

A REVISION OF THE BEETLES OF THE GENUS OEDIONYCHIS OCCURRING IN AMERICA NORTH OF MEXICO

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HISTORY OF THE GENUS

The first description of a North American species of *Oedionychis* was by Fabricius and appeared under the name *Altica thoracia*.¹ The genus *Altica*, originally proposed by Geoffroy² "in place of the name *Mordella*," was later sunk by Fabricius,³ who distributed the species in the genera *Chrysomela*, *Lema*, *Crioceris*, and *Galleruca*, and described under *Galleruca* six new North American species now referred to *Oedionychis*. Illiger⁴ revived the genus *Altica*, and following the correction made by his countrymen, Hoffmann, Müller, and others, called it *Haltica*. He divided this group, which was previously characterized simply by its saltatorial habits, into nine "families." The first two groups, the Physapodes, described as having the claw joint of the posterior tarsus globosely inflated and the elytra confusedly punctate or smooth, and the Oediopes, described as having the posterior claw globosely inflated and the elytra striate-punctate, furnished the basis for Latreille's⁵ description of the genus *Oedionychis*.

Not till 1860, when the English entomologist Clark⁶ wrote his monograph of the Halticidae, was the group again given study. Clark unfortunately left his work unfinished, and his treatment of the genus *Oedionychis*, published later,⁷ consists merely of a catalogue of species. In 1873 Crotch⁸ presented a key to the North American species of *Oedionychis*, a number of which he described

¹ Fabricius, Syst. Ent., App. 1775, p. 821.

² Geoffroy, Histoire abrégée des Insectes, 1762, p. 244.

³ Fabricius, Syst. Eleuth., vol. 1, 1801, pp. 495, 499.

⁴ Illiger, Magazin für Insektenkunde, vol. 6, 1807, p. 81.

⁵ Latreille, Cuvier's Règne Animal, ed. 2, vol. 5, 1829, p. 154.

⁶ Clark, Catalogue of Halticidae in the Collection of the British Museum, 1860.

⁷ Clark, Catalogue of Halticidae, Journ. Ent., vol. 2, 1865, p. 163.

⁸ Crotch, Proc. Acad. Philadelphia, vol. 25, 1873, p. 61.

as new. He also described a closely allied genus which he named *Hamletia* in honor of Hamlet Clark, author of the Catalogue of Halticidae. In 1875 appeared Chapuis'⁹ work on Chrysomelidae with a detailed description of the genus *Oedionychis* which Horn in his treatment of the North American species has translated nearly literally. Chapuis pointed out an additional character, the open coxal cavities, separating *Oedionychis* from other genera having the globular claw. Von Harold¹⁰ attempted to define clearly the closely related genera *Oedionychis*, *Homophoeta*, *Aspicela*, and *Asphaera*. He distinguished them not only by the degree of inflation of the claw joint, but also by the length of the first joint of the posterior tarsus, which in *Oedionychis* is comparatively short. He later published an account of the vittate species of this group.¹¹ Meanwhile Jacoby¹² was working on the Central American species, as well as publishing new species from South America, Africa, and India. He followed von Harold's distinctions pretty closely, but in one of his last papers¹³ maintained that, although von Harold's distinctions were in the main valid, there is in some instances a gradation in the length of the first joint corresponding to the variability in the inflation of the claw joint. Horn's¹⁴ work on the Halticidae of boreal America is the fullest and last account of the North American species of the genus. He recognized 26 species occurring north of Mexico, of which 5 were described as new.

Since Horn's treatment of the *Halticini* little has been done with the North American species of *Oedionychis*. The present paper is an attempt to dispel some of the confusion in one group of the genus, namely, that consisting of *Oedionychis quercata*, *obsidiana*, and *limbalis*, to incorporate species described since Horn's paper, and to add new species and varieties. It seems certain that among such closely related and variable forms as the Chrysomelidae more attention will be paid in the future to the numerous geographic or sub-specific forms. I have described these at some length, although it has not seemed desirable to dignify all of them with names. The habitats and descriptions in this paper are based entirely on specimens examined by the writer, unless otherwise stated. The synonymy for the most part has been based on that of previous writers.

The central habitat of the genus appears to be tropical America, and the species in America north of Mexico are comparatively few. Only two species, *Oedionychis violascens* and *Oe. lugens*, are definitely known to occur on the Pacific coast. *Oedionychis longula*,

⁹ Lacordaire's *Genera de Col.*, vol. 11, 1875, p. 84.

¹⁰ Von Harold, *Coleopterologische Hefte*, vol. 15, 1876, p. 91.

¹¹ Von Harold, *Berliner Entomologische Zeitschrift*, vol. 25, 1881, p. 119.

¹² Jacoby, *Biol. Cent. Amer., Coleopt.*, vol. 6, p. 1, 1880-1892.

¹³ Jacoby, *Proc. Zool. Soc. London*, 1905, p. 398.

¹⁴ Horn, *Trans. Amer. Ent. Soc.*, vol. 16, 1889, p. 183.

described by von Harold from "California," has not since been identified. Four species are known to occur in Canada.

