet distin-

guishes this species, at first sight, from the others; and this character remains permanent in the dried specimens.

I shall conclude this paper by translating from Temminck, the essential characters of the fourth species, which inhabits the Pacific ocean, in order that the length of its tarsus, which is the same as that of the *Wilsonii*, may not lead naturalists into a belief of the unity of the species, without further proof.

4. *P. oceanica*, FORST. *Pétrel échasse*, TEMM.

Plumage the same as that of the *pelagica*; *size* a little larger; *wings* extending more than an inch beyond the tip of the *tail*; length of the *tarsus* nearly one inch and a half, (sixteen French lines.)

SYNONYMES.

BUFF. *pl. enl.* 993. *Idem*, *vol. ix. pl.* 23. (but not the accompanying description.)

Stormy Petrel, LATH. *Syn. vol. vi. p.* 411. *No.* 18.

P. oceanica of the original drawings of Forster, *Icon.* 12.

EXPLANATION OF PLATE VIII.

Fig. 1. Leg of *P. pelagica*.

2. " *P. Leachii*.

3. " *P. Wilsonii*.

1a. Bill of *P. pelagica*.

2a. " *P. Leachii*.

3a. " *P. Wilsonii*.

Description of the American PETALITE from Lake Ontario. By G. TROOST, M. D. Read January 13th, 1824.

THE discovery of a new alkali, the *lithia*, has made us acquainted with a mineral, which perhaps without this discovery, would have remained unknown on this side of the Atlantic. This mineral is the Petalite, first described by Dandrada. It has been hitherto found only in Sweden, in the province of Sudermania, near Uto, where it occurs in pieces of the size of a few inches, associated with Spodumen, Feldspar, granular oxide of Titanium, Manganese, carbonate of Lime, Apophyllite, Epidote, Amphibole, black and blue Tourmaline, Mica and Lepidolite; which substances compose a vein in the iron mines of the above mentioned place. Dandrada mentions also the mines of Tala and Fingrufan, near the Nija-Kopparberg in the same country, as localities of this mineral.

Our daily discoveries in mineralogy, exhibit the striking analogy of our minerals with those of the old continent. This analogy is further confirmed by the discovery of the Petalite, a mineral which the researches of Arfwedson, the discoverer of the lithia, have rendered interesting. Examining some geological specimens, collected by Dr. Bigsby, who is already favourably known to the learned world by his interesting geological

researches, I observed a fine mass of Actinolite, covering a substance which, misled by its structure, I first mistook for a variety of Feldspar or Tremolite. Dr. Bigsby had the politeness to present me with specimens; and it is to his kindness that I am indebted for the opportunity of laying before the Academy, the present description.

This mineral occurs in crystalline masses, of a grayish-white colour, with a tinge of green.

It has a confused lamellar texture; the lamina offer in some directions a radiated texture, not unlike some varieties of Tremolite, approaching even to fibrous, as observed in the asbestiform Actinolite; the fibres are diverging; the lamina are sometimes scaly and undulated. The cleavage approaches to a rhomboidal prism of 130° , which has again a diagonal cleavage.

It breaks with difficulty, offering a rough lamellar and fibrous fracture; the fragments are angular with a glistening lustre, and in the direction of the lamina somewhat pearly, more or less brilliant. It is strongly translucent on the edges, and strikes fire freely with steel; nearly of the same hardness with Feldspar. Its specific gravity is 2.593.

It melts with difficulty into an opaque white porous enamel; with borax it gives a transparent glass.

I fused a small quantity of the mineral with potash, dissolved the product in muriatic acid, then evaporated it to dryness, and digested the

mass in alcohol, by which it was partly dissolved, and formed a solution which burned with a red flame of a more dense colour than that of Strontian. The quantity which I subjected to analysis was too small to enable me to ascertain the quantity of the lithia, and the proportions of the other constituents.

The Actinolite which covers the Petalite is very handsome; it seems to be a vein in which the crystals of Actinolite of a fine green colour are cemented together by lamellar carbonate of Lime. The crystals are nearly transparent, almost cylindrical, with the exception of a few which belong to the Bis-unitaire and the Triunitaire of Haüy; the same form as those which are found at Franklin, New Jersey. Some minute crystals of pyritous Copper are dispersed through this vein.

Dr. Bigsby received a specimen of this mineral in 1820 from Dr. Lyons, now of Montreal, together with other rolled rock masses, and considered it a Tremolite. In 1823 he visited the locality, and detached the fragment from which the above description has been drawn up.

The Petalite occurs on the north shore of lake Ontario, on the beach in front of York, the capital of Upper Canada, a few yards to the right of the wharf used by the steamboat Frontinac. It is a rolled mass, weighing about a ton, and is close to a somewhat larger boulder of the Ophicalcic family, which Dr. Bigsby has met with in situ near the

Thousand Islands below Kingston, and at Granville on the river Ottawa. Considerable quantities of loose Greenstone, Sienite and Labrador-Feldspar are also strewed around the Petalite.

The town of York is situated on a clayey alluvion, with quartzzy gravel. The ancient banks of the lake are about a mile in the rear; but at the distance of several miles, east and west, they form the immediate shores of the lake, in the slopes of Burlington Heights, and the very picturesque cliffs of York Highlands, 300 feet high, and consisting of gray and blue clay, which now and then alternate with horizontal bands of ferruginous sand.

At York this alluvion overlies a brown horizontal Limestone, abounding in Trilobites, Orthoceratites, and other organic remains of the older secondary formations, and which abutts northwardly, forty miles from lake Ontario, on Gneiss and Sienitic rocks. These range north-east and south-west, accompanied by white Marble, actinolite Slate, and large deposits of magnetic Iron ore and some variegated Copper ore.

Descriptions of COLEOPTEROUS INSECTS collected in the late Expedition to the Rocky Mountains, performed by order of Mr. Calhoun, Secretary of War, under the command of Major Long. By THOMAS SAY, Zoologist to the Expedition. Read October 22, 1823. (Continued.)

TROX, Fab.

1. *T. capillaris*. Clypeus rounded at tip, not reflected; elytra tuberculated.

Inhabits Upper Missouri.

Body cinereous-fuscous: *clypeus* with two elevated, obtuse tubercles; tip rounded; edge not reflected: *thorax* inequal, canaliculate, minutely hispid; posterior angles acute: *scutel* not contracted at base or middle: *elytra* with elevated, subacute, reflected tubercles placed in regular series, which are alternately smaller and separated by elevated capillary lines: *punctures* obsolete: *beneath* black: *anterior tibia* two-toothed, the terminal one emarginated.

Length seven-twentieths of an inch.

The clypeus of this insect is not angulated, nor reflected before; and the slightly elevated, acute or capillary, longitudinal, interstitial lines, distinguish it from other species.

2. *T. scutellaris*. Thorax inequal, posterior

angles rounded; elytra with elevated polished spaces and impressed lines.

Inhabits Upper Platte.

Body black, the depressions dusky-cinereous: *clypeus* punctured, and with two distinct rounded tubercles; anterior tip angulated; edge reflected; *thorax* very unequal, punctured; lateral edge entire; posterior angles very obtusely rounded: *scutel* angularly contracted in the middle, acute at tip: *elytra* with somewhat capillary impressed striæ, and transverse irregular impressed lines, dividing the surface into irregular, longitudinally-quadrate, equally elevated, polished spaces; a few remote punctures: *feet* profoundly punctured: *anterior tibia* with a very obtuse crenation on the exterior edge.

Length thirteen-twentieths of an inch.

This I believe to be our largest species; like its kindred, it feeds upon decomposing animal bodies, and is an inhabitant of the superior portion of the extensive region, through which the rivers Platte and Arkansa flow. It may be distinguished from its neighbouring large species, by the entire lateral thoracic edge, and by the equally elevated polished spaces of the elytra.

CETONIA, *Fab.*

C. barbata. Hairy, scutellate; elytra glabrous, pale reddish-yellow, spotted with black.

Inhabits the United States.

C. lanius, Fab. }
tonkæa, Herbst. } Of Melsh. Catal.

Body with long yellowish-cinereous hair: *clypeus* entire, concealed by the hair; margin reflected: *thorax* covered with hair, beneath which it is cupreous, varied with blackish; anterior and posterior margin reddish-yellow, the latter emarginate for the reception of the scutel: *scutel* reddish-yellow varied with black, oblong-triangular, acute: *elytra* reddish-yellow, with numerous, irregular, black-brown points, and a few obsolete, remote, short hairs: *beneath* blackish-cupreous, very hairy: *venter* glabrous; segments margined with reddish-brown.

Length rather more than half an inch.

Not uncommon in various parts of our country, and is found at Council Bluff on the Missouri, and upon the Arkansa. Mr. Melsheimer, in his catalogue, refers it to *lanius* and *tonkæa*; but it disagrees with the descriptions of each of these insects, by having a very distinct and rather large scutel, inserted at base into a thoracic emargination. Neither does it agree with the description of *C. carnifex*, to which it has also been referred.

TRICHIUS, *Fab.*

T. eremicola. Chesnut colour; thorax darker, with an excavation and an anterior elevated line.

Inhabits the United States.

Trichius eremicola, Knoch in Melsh. Catal.

Head excavated between the eyes; edge elevated into a tubercle over the insertion of the antennæ; anterior edge reflected: *thorax* with a transverse dilated excavation before the middle, anterior to which is a transverse, elevated, abbreviated line; punctures numerous and dense before, sparse behind: *elytra* smooth, simply punctured.

Length one inch to one inch and a quarter.

A rare insect, but occasionally occurring in various parts of the country. Mr. Nuttall brought a specimen from the Missouri. It is allied to *T. eremita*, but differs from it in many respects, particularly in the sculpture of the thorax and elytra.

MELOLONTHA, Fab.

1. *M. longitarsa*. Pale, cinereous-testaceous; clypeus profoundly emarginate; tarsi elongated.

Inhabits Missouri.

Body pale, punctured, nearly glabrous: *clypeus* very densely punctured above, and sparsely so before; anterior edge very profoundly emarginate, the lobes concave above: *thorax* with numerous, slightly indented, irregular punctures; posterior angles subacute: *scutel* rounded at tip: *elytra* with irregular punctures: *beneath* subglabrous:

tarsi elongated, anterior ones as long as the femora and tibia conjunctly: *nails* armed with a strong tooth near the base.

Length nine-twentieths of an inch.

It is probably rather rare. The form of the body is cylindrical and elongated; the *tarsi* are remarkably elongated.

2. *M. lanceolata*. Above with small lanceolate hairs or scales; beneath hairy.

Inhabits Missouri and Arkansas.

Body short, suboval, black or reddish-brown; nearly covered above with small lanceolate cinnereous scales, which arise from impressed punctures: *clypeus* slightly emarginate, edge reflected: *thorax* a little dilated each side before the middle into a rounded angle; posterior angles acute; lateral edge slightly crenated: *scutel* rounded at tip: *elytra* with minute elevated points between the scale-like processes; from two to four obsolete, subglabrous lines: *pectus* and *postpectus* downy: *venter* in the male, having a compressed tubercle on the centre of each of the three middle segments, and the penultimate segment much indented: *nails* one-toothed near the base.

Length three-fifths of an inch.

This insect is very short in proportion to its thickness; and the remarkable character of the compressed tubercles on the venter of the male, readily distinguish it from other species. I found this species near the Rocky Mountains.

3. *M. hirsuta*. Castaneous, hairy; hair disposed in lines on the elytra.

Inhabits the United States.

M. hirsuta, Knoch in Melsh. Catal.

Head hairy; punctures dilated, crowded, confluent; anterior edge emarginate, slightly reflected: *thorax* hairy: punctures dilated, large, irregular, confluent, with slightly elevated centres, each furnishing a rigid hair; lateral edge minutely crenate, dilated in the middle: *scutel* punctured each side, rounded at tip: *elytra* minutely rugose; hair disposed in five or six longitudinal series on each elytron: *breast* with short cinereous, prostrate hair.

Length seven-tenths of an inch.

Readily distinguishable by the regular series of hair on the elytra. Inhabits Pennsylvania, and I observed it on the Missouri. Mr. Nuttall brought specimens from Arkansa.

4. *M. pilosicollis*. Pale reddish-brown, hairy; thorax and base of the elytra with longer hair.

Inhabits the United States.

M. pilosicollis, Knoch in Melsh. Catal.

Body reddish-brown, covered with dense yellowish cinereous hair: *head* with elongated hair; anterior edge entire, rounded, reflected; punctures dilated, shallow, dense: *antennæ* with scattered hairs: *thorax* with elongated hair and dilated, shallow, dense punctures; lateral edge dilated in the middle, subangulated; striæ none; *scutel* punc-

tured, hairy, rounded at tip: *elytra* pale testaceous, densely and equally punctured, and covered with short, reflected, dense hair, and with longer hair at base: *pectus* and *postpectus* with long hair.

Length half an inch.

An inhabitant of various parts of the United States. I observed it on the Missouri and Arkansas. It may be readily distinguished from our other species by the remarkably hairy appearance of the body, and particularly of the head, thorax, base of the *elytra*, and breast. I can hardly suppose this species to be the *tristis* of Fab. although the hairy appearance of the thorax corresponds with the description of that insect; but the *elytra* are punctured and hairy, and the scutel is not white; whereas the *elytra* of *tristis* are said to be glabrous, and the scutel white.

5. *M. vespertina*. Chesnut-brown; clypeus truncate, acutely emarginate each side; *elytra* sulcated, grooves punctured.

Inhabits the United States.

M. vespertina, Melsh. Catal.

Head truncate before, margin a little reflected, punctures dense, a minute acute emargination each side near the tip: *thorax* with dense profound and subequally distributed punctures: *scutel* punctured, rounded at tip: *elytra* with dilated, shallow, confluent and irregularly punctured grooves; interstitial lines narrower than the grooves, elevated, convex: *beneath* subglabrous, punctured.

Length nearly two-fifths of an inch.

Mr. Nuttall obtained several species on the Missouri; it is also found in the Atlantic states. It varies in colour, being perhaps generally light chesnut-brown; but it is sometimes dark chesnut, and I have a specimen that is nearly black.

6. *M. sericea*. Dusky, iridescent; elytra concavely striated.

Inhabits the United States.

M. sericea, Knoch in Melsh. Catal.

Body light reddish-brown, castaneous, dark-brown, or blackish, strongly iridescent: *clypeus* densely punctured; with sparse hairs; edge very slightly reflected, anteriorly emarginate: *thorax* with numerous small, nearly equal, and subequally distributed punctures; lateral edge not dilated in the middle: *scutel* longer than wide, densely punctured each side nearly to the tip; a longitudinal elevated line; *elytra* concavely striated, striae confluent punctured: *anterior tibia* bidentate.

Length about seven-twentieths of an inch.

This insect is beautifully iridescent, and by this character is readily distinguishable from all other North American insects of this genus that I have seen, with the exception of the *M. iricolor*, Nob. which is much smaller, black, and hairy on the head and thorax.

It is an inhabitant of Pennsylvania, and we obtained specimens near Council Bluff on the Missouri river.

7. *M. iricolor*. Blackish-brown, iridescent; with short hair.

Inhabits the United States.

M. micans, Knoch in Melsh. Catal.

Body blackish, distinctly iridescent: *head* hairy, punctured: *clypeus* on the anterior margin reflected and emarginate at tip: *antennæ* bright yellow: *thorax* punctured, with short, numerous, yellowish hairs; a longitudinal, dilated, slightly indented line: *elytra* finely iridescent, with dilated, punctured, impressed striæ: *posterior feet* robust.

Length less than one-quarter of an inch.

Knoch's name *micans* is pre-occupied. My excellent and ingenious friend Mr. John F. Melsheimer, makes the following remarks on this insect in a letter to me: "This insect is very nearly related to *M. sericea*, but it is still sufficiently distinct, to entitle it to the rank of a peculiar species. It abounds in hilly and mountainous situations, where, in the month of May, the time of the sexual union of the species, it may be seen flying about amongst the whortle-berry bushes, in such profusion, that in a very short time any number desired might be collected: whenever a female alights upon the surface of the ground, she is immediately surrounded by a number of males."

8. *M. 10-lineata*. Above covered with a yellowish down; thorax trilineate, and elytra quadridate with white.

Inhabits Missouri.

Body reddish-brown, covered with a very short spiniform down: *clypeus* quadrate, slightly wider at tip and truncate, emarginate in the middle; down yellowish, dusky on the tip, and whitish above the eyes: *antennæ* pale yellowish-brown, glabrous: *clava* elongated, and composed of seven lamina: *thorax* with yellowish-brown, and three longitudinal lines of white down, of which the lateral ones are interrupted near the anterior tip: *scutel* with white down, and glabrous margin: *elytra* with yellowish down; a common sutural line, and three others upon the disk of each elytron of white down; an abbreviated oblique white line from the humerus: *pectus* and *postpectus* hairy: *feet* castaneous, with white down; thighs, and intermediate, and posterior tibia, hairy behind; *venter* with white down, more dense upon the margins of the segments and in triangular spots each side.

Length nearly one inch.

A large and beautiful insect, which I first saw above the Pawnee villages on the Platte; several other specimens, however, occurred during our journey to the mountains. Its colour varies from a light chesnut to a black; but the downy or spiny vesture is immutable, though it is very deciduous.

It seems to be closely allied to the *M. occidentalis*; but if Oliver's description of that insect be correct, it is sufficiently distinct. According to him, that species has sometimes only "une ligne

longitudinale, blanche, au milieu du corcelet," and the scutel is "marqué de deux taches blanchâtres;" whereas our insect has always three thoracic lines, and but a single scutellar spot.

Mr. Nuttall also obtained specimens of this insect on the Arkansa.

LUCANUS, *Lin.*

L. parallelus. Mandibles one-toothed; elytra striate, punctured.

Inhabits the United States.

L. parallelus, Knoch in Melsh. Catal.

Body dark reddish-brown, with dilated punctures: *mandibles* with an elevated conic tooth arquated inwards, situated on the middle of the superior inner edge, and a smaller tooth on the middle of the inferior inner edge: *elytra* punctured, striate, striæ with much dilated punctures; humeral angle mucronate: *tibia*, anteriors from four to seven-toothed, interior and posterior ones one-spined on the middle.

Length four-fifths of an inch.

Female destitute of the tooth of the mandibles.

Very distinct from *L. parallellipedes* by the striated elytra. It is not uncommon in the Atlantic states, and as far west as the Rocky Mountains.

PLATYCERUS, *Latr.*

P. securidens. Mandibles at tip securiform, and about six-toothed; elytra striate.

Inhabits the United States.

Lucanus platycerus, Melsh. Catal.

Body blackish or dark reddish-brown, tinged with brassy, punctured: *mandibles* as long as the head; inner side with a robust emarginate tooth at base; an unarmed excavated interval in the middle, and a dilated somewhat securiform tip, armed with about six small teeth; exterior edge with a rounded lobe at base, and elevated angle near the tip: *thorax* margined, not distinctly sinuous before the posterior angles: *elytra* punctured; striæ almost obsolete and punctured: *anterior tibia* with more than ten inequal very acute teeth.

Length two-fifths of an inch.

Very closely allied to *LUCANUS caraboides*, and may possibly prove to be only a variety of that species; but as far as I have had an opportunity of comparing specimens, it differs from *caraboides* in colour, in being rather more robust, and in being destitute of the obtuse sinus or truncation near the posterior angles of the thorax, which is observable in that species. The mandibles of the female are shorter than those of the male, the inner edge sometimes merely dilated and rectilinear,

terminating in an angle near the tip; the lobe on the exterior edge, also, is not apparent.

It inhabits as far west as the Rocky Mountains.

ZOPHOSIS, *Latr.*

Z. reticulata. Black; posterior angles of the thorax elongated; elytra irregularly reticulate.

Inhabits near the Rocky Mountains.

Clypeus emarginate before: *antennæ* a little larger towards the tip; the three exterior joints not rounded but truncated at tip, the ultimate one subacute at tip, precisely resembling the corresponding joint of *EURYCHORA* as represented by Herbst, (pl. 5.) and not larger than the preceding joint: *palpi*, terminal joint a little larger than the preceding one: *mentum* widely emarginate, narrower at base, not concealing the base of the maxillæ so much as that of *PIMELIA bipunctata*: *thorax* curvilinearly emarginated before for the reception of the head; punctures very minute, distant; anterior angles obtuse, somewhat prominent; margined each side; posterior angles elongated, acute, closely embracing the humeral angles: *scutel* none: *elytra* with obtuse, elevated, irregular, somewhat reticulated lines.

Length nearly three-fifths of an inch.

Several specimens of this interesting insect occurred under dried bison dung near the Rocky

Mountains. They were generally pruinose, or more or less covered with a whitish powder. In form they agree perfectly with the present genus, but the mentum is rather too narrow, and the terminal joint of the palpi is rather too much dilated to correspond perfectly with Mr. Latreille's character of the genus.

PIMELIA, *Lat.*

P. rotunda. Black, with a few white hairs; anterior thoracic angles prominent, acute.

Inhabits Arkansa.

Body rounded, black, immaculate, with numerous white hairs arising from excavated punctures: *head*, anterior termination truncate, and much narrowed by the concavity of the lateral edge; over the insertion of the antennæ, a prominent acute angle: *antennæ* blackish-piceous; second, fourth, fifth, and sixth joints, equal; third slightly longer, obconic-cylindric; remaining joints more ovate, two or three terminal ones rather larger, the last acute at tip: *palpi* dark piceous, terminal joint truncate at tip: *thorax* very short and wide; anterior angles prominent, acute; punctures of the lateral margin much dilated, excavated, confluent; those of the disk smaller and distinct; lateral edge rectilinear: *elytra* with profound, excavated punctures at base, and smaller and less indented ones towards the tip.

Length less than one-fourth of an inch.

This species we observed only within the distance of a hundred miles from the Rocky Mountains. In the form of the body it very closely resembles Oliver's figure of his *P. inflata*, the *P. flavicollis* of Fabricius. This new species I believe to be the first of this genus that has yet been found on this continent. The mentum is proportionally much larger than that of *P. bipunctata*, entirely concealing the mandibles even when viewed laterally, affording space only for a circumscribed play of the palpi. But the antennæ differ from those of the *bipunctata*, which have the terminal joint smaller and shorter than the preceding, and partly included in it; this character, however, Latreille, in the Règne Animal, does not state to be essential in this genus. The proportion which the terminal joint of the palpi bears to the preceding joints, is very similar to that of the palpi figured by Oliver, Vol. 3. No. 59. Pl. 1. and although this terminal joint is proportionally larger than that of the *bipunctata*, yet it is not more dilated than that of *TENTYRIA glabra*, which is admitted into the same subdivision with *PIMELIA*.

The anterior tibia are not dentated like those of *ERODIUS*, but are furnished with small spines on the anterior and posterior edges; the form of the thorax and abdomen agree with Latreille's definition of *PIMELIA* in the Règne Animal.

AKIS, *Fab.*

A.? *muricata*. Black; above with numerous small tubercles and setæ; thorax and elytra with widely reflected margins.

Inhabits Arkansa at the Rocky Mountains.

Body oblong-oval, black; superior surface armed with numerous minute tubercles, from each of which arises a small, recurved, ferruginous seta: *clypeus* not reflected: *antennæ*, third joint nearly equal to the two succeeding ones conjunctly; fourth, fifth, sixth, seventh, eighth joints, obconic-cylindric; ninth, tenth, eleventh, rounded, the latter somewhat larger than the preceding one, and subacute at its tip: *thorax* transverse, dilated, and widely reflected each side, widest behind; anterior margin very profoundly and abruptly emarginated, the emargination receiving the head to the origin of the antennæ, and rather too narrow to admit the free motion of the head upward; lateral edge simply arquated; posterior edge rectilinear in the middle, excavated each side; anterior and posterior angles subacute, the latter extending far backwards so as to cover the anterior angles of the elytra: *elytra* inseparably united, widely reflected each side and behind, the exterior edge continuing the course of the thoracic edge, without any indentation between them: *wings* none: *scutel* minute: *tibia* armed with minute spines.

Length thirteen-twentieths of an inch.

Occurred under dried bison dung, &c. near the Rocky Mountains. In addition to the above description of the antennæ, I may add that the four terminal joints are somewhat more dilated than the others. The mentum, although broader than long and emarginate at tip, is proportionally smaller than that of *SCAURUS striatus*, permitting a view of the mandibles to the base; the palpi are decidedly more dilated at tip than those of *TENTYRIA glabra*; in this respect approaching the family *BLAPSIDÆ*. In form it seems to bear some resemblance to *EURYCHORA*, but the antennæ are eleven-jointed. As it does not entirely agree with any genus the characters of which Latreille has noted, it may be proper to remove it to the *BLAPSIDÆ*, under a separate genus, which may be named *EMBAPHION*. It is still more closely allied to *HELEUS* by its form, and indeed if external characters only were to be considered, we would certainly be justified in referring it to that genus, but the fact of the maxillæ being armed with a horny nail, excludes it entirely and absolutely from the family of which *HELEUS* is a member.

ASIDA, Latr.

1. *A. opaca*. Black, opaque, scabrous; thorax with acute angles, and lateral reflected margin; elytra subinequal.

Inhabits Arkansa.

Body black, opaque, scabrous with minute elevated points, which furnish very minute polished hairs: *antennæ*, terminal joint as small as the second: *thorax* widely emarginate for the reception of the head; anterior angles prominent; lateral margin dilated, reflected; lateral edge arquated, excurved near the base: posterior angles very prominent, acute; posterior edge slightly deflected in the middle, recurved each side towards the angles: *scutel* minute: *elytra* with a somewhat inequal surface, destitute of distinct striæ or punctures; lateral edge acute, a little reflected at base; humeral angles acute.

Length three-fourths of an inch.

Found near the Rocky Mountains. The joints of the antennæ gradually become a little wider and shorter to the terminal one, which is less than half the size of the preceding joint. The mentum is much dilated and at tip emarginate, concealing the inferior portion of the maxillæ, with the exception of a point near their base. The form of the thorax agrees with AKIS, but agreeably to Latreille's definition of that genus, it cannot have a place there.

2. *A. polita*. Black, polished, glabrous; thorax with acute angles and reflected lateral margin.

Inhabits Arkansa.

Body deep black, polished, glabrous; *head* rugose with confluent punctures: *labrum* with

minute black hairs above, and rufous ones on the anterior edge: *thorax* with minute, distant punctures; anterior edge concave; anterior and posterior angles acute, not prominent; lateral margin reflected, the edge arquated, not excurved near the base; basal edge nearly rectilinear: *scutel* minute: *elytra* slightly and irregularly rugose, destitute of punctures or impressed lines; exterior edge prominent and reflected near the base, rounded towards the tip; humeral angles acute.

Length more than half an inch.

Like the preceding species, and several of the *BLAPS*, this species occurs under dried bison dung in the extensive region bordering the Rocky Mountains. The antennæ and mentum are similar to those of *A. opaca*.

3. *A. anastomosis*. Black, covered with short whitish hairs; *elytra* profoundly grooved.

Inhabits Arkansa.

Body black, clothed with short, dense, yellowish-white hair: *antennæ* hardly attaining the base of the thorax, third joint hardly longer than the fourth, penultimate joint largest, terminal one smallest and rufous: *thorax*, angles subacute, anterior edge concave; lateral margin hardly reflected; edge arquated, very slightly excurved near the base; basal edge rectilinear: *elytra* each with three profound and concave grooves at the base, of which the sutural one extends to the tip, and the two others terminate beyond the middle,

at the origin of two other much abbreviated grooves, which are confluent before the tip: *humerus* not rounded.

Length nine-twentieths of an inch.

This very distinct species is much less robust than the preceding ones, and is considerably contracted at the junction of the thorax and abdomen. Under bison dung with the foregoing species.

The terminal joint of the maxillary palpi of these three species, corresponding in its dilatation and form with the definition of the Fabrician genus *BLAPS* by Mr. Latreille, in the *Règne Animal*, I have referred them to the genus *ASIDA*, as that to which they are most closely related, though the form of the body perhaps better agrees with *AKIS*.

BLAPS, Fab. Latr.

1. *B. suturalis*. Black; elytra scabrous, grooved, reddish-brown, punctured; lateral thoracic margin reflected.

Inhabits Missouri.

Body black, punctured: *antennæ*, third joint longer than the fourth and fifth conjunctly; fourth, fifth, sixth, and seventh, equal, obconico-cylindric; eighth, obconic-orbicular, shorter than the preceding; remaining ones nearly equal with the eighth, globose; the terminal one somewhat conic-compressed: *labrum* prominent, emarginate, and

with very short yellow hairs at tip : *thorax* transverse-quadrate; edge deeply concave before; lateral margin dilated, reflected; lateral edge regularly arquated, slightly excurved at base; posterior edge slightly flexuose, nearly rectilinear; angles acute, anterior ones with a small excurved point; punctures of the disk, acute, distant; two obsolete indented spots behind the middle : *scutel* impunctured, distinct, acute : *elytra* with seven grooves, the four sutural ones, each, with a single series of elevated points, remaining grooves with numerous points; a series of points on each of the interstitial lines; lateral edge reflected, slightly elevated, acute; a sutural, common, reddish-brown margin : *epipleura* scabrous and punctured, with four or five obsolete impressed striæ : *feet* scabrous, anterior thighs slightly dilated beneath before the tip into an obtuse angle.

Length about one inch.

I found several specimens of this insect in the Konza village, crawling about in the lodges, (huts.) I also met with it on our journey to the mountains.

2. *B. acuta*. Black; *elytra* scabrous, grooved, sutural margin reddish-brown; exterior edge acute; thoracic margin not reflected.

Inhabits Missouri.

Body black, punctured: *head* with larger punctures than those of the thorax : *antennæ* as in the

preceding: *labrum* prominent, emarginate, with very short yellow hairs at tip: *thorax* subquadrate; anterior edge slightly concave; punctures minute, separate; lateral margin not reflected; lateral edge slightly reflected, a little excurved at base; posterior edge nearly rectilinear: *scutel* impunctured: *elytra* grooved, the four sutural grooves with a single series of elevated points; interstitial lines with about one series of distant punctures; sutural margin obsoletely reddish-brown; exterior edge acute: *epipleura* obsoletely grooved, scabrous, punctured: *anterior thighs* dilated and armed with a prominent spine.

Length one inch and one-fifth nearly.

A fine large species, very distinct from the preceding, in not having the lateral margins of the thorax reflected.

3. *B. obscura*. Black; *elytra* scabrous, grooved, reddish-brown, margin rounded; thoracic margin not reflected.

Inhabits Missouri.

This species resembles the preceding, but the thorax is proportionally longer, and the *elytra* are of a dull reddish-brown colour, approaching to piceous, and the lateral margin is rounded so as to leave no edge; it is possible, however, that it may prove to be a variety. It was obtained in the country bordering the river Platte.

Length more than one inch.

4. *B. hispilabris*. Black; *elytra* scabrous, groov-

ed; sutural margin reddish-brown; labrum with black rigid hairs above.

Inhabits Missouri.

This species very much resembles the preceding, but the thorax is more rounded, and the superior surface of the labrum is furnished with short, rigid, black hairs, which are inflected.

Length from three-fifths to nearly one inch.

It is very possible that under this specific denomination, I have confounded two distinct species; but it seems probable that the three preceding species are subject to vary a little in the form of the thorax, and in size. I forbear separating them for the present.

5. *B. carbonaria*. Black; elytra with five or six regular series of punctures; impressed striæ none.

Inhabits the margins of the Arkansa river.

Body oblong, deep black, immaculate, punctured: *head* acutely punctured: *labrum* with black, rigid hairs: *thorax* subquadrate, punctures smaller than those of the head, and much more distant; lateral edge regularly arquated; anterior edge very slightly concave; posterior edge nearly rectilinear, a little arquated each side near the angles, which are obtuse: *scutel* slightly indented near the tip, impunctured: *elytra* with about six regular series of punctures, which are more distant from each other than the length of their diameters; impressed striæ none; interstitial lines with a few

remote, acute, minute punctures; lateral margin irregularly punctured, rounded: *thighs* robust, mutic.

Length seven-tenths to four-fifths of an inch.

This species occurred near the Rocky Mountains.

6. *B. extricata*. Black; elytra irregularly punctured, and destitute of impressed striæ.

Inhabits Arkansa.

Body deep black, narrowed anteriorly, oblong-subovate, immaculate, punctured: *head* acutely punctured: *labrum* with rigid hairs: *thorax* subquadrate, punctures smaller than those of the head and more distant; lateral edge regularly arquated; anterior edge very slightly concave; posterior edge nearly rectilinear, a little arquated each side near the angles which are obtuse: *scutel* convex, impunctured: *elytra* destitute of striæ, or distinctly regular series of punctures; scabrous with minute slightly elevated points, each of which precedes a puncture; lateral margin rounded.

Length about half an inch.

This species occurs in the country of the Arkansa and Platte, near the mountains. Mr. Nuttall also obtained specimens on the Upper Missouri. It is somewhat similar to the preceding species, but is shorter, and the sculpture of the elytra sufficiently distinguish it.

7. *B. obsoleta*. Black; elytra striate, slightly scabrous; suture obsoletely reddish-brown.

Inhabits Arkansa and Missouri.

Body oblong-subovate; deep black, punctured: *head* and *thorax* similar to those of the preceding species: *elytra* with impressed striæ, which are slightly scabrous, with minute elevated points and impressed punctures; interstitial lines also punctured; sutural margin obsoletely reddish-brown.

Length from half an inch to more than three-fifths.

Like the preceding, this species inhabits the arid plains in the vicinity of the Rocky Mountains. The striæ of this insect are very obvious and impressed, and the sutural margin is reddish-brown, but this colour is sometimes so indistinct as not to be perceptible but upon close inspection. As in the two preceding species the thighs are unarmed.

3. *B. tricostata*. Black, with minute hairs; *elytra* each with three elevated lines.

Inhabits Missouri and Arkansa.

Body oblong-oval, black, immaculate, with numerous minute prostrate hairs: *thorax* with numerous minute punctures, furnishing hairs; transversely subquadrate; anterior edge concave; basal edge rectilinear, covering the base of the *elytra*; lateral edge arquated, near the posterior angles excurved; angles rounded: *elytra* scabrous, with small elevated points furnishing hairs; three elevated lines above; a common sutural one, and a lateral one on the edge; intermediate spaces broad, flat, not con-

cave, and sometimes with the appearance of a slightly elevated longitudinal line alternating with the others: *epipleura* simply scabrous.

Length three-fifths of an inch.

Not unfrequent beyond the Mississippi river. Very distinct.

9. *B. opaca*. Black, with minute hairs; elytra destitute of striæ or conspicuous punctures, lateral edge acute.

Inhabits Missouri and Arkansa.

Body black, opaque, oval-acute, with very minute prostrate polished whitish hairs: *thorax* with acute anterior, and obtusely rounded posterior, angles; lateral edge not thickened or reflected, sublinear or hardly arquated: *elytra* destitute of striæ and of conspicuous punctures; basal edge concave for the reception of the base of the thorax; humeral angles acute; lateral edge acute.

Length two-fifths of an inch.

The humeral angles so closely embrace the lateral base of the thorax, as to present hardly an interruption to the regularity of the lateral curve of the body.

PEDINUS, *Latr.*

P. suturalis. Black; head and thorax minutely punctured; elytra with punctured striæ, and small prostrate hairs.

Inhabits Missouri.

Head rounded; anterior emargination small; *labrum* transverse: *thorax*, punctures distinct, dense: *scutel* rather large: *elytra*, striæ impressed, punctured; interstitial lines with very minute indentations, furnishing small, pale, prostrate hairs: *wings* none: *beneath* piceous-black: *venter* slightly granulated, with very short hairs.

Length half an inch.

I place this species in the present genus, from the circumstance of its being altogether destitute of wings, although the elytra are not united at the suture.

OPATRUM, *Fab. Latr.*

O. interruptum. Blackish, with an obscure tinge of bronze; elytra with interrupted, punctured striæ.

Inhabits the United States.

Head black, finely punctured: *thorax* black, finely punctured, punctures distinct; an obsolete indentation each side on the posterior margin: *elytra* brownish, tinged with bronze, with impressed striæ irregularly interrupted, and with large impressed punctures; interstitial lines finely punctured: *beneath* brownish-black.

Length nearly one-sixth of an inch.

I have found this species in Pennsylvania and Arkansa.