Specimens have been examined from the United States National Museum, Philadelphia Academy of Natural Sciences, Museum of Comparative Zoology, Boston Society of Natural History, University of Kansas, British Museum, and Museum of Natural History at Paris. At the last-named museum, where M. P. Lesne and his associates courteously placed the collections at my disposal, I had opportunity during the summer of 1925 to examine the old Bosc collection, in which are several specimens considered by M. Lesne to be cotypes of species described by Fabricius. I wish to express my thanks to the curators of the collections mentioned for the opportunity to study the specimens in their charge, to Dr. A. G. Böving for his description and drawing of the larval stage, to Dr. F. H. Chittenden for his encouragement in this study, and to Dr. E. A. Schwarz and Mr. H. S. Barber for their constant assistance and advice.

DESCRIPTION OF THE GENUS

The main characters differentiating the genus *Oedionychis* from related genera are (1) the swollen, globular claw joint of the hind tarsus and the comparatively short first joint of the posterior tarsus; (2) the confusedly punctate or smooth and glabrous elytra; (3) the open coxal cavities; and (4) the wide prothorax, not much narrower than the elytra.

The genus is composed of species widely dissimilar in general appearance. The North American species range in length from 3 to 8 mm., and there are larger species in tropical America. In color they vary from pale, almost waxen, to lustrous metallic green, blue, or purple, and even opaque black; they may be concolorous, spotted, vittate, or transversely banded.

The head is usually exposed to the eyes. The prothorax is always considerably wider than long, has a more or less explanate margin, and has usually dentiform anterior angles. The scutellum is either small and triangular, or in the larger, more convex species, rounded. The elytra are sometimes very narrowly, sometimes widely explanate. At base the elytra are not much wider than the prothorax, but widen ovately in some species, and in others are broadly or narrowly oblong. The punctation when present is always confused, never striate; frequently the surface is nearly impunctate, never pubescent. The body beneath is usually lightly pubescent. The epipleura vary with the width of the explanate margins, the species with broad margins having wider epipleura reaching nearly to the apex. The legs are relatively short. The posterior legs have the femora much thickened, with a little tooth just above the tarsus on the tibiae,

and a spur at the end. The claw joint of the tarsus is inflated and round with the claws appendiculate.

LARVAE AND EGGS

The only record of the larvae of this genus is that of E. M. Craighead, who observed the larvæ of *Oedionychis gibbitarsa* feeding on the leaves of an unknown mint.¹⁵ Mr. Craighead kindly sent me his preserved specimens which Dr. A. G. Böving has described in a separate publication, extracts of which are given below. Miss M. E. Murtfeldt collected the pupa of this species at Baltimore many years ago. She found the insect pupating in the ground in a little earthen cell. H. O. Marsh collected eggs of *Oedionychis interjectionis* on "tallow weed" (*Euphorbia antisiphilitica?*) in Texas. They are elongate oblong, yellowish-white, and about 1 mm. in length. Eggs of *Oe. circumdata* have been obtained by the writer in the District of Columbia on *Verbena urticaefolia*. They are deep orange, clavate, a little over 1 mm. in length, and are laid singly.

MATURE LARVA

(Described by Dr. A. G. Böving from specimens preserved in the United States National Museum, marked: "*Oedionychis gibbitarsa* Say on mint, Chambersburg, Pa., 20 July 1921. E. M. Craighead Coll.")

Length: About 10 mm.

General form and color: Head strongly hypognathous with frons vertical to the length of the body-trunk and seen from above almost hidden below prothorax. Head capsule yellowish-brown with blackish-brown margins and blackish-brown frontal carina; labrum, mandibles, and chitinous parts of antennæ and ventral mouthparts yellowish brown, most of the head-setae long, pointed, and brownish. Body subcylindrical, slightly flattened dorsally and ventrally, somewhat tapering forward from metathorax and backward from sixth abdominal segment to posterior part of eighth abdominal segment, ninth and tenth small, together forming a walking apparatus; all segments fleshy cream-whitish, with numerous soft protuberances carrying straw-yellow setal cups and setae, no prothoracic shield and no shield dorsally on ninth abdominal segment. Legs strong, of medium size and inserted widely apart to the end of small, inverted T-shaped hypopleural chitinizations; their color light straw-yellow with narrow darkenings at the articulations; behind the falciform claw with a membranous empodium shorter than the claw. Spiracles annular, pale straw-yellow, of middle size, all alike and lateral; one in the mesothoracic epipleurum and one immediately in front of the epipleural lobes of the first eight abdominal segments.

In common with most of the Halticinae larvae are the following structural details of the head and mouthparts: Antennae two-jointed with basal membrane large, enabling a complete retraction of the whole antenna; proximal antennal joint rather low and ringshaped with its top-membrane carrying

¹⁵ E. M. Craighead, Ent. News, vol. 34, 1923, p. 119.

several small sensory papillae and sensory pits. distal antennal joint minute, bicuspidate and practically replaced by the large conical tactile supplementary joint; mandible palmate with several distal teeth and a group of many long setae medianly on inner margin; maxillary mala (or "lobe") large, anteriorly rounded, proximally carrying a longitudinal series of setae along inner margin. distally several setae irregularly distributed and a two-jointed peg, probably with sensory function; gula absent; submentum and mentum fused into a large sub-trapezoidal region; labium small, short and covered with a bandlike chitinization, constricted in the middle, labial palpus present, ligula indistinct and very broad.

The characters which particularly determine the generic position of the present larva are the following: Epicranial halves with hind-corners triangular, short and obtuse, the frons reaching to the occipital foramen, thus no epicranial suture present; ocellus lacking; labrum antero-medianly with crescent-shaped, light, membranous region, antero-laterally along margin with



FIG. 1.—LARVA OF OEDIONYCHIS GIBBITARSA SAX $\times 7$

numerous small, straight setulae (in an undetermined species from Haiti: with small, hookshaped setulae); number of terminal teeth of mandible five and mandibular setae on inner margin arranged in a long series; labial palpus two-jointed. Prothoracic tergum with conical protuberances arranged in a flat ring along the margin; terga of mesothorax, metathorax, and the first eight abdominal segments with conical protuberances arranged in an anterior row of two belonging to the prescutal area, a posterior row of four belonging to the scuto-scutellar area and in each alar area a large rounded protuberance carrying from two to four setae (in the undetermined species from Haiti with only one or two; ninth abdominal segment posteriorly scalloped and seta-bearing; tenth abdominal segment soft, ventral, developed as a typical pseudopod with the anal opening situated terminally between the lips of the sucking disk. [A. G. Böving.]

FOOD HABITS

Very little is known of the habits of this genus. The adult beetles appear to feed chiefly on the foliage of shrubs and trees. Only one is known to approach economic importance, *Oe. sexmaculata*, which has been found in injurious numbers on ash (*Fraxinus* species). *Oe. quercata* was so named because it was found on oak. *Oe. obsidiana* has been found by W. A. Hoffman feeding on winterberry (*Ilex verticillata*) and strawberry bush (*Euonymus americanus*), and I have observed *Oe. circumdata* feeding in spring on the tender leaves of beech (*Fagus grandifolia*). Blatchley gives the Ericaceae as the food plants of several species in Florida.

KEY TO THE SPECIES

Usually large (4—8 mm.), convex, margins usually very narrow or lacking; antennae moderately stout, usually not half the length of body, front vertical, eyes rather widely set, interocular space at least half width of head. interocular depression tending to be indistinct.....Series A.

Usually small (3—6 mm.), depressed, margins explanate, usually moderately wide; antennae slender, at least half the length of the body, front oblique, eyes often large and usually closely set, interocular space rarely over half width of head, interocular depression distinct.-----Series B.

SERIES A

1. Pronotum dark without trace of yellow or reddish brown, head always dark-----2.
Pronotum yellow or reddish brown, sometimes spotted or fasciate, head dark or pale-----4.
2. Head, pronotum, and elytra entirely blue or purple, elytra coarsely punctate----- (1) *violascens*.
Head, pronotum, and elytra black, sometimes with bluish, greenish, or purplish luster, elytra very faintly punctate, nearly smooth-----3.
3. Head with front flat, tubercles indistinct, no trace of reddish brown frontal spots, third and fourth antennal joints about equal. Arizona, Rocky Mountains, British Columbia, Hudson's Bay----- (2) *lugens*.
Head with front not flat, tubercles distinct, usually with indistinct reddish-brown spot on either side of front, third antennal joint a little longer than fourth. Georgia, Texas, Illinois----- (3) *concinna*.
4. Head dark, usually with pale front or pale frontal spot-----5.
Head yellowish to reddish brown, sometimes with large dark spot covering vertex and front, leaving only margins about eyes pale-----10.
5. Pronotum with a fascia or spots, these sometimes confluent-----6.
Pronotum immaculate, pale yellow-----9.
6. Head nearly black, sometimes with indistinct reddish brown frontal spot; pronotum dull yellow with five piceous spots, these frequently united in an irregular triangular blotch or fascia; elytra entirely yellow brown or with a broad, piceous, median vitta on each elytron----- (10) *imbriata*.
Head piceous, usually with reddish or yellowish frontal spot-----7.
7. Pronotum pale yellow with five black spots, sometimes united to form fascia; elytra yellow with common black sutural vitta and on each elytron a median vitta and narrow submarginal vitta, the last reaching from middle nearly to apex; body beneath black, margin and last ventral segment yellow----- (8) *aemula*.
Pronotum reddish or dull yellow, with five piceous spots sometimes confluent, or with a wide band-----8.
8. Elytra varying from deep brown to piceous or black with bluish or greenish luster, feebly shining, finely punctate, pronotum over twice as wide as long, finely punctate; abdomen with yellow margin----- (4) *vians*.
Elytra opaque bluish black, almost smooth, pronotum twice as wide as long, coarsely punctate; abdomen entirely yellow or with only faint trace of yellow brown in middle----- (5) *discicollis*.
9. Elytra green or black with yellowish white vittae (occasionally elytra entirely green), margin usually pale, and yellowish white vitta on each elytron often broken near apex, producing an ! mark on each elytron.
(6) *interjectionis*.
Elytra brown with five large pale yellow blotches on either elytron.
(7) *jacobiana*.
10. Elytra not vittate-----11.
Elytra vittate-----15.
11. Rounded oblong-oval, brilliantly lustrous-----12.
Oblong-oval, feebly shining-----14.