CRYPTICUS, *Latr.*

C. obsoletus. Glabrous, black; beneath piceous. Inhabits Arkansa.

Body with very minute, hardly perceptible punctures: *mouth* pale testaceous: *antennæ* rufotestaceous, the joints all subequal in length: *thorax* rather large; posterior angles nearly rectangular, slightly rounded at tip; posterior edge not undulated: *elytra* with obsolete, hardly obvious punctured striæ: *beneath* piceous, more or less blackish: *feet* always pale piceous.

Length three-twentieths of an inch.

TENEBRIO, *Lin. Fab. Latr.*

1. *T. badius.* Blackish-brown, oblong-oval, minutely punctured, thorax with larger punctures each side; *elytra* striate.

Inhabits the United States. Ohio.

Tenebrio badius, Knoch in Melsh. Catal.

Body black, with a reddish-brown tinge, and very minute dense punctures: *head*, anterior canthus of the eyes indented; a transverse, indented, abbreviated line between the antennæ: *antennæ* black-brown, terminal joint dull ferruginous: *thorax* transverse-quadrate; anterior angles projecting, rounded; posterior angles acute, rectangular; lateral edge prominent, arquated; larger punctures

each side near the posterior angles: *elytra* with indented punctured striæ; interstitial lines convex, with numerous very minute punctures: *beneath* dark reddish-brown.

Var. a. Reddish-brown.

Length nine-twentieths of an inch.

It is not unfrequently found in various parts of the country.

2. *T. interstitialis*. Blackish-brown, elongated; thorax with an indented spot behind, and somewhat dilated lateral margin.

Inhabits the United States. Ohio.

Tenebrio depressus, Melsh. Catal.

Body blackish-brown, elongated, punctured; punctures rather large, confluent: *head*, lateral margin reflected: *thorax* quadrate, with an indented spot behind the middle; anterior angles prominent, rounded at tip; lateral margin slightly reflected; lateral edge very slightly arquated; posterior angles acute: *scutel* rounded at tip: *elytra* with indented striæ, in which are dilated punctures; interstitial lines narrow and with a few minute tubercles.

Length seven-twentieths of an inch.

The tubercles which are situated upon some of the interstitial lines of the *elytra*, are very minute, and on some specimens nearly obsolete. It is an insect of frequent occurrence. Mr. F. V. Melshemer named it *depressus*, but as it does not agree with the description of the *depressus* as

given by Fabricius, Oliver, and Herbst, I have appropriated to it a new designation.

3. *T. terminatus*. Blackish-brown; terminal joint of the antennæ fulvous.

Inhabits Missouri.

Body blackish-brown, punctured: *palpi*, *antennæ* at base, and *labrum*, piceous; terminal joint of the antennæ fulvous: *thorax* subinequal; a longitudinal impressed line; anterior edge concave: *elytra* profoundly striated, the striæ punctured: *scutel* dark piceous.

Length half an inch.

The inferior part of the body varies in its depth of colouring, but is reddish-brown. The fulvous joint of the antennæ, impressed thoracic line, and concave anterior thoracic edge, sufficiently distinguish this species from others of this country.

DIAPERIS, Geoff. Latr.

1. *D. excavata*. Black; head excavated; and with two horns on the vertex; antennæ rufous.

Inhabits Arkansa.

Head with two parallel, prominent, cylindrical, piceous horns, which project forward in a line with the body, and originate between the eyes: *front* between the horns deeply excavated; an indentation each side before: *antennæ* and *palpi* pale rufous: *mandibles* black: *thorax* minutely punc-

tured; lateral edge nearly rectilinear, or but slightly curved; an indentation each side of the middle on the posterior margin: *elytra* with impressed punctured striæ: *beneath* punctured: *feet* dusky rufous or piceous.

Length less than one-fifth of an inch.

The horns disappear in the female, and are supplied by two short tubercles. This species differs from *viridipennis*, Fab. in colour, in being destitute of the two small horns on the front of the clypeus; and in the direction of the horns of the vertex, which in that species are nearly vertical. It was found by Mr. Thomas Nuttall.

2. *D.?* *bifasciata*. Reddish-brown; two bands on the *elytra*, and region of the scutel black.

Body reddish-brown, punctured: *head* reddish-black: *eyes* black: *palpi* whitish: *thorax* with a dusky obsolete spot on the middle, and another on each side; angles rounded; punctures very minute, dense: *elytra* yellowish-fulvous, with punctured striæ; a broad band in the middle, another near the tip, and scutellar region, black: *feet* pale reddish-brown.

Length less than one-tenth of an inch.

Found at Engineer cantonment.

CISTELA, *Fabr. Latr.*

1. *C. amoena*. Sanguineous; head, *elytra*, and feet, black.

Inhabits Arkansa.

Body minutely punctured: *head* with a transverse indented line between the antennæ: *mouth* beneath, excepting the palpi, pale sanguineous: *elytra* minutely rugose, and with punctured striæ.

Length seven-twentieths of an inch.

2. *C. brevis*. Black; antennæ, palpi, and feet, rufous.

Inhabits Pennsylvania.

Cistela rufipes, Melsh. Catal.

Body somewhat dilated, wide, and rather short: *head* indented on the front and on the hypostoma: *labrum* piceous: *antennæ* and *palpi* rufous: *thorax* with a longitudinal, submarginal, abbreviated indentation each side; posterior angles acute: *elytra* striate, the striæ finely punctured; interstitial lines convex: *feet* entirely rufous.

Length more than seven-twentieths of an inch.

This species is not the same as the *rufipes* of Fabricius.

3. *C. basillaris*. Dark chesnut-brown; *elytra* striate, with a pale rufous spot at the base of each.

Inhabits Pennsylvania.

C. bipustulata, Knoch in Melsh. Catal.

Head punctured: base of the *antennæ*, and *mouth*, dull rufous: *thorax* hardly punctured, with three indefinite indented lines on the posterior margin; posterior angles rectangular: *elytra* with punctured striæ and interstitial lines; basal

spot oval, oblique, extending from the humerus inwards and backwards towards the suture: *beneath* paler; middle of the pectus blackish.

Length one-fifth of an inch.

Altogether different from the *bipustulata* of Illiger.

4. *C. fraterna*. Dark chesnut-brown; elytra punctured, with a pale rufous spot at the base of each.

Inhabits Pennsylvania.

C. axillaris, Knoch in Melsh. Catal.

Head punctured; a transverse impressed line between the antennæ: *antennæ* at base, and *mouth* dull yellow-rufous: *thorax* punctured, with three indefinite indented lines on the posterior margin; posterior angles nearly rectangular: *elytra* punctured, destitute of striæ, excepting one near the suture; basal spot oval, oblique, extending from the humerus inwards and backwards towards the suture: *beneath* much paler.

Length more than three-twentieths of an inch.

Resembles the preceding, but is smaller, and the elytra are not striated. The name *axillaris* has been employed by Paykull to designate a species altogether different from this.

5. *C. sericea*. Pale testaceous, immaculate; elytra obsoletely striated near the suture.

Inhabits the United States.

Eyes black: *mandibles* black at tip: *antennæ* slightly darker towards the tip: *thorax* as well as

the head minutely punctured; posterior angles hardly acute: *scutel* quadrate: *elytra* minutely punctured; striæ obsolete, more obvious near the suture: *beneath* somewhat paler.

Length about one-fifth of an inch.

This very common insect is readily distinguished by its pale colour.

PYTHO, *Latr.*

P. pallida. Thorax with two impressed lines at base; clypeus emarginate before.

Inhabits Arkansa.

Body pale reddish-brown, very much depressed, flat above, minutely punctured: *clypeus* on the anterior edge concave, the angles acute, (more prominent in one sex:) *thorax*, anterior edge very concave; anterior angles obtusely rounded; posterior edge perfectly rectilinear; posterior angles acute; base with two impressed lines abbreviated before: *elytra* with punctured striæ, lateral edge slightly elevated.

Length one-fifth of an inch nearly.

This curious species was found on the banks of the river Arkansa by Mr. Thomas Nuttall.

ŒDEMERA, *Latr.*

1. *Œ. ruficollis.* Black; thorax rufous, with two profoundly indented spots.

Inhabits the United States.

Necydalis ruficollis, Knoch in Melsh. Catal.

Body black, with minute hairs : *mouth*, excepting the palpi, somewhat piceous ; beneath yellow : *thorax* rufous, narrowed behind ; two profoundly indented spots placed one each side of the base, a less profoundly indented one at base : *elytra* purple-black, minutely granulated ; three remote elevated lines.

Length one-fourth of an inch.

Found specimens on the Missouri and near the Rocky Mountains. Mr. Nuttall also obtained them on the Arkansa.

2. *Æ. fraxini*. Black ; thorax rufous, longitudinally oblong, narrowed behind.

Inhabits the United States.

Necydalis fraxini, Melsh. Catal.

Body blackish-brown, with minute hairs : *mouth* piceous : *antennæ* brown : *thorax* pale rufous, longitudinally oblong, narrowed towards the base ; two very slightly indented dots before the middle, and a hardly perceptible one near the base : *elytra* confluent and minutely punctured, pubescent : *tibia* pale.

Length three-tenths of an inch.

The elytra have some very faint appearances of impressed lines. This may probably be the *Necydalis thoracica* of Fabr. it is certainly allied to his *N. sanguinicollis*.

3. *Æ. vestita*. Black, hairy; elytra pale brownish; feet testaceous.

Inhabits Missouri.

Body black, punctured; with dense cinereous hair: *head* with a dilated, transverse, indented line between the antennæ: *basal joint of the antennæ* very obscurely rufous: *labrum* obscure rufous: *maxillary palpi* blackish; terminal joint elongated, cylindrical: *thorax* subcylindric, a little dilated each side before and gradually contracting to the base, the edge at base a little excurved, an impressed dorsal line at base: *scutel* minute: *elytra* pale brownish, not attenuated at tip; densely punctured, and covered with short whitish hair: *feet* rufo-testaceous: *tarsi* dusky: *thighs* simple.

Length from three-tenths to two-fifths of an inch.

4. *Æ. puncticollis*. Black; thorax rufous, with a black spot.

Inhabits Missouri.

Body black: *antennæ*, two basal joints beneath pale: *thorax* rufous, narrowed behind, disk somewhat impressed and with a large rounded black spot: *elytra* minutely granulated, with three remote elevated lines.

Length about three-tenths of an inch.

Very like *Æ. ruficollis*.

DORTHESIA, *Latr.*

1. *D. fasciata*. Black ; elytra yellowish, ovate, black at base ; wings with a blackish band.

Inhabits Missouri.

Body deep black, opaque, punctured : *vertex* elevated into a carinated tubercle : *antennæ* dilated, brown, paler at base of the processes, concave before ; *scapus* very short, dusky ; flabellate processes elongated, robust : *front* plane : *palpi* obsoletely annulate with pale : *thorax* slightly emarginate over the scutel, an impressed, abbreviated, dorsal line : *elytra* reddish-yellow, subovate ; exterior margin from the base to the middle, and basal margin, black : *wings* white, an irregular fuscous band near the tip : *feet* black ; anterior pair pale rufous, thighs black behind ; intermediate pair, tibiæ and tarsi pale rufous ; posterior pair, tarsi pale rufous.

Length three-tenths of an inch nearly.

2. *D. flavicornis*. Black ; antennæ bright yellow ; elytra dark piceous, with a common pale spot.

Inhabits Pennsylvania.

Mouth with whitish hairs ; mandibles pale piceous : *thorax* minutely granulated, with a polished oblique slightly elevated spot each side of the middle : *elytra* rounded at tip : a common dull

yellowish cinereous spot, and tip: *wings* hyaline: *feet* dull honey-yellow, posterior pair darker.

Length less than one-fifth of an inch.

Resembles the preceding, but is smaller, destitute of the band of the wings, and of the impressed thoracic line.

RIPIPHORUS, *Bosc. Latr.*

R. bicolor. Black; thorax dull rufous; elytra pale testaceous; head truncate above.

Inhabits Pennsylvania.

R. bicolor, Melsh. Catal.

Head punctured: *vertex* much elevated, truncated above, the superior angles rounded: *antennæ* ———: *palpi* piceous: *thorax* dull rufous, punctured; posterior edge black: *elytra* pale testaceous, edged with black, excepting the exterior edge near the base; extreme tip and spot on the anterior part of the humeral tubercle, black: *wings* fuliginous.

Length about a quarter of an inch.

This species resembles the male of *dimidiatus*, Fab. and the *humeratus*, Fab. but the vertex of those two species, although considerably elevated, is rounded at tip, and the former has a robust spine over the middle lobe of the posterior margin of the thorax.

ANASPIS, *Geoff. Latr.*

1. *A. triloba*. Black, covered with dirty yellowish hair; elytra with three black bands, and two spots at base.

Inhabits Missouri and Pennsylvania.

Body deep black, covered by dense, short, dull yellowish hair: *antennæ* testaceous, black at tip: *palpi* testaceous: *thorax* transversely quadrate; angles rounded; posterior margin lobed in the middle, lobe truncate; disk with a trilobate black spot, confluent before: *scutel* distinct: *elytra* each with a humeral and scutellar black spot, and three subequal, equidistant black fascia, the last terminal: *pectus* and *postpectus* with subargenteous hair: *feet* black; anteriores, tibia, and tarsi testaceous; posterior pair, tibia and tarsi piceous.

Length about three-twentieths of an inch.

Considerably resembles *Mordella trifasciata* of Melsh. Catal. but the species here described has three distinct bands of yellowish hair, the last one of which is not terminal, and the ground colour of *3-fasciata* is yellow.

2. *A. 4-punctata*. Black; each elytron with two cinereous points.

Inhabits Missouri.

Head and *thorax* densely covered with brownish-cinereous, silky hair: *elytra* each with two cinereo-argenteous approximate points, rather beyond the

middle of each elytron, the exterior one somewhat linear, and a smaller obsolete subsutural one near the base.

Length three-tenths of an inch.

MORDELLA, *Lin. Latr.*

1. *M. bidentata*. Brown, varied with cinereous; scutel bidentate.

Inhabits Missouri.

Body light brown, covered with short dense hair: *head* dusky, with cinereous hair: *palpi* pale rufous: *thorax* with cinereous lines somewhat radiating from the middle of the anterior margin: *scutel* profoundly emarginate at tip, the angles dentiform, acute: *elytra* brown varied with cinereous; a sutural line, a subterminal arc, one or two abbreviated basal lines, and about three linear spots rather beyond the middle placed 1, 2, of which the inner one is confluent with the sutural line, cinereous, tip angulated or slightly mucronate at the suture.

Length seven-twentieths of an inch.

The largest species that I have seen native of this country.

2. *M. scapularis*. Black; elytra with a large ferruginous spot on the base of each.

Inhabits the United States.

Mordella bimaculata, Melsh. Catal.

Head and *thorax* with obscure yellowish hair:

antennæ at base, *labrum*, and *palpi* rufous: *elytra* with black hairs, and an oval spot of ferruginous hairs, situated near the base and extending obliquely from the humerus towards the suture: *tarsi* and *anterior tibiæ*, and *venter*, particularly towards the tip, rufous.

Length less than one-fifth of an inch.

Fabricius has applied the name *bimaculata* to a different species; I have therefore changed the name.

3. *M. marginalis*. Black; head before and thorax dull rufous.

Inhabits Pennsylvania.

Hypostoma and inferior part of the *front* dull yellow-rufous: *antennæ* black: *thorax* dull yellow-rufous, with a black quadrate oblong spot extending from the middle to the scutel, and another at each lateral angle: *elytra* immaculate: *beneath* dull golden sericeous.

Length more than three-twentieths of an inch.

ANTHICUS, Payk. Leach.

1. *A. cinctus*. Dark rufous; *elytra* black, rufous at base, a cinereous band before the middle.

Inhabits the United States.

Body dusky rufous: *antennæ* dusky towards the tip: *eyes* deep black: *thorax* subbilobate, contracted rather behind the middle, anterior lobe suborbicular: *elytra* hirsute, punctured, black, base

rufous; a band before the middle and terminal spot cinereous: *feet* blackish, rufous at base: *venter* black.

Length more than one-eighth of an inch.

Var. a. Destitute of the terminal cinereous spot.

2. *A. basillaris*. Rufous; elytra black, rufous at base.

Inhabits the United States.

Notoxus melanocephalus? Melsh. Catal.

Eyes deep black: *thorax* broadest before the middle, and narrowed by an almost straight line to the posterior angles: *elytra* punctured, blackish; base somewhat gibbous and rufous: *postpectus* and *venter* piceous.

Var. a. Head blackish.

Size of the preceding nearly.

Resembles the preceding, but the thorax is not so much contracted behind the middle.

HORIA, *Fab. Oliv.*

H. sanguinipennis. Body black; elytra sanguineous, immaculate.

Inhabits Pennsylvania.

Body short, robust, deep black, scabrous, with dense punctures: *head* lobate at the basal angles, with a slightly elevated, longitudinal, glabrous line on the front; *antennæ* impunctured; third joint as large or larger than the first; terminal joint

acuminated from its middle: *mandibles* glabrous, and with the *palpi* impunctured: *thorax* transverse-quadrate, very obtusely rounded behind: *scutel* conspicuous, rounded behind, punctures more minute than those of the thorax: *elytra* very flexible, sanguineous, immaculate: *feet* punctured; nails denticulated on the middle, tip and base simple.

Length more than two-fifths of an inch.

This species is an interesting addition to the catalogue of North American insects, as it is the only one of its very limited genus, yet found here. It must be rare, only a single specimen having yet occurred. It is very distinct from the three or four species already known.

MELOE, *Lin. Latr.*

1. *M. angusticollis*. Thorax narrower than the head; *elytra* and abdomen violaceous.

Inhabits Pennsylvania.

Body dark violaceous, punctured: *head* with profound punctures, an impressed, longitudinal, abbreviated, acute, frontal line; and a transverse, elevated, obtuse one connecting the bases of the antennæ: *thorax* slender, narrower than the head, profoundly punctured, widest rather before the middle, and narrowed at tip and base; base emarginate, and slightly margined: *elytra* rugulose, dark bluish-violaceous: *feet* slightly hairy, spines

of the tibia, and nails ferruginous: *abdomen* slightly rugulose, dark greenish, or violaceous: *tergum* each side black, opaque.

A rare species, very distinct from the *M. americana* of Leach, which is not uncommon, and is sometimes gregarious in great numbers; the thorax of *angusticollis* is strikingly narrower proportionally, as well as the head, than the body; and the colours of the insect are more violaceous. When taken, it diffused an odour very similar to that of some **BLATTÆ.**

2. *M. conferta.* Black, with dense punctures; antennæ regular.

Inhabits Missouri and Arkansa.

Body black, opaque, punctured; punctures crowded, concave, equally distributed, confluent, furnishing short black hairs: *head* with separated punctures on the anterior part of the front, distant ones on the clypeus, and remote ones on the labrum: *antennæ* regular: *thorax* as wide as the head, emarginate at base; sides very slightly arquated, hardly narrower at base; a longitudinal, dorsal, acute, impressed line: *elytra* scabrous, with minute elevated points, and numerous short black hairs.

Length, male half, female four-fifths of an inch.

Perfectly distinct from the preceding species, and from the *americana*, by the very dense and equally distributed punctures of its head and tho-

rax, and by its minutely scabrous elytra. Found in the vicinity of Council Bluff, and near the Rocky Mountains.

[TO BE CONTINUED.]

Description of a new Species of CEPHALOPODE of the Genus LOLIGO. By C. A. LESUEUR. Read February 3, 1824.

LOLIGO, Lam.

L. brevipinna. Sac short, thick, cylindric anteriorly; subcompressed, obtuse, and rounded posteriorly; fins narrow, rounded, distant.

Inhabits near the coast of the United States.

Length of the sac two inches and nine lines; diameter at its opening one inch; width at the middle of the fins one inch and two lines; distance between the fins about nine lines; length of the fins one inch and seven lines; distance between the lateral extremities of the fins two inches and four lines: *fins* narrow, rounded, half the length of the body, and differing from those of the other species described in the Journal, by being distant at their superior origin, and by the circumstance of their lateral edges being rounded, and not arquated. *Sac* deeply emarginate before, for the

reception of the voluminous extremity of the intestinal canal, and covered with numerous points, and small spots very dense on the back and on the exterior part of the arms, paler and sparse on the interior and inferior parts: *head* short, four lines long by about eleven lines wide: *eyes* lateral, moderate, covered by the common integument, and destitute of lachrymal emarginations: *arms* eight, small; superior pair shortest, six lines long; second pair eleven lines; third pair robust, and furnished with a narrow longitudinal membrane before; all these arms are subtriangular, acute at tip, and each furnished with two series of suckers which are hemispheric, depressed at the point of attachment; their disk is orbicular, and armed with an annulation of small teeth which incline towards the centre when the sucker is attached to an object. The long arms are slender, much compressed towards the extremity, and terminate in a point; they are near the tip furnished with four series of suckers, and in that part are destitute of the lateral membrane.

Beak prominent horny; the skin which sheaths it is furnished with five appendices.

Bone very large behind and narrow before.

The specimen was taken in Delaware bay, and now forms part of the collection of the Philadelphia Museum. It is the smaller of two that were obtained at the same time; and I am indebted to the politeness of Mr. Titian Peale for the opportunity to describe it.

In the form of the body and the position of the fins, it is more closely allied to *SEPIOLA* than any other *LOLIGO* I have seen.

In concluding this paper I will observe, that Blainville informs us that he has not seen the *SEPIOLA* in the British channel. I can, however, safely assert, that a species very similar to that of *Rondelet* really exists there, although it may be of rare occurrence. I have a drawing of a specimen caught in the port of Havre in 1814, whilst I was engaged there in examining the various fossils contained in the stratifications of Cape la Hève; of which fossils I possess two hundred and fifty-eight drawings.

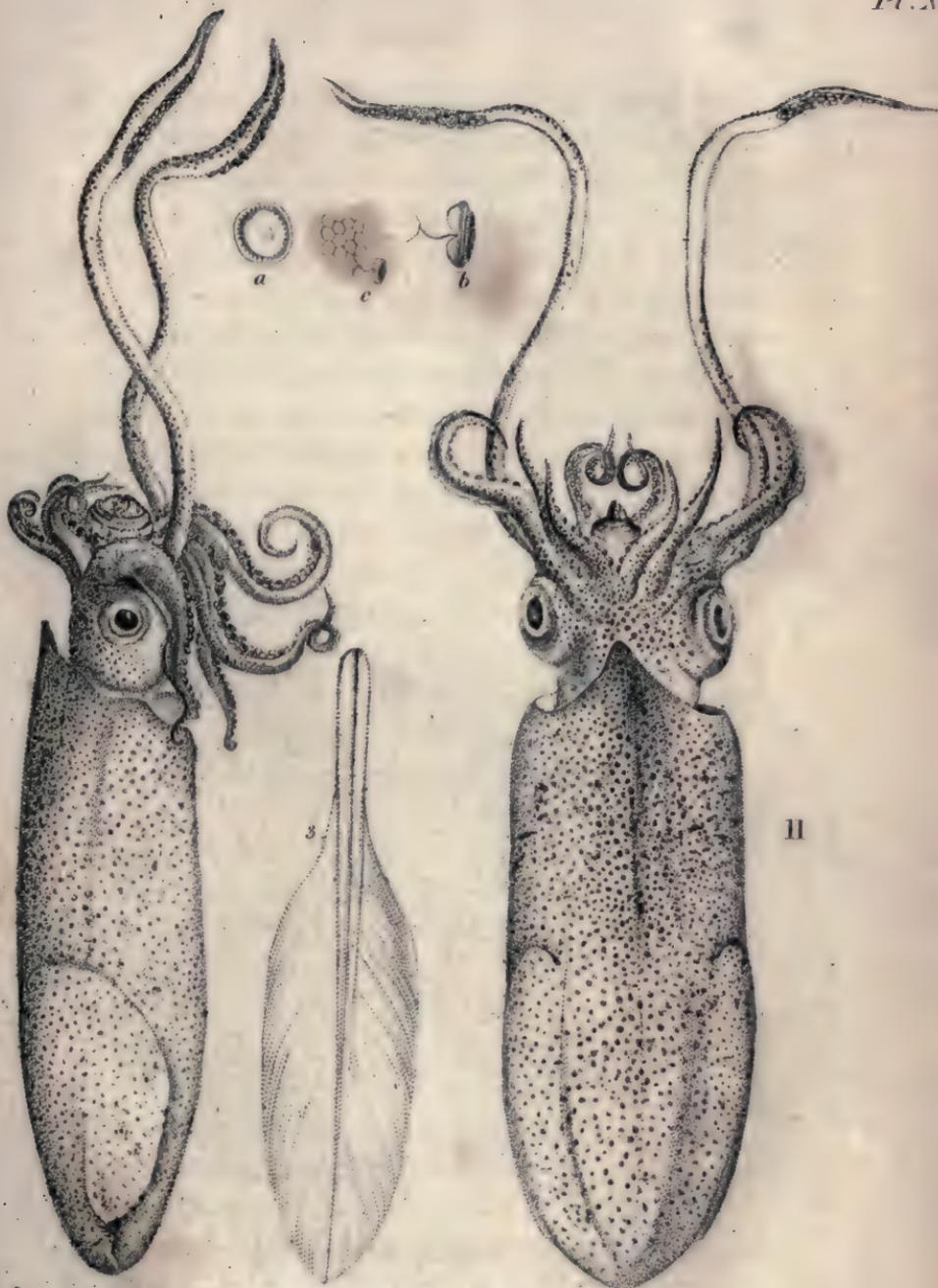
REFERENCE TO PLATE X.

Plate X. *Loligo brevipinna*.

- Fig. 1. Profile.
 2. Dorsal view.
 3. Bone.
 a. Disk of the sucker magnified.
 b. Profile do. do.
 c. Group of suckers; one in profile.

Notices of American SPODUMEN.

MR. Nuttall, in a letter to Dr. Hays, dated November 22, 1823, communicates his having discovered, whilst on a mineralogical excursion during the last summer, a mineral which he considers to



C. A. Le Sueur. Sculp.

LOLIGO BREVIFINNA.



be Spodumen. As this mineral had never been previously found in the United States, the following notice will probably be interesting.

The Spodumen occurs on the farm of Mr. Putnam, in Sterling, Massachusetts, where it is found abundantly in a Granitic rock, composed principally of hyaline Quartz and Mica, the Spodumen supplying the place usually occupied by Feldspar. It occurs in lamellar masses of a white colour and pearly lustre. These masses yield readily to mechanical division, and afford a rhomboidal prism, whose angles are 100° and 80° .

Mr. George Bowen, who examined this mineral, and ascertained that it contains lithia, lately discovered the same mineral in a collection of specimens from the vicinity of Deerfield, Massachusetts, and has furnished the following notice of it.

“The Spodumen from this locality is of a light green colour, and bears a strong resemblance to the Spodumen of Sweden. It is brittle, of a hardness sufficient to scratch glass, and before the blowpipe exfoliates, and afterwards melts into a grayish transparent globule. By mechanical division, it yields a rhombic prism, whose angles are 100° and 80° , and it also affords by analysis about eight per cent. of lithia. The method made use of to obtain the lithia from these specimens, and also from those discovered by Mr. Nuttall, was as follows:

A portion of the pulverized mineral was fused

with an equal weight of caustic potash, and the fused mass dissolved in diluted muriatic acid. The muriatic solution was then evaporated to dryness, and the product digested for some time in warm alcohol. The alcohol on evaporation afforded a white deliquescent salt of an acid taste. That it contained neither lime nor potash, was proved by its solution affording no precipitate either with oxalate of ammonia, or with muriate of platina; and that it was really the muriate of lithia, was evident from its tinging the flame of alcohol of a deep crimson colour; and from its affording when added to a concentrated solution of carbonate of soda, an abundant precipitate of carbonate of lithia. The precise locality of the Spodumen from Deerfield, I am not able to point out, the specimens which I examined having been given me nearly a year since, under the idea that they were Feldspar."

On three new Species of Parasitic VERMES, belonging to the Linnæan Genus LERNÆA. By C. A. LESUEUR. Read February 17, 1824.

LERNEOCERA, *Blainv.*

1. *L. cruciata*. Body rectilinear, clavate, terminated by five tubercles, which are rounded behind; head armed with four subcorneous appen-

dices disposed in the form of a cross, and a little curved before.

Inhabits the *CICHLA aenea*, nobis, of the lakes, called Rock Bass by the inhabitants of the town of Erie. (See vol. ii. p. 214, and fig.)

Body slender towards the head, gradually dilated behind, and so transparent as to exhibit the interior parts distinctly: the four appendices of the head are very robust, subconic, and curved forward; at the extremity of each is a small, black, impressed, somewhat oblong point, which may be an opening communicating with the interior: the intestinal canal originates at an aperture in the centre of the four appendices, and extends the whole length of the body, without folds or dilations, but gradually enlarges towards the posterior extremity, and terminates at an opening in the tip of the largest of the five posterior tubercles: its colour is dark near the origin, and paler behind: at the distance of about two-thirds of the length of the body from the head, an annulated vessel originates, and passes downward on each side of the intestinal canal, to its termination and aperture at the base of the largest of the five tubercles: this double vessel unites at its superior part. The conformation of this vessel, seems to indicate it as an ovary, of which the annulated appearance is owing to the pressure of oviform globules within. There being no appearance of such appendices to the posterior part of the body as exist in that of the

following species, and which probably perform the functions of branchia, I have been led to suppose the existence of other openings in the tubercles than those I have detected, through which respiration may be effected. Possibly the vessels which resemble oviducts may really be the branchia, which, however, I think by no means probable; or, on the other hand, the branchia which, in other species, extend from the posterior part of the body, may have been fortuitously destroyed in this.

2. *L. radiata*. Body filiform anteriorly, inflated and cylindrical behind; five slender appendices at the head; a small caudal appendice, accompanied with two long filiform ovaries.

Inhabits the Menhaden or Bay Alewife *CLUPEA tyrannus*, Latrobe, (Trans. Philos. Soc. Philad. vol. 5. p. 77. pl. 1.)

The anterior two-thirds of the body is very slender, filiform: the posterior part is somewhat dilated, cylindrical: *head* pyriform, crowned with five subcorneous, flexuous appendices, disposed as radii; at the posterior extremity is an opening at the tip of a small lobe, and a short, simple, sub-compressed tail destitute of ciliæ; this organ, as well as an analogous one in the following species, may probably be the seat of the branchia; on each side of this caudiform process, is an elongated, annulated, filiform appendage, which are, perhaps, the ovaries ready to be detached from the body.

or possibly these animals may have the power to protrude their ovaries, and afterwards to retract them into an oviduct, until the ovæ have obtained the necessary growth.

The two species above described do not perfectly correspond with the characters which Blainville has given of his genus LERNEOCERA, inasmuch as the arms are simple and not branched. This dissimilarity will, perhaps, justify me in forming a distinct genus for their reception, under the following name and characters.

LERNEÆNICUS.

Body elongated, attenuated before, and dilated behind; head furnished with many simple subcorneous arms radiating around the mouth.

But it would probably be better to modify the characters given by Blainville,* so as to include our species with simple arms.

LERNEOPENNA, *Blain.*

L. Blainvillii. Body filiform before, inflated and cylindrical behind; head distinct, furnished with fleshy papillæ on the sides; neck armed with three subcorneous appendices; thorax with four

* See his memoir, accompanied with figures. Journal de Physique for November and December, 1822. Page 372 and 437.

pairs of hooks; a penniform caudal appendice of which the processes are opposite, double, unequal; the first one single.

Inhabits *EXOCÆTUS volitans*.

Body long, slender, and filiform, but the posterior part, consisting of about one-fourth of the total length, is dilated to more than double the thickness, and terminates in a long appendice, furnished on each side with 23 or 24 pairs of ciliæ, of which the exterior one of each pair is twice the length and thickness of the interior; the shorter of these ciliæ originate on the interior base of the larger ones, and like them have a tuberculated appearance. There are no long filiform processes as in the species of *Boccone*, and of *Lamartinière*, but they may have been accidentally detached; the head, which had been inserted in the body of the fish, was white, the remainder of the body dull yellowish; the rectilinear intestinal canal was of a darker colour: *head* inflated, even behind and covered with papillæ before, which appear to be so many suckers; the sides were furnished with cylindrical, soft, simple, unequal appendices, many united together; on the superior part of the head are two small organs which resemble tentaculæ, around the base of which are indistinct asperities, so small, however, that it is very difficult to obtain an accurate idea of their figure: *neck*, with three long appendices, which serve to secure the attachment of the animal; they are subcorneous and

flexible; of these, one is placed on each side, and one behind: *thorax* dilated, and armed with four pairs of black hooks or very short black feet.

On the same individual fish, and in the immediate vicinity of the above described parasite, another *LERNEOPENNA* was affixed, the characters of which are quite different. It is altogether destitute of cervical appendices, which are replaced by diaphanous membranes, offering a kind of imperfect tubercles. The thorax has also four pairs of hooks, which are more obvious and more distant than in the preceding; the body is shorter, filiform, but little dilated behind, terminated in a point, and destitute of a penatulated appendice. The head is more elongated, with two small, black, undulated lines behind. It appears to have the papillæ before; the lateral appendices, and the tentacula on the termination of the head. But these parts are not sufficiently obvious to enable me to give a detailed description of them. The most remarkable character, however, of this specimen, is a small radiated body placed below the thorax. If this individual is entire, and naturally destitute of the plumose branchia, and the appendices of the neck are vesicular and pellucid, we may be led to believe, that, as it exhibits some striking characters in common with the preceding species, and was found in company with it on the same fish, the two may prove to be sexes of one species. In this case, it seems further probable that the latter is

the male, whose conformation will not admit of so firm an attachment as those of the opposite sex, in order that he may occasionally approach nearer to her.

These observations require confirmation, inasmuch as it is by no means ascertained that the latter parasite is entire. Many specimens having similar characters, found under the same circumstances, would tend much to confirm these remarks.

Neither of the above described individuals can be mistaken for the *LERNEOPENNA* of Boccone and of Lamartinière, nor for the species of which the branchial apparatus is described and figured by Dr. De Kay, in Silliman's Journal, vol. 4, p. 87.

The two individuals above described differ from these, either in the form of the body, or the conformation of the branchia.

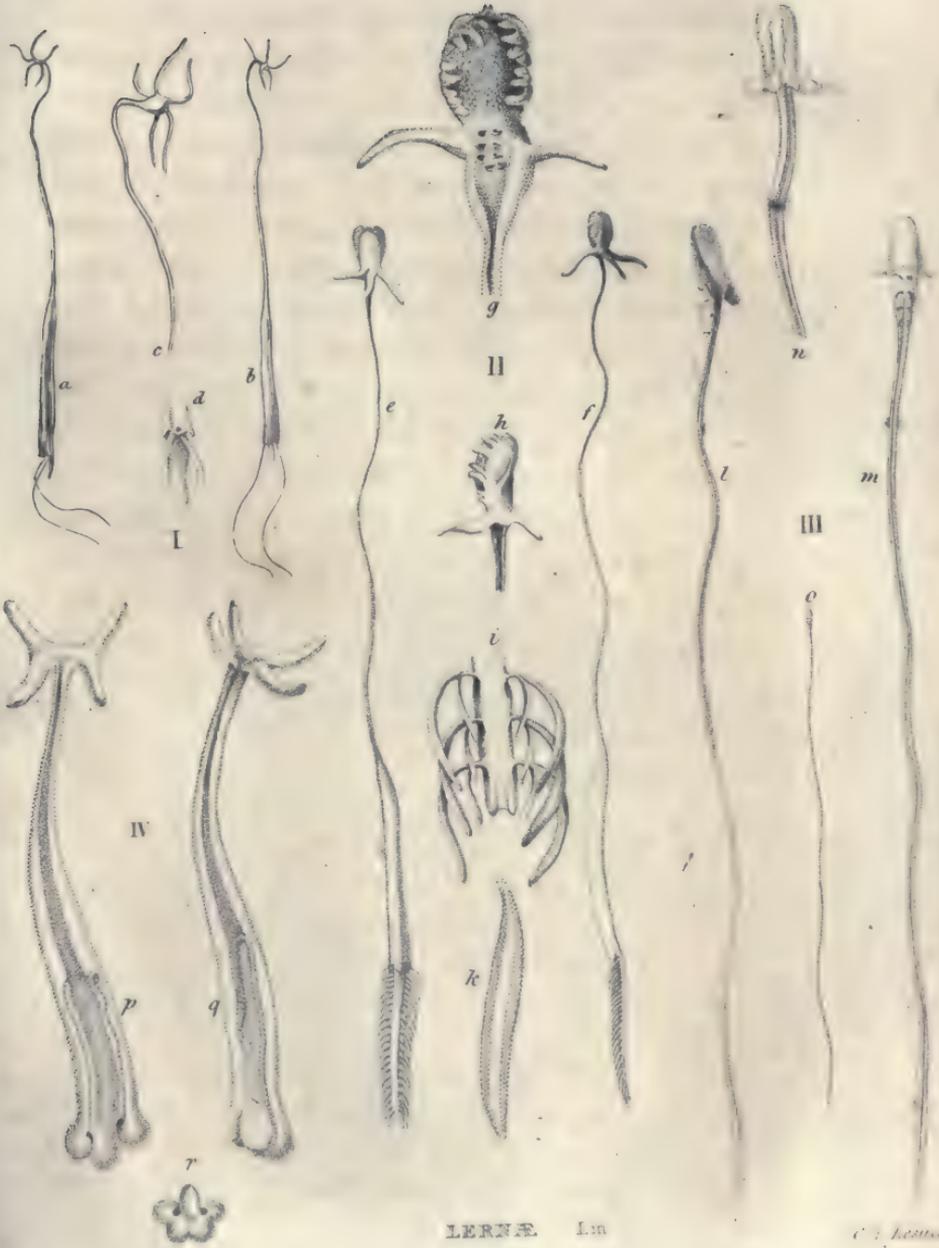
EXPLANATION OF PLATE XI.