12. Elytra entirely dark shining blue, purple, or green without trace of yellow. (11) *gibbitarsa*.
Elytra dark with yellow margin-----13.
13. Head deeply punctate except on occiput, pronotum often with only one median piceous spot, sometimes three spots, elytra blue, purple, or green with distinct narrow yellow margin----- (12) *flavocyanea*.
Head rather sparsely punctate about eyes, pronotum indistinctly marked with from three to five pale reddish spots, elytra dark blue with yellow margin wider at apex and forming a scalloped pattern--- (13) *lateralis*.
14. Head yellow, sometimes with dark spot on occiput; pronotum usually seven-spotted, spots frequently united to form a zigzag fascia; elytra dull blue, green, or purplish with narrow yellow margin along upper half. (9) *thoracica*.
Head varying from pale reddish brown to nearly black, sometimes with darker interocular band and dark band on posterior part of occiput, pronotum with five piceous spots, frequently united to form triangular blotch or fascia; elytra entirely yellowish brown or with a broad, piceous, median vitta on each elytron, nearly covering it-- (10) *imbriata*.
15. Elytra with two vittae (a broad, piceous, median vitta on each elytron). (10) *imbriata*.
Elytra with more than two vittae----- 16.
16. Elytra with five vittae----- 17.
Elytra with three vittae----- 18.
17. Yellow brown, pronotum with narrow explanate margin and with piceous median spot or band; elytra with moderately broad, piceous, common sutural vitta occasionally with greenish or purplish luster, and on each elytron a median and submarginal vitta. Middle and Eastern United States----- (15) *petaurista*.
Yellow brown, pronotum with moderately broad explanate margin and indistinct dark spots; elytra with narrow vittae, frequently having purplish or greenish luster, a common sutural vitta and a median and submarginal vitta on each elytron. Arizona----- (14) *tenuilineata*.
18. Elytra with common sutural vitta and narrow submarginal vitta on each elytron; pronotum with reddish or piceous median blotch. (15) *petaurista*.
Elytra with common sutural vitta and median vitta on each elytron--- 19.
19. Head finely punctate with occiput and front dark, leaving only margin about eyes yellow, pronotum two-spotted or with spots confluent, elytra pale yellow with wide sutural and wide median-lateral vitta leaving only margin pale, very finely punctate and shining----- (16) *amplivittata*.
Head usually coarsely punctate, reddish brown----- 20.
20. Third antennal joint shorter than fourth. Eastern and Middle States. (17) *miniata*.
Third and fourth antennal joints about equal, head somewhat smoother on occiput. Florida----- (18) *ulkei*.

SERIES B

1. Elytra with only slight trace of humeral prominences and callosities at scutellar angle, and little trace of depression between. Explanate margins narrow-----2.
Elytra usually with distinct callosity near base of each elytron at scutellar angle, and marked humeral prominences. Margins usually moderately to widely explanate-----6.

2. Elytra dark blue with no trace of yellow----- (19) *indigoptera*.
Elytra yellow with or without markings-----3.
3. Elytra entirely yellow. Oblong, shining, almost impunctate, darker reddish yellow beneath----- (22) *flavida*.
Elytra yellow with dark markings-----4.
4. Elytra with dark spots. Pale yellow, shining, nearly smooth, each elytron usually with five or six piceous spots----- (29) *nigrosignata*.
Elytra not spotted-----5.
5. Elytra oval with large piceous sutural area of variable size, leaving margins and apex more or less broadly yellow----- (20) *thyamoides*.
Elytra narrowly oval with entire piceous sutural vitta reaching apex, frequently a median vitta in each elytron, often disappearing in part or united with sutural vitta----- (21) *texana*.
6. Broadly oval, sides of elytra arcuate-----7.
More elongate, sides of elytra essentially parallel-----10.
7. Elytra margin very narrow, not reflexed; punctation on elytra very light; yellow brown, elytra piceous with very narrow pale yellow-brown margin and pale apex----- (23) *saltatra*.
Elytral margin broad, often slightly reflexed; punctation on elytra moderately coarse-----8.
8. Elytra entirely black or sometimes with dark ferruginous margin, head and pronotum reddish brown, never with dark occipital spot.
(24) *quercata*.
Elytra always with yellow-brown margin, head and pronotum yellow brown, frequently with dark occipital spot-----9.
9. Yellow brown with distinct broad piceous lateral vitta and short vitta in middle at base of each elytron----- (25) *pervittata*.
Yellow brown with light brown to piceous elytra, margins always pale.
(26) *subvittata* var.
Yellow brown with indistinct vittate markings on elytra varying from pale brown to nearly piceous----- (26) *subvittata*.
10. Head coarsely punctate----- 11.
Head faintly punctate, nearly smooth----- 12.
11. Head, pronotum, and elytra coarsely and deeply punctate; yellow brown with dark blotches on pronotum and upper half of elytra, and broad, zigzag fascia across lower half of elytra; lateral fold from intrahumeral depression extending nearly to apex, parallel to margin.
(27) *sexmaculata*.
Head and elytra not so coarsely punctate, pronotum smooth; pale yellow with reddish head and reddish sutural vitta extending three-fourths the length of the elytra, spreading across base of elytra to cover humeri, frequently a spot in middle and at apex of each elytron, sometimes uniting with sutural vitta to form fascia; no lateral fold----- (28) *suturalis*.
12. Elytra narrowly oblong-oval, humeral prominences small, no marked callosity at scutellar angle----- 13.
Elytra oblong-oval, humeral prominences distinct, a well-marked sulcus within and a more or less well-marked callosity at scutellar angle----- 14.
13. Shining, smooth, pale yellow, with no dark markings on head; each elytron with five or six spots, no sutural vitta, no basal margin across elytra.
(29) *nigrosignata*.
Feebly shining, elytra distinctly punctate, pale yellow, head with piceous spot, sutural vitta not entire, each elytron with five or six spots and a narrow margin across base----- (30) *spilonota*.

14. Elytra with parallel sides and with distinct humeral prominences, but somewhat flattened disk, eyes small, interocular space at least half width of head, elytra piceous with yellow-brown margin, broader at apex. (31) *circumdاتا*.
Elytra with distinct humeral prominences and with rounded callosity at base of each elytron near scutellar angle, eyes large, interocular space approaching one-third width of head----- 15.
15. Small, 3—4 mm----- 16.
Large, 4—5 mm----- 17.
16. Shining, very finely punctate, entirely piceous with pale margins and apex----- (32) *obsidiana*.
Shining, very finely punctate, pronotum yellow often with dark blotches, elytra yellow with piceous fasciae or remnants of fasciae at base, middle, and near apex----- (32) *obsidiana* var. *flava*.
17. Feebly shining, rather coarsely punctate, yellow brown with reddish brown or piceous spot on head, pronotum usually immaculate or with faint, indeterminate shadings, elytra usually with reddish brown or piceous fasciae or remnants of fasciae at base, middle, and apex, apical one never at less than apical three-fourths. Eastern United States--- (33) *scalaris*.
Feebly shining, finely punctate, yellow brown, head and pronotum immaculate, elytra with ten to twelve small piceous spots, two or four basal spots, four nearly transverse at basal fourth, four not in transverse line, lowest at apical two-thirds. Arizona----- (34) *durangoensis*.

DESCRIPTIONS OF SPECIES

1. OEDIONYCHIS VIOLASCENS LeConte

Fig. 1.

Oedionychis violascens LECONTE, Proc. Acad. Philadelphia, vol. 11, 1859, p. 81.—CROUCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 61.—HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 183.

Broadly oblong-oval, moderately convex, shining blue or violet. Antennae not half length of body, submoniliform, black or bluish black with terminal joints piceous, third and fourth joints about equal. Head shining dark blue with antennal sockets pale brown, coarsely punctate about and between eyes, occiput sometimes nearly smooth; front not flat as in *lugens* and no median groove, interocular space over half width of head. Pronotum over twice as wide as long, moderately convex, narrowed anteriorly and with narrow, slightly reflexed, explanate margin, very shining, faintly yet distinctly and sparsely punctate, punctures much denser posteriorly. Scutellum rounded, shining. Elytra oblong-oval, moderately convex, broadly rounded at apex, with narrow margin; humeri moderately prominent, only faint trace of depression within; punctation variable, frequently deep and coarse, smoother toward apex; color entirely blue or violet. Body beneath sparsely pubescent, shining, blue or violet, the tarsi piceous.

Length.—5 to 6 mm.; width 2.5 to 3.5 mm.

Type locality.—Fort Tejon; Calif.

Distribution.—California, Nevada.

This species differs from *Oe. lugens* var. *lamprocyanea* in its more broadly oval shape, its wide, rounded apex, its shining pronotum, and very shining, coarsely punctate elytra. There is no trace of yellow on abdomen.

Jacoby's *Oe. semipurpurea* (described from a single Mexican specimen) is very shining, with pronotum sparsely and yet distinctly punctate and elytra more coarsely and densely punctate, and body beneath entirely dark. It is very closely allied to *Oe. violascens*, and perhaps identical.

2. OEDIONYCHIS LUGENS LeConte

Fig. 2

Oedionychis lugens LeConte, Col. Kans., 1859, p. 24.—Crotch, Proc. Acad. Philadelphia, vol. 25, 1873, p. 61.—Horn, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 183.

Oblong-oval, somewhat convex, varying from dull, lusterless black to black with distinct bluish, purplish, or aeneous luster. Antennae not half the length of body, submoniliform, black, third and fourth joints about equal. Head dull black with antennal sockets pale brown, flat in front with tubercles very indistinct, coarsely punctate about eyes, occiput and front usually more or less smooth, median groove faint and indistinct, interocular space over half width of head. Pronotum over twice as wide as long, arcuately narrowed anteriorly, somewhat convex but not so much as in *concinna*, with very narrow, explanate margin wider anteriorly; finely and sparsely punctate, punctures or lack of punctures on slight elevations forming an indistinct pattern in middle of pronotum. Scutellum rounded, black, shining. Elytra oblong, sides nearly parallel, umbone prominences not marked, basal sulcus within well marked; margin very narrow, punctation very faint and fine, nearly invisible, showing chiefly as tiny lines produced by minute confluent punctures; color entirely black, often opaque, sometimes with bluish, purplish, or aeneous luster. Body beneath finely pubescent, black, sometimes with slight bluish luster, sometimes tip of last abdominal segment, occasionally margin of other segments, yellowish, abdomen dorsally yellow; tarsi slightly reddish piceous, epipleura dark.