Fig. 1. *Lerneocera radiata*.

- a. Profile.
- b. Dorsal view.
- c. Superior part, magnified.
- d. Inferior part, do.

Fig. 2. *Lerneopenna Blainvillii*.

- e. Dorsal view.
- f. Profile.
- g. Head, front view magnified.
- h. Head, profile do.
- i. Portion of the inferior part do.
- k. Appendice do.



LERNE. 1m

C. J. Johnston



Fig. 3. *Lerneopenna Blainvillii?*

- l.* Profile, magnified.
- m.* Dorsal view do.
- n.* Superior part do.
- o.* Animal, natural size.

Fig. 4. *Lerneocera cruciata.*

- p.* Dorsal view.
- q.* Profile.
- r.* Inferior extremity.

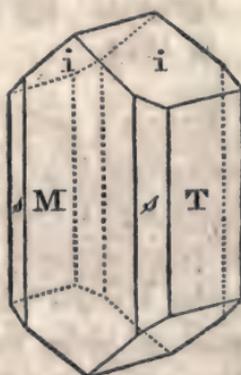
Description of a new crystalline form of the CHRYSOBERYL. By G. TROOST, M. D. Read March 2, 1824.

It was a generally received opinion among mineralogists, that the Chrysoberyl occurred only in Brazil and Ceylon, but nothing was known relative to its geognostic situation, until it was discovered in the United States. I was present when Haüy received some fragments of it from the late Professor Bruce of New York, and admired the sagacity with which this distinguished philosopher detected the coincidence of these fragments, with the crystals from Brazil in his collection. This investigation furnished him with the matter contained in a memoir on the Cymophane, published in the *Annales du Musée*, tom. 18, in which he demonstrates the superiority of the characters, that he has employed in so masterly a manner in

the determination of minerals, over those that are taken only from the external characters.

Until lately, the vicinity of Haddam, in Connecticut, was the only locality of this mineral in our country, known to mineralogists, but another has recently been discovered by Dr. Steel, in the vicinity of Saratoga, in the state of New York.

Amongst the specimens of this mineral, in the interesting collection of Mr. J. Cloud, I found one which exhibited a new crystalline form; it has the appearance of a short hexaedral prism, of which two of the six edges are bevelled.



CHRYSOBERYL UNIBINAIRE.

$$\begin{aligned} MTB^1 &= GG^1 \\ MTi &= s \end{aligned}$$

Inclinations of

M upon T	90°
M	i 90°
M	s 125° 16''
T	i 120°
T	s 144° 44''

These crystals are imbedded in a Granitic rock which is the Pegmatite subordinate to the Gneiss, composed of Hyaline Quartz, and lamellar white Feldspar, and are sometimes crystallized as *di-hexaèdre* of Haüy, the faces *s* being increased in breadth, making the faces *x* appear as an emargination. This rock includes besides the Chrysoberyl, the black Tourmaline crystallized, variety *isogone*, Beryl *peridodecaèdre*, the Garnet *trapezoidale*, and a green lamellar magnesian carbonate of Lime, (Miemite.) In some parts of this rock the Mica appears, but in all the specimens I have seen, when this is the case, the Chrysoberyl is wanting, the Garnet only occurring.

Thus we have two varieties of rocks in our country containing this mineral, at Haddam a rock composed essentially of Feldspar and Talc or Protogyne, and at Saratoga in the Pegmatite.

Analysis of an Ore of Copper from New Jersey.
By GEORGE T. BOWEN. Read March 2, 1824.

This mineral is found at Somerville, New Jersey, in a copper mine belonging to Mr. I. Camaans. It occurs as an incrustation on the ferruginous copper ore of that mine, and is accompanied by native copper, green Malachite, the crystallized red oxide of Copper, and by native Silver. It has been supposed by many mineralogists to be a

phosphate; the following experiments, however, prove that it contains no phosphoric acid.

Its colour is bluish-green; colour of its powder light blue. It is massive and opaque; its fracture is conchoidal and dull. It is brittle, and is easily scratched by the knife. Its specific gravity is 2.159. Alone, before the blowpipe, it becomes black, but is infusible; with borax it fuses into a glass of a bright green colour, and when heated with subcarbonate of soda, yields globules of metallic copper. When treated with nitric acid, it is partly dissolved without effervescence, and affords a solution of a blue colour.

ANALYSIS.

- A. Two grammes of the mineral, after being carefully separated from the accompanying carbonate of copper, were reduced to an impalpable powder, and exposed during half an hour to a red heat in a platina crucible. The powder after ignition was of a black colour, and weighed 1.660 grammes. The loss, by calcination, was, therefore, 0.340 grammes in two grammes, or 17 per 100.
- B. The calcined mineral was then fused with three times its weight of crystallized carbonate of potash, and the fused mass, which was of a black colour, was treated with muriatic acid in excess, and the solution evaporated to dryness; acidulated water was then added, and the whole

- thrown upon a filter. The silex separated in this manner, when washed and calcined, amounted to 0.745 grammes, or 37.250 per 100.
- C. To the solution in muriatic acid, caustic potash was added in excess, and the fluid boiled. The precipitate which was formed after being washed and calcined, weighed 0.903 grammes, and on examination proved to be pure peroxide of copper. These 0.903 grammes in 2 grammes are equal to 45.175 per 100.
- D. In order to ascertain whether this mineral contained phosphoric acid, I dissolved a portion of it in nitric acid, decomposed the nitric solution by means of caustic potash, and treated the alkaline fluid with acetic acid in excess. The acetous solution, when tested by nitrate of lead, gave no indications of phosphoric acid.

The constituents of this mineral, according to this analysis, are, per 100 parts,

A. Water,	17.000	containing oxygen	15.119
B. Silica,	37.250	" "	18.736
C. Peroxide of copper,	45.175	" "	9.011
	<hr/>		
	99.425		
	100.000		
	<hr/>		

.575 loss.

It is therefore a bisilicate of copper with water, and its mineralogical formula will be $CS^2 -|- Aq$.

Descriptions of COLEOPTEROUS INSECTS collected in the late Expedition to the Rocky Mountains, performed by order of Mr. Calhoun, Secretary of War, under the command of Major Long. By THOMAS SAY, Zoologist to the Expedition. Read October 22, 1823. (Continued.)

LYTTA, *Fabr.*

1. *L. ferruginea*. Black, covered with short ferruginous hair.

Inhabits Missouri Territory.

Body above invested with crowded ferruginous, short, prostrate hair; beneath darker in consequence of the more sparse hair: *eyes* brown, oval: *antennæ* hardly larger than the thorax, glabrous, black; basal joint hairy: *labrum* and *palpi* glabrous, black: *thorax* suboval; a longitudinal impressed line, and a basal transverse one.

Length about two-fifths of an inch.

The *antennæ* are rather short, and exactly filiform. Found on the Missouri by Mr. Nuttall.

2. *L. maculata*. Black, covered with cinereous hair; elytra spotted with black.

Inhabits Missouri and Arkansa.

Body black, invested with cinereous, prostrate hairs: *head* with an impressed, longitudinal line: *antennæ*, joints cylindrical, and with the *labrum* and *palpi* glabrous: *eyes* elongated, retuse behind

the antennæ, and behind the insertion of the maxillæ: *thorax* subquadrate, narrower than the head, a longitudinal, impressed line, and a transverse basal one: *elytra* with numerous, orbicular, black dots, irregularly placed, sometimes confluent, and are the effect of the absence in those parts of the cinereous hair: *tarsi*, tips of the *tibia* and *thighs*, glabrous.

Length about two-fifths of an inch.

The cinereous hair, when removed, leaves the body of a uniform black appearance. This insect is not uncommon near the Rocky Mountains.

3. *L. sphericollis*. Brassy-blackish; thorax rounded, convex; elytra greenish, with a brassy tinge.

Inhabits Missouri and Arkansa.

Body glabrous, blackish, tinged with brassy: *head* punctured: *antennæ* robust, black, hardly attaining the base of the thorax; joints short, conic, acute at the edge of the tip; second joint rufous, subglobular: *eyes* oval, not elongated: *labrum* and *palpi* blackish: *thorax* subglobular, punctured, punctures sparse, not profound: *elytra* green, slightly tinged with olivaceous and brassy, somewhat rugose; two obsolete lines on the disk, and one near the external margin: *beneath* blackish.

Var. a. Body green, destitute of the brassy tinge.

Var. b. Head and thorax black; elytra bluish. Length about two-fifths of an inch.

Less robust than the preceding species, and

may readily be distinguished from others by the very short antennæ, rounded thorax, &c.

4. *L. Nuttallii*. Bright green, varied with golden; elytra golden-purple; feet black, thighs blue, trochanters armed with a spine.

Inhabits Missouri Territory.

Body glabrous; *head* deep greenish, varied with golden: *front* punctured, subimpressed, and with a small rufous spot: *antennæ* robust, surpassing the base of the thorax, rectilinear, black, opaque; joints turbinate, approaching moniliform, the margin of the tip rounded; second joint two-thirds the length of the third; terminal joint largest near the middle and rapidly attenuated to an acute tip: *eyes* oblong-oval, emarginate: *palpi* black: *clypeus* and *labrum* obscure: *thorax* golden-green, polished, unequal, minute, sparse punctures; a longitudinal, dorsal, impressed line, and a transverse basal one; base bluish, anterior angles prominent: *scutel* blue, obtuse behind: *elytra* red, or golden-purple, somewhat rugose; two indistinct elevated lines on the disk, and a submarginal one: *beneath* green, polished: *feet* black; *thighs* beneath blue or purplish; *trochanters* armed with a conic spine near the inner base, obsolete or wanting in the female.

Length about nine-tenths of an inch.

This noble species, which, in magnitude and splendour surpasses the *vesicatoria*, has, I understand, been labelled in a British cabinet, with the

name which I have here adopted, in honour of Mr. Thomas Nuttall, who discovered it, and who also discovered the three preceding species.

The antennæ of this species in the proportional length of the second and third joints, are similar to those of the genus *ZONITIS*, as defined by Latr. Règne Animal, and together with those of the species *aenea*, *polita*, *sphæricollis*, and *reticulata*, are considerably different from those of many of the other species of this genus, being somewhat thicker towards the tip, but are much shorter than in *ZONITIS*; these characters, combined with the form of the terminal joint, approach them to the genus *MYLABRIS*; but the antennæ are not arquated at tip, and are of a more considerable length; the habit also differs, the form of the body being more elongated. These four species then, seem to have the habit of *LYTTA*, combined with a form of antennæ approaching somewhat to that of *MYLABRIS*.

They cannot be referred to *ZONITIS*, as the palpi are not filiform, and the habit differs.

First observed by Mr. Thomas Nuttall on the Missouri. I found them on one occasion near the Rocky Mountains in great numbers; small bushes of various kinds were loaded with them.

5. *L. aenea*. Greenish-blue or brassy, hairy; elytra glabrous, brassy or purplish; feet rufous, knees and trochanters black.

Lymexylon aeneum, Melsheimer's Catalogue.

Inhabits Pennsylvania.

Body bluish-green or dark brassy, opaque: *head* punctured, hairy: *eyes* oval, not emarginate, fuscous: *antennæ* black, longer than the thorax, joints subturbinate, terminal one largest near the middle, acute at tip: *labrum* prominent, punctured, divided by a profound sinus into two divaricated lobes: *palpi* blackish: *thorax* punctured, narrowed before, not wider near the middle than at base; hairy: *scutel* hairy: *elytra* glabrous, somewhat rugose, with two obsolete elevated lines: *feet* rufous, knees and trochanters black.

Length rather more than half an inch.

Var. b. Tarsi black.

This is not a common insect. It was referred by Mr. F. V. Melsheimer to the genus LYMEXYLON, but it is not a Pentamerous insect.

6. *L. polita*. Head and thorax glabrous, brassy-green, polished; *elytra* pale olivaceous; feet rufous; trochanters and four anterior tibia bluish.

Inhabits Georgia.

Body above glabrous, punctured; beneath hairy; *head* brassy, polished, with distant punctures: *eyes* large, oval, entire, prominent: *antennæ* black, rather long; joints oblong-conic, terminal one largest beyond the middle, abruptly narrowed so as to resemble a twelfth joint; tip acute: *labrum* blue, bilobate, lobes divaricating: *palpi* black, not remarkably dilated at tip: *thorax* glabrous, brassy, polished, punctured each side, distinctly wider before the middle: *scutel* hairy: *elytra* pale oli-

vaceous, tinged with brassy, slightly rugose; two slightly elevated, obsolete lines: *feet* rufous, knees and two anterior pairs of tibia blue: *tarsi* fuscous.

Length three-fifths of an inch.

Very much resembles the preceding species, but differs by many characters, particularly in the form of the thorax, in the colour, polish, and hair of this part and the head, in the form of the antennæ, &c.

In the bilobate form of the labrum these two species differ from the other species of this genus; their palpi are somewhat similar to those of ZONITIS and NEMOGNATHA, but the second joint of the antennæ is minute, and the body is elongated.

7. *L. segmenta*. Black: beneath, segments edged with cinereous.

Inhabits Arkansa.

Body black, covered by very numerous, short, prostrate black hairs: *head* with an obsolete, hardly perceptible, rufous, abbreviated, frontal line; anterior edge of the clypeus somewhat pale; beneath, and each side before the eyes, covered with cinereous hair: *antennæ*, second joint two-thirds the length of the third joint: *thorax*, anterior and posterior edges cinereous; an impressed longitudinal line: *beneath*, incisures, excepting those of the feet, margined with cinereous hair.

Length four-fifths of an inch.

A fine large species, found in very considerable

numbers near Purgatory river of the Arkansa, called by Lieutenant Pike the "First Fork."

8. *L. immaculata*. Black, with cinereous hair; second joint of the antennæ as long as the third.

Inhabits Arkansa.

Body black, partially covered with short, prostrate, cinereous hair: *antennæ*, second joint as long as the third: *palpi*, beneath the hair, reddish-brown: *thorax* with an impressed, longitudinal line.

Length four-fifths of an inch.

9. *L. articularis*. Black, with dense ferruginous hair; second joint of the antennæ as long as the third.

Inhabits Arkansa.

Body black, entirely concealed by dense, short, prostrate, ferruginous hair: *antennæ* subglabrous, half as long as the body; second joint equal to the third: *palpi* obscure reddish-brown: *thorax* with a longitudinal impressed line, not narrowed behind: *tibia* with sparse hairs: *tarsi* with black hairs.

Size of the preceding, to which it is very similar in form, and of which it may very possibly be a variety. Found near the Rocky Mountains. The colour of the hair, with which the body is covered, is very similar to that of *L. ferruginea*, but that insect is very different in the proportion length of the antennæ.

10. *L. albida*. Black, with dense greenish-white hair.

Inhabits Arkansa.

Body black, entirely covered by dense, short, prostrate greenish or yellowish-white hairs: *head* with a longitudinal impressed line: *antennæ* subglabrous; first and second joint rufous; second joint nearly equal to the third: *clypeus*, *labrum*, and *palpi* pale rufous: *tarsi* black.

Length nearly one inch.

A fine large species. I obtained it near the Rocky Mountains.

11. *L. reticulata*. Black; elytra reticulate with elevated nervures.

Inhabits Arkansa.

Body black, obsoletely tinged with green, subglabrous, punctured: *head* irregularly and confluent punctured: *antennæ* gradually more robust towards the tip: *thorax* somewhat rounded, much narrowed before, punctures sparse before, confluent each side and behind: *elytra* reticulate, with elevated nervures.

Length about seven-tenths of an inch.

A very remarkable and distinct species; the reticulated elytra give it a very peculiar aspect. The antennæ are similar to those of *L. Nuttallii*, but the body is proportionally shorter.

NEMOGNATHA, Illig.

1. *N. atripennis*. Testaceous; elytra black.

Inhabits Arkansa.

Testaceous, punctured: *head* with concave punctures, remote on the vertex and confluent between the antennæ: *antennæ*, *mandibles*, and *palpi*, black: *labrum* piceous: *thorax*, punctures rather large, remote: *elytra* black, punctures profoundly impressed, rather distant, more numerous on the margin and tip: *postpectus*, *knees*, *tibia* at tip, and *tarsi*, black.

Length less than two-fifths of an inch.

Found near the base of the Rocky Mountains, and between the rivers Arkansa and Platte.

The genera ZONITIS and NEMOGNATHA are similar to the genus HORIA in the form of the tarsi, which are bifid and pectinated, in this respect widely differing from LYTTA, &c. of which the tarsi are simply bifid.

2. *N. minima*. Testaceous; head and thorax elongated; postpectus black.

Inhabits Arkansa.

Body somewhat elongated, testaceous, punctured, with numerous hairs: *head* elongated: *vertex* obtusely and slightly indented: *antennæ* black, dusky, rufous at base: *labrum* blackish: *palpi* dusky: *maxillæ* blackish, elongated: *thorax* conic, much narrower than the elytra: *elytra* paler than

the head and thorax, punctures confluent: *postpectus*, and *venter* at base, black: *feet* varied with dusky: *tarsi* black.

Length from one-fourth to three-tenths of an inch.

This is the smallest species I have seen; it is proportionally much narrower than others. I observed numbers of them near the Rocky Mountains. It belongs to the genus *GNATHO* of Kirby.

BRUCHUS, *Fab.*

B. discoidus. Black, with dense cinereous hair beneath; a large rufous spot on each elytron; anus white, with four spots.

Inhabits Arkansa.

Body black, covered with short, cinereous hair: *head* with a carinated line between the eyes, and dilated, slightly impressed, confluent punctures: *thorax* hardly hairy on the middle, with dense, confluent, dilated, slightly impressed punctures, and a longitudinal indented line: *elytra* with impressed striæ and large punctures: a large longitudinally oval rufous spot on each, which attains the lateral edge: *anus* with four black spots, of which two are triangular and near the middle, and two are semitriangular, marginal, and placed beyond the middle.

Length three-twentieths of an inch.

Taken near the mountains. It is closely allied

to *CURCULIO abbreviatus* of Melsh. Catal. (which is a *BRUCHUS*,) but is much larger, and further distinguished by the anal spots.

CRYPTORHYNCHUS, Illig.

1. *C. oculatus*. Dusky ferruginous, varied with black; eyes very large, approximate, acute before. Inhabits Missouri.

Body black, punctured, partially covered by oblong, yellowish-ferruginous scales: *eyes* very large, approximate, longitudinally oblong, acute before, and separated by a narrow line: *rostrum* punctured, black: *base* striate, with slightly elevated lines, and with a few scales: *tip* piceous; *antennæ* pale rufous: *thorax* with dilated, confluent punctures beneath the scales: *elytra* punctured, and with punctured striæ; interstitial lines more elevated behind; tip obsoletely ferruginous: *thighs* with a black, denuded band above, and a slightly projecting, obtuse angle beneath: *tibia* pale piceous.

Length less than one-tenth of an inch.

2. *C. operculatus*. Black, varied with cinereous scales; eyes very large, approximate, acute before, separated by a narrow line; thorax with dilated approximate punctures, each closed by an orbicular scale.

Curculio quercus? Melsh. Catal.

Inhabits Arkansa.

Length, exclusive of the rostrum, more than three-twentieths of an inch.

This species very much resembles the preceding, but is larger, black, and the thoracic scales are orbicular, exactly closing the dilated punctures like operculæ.

FALCIGER, *Meg. Dej.*

1. *F. acephalus*. Blackish, spotted with cinereous; thorax with an impressed line, an obtuse tubercle on each side.

Inhabits the United States.

Body covered with short robust hairs or scales, brownish-black, spotted and varied with cinereous, imbricate: *head*, when at rest, completely retracted within the thorax, somewhat retuse between the eyes: *thorax*, anterior margin abruptly contracted into a collar; posterior edge minutely dentate; an impressed longitudinal line becoming canaliculate towards the scutel; an obsolete, obtuse tubercle each side of the middle: *elytra* striate; striæ with scales concealing the punctures; interstitial lines with elevated and acute points partially concealed by the scales; tip rounded and piceous on the edge: *anal segment* black: *feet* rufous: *thighs* mutic.

Var. a. A common double abbreviated white line at the base of the suture.

Length more than one-tenth of an inch.

The variety occurs in Pennsylvania. A different species, which I have named *4-spinosus*, inhabits this state, remarkable for its similarity to the *acephalus*, but it may be immediately distinguished by the armature of two upright spines on the anterior edge of the thorax.

CURCULIO, *Fab. Latr.*

1. *C. acutus*. Cinereous; clypeus profoundly emarginate; a blackish band behind the middle of the elytra.

Inhabits Missouri.

Body brownish-cinereous, punctured, covered with minute imbricate scales: *head* profoundly and acutely emarginate at tip, a longitudinal, impressed line: *eyes* black: *antennæ*, club blackish; *elytra* with punctured series somewhat in pairs; interstitial lines convex, alternate ones rather more elevated; a black-brown band rather behind the middle, abbreviated each side; tip a little prominent, acute: *thighs* mutic; a black, longitudinal, impressed line beneath the head.

Length three-tenths of an inch.

The dusky band of the elytra has a jagged anterior and posterior outline.

2. *C. auricephalus*. Dull green; head and anterior side of the feet golden.

Inhabits Mississippi.

Body covered with minute scales: *head* golden-

cupreous; an impressed line and obsolete abbreviated one each side: *thorax* green, depressed above, and obliquely depressed each side: *elytra* green, with regular series of punctures; interstitial lines minutely punctured; three alternate ones elevated: *beneath* green: *anterior tibia*, and intermediate and posterior pairs of feet on the anterior side golden-cupreous.

Length (total) half an inch.

A very fine species. Mr. Nuttall brought a specimen from Missouri? and I obtained one on the banks of the Mississippi river above Natchez.

RYNCHÆNUS, *Fab.*

1. *R. caudatus*. Imbricate, dusky-cinereous, tinged with golden; *elytra* caudate.

Inhabits Missouri.

Body dusky-cinereous, covered with minute scales, and obsoletely tinged with golden, a paler lateral vitta: *head* obscurely golden: *eyes* deep black: *rostrum* with a slightly elevated line; *beneath* deep black: *antennæ* blackish-brown: *thorax* obscurely golden, with minute, elevated, black dots: *scutel* golden: *elytra* with regular series of punctures; golden colour more obscure than that of the *thorax*; tip of each, elongated into an obtuse caudiform projection: *beneath* obscurely golden, varied with black: *feet* fuscous, with short hair;

thighs dilated before the tip; a cinereous fascia on the two posterior pairs.

Length, from anterior part of the head to the tip of the elytral processes, rather more than two-fifths of an inch.

Found near Engineer Cantonment on the Missouri river. The caudal processes are peculiar to one sex.

2. *R. armicollis*. Rufous; anterior thoracic angles with small spines.

Inhabits Missouri.

Body rufous, punctured: *head* punctured; an obsolete impression between the eyes; a dilated, impressed, abbreviated line over the insertion of the antennæ sometimes obsolete or wanting: *thorax* with much dilated confluent punctures; a polished longitudinal line near the middle; anterior angles with small erect spines, of which the anterior one is largest; posterior angles slightly ex-curved, anterior and lateral margins dull rufous: *elytra* light rufous, profoundly striated; striæ with approximate punctures: *thighs* with a robust spine beneath, near the tip.

Length from the eyes to tip of elytra one-fifth of an inch.

Var. a. Thorax and beneath, excepting the feet, black.

Very closely allied to *CURCULIO barbitus* of Melsheimer's Catalogue, a species which is entirely black, whereas the elytra of *armicollis* are always

rufous. I obtained it on the banks of the Missouri, and Mr. T. Nuttall presented me with numerous specimens from the same country.

3. *R. linealicolis*. Thorax with longitudinal, confluent lines; elytra with elevated, acute, alternate, interstitial lines and double series of punctures.

Inhabits Arkansa.

Body black: *head* with dense, robust, short, prostrate, yellow hairs above; a carinate line from between the eyes to the middle of the rostrum: *eyes* approximate: *rostrum* from the base to the middle marked by about six impressed lines: *thorax* with numerous, elevated, longitudinal, confluent lines; a transverse, indented, anterior submargin: *elytra* with double series of large profound punctures, the interstitial lines elevated and very acutely edged: *thighs* one-toothed; posterior tibia one-toothed near the posterior tip, and ciliated between the tooth and tip.

Length (excepting the rostrum) nearly three-tenths of an inch.

Found near the Rocky Mountains.

4. *R. constrictus*. Blackish, with cinereous scales; an impressed, transverse line between the eyes; elytra reddish-brown; thighs mutic; rostrum long.

Inhabits Missouri.

Body blackish, punctured, covered with oblong scales, not imbricate: *vertex*, punctures minute;

front, a profoundly impressed, transverse line between the eyes: *eyes* black, distant above, approximate beneath: *rostrum* cylindrical, more than half as long as the body, regularly but slightly arquated from the base, impunctured; base above with depressed granules; tip piceous: *antennæ* placed rather behind the middle, piceous, darker in the middle: *thorax* densely punctured, punctures large, approximate; anterior margin obsoletely piceous: *elytra*, striæ profoundly indented, straight, punctures obsolete; interstitial lines dilated, depressed: *feet* obscure rufous; thighs mutic; tarsi blackish.

Length, from base of rostrum to tip of elytra, three-twentieths of an inch.

The impressed frontal line connects the eyes, and is very profound.

5. *R. interstitialis*. Black, punctured; elytra striated, interstitial lines with punctured series.

Inhabits Missouri.

Curculio striatus, Melsh. Catal.

Body deep black, immaculate, nearly naked, punctured; punctures orbicular, concave, polished within, distinct: *vertex* with small, distant punctures: *eyes* remote above: *front* obtusely indented between the eyes: *rostrum* punctured, arquated: *thorax*, excepting at the anterior margin, as broad as the elytra; a dorsal, obsolete line destitute of punctures: *scutel* transverse, unequal: *elytra* deep brownish-black; striæ profoundly impressed, trans-

versely punctured; interstitial lines superficially depressed, each with one or two series of orbicular punctures, furnishing short white hairs: *tibiæ* and *tarsi* piceous; terminal articulation black: *anus* naked.

Length, base of rostrum to tip of elytra, from more than three-twentieths to less than one-fourth of an inch.

This is also an inhabitant of Florida and Pennsylvania. The name *striatus* is pre-occupied in this genus.

6. *R. undulatus*. Sanguineous, polished; elytra, abdomen, and feet, black.

Inhabits Arkansa.

Body polished, punctured, sanguineous: *rostrum* black, arquated, as long as the thorax: *thorax* dilated; punctures minute and distant, on each side confluent into oblique lines; anterior margin abruptly narrowed into a collar: *elytra* black, undulated, immaculate; *striæ* very narrow, profound, not distinctly punctured: *postpectus*, *venter*, and *feet* black, the latter scabrous.

Var. a. Totally black. Pennsylvania.

Length, exclusive of the rostrum, one-fifth of an inch.

The elytra of this species are remarkably undulated. For specimens from Arkansa I am indebted to Mr. T. Nuttall.

LIPARUS, *Oliv. Leach.* (*Curculio* Lin.)

1. *L. vittatus.* Cinereous; rostrum trisulcated; elytra, with the suture and three lines, blackish.

Inhabits Arkansa.

Body densely covered with minute, cinereous scales, with a very slight tinge of carneous: *head* with a dusky, dilated, lateral line: *rostrum* profoundly and widely sulcated in the middle, and on each side over the interval between the eye and insertion of the antennæ: *mouth* black: *antennæ*, club dusky: *thorax* somewhat unequal, with distant, profoundly impressed punctures; three dusky, longitudinal lines: *elytra* with regular series of profound punctures; dilated suture, and three slightly elevated lines on each elytron, blackish: *beneath* immaculate.

Length more than half an inch.

Not uncommon upon the arid and sterile country, included within the distance of four or five hundred miles of the Rocky Mountains. The anterior feet are the most robust, and each alternate interstitial line of the elytra is a little elevated and blackish.

2. *L. sulcistrotris.* Cinereous; rostrum trisulcated, transversely indented at base; elytra striate.

Inhabits Arkansa.

Body densely covered with minute, cinereous scales: *head* with black punctures; transversely

indented or contracted at the origin of the rostrum: *rostrum* trisulcated, grooves profound, middle one dilated, wider before: *mouth and club of the antennæ* blackish: *thorax* inequal, with irregular rugæ and punctures; a longitudinal, impressed line: *elytra* acutely striated, and with dilated, slightly indented punctures all covered with the cinereous scales: *beneath* immaculate: *anterior feet* more robust.

Length seven-twentieths of an inch, exclusive of the rostrum.

Found in the same districts with the preceding species, which it resembles, but is smaller; the *elytra* are destitute of blackish lines, and the punctures and striæ are altogether different.

3. *L. imbricatus*. Body covered with minute scales, punctured; a profound, frontal puncture.

Inhabits Arkansa.

Body covered with dense, minute, somewhat imbricated scales, without intervals; above dusky brassy or blackish, punctured: *head* with a profound puncture between the eyes: *rostrum* with a dusky line in the middle: *thorax*, a dorsal, slightly impressed, punctured line, and several dilated, indented punctures covered with scales; a dilated, cinereous, dorsal line: *elytra* with very slightly impressed striæ containing profoundly impressed punctures; sides and tip white, the latter exhibiting an undulated outline above; three subequidistant, equal, white spots each side of the suture,

and another at the middle of the base; an oblique line from behind the humerus terminates at the middle.

Length three-tenths of an inch.

Near the Rocky Mountains, and on the Missouri. This species varies in depth of colouring, and the cinereous, subsutural spots are sometimes confluent with branches from the margin, so as to form three cinereous bands, but I believe that the spots at base are always insulated.

4. *L. tessellatus*. Imbricate, cinereous, varied with brownish; head with a longitudinal, impressed line; elytra with punctured striæ.

Inhabits Missouri.

Body covered with imbricate scales; cinereous, obsoletely varied with brownish or dull brassy, punctured; *head* brassy, polished; an impressed, longitudinal line: *eyes* black: *antennæ* piceous: *thorax*, longitudinal and transverse diameters subequal; a dilated, double, somewhat confluent, dorsal, brownish line, with an undulated, lateral outline occupying nearly all the surface: *scutel* very minute: *elytra* varied with cinereous and brownish, with equidistant, indented, punctured striæ; interstitial lines equal, with whitish, distant, very short, filiform hairs: *abdomen* blackish.

Length three-twentieths of an inch.

Found on the banks of the Mississippi and lower part of the Missouri.

CALANDRA, *Clairv. Fab.*

C. compressirostra. Castaneous; rostrum compressed; a profound, frontal puncture; thorax with two punctured lines converging to the scutel.

Inhabits Arkansa.

Body dark chesnut-brown passing to blackish: *head* with small, distant punctures, larger ones on the base of the rostrum which decrease in size to the tip; a profoundly, impressed, large puncture between the eyes: *rostrum* very much compressed, acutely carinate above: *antennæ* at tip rufous: *thorax* with larger punctures on the side, on the anterior impressed submargin, and on two indented lines which originate each side of the middle, and converge to the suture: *elytra* with crenate striæ, interstitial lines each with a series of punctures: *tibia* with a very robust, obtuse spine, and setæ below the interior middle.

Length less than three-tenths of an inch.

Near the Rocky Mountains.

APATE, *Fabr.*

1. *A. bicornis.* Dark brown, varied with cinereous; thorax asperous, bicornate before; posterior angles prominent.

Inhabits the United States.

Apate bicornis, Melsh. Catal.

Body blackish-brown, varied with cinereous; with robust, scale-like hairs: *head* equal: *eyes* prominent, reddish-brown: *antennæ* and *palpi* ferruginous: *labrum* fulvous: *thorax* declivous before and behind; anterior half and lateral margin armed with numerous short spines; anterior angles projected over the head in the form of parallel horns; posterior angles elongated backward in the form of tubercles; two hardly elevated tubercles on the middle of the base: *scutel* rounded, cinereous: *elytra*, each with two elevated lines, of which the inner one is the most prominent and acute, with the blackish-brown and cinereous colours somewhat alternate; tip near the sutural termination mucronate or only angulated: *beneath* dark reddish-brown.

Length two-fifths of an inch.

Found above the mouth of the Ohio. I have a specimen in my cabinet which is rather smaller; the elevated lines of the *elytra* hardly prominent. Seems to have some affinity with *APATE cornutus* of Fabr.

2. *A. bicaudatus*. Dark reddish-brown; *thorax* asperous and bicornate before; a prominent, obtuse spine near the tip of the *elytra*.

Inhabits the United States.

Apate cornutus, Melsh. Catal.

Body dark reddish-brown: *head* with long pubescence: *eyes* prominent: *antennæ* and *palpi* ferruginous: *labrum* fulvous: *thorax* declivous before

and behind, anterior moiety armed with numerous short spines; anterior angles projecting over the base of the head, armed with spines above; posterior angles rounded, not prominent: *elytra* near the tip, with a very prominent, obtuse, slightly inflected spine on each; edges at tip a little reflected: *wings* whitish: *feet* reddish-piceous.

FEMALE. Anterior angles of the thorax slightly projecting; an oblique, hardly elevated line instead of the elytral spine.

Length less than seven-twentieths of an inch.

Found above the mouth of the Ohio. Resembles the preceding species, but is destitute of the prominent, posterior, thoracic angles so conspicuous in that insect, and the male is armed with a prominent, cylindrical, obtuse spine above the tip of the elytra. The specific name *cornutus* has been given to an inhabitant of Madagascar.

3. *A. basilaris*. Black; elytra rufous at base, retuse and tridentate at tip; thorax asperous before.

Inhabits the United States.

Apate humeralis. Knoch in Melsh. Catal.

Body black: head equal: eyes prominent, somewhat reflected: *antennæ* and *palpi* rufous: *labrum* fulvous: *thorax* declivous and armed with numerous short spines before; angles rounded: *scutellum* minute, orbicular: *elytra* with large, dense punctures which are more dilated towards the tip; a large rufous spot on the middle of the base: *tip*

retuse, with a few large punctures; lateral edge tridentate; teeth triangular, acute; sutural and terminal edges elevated: *wings* black: *beneath* impunctured: *tibiæ* and *tarsi* blackish-rufous.

Length one-fifth of an inch.

On the Ohio, Mississippi, and Arkansa. The name *humeralis* is pre-occupied.

HYLESINUS, Latr.

H. aculeatus. Varied with cinereous and fuscous; thorax with three black lines; elytra aculeate.

Inhabits Missouri.

Anobium maculatum? Melsh. Catal.

Body varied with blackish-brown and yellowish-cinereous short hair: *head* confluent punctured; a slightly elevated, longitudinal, frontal line: *antennæ* pale rufous: *thorax*, punctures much dilated, slightly impressed; a dilated, longitudinal, fuscous line each side, and a much dilated one in the middle: *elytra* somewhat trifasciate with yellowish cinereous; an obsolete band at base; the second beyond the middle oblique and abbreviated, and the third near the tip oblique and interrupted; *striæ* profound, acute; interstitial lines armed with minute, elevated points; basal edge somewhat elevated, acute.

Length three-twentieths of an inch.

SCOLYTUS, Latr.

1. *S. 4-spinosus*. Black; elytra brown; venter four-spined.

Inhabits Missouri.

Head depressed above, lineated with minute, abbreviated, longitudinal lines; coronated with long, incurved, dull-yellowish hairs on the margin: *antennæ* pale rufous: *thorax* punctured, black-brown: *elytra* reddish-brown, truncated, with impressed, punctured striæ, and an obsolete series of punctures on the interstitial lines; tip denticulated: *venter* obliquely truncated, deep black, opaque, four spined; spines conic-acute, placed 3, 1, the latter smaller.

Length more than one-fifth of an inch.

2. *S. muticus*. Black, hairy; venter unarmed.

Inhabits Missouri.

Body deep brownish-black, punctured, hairy: *head*, above depressed, plane, lineated with minute, longitudinal lines, and coronated with incurved, yellowish hairs on the margin: *antennæ* pale rufous: *elytra* with numerous long hairs, truncate, and slightly denticulated at tip; numerous punctured, hardly impressed striæ: *venter* obliquely truncated, mutic, furnished with long hairs: *posterior tibia* with long hairs behind.

Length from three-twentieths to one-fifth of an inch.

Resembles the preceding, but is distinguished at once by the mutic venter and the more numerous striations of the elytra.

PLATYPUS, *Herbst. Latr.*

P. compositus. Reddish-brown; each elytron with a terminal, tridentate elongation.

Inhabits Missouri.

Body reddish-brown: *eyes* dusky: *antennæ*, terminal joint dilated, compressed, oval, nearly as large as the eye: *elytra* profoundly striated; striæ punctured; punctures subquadrate, approximate, slightly indented; tip of each elytron with two small longitudinal teeth and an elongated process, which is tridentate; intermediate tooth emarginate: *feet* dilated, compressed; anterior thighs angulated in the middle beneath, and with a projecting lobe near the inferior tip; anterior tibia with five elevated, dusky, transverse, obliquely arquated lines on the exterior side, of which the fifth is nearly terminal and distant from the others: *tarsi* elongated; basal joint very long, penultimate one very short.

Length one-fifth of an inch.

Resembles *SCOLYTUS flavicornis* of Olivier, but is readily distinguishable by the form of the terminal spine of the elytra.

COLYDIUM, *Fabr. Latr.*

C. bipunctatum. Blackish-brown; anterior tibia angulated before; intermediate ones five or six spined.

Inhabits Upper Missouri.

Body elongated, linear, punctured; punctures minute, regular, distant: *antennæ* piceous: *thorax* longitudinally oblong-subquadrate; angles rounded; lateral edges slightly arquated: *scutel* obtusely triangular: *elytra* with punctured striæ; an obsolete, subsutural, piceous spot on each before the tip: *anal segment* naked: *feet* piceous; anterior tibia with a slightly projecting angle on the anterior middle; intermediate tibia five or six spined on the exterior edge; posterior ones mutic.

Length one-ninth of an inch.

The spots on the elytra are hardly perceptible, excepting in a particular light, and are even then obsolete.

LATRIDIDIUS, *Herbst.*

L. 8-dentatus. Dark reddish-brown; thorax dentate each side, and with an indented spot behind the middle.

Body dark reddish-brown: *eyes* black: *thorax* suborbicular, seven or eight toothed each side; a profoundly indented, large spot on the basal sub-

margin: *elytra* with approximate series of punctures: *feet* yellowish-piceous at base.

Length nearly three-fortieths of an inch.

Caught above the confluence of the Platte with the Missouri river.

PRIONUS, *Geoff. Fabr. Oliv. Latr.*

1. *P. dasystemus*. Reddish-brown; head black; thorax denticulate each side; teeth small; labrum and mandibles within with ferruginous hair.

Inhabits the lower part of the Missouri river.

Body reddish-brown, punctured: *head* black; punctures profound; a longitudinal, impressed line: *eyes* black-brown; a small tubercle over the insertion of the antennæ, and a larger, compressed, emarginate one at the outer base of the mandibles: *antennæ* compressed, punctured, mutic, short: *labrum* and *mandibles* within with dense, rufous hair: *palpi* piceous: *thorax* with crowded, irregular, minute, profound punctures; an impunctured large spot each side of the middle; a transverse one on the middle of the base, and one or two oblique, abbreviated lines each side; lateral edge dentated with from 5 to 14 small teeth: *elytra* mucronate; punctures obsolete: *beneath* paler; region of the mouth rugose with confluent punctures: *postpectus* with yellowish hair: *tarsi* yellowish.

Length one inch and three-tenths.

This species, in habit, approaches *P. cylindricus* and *cilipes*, but is at once distinguished from both, besides other characters, by the very hairy appearance of the labrum and of the inner side of the labrum.

2. *P. emarginatus*. Castaneous, hairy; thorax one-toothed; antennæ fourteen-jointed.

Inhabits Arkansa.

Body castaneous: *head*, *thorax* and *breast* covered with long yellowish-ferruginous hair: *antennæ* fourteen-jointed, glabrous, perfoliate, imbricate; the imbrications emarginate beneath: *mandibles* black at tip: *thorax* but slightly margined, one-toothed on the middle of the lateral edge; angles obtusely rounded: *elytra* somewhat unequal, punctured: *feet* and *venter* subglabrous.

Length nearly seven-tenths of an inch.

Female glabrous; antennæ simple.

Length four-fifths of an inch.

This species exhibits the general form of *brevicornis*, but the thorax is proportionally much narrower, and the characters above detailed prove it to be very distinct from that species. The lepaceous processes of the antennæ are so profoundly emarginate beneath as to appear each bilobate. I obtained it on the Arkansa river, near the Mountains.

3. *P. palparis*. Black; thorax tridentate; terminal joint of the maxillary palpi longer than the preceding one.

Inhabits the upper part of the Arkansa river.

Body black, immaculate, punctured: *head* confluent punctured; an impressed, longitudinal line: *maxillary palpi* with the last joint longer than the penultimate one: *thorax*, punctures rather more sparse on the disk; lateral margin not dilated; edge tridentate; anterior tooth a slight prominence of the anterior angle; intermediate one acute, subconic, spiniform, not reflected; posterior tooth not prominent, and consisting only of the posterior angle: *elytra* slightly punctured, nearly smooth; tip slightly mucronate: *pectus* and *postpectus* of the male hairy; hair yellowish.

Length, male one and one-fifth—female one and a half inches nearly.

I observed several specimens of this species on the Arkansa near the Mountains. It resembles at first sight *P. brevicornis*, Fab. but it differs from that insect in some important characters; the *elytra* are much smoother, the *thorax* is not so broadly margined on each side, the intermediate thoracic tooth is more spiniform; but the most characteristic difference appears to reside in the *maxillary palpi*, the terminal joint of which is very conspicuously longer than the preceding joint, whilst the corresponding parts of *imbricornis* are nearly equal.

4. *P. cilipes*. Castaneous; *thorax* minutely dentate; *tibia* ciliate on the inferior edge.

Inhabits Platte and Arkansa rivers.

Body castaneous, punctured; *head*, *thorax* and

extremities blackish : *head* with a longitudinal, impressed line ; punctures sparse between the eyes, more dense before, upon the mandibles, basal joints of the antennæ, and becoming scabrous on the vertex and behind the eyes : *antennæ*, third joint rather shorter than the first : *mandibles* strongly dentate within : *thorax* broad, anterior lateral margin scabrous, with very crowded, minute punctures ; punctures of the disk sparse ; lateral edge irregularly dentated with very small, obtuse teeth ; an obtuse angle behind the middle : *elytra* punctured, destitute of elevated lines : *postpectus* with short yellowish hair : *tibia* densely ciliated with yellowish hair on the inferior edge.

Length one inch and three-fifths.

The specimen, from which this description is taken, is a female ; in general form it approaches *P. cylindricus*, but the thorax is broader and destitute of spiniform teeth ; the third joint of the antennæ is obviously shorter than the first, and the tibiæ are densely ciliated on the inferior edge. It is probably somewhat allied to the *P. dentatus* of Fabricius, judging from the description of that author.

LAMIA.

1. *L. aculifera*. Thorax unequal ; elytra aculeate, with a white band behind.

Inhabits Missouri.

Body blackish-brown, covered with short, prostrate, cinereous hair: *head* with a double, slightly elevated line on the vertex: *antennæ* as long as the body, cinereous, spotted towards the base, and annulated towards the tip, with brown: *thorax* unequal; a dorsal, rectilinear, elevated line, and two undulated or interrupted ones; lateral tubercle obtuse, little elevated: *elytra* unequal, with numerous, elevated, acute points; behind the middle a white fascia broadest at the suture, and edged behind by a black line: *tip* entire: *thighs* clavate, spotted, and *tibia* biannulate with black-brown.

Length seven-twentieths of an inch.

This is a common species. I observed it on the banks of the Mississippi, Missouri, Platte (Nebraska) and Arkansa.

2. *L. aspersa*. Covered with cinereous hair; *elytra* with numerous black dots.

Inhabits Mississippi and Missouri.

Body reddish-brown or blackish, covered with cinereous hair: *head* black: *antennæ* longer than the body: *thorax* with a small, acute, reflected spine behind the middle each side, and with two or four black dots above placed in a transverse series, the two intermediate ones larger: *elytra* reddish-brown, with numerous black dots; *tip* emarginate, bidentate: *beneath* black, covered with cinereous hair: *thighs* clavate, pale, reddish-brown at base.

Length less than one-fourth of an inch.

This insect is not uncommon in the western regions. It varies a little in having the black elytral spots smaller, or in having some of them which are situated behind the middle, confluent into a band. I have taken a specimen of this insect near Philadelphia, at Harrowgate, the seat of my friend Mr. J. Gilliams, in a rye field.

[TO BE CONTINUED.]

*On a new Fossil genus, of the order ENALIO SAURI,
(of Conybeare.)* By R. HARLAN, M. D. Read
March 9, 1824.

About sixteen years ago, there was deposited, by Lewis and Clark, in the cabinet of the American Philosophical Society, a fossil organic remain of some unknown marine animal. During the expedition of these gentlemen up the river Missouri in the year 1804, this specimen was found in a cavern situate a few miles south of the river, near a creek named Soldier's River. The nature of the soil at this locality they do not mention, but there can be little doubt of its being secondary, as a few miles down the river, at Council Bluff, there are hills of considerable size, composed almost entirely of fossil marine shells and other organic reliquiae in a fossil state.

My attention was first directed to this specimen by Mr. T. Say, who, with his accustomed liberality, offered every assistance in decyphering the same. At first view, I recognized it as a portion of the dental bone of an animal allied to the Saurian reptiles; a closer inspection proved its approximation to the new fossil genus "Ichthyosaurus," an animal, as the name imports, uniting in its structure both the fish and the lizard; having the head of a Lacertian animal joined to the vertebræ of a fish, and extremities entirely sui generis. For a full description of this highly interesting animal, together with another new fossil genus, the Plesiosaurus, naturalists are particularly indebted to an able and elaborate essay, by the Rev. W. D. Conybeare, and Mr. De la Beche, (in the Trans. of the Geolog. Soc. 2d series, vol. i. pl. 1st. and vol. v. pl. 5,) in which they have described four distinct species of the Ichthyosaurus.

By the most critical examination of the present specimen, it is found to possess characters which incontestably render it at least specifically, if not generically, different from either.

Our specimen is rendered doubly interesting by its locality, being the first of the genus ever discovered on this continent. While we have to lament that so small a remnant of this animal has been snatched from oblivion, it still serves to display the utility as well as beauty of the doctrine of the laws of co-existence in the parts of animals,

when employed with that caution which renders it a legitimate instrument of induction. A perfect knowledge of these laws enabled Cuvier to establish important species, on data far less certain than that now under consideration, not to mention many others; the *ANOPLOTHERIUM medium* was originally founded on a portion of the lower jaw.

From the data afforded by the account of the *Ichthyosaurus* above-mentioned, the following would appear to be its *generic* characters. Teeth fixed in an open sulcus, instead of separate alveoli; consisting of two series only; one growing within the other; anterior nares opening near the root of the snout, immediately before the lachrymal bones. Bones of the head and face, in number and structure, nearly resembling the *Crocodile*; bodies of the vertebræ concave both at their occipital and caudal surfaces; legs, four in number, terminating in a paddle, composed of a numerous series of polygonal bones, and attached immediately to the distal extremities of the humerus and femur; anterior extremities much larger than the posterior. Amphibious? Oviparous.

In order to demonstrate wherein the present differs from those species of the *Ichthyosaurus* already described, it will be necessary briefly to state their specific characters, which, as in most other instances, have been drawn principally from the teeth.

1. *I. communis*. Upper part of the tooth con-

cal, not very acute, slightly aduncate, and thickly covered with prominent, longitudinal striæ.

2. *I. platyodon*. Upper part of the tooth smooth and flattened, so as to present sharpened edges.

3. *I. tenuirostris*. Teeth more slender than the preceding species, but is best marked by the extreme length and thinness of the snout.

4. *I. intermedius*. The upper part of the teeth much more acutely conical than in species first; and the striæ less prominent, yet less slender than in species third. These species vary in size: those of the first differ from five to fifteen feet, but the most gigantic belong to species second.

The animal, to which our specimen belonged, may have been about six or eight feet in length. The remnant, from which these observations were drawn, is a portion of the dental bone of the right side; its greatest length four inches, greatest breadth two inches; alveolar surface three inches and a half long, three-tenths in thickness.

“The most important difference between the lower jaw of the Crocodile and Ichthyosaurus is, that the bones are not connected by *true* suture in the latter, but by squamous suture as in fishes.”*

In which circumstance our specimen perfectly corresponds, as is demonstrated by fig. 4. (a.) The inferior and posterior edges being thinned and imbricated for articulation with the angular bone.

* Conybeare.

There are eighteen teeth in different states of preservation; the longest are seven-tenths of an inch, two-tenths only projecting above the bone; the projecting part enamelled, smooth and shining, lanciform; the edges very sharp; but this will be better understood by referring to fig. 1st. The bodies of the teeth are all hollow, and are firmly fixed in a longitudinal groove, there being no distinct, separate alveolæ. The bodies of the teeth are in *close contact throughout*, in which respect it differs from the other species of the Ichthyosaurus, the Plesiosaurus, and the Saurian reptilia; it differs, further, from all these animals in the following respect—the body of the bone is not perforated by a canal for the inferior maxillary nerve; in place of which, is observed a groove running the whole length of the dental bone, immediately beneath the alveolar portion, on the mesial aspect of the bone; the bottom of this groove is perforated with foramina for the distribution of the nerves and blood-vessels, equal in number to the teeth, (i. e. 18.)

The process of dentition appears also to possess some peculiarities; being two series, one directly above the other, both hollow, (the cavities in some instances filled up with crystallized carbonate of lime;) the mode of shedding the teeth is similar, but the manner in which the inferior enters the superior, differs from the animals above referred to; the inferior entering the cavity of the superior

directly at the centre, and not at the side of the body.

The inferior series are completed before they enter the upper. I could observe no appearance of a third series, except indeed the cavity in the second. The teeth of this species are neither conical nor striated, which is not the case in the other species, excepting the *tenuirostris*, in which the superior portion is smooth, curved, and conical; the lower half striated.

The extreme sharpness of the cutting edge of the teeth, and the juxta position of their bodies, precludes the possibility of supposing the teeth of the upper jaw to have passed between those of the lower jaw, when the mouth was closed, as is the case in all the animals we have referred to in this paper.

The row of teeth on the inferior appear to have passed within those of the superior jaw; this supposition is further strengthened by the worn appearance of the sides of the teeth.

This arrangement of the teeth, which would require a peculiar configuration of the jaw, together with the peculiar distribution of the inferior maxillary nerve mentioned above, appears to me to entitle this animal to rank as a new genus. In many respects it approaches very nearly the *Ichthyosaurus*, but is separated from this genus of animals by the peculiarities expressed above.

Fig. 1.



Fig. 3.



Fig. 7.



Fig. 4.

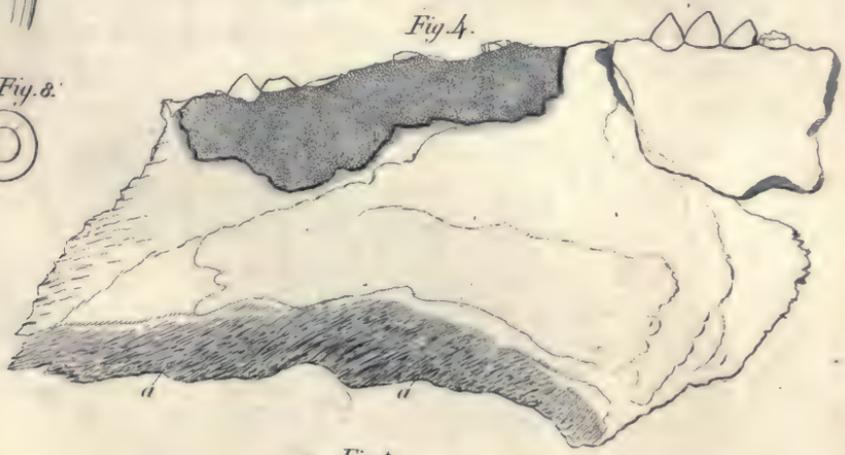


Fig. 8.



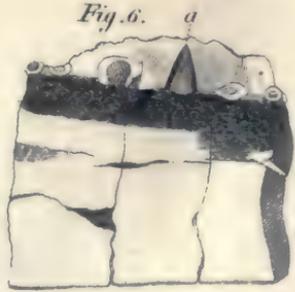
Fig. 5.



Fig. 2.



Fig. 6.





We propose to distinguish this animal by the following name and characters.

SAUROCEPHALUS LANCIFORMIS.

Generic characters. Bodies of the teeth approximated; those of the superior and inferior jaws closing like incisors. Inferior maxillary nerve passing along a groove on the mesial aspect of the dental bone.

Specific characters. Projecting portions of the teeth smooth and lanciform.

PLATE XII.

- Fig. 1. Tooth detached.
 2. Teeth in their sockets magnified.
 a. The young tooth.
 3. The dental bone, mesial aspect.
 4. " " dermal aspect.
 a. a. articulating surface.
 5. Dental bone seen from above.

*On a new extinct fossil species of the genus ICH-
THYOSAURUS. By R. HARLAN, M. D. Read March
16, 1824.*

Soon after writing my last paper on the SAURO-
CEPHALUS, my attention was directed to a small
fragment of petrified bone, deposited in the col-
lection of British fossils in the Philadelphia Mu-
seum.

This specimen was originally from Bath or Bris-
tol, and is easily recognized, at first view, for a
portion of the dental bone of some Saurian rep-
tile; though from the small size and crushed state
of the specimen, and from its being, in some de-
gree, imbedded in a matrix of Calp, it was at first
difficult to ascertain to what genus it belonged.

Nevertheless, an attentive examination of this
portion of dental bone, a little more than an inch
in length, and containing six teeth, enabled me
eventually to ascertain the following facts.

The remnant is six-tenths of an inch high, and
five-tenths broad at the alveolar aspect. The lar-
gest teeth (for they vary in size) are .65 of an inch
long, projecting three-tenths above the bone; the
projecting portion being marked with closely ar-
ranged, longitudinal striæ; a few widely separated
longitudinal lines mark the buried portion of the

tooth, and the whole tooth is conoidal from the base to the apex.

In the mode of dentition, this animal resembles the crocodile, but it differs in having the teeth set in a continued groove, instead of separate alveoli. It varies from the *Plesiosaurus* in the same respect, and in the teeth, though conical, being not so long proportionably, nor in the same degree aduncate as in that animal. It should be remembered that the teeth of animals of this order vary in the latter respect even in the same jaw, as is particularly the case in the *I. intermedius*.

Our specimen totally differs from the *SAUROCEPHALUS*, in the relative size, form and proportion of the teeth and dental bone, and in the bodies of the teeth not being approximated or contiguous.

It resembles the *ICHTHYOSAURUS* in the relative proportions of the teeth, in having them set in a groove, and in its mode of dentition. It approaches most nearly to the *I. communis* in the general appearance of the teeth, but differs from that species in their relative size and form; these bodies being more aduncate in the latter.

It differed from all the four species in the greater relative thickness of the dental bone. In fine, it no more resembles these species, than they respectively resemble each other. From these data I am led to believe the present specimen to have belonged to a species not before described, and propose to denominate it *ICHTHYOSAURUS coniformis*.

PLATE XII.

- Fig. 6. (a) Tooth of the natural size in situ.
 7. do. magnified.
 8. do. transverse section do.

Observations on the Nomenclature of WILSON'S ORNITHOLOGY. By CHARLES BONAPARTE. Read March 9, 1824.

A wish having been expressed by several naturalists, that Wilson's Ornithology should be revised, and its nomenclature adapted to the improvements that have been made in systematical arrangement, since the publication of that excellent work, we shall endeavour to perform that task, at least in part, and will add such of the synonyma of European authors, as appear to be the most interesting and accurate, particularly those of LINNE, GMELIN, (*syst. Nat.*) LATHAM, (*Index Ornith.*) TEMMINCK, (*Manuel d'Ornith.*) BUFFON, (*Planches Enluminées*) and VIEILLOT, (*Oiseaux de l'Amérique Septentrionale.*) The concordance of which latter work, with that of Wilson, has long been a desideratum. We will further state our opinion respecting the identity or discrepance of American and European species.

Wilson, though one of the most acute and ac-

curate of Ornithologists, one who has rendered the greatest services to science, by describing, in his attractive style, the manners and habits of American birds, and who has corrected so many errors of former writers, has nevertheless, unavoidably committed some himself, principally of nomenclature, which are, in a great measure, attributable to a want of the necessary books and opportunities of comparison. So far, therefore, from being censurable for these errors, we are surprised that he has not committed more.

I will follow the order in which the genera stand in the general index to the land birds, annexed to the 6th volume, and that of the water birds added to the 9th volume.

The reader will observe that an * joined to a specific name indicates the species to be common to Europe and America; a † indicates that the species, to which it is prefixed, is but a nominal one, and must, therefore, be eliminated; a § will be prefixed to those which I have not been yet able to examine satisfactorily.

VULTUR.

No true Vulture has been found either in North or South America. The two species described under this genus, by Wilson, belong now to the genus *CATHARTES* of Illig. Vieillot made a new

genus of them, which he named CATHARISTA, but this innovation will not, I think, be adopted.

1. *V. aura*, vol. ix. p. 96, is now CATHARTES *aura*, of Temminck.

SYNONYMES.

V. aura. LINN. GMEL. LATH. (who have probably included this and the following species under the above specific name.)

V. aura. VIEILL. *pl.* 2, bis. He has, however, since applied to this species the name CATHARISTA *aura*.

2. *V. atratus*, vol. ix. p. 104, is now CATHARTES *urubu*, Temminck.

SYNONYMES.

V. brasiliensis, var. LATH.

V. urubu, VIEILL. *pl.* 2, since CATHARISTA *urubu*.

Vautour du Brésil. BUFF. *Pl. Enl.* 187, quoted in Wilson's Ornithology, under the preceding species.

FALCO.

Of this numerous and difficult genus I am not prepared to say much at present. It may, however, be interesting to state the particular subgenus to which each of Wilson's species is referrible. The six European subgenera will comprehend them all.

FALCO.

1. * *F. peregrinus*. Vol. ix. p. 120. This bird corresponds with that of Europe, which, in its dif-

ferent states of plumage, has been called *abietinus*, *communis*, *barbarus*, &c.

SYNONYMES.

F. peregrinus. GMEL. LATH. TEMM.

F. barbarus. GMEL. LATH.

F. communis. GMEL. LATH. but not all the varieties they have described.

Le Faucon. BUFF. *Pl. Enl.* 421, (adult.)

Le Lanier. BUFF. *Pl. Enl.* 430, (very old male.)

Le Faucon sors. BUFF. *Pl. Enl.* 470, (young bird, under one year.)

Faucon noir passager. BUFF. *Pl. Enl.* 469, (female about 2 years of age.)

Vieillot was not aware of the existence of this species in America, since he observes that no true Falcon, in his acceptation of the genus, is to be found in this country.

4. *F. sparverius*. Vol. ii. p. 117, female. Vol. iv. p. 57, male.

A well known species, peculiar to America, allied to the *FALCO tinnunculus* of Europe.

SYNONYMES.

F. sparverius. LINN. GMEL. LATH. (male.)

F. dominicensis. GMEL. LATH. (female.)

F. æsalon β . *noveboracensis*. GMEL. LATH. (young.)

F. æsalon γ . *caribæarum*. GMEL. LATH. (very young.)

Émérillon de St. Domingue. BUFF. *Pl. Enl.* 465, (female.)

Émérillon de Cayenne. BUFF. *Pl. Enl.* 444, (male.)

TINNUNCULUS sparverius. VIEILL. *pl.* 12, (adult male,) *pl.* 13; (young.) Vieillot afterwards suppressed his genus *TINNUNCULUS*, and united it to *FALCO*.

5. *F. columbarius*. Vol. ii. p. 107. A well determined species, peculiar to America, incorrectly considered by some authors as an *ASTUR*.

SYNONYMES.

F. columbarius. LINN. GMEL. LATH.

TINNUNCULUS columbarius. VIEILL. pl. 11.

AQUILA.

6. * *F. leucocephalus*. Vol. iv. p. 89. A celebrated species common to both continents, but much more frequent in America.

SYNONYMES.

F. leucocephalus. LINN. GMEL. LATH. TEMM.

L'Aigle a tête blanche. BUFF. *Pl. Enl.* 411.

AQUILA leucocephala. VIEILL. pl. 3. He afterwards adopted for this species the genus *HALLETUS* of Savigny.

Vieillot errs in quoting, as synonymes of this species, *F. canadensis*, (which is a synonyme of *F. fulvus*,) and *F. albicaudus*, and *F. albicilla*, which two latter form a distinct species peculiar to Europe.

7. † *F. ossifragus*. Vol. vii. p. 16. This is not a species, as has already been observed by Mr. Ord, in vol. ix. Wilson also had strong suspicions of its identity with the preceding, of which it is in reality only the young bird. Wilson was, moreover, in error, in giving the name of *ossifragus* to this bird, as the name has been given by European writers to the young of the *FALCO albicilla*, think-

ing it a distinct species. Wilson's mistake arose from the circumstance of these two birds being very similar in their young state. The latter is found only in the old continent. Of course, Wilson's synonymes are inapplicable to this bird, as well as his comparative observations.

8. * *F. fulvus*. Vol. vii. p. 13. Though I have had no opportunity of comparing this bird with the European, I have not the least doubt of their identity. Wilson was led into error by European authors, in supposing the ring-tailed and the golden Eagles to be specifically distinct. They are certainly the same species in different states, the golden Eagle being the adult female, and the ring-tailed the young bird.

SYNONYMES.

F. fulvus. TEMM. (LINN. GMEL. LATH. young bird.)

F. fulvus β *Canadensis*. LINN. GMEL. LATH. (young bird.)

F. niger. GMEL. LATH. (adult.)

F. chrysaetos. LINN. GMEL. LATH. (female adult.)

Le grand Aigle ou l'Aigle royal. BUFF. *Pl. Enl.* 410, (adult female.)

L'Aigle commun. BUFF. *Pl. Enl.* 409, (young.)

9 * *F. haliaetos*. Vol. v. p. 13. This well known species is the same in both continents.

SYNONYMES.

F. haliaetos. LINN. GMEL. LATH. TEMM.

Le balbusard. BUFF. *Pl. Enl.* 414.

AQUILA piscatrix. VIEILL. *pl.* 4.

I think Vieillot is wrong in quoting *F. leverianus* as a synonyme of this species. He subsequently adopted for this species the genus PANDION, of Savigny.

ASTUR.

10. * *F. atricapillus*. Vol. vi. p. 80. As Wilson suspected, and as has been ascertained by Sabine in the excellent zoological appendix to Franklin's expedition, this bird is the Goshawk (*F. palumbarius* of Linn.) which had already been erroneously called, by European writers in its different states of plumage, *F. gallinarius*, *F. gentilis*, &c. The name *atricapillus* has also been used by Cuvier, to indicate a South American species.

SYNONYMES.

F. palumbarius. LINN. GMEL. LATH. TEMM.

F. gentilis. LINN. GMEL. LATH. (young.)

F. gallinarius. LINN. LATH. (very young female.)

L'Autour. BUFF. *Pl. Enl.* 418, (adult.)

L'Autour sors. BUFF. *Pl. Enl.* 461, (young.)

Le Busard, BUFF. *Pl. Enl.* 423, (very young female.)

Vieillot does not describe the Goshawk in his American Ornithology, though aware of its existence here. We know not how he could have considered the *atricapillus* of Wilson as a true FALCO, in the *nouveau dictionnaire d'Histoire Naturelle*; this bird, as well as all those of the sub-genus Astur, belong to his genus SPARVIUS.

11. *F. borealis*. Vol. vi. p. 75. A bird peculiar to North America, long known to European writers.

SYNONYMES.

F. borealis. GMEL. LATH.

ACCIPITER ruficaudus. VIEILL. pl. 14, bis.

12. † *F. leverianus*. Vol. vi. p. 78. Wilson was doubtful whether this bird and the preceding were distinct species, or the same in different states of plumage. This can only be determined by observations on the living birds, which I hope to have an opportunity of making.

Contrary, however, to Wilson's conclusion, I am of opinion that they are the same species. The *leverianus* having bands on the tail, which many other hawks lose as they advance in age, and also being more common than the *borealis*, is probably the young bird.

No synonymes are quoted, as it is impossible to determine what species authors had in view in describing their *F. leverianus*.

13. *F. velox*. Vol. v. p. 116. A new species peculiar to America, first described by Wilson, whose name must be adopted. It is, however, probable that Gmelin and Latham had this species or the following one in view, when they described their *F. dubius* and *obscurus*; Vieillot quotes these under *F. columbarius*.

14. *F. Pennsylvanicus*. Vol. vi. p. 13. Another new American species, first described by Wilson, whose name has been adopted by Temminck in his magnificent *Planches coloriées*, where the young bird is figured.

SYNONYMES.

Autour a bec sinneux, jeune (*F. Pennsylvanicus*) TEMM. *Pl. Col.* 67.

15. § *F. Pennsylvanicus*. Vol. vi. p. 92. I cannot say any thing of this new American species of Wilson, except, that as the name has already been given, by the same author, to the preceding species, it must be changed; I, therefore, propose for it the name of *F. Wilsonii*.*

MILVUS.

16. *F. furcatus*. Vol. vi. p. 17. A beautiful American species, described and figured by Catesby.

SYNONYMES.

F. furcatus, LINN. GMEL. LATH.

MILVUS furcatus. VIEILL. *pl.* 10.

Vieillot has since transferred this species to his new genus ELANOIDES.

* Since writing the above, Mr. Ord has informed me that he intends giving this bird, in the reprint of Wilson's Ornithology, the name of *F. latissimus*, which name must be adopted if not pre-occupied.

17. § *F. Mississippiensis*. Vol. iii. p. 80. This species, which Wilson gives as new, appears to be the *MILVUS cenchris* of Vieillot, who quotes the *F. plumbeus*, GMEL. LATH. as a synonyme. If this is accurate, the name of *F. plumbeus*, having the priority, must be adopted.

SYNONYMES.

F. plumbeus? GMEL. LATH.
MILVUS cenchris? VIEILL. pl. 10, bis.

Vieillot has since made the new genus *ICTINIA* of this single species, and restored to it its former specific name, *plumbea*.

BUTEO.

18. * *F. lagopus*. Vol. iv. p. 59. The same as that of Europe.

SYNONYMES.

F. lagopus, LINN. GMEL. LATH. TEMM.
 It is also *F. plumipes* of DAUDIN.

19. § *F. niger*. Vol. vi. p. 82. It is with some doubt and hesitation that I venture an opinion respecting this bird, which I have not yet had an opportunity of examining satisfactorily in all its different states. I will remark at present that it has not been found in Europe, and that the individual, which our author figures as a *variety*, is, as he states, only a young bird. It is highly pro-

bable that Wilson's conjecture is correct, respecting the specific identity of this bird with the *F. Sancti-Johannis* of Latham; it being probably not a variety of that species as he supposes, but the same bird in a different state of plumage. In that case, Latham's and Gmelin's name having the priority, must be adopted.

SYNONYMES.

F. Sancti-Johannis? GMEL. LATH.

F. spadiceus? GMEL. LATH.

BUTEO spadiceus? VIEILL.

F. novæ-terre?? GMEL. LATH.

Vieillot is certainly mistaken in thinking *F. pennatus* a synonyme, that bird being an European Eagle. The same author subsequently applied to Wilson's *F. niger* the name of *BUTEO ater*, considering it a distinct species, whilst he gave the *spadiceus* and the *Sancti-Johannis* both as varieties of the *lagopus*. This re-union is inadmissible.

CIRCUS.

20. *F. hyemalis*. Vol. iv. p. 73. A well known species peculiar to America.

SYNONYMES.

F. hyemalis, GMEL. LATH.

CIRCUS hyemalis, VIEILL. pl. 7, (male.)

Vieillot's figure more closely resembles the *lineatus* of Wilson than the *hyemalis* of the same

author, and corroborates my opinion of their identity.

21 † *F. lineatus*. Vol. vi. p. 86. I suspect that this bird will prove to be the same as the preceding, in its immature state. Birds of the *Falco* genus are subject to remarkable changes in the colour of their plumage, and those of this sub-genus are, in this respect, eminently distinguished. From this fact, and judging also from the analogous changes of the *Circus* of Europe, I have little hesitation in believing the identity of the *lineatus* and *hyemalis*, which can, however, only be satisfactorily proved by observations on the living birds. In the mean time, I will give the synonymes of those authors who consider them as distinct.

SYNONYME.

F. lineatus, GMEL. LATH.

Vieillot, without being aware of it, seems to have had this bird in view when he described the male of his *hyemalis*, but it may be proper to add, that since both sexes occur in similar varieties of plumage, if the two species are identical, the variation must be attributed to age and not to sex.

Vieillot did not notice the *lineatus* in his American Ornithology, yet, in his subsequent writings, though he describes the two sexes of *lineatus* as he had previously done, he gives the *lineatus* as a *BUTEO*.

22. F. *? *uliginosus*. Vol. vi. p. 67. I at first thought this species to be identical with the F. *cyaneus* of Europe, in its young state, but as Mr. Sabine, in the zoological appendix to Captain Franklin's expedition, expresses a contrary opinion, I must defer any decision until I have an opportunity of comparing it with the blue hawk of North America, in all its different states of plumage; the latter, if my opinion be correct, will prove to be the adult male of the *uliginosus*.

Wilson does not describe the blue hawk, though aware of its existence. Sabine was not certain of the existence of an American blue hawk, which chiefly contributed to lead him to believe the *uliginosus* a distinct species.

SYNONYMES.

I can only quote at present with certainty,

F. *uliginosus*. GMEL. LATH.

CIRCUS *uliginosus*. VIEILL.

Temminck, without any hesitation, quotes the CIRCUS *europogistus*, *hudsonius*, and *variegatus* of Vieillot as different states of his European F. *cyaneus*. But from his not referring to the *uliginosus* of Vieillot and Wilson, it would appear that he thought the latter a distinct species, peculiar to America. If it was not for the authority of this eminent ornithologist, I should think that, at least, the *hudsonius* (Vieill. pl. 9.) if not the others, is the *uliginosus* of Wilson. These two

inhabit every part of North America, whilst the *europogistus* is found only to the south. The habitat, however, of the latter bird, cannot have any conclusive bearing on this question, as we know that, in many species of birds, of which the young are erratic, the adult limit their range to the region where they breed.

STRIX.

Savigny has divided this genus into five, viz.—Noctua, Scops, Bubo, Syrnum, and Strix. Cuvier made seven subgenera, but retained the original genus. All these divisions are unsatisfactory as generic, not having, at least *external* characters sufficiently distinct to constitute even sections. Vieillot, himself, who, in his North American Ornithology, made of this, two genera, viz. Strix and Bubo, in his new classification restored the original genus, as established by Linné. The fact is, that this genus, though exceedingly numerous, is very natural.

Ten species are described by Wilson, of which one must be eliminated.

† Hornless Owls.

* *Diurnal*.

23. * *S. nyctea*. Vol. iv. p. 53. Common to the north of both continents.

SYNONYMES.

S. nyctea, LINN. GMEL. LATH. TEMM. VIEILL, *pl.* 18,
(young.)

S. candida, LATH.

Le Harfang, BUFF. *Pl. Enl.* 458.

24. * *S. hudsonia*. Vol. vi. p. 64. The name of *S. funerea* must be adopted for this species, which is common to both continents. It has been repeatedly described by authors under the several names of *funerea*, *hudsonia*, *canadensis*, *nisoria*, *ulula*, &c.

SYNONYMES.