Length.—4.5 to 6 mm.; width 2.5 to 3 mm.

Type locality.—Santa Fe, N. Mex.

Distribution.—California, Arizona, New Mexico, Colorado, Montana, British America, Alberta, Arctic region, Hudson Bay.

This species was described by LeConte as dull, opaque black, with tip of abdominal segment and back pale yellow. The type came from Santa Fe, N. Mex. Horn adds Arizona as its habitat. A series of specimens in the National Museum from Arizona is dull, opaque black, some with no yellow on abdominal segments, some with tip of abdomen yellow. Another series from Montana and Colorado is not opaque black, but dull piceous, feebly shining, three specimens having abdomen without yellow, one with entire last abdominal segment and margin of next broadly yellow. In the Casey collection are four specimens from California, from just over the Nevada boundary, at an altitude of 5,800 feet, which are polished and even lustrous aeneous, and in only one is there any sign of yellow tip to abdomen. A third series from British America is dull blue black, feebly shining, with tip of abdomen yellow. In the British Museum is a fourth series of specimens labeled by Baly *Oedionychis arctica* (manuscript name) with the locality labels Arctic America and Hudson Bay. They are dull black with a faint bronze or purple luster, and in two of the seven specimens there is a yellow tip to abdomen. Jacoby has mentioned this name and stated that he was unable to separate the specimens so labeled from his Mexican *modesta*. He described *Oe. modesta* as having no pale abdominal segments.¹⁰ In the fourteen specimens of *modesta* in the British Museum one has a faint yellow-brown margin to abdomen and several a yellow point at apex, which is as much yellow on the abdomen as in many specimens of *lugens* of the Rocky Mountains and Canada. The specimens of *Oe. modesta* are distinctly smaller, from 4 to 5 mm. in length, and are variable in metallic luster, but otherwise I can find no differences. The range of *Oe. lugens*, if these are all of that species, would be from southern Mexico to Hudson Bay, an exceedingly long range, explainable only by the theory that this is an upper Sonoran or almost boreal species inhabiting high altitudes in Mexico and the Rocky Mountains.

In the National Museum is a series from Arizona so distinct in appearance from the typical opaque black *lugens* of Arizona that it seems worthy of varietal distinction.

OEDIONYCHIS LUGENS LAMPROCYANEA, new variety

Moderately shining dark blue or bluish green. Head densely and coarsely punctate usually throughout, pronotum densely and moderately coarsely punctate, elytra finely punctate, more distinctly so at base. Beneath, the last ventral segment entirely yellow brown and margins of other segments more or less yellow brown.

Length.—5 to 6.3 mm.

¹⁰ Biol. Cent. Amer., Coleopt., vol. 6, pt. 1, 1886, p. 411.

Type and 6 paratypes.—Cat. No. 29154, U.S.N.M. 14 paratypes from Baboquivari Mountains and Santa Rita Mountains, Ariz., in Kansas University Collection.

Type locality.—Santa Rita Mountains, Ariz.

Distribution.—Arizona (Santa Rita Mountains; Oracle; Baboquivari Mountains), Colorado (Boulder).

3. OEDIONYCHIS CONCINNA (Fabricius)

Fig. 3

Galleruca concinna FABRICIUS, Syst. Eleuth., vol. 1, 1801, p. 499.

Altica concinna OLIVIER, Ent., vol. 6, 1808, p. 679.

Oedionychis vians var. *concinna* CROTCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 61.

Oedionychis concinna HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 182.

Elongate oblong-oval, moderately convex, dull piceous or black, often feebly shining with purple or green luster, last abdominal segments more or less yellow brown. Antennae not half the length of body, stout, piceous, third joint usually a little longer than fourth. Head piceous, usually having two indistinct reddish brown spots on either side of front, usually coarsely and deeply punctate about eyes, front and occiput smooth, median depression distinct, interocular space about half width of head. Pronotum twice as wide as long, convex, with very narrow explanate margin, narrowed straightly anteriorly; distinctly but sparsely punctate. Scutellum rounded, shining, black. Elytra elongate-oval, moderately convex with very narrow margin and with rounded umbone prominences producing deep basal sulcus, finely and faintly punctate, sometimes appearing nearly smooth except about base and along suture; entirely dark colored with purplish or greenish luster or piceous. Body beneath finely and sparsely pubescent, shining, piceous or black, with abdomen more or less yellow brown, epipleura dark.

Length.—5.5 to 7 mm.; width 2.5 to 3.5 mm.

Type locality.—Carolina.

Distribution.—Carolina, Georgia, Florida, Louisiana, Mississippi, Texas, Illinois.