S. funerea, LINN. GMEL. LATH. TEMM.

S. hudsonia, GMEL. VIEILL.

Chouette à longue queue de Sibérie, BUFF. *Pl. Enl.* 463.

** *Nocturnal.*

25. * *S. nebulosa*. Vol. iv. p. 61. Common to the north of both continents.

SYNONYMES.

S. nebulosa, LINN. GMEL. LATH. TEMM. VIEILL. *pl.* 17.

26. * *S. flammea*. Vol. vi. p. 57. This well known species is common to both continents, though it is far less frequent in America.

SYNONYMES.

S. flammea, LINN. GMEL. LATH. TEMM.

L'Effraye ou la Fresaye, BUFF. *Pl. Enl.* 440.

27. * *S. passerina*. Vol. iv. p. 66. This bird, though perhaps included in the Linnæan *passerina*, not being the *passerina* of subsequent authors, cannot retain this name, which must be changed to that of *acadica*, which is adopted by the best European writers. This species is common to both continents, and was first discovered in North America. Wilson does not describe the true *passerina*, but that bird also is said to be an inhabitant of North America.

SYNONYMES.

S. acadica. GMEL. TEMM. VIEILL.

S. acadensis. LATH.

It has also been called *passerina*, *pusilla*, *pygmæa*, &c. by different European authors.

†† Horned Owls.

28. * *S. brachyotos*. Vol. iv. p. 64. Common to both continents.

SYNONYMES.

S. brachyotos. LATH. GMEL. TEMM.

S. uhula. LINN. GMEL. LATH.

S. accipitrina. GMEL. LATH.

La Chouette. BUFF. *Pl. Ent.* 438.

It has also been called, by different authors, *S. stridula*, *palustris*, *tripennis*, *arctica*, *brachyura*, &c.

29. *S. virginiana*. Vol. vi. p. 52. This species,

though closely allied to the *S. bubo* of Europe, which it replaces both in North and South America, is certainly a distinct species, and not a variety, as has been supposed by some authors.

SYNONYMES.

S. bubo & *magellanicus*. GMEL. LATH.

S. virginiana. GMEL. LATH.

BUBO pinicola. VIEILL. pl. 19.

Hibou des Terres Magellaniques. BUFF. Pl. Enl. 385.

30. § *S. otus*. Vol. vi. p. 73. Vieillot is perhaps right with respect to this bird, when he states that, although closely allied to the *Otus* of Europe, it is, nevertheless, a distinct species. His name of *clamator* cannot, however, be adopted, as Gmelin's name *S. Mexicana* has the priority, and must, therefore, be retained.

SYNONYMES.

Bubo clamator? VIEILL. pl. 20.

S. Mexicana? GMEL. LATH. (male.)

S. Americana? GMEL. LATH. (female.)

Certainly not *S. naevia*. GMEL. LATH. which is here quoted by Vieillot, but must be referred to *S. asio*.

31. *S. asio*. Vol. v. p. 13. This pretty species is peculiar to America.

SYNONYMES.

S. asio. LINN. GMEL. LATH. (young.)

BUBO asio. VIEILL. p. 21, (young.)

S. naevia. GMEL. LATH. (adult.)

S. albifrons? GMEL. LATH.

BUBO *albifrons*? VIEILL.

BUBO *striatus*? VIEILL.

32. † *S. nævia*. Vol. iii. p. 16. This species is, in my opinion, the same as the preceding, in a different state of plumage, resulting from age. In order, however, to ascertain this point beyond a doubt, I shall observe a living red owl which I am keeping for the purpose. Analogous changes have been observed in the *S. aluco* of Europe, the male of which was for centuries believed to be a distinct species.

LANIUS.

Modern authors have, with reason, made of this several genera, but the two species described by Wilson still belong to it, as now restricted.

33. *§ *L. excubitor*. Vol. i. p. 74. I have not yet examined this bird satisfactorily, but from Sabine's observations, we must believe that it is the true *excubitor* of Europe and Asia. In that case, however, Wilson's figure will represent a female or a young male; the male of the true *excubitor*, when adult, being entirely white beneath. He must also have been in error when he stated that the female is distinguished from the male by being ferruginous on the back and head, as this is not the case with the European bird, the females of which are only less purely cinereous in those parts. Vieillot thinks the American bird distinct

from the European, principally in consequence of the transverse lines beneath, though, at the same time, he remarks that these lines are not constant.

SYNONYMES.

L. excubitor. LINN. GMEL. LATH. TEMM?

Pie-grièche grise. BUFF? *Pl. Enl.* 445.

L. borealis. VIEILL. *p.* 50, (female.)*

34. § *L. carolinensis*. Vol. iii. *p.* 57. This species is peculiar to the southern parts of North America. Vieillot's name of *ardosiaceus* has the priority, and will, therefore, be adopted.

SYNONYMES.

L. ardosiaceus. VIEILL. *p.* 51, (female.)

L. ludovicianus? LINN. GMEL. certainly not of LATHAM.

PSITTACUS.

35. *P. carolinensis*. Vol. iii. *p.* 89. The only species yet found in the United States. Its young has been taken for a distinct species.

* Since writing the above, I have seen an article in the *Nouveau Dictionnaire d'Histoire Naturelle*, in which Vieillot gives sufficient reasons, derived from the respective lengths of the primaries, to induce us to believe that his *L. borealis*, which he states to inhabit the northern parts of both continents, and *L. excubitor* are specifically distinct. If this is the case, his name must be adopted, and the synonymes will be *L. excubitor* var. *major* GMEL. LATH.

I hope soon to have an opportunity of removing all doubts from this subject.

SYNONYMES.

- P. carolinensis*. LINN. GMEL. LATH.
P. pertinax. LINN. GMEL. LATH. (young.)
Perruche de la Caroline. BUFF. *Pl. Enl.* 499.

CORVUS.

This genus is now divided in three subgenera, which Vieillot and some other writers consider as genera agreeably to Brisson.

CORVUS.

36. * *C. corax*. Vol. ix. p. 113. Common to almost every part of the globe.

SYNONYMES.

- C. corax*. LINN. GMEL. LATH. TEMM.
Le corbeau, BUFF. *Pl. Enl.* 495.

37. * *C. corone*. Vol. iv. p. 79. The voice of this bird is so remarkably different from that of the *corone* of Europe, that I was at first led to believe it a distinct species; but the most scrupulous examination and comparison of European and American specimens proved them to be the same.

SYNONYMES.

- C. corone*. LINN. GMEL. LATH. TEMM.
La Corneille, BUFF. *Pl. Enl.* 483.

38. § *C. columbianus*. Vol. iii. p. 29. A new species, found by Lewis and Clarke on the shores of Columbia river, and not since observed.

39. § *C. ossifragus*. Vol. v. p. 72. A very interesting species, first named and described by our author.

PICA.

40. * *C. pica*. Vol. iv. p. 75. It is not a little singular that this species, which is so common in every part of Europe, should be confined in its range on this continent to the western and northern regions.

SYNONYMES.

C. pica. LINN. GMEL. LATH. TEMM.
La Pie, BUFF. *Pl. Enl.* 488.

GARRULUS.

41. *C. cristatus*. Vol. i. p. 11. This beautiful and familiar species is peculiar to North America.

SYNONYMES.

C. cristatus. LINN. GMEL. LATH.
Geay bleu du Canada, BUFF. *Pl. Enl.* 529.

42. *C. canadensis*. Vol. iii. p. 33. This also is peculiar to North America.

SYNONYMES.

C. canadensis. LINN. GMEL. LATH.
Geay brun du Canada, BUFF. *Pl. Enl.* 530.

ORIOIUS.

No true Oriolus inhabits the American continent. All the American species, placed in this

genus by Linne, Gmelin, and Latham, have been, very properly, arranged under *ICTERUS*, which is an exclusively American genus, restored by Illiger nearly to the original limits assigned to it by Brisson. This genus corresponds with *XANTHORNIUS* of Pallas, and is nearly the same with the genera *CASICUS*, *ICTERUS*, and *XANTHORNIUS* of Lacepede, and also with the genus *CASSICUS* of Cuvier. It includes all the species of Daudin's *CASICUS*, nearly all those of his *ICTERUS*, and comprehends Vieillot's four genera *YPHANTES*, *PENDULINUS*, *AGELAIUS*, and *CASSICUS*.

The genus, as it now stands, contains a great number of species, and has been subdivided into four sections by Temminck, under the names of *Cassicus*, *Quiscala*, *Icterus*, and *Emberizoides*. Of these subdivisions, *QUISCALA* appears to me to have sufficiently distinctive characters to constitute an independent genus, and I shall, therefore, consider it as such; *EMBERIZOIDES* may also form an independent genus, or its species be more properly arranged under *FRINGILLA*. The genus *ICTERUS*, thus limited, will consist of two subgenera, viz. *Cassicus*, corresponding to Vieillot's genus of that name, and *Icterus*, including the three other genera of that author. The two species described by Wilson as *ORIOLI*, belong to the subgenus *Icterus*.

43. *O. baltimore*. Vol. i. p. 23, (male,) vol. vi. p. 88, (female.) This handsome bird, the history of which is so accurately given by our author, must

now be called *ICTERUS baltimore*, agreeably to Daudin.

SYNONYMES.

ORIOLUS baltimore, LINN. GMEL. (The female of the latter author is in reality the young male.)

O. baltimore, LATH. (The male only, his female being in reality the adult male of the following species.)

O. spurius, male, LATH. (A male of this species in the state of moulting.)

Le *Baltimore du Canada*, BUFF. *Pl. Enl.* 506, (adult male.)

Le *Baltimore bâtard du Canada*, BUFF. *Pl. Enl.* 506, f. 2, (young male moulting, erroneously quoted by Wilson under the following species.)

Cuvier included this bird in his subgenus *Xanthornus*. Vieillot makes it the type of his genus *YPHANTES*, which, however, cannot be adopted even as a subgenus, inasmuch as *YPHANTES solitaria*, one of the two species of which it is composed, is no other than the adult male of the following species (*ORIOLUS mutatus* of Wilson) the female and young of which Vieillot places in his genus *PENDULINUS*. Thus, according to his arrangement, the female and young male belong to one genus, and the adult male of the same species, to another. This striking example may serve to show, on what inadmissible characters that author has founded some of his genera.

44. *O. mutatus*. Vol. i. p. 64. No species of bird has occasioned so many errors, and so great

a multiplication of nominal species as the present ; but Wilson corrected these errors, and permanently fixed the species, by describing and delineating it in all its different states of plumage. He had, however, in my opinion, no right to change the name of the species, which was known, though imperfectly, to our great master Linne, who gave it the name of *O. spurius*. This name is perhaps objectionable ; but equally good reasons can be given for changing some hundreds of zoological names, thereby adding to the confusion of synonymy, as can be adduced for a change in the present designation. The name of *mutatus* itself, for instance, would at least be changed to that of *mutabilis*. I conclude, therefore, that the name of *ICTERUS spurius* ought to be exclusively adopted.

SYNONYMES.

O. spurius. LINN. GMEL. (The description which the latter author gives, as that of a female, evidently indicates a young male, as is proven by his descriptive phrase, "gula nigra.")

O. spurius. female, LATH. (which is, however, the young male ; his male is, as before quoted, the female of the preceding species.)

O. varius. GMEL. (adult male.)

O. castaneus. LATH. (*ICTERUS castaneus*. Daudin. adult male.)

O. capensis. LINN. GMEL. LATH. (female.)

TURDUS ater. GMEL. LATH. (A young male about two years of age.)

Carouge de Cayenne, BUFF. *Pl. Enl.* 607, *fig.* 1, (adult male; a very bad representation.)

Carouge du Cap de bonne Esperance, BUFF. *Pl. Enl.* 607, *fig.* 2, (female; a very bad representation.)

Merle à gorge noire de St. Domingue, BUFF. *Pl. Enl.* 559, (a good figure of the young male, above two years old.)

Vieillot, in attempting to elucidate this species, involved it in still greater obscurity, by making of the adult male his new species *YPHANTES solitaria*, and placing the female and young male in his genus *PENDULINUS*, with the specific name *nigricollis*.

GRACULA.

This genus now consists of but one species, which is the *G. religiosa* of Linne, native of the East Indies. The other species, formerly referred to it, are dispersed in many different genera. The two species described by Wilson, and the third which he indicated, belong to the genus *ICTERUS*, as adopted by Temminck, and particularly to its second subgenus *Quiscal*, which, with Vieillot, I will consider as a genus, under the name of *QUISCALUS*, adopting his termination of the designation, in order to avoid multiplying synonyma. All the species of the genus *QUISCALUS* are natives of North America.

45. *G. quiscula*. Vol. iii. p. 44. Wilson was correct with respect to this species, which he fixed both by his figure and description; but as

the specific name has been given to the genus, Vieillot's name of *QUISCALUS versicolor*, which is a very good one, must be adopted.

SYNONYMES.

GRACULA quiscula. LINN. GMEL. LATH.

STURNUS quiscula. DAUD. *Ornith. tom. 2, p. 316.*

GRACULA barita. ORD. *Jour. Acad. Nat. Sc. vol. i. p. 253.*

ORIOLOUS ludovicianus. GMEL. LATH. (a pied variety.)

O. hudsonius. GMEL. (whitish variety of this species, or perhaps of the following.)

Cassique de la Louisiane, BUFF. *Pl. Enl. 646*, (a pied variety.)

I want no other proof of the correctness of these synonymes, than the excellent description of Mr. Ord. The Linnæan description is certainly insufficient to lead us to any conclusion; but Gmelin's admeasurement of the *quiscula*, as well as his remark respecting the form of the tail of this species, and its habitat, are certainly decisive.

46. *G. ferruginea*. Vol. iii. p. 41. Wilson exhibited his usual good judgment and accuracy of discrimination, by uniting this species with the *quiscula* and *barita* in the same genus, although it had been previously arranged with *ORIOLOUS* and *TURDUS*, by European authors. He discovered that five nominal species had been made of it. This bird being evidently congeneric with the preceding, I propose for it the name of *QUISCALUS ferrugineus*.

SYNONYMES.

ORIOIUS niger. GMEL. LATH. (adult male in spring.)

O. ferrugineus. GMEL. LATH. (young and autumnal male, and female in all states.)

TURDUS hudsonius. GMEL. LATH. (young and autumnal male, and female in all states.)

T. noveboracensis. GMEL. LATH. (adolescent male.)

T. labradorius. GMEL. LATH. (adult male in the spring.)

It is strange that Vieillot did not place this bird in his genus *QUISCALUS*, particularly as he states that its characters do not perfectly correspond with those of his genus *PENDULINUS*, in which he includes it under the name of *P. ater*, as if the synonymy of this species was not already sufficiently confused.

CUCULUS.

No species of this genus, as now restricted, is found in America. The two species referred to it by Wilson now belong to the genus *COCCYZUS* of Vieillot, common to the warmer regions of both continents, but not found in Europe. Vaillant first separated these birds from *Cuculus* in a distinct group, under the name of *Coou*; but Vieillot fixed and named the genus as adopted by Temminck and almost all recent ornithologists. Cuvier considers it only as a subgenus. The physical characters of the species, and principally their manners and habits exhibited in the construction of their

nests, the hatching of their eggs, and rearing of their young, prove it to be a very natural genus.

47. *C. carolinensis*. Vol. iv. p. 13. Wilson choose the specific name, given by Catesby and Brisson, in preference to that of Linne, but as I think that the names given by Linne should be exclusively retained, this bird ought to be called *Coccyzus americanus*.

SYNONYMES.

CUCULUS americanus. LINN. GMEL. LATH.

CUCULUS dominicus. LINN. GMEL. LATH. (female.)

Coucou de la Caroline, BUFF. *Pl. Enl.* 316.

Vieillot called this bird *Coccyzus pyropterus*.

48. § *C. erythrophthalmus*. Vol. iv. p. 16. This new species of Wilson must now be called *Coccyzus erythrophthalmus*.

PICUS.

This very numerous genus is so natural that it has hardly been touched by any reformer, and remains as it was first instituted by Linne. North America has reason to be proud of her productions in this genus, as well on account of the number as of the beauty of the species. Ten of them are so well described by our author, and are so generally known, that it will not be necessary to say much respecting them. Not one of Wilson's species is found in Europe.

49. *P. principalis*. Vol. iv. p. 20. This beauti-

ful bird is, as Wilson observes, the first of its whole genus.

SYNONYMES.

PICUS principalis. LINN. GMEL. LATH. VIEILL. *pl.* 109.

Pic noir hupé de la Caroline, BUFF. *Pl. Enl.* 690.

50. *P. pileatus*. Vol. iv. p. 27. This fine species stands second only to the preceding, and inhabits a much greater extent of country, being found in the north where the other does not appear, as well as in the south.

SYNONYMES.

P. pileatus. LINN. GMEL. LATH. VIEILL. *pl.* 100.

Pic noir hupé de la Louisiane, BUFF. *Pl. Enl.* 718.

51. *P. auratus*. Vol. i. p. 45. This handsome bird, on account of the formation of its bill, which is slightly curved, was formerly arranged in the genus *CUCULUS* by some authors, and even by the great Linne himself, in the tenth edition of his *Syst. Nat.* But it is, in fact, as all the authors agree, a true Woodpecker. It is very strange that Vieillot, who must have studied this bird in nature, should copy other authors in stating that it does not climb; Wilson rejected this error in the history of this bird.

SYNONYMES.

P. auratus. LINN. GMEL. LATH. VIEILL. *pl.* 123.

Pic rayé du Canada, BUFF. *Pl. Enl.* 693, (male.)

52. *P. erythrocephalus*. Vol. i. p. 142. One of the most beautiful birds of North America. The female is very similar in colour to the male, but the young bird, in consequence of differing much in colour from the adult, has been mistaken by some writers for a distinct species.

SYNONYMES.

P. erythrocephalus. LINN. GMEL. LATH. (adult.) VIEILL. *pl.* 112, (adult,) *pl.* 113, (young.)

P. obscurus, GMEL. LATH. (young.)

Pic de Virginie, BUFF. *Pl. Enl.* 117, (adult.)

53. *P. villosus*. Vol. i. p. 150. Latham, as Sabine observes, was, no doubt, in error in supposing two specimens to have been shot at Halifax, in Yorkshire; they must have been killed at Halifax in America. No such bird is to be found in Europe, unless fugitive from captivity.

SYNONYMES.

P. villosus. LINN. GMEL. LATH. VIEILL. *p.* 120.

P. canadensis? GMEL. LATH. (female.)

Pic varié male de Virginie, BUFF. *Pl. Enl.* 754, (male.)

Pic du Canada? BUFF. *Pl. Enl.* 315, *fig.* 1, (female.)

54. *P. pubescens*. Vol. i. p. 153. The smallest of the North American Woodpeckers. It replaces here the *P. minor* of Europe, but is as common and familiar as the other is rare and shy.

SYNONYMES.

P. pubescens. LINN. GMEL. LATH. VIEILL. *pl.* 121, (female.)

55. *P. varius*. Vol. i. p. 147. The female differs but little from the male; the young bird, though unlike in colour, is easily recognizable.

SYNONYMES.

P. varius. LINN. GMEL. LATH. VIEILL. *pl.* 118, (male adult),
pl. 119, (young.)

Linne was right in saying that the female has red on the head; but the compiler, Gmelin, as in numerous other instances, intending to correct that great man, errs in saying "feminis rubor nullus." This shows the incorrectness of quoting Linne instead of Gmelin, as is generally done, making the former answerable for the errors of the latter.

56. *P. querulus*. Vol. ii. p. 103. First discovered by Wilson, whose name, of course, must be adopted.

57. *P. torquatus*. Vol. iii. p. 31. Another new species of Wilson, brought by Lewis and Clarke from the Western regions. Our author was unacquainted with the female of this very remarkable species, but Mr. T. Peale, who shot a pair of them during the breeding season, near the Rocky Mountains, ascertained that the female differs but very little in colour from the male.

58. *P. carolinus*. Vol. i. p. 113. This fine spe-

cies does not receive its perfect plumage until the third year.

SYNONYMES.

P. carolinus. LINN. GMEL. LATH.

Pic rayé de la Louisiane, BUFF. *Pl. Enl.* 692, (female.)

Pic rayé femelle de la Jamaïque? BUFF. *Pl. Enl.* 597, (male.)

PICUS griseus, VIEILL. *pl.* 116, (male.)

N. B. Another Woodpecker is indicated in Wilson's Catalogue, under the name of an European species, viz. *P. major*. But this bird is not, to my knowledge, found in America; that species, to which Wilson had reference, may prove to be *P. borealis*, VIEILL.

[TO BE CONTINUED.]

Account of an examination of Fused Charcoal.

By LARDNER VANUXEM. *Read March 30, 1824.*

The specimen examined was sent to Dr. Cooper by Professor Macneven of New York, who obtained it by means of the deflagrator invented by Dr. Hare.

Dr. Cooper was so good as to present me with the fused charcoal, knowing that I was extremely desirous of experimenting upon it, being very sceptical as to its resulting from the fusion of the carbonaceous part of the charcoal, believing on the

contrary that it was little else than the metallic, earthy, saline, or alkaline materials, probably enveloping charcoal in the black globules, or if iron were present, combined with that metal, constituting a product analogous to steel.

My opinion that the fused charcoal in question was derived from the impurities of the charcoal, was principally owing to the sources of error not having been removed; and that these sources are very considerable is well known not only to those who have been engaged in the analyses of the different kinds of our ordinary combustible substances, but is obvious to the common observer by the quantity of ashes which is left, when wood or coal has been incinerated.

Dr. Macneven did not mention that he made any experiment upon the fused charcoal, other than that of ascertaining its comparative density with sulphuric acid, in which liquor it sunk.

The fused charcoal consisted of one large, and one small globule, connected together by a thread, or thin bar of the same material, and resembled a double headed shot; externally its colour was black, and without lustre, and was perfectly opaque. It weighed 2.5 centigrammes or 0.385 of a grain.

In the first experiment it was heated red hot by a blowpipe in a silver spoon with caustic potash, which had no action upon it; for when well washed and dried, the weight remained the same.

It was then put into an agate mortar, pressed, and struck with considerable force; finding it yielded without breaking, and observing that it received a polish, it was examined, and found to resemble iron. To confirm the analogy, it was next tried with a file, which acted upon it as it would on soft steel or iron; after this it was subjected to a magnet, to which it readily attached itself; and lastly with a hammer; by its great malleability conjoined with the characters just mentioned, it proved its identity with iron.

The fused charcoal was next subjected to the action of nitric acid in a small platina capsule, there was no effect till the acid was heated, it then attacked the mass, very violently disengaging nitrous fumes, and separated it into several pieces; although fresh additions of nitric acid were made, yet the whole did not dissolve. The unattacked part was separated from the liquor, and examined with a microscope; it still exhibited the same appearance and still was magnetic. However, by a further division of the substance, it was all dissolved by nitric acid, except one small piece reserved for exhibition.

The nitric liquor was evaporated to dryness; muriatic acid and water were then added to dissolve the iron, which took up the whole of it, leaving a small quantity of whitish matter, from which the liquor was separated by decantation; this matter resembled silex, the quantity however, was too

small to ascertain correctly its nature, for it weighed no more than 0.0025 gramme.

Ammonia added to the liquor, gave the reddish brown precipitate of hydrate of per oxide of iron; separated from the liquor, dried and calcined, it weighed 0.0175, equal to 0.012 gramme of metallic iron.

Hence we have for result—

Iron,	-	-	-	-	-	0.0120
Silex,	-	-	-	-	-	0.0025
Loss,	-	-	-	-	-	0.0105
						0.0250
					Gm.	0.0250

From the results obtained, it is very evident that this product of the fusion of charcoal must consist merely of the impurities contained in the charcoal, and is not a *fusion of its carbon*, as has been supposed; moreover, it must consist chiefly of iron, for its lustre, its being acted upon by a file in the manner aforementioned, its great malleability, &c. &c. preclude all idea of any considerable intermixture of other substances with it. The great loss in the analysis is due to the violent action of the nitric acid upon it, (the capsule being small,) also to the filing of the same, and to the great difficulty of correctly operating upon so small a quantity of matter.

Description and Analysis of the SILLIMANITE, a new mineral. By GEORGE T. BOWEN. Read April 6, 1824.

The mineral, which is the subject of the following observations, was discovered in the town of Saybrook, Connecticut, during the summer of the year 1817, at which time several specimens were brought from that locality, and deposited in the cabinet of Yale College by Dr. McClellan of Philadelphia. At the time of its discovery, some doubts existed as to the true nature of this substance; several specimens, however, having been shown to the different mineralogists of this country, they pronounced it to be the Anthophyllite, and it is mentioned as the Anthophyllite in the last edition of Professor Cleveland's Mineralogy. A number of specimens of this substance have also, at different times, been sent to European mineralogists, who have pronounced the same opinion respecting it.

I first became acquainted with this mineral during the winter of the year 1821, while engaged in the laboratory of Professor Silliman; and, at his request, I then commenced an examination of it. I was, however, under the necessity of leaving New-Haven before the analysis was completed, and have never, until lately, had an opportunity of resuming the subject.

It is proper that I should here mention, that about the time when the examination of this substance was commenced, a description of its external characters was drawn up by Dr. T. D. Porter of New-Haven, who suspected it to be a new mineral; but, as its external aspect was observed to correspond very nearly with that of the Anthophyllite, and as Dr. Porter's description was not accompanied by an analysis, there still remained a doubt as to its true nature. Hence the description was not published.

Having thus given a brief history of this mineral, I shall now proceed to state the results of its examination, and shall then offer my reasons for considering it a new species.

DESCRIPTION. The colour of this mineral is dark gray, passing into clove brown.

It occurs crystallized in rhomboidal prisms, whose angles are about $106^{\circ} 30'$ and $73^{\circ} 70'$; the inclination of the base to the axis of the prism being 113° . It has but one cleavage, which is parallel to the longer diagonal. The sides and angles of the crystals are frequently rounded, so as to give them a reed-like appearance; and the crystals are also sometimes bent.

Its hardness is greater than that of quartz; even the topaz may be scratched by some of these specimens: it is translucent in small pieces, and also on the edges of the crystals: it is brittle, and may easily be reduced to powder.

Its fracture, in the direction of the longer diagonal, is lamellar, and displays a brilliant lustre : the cross fracture is uneven and splintery.

It does not become electric either by heat or friction, nor does it give any indications of magnetism, even when tested by the method proposed by Haüy.

Its specific gravity is 3.410.

Before the blowpipe, it is infusible, both per se, and also when treated with borax.

The nitric, muriatic, and sulphuric acids do not act on its powder, even when digested upon it with the assistance of heat.

This mineral is found in the town of Saybrook, Connecticut. It occurs in a vein of quartz, which penetrates gneiss, and, I am informed, exists at this locality in considerable quantities.

ANALYSIS.

A. Three grammes of the mineral reduced to an impalpable powder, were exposed during half an hour to a red heat in a platina crucible. The colour of the powder was not altered by ignition, and it weighed 2.985 grammes. The loss of moisture by calcination was, therefore, .015 gramme or 0.5 per cent.

B. The calcined mineral was then treated with three times its weight of caustic potash, and the mixture exposed to a red heat, during one hour, in a silver crucible. The contents of the cruci-

ble, when it was removed from the fire, were of a light brown colour. The fused mass was heated with muriatic acid in excess, and the solution evaporated to dryness. Water acidulated with muriatic acid was then added, and the whole thrown on a filter. The silex, separated in this manner, when washed and calcined, weighed 1.293 grammes or 43 per 100.

C. The muriatic solution (B.) was then decomposed at a boiling heat, by subcarbonate of ammonia, and the precipitate which was produced having been well washed, was treated repeatedly with caustic potash, in order to separate the alumine. This alkaline fluid was supersaturated with muriatic acid, and then treated with subcarbonate of ammonia in excess. The alumine, separated in this manner, amounted, when washed and calcined, to 1.626 gramme or 54.333 per 100.

D. That portion of the mineral, which remained after the action of the potash, was of a brown colour. It was dissolved in muriatic acid, the excess of acid neutralized by potash, and hydro-sulphuret of potash then added, which caused a black precipitate. This precipitate, after being heated to expel the sulphur, was treated with a little nitric acid, and calcined. It weighed 0.060 grammes or 02.000 per 100, and was pure per oxide of iron.

E. The liquor (D.) from which the iron had been

precipitated by an hydrosulphuret, was then tested with oxalate of ammonia, and with phosphate of soda and ammonia, but gave no indications of the presence of either lime or magnesia.

The results of this analysis give as the constituents of this mineral, per 100 parts,

A. Water,	00.510	containing oxygen,	
B. Silica,	43.000	"	21.629
C. Alumine,	54.210	"	25.315
D. Oxide of Iron,	02.000	"	"
	<hr/>		
	99.729		
	100.000		
	<hr/>		
	.280	loss.	

In order to verify the above results, this analysis was varied as follows. After having ascertained the loss by calcination, and separated the silex in the usual manner, by means of caustic potash and muriatic acid, the solution in muriatic acid was saturated with potash and hydrosulphuret of potash then added, which produced a bulky precipitate of a greenish colour. This precipitate, after being treated with a little nitric acid and calcined, was subjected repeatedly to the action of caustic potash, which removed the alumine, and left the oxide of iron undissolved. The solution, to which the hydrosulphuret had been added, was then tested and found to contain neither lime nor magnesia. Three analyses, which were made of

this mineral, coincide very nearly in their results, and give, as its composition, per 100 parts,

Water,	00.510	containing oxygen,	
Silica,	42.666	"	21.460
Alumine,	54.111	"	25.668
Oxide of Iron,	01.999	"	
	<hr/>		
	99.286		
	100.000		
	<hr/>		

.714 loss.

It is, therefore, a silicate of alumine with an accidental portion of oxide of iron, and its mineralogical formula will be C S.

The mineral which this substance most strongly resembles in *external* characters, is the Anthophyllite. On examination, however, we discover a difference in the aspect of the two minerals, and the results of the above analyses prove them to be totally distinct.* Nepheline is the only mineral to which the subject of this paper is allied in *chemical* composition;† but Nepheline is much softer, is

* In order to ascertain the true composition of the Anthophyllite, I analyzed a specimen of that mineral from Norway, and found my results to correspond, as to the constituent parts, with the analyses of that mineral which are commonly quoted in mineralogical books.

† Mr. Phillips, in the last edition of his Mineralogy, quotes an analysis of Nepheline by M. Arfwedson, according to whom it contains 20.46 per cent. of soda; according to the

more fusible, and also crystallizes differently, having for its primitive form a six sided prism, while the primitive form of the mineral in question is a rhomboidal prism.

From the preceding observations, therefore, the substance which I have analyzed must be considered as a new species in mineralogy, and I propose for it the name of Sillimanite, in honour of Professor Silliman of Yale College.

On a new species of DUCK, described by Wilson as the same with the ANAS FULIGULA of Europe.
By CHARLES BONAPARTE. Read April 6, 1824.

In order to distinguish two species, which have been for a long time considered as but one, and to prevent all possibility of their being again confounded, it is necessary to describe each, and to fix them by permanent characters. In the following essay, I shall endeavour to attain this object with respect to the *ANAS fuligula* of Europe, and that species peculiar to America which Wilson supposed to be identical with it, and for which I propose the name of *ANAS rufitorques*.

other published analyses of this mineral, it consists principally of silex and alumine, with accidental portions of lime and oxide of iron.

1. *ANAS fuligula*, (Linn.)

Crista dependente, corpore nigro, abdomine speculoque alarum albis. *Fauna Suecica*, 132.

Pointe du bec plus large que la base; narines percées vers la base; tarses et doigts bleuâtres; un petit miroir blanc sur les ailes. TEMMINCK *Manuel d'Ornithologie*, p. 873.

I quote these essential characters because they are sufficient to show that the American bird is different from the European.

N. B. Male and female nearly alike when adult. Young birds differing considerably from the adults.

SYNONYMES.

ANAS fuligula. LINN. GMEL. LATH. TEMM. (but not of Wilson, who figures and describes the following species.)

ANAS scandiaca. GMEL. LATH. (young.)

Le petit Morillon, (*ANAS glaucium minus*), BRISS. *Orn. vol. vi. p. 411, pl. 37, fig. 1*, (adult male.)

Le Morillon, (*ANAS glaucium*), BRISS. *Orn. vol. vi. p. 406, pl. 36, fig. 1*, (young male,) *fig. 2*, (young female.)

Le Morillon, BUFF. *Ois. vol. ix. p. 227, pl. 15*, and *pl. enl. 1001*, (adult male.)

Le petit Morillon, BUFF. *Ois. vol. ix. p. 231*, (adult.)

Le Canard brun, BUFF. *Ois. vol. ix. p. 252*, and *pl. enl. 1007*, (very young.)

Anatra marina minore col ciuffo, maschio, (*ANAS glaucia minor mas cristata*) *storia degli uccelli, vol. v. pl. 591*, (adult male,) *pl. 592*, (female.)

Anatra canone, quattrocchi, e domenicano femmina, (*ANAS clangula, femina*), *storia degli uccelli, pl. 594*, (young male, erroneously given as the female of the *A. clangula*.)

The *Tufted Duck*, LATH. *Syn.* vol. iii. pt. 2, p. 540, PENN. *Brit. Zool.* vol. ii. p. 585, species 274. *Arct. Zool.* vol. ii. p. 300, species G. (adult.)

Lapmarck Duck, LATH. *Syn.* vol. iii. pt. 2, p. 515, (young.) PENN. *Arct. Zool.* vol. ii. p. 303, species M. (very young.)

DESCRIPTION. *Length* from sixteen to seventeen inches: *bill* broad, wider at the tip than at the base, blue-gray; black at tip: *nares* near the base: *irides* golden: *head feathers* long and slender, forming a conspicuous pendent crest: *head*, with the *crest*, *neck*, and *breast*, black; the former with purple and green reflections: *back*, *scapulars*, and *rump* black, with slight green reflections; the two former sprinkled with minute dots of cream colour: *wings* dusky brown: *secondaries* white, tipped with dusky brown, forming a band across the wings, called the *speculum*: *tertials* glossed with green: *under wing coverts* white: *lower part of the breast*, *belly*, and *sides*, pure white: *vent* whitish, mixed with dusky; lower part of it and *under tail coverts* black: *tail* short, rounded, brownish black, composed of fourteen feathers: *legs* and *feet* dusky blue: *webs* black.

The FEMALE is nearly like the male, but the *crest feathers* are shorter; the black colour verges to brown: *breast* and *flanks* marked with large spots of rusty brown: *vent* whitish, mixed with rusty brown: *speculum* smaller than in the male: *bill* and *feet* darker: *irides* of a paler yellow. *Length* nearly one inch less than the male.

The YOUNG BIRDS of both sexes, before moulting, have not the slightest indication of crest; a large, dirty, whitish spot on the sides of the *bill*: *front* and sometimes behind the eyes whitish: *head, neck, and breast* opaque brown, tinged on the latter with rusty brown: *back* and *wings* blackish-brown, each feather being bordered with lighter brown: *sides of the vent* rusty brown: *speculum* very small and whitish: *belly* white, on the lower part ash mixed with brown: *irides* dirty yellowish. The young males can then only be distinguished from the young females by having the belly of a purer white.

The young birds, after moulting, lose by degrees the whitish colour at the base of the bill; the *crest* becomes apparent, and the brown colour deepens in the same proportion.

HABITAT. This species is found abundantly in Europe, from Russia, England, and Norway to Italy, where it is very common in winter, with many other species of Ducks, not mentioned as inhabitants of that country. At Rome it is known by the name of *Capo-Nero* or *Morettone*. It frequents sea shores in the spring, and in the autumn confines itself chiefly to lakes and rivers. It is thought to be one of the most difficult to shoot of all the duck kind, in consequence of its habit of diving almost continually; from which characteristic is probably derived the name of *fuligula*. This name, however, is also applicable to all the species

of the section to which this bird belongs, distinguished by a membrane annexed to the hind toe. Latham informs us that the flesh of this bird is much esteemed in England, but it is proper to state that in Italy it is always fishy and unpleasant to the taste. The *fuligula* is also very frequent in the north of Asia, but it is not known to have been found in America, though I cannot conceive why a bird, that breeds in the Arctic regions, is not found in the north of both continents.

FOOD. Like other ducks, this bird feeds on small fishes, insects, mollusca, small crustacea, as well as marine plants and seeds.

PROPAGATION. Breeds in the Arctic regions; a few in the temperate climates of Europe and Asia. The nest and eggs are yet unknown.

ANATOMY. The tube of the trachea of the male, is not very large, and is of equal diameter throughout. The inferior larynx, on the anterior part of the right side, forms two slight osseous dilatations, divided by a groove; on the left side the bronchial dilatation is membranous, with osseous ramifications.

2. *ANAS rufitorques*, (nobis.)

Nigra; capite vix cristato, collari ferrugineo, abdomine albo lateribus cinereo-undulatis, speculo alarum coerulesenti-cinereo.

N. B. Male and female very different in colour. Young bird probably resembling the female.

SYNONYMES.

A. fuligula, WILS. *Am. Ornith.* vol. viii. p. 60, pl. 67, f. 5, (adult male,) and probably the *fuligula* of all the authors who have treated of American birds.

OBSERVATION. In Wilson's figure the feathers of the head are too much elevated, and the speculum of the wings is much too pale; which characters give this figure a closer resemblance to the European bird than is natural. This deviation from accuracy is the more remarkable, as Wilson was nature's faithful historian, and never wilfully altered any of her traits to make them correspond with a preconceived opinion. As his figure is small and inaccurate, I shall give a faithful representation of both sexes in the second volume of my continuation of Wilson's Ornithology.

DESCRIPTION. *Length* from sixteen to seventeen inches: *bill* broad, a little wider at tip than at base; bluish-gray, with a bluish-white band at base, and another beyond the middle; black at tip: *nares* near the base: *irides* rich orange: *head* crowned with somewhat slender and elongated feathers, but without any appearance of a pendent crest; black, with purple and green reflections: *chin* with a small white spot: *neck* near the middle anteriorly and laterally, with a rich glossy chestnut band; on the inferior portion black, which

colour spreads quite round on the back: *back*, *scapulars* and *rump* black, with slight green reflections; the two former minutely powdered, with particles of cream colour: *wings* ash-brown: *secondaries* bluish-ash, forming the *speculum*; about seven of them white at the tip of the exterior webs: *tertials* black, reflecting green: *under wing coverts* white: *belly* and *lower part of the breast* white: *flanks* beautifully crossed with fine dusky zigzag lines: *vent* whitish, with dense brown zigzag lines; *lower part* of it and *under tail coverts* black: *tail* short, rounded, brownish-black, composed of fourteen feathers: *legs* and *feet* bluish-ash: *webs* black.

The FEMALE has not been noticed by any naturalist. *Length* nearly an inch less than the male: *bill* like that of the male, but the colour darker, and the bands obsolete: *irides* pale yellow: *head* round the base of the bill, and *chin*, whitish: *crown feathers* shorter than those of the male, blackish-brown, minutely pointed with pale, and undulated before: *inferior orbit* whitish: *cheeks* pale, maculated with blackish-brown: *neck* entirely destitute of the chestnut band, above light brown; on the sides and below whitish, mixed with brown: *upper part of the back* and *breast*, and the *scapulars* light brown; each feather paler at tip: *lower part* of the *back* and *rump* fuliginous-black: *superior tail coverts* tipped with pale brownish; colour of the *wings* as in the male: *belly* and *lower part of the breast*

whitish: *flanks* light brown, each feather broadly tipped with paler: *vent* and *inferior tail coverts* dirty brown: *tail* like that of the male: *legs* and *feet* like those of the male, but somewhat darker.

The YOUNG BIRD, which I have not seen, probably resembles the female, and gradually changes to the adult plumage as it advances in age. This gradual change, no doubt, produces the varieties mentioned by Wilson, viz. "the head and upper part of the neck purple-brown; the ring on the neck obscure," instead of "very rich and glossy," and, probably in very young birds, "totally wanting."

HABITAT. This species seems to have for its peculiar range the whole continent of North America, as Mr. Say observed it on the Missouri, and Lewis and Clarke met with it on Columbia river. It frequents fresh water rivers, and but seldom visits the sea shore. It is very common on the Ohio, but is rather rare near Philadelphia, occurring sometimes on the Delaware in the commencement of winter, but more frequently early in spring, when a few are brought to market. The flesh, unlike that of its European analogue, is very tender and well tasted, so much so that this species ought to stand second only to the canvas-back in the estimation of the epicure.

FOOD. The stomach, of every specimen which came under my inspection, was filled with gravel and vegetable food, principally a kind of small

seed, without any animal substances whatever. This selection of food will, perhaps, account for the superiority of this duck over most others in domestic economy.

PROPAGATION and breeding place totally unknown.

ANATOMY. I have not detected any difference in the trachea of this bird from that of the preceding. I, however, annex to this paper a faithful representation of it, drawn by Mr. Titian Peale. *Pl.* xiii. *fig.* 6.

COMPARATIVE OBSERVATIONS. Although the *rufitorques* has the feathers of the head somewhat slender and elongated, yet it is not more obviously crested than the *clangula*, the *albeola*, &c. This character will at once distinguish it from the *fuligula* in the adult state; the fine chestnut collar, the pied bill, and the beautiful lineations of the sides (pure white in the *fuligula*) are also distinctive characters of the male *rufitorques*. The adult females, of the two species, are so unlike that they cannot be confounded, and the young birds, as well as the adults, can always be distinguished by that remarkable character of the speculum, which is permanently white in the *fuligula*, and which, in the *rufitorques*, is invariably ash colour.

On a species of Lamantin resembling the Manatus Senegalensis (Cuvier) inhabiting the Coast of East Florida. By RICHARD HARLAN, M. D. Read March 30, 1824.

THE Lamantins are but imperfectly known. Gmelin and Shaw admit only one species, (*TRICHECUS Manatus*;) and yet confound the animal of Steller (*Lamantin du nord*) with the true Lamantin. Buffon distinguishes five species; but two of these are purely nominal, as Mr. Cuvier has demonstrated, who only acknowledges the Lamantin of America, and the Lamantin of Senegal. According to him the Lamantins of the East Indies are nothing more than Dugongs; and the Lamantin of Kamtschatka ought to be referred to the *Rytina* (Illig.) These animals inhabit the shores of the sea, and principally about the mouths of rivers; they are confined to the torrid zone, and, as far as is known, to the Atlantic Ocean only.

The *MANATUS Americanus* (Cuvier) has hitherto been described as existing only on the shores of South America, and the West Indies. The species I am about to describe, is on the most accurate comparison found to possess all the characters by which Cuvier has distinguished the Senegal from the American Lamantin; the differences which

Buffon thought he had remarked as separating the former from the latter do not exist.

But Cuvier has observed others more important in the form of the head, which part alone, he has been able to compare in these two animals. That of the American Lamantin is more elongated, but less elevated in proportion to its breadth, which is due principally to the snout and nares; the nasal fossæ are much wider and shorter in the African, than in the American species. This last has the orbits less separated, the temporal fossæ less wide and longer; the zygomatic apophyses of the temporal bone less ventricose. The inferior part or base of the lower jaw is curved in the African species; in the American it is straight.

The specimens of this animal from which I have drawn its characters consist of two skulls, two ribs, and a strip of *skin*, seven feet six inches in length, half an inch thick; one of the heads wants the lower jaw, and is nearly perfect, with the exception of the zygomatic arch; the other is less perfect but has the lower jaw. The former has four perfect teeth and four empty sockets on each side, making eight teeth on both sides when complete; the crown of the last tooth does not project above the alveola; the latter specimen presents the same number and appearance; the socket of the anterior tooth is nearly obliterated, whilst the crown of the last tooth had not yet protruded through the gum; which corresponds with the idea of Cu-

vier respecting the dentition of this animal, who says, he has reason to believe, that independently of the milk teeth, one or two of the anterior molares fall, as in many other herbivorous animals, in proportion as the posterior are developed.

The number of teeth of the Lamantin is not correctly ascertained; Cuvier estimates them at thirty-six, nine on each side; in both of my specimens they do not exceed thirty-two, eight on each side.

I am indebted for these specimens, to Dr. Burrows, who collected them, together with several skulls of the Alligator, (*CROCODILUS lucius*, Cuv.*) on the Coast of East Florida, in the year 1822.†

The following table will afford a comparative estimate of the three heads.

* Which likewise differs from the *CROCODILUS acutus* of the West Indies, and from the South American Alligators. (*C. palpebrosus* and *sclerops*.)

† Dr. Burrows obtained from the natives the following account of these animals. "They are found in considerable numbers about the mouths of rivers, near the capes of East Florida, lat. 25°. The Indians kill them with the harpoon, during the summer months. One Indian has been enabled to capture ten or twelve during a season. They measure from eight to ten feet, and are about the weight of a large ox."

We have reason to believe this species inhabits the West Indies, and is probably the same animal mentioned by Capt. Henderson, in his account of the British settlement of Honduras, (1809.)

Comparative dimensions of the three heads.

	American Head.	Senegal Head.	Head from Florida.
	Inches.	Inches.	Inches.
Total length	14.6	12.6	13.5
Length from the occipital crest to the superior border of the nares	5.4	5.4	5.5
Length of opening of the anterior nares	6.5	4.2	6.3
Width of the same	2.	2.4	4.3
Length from the inferior border of the nares to the end of the snout	2.2	2.	2.6
Breadth of the occiput	6.7	7.2	7.4
Smallest distance between the tem- poral crests (which is across the parietal bone)	1.3	1.3	1.5
Distance of the post orbital apo- physis from the frontal	5.1	5.1	5.6
Distance from the anterior tooth to the end of the snout	7.2	4.8	5.
Distance from the top of the head to the crown of the teeth	4.4	4.8	5.

It is not necessary to describe particularly the lower jaw of this animal, we have only to refer to pl. xiii. fig. 1st, to be convinced of its exact resemblance to the *MANATUS senegalensis*; and figs. 2nd and 3d compared with figures 4th and 5th of the cranium of this animal, (in Cuvier Anim. foss. vol. 4th.) afford the same results. Another difference distinguishing this animal as well as the *Senegalen-*

sis, is a greater depth of the nasal process of the intermaxillary bone, fig. 2nd. (a.)

From this comparison it results that the characters detailed by Cuvier as separating the African from the American Lamantin, do not apply to those of North America; and we are made acquainted with the interesting fact, of the existence of two species of MANATI on the Coast of North and South America. However, should further investigation and examination of the living animal from Florida, prove it possessed of some *external* characters sufficient to render it specifically distinct from the "*Senegalensis*," then this species will require to be designated by an appropriate name, in order to distinguish it from the other Lamantins hitherto described; and as the snout of the former appears to be wider below the eyes, than in both the latter, we propose that it shall be denominated MANATUS *latirostris*, which distinction, though useful to naturalists in general, would be particularly so to the oryctologist.

PLATE XIII.

- Fig. 1. Lateral view of the Florida head.
 2. Lower jaw.
 3. Opening of the anterior nares.
 4. Same of the Senegal.
 5. Do. South American.

Fig. 5.



Fig. 4.

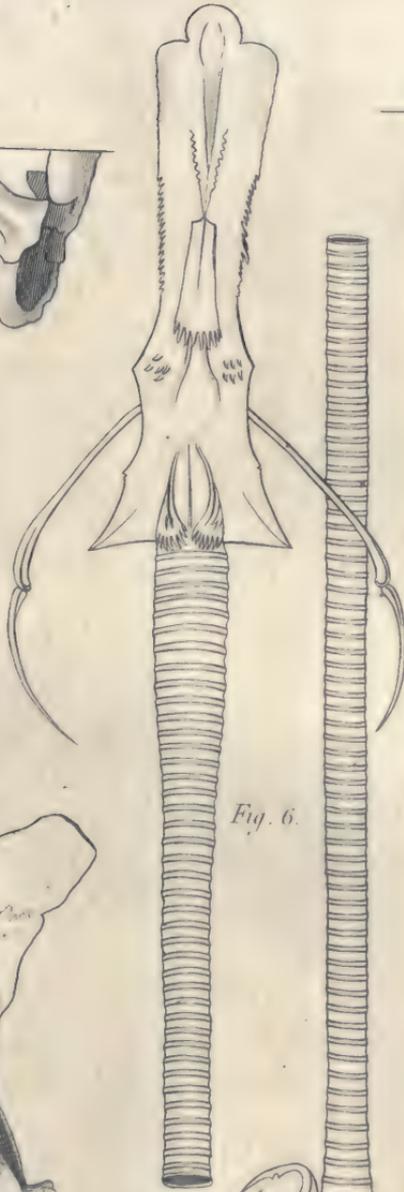


Fig. 6.

Fig. 3.



Fig. 2.

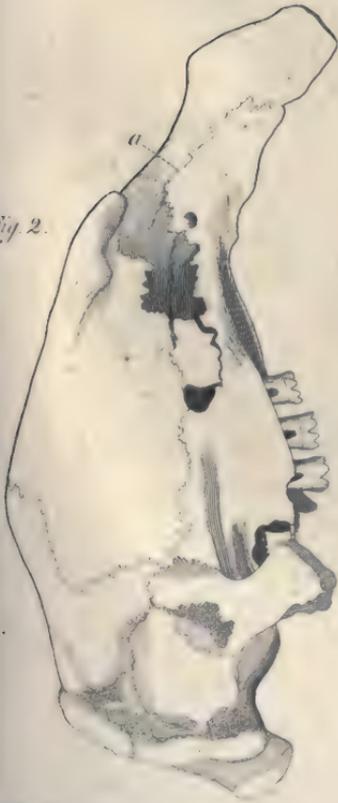


Fig. 1.





Description of two new species of the genus BATRACHOID *of Lacepede. By C. A. LESUEUR. Read March 16, 1824.*

The several species of fish, which Lacepede united under his new genus *BATRACHOIDES*, were placed by Linne in his genera *GADUS* and *BLENNIUS*. In the *Regne animal* Mr. Cuvier has preserved the genus and name as given by Lacepede, and arranges it with his third tribe of subosseous fish, between the genera *PLATICEPHALUS* and *LOPHIUS*. The name *BATRACHOIDES*, which is derived from *batrachos*, a frog, is a very appropriate one, inasmuch as the form of the body of these fishes, has considerable analogy with the larvæ or imperfect and exclusively aquatic state of the frog; this similarity exists in the large depressed head and wide mouth, the attenuated body edged with an almost continuous fin above and beneath, and, in fact, a general conformity which at once reminds us of that numerous family of *Batrachiæns* that are inhabitants of almost every country. This general resemblance is evident to the common observer, and they are known by the name of Toad-fish to the inhabitants of Salem, Rhode Island, and Egg Harbour, and probably also Carolina, as Dr. Garden has described a species under the same designation. Bloch gives a figure of a species, which he calls *tau*, and which corresponds with Gar-

den's description. Lacepede also considers a species he describes and figures under the name of *tau*, from the observations of Bosc made at Charleston, to be the same with that of Garden and Bloch.

We are led to believe that this genus is not numerous in species, or that the species have not been very critically examined. Two species only are yet known to naturalists, the *B. tau* of Garden, cited by Bloch, Bonnaterre, Lacepede, and Bosc; and the *B. vernuella*, nobis, (Ann. du Mus. d'Hist. Nat.) The two new species, described in this essay, will extend the number to four, of which three inhabit North America, and one the South Sea, observed by Peron and myself at Van Diemen's land. Two other fish have been, I think, incorrectly referred to this genus, as the descriptions given of them do not correspond with the generic characters; of these one inhabits the lakes of Sweden, (*blennoides*, Lacep. vol. ii. p. 454. Encyc. Meth. p. 56,) and the other the Mediterranean, described by Risso under the name of *B. Gmelini*, (p. 143, tab. vi. fig. 16.)

No species is yet known to inhabit the coast of La Manche, but there can be no doubt that a more accurate attention to the individuals of this genus will enrich it with many new species. That they are at present so limited in number, is, doubtless, owing to the circumstance of their being rejected by fishermen as worthless, and also to their own

recluse habits. Indeed, it would seem that the few which have been described were fortuitously obtained, as was the case with one of the varieties given in this paper. The specimen was found within the shell of a living oyster, and was communicated to me by Professor Green. It seems probable that many other varieties will yet be found on our coast.

These fish are allied to *LOPHIUS*, near which Mr. Cuvier has placed them, not only by their manners and habits, but also by their form of body, flat head, wide mouth, and by their characteristic variety of colouring, which conceals them from the observation of their enemies, and deceives their prey, whilst partially hidden beneath marine plants, in holes of rocks, or under stones. They are also, like the *MURENE*, covered by an abundant mucus, which is secreted by numerous pores on the body, head, cheeks, lateral line, and inferior jaw. This mucous vesture facilitates their movements, when gliding amongst *GORGONIA*, or over the surface of rocks, and serves also to mitigate the effect of the concussions which they receive, when impelled against solid objects by the violence of the waves. The mucous pores of the inferior jaws and of the angles of the mouth are surmounted each with a small appendice more or less long. These appendices cover the mucous pores which are placed at their posterior bases. Beneath the chin is a transverse channel, contain-

ing a double series of mucous pores, and its margin is furnished with small appendices. The lips are also furnished with these appendices, the function of which is, without doubt, to close the pores, and protect them from the entrance of minute animals and sand.

SPECIES.

1. *B. variegata*. First dorsal fin separated from the second; appendices of the eyes, of the inferior jaw, and of the operculi, laciniated; second dorsal and anal nearly equal.

Inhabits Egg Harbour, New Jersey.

Body subconic, a little compressed upon the sides, very thin towards the tail: *head* very large towards the opercula; compressed and rounded anteriorly: *mouth* very large; the angles beyond the eyes; inferior jaw longer than the superior one, and both armed on each side with a single series, and before with many series of conic, obtuse teeth; the vomer is also armed with teeth: *lips* thick and dilated beneath; on the inferior are four or five laciniated, white appendices on each side, with intervening smaller ones; before and beneath the chin are eight of moderate size, margining the edges of a transverse opening, within which are double mucous pores: *tongue* small, cartilaginous: *eyes* very large, somewhat prominent; iris of a uniform golden-yellow; above the

eye a denticulated appendage, before which is a smaller similar one: *nostrils* tubular: *operculum* armed with many points concealed beneath the skin: *branchial opening* hardly larger than the base of the pectorals; *first dorsal fin* small, low, with three spinous rays: *second dorsal* long, equal, not higher than half the vertical diameter of the body; *anal* rather shorter than the second dorsal: *caudal* rounded, beginning between the extremities of the dorsal and anal: *pectorals* large, rounded, placed before the opercular opening, beneath the first dorsal: *jugulars* thick; the first ray arquated, compressed, longer than the others, and acutely terminated; besides the mucous pores of the lateral line, and of the base of the anal fin, are many others upon the head, opercula, and under the extremity, and on the sides of the inferior jaw. All these mucous pores are protected by two very small, skinny appendices; other pores are at the base of the large appendices of the jaws, and of the angles of the mouth; others again are situated in the groove of the extremity of the inferior jaw.

General colour yellow, dusky on the head, back, and dorsal fin, paler on the side, anal, caudal, and pectoral fins, edge of the operculum white; seven oblique, brown bands on the second dorsal fin; six narrow, interrupted bands on the pectoral fin; seven oblique ones on the anal, and four interrupted ones on the caudal fin.

Total length five inches and a half; width of the head, towards the opercula, one inch and a half.

B. 4 to 5. J. 2.1. D. 3.2 21 to 28. P. 16. A. 24 to 21. C. 14.

Var. a. I consider as a variety of the preceding species, an individual, which differs in its more narrow and approximated bands of the pectorals and anals, and the greater obliquity of the bands of the dorsal fin; the form of the body, its size, the appendices of the inferior jaw, and above the eye, are similar to the preceding. If differences in the disposition of colours, spots or bands, are of sufficient importance to constitute species in this genus, this individual may well be regarded as distinct. But I have no doubt that particular localities, inhabited by these fish, either muddy, sandy, or rocky, as well as their particular food, have much influence on the colour and its disposition. In this individual the bands of the pectorals and caudal are very numerous, narrow but not interrupted, and some of them anastomose; the bands of the ventrals and dorsals are much longer, and more horizontal, particularly on the latter, which are six in number, on the pectorals eight, and caudal nine; whilst on the preceding species are seven to the dorsal, six to the pectorals, and four to the caudal; all very broad. The body of this variety is covered with brown, close, tortuous bands, so as to exhibit a vermiculated surface; on

the head the lines are more dense and slender, and of a deep umber brown colour.

Inhabits Egg Harbour.

Length five inches and a half.

B. 6. D. 3. 26. P. 20. J. 2. A. 20. C. 14.

Var. b. Form of the head and body as in the preceding; throat and abdomen white; body above, and the head blackish, with numerous small and larger spots of a deeper colour; the smaller spots are irregular and approximated on the head, sparse on the back and flanks; the larger spots form a regular figure upon the head, like a curved or broken line; those of the flanks and back are very irregular, and seem to be formed by an approximation of the smaller ones; many of those of the back are the origin of oblique bands directed forward towards the dorsal fin; these bands and some round intervening spots are seven in number; on the anal fin are also seven less apparent bands: *pectorals* with four or five broad bands: *caudal* with three or four broad, interrupted bands: *nositrils* somewhat elongated, tubular; two or three lateral lines composed of mucous pores; a short appendice above the eyes: first dorsal very small, distinct from the second dorsal, and placed over the pectorals; second dorsal and anal nearly equal and low; jugulars narrow, white.

Inhabits Egg Harbour.

Length two inches and a half.

B. 1st D. 3. 2nd D. 26. P. 20. J. 2. A. 21.
C. 15 to 16.

My collection.

This individual may, perhaps, be the young of the preceding. It was presented to me by Mr. Jacob Green, who found it in a living oyster. Oysters are taken in great quantities in our estuaries, by means of an instrument called oyster-tongs, which resembles two iron rakes united. It is probable that this little fish, when alarmed by the motion and noise of the tongs, sought refuge in a gaping oyster, and was thus secured.

2. *B. diemensis*. Pectorals semi-oval, small; first dorsal of three rays joined with the second by a low membrane; second dorsal low, of twenty rays; anal with fourteen; body covered with linear spots; two appendices over each eye; three very distinct, longitudinal, papillary lines upon the body.

Inhabits the coasts of Van Diemen's land. Gallery of the Garden of Plants, bottle marked C. C. No. 1.

The body and head of this species has altogether the form common to the other species of this genus; the inferior jaw is furnished with cirri; the spines of the operculum are very distinct; the body and head are covered with linear, approximate spots; the papillæ of the mucous pores are elongated and in three series; a dorsal and medial fin, and another between the latter and the anal. This species is eminently distinguished by the cir-

cumstance of the two dorsal fins being much longer than the anal, whilst those of the other species are nearly equal; the first ray of the pectorals is much more fleshy than the second: the body and fins are destitute of bands.

1st D. 3, spinous. 2nd D. 20. P. 32. J. 2.
A. 14. C. 12.

The above description having been made out from an uncoloured drawing, I cannot note the colours of the fish.



Descriptions of COLEOPTEROUS INSECTS collected in the late Expedition to the Rocky Mountains, performed by order of Mr. Calhoun, Secretary of War, under the command of Major Long. By THOMAS SAY, Zoologist to the Expedition. Read October 22, 1823. (Continued.)

MONEILEMA,† Say.

Essential Character.

Elytra undivided; wings none.

Natural Character.

Body convex: head vertical: antennæ eleven.

† Signifying one covering.

jointed, cetaceous, inserted into a profound emargination of the eye; first joint elongated, robust; second joint very short; third nearly as long as the first; remaining joints gradually diminishing in length to the tip: *eyes* rather small, profoundly emarginate: *labrum* prominent, rounded: *mandibles* robust, emarginate at tip: *palpi*, terminal articulation as robust as the preceding one, rounded at tip: *labiales* inserted near the base of the labium: *labium* prominent, bifid; lobes rounded: *elytra* consisting of one piece, convex, subovate, narrowed behind, subtruncate at tip, and rather shorter than the abdomen: *epipleura* dilated, encasing the abdomen each side: *feet* robust: *thighs* clavate.

SPECIES.

M. annulata. Thorax with a very short tubercle; antennæ annulate.

Inhabits Missouri Territory.

Body glabrous, black: *antennæ* shorter than the body, obsoletely annulated with cinereous: *front* impunctured: *thorax* slightly punctured at base and each side; a lateral, small, subacute tubercle: *scutel* rounded at tip: *elytra* with numerous, indented, irregular, longitudinal, abbreviated, confluent lines; a few distant punctures towards the base.

Length four-fifths of an inch.

This singular insect I found near the Rocky

Mountains, and in the vicinity of the rivers Platte (Nebreska) and Arkansa. Mr. Nuttall also obtained specimens on the Upper Missouri.

It is essentially distinct from the genus *LAMIA*, (to which it is most closely related,) by the total absence of wings, and by having the elytra inseparably united into one piece. The epipleura embraces the sides of the abdomen, as in the genus *PIMELIA*, &c. and its gibbous or convex form and somewhat pointed abdomen give to it almost the habit of some species of that genus.

SAPERDA.

1. *S. alternata*. Blackish, with cinereous hair and ferruginous spots; thorax long.

Inhabits the United States.

Body blackish-brown, with sparse, cinereous, prostrate hair, varied with spots and lines of dense ferruginous hair: *head*, with the edge around the antennæ, much elevated, somewhat spinose on the inner side; between the antennæ profoundly indented: *antennæ* longer than the body, attenuated: *thorax* cylindric, rather long, narrower than the elytra; with four ferruginous lines: *elytra* with three or four series of irregular, ferruginous spots: *tip* rounded.

Length, male seven-twentieths—female nine-twentieths of an inch.

The marginal and sutural series of elytral spots

more regularly alternate with the intervening colours than the intermediate series do.

It somewhat resembles Olivier's figure of *S. maculata*, but the thorax is much shorter, and the spots are differently disposed.

2. *S. puncticollis*. Yellow; beneath plumbeous; elytra black, with a yellow margin and suture.

Inhabits Arkansa.

Body covered with bright yellow, crowded, short, prostrate hair: *head* with a black, frontal dot, and another upon the vertex: *antennæ* as long as the body, black: *thorax* with four black, equal spots above, and one each side: *elytra* black and punctured upon the disk; exterior margin, tip, and suture with an equal line of dense yellow hair; tip entire: *beneath* plumbeous.

Length seven-twentieths of an inch.

A very pretty insect, of which but a single specimen was found by Mr. T. Nuttall on the Arkansa.

3. *S. oculaticollis*. Black, covered with cinereous hair; elytra truncate at tip.

Inhabits Missouri.

Body black, immaculate, cylindrical, covered with short prostrate hair, which partially conceals the punctures: *palpi* piceous: *antennæ* rather shorter than the body: *thorax* cylindric; diameters nearly equal; two small glabrous spots on the disk, and an obsolete, glabrous, longitudinal line: *elytra* truncate at tip.

Length nine-twentieths of an inch.

4. *S. inornata*. Black, covered with cinereous hair; antennæ annulate; elytra entire.

Inhabits Missouri.

Body black, immaculate, cylindrical, covered with short, prostrate hair, which conceals the punctures: *palpi* black: *antennæ* rather shorter than the body, and, excepting the basal joints, annulate, with cinereous and black: *thorax* cylindric, diameters subequal: *elytra* entire and subacute at tip, which is equally attenuated from the suture and exterior margins.

Length less than nine-twentieths of an inch.

The entire termination of the elytra sufficiently distinguishes this species from the *oculaticollis*, and it is also a more robust insect; it is, however, still more closely allied to the *S. pergrata*, but in addition to the difference in the colour of the femur, and that of the margins of the elytra, the elytra are much less obtuse at tip, and the thorax is entirely destitute of glabrous spots. It cannot be the *cinerea*, Oliv. as the antennæ of that insect are described to be as long again as the body.

5. *S. pergrata*. Black, covered with cinereous hair; antennæ annulate; elytra entire; thorax with small glabrous spots.

Inhabits Missouri.

Body black, covered with short, prostrate hair, which partially conceals the punctures: *antennæ* nearly as long as the body, annulate, with cinereous and black: *thorax* slightly dilated in the

middle; a transverse, arquated series of four glabrous spots, and a longitudinal, abbreviated, glabrous line behind the middle: *scutel* whitish: *elytra* with a narrow white margin and suture; tip entire: *thighs* dull rufous.

Length about nine-twentieths of an inch.

Upon the middle of each elytron is a very indistinct, rufous line, which is only visible upon close inspection, and is very probably often wanting; a similar spot is upon the anterior portion of the thorax; the white appearance of the margin of the elytra is occasioned by the more dense disposition of the hairs on that part. We captured but a single specimen on the Platte river (Nebreska) near the Mountains.

6. *S. calcarata*. Reddish-brown, covered with cinereous and yellow hair; elytra mucronate at tip.

Inhabits Missouri territory.

Body clothed with dense, prostrate, cinereous hair, varied with yellow or somewhat ferruginous hair: *front*, a geminate line on the *vertex* and lateral line, yellow: *antennæ* cinereous, longer than the body: *thorax* trilineate, with yellow: *scutel* yellow, subemarginate behind: *elytra* cinereous, varied with yellowish-ferruginous lines and spots; numerous small glabrous punctures; tip mucronate in the middle: humerus rather prominent.

Length nearly nine-tenths of an inch.

Closely related to *S. mutica*.

7. *S. bivittata*. Hoary; above light brown, with two broad white fillets.

Inhabits the United States.

Body white: *eyes* fuscous; a small spot on the vertex, and another behind each eye, light brown: *antennæ* moderate, slightly tinged with bluish: *thorax* light brown, with two broad, white lines approaching before: *elytra* light brown, irregularly punctured; a broad, white, longitudinal line on each, nearer to the suture than to the outer edge.

Length from one half to seven-tenths of an inch.

A very pretty insect. In the larvæ state it is very injurious to the apple tree; boring into the wood.

8. *S. mutica*. Reddish-brown, covered with cinereous and ferruginous hair; *elytra* mutic; *antennæ* annulated.

Inhabits Missouri Territory.

Body dark reddish-brown, partially covered with cinereous-yellow, prostrate hair, varied with ferruginous hair: *front*, and a geminate line on the *vertex*, ferruginous: *antennæ* annulate, with cinereous and blackish; shorter than the body: *thorax* trilineate, with ferruginous: *scutel* yellow, subemarginate behind: *elytra* with yellowish-cinereous hair, varied with ferruginous spots; numerous glabrous punctures; tip mutic, obtusely sublanceolate.

Length half an inch.

Very much resembles *S. calcarata*, and may possibly prove to be a sexual variety, nevertheless the differences are remarkable; in the present insect the antennæ are shorter than the body, and annulated, and the elytra are destitute of a spinose point at tip.

CERAMBYX, *Fabr.*

C. solitarius. Black; thorax bituberculate each side; elytra destitute of elevated lines.

Inhabits Upper Arkansa.

Body deep black, immaculate, punctured: *head* with a longitudinal, impressed line between the eyes; front transversely indented, and with one or two small, abbreviated, elevated, transverse lines; a slight tubercle at the inner base of the antennæ: *antennæ* long; basal joints a little hispid beneath: *labrum* piceous: *thorax*, with three very obtuse, hardly elevated tubercles behind, placed transversely; lateral edge with two tubercles, of which the anterior one is more obtuse, and the posterior one is slightly reflected: *scutel* acute: *elytra* destitute of any prominent line; punctured; punctures enclosed by minute, irregular, indented lines: *pectus*, punctures very minute: *venter*, posterior margins of the segments highly polished.

Length one inch and three-tenths.

Appears to be a rare insect. I found but one specimen on the Arkansa river near the Moun-

tains. The elytra to the eye have a smooth appearance, and, with the body, are totally black.

CALLIDIUM, *Fabr.*

1. *C. discoidum*. Rufous; head, postpectus, feet, and dilated sutural mark, black.

Inhabits Mississippi.

Body bright rufous, punctured: *head* black, confluent punctured; an elevated line between the antennæ: *antennæ* tinged with brownish, rather shorter than the body: *thorax* convex, rounded; punctures profound, equally disseminated; hairs erect: *scutel* small, black: *elytra* with approximate, regular punctures, and very short, obsolete hair; a large, sutural, black, common mark, occupying more than half the superficies; it is contracted near the base, and still more dilated at tip; tip rounded, entire: *postpectus* and *feet* black.

Length less than half an inch.

2. *C. suturale*. Rufo-sanguineous, hairy; antennæ, suture, postpectus and feet, black.

Inhabits Mississippi.

Body bright rufo-sanguineous, hairy, punctured: *antennæ* rather shorter than the body, and with the *orbits* black: *thorax* convex, with long black hairs; punctures sparse, obsolete on the disk: *scutel* small, black: *elytra* with long black hairs, which are erect at base, and prostrate at tip of the elytra; punctures rather distant, furnishing

hairs; suture with a black common line; tip rounded, entire: *postpectus* black: *feet* black; anterior and intermediate thighs black in the middle.

Length seven-twentieths of an inch.

This species very much resembles *C. discoidum*, but is much smaller; and besides other differences, the punctuations of the head and thorax are very distinct both in point of form and position, being crowded and rounded in *discoidum*, and comparatively distant in the present species.

3. *C. ignicolle*. Black; thorax bright-rufous.

Inhabits Missouri.

Body black, hairy, punctured: *antennæ* shorter than the body; the joints extending into a small angle on their anterior tips: *thorax* rounded, convex, bright rufous, with upright, prominent hair: *scutel* black: *elytra* punctured, hairy; the hairs upright at base, and prostrate near the tip of the *elytra*; tip entire.

Length rather more than nine-twentieths of an inch.

4. *C. pallidum*. Whitish; thoracic lineations and *elytral fasciæ* brown.

Inhabits Arkansas.

Body whitish, slightly tinged with yellow: *eyes* black: *vertex* brown: *antennæ*, joints tipped with brown: *thorax* contracted behind; anterior margin brown; an obsolete, abbreviated line in the middle, and a lateral one which is dilated before, or somewhat cruciate, brown; a very obtuse, hardly

elevated, lateral tubercle : *elytra* four banded, with brown ; anterior band transverse, abbreviated ; second very oblique and linear, third dilated and undulated, fourth linear and placed near the tip ; thighs clavate.

Length more than one-fifth of an inch.

5. *C. amoenum*. Rufous ; *elytra* violaceous, punctured.

Inhabits the United States.

C. bicolor. Melsh. Catal.

Body rufous, with short hair, punctured : *antennæ* black : *thorax* subinequal, polished ; punctures very numerous each side ; less numerous on the disk : *scutel* rufous : *elytra* violaceous, with confluent, excavated punctures, furnishing short, black hairs ; tip rounded : *tibia* and *tarsi* black.

Length one-fourth of an inch.

Very much resembles *C. foenicum*, but is much smaller, and the *elytra* are very obviously punctured. We obtained specimens on the Arkansa river ; it is also an inhabitant of Pennsylvania. The name *bicolor* is pre-occupied by an insect of South America.

6. *C. brevilineum*. Black ; *thorax* bituberculate ; *elytra* violaceous, with three abbreviated, white lines.

Inhabits the United States.

Body black, scabrous, with small, elevated points : *head* with an impressed, longitudinal line : *antennæ* nearly as long as the body : *palpi* pice-

ous: *thorax* with dense, minute hairs; two elevated, obtuse tubercles behind the middle, and an intermediate, elevated line obsolete before: *scutel* hairy, rounded: *elytra* violaceous, scabrous, with minute, subequal, numerous tubercles; base dusky, with minute hairs; two or three longitudinal, elevated, white lines on the middle, nearly parallel, and placed in an obliquely transverse series; tip obtusely rounded: *thighs* clavate.

Length, male nine-twentieths; female seven-tenths of an inch nearly.

I found a specimen in Pennsylvania some time since, and recently an individual occurred on the Arkansa river. The white lines of the *elytra* are very short, and nearly parallel to each other; nearer to the base is sometimes another abbreviated white line.

7. *C. fulvipenne*. Deep black, hairy; *elytra* fulvous.

Inhabits Arkansa.

Body deep black, covered with dense black hair: *antennæ* rather longer than the body, somewhat hairy: *palpi* glabrous, deep reddish-brown: *thorax*, above with four obsolete tubercles, and an intermediate, abbreviated, glabrous, longitudinal line; a slightly prominent, lateral spine: *scutel* hairy, black: *elytra* yellowish-fulvous, covered with dense, very short, prostrate hair; four longitudinal, slightly elevated lines.

Length three-fifths of an inch.

I obtained but a single specimen of this beautiful species. It occurred at the Cherokee settlement on the Arkansa river. It approaches the description of *CERAMBYX ebulinus* of Fab. but, according to Olivier, that insect, which he names *STENOCORUS testaceus*, has the antennæ only a little more than half the length of the body.

3. *C. 6-fasciatum*. Black, varied with short, dense, prostrate, yellow hair; margin of the thorax, scutel, and four elytral fasciæ, yellow.