This species is not easily distinguishable in all cases from *lugens*. In general it is more convex and with longer elytra, and the ventral surface has more yellow brown on abdomen. There are more distinct prominences and a deeper median depression on front of head, and on the front of the head are two indistinct reddish brown spots. The usual distribution appears to be southern, but in the Museum of Comparative Zoology are two specimens labeled Illinois, and W. S. Blatchley gives Lake County, Ind., as a locality.

4. OEDIONYCHIS VIANS (Illiger)

Figs. 4 and 5

Haltica vians ILLIGER, Mag. f. Insektenkunde, vol. 6, 1807, p. 83.*Altica abdominalis* OLIVIER, Ent., vol. 6, 1808, p. 679.*Altica scripticollis* SAY, Journ. Acad. Philadelphia, 1824, p. 84.*Oedionychis scripticollis* LECONTE, Proc. Acad. Philadelphia, vol. 12, 1860, p. 321.*Oedionychis thoracica*, var. CLARK, Journ. Ent., vol. 2, 1866, p. 166.*Oedionychis vians* var. *scripticollis* CROTCH. Proc. Acad. Philadelphia, vol. 25, 1873, p. 61.*Oedionychis vians* HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 182.

Elongate oval, somewhat convex, dull purplish or greenish black, the pronotum red, fading to yellow, with a broad dark fascia or confluent spots suggesting letter M in shape. Antennae not half length of body, moderately stout, reddish brown or piceous, third joint usually a little longer than fourth. Head piceous, usually with a reddish brown front, sparsely and deeply punctate about and between eyes, occiput smooth, median depression short and distinct, interocular space over half width of head. Pronotum over twice as wide as long, narrowed anteriorly; explanate margin narrow, with nearly straight sides, finely punctate; a wide piceous or greenish black fascia extending in some instances almost across pronotum and leaving margins red (in fresh specimens), fading to yellow; fascia sometimes irregular, suggesting in outline the letter M. Scutellum rounded, shining black. Elytra oblong-oval, moderately convex, with narrow margin, humeri rounded with a basal sulcus within; punctation varying from coarse to fine and shallow, sometimes nearly obsolete, surface always alutaceous, entirely dull purplish or greenish black. Body beneath shining, rather sparsely pubescent, sometimes almost entirely piceous except for yellow prosternum and last ventral segment, usually abdomen only partially reddish brown or piceous, with wide yellow margin; legs dark brown or piceous; epipleura piceous.

Length.—4 to 6.5 mm.; width 2.2 to 3.5 mm.

Type locality.—Pennsylvania.

Distribution.—New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey, Maryland, District of Columbia, Virginia, North Carolina, Florida, Kentucky, Tennessee, Alabama, Louisiana, Texas, Kansas, Nebraska, Iowa, Illinois, Michigan, Colorado, and Alberta.

Illiger originally described this species from Pennsylvania. Say distinguished another species, *Oe. scripticollis*, as closely allied to *vians*, but differing by its "frontal spot and undulated litterate form of thoracic spot," and gave its locality as Missouri. Crotch

later placed *scripticollis* as a variety of *vians*, and gave its locality as Hudson Bay and Slave Lake. Say's distinction of *vians* and *scripticollis* on the basis of the frontal spot does not hold, as this spot is common to both. The sinuate thoracic markings appear to accompany a deeper and coarser punctation, and such specimens are duller. It also seems to be a more northern and western form, occurring in Colorado, Kansas, Missouri, Alberta, Michigan, and New York, although one specimen is labeled from as far south as Fort Monroe, Va. The southern specimens of *vians* have lighter punctation, in some cases are almost smooth, and are more shining. A series from Florida has the punctures obsolete and is brightly shining with metallic luster. The thoracic band in these is widened to cover nearly all of the pronotum with scarcely any visible lighter anterior margin.

W. S. Blatchley reports finding *Oe. vians* in Florida on oak, and R. A. Cushman bred it from the "stem of *Polygonum pennsylvanicum*."

There are two other specimens in the National Museum that I have placed with doubt as the following variety of *vians*:

OEDIONYCHIS VIANS BADIA, new variety

Head and prothorax similar to those of *vians*. Elytra deep reddish brown and coarsely punctate, punctation coarser and shallower than the punctate form of *vians* and resembling the punctation of *Oe. fimbriata*. Elytra not dull as in punctate form of *vians*, but moderately shining; surface not alutaceous. Elytra shorter than in typical *vians* and markedly more rounded at apex. Beneath, epipleura and abdomen pale, the latter with deep brown area in middle.

Length.—5 to 5.2 mm.; width, 3 mm.

Type and paratype.—Cat. No. 29155, U.S.N.M.

Type locality.—Fort Monroe, Va. (E. A. Schwarz).

The specimens were originally placed in the collection with *Oe. fimbriata*, but they differ from that species in shape of prothorax and elytra as well as in markings.

5. OEDIONYCHIS DISCICOLLIS (Crotch)

Fig. 6

Oedionychis discicollis DEJEAN, Catalogue, ed. 3, 1837, p. 410 (nomen nudum).