Inhabits Missouri.

Body black, punctured, with a few long hairs: *head*, beneath rufous, above with yellow hair: *antennæ* ferruginous, nearly as long again as the body, and hairy beneath and towards the base; basal joint dilated, punctured: *mandibles* black at tip: *thorax* deeply margined, with dense yellow hair; transverse disk black, with two hardly elevated, obtuse tubercles, and an intermediate, longitudinal line, and a lateral, very obtuse, hardly elevated tubercle each side behind the middle; a transverse, anterior and posterior groove: *scutel* yellow: *elytra*, each 4-fasciate; fasciæ yellow, equidistant, subequal; two anterior ones bent obliquely forward from the suture; the two posterior ones retrofracted, the last one terminal; apex of each elytron emarginate: *pectus* and *postpectus* with yellow hair and black incisures: *feet* rufous: *thighs* dilated, compressed: *abdomen* fasciate, with yellow.

Length, male three-fourths; female seven-eighths of an inch.

Found under the bark of a decaying elm, on Loutre island, Missouri river.

LEPTURA, Latr.

1. *L. bivittata*. Elytra pale yellowish-white, with two black vitta on each.

Inhabits Missouri.

Head black, with much crowded punctures; an impressed line between the antennæ: *antennæ* as long as the body: *thorax* slightly punctured; two longitudinal, black spots, and an anterior and posterior submarginal, impressed line, and an obsolete, dorsal, longitudinal one; an obtuse, slightly elevated, lateral tubercle: *scutel* black: *elytra* densely punctured, rounded at tip, with two longitudinal, blued-black lines on the disk of each: *beneath* black; sides of the pectus, margins of the ventral incisures, and middle of the thighs, rufous.

Length two-fifths of an inch.

This insect, which is not very uncommon in the vicinity of Council Bluff and the Pawnee villages, bears some resemblance to the *vittata* of Swederus in Stockh. Trans. 1787, p. 198, and of Hellwig in Melsh. Catal. but in that insect there is but a single elytral vitta. In many other characters, it is widely distinct, and approaches somewhat in

character to the genus RHAGIUM. It varies in having an immaculate thorax, and rufous clypeus.

2. *L. cylindricollis*. Sericeous, rufous; elytra, tibia, and tarsi, blackish.

Inhabits the United States.

Rhagium cericeum. Knoch in Melsh. Catal.

Body sericeous, yellowish-rufous: *head* with a longitudinal, indented line, and a transverse, elevated one between the antennæ: *antennæ* rather longer than the body: *palpi* blackish: *thorax* long, subcylindric, with a longitudinal, dorsal, and anterior and posterior, impressed, submarginal lines: *elytra* blackish, attenuated rectilinearly or somewhat concavely from the prominent humerus to the obliquely emarginate or bidentate tip: *feet* rufous: *knees, tibia, and tarsi*, black.

Length, male more than half an inch; female more than three-fifths.

In the male the head is often dusky, and the thorax, with the exception of the more elevated part, and the coxæ, are blackish.

In the general appearance of the head and thorax of this insect, it is closely allied to the genus RHAGIUM, and has been referred to that genus by Mr. Melsheimer in his *Catalogue*; but as the thorax is destitute of armature, and the antennæ are longer than the body, I prefer giving it a place in the present genus, agreeably to the generic characters of Latreille and Leach. I think it ought

to form a distinct genus, together with *RHAGIUM trivittatum*.

It is rather rare. The trivial name, applied by Mr. Knoch, is pre-occupied in this genus.

3. *L. bicolor*. Rufous, sericeous; elytra black. Inhabits the United States.

Leptura bicolor. Melsh. Catal.

Body elongated, pale rufous, sericeous: *head* with an obsolete, impressed line: *antennæ* as long as the body: *thorax* conical; posterior angles acute: *elytra* black, attenuated; with numerous short, prostrate, black hairs; tip very obliquely emarginate, appearing mucronate: *wings* black.

Length from half an inch to three-fifths.

This species is found in Pennsylvania, and on the Ohio and Mississippi rivers. It may be allied to the *L. bicolor* of Swederus in Stockholm Trans. 1787, p. 197, but his insect is said to be black on the upper part of the tail, a character which our insect does not possess. In Turton's translation of the *Syst. Nat.* the name *bicolor* of Swederus is changed to *bicolorata*, so that Mr. Melsheimer's designation may be retained for the species here described.

4. *L. rubrica*. Black; elytra and abdomen rufous.

Inhabits the United States.

Leptura rubrica. Knoch in Melsh. Catal.

Body black, punctured, with numerous short hairs above, and sericeous beneath: *head* obsoletely punctured: *antennæ* as long as the body;

six terminal joints fulvous at base : *thorax* confluent punctured ; punctures dilated ; a transverse groove on the hind margin : *scutel* small, black : *elytra* rufous or dull brick red ; punctures numerous, becoming smaller to the tip, which is emarginate, mutic : *beneath* black : *abdomen* rufous ; of the female, black.

Length about half an inch.

This insect occurs on the Missouri. It is found in Pennsylvania, but I have not frequently observed it.

5. *L. 8-notata*. Black, hairy ; *elytra* each four-spotted.

Inhabits Mississippi.

Body deep black, with upright hairs : *head* rather large, with an impressed, longitudinal line : *antennæ* not longer than the body : *thorax* subcylindric : *elytra* polished ; each elytron with four subtriangular, equidistant, yellow spots ; the basal one at the base, and the terminal one near the tip ; hair near the tip shorter, and nearly prostrate ; tip truncate, mutic : *posterior feet*, with the base and tarsi, yellowish.

Length less than half an inch.

But a single specimen of this species was taken by Mr. Nuttall on the Mississippi.

6. *L. lugubris*. Black ; sericeous beneath ; *antennæ* shorter than the body.

Inhabits Lower Missouri.

L. scutellum-album ? Knoch in Melsh. Catal.

Body deep black, immaculate, with short, prostrate hairs above, and yellowish-sericeous ones beneath: *head* with an elevated line between the antennæ: *antennæ* rather shorter than the body: *thorax* conical; posterior margin grooved; posterior angles acute: *scutel* with yellow hair: *elytra* attenuated; tip obliquely truncate, subemarginate; the external angle acute and prominent, the inner one rounded.

Length rather more than two-fifths of an inch.

Two specimens of this species were taken by Mr. T. Nuttall, on the banks of the lower part of the Missouri.

7. *L. proxima*. Black; *elytra* testaceous, with a black tip.

Inhabits Missouri.

Body deep black, hairy: *antennæ* nearly as long as the body: *thorax* rounded or subovate; a transverse groove on the posterior margin, and an impressed line on the anterior margin: *elytra* testaceous, with very short, yellowish hairs; tip black, truncate on the edge: *beneath*, with long hair on the pectus, and short hair a little sericeous on the postpectus and venter: *tail* entire.

Length less than three-fifths of an inch.

Var. a. *Elytra* testaceous, destitute of the black tip.

I have not seen this insect in Pennsylvania. It seems to be very closely allied to *L. tomentosa*, Fab. but is larger, more robust, and the tail is not

emarginate as that of *tomentosa*. The variety may prove to be a distinct species, bearing a similar relation to *proxima* that the *testacea* of Linne does to the *tomentosa*.

8. *L. lineola*. Black; elytra punctured; suture, margin, and vitta, black.

Inhabits the United States.

Leptura lineola. Knoch in Melsh. Catal.

Body black, sericeous: *antennæ*, excepting the three basal joints, annulate, with black and yellowish: *trophi* yellowish: *thorax*, posterior angles prominent, acute: *elytra* punctured; suture, exterior margin, tip, and an abbreviated vitta, black; tip truncato-emarginate: *feet* pale testaceous: *tarsi* blackish: *abdomen* dark reddish-brown, sericeous.

Length two-fifths to nine-twentieths of an inch.

This is an inhabitant of various parts of the United States. It is found in Pennsylvania, and on the Mississippi, though I have not observed it to be common any where.

9. *L. ruficollis*. Black; thorax rufous; labrum pale.

Inhabits Kentucky.

L. collaris. Melsh. Catal.

Body black, with very short hairs: *antennæ*, basal joint dull rufous: *labrum* and *mouth* pale rufous: *thorax* rufous, subglobose in the middle, and with a flattened, anterior, and posterior margin: *elytra* not tapering, confluent punctured.

black, entire at tip: *beneath* sericeous: *feet* varied with testaceous.

Length less than three-tenths of an inch.

In the distribution of colours it approaches *L. thoracica*, Fab. but is a much smaller species. It is also very different from the *collaris*, Linn. of Europe, in being smaller and of a more slender form.

RHAGIUM, *Fabr.*

1. *R. trivittatum*. Black; elytra with black suture, yellow vitta, black central line, and rufous margin.

Inhabits Mississippi.

Head black: *clypeus*, *mouth* and *antennæ* rufous: *thorax* uneven, very little narrowed before; an anterior and posterior impressed band, and a dorsal, impressed line: *scutel* black: *elytra* hardly emarginated; humerus prominent; suture black, broader near the base; a broad, yellowish vitta hardly reaching the tip; a black line from near the base separates the vitta from the rufous margin: *body*, beneath black, with golden pubescence: *feet* and *abdomen* rufous.

Length seven-tenths of an inch.

The body is sometimes rufous. In the disposition of colours on its elytra, this species probably bears some resemblance to *R. cursor*. It is certainly generically distinct from *R. lineatum*, which

is the only true RHAGIUM of this country that I have seen, though it is highly probable that there is another species.

2. *R. cyanipenne*. Black; antennæ and feet testaceous; elytra blue.

Inhabits the United States.

Body black, tinged with cupreous, punctured: *head* densely punctured; a longitudinal, obsolete, impressed line: *antennæ* rather shorter than the body, testaceous: *trophi* piceous-yellow: *thorax* impunctured; an obtuse tubercle each side: *scutel* black: *elytra* violaceous-blue; punctures numerous, small, profound; tip truncate; humerus rather prominent: *feet* testaceous.

Length two-fifths of an inch nearly.

A rare insect. I obtained a specimen several years since near Philadelphia, and recently Mr. Nuttall presented me with a specimen which he captured during his botanical expedition to the Arkansa river.

In form of body, it very much resembles *LEPTURA collaris* and *L. virginea*, as figured by Olivier, to which genus I would have referred it, but for the small thoracic tubercles.

CLYTUS, *Fab. Latr.*

1. *C. hamatus*. Black; thorax margined with yellow; scutel, two bands, and spot on the elytra, yellow.

Inhabits Illinois.

Body black: *antennæ* rufous, filiform, shorter than the body; terminal joints black: *palpi* piceous: *thorax* hairy; hairs cinereous; margin yellow, interrupted behind: *scutel* yellow: *elytra* slightly hairy at base; each with an oval, oblique spot near the basal middle; then a subsutural line, drawn from near the basal spots to the sutural middle, thence curved over the disk, and terminating in a small spot rather before the middle on the exterior margin; an oblique line behind the middle from the suture outward, yellow; disk near the tip obsolete, obscure, fuscous; tip rounded, mutic; beneath spotted, and banded with yellow: *feet* rufous: *thighs* at tip dilated, compressed, black.

Length of the body eleven-twentieths of an inch.

Bears some resemblance to *C. arietes*, but besides other differences, the elytra are not remarkably truncated as in that insect; it seems to be allied to *C. arvicola* and *ruricola* of Olivier, but particularly to the latter, from which, however, it is distinguished, agreeably to Olivier's figure, by being much larger, by having the thorax nearly surrounded by a yellow line, and by the obliquity of the terminal elytral band.

2. *C. caprea*. Fuscous; thorax, with the anterior edge, yellow; elytra with four bands and tip yellow.

Inhabits Arkansa.

Callidium caprea. Knoch in Melsh. Catal.

Body blackish, hairy: *head* immaculate: *antennæ* short, dull rufous: *thorax* very hairy; a longitudinal series of transverse, abbreviated, elevated lines, of which the anterior one is much more elevated; a yellow line on the anterior edge, interrupted upon the side: *scutel* small, black: *elytra* dark brown, blackish towards the base; four bands and tip yellow; first and second bands on each elytron united in the form of a circle, only interrupted by the prominent humerus; third band central, and representing a common M; fourth band drawn obliquely backward from the suture: *tip* emarginate; a prominent spine at the exterior angle: *abdomen and posterior portion of the postpectus* fasciate, with bright yellow, sericeous hair: *feet* hairy, rufous or blackish; posterior feet elongated: *thighs* dilated, mucronate at tip.

Length three-fifths of an inch.

This insect is readily recognizable by the rugous thoracic line, and by the O O at the base of the elytra. Mr. Nuttall found many specimens on the Arkansa. It varies in having the fascia white.

3. *C. supernotatus*. Reddish-brown; each elytron with a large white spot behind on a larger black one.

Inhabits Missouri.

Body cylindrical, reddish-brown, punctured, partially covered by very short, prostrate hair: *head* blackish: *antennæ* reddish-brown, shorter than the body: *thorax* in the middle blackish and

more prominent: *elytra* entire; each elytron with an elevated, obtuse tubercle near the scutel; a black, longitudinal spot from before the middle, where it is margined with a whitish line, to near the tip; before its posterior termination it is interrupted by a large white spot.

Length one-fourth of an inch.

Found by Mr. Thomas Nuttall on the Missouri.

STENOCORUS.

1. *S. longipes*. Black; thorax cylindrical, mutic, rufous; thighs clavate; *elytra* bidentate.

Inhabits Missouri Territory.

Body elongated, black, punctured, subglabrous: *head* between the antennæ concave: *antennæ* longer than the body: *thorax* rufo-sanguineous, cylindrical, slightly dilated into a very obtuse tubercle each side behind the middle; punctures obsolete: *scutel* impunctured: *elytra* with large, rounded, deeply impressed, numerous punctures; apex truncato-sinuate, bidentate: *thighs* clavate; posterior ones elongated: *postpectus* and *abdomen* covered with dense, short, incumbent, cinereous hair.

Length five-sixteenths of an inch.

Found at Fort Kennedy, on Barek Creek, Missouri Territory. It is an elongated insect, resembling a *NECYDALIS*. The posterior thighs are much elongated, and, like the others, are clavated at tip.

2. *S. mucronatus*. Brown, with cinereous hair; antennæ three or four spined; thighs mucronate; elytra bidentate.

Inhabits the United States.

Stenocorus marylandicus. Melsh. Catal.

Body reddish-brown, partially covered with short, prostrate, cinereous hair, inequally distributed: *trophi* pale rufous: *mandibles* black at tip: *antennæ* longer than the body; third, fourth, fifth and sixth joints terminated each by a spine, the first one largest, two-thirds the length of the next joint: *thorax* with two tubercles before the middle, two longitudinal ones at base, and a longitudinal line, glabrous: *scutel* white, with dense hair, divided into two lobes: *elytra* punctured; hair so disposed as to give the surface an irregularly maculated appearance; tip bispinose; intermediate and posterior thighs bimucronate; the inner spine longest.

Length seven-twentieths of an inch.

This species is not the *S. marylandicus* of Fabr. as described and figured by Olivier, which is a much larger and more dilated insect; the thighs not mucronate, and the joints of the antennæ spinous to the tip. It is, perhaps, more closely related to *S. spinicornis*, Fab. but that insect is described as having the joints of its antennæ bispinous at tip.

It is a common insect in many sections of the United States, and is by no means rare in Penn-

sylvania; we obtained specimens on the Missouri, Platte, and Arkansa rivers.

MOLORCHUS, *Fabr.*

M. bimaculatus. Black, hairy; elytra testaceous on the disk.

Inhabits the United States.

Molorchus bimaculatus. Knoch in Melsh. Catal.

Antennæ, palpi and *feet* rufous: *thighs* clavate: *elytra* testaceous; basal, exterior, and posterior margins black.

Length nearly one-fourth of an inch.

The feet vary in being sometimes fuscous.

DONACIA.

D. æqualis. Brassy, with two dilated, indented, subsutural spots on the elytra, and an indented, humeral line; two elevated lines between the eyes.

Inhabits Missouri.

Body æneous, polished, punctured, glabrous: *head* with short, cinereous pubescence; an obsolete, indented line; two elevated tubercles between the eyes, extending in a depressed ridge to the base of the antennæ, where it is slightly more elevated: *eyes* black: *antennæ* clothed with cinereous pubescence; second and third joints equal: *palpi* and *mandibles* black: *thorax* densely punctured; punctures sometimes confluent; a longitudinal,

indented line; a lateral, dilated, hardly elevated tubercle before the middle: *scutel* minutely punctured and rugulose: *elytra* with regular series of punctures; surface slightly rugulose; two subsutural, dilated, obsolete, indented spots near the middle, and a subhumeral, impressed, dilated line at base: *beneath* argenteous-pruinose: *feet* cupreous, pubescent; a robust spine beneath the posterior thighs near the tip.

Length rather less than seven-twentieths of an inch.

Var. a. Body above cupreous, polished.

Found near Engineer Cantonment.

LEMA, *Fabr.*

1. *L. trivittata*. Rufous; *elytra* pale; suture and marginal vitta of the *elytra* black.

Inhabits the United States.

Crioceres trivittata. Knoch in Melsh. Catal.

Body rufous, impunctured: *antennæ* black; first joint rufous: *thorax* contracted each side on the middle; two black spots above, placed one on each side rather before the middle; sometimes obsolete: *scutel* black: *elytra* pale yellow; suture and exterior submarginal line black; punctures arranged in series: *tibia*, at tip, and *tarsi*, black.

Length less than three-tenths of an inch.

Var. a. Thorax entirely rufous, immaculate.

I obtained specimens of this species from the vicinity of the Rocky Mountains.

2. *L. collaris*. Black; thorax rufous; elytra green, striate with punctures.

Inhabits Missouri.

Body black: *head* rugose, with an impressed, longitudinal line; a slight tubercle above each antenna: *thorax* bright rufous, impunctured; contracted each side behind the middle, and with an impressed, transverse line near the base above: *scutel* minute: *elytra* bright bluish-green, with nine series of longitudinal punctures: *beneath* black, polished, impunctured.

Length more than one-fifth of an inch.

Found on the *Tradescantia Virginica*.

ORSODACHNA, Latr.

O. vittata. Black, punctured; elytra pale testaceous; suture and outer margin black; feet rufous.

Inhabits Missouri.

Body black, punctured: *basal joints of the antennæ*, *labrum* and *palpi* obscure reddish-yellow: *thorax* with dilated, confluent punctures: *elytra* with dilated, confluent, dense punctures, pale yellowish-white; suture and exterior margin black: *feet* pale rufous: *tarsi* dusky.

Length nearly one-fourth of an inch.

Found in Missouri.

HISPA, *Lin. Latr.*

1. *H. lateralis*. Black; thorax, each side, and humerus yellowish.

Inhabits Illinois and Missouri.

Body black, punctured: *head* impunctured, rugose above between the eyes: *front* with a prominent tubercle beneath the antennæ: *antennæ* more robust towards the tip: *thorax* with a dilated, reddish-yellow margin confluent before: *pectus* yellowish; each side behind black: *postpectus* posterior to the intermediate feet, impunctured, polished: *feet* punctured; anterior thighs annulate, with yellowish at base; intermediate and posterior ones with a large yellowish spot near the base: *elytra* serrate, each with three double and one quadruple series of large, rounded, profoundly impressed punctures, separated by three elevated lines, and a common sutural one; a humeral, reddish-yellow spot attenuated behind, and terminated over the origin of the posterior feet: *abdomen* impunctured, polished.

Length three-tenths of an inch.

Obtained on the bank of the Mississippi, above the confluence of the Ohio river, and also near the Rocky Mountains. It is destitute of the frontal dot of *humeralis*, but is probably more closely allied to *sanguinicollis*, and may prove to the *sea-*

pularis, Oliv. the description of which I have not seen.

2. *H. pallida*. Yellowish-white; elytra with punctured striæ, elevated lines, and blackish, linear spots towards the tip.

Inhabits the United States.

Body pale testaceous, densely punctured: *head* with a longitudinal, impressed line, and indented point each side near the eyes: *thorax* quadrilinate, with black: *elytra* serrate; each elytron with three obtuse, elevated lines, and a common one; a blackish spot before the tip of the common line, one or two black spots behind the middle of the second line, and one before the middle; two upon the next line, of which one is upon the middle of it; two upon the next line, and two corresponding ones upon the lateral edge; between each two of the elevated lines are double series of profoundly impressed, large, transverse punctures: *feet* pale testaceous: *beneath* black or pale yellowish, varied with black: *venter* black or pale yellow, with four series of brown spots.

Length about three-twentieths of an inch.

3. *H. obsoleta*. Blackish; thorax with punctured striæ, elevated lines, and obsolete, yellowish spots.

Inhabits the United States.

Head dull rufous, black at base, and with a black line impressed in the middle: *antennæ* black: *thorax* dull yellowish, with four equidis-

tant black lines: *elytra* black, serrate, each with three elevated lines, and a common sutural one, separated by double series of large, profoundly impressed, transverse punctures; several small dull yellowish or rufous spots on the elevated lines, (placed similarly to the black elytral spots of the preceding species) and a larger spot at tip; *beneath* black: *feet* pale testaceous.

Length three-twentieths of an inch.

Very similar to the preceding species, than which it is much more common; as in that insect the spots on each elytron are arranged in two oblique bands, of which the anterior one is much more oblique than the posterior one; but as several of these spots are often obsolete or wanting, the bands are not always to be traced.

4. *H. cyanea*. Bluish-violaceous; *beneath* black; vertex rugose.

Inhabits Missouri.

Body above bluish-violaceous: *head* dusky: *vertex* with three longitudinal grooves, which attain the base of the antennæ: *antennæ* black: *thorax* with confluent, dilated, excavated punctures: *elytra* with regular series of large, dilated punctures; interstitial lines slightly elevated; serratures of the margin and tip obsolete: *beneath* black.

Length less than one-fourth of an inch; male much smaller.

5. *H. collaris*. Thorax red; *elytra* blue; *beneath* black.

Inhabits Arkansa.

Head black: *antennæ*, five terminal joints clothed with minute, cinereous hairs: *thorax* bright rufous, indented on the middle of the base; punctures much dilated, profound: *elytra* blue, with regular series of large, dilated punctures; interstitial lines slightly elevated; edge distinctly serrated: *beneath* black.

Length less than one-fourth of an inch.

I found but a single specimen near the Rocky Mountains.

CASSIDA.

C. unipunctata. Yellow; margin whitish; thorax with a black spot.

Inhabits Missouri.

Body oval, yellow: *head* whitish: *antennæ* black at tip: *labrum* black: *thorax*, anterior and lateral margin white; an abbreviated, black line on the middle: *elytra* irregularly punctured; margin pale or whitish: *beneath* black, varied with whitish: *feet* whitish.

Length two-fifths, breadth about one-fourth of an inch.

The form of this species is more oblong than any other of its American congeners; it is also of a larger size than either of them that I have seen.

IMATIDIUM, *Fabr.*

1. *I. 17-punctatum*. Yellowish; thorax four-spotted; elytra twelve-spotted.

Inhabits Arkansa.

Body pale yellowish, punctured: *antennæ* black at tip: *front* with an impressed line: *mouth* dusky: *thorax* four-spotted in a transverse series; the two intermediate spots most distant: *scutel* black: *elytra* each six-spotted; spots subequal, placed obliquely 2, 2, 2, and an obsolete common one near the suture: *beneath* yellow, or yellow varied with black: *tarsi* black.

Length two-fifths, breadth one-fourth of an inch.

The position of the black spots is as in *13-punctata*, but their number differs; the general colour is different, and *17-punctata* is of a more slender form than its congener. Found near the Rocky Mountains.

2. *I. cyaneum*. Suborbicular, blue, with dilated punctures; antennæ pale.

Inhabits Georgia.

Body deep blue, suborbicular, with profound, excavated punctures: *head* slightly punctured; a longitudinal, impressed line: *antennæ*, excepting the basal joint, pale yellow: *thorax*, posterior edge forming nearly a semicircle, lobate at the scutel; lateral edge almost transverse; anterior margin very profoundly emarginate; punctures, each side

dilated, on the middle obsolete: *scutel* purple, truncate at tip: *elytra*, humeral angle advanced, subacute; punctures arranged in series, and each with a minute, central, purplish tubercle: *tergum* sanguineous: *beneath* black, impunctured.

Length one-fifth of an inch.

A very beautiful species, common on the sea islands of Georgia, and in East Florida.

CLYTHRA, *Laich. Latr.*

C. 4-guttata. Black; *elytra* with a large, red, humeral spot, and an orbicular, terminal one.

Inhabits the United States.

Cryptocephalus 4-guttatus. Oliv. in Melsh. Cat.

Body deep black, polished, punctured: *head* and *thorax*, punctures minute, profound: *elytra*, punctures obsolete or very slightly impressed; a large red spot on the humerus, and another orbicular one at the tip of each.

Length three-twentieths of an inch.

Very much resembles *CRYPTOCEPHALUS 4-maculatus*.

CRYPTOCEPHALUS.

1. *C. nigricornis*. Black; *thorax* and *elytra* obscurely margined with rufous.

Inhabits Missouri.

Body black, punctured: *labrum* and basal joints

of the *antennæ*, beneath rufous: *thorax*, lateral margin rufous; edge black: *elytra* with regular series of punctures; exterior margin, tip, base, and subsutural line obscure rufous; edge black; an obsolete, rufous spot each side of the tail.

Length less than three-twentieths of an inch.

One or two of the interstitial lines of the *elytra* are sometimes very obsoletely rufous, particularly in the larger females. In some of the males the rufous margin is hardly perceptible.

2. *C. abdominalis*. Gray-brown; the punctures black; beneath black; feet and margin of the abdomen pale.

Inhabits Missouri.

Body gray-brown, punctured: *head* and *thorax* irregularly clouded with markings composed of blackish, impressed punctures: *elytra* striate with black punctures: *beneath* black: *feet* pale, with a black femoral spot; edge of the venter pale: *tail* whitish, with small, blackish dots.

Length less than three-twentieths of an inch.

3. *C. fasciatus*. Yellowish, varied with rufous; *elytra* with three bands; beneath rufous.

Inhabits Missouri.

Body yellowish, punctured: *head* rufous; orbits yellowish; punctures crowded, irregular: *eyes* black, transverse: *antennæ* dusky at tip: *labrum* dusky at base: *thorax* varied with yellowish and rufous; punctures sometimes confluent; posterior angles a little produced backwards and acute:

scutel rounded at tip: *elytra* striate, with large, deeply impressed punctures; punctures at tip irregularly disposed; three dilated, somewhat undulated, rufous fascia: *beneath* rufous: *feet* somewhat paler.

Length about three-twentieths of an inch.

Found near the Konza river. At first sight it might be taken for a variety of *C. congestus*, of which the spots had become confluent into bands, but the much punctured thorax is a distinguishing character that cannot in this instance be mistaken.

4. *C. punctipes*. Black; front two-spotted; thorax with three spots, and margin rufous; *elytra* varied with whitish spots.

Inhabits Arkansa.

Body black, punctured: *labrum* each side, base of the antennæ, three or four small obsolete spots between the antennæ, and two larger ones between the eyes, dull rufous: *thorax*, anterior and lateral margins, two oblique, dilated, abbreviated lines at base, and one at tip, dull rufous: *elytra* with punctured striæ; basal edge, three large marginal spots, of which one is terminal; a smaller one on the middle near the suture, and two or three smaller ones near the base, yellowish: *thighs* with a white oblong spot near the anterior tip: *tail* with two dull rufous dots, and a smaller one each side on the terminal ventral segment.

Length less than one-fifth of an inch.

Corresponds in some respects with Olivier's

description of his *C. brunnipes*, but, besides some other differences, the antennæ are shorter than the body. It may possibly, however, be the same.

5. *C. femoratus*. Black; labrum white; thorax with three rufous spots; elytra with a whitish, basal edge.

Inhabits Arkansa.

Body black, punctured: *antennæ* pale rufous at base: *eyes* approaching above: *labrum* white: *thorax* with a dilated, longitudinal, red spot on the lateral margin, and a line in the middle much dilated on the basal margin and edge: *elytra*, punctures irregularly disposed, and approximate at base, becoming in regular series towards the tip; basal edge white: *anterior thighs* more robust than the others.

Size of the preceding.

The form of this species is very like that of *punctipes*. Varies in having the thorax entirely red, slightly shaded with black; with a few small whitish points on the posterior part of the elytra, and obsolete white spots on the anterior femora.

6. *C. recurvus*. Black; margins of the thorax and elytra yellowish.

Inhabits the United States.

Body black: *head* impunctured: *labrum* dark piceous: *thorax* yellowish-rufous, impunctured; a large, dorsal, black spot which attains the posterior but not the anterior edge; a small round dot each side sometimes obsolete or wanting: *elytra* with

punctured striæ; exterior and terminal margins yellow; edge black: *beneath* all black.

Length about one-ninth of an inch.

A pretty little species, and bears some resemblance to *CHRYSOMELA marginella* of Donovan, and, as in that species, the yellow of the terminal margin is recurved for a short distance upon the sutural margin. It is probably allied to the *C. lituratus*, Fab.

7. *C. confluentus*. Rufous; elytra yellow, trilineate, with black; the inner line confluent, with the suture beyond the middle.

Inhabits Arkansa.

Body yellowish-rufous: *head* impunctured, yellow; a rufous, dilated line on the vertex: *antennæ* black, pale at base: *thorax* impunctured, polished; anterior and lateral margins more yellowish; lateral submargin with a deeper rufous spot sometimes obsolete: *scutel* black: *elytra* yellow, with punctured striæ; three longitudinal, nearly parallel, black lines, of which the interior one is confluent, with the suture near the tip; basal and sutural edges black: *beneath* rufous, varied with yellow.

Length from three-twentieths to less than one-fifth of an inch.

Somewhat like *C. venustus*, but has one more vitta on the elytra than that insect has. It was found near the Rocky Mountains.

8. *C. bivittatus*. Yellowish-rufous, punctured:

elytra yellow, with two vitta, and sutural edge black.

Inhabits Arkansa.

Body yellowish-rufous, punctured: *orbits* yellow: *thorax* more yellow each side, and on an obsolete, abbreviated, longitudinal, dorsal line: *scutel* black: *elytra* yellow, irregularly punctured; one or two regular series of punctures on the exterior margin; a black vitta abbreviated near the tip, and another originating upon the humerus, and often interrupted into three oblong spots; sutural and posterior half of the lateral edge black: *postpectus* dusky.

Length one-fifth of an inch.

I obtained this species near the Rocky Mountains.

9. *C. 4-maculatus*. Black; elytra with a large red spot on the humeral base, and an orbicular terminal one.

Inhabits the United States.

Cryptocephalus 4-maculatus. Knoch in Melsh. Catal.

Body deep black, polished, obsoletely punctured: *labrum* at tip, and *antennæ* at base, pale: *elytra* with striæ of large profound punctures; a large, red, humeral spot extending along the base to the scutel, and along the exterior margin nearly to the middle; a large, orbicular, red spot near the tip of each elytron.

Var. a. Humeral spot not extending along the base, but oblong-oval.

Var. b. Humeral and terminal spots elongated so as to unite on the margin.

Length one-fifth of an inch.

Very similar in colour and appearance to *CLYTHRA 4-guttata*.

COLASPIS, *Fabr. Latr.*

1. *C. pretexta*. Metallic; thorax and elytra edged with green; antennæ and feet pale.

Inhabits the United States.

Eumolpus metallicus. Knoch in Melsh. Catal.

Body dull reddish or dusky, tinged with cupreous; polished, punctured; *head*, punctures remote; a profoundly impressed, frontal line: *antennæ* and *palpi* pale, whitish: *labrum* and tip of the *clypeus* somewhat piceous: *thorax*, punctures profound, subequally distributed; lateral, reflected edge green: *scutel*, punctures obsolete: *elytra*, punctures rather large, scattered irregularly at base; near the tip smaller, and approaching regular series; beneath piceous: *feet* pale.

Length more than one-fifth of an inch.

It is not uncommon on the myrtle. The name *metallicus* is pre-occupied.

2. *C. ovata*. Blackish-coppery, convex; antennæ and feet pale rufous.

Inhabits the United States.

Eumolpus ovatus. Knoch in Melsh. Catal.

Body blackish, with a cupreous tinge, punctured: *head* densely punctured: *antennæ* and *palpi* entirely pale rufous or yellowish: *labrum* piceous: *thorax* with dense, somewhat equally distributed punctures: *elytra*, punctures larger, and irregularly disposed at base; near the tip smaller, and approaching regular series; beneath blackish: *feet* pale rufous.

Length more than one-tenth of an inch.

A much smaller and much more convex species than the preceding one. In the form of the terminal joint of the maxillary palpi, this species closely approaches the genus *EUMOLPUS*.

3. *C. convexa*. Blackish; labrum and base of the antennæ rufous; an indented line on the vertex.

Inhabits Missouri.

Body convex, blackish, tinged with greenish or dull cupreous, punctured: *head* minutely punctured; an indented, abbreviated line near the vertex, which does not extend below a line drawn between the middle of the eyes; space between the antennæ plain: *antennæ* black; six basal joints pale rufous: *labrum* piceous: *palpi* pale at base; tip black: *thorax* densely and minutely punctured: *elytra* with larger and more distant punctures, some of which become almost regular series near the tip: *beneath* black, sometimes tinged with brassy: *feet* piceous-black: *thighs* subclavate.

Length less than one-fifth of an inch.

4. *C. striata*. Black; labrum, palpi, and base of the antennæ, dull rufous; elytra striate, with punctures.

Inhabits Missouri.

Body black, punctured, immaculate: *head* with obsolete, small punctures; an obsolete, indented, abbreviated line near the vertex, hardly attaining a line drawn between the middle of the eyes: *antennæ*, five or six basal joints dusky rufous: *labrum* piceous: *palpi* pale at base: *thorax*, punctures minute, not deeply impressed: *elytra* with regular series of large, profound punctures: *thighs* dilated in the middle.

Length three-twentieths of an inch.

5. *C. puncticollis*. Greenish or cupreous; thoracic punctures oval; labrum and antennæ at base rufous.

Inhabits Missouri.

Head and *thorax* with crowded, longitudinally oval, profound punctures: *antennæ* black-brown; six basal joints pale: *labrum* and *mandibles* piceous: *palpi* pale at base: *elytra*, punctures scattered, near the tip placed in obsolete series: *feet* dark piceous: *thighs* black.

Length three-twentieths of an inch.

Very similar to *C. convexa*, but is smaller, and the thoracic punctures are larger. The feet are sometimes entirely rufous.

6. *C. 10-notata*. Rufous-brown, hairy; elytra each with about six obsolete, black spots.

Inhabits the United States.

Body dark reddish-brown, punctured, clothed with short, cinereous hair: *labrum* and base of the *antennæ* yellowish: *thorax* immarginate: *elytra* with dilated, confluent punctures: *humerus* prominent; each with a black spot on the middle of the base, one on the humerus, a linear, dorsal one near the suture, a fourth near the margin, sometimes double, and a double one before the tip: *thighs* with a projecting angle beneath.

Length less than three-twentieths of an inch.

A very distinct species; it may perhaps, with almost equal propriety, be referred to the genus *EUMOLPUS*.

7. *C. 6-notata*. Pale; each elytron with three black spots.

Inhabits the United States.

Body pale, punctured: *front* with an obsolete black spot: *elytra* with regular series of punctures, which disappear towards the tip; a black, linear spot near the base, and two others on the middle, which are parallel and approximate, and of which the interior one is placed rather further backward: *beneath* black: *pectus*, *feet*, and *posterior portion of the venter*, pale: *thighs* with a slight angle beneath.

Length about three-twentieths of an inch.

I have found this specimen in considerable numbers on the common Juniper in July.

8. *C. 4-notata*. Black; head rufous; elytra testaceous, with two black spots.

Inhabits the United States.

Body black, punctured: *head* obscure rufous: *antennæ* paler at base: *thorax* black, immaculate; punctures sparse, not profound: *scutel* pale reddish brown: *elytra* pale testaceous, with striæ of punctures, which become obsolete before the tip; a black, oblique spot near the base of each, and a larger obliquely, quadrate one on the middle; exterior edge black: *feet* pale: *thighs* with a minute angle beneath.

Length about three-twentieths of an inch.

It has considerable resemblance to the preceding.

9. *C. pallida*. Pale rufous; elytra pale testaceous, immaculate.

Inhabits Missouri.

Body very pale rufous; *head* obsoletely punctured; an indented, abbreviated line or spot on the vertex: *thorax*, punctures small, sometimes obsolete: *elytra* pale testaceous, with striæ of punctures which become obsolete before the tip: *beneath* pale.

Length three-twentieths of an inch.

Very similar to *C. 6-notata*, but is always destitute of spots on the elytra.

10. *C. dubiosa*. Pale rufous; elytra pale testaceous, with a black suture dilated at base.

Inhabits Arkansa.

This species seems to differ from the preceding, only by having a black suture dilated at base, a black lateral edge on the anterior half, sometimes obsolete, and a black, basal, ventral segment; the thorax is sometimes obsoletely dotted with black, and in one specimen is a small black spot anterior to the middle of each elytron; the *6-notata*, *4-notata*, *pallida*, and *dubiosa* may possibly prove to be the same species, exhibiting remarkably distinct variations in the distribution of its colours. Found near the Rocky Mountains. I think it possible that *dubiosa* may prove to be a variety of *CRYPTOCEPHALUS cancellus*, Fabr.

11. *C. favosa*. Greenish, with dilated, profound punctures: antennæ black, testaceous at base.

Inhabits Arkansa.

Body greenish, with a coppery tinge, with numerous, approximate, irregularly disposed, confluent, profound, dilated punctures: *eyes* brown: *antennæ* black, dark testaceous at base: *labrum* piceous, impunctured: edge of the thorax and elytra more exclusively bluish or violaceous; punctures of the elytra larger than the thoracic ones; humeral prominence impunctured: *pectus* with smaller punctures: *postpectus* with a few minute punctures furnishing minute hairs, and with

the *venter*; which is impunctured, bluish-violaceous: *feet* dark violaceous.

Length one-fourth of an inch.

12. *C. denticollis*. Lateral thoracic edge three-toothed; *elytra* serrate.

Inhabits Missouri.

Body black, slightly bronzed, covered with dense, robust, cinereous hairs: *antennæ* dull rufous at base: *thorax* with three equal, equidistant teeth on the lateral edge: *elytra*, lateral edge minutely dentated; tip simple: *anterior tibia* and *posterior thighs* one-toothed.

Length nearly one-fifth of an inch.

13. *C. interrupta*. Rufous; *thorax* with two spots; *elytra*, suture, exterior edge, and abbreviated vitta, black.

Inhabits Arkansas.

Body rufous, punctured: *antennæ* black; five basal joints pale rufous: *thorax* with a large black spot on each side: *scutel* piceous: *elytra* rather paler, with regular punctured striæ, which are nearly obsolete at tip; a black, sutural line, exterior edge, and oblique vitta, which originates upon the humerus, is interrupted at the middle, and terminates before the tip: *beneath* blackish: *feet* pale rufous.

Length one-fourth of an inch.

Found near the Rocky Mountains.

EUMOLPUS, *Fabr. Latr.*

E. crypticus. Entirely covered with short, cinereous hair; elytra very acute at tip.

Inhabits Missouri.

Body densely covered with short, robust, cinereous hair, beneath which the surface is dull reddish, inclining to cupreous; punctured: *scutel* dusky, sparsely hairy: *elytra* with very small, profound punctures, which are more distant from each other than the length of their diameters; tip attenuated equally from the suture and exterior edge; a little produced, and terminating acutely.

Length less than two-fifths of an inch.

Very similar to a smaller species which Mr. F. V. Melsheimer, in his catalogue, names *pilosus*; but the elytral punctures of that insect are much more crowded.

CHRYSOMELA, *of Authors.*

1. *C. hybrida.* Ferruginous; elytra pale yellow; suture and three lines on each ferruginous.

Inhabits Missouri.

Body oval, punctured, ferruginous: *thorax* irregularly punctured, and with larger, confluent punctures each side: *scutel* impunctured, rounded at tip: *elytra*, with the suture and three lines, rufous; the intermediate line undulated, and united

to the exterior one at base, and abbreviated at tip: *wings* pink red.

Length more than three-tenths of an inch.

Very much resembles *C. exclamationis*, Fab. but, besides other differences, the exterior elytral line is not interrupted; in the colour of the thorax it approaches Fabricius' description of that species. Brought from the Missouri by Mr. T. Nuttall.

2. *C. multipunctata*. Ferruginous; thorax yellow, with a ferruginous curve; elytra yellow, with numerous green spots.

Inhabits Missouri.

Head and all beneath ferruginous: *thorax* yellow, with a ferruginous, irregular, arquated line and basal edge, including an obsolete dot: *elytra* with a sutural line, and numerous, irregular, green dots and abbreviated lines, and immaculate, exterior margin: *wings* rosaceous.

Var. a. Suture with a common, ferruginous fillet.

Size of *C. philadelphica*, which it closely resembles; but, although it varies much, it may always be distinguished from that species by the colours of the head and thorax, which, in the *philadelphica*, are always green, immaculate. Numerous specimens were brought from Missouri by Mr. T. Nuttall.

3. *C. dissimilis*. Dark purple or greenish; antennæ black; beneath blued-black.

Inhabits Missouri.

Body dark purple, violaceous or greenish, punctured; punctures profound, subequally distributed: *head* impressed between the antennæ: *antennæ* and *palpi* black: *thorax* regularly convex; lateral edges regularly arquated: *scutel* impunctured: *elytra* destitute of striæ: *beneath* blued-black: *venter*, punctures sparse.

Length more than one-fifth of an inch.

Varies in its colours. It is sometimes of a very dark purple colour, and sometimes of a bright green, more or less tinged, however, with violaceous, particularly about the suture.

4. *C. formosa*. Green-gold, brilliant; antennæ black; suture of the elytra purple; beneath violaceous.

Inhabits Missouri.

Body golden-green, brilliant, punctured: *antennæ* and *palpi* black: *labrum* purplish: *thorax* somewhat unequal; edges bluish: *scutel* purple, impunctured: *elytra* slightly and irregularly rugose, punctured; suture purple; exterior edge blue: *beneath* violaceous: *tibia* black.

Length more than three-twentieths of an inch.

A brilliant little insect.

5. *C. basilaris*. Green; antennæ black; basal joint rufous; thorax with a thickened margin.

Inhabits Arkansa.

Body green, very slightly glossed with violaceous, punctured: *vertex* with an impressed line:

antennæ black; basal joint rufous: *thorax* indistinctly punctured; punctures distant; lateral margin much thickened: *elytra* with irregularly scattered punctures: *venter* dusky, with a greenish gloss.

Length less than one-fourth of an inch.

I obtained this species near the Rocky Mountains.

6. *C. auripennis*. Violaceous; margin of the thorax thickened; *elytra* golden.

Inhabits Arkansa.

Body violaceous: *antennæ* black, dark violaceous at base: *thorax* with slight, distant punctures; lateral margin much thickened: *scutel* violaceous, rounded: *elytra* golden-cupreous, brilliant; exterior edge green, punctured; punctures placed in somewhat regular series.

Length more than one-fourth of an inch.

A very beautiful insect, of which I obtained but a single specimen near the Rocky Mountains.

7. *C. flavo-marginata*. Black; thoracic margin thickened; *elytra* margined with yellowish.

Inhabits Missouri.

Body black, punctured: *thorax*, punctures each side larger; lateral margin thickened: *elytra* with regular series of punctures, and smaller, irregularly disposed punctures: exterior margin and tip yellowish; beneath black.

Length more than one-fourth of an inch.

Collected in Missouri by Mr. T. Nuttall.

HELODES, *Payk.*

H. obsoleta. Blackish; thorax and elytra margined with yellowish.

Inhabits Missouri.

Body blackish, punctured: *head* and *thorax* tinged with green; margin of the latter yellowish, thickened, with a black, insulated point: *elytra* tinged with violaceous, irregularly punctured; margin, tip, and obsolete lines before and behind the middle, yellowish: *beneath* black, immaculate.

Length three-tenths of an inch.

Var. a. Obsolete lines none.

DORYPHORA, *Illig.*

1. *D. 10-lineata.* Yellow; thorax litterate, with black; elytra each with five black lines.

Inhabits Missouri and Arkansa.

Body yellow: *head* with a triangular, black, frontal spot: *thorax*, two abbreviated, black, approximated lines, divergent before; about six black dots on each side: *elytra*, suture, and five lines on each, black; the interior line is confluent with the suture behind; exterior line marginal; three intermediate ones joined or approximated at tip: *beneath*, incisures and three or four series of ventral spots black.

Length two-fifths of an inch.

Var. a. Elytra white: the two outer, intermediate lines are united at base and tip.

This species seems to be not uncommon on the Upper Missouri, where it was obtained by Mr. Nuttall and by myself. The variety I found on the Arkansa.

2. *D. 3-maculata*. Bluish-green; elytra yellow, with a common band, and each with a triangular, black spot near the tip; feet purplish.

Inhabits the United States.

Chrysomela maculata. Melsh. Catal.

trimaculata? Fab. Syst. Eleut.

Bluish-green, punctured: *antennæ* and *palpi* black: *elytra* punctured in double lines, which become confused near the tip; a dilated, black band extending in breadth from near the base to the middle, not attaining the lateral edge, and often interrupted in the middle of each elytron; a large, triangular spot near the tip of each elytron: *beneath* black-blue: *feet* purplish.

Length two-fifths of an inch.

A common insect. Mr. Nuttall captured a specimen with the band interrupted into small spots, and the triangular spot near the tip entirely wanting.

This species is no doubt closely related to *CHRYSOMELA trimaculata* of Fabr. if not the same, which I believe it to be, although that insect is said to be a native of South America, and the tarsi are not rufous as those of that insect are described

to be. The terminal joint of the maxillary palpi is very short and transverse; in this respect, corresponding in character with the palpi of the genus *DORYPHORA*, as defined by Mr. Latreille, and, although, as in the preceding species, the poststernum is not remarkably advanced, I prefer arranging it here.

GALLERUCA, *Geoff. Leach.*

1. *G. coryli*. Pale yellowish, testaceous; elytra bifasciate with blue.

Inhabits the United States. Illinois.

Galleruca coryli. J. F. Melsheimer's letter to me.

Body pale yellowish-testaceous: *head* with an impressed line between the antennæ: *antennæ* blackish: *labrum* hirsute: *mandibles* black at tip: *thorax* transversely concave in the middle; anterior angles subacute; posterior ones rounded: *scutel* rounded at tip: *elytra* somewhat dilated behind the middle, with numerous, minute punctures, a much dilated blue band at base, and a still larger one at tip: *wings* black.

Var. a. Pale yellowish-testaceous, immaculate. Length more than half an inch.

A very large species; it is considerably dilated behind, and has probably considerable affinity with the genus *ADORIUM*, but the terminal joint of the palpi is not truncated. It occurs in Maryland

and Virginia, on the banks of the Missouri, and J. F. Melsheimer informs me that it is so numerous in some parts of Virginia, that it completely defoliates, in a short time, the Hazel, (*Corylus Americanus*) upon which it feeds.

2. *G. tuberculata*. Dull reddish-brown; a slight tubercle at the anterior and posterior angles.

Inhabits Missouri.

Body dull reddish-brown, immaculate, with prostrate hairs: *antennæ* black, rufous at the three basal incisures: *thorax* with a much dilated, slightly indented spot each side, and an inconspicuous, central line; edge slightly emarginated each side of the posterior angles, which, with the anterior angles, are somewhat elevated, and resemble slight tubercles: *elytra* irregularly punctured: *knees*, *tibia*, and *tarsi* black.

Length one-fourth of an inch.

This species is remarkable by its dull, and, with the exception of the antennæ and feet, uniform reddish-brown colour; the two emarginations near the posterior thoracic angles are so obtuse as to be little more than truncations; the lateral one of which produces an angle at its anterior termination on the middle of the edge.

3. *G. dorsata*. Pale yellowish; elytra blue, with a yellow outer margin and tip.

Inhabits Arkansa.

Body pale yellowish: *head* black on the vertex: *antennæ* black-brown: *thorax* immaculate; punc-

tures obsolete : *scutel* blackish-bronze : *elytra* irregularly punctured, greenish-blue ; exterior margin and tip yellow ; an indented, abbreviated line on the basal middle : *feet* with a blackish line above.

Length one-fourth of an inch.

Found on the banks of the Arkansa above the Verdigris.

4. *G. circumdata*. Yellowish ; antennæ black ; elytra purplish-black, with a yellow border and suture.

Inhabits Arkansa and Missouri.

Body yellowish : *head* impunctured : *antennæ* black : *thorax* impunctured, transversely-quadrate ; edges nearly rectilinear ; *scutel* yellow : *elytra* with minute, distant punctures, blackish-purple ; suture, exterior margin, and tip, yellow : *beneath* pale yellow.

Length less than one-fourth of an inch.

The basal joint of the antennæ is sometimes yellowish.

5. *G. tricincta*. Yellowish ; head, three elytral bands, and terminal dot, black.

Inhabits Arkansa.

Head black : *thorax* yellowish, subquadrate : *scutel* black : *elytra* yellowish-white, with three equidistant, dilated, black bands, the first of which is uninterrupted and basal, not attaining the lateral edge, and at the suture extending in a common line near to the second band ; second band nearly central, and with the third, not attaining the exte-

rior edge, and interrupted at the suture; a small black dot on each elytron at tip; striæ none; punctures numerous, obsolete: *postpectus* black: *knees, tibia,* and *tarsi* black.

Length one-fourth of an inch.

Observed near the Mountains on the bank of the Arkansa river.

6. *G. externa*. Blackish-brown, confluent punctured; margin of the elytra yellowish.

Inhabits Arkansa.

Body blackish-brown, with dense, dilated, confluent punctures: *head* with a longitudinal, indented line: *thorax* somewhat unequal, with a longitudinal, indented line, and lateral, irregular ones: *scutel* rounded at tip: *elytra* confluent punctured, with three or four elevated, impunctured lines; lateral margin and tip slightly dilated, yellow: *beneath* black.

Length more than seven-twentieths of an inch.

It is much more robust than *G. baccharidus*.

7. *G. puncticollis*. Dull yellowish-brown; *thorax* confluent punctured, unequal; *antennæ* and two fillets on each elytron black.

Inhabits Mississippi and Arkansa.

Body with minute hairs: *head*, above confluent punctured: *clypeus* and *labrum* glabrous: *antennæ* black: *thorax* rough, with excavated, confluent punctures; immaculate, unequal: *elytra* with minute punctures; fillets obsolete, often wanting

or hardly visible: *thighs* with a black spot: *tibia* and *tarsi* black.

Length three-twentieths of an inch.

Captured by Mr. T. Nuttall on the Mississippi. I also found specimens on the Arkansa near the Mountains. It considerably resembles *G. baccharidis*, Fab. but, besides its different markings, its thorax is very much punctured.

8. *G. attenuata*. Yellowish-brown; thorax with three black spots; elytra greenish-blue, polished; margin and abbreviated fillet yellowish.

Inhabits Mississippi.

Body yellowish-brown: *head* with an impressed line on the front: *antennæ* and *vertex* black: *thorax*, with a dorsal spot and lateral one each side, black: *elytra* greenish-blue, with very minute, crowded, and confluent punctures; fillet attenuated, arising from the middle of the base, and terminating beyond the middle of the elytron, and with the exterior margin and tip yellowish-brown.

Length three-tenths of an inch.

The fillet varies in length, and its breadth sometimes continues undiminished to the tip. Captured by Mr. T. Nuttall.

9. *G. decorata*. Yellowish; *antennæ*, *vertex*, and two spots on each elytron, black.

Inhabits Missouri.

Body yellowish, immaculate, glabrous: *vertex* and *antennæ*, excepting the three basal joints, black: edges linear; the posterior one slightly

sinuate: *scutel* black at base; *elytra* obsoletely punctured, rounded at tip; each with an oval, black spot at base, and a larger, oblong one extending from the middle to near the tip: *pectus* and *postpectus* black.

Length less than three-tenths of an inch.

The second and third joints of the antennæ are subequal, and taken together are hardly longer than the fourth, as in the genus *ADIMONIA* of Schrank.

10. *G. longicornis*. Green, oblong; thorax with two impressed spots; *elytra* with a black fillet and suture.

Inhabits Arkansa.

Body pale greenish: *eyes* blackish: *antennæ* as long as the body; second and third joints conjoined, shorter than the fourth: *thorax* subquadrate; two dilated, oval, impressed spots placed rather behind the middle: *elytra* irregularly punctured; three or four obsolete, elevated lines, of which the exterior one is largest, and coloured by a brown fillet which does not attain the tip; a brown common sutural line.

Var. a. Destitute of the fillet and sutural line.

Length less than one-fifth of an inch.

I obtained specimens near the Rocky Mountains. The length of the antennæ of some specimens would authorize the placing of it in the genus *LUPERUS*, whilst the abbreviation of the third and fourth joints resembles those of the genus *ADIMO-*

NIA of Schrank. This insect varies in being more robust, with the antennæ shorter than the body, and the elytra, at first view, are entirely olive-green; but, on inspection, vestiges of the fillet and sutural line sometimes are visible near the base. It is very similar to *CRIOCERES vittata* of Fab.

11. *G. atripennis*. Black; thorax rufous, with two impressed spots; venter pale yellowish-rufous. Inhabits Missouri.

Black, impunctured: *head*, an indented, frontal spot, and a carinate line between the antennæ: *thorax* pale rufous; two dilated, indented spots: *elytra* irregularly and confluent punctured; an elevated line from the humerus parallel with the edge: *pectus* and *venter* pale rufous.

Length nearly one-fifth of an inch.

The second and third joints of the antennæ are abbreviated and equal, as in the preceding species.

12. *G. atriventris*. Pale rufous; antennæ, elytra, and abdomen, black.

Inhabits Missouri.

Body pale rufous: *eyes* black: *antennæ* ten-jointed, black: *thorax* with a dilated, black margin; interrupted before the scutel: *scutel* pale rufous: *elytra* black, glabrous, immaculate: *wings* black: *feet*, line above the femora, tibia and tarsi black: *abdomen* deep black.

Var. a. Thorax destitute of the black margin.

Length more than one-fifth of an inch.

On the *AMMORPHA fruticosa*, the leaves of which

it feeds upon. The antennæ are as long as the body, as in the genus *LUPERUS*, and have but ten distinct articulations.

LANGURIA *Latr.*

1. *L. puncticollis*. Rufous; antennæ, thoracic spot, elytra, and feet, black.

Inhabits Mississippi.

Body rufous: *antennæ* and *palpi* black: *thorax* with a small, rounded, black spot on the middle, and an abbreviated, indented line upon the basal margin each side of the middle: *elytra* with striæ of impressed points, black: *feet* black: *venter*, terminal segment black.

Length two-fifths of an inch.

A more robust species than *L. bicolor*, which it somewhat resembles.

2. *L. 3-fasciata*. Rufous; head black; elytra bifasciate with violaceous.

Inhabits Mississippi.

Body rufous, punctured: *head* black: *antennæ*, third, fourth, fifth and sixth joints dull rufous: *thorax* immaculate: *elytra* with a violaceous base and tip; each band occupying about one-third of the entire length; punctured striæ: *feet* pale: *venter* at tip, and obsoletely at base, black.

Length one-fourth of an inch.

About the size of *L. mozardi*, but very distinct.

[TO BE CONTINUED IN VOL. IV.]

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(Continued from vol. 2, part 2, page 391.)

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596. Sternberg (Gaspard Comte de) Essai d'un exposé géognostico-botanique de la flore du monde primitif. Leipsic et Prague, 2d livraison, folio.
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596. Von Struve (Baron) Mineralogische Beiträge, &c. Hamburg, 1817, 8vo.
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522. Revue Encyclopedique, ou analyse raisonnée des productions les plus remarquables dans la littérature, les sciences et les arts. Paris, vols. 14 to 17 inclusive, and No. 31, 8vo.
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600. Bulletin général et universel des annonces et des nouvelles scientifiques, &c. par M. le Baron de Férussac. Paris. 1822—3, 3 vols. 8vo.
212. Annales des Mines, Paris.
541. Memorie della Reale Academia delle Scienze di Torino, Torino, tomi 15, 4to, tome 11 a 26.
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- † Map of North America, by Tanner.

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Petrified wood, penetrated by <i>fistulariæ</i> , and a <i>Terebratula</i> , Gloucester, New Jersey.	} William Dick.	
Glauberite and Lavas, (a box of)		William Maclure.
<i>Hydrus major</i> , Java Sea.	Capt. Cuthbert.	
Cranium of the <i>Ardea bengalensis</i> .	Dr. Harlan.	May.
<i>Strombus chiragra</i> , two specimens, Cancer, two specimens, East Indies.	} Dr. Hays.	
<i>Gobbius</i> , 8 specimens, Charleston harbour.		Capt. Bache, U. S. T. E.
Shells, coast of England.	Miss Leslie.	
One case containing seven prepared birds of Europe.	} Capt. Jefferson.	
<i>Ornithorynchus paradoxus</i> .		
Two bottles containing Reptilia from Java.		
Rock from Anastasia Island, East Florida, composed entirely of shells.	R. Dietz.	
Specimen of Stonehedge.	E. Tyson, Baltimore.	June.
Collection of fresh water and land shells, from the vicinity of Paris.	} P. & A. Ricord, Paris.	
One case containing Glauberite.		William Maclure.
Specimens of Clay from Florida.	N. Ware.	
Reptilia and <i>Aranea venetoria</i> .	T. Betton.	
Franklinite, from Sparta.	Dr. Fowler.	July.
Beak of the Saw fish.	H. Etting, U. S. N.	
<i>Coluber simus</i> .	L. Vanuxem.	

Articles presented.	Donors.	When presented.
Scincus erythrocephalus.	} J. Gilliams.	
Sciurus volans.		
Gracula, Tanagra rubra, Pipra.	J. Griffiths.	August.
Siliceous oxide of Zinc, and White Sulphuret of Zinc, from Franklin.	} L. Vanuxem.	
Graphite, Borrowdale.		R. Haines.
Calcareous rock, Malta.	R. Haines.	September.
Ostrea (fossil).	S. Hazard.	
Coluber, New Jersey.	R. Haines.	
Coluber, two species.	} J. Gilliams.	
Fossils, three specimens from Maryland.		
Herbarium, of plants collected in the vicinity of Philadelphia by the late Dr. Lawrence.	} Mrs. Lawrence.	October.
Minerals, from Rhode Island.		N. A. Ware.
Ostrea Virginica,	J. Gilliams.	
Siliceous oxide of Zinc, two spe- cimens.	} I. Lukens & J. P. Wetherill.	
Crystallized Amphibole.		
Gorgonia, West Indies.	T. Nuttall.	
Pyroxene, from Franklin.	A. E. Jessup.	
Picus erythrocephalus.	} J. Griffiths.	
Lanius tyrannus.		
Calculi, from the ox.	A. E. Jessup.	December.
Zanthoxylon, clava-Herculis.	Dulles & Wilcox.	
Ammocaetus, new species,	} Dr. Hays.	
Crustacea, several specimens from Bahia.		
Bradypus tridactylis, Chili.	R. Peacock.	

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MEMORANDUM

STATE OF TEXAS

1. The undersigned, being a qualified elector of the State of Texas, do hereby certify that the following is a true and correct copy of the Constitution of the State of Texas, as amended, as the same appears in the public records of the State of Texas, to-wit:

ARTICLE I. OF THE CONSTITUTION OF THE STATE OF TEXAS.

SECTION 1. The legislative power of this State shall be vested in the Congress of the State, which shall consist of a Senate and House of Representatives.

SECTION 2. The Senate shall be composed of one member from each county, to be elected by the qualified electors of the county for the term of two years, and shall hold office until the next meeting of the next Congress.

SECTION 3. The House of Representatives shall be composed of members chosen by the qualified electors of the several counties, and the number of representatives shall not exceed one for every fifty thousand inhabitants.

SECTION 4. The Congress shall assemble on the first Monday in September of each year, and shall continue its session until the first Monday in January of the next year, unless adjourned sooner by the affirmative vote of a majority of both Houses.

SECTION 5. The Congress shall have the power to pass bills for the raising and appropriation of money, and to regulate the public debt of the State.

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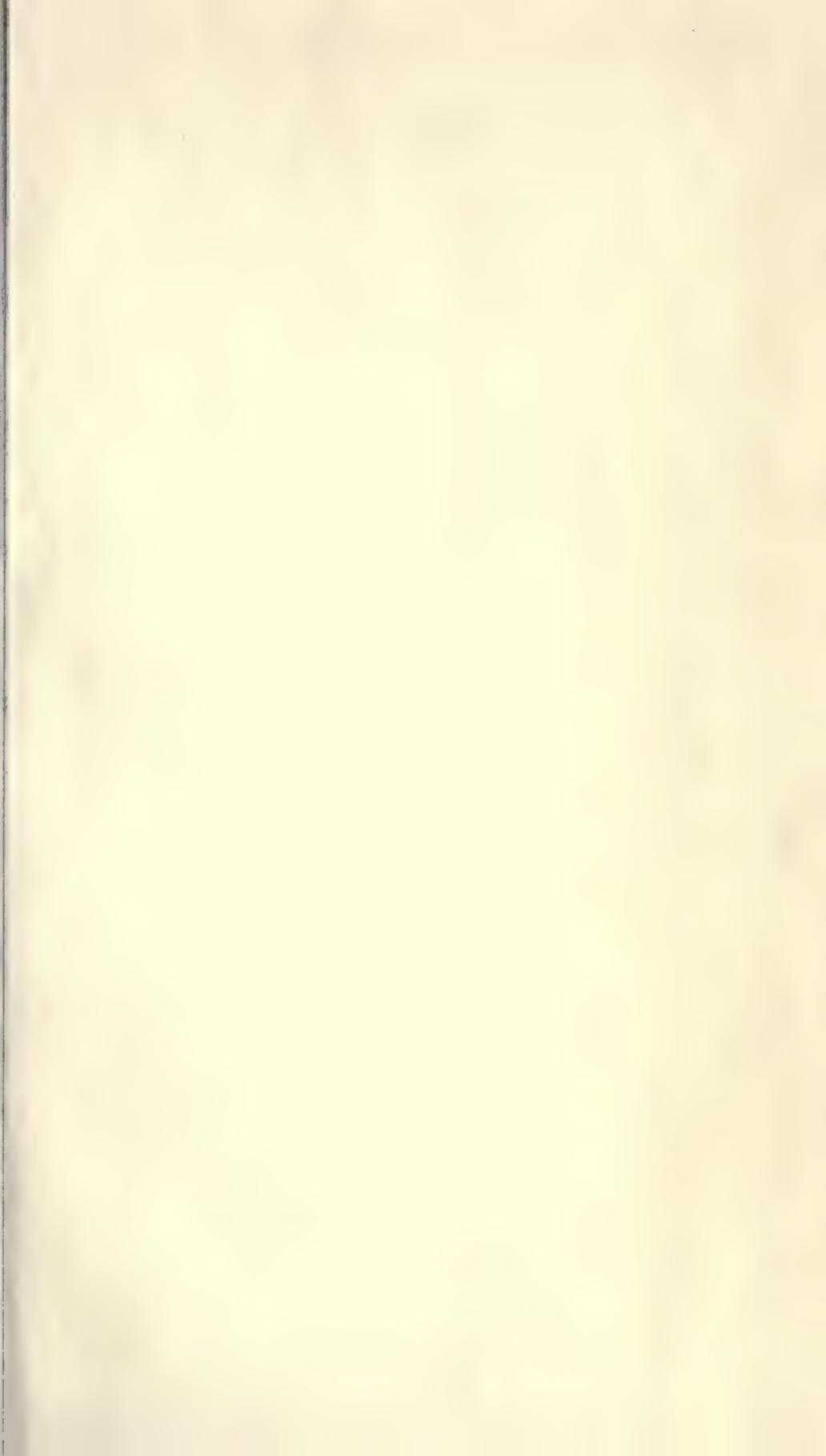
SECTION 8. The Congress shall have the power to pass bills for the raising and appropriation of money, and to regulate the public debt of the State.

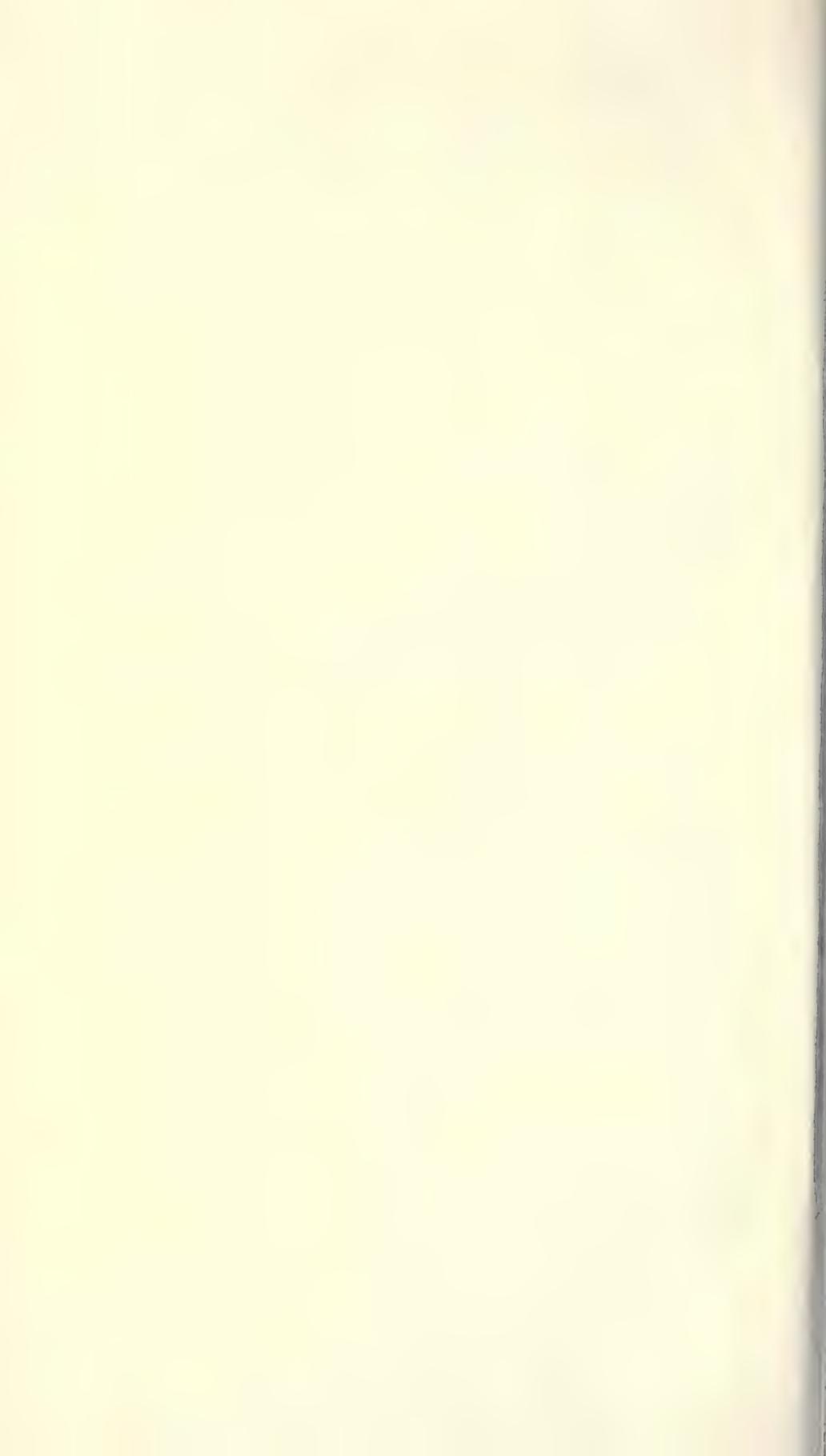
SECTION 9. The Congress shall have the power to pass bills for the raising and appropriation of money, and to regulate the public debt of the State.

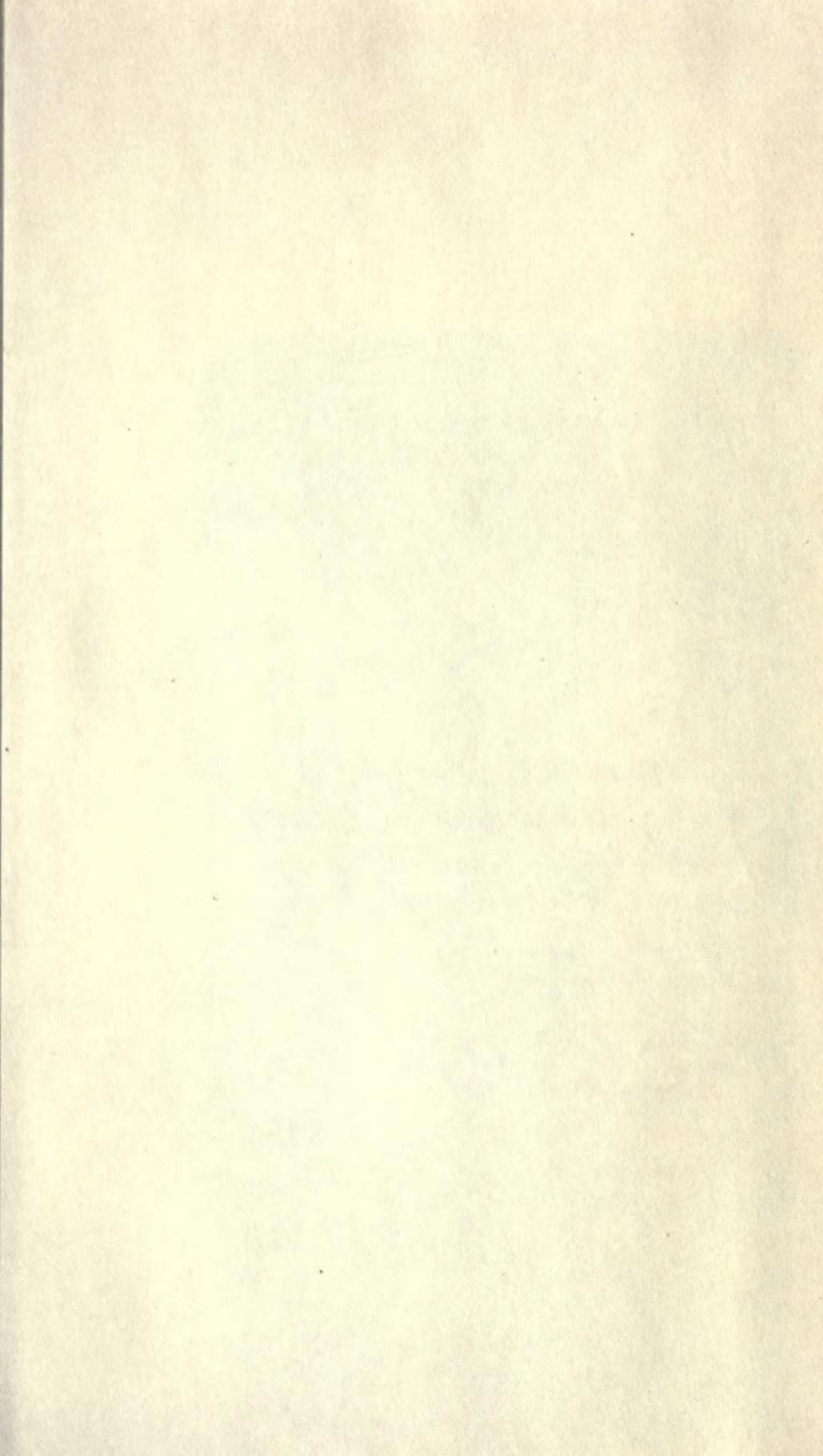
SECTION 10. The Congress shall have the power to pass bills for the raising and appropriation of money, and to regulate the public debt of the State.

ADDENDA ET CORRIGENDA.

- Page 41 line 2 from the bottom, for frok read fork.
- 55 10 do. do. after furnished, add, with.
- 56 last, for or, read, and.
- 62 2 from the top, for angle read angles.
3 do. do. for pyramids read pyramid.
- 63 2 from the bottom, after filtered add the precipitate.
- 80 8 from the top, for *pleura* read *pleura*.
- 294 for $MTB_1^1 \text{ } 2GG_2$ read $MTB_1^1 \text{ } 2GG_2$
 $MTi \text{ } s$ $MTi \text{ } s$
- 295 4 from the top, for and are read the latter.
- 348 7 do. do. for *sinneux* read *sinueux*.
- 359 2 do. do. add *P. ludovicianus*, GMEL. LATH.
- 365 8 do. do. dele LATH.
10 do. do. add *O. leucocephalus*, LATH. (a pied variety.)
- 369 last, for female read male.









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