Oedionychis vians var. *discicollis* CROUCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 61.

Oblong-oval, opaque, head dark with pale frontal spot, prothorax heavily punctate, reddish or yellowish brown with broad, dark fascia, elytra entirely bluish black, almost smooth. Antennae not half length of body, stout, third joint longer than fourth. Head

dark, sometimes with lighter reddish brown frontal spot, coarsely punctate, interocular space more than half width of head, no marked frontal prominences. Pronotum twice as wide as long, narrowed somewhat anteriorly, with straight sides and narrow explanate margin, not shining, coarsely punctate; a broad, dull bluish-black fascia extending over pronotum, leaving only narrow reddish or yellowish margin. Scutellum rounded, dark. Elytra elongate oblong, with very narrow explanate margin, slightly convex; entirely dull bluish black, almost smooth, with fine, sparse punctures. Body beneath yellowish brown with dark brown legs, occasionally darker brown spot in middle of abdomen, epipleura dark.

Length.—6.8 to 8 mm.; width, 3.4 to 4 mm.

Type locality.—Southern States.

Distribution.—Florida.

The old DeJean catalogue specimen in the British Museum labeled *Oe. discicollis* has simply the locality "Amer. bor." Crotch described this species as a variety of *vians*, from the "Southern States," and gave its characters as "very opaque, the elytral punctuation obsolete, thoracic punctuation very deep and coarse." It differs very markedly from both *vians* and *thoracica* in the length of the prothorax. In *vians* and *thoracica* the prothorax is not nearly half as long as wide, whereas in *discicollis* the length of the prothorax approaches half its width, and the shape is more rectangular. The species is also slightly larger than *vians*.

The name *discicollis* was used by Clark in his catalogue for a South American species and later was adopted by Jacoby in a description of that species.¹⁷ Crotch's earlier varietal name preoccupies the name *discicollis* used by Jacoby.

6. OEDIONYCHIS INTERJECTIONIS Crotch

Fig. 12

Oedionychis interjectionis CROTCH, Proc. Acad. Philadelphia, vol. 25, 1873 p. 61.—

HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 184.

Oedionychis gracilis JACOBY, Biol. Cent. Amer., Coleopt., vol. 6, pt. 1, 1886, p. 420.

Elongate oblong, moderately convex, shining, pale yellow, a dark green, brown, or black sutural vitta and lateral vitta on each elytron, these vittae occasionally uniting below middle and at apex. Antennae not half length of body, moderately stout, dark brown, basal joints and terminal joint sometimes paler, third joint a little longer than fourth. Head with flat, yellow front, otherwise shining dark green or black; a row of punctures about yellow front and eyes, otherwise smooth; eyes large, interocular space half width of head,

¹⁷ Proc. Zool. Soc. London, 1894, p. 611.

median groove short and distinct. Pronotum twice as wide as long, almost rectangular, with narrow explanate margin, pale yellow, sometimes waxy, shining and nearly impunctate. Scutellum rounded, black, shining. Elytra oblong, moderately convex, with rounded humeral prominences and faint trace of sulcus within, and very narrow margin, shining, very faintly punctate; a dark green, brown, or black sutural vitta and a lateral vitta widening below middle and occasionally uniting with sutural vitta below middle and about apex, thus forming with the enclosed light yellow or whitish areas a semblance to an exclamation mark on each elytron; margin usually pale. Body beneath finely pubescent, abdomen yellowish brown, meso and metasterna and anterior legs usually dark brown; epipleura dark brown or black.

Length.—5 to 6 mm.; width 2 to 3 mm.

Type locality.—Texas.

Distribution.—Texas, Louisiana.

Jacoby described this among the Central American species of *Oedionychis* as *gracilis*. Horn called *gracilis* merely a variety of *interjectionis* having the subsutural white vitta entire.

There is also a form of this species with elytra entirely green. One specimen in the National Museum is nearly green except for a short, white vitta in basal half of either elytron.

H. O. Marsh found the eggs and adult beetles on "tallow weed" (*Euphorbia antisiphilitica*?) at Brownsville, Tex.

7. *OEDIONYCHIS JACOBIANA* Horn

Oedionychis jacobiana HORN. Trans. Amer. Ent. Soc., vol. 16, 1889, p. 189.

Oval, slightly oblong, surface shining, beneath entirely pale reddish yellow, thorax yellowish, immaculate. Elytra pale brown, with large yellow spots. Antennae not reaching the middle of the body, piceous, the three basal joints and half the fourth pale, the terminal also yellow. Occiput piceous, front pale, frontal carina moderately prominent, tubercles distinct, a well-marked impressed line between the eyes, a few coarse punctures on each side near the eyes. Thorax more than twice as wide as long, narrowed in front, base scarcely wider than middle, margin rather broad, reticulate when viewed with transmitted light, anterior angles dentiform, surface almost absolutely smooth, yellow, immaculate; scutellum piceous. Elytra a little wider at base than the thorax, humeri obtuse, umbone moderately prominent, smooth, limited within by a rather deep impression, lateral margin narrowly explanate, surface shining, sparsely rather finely punctate near base, smooth at apex, color pale brown with large yellow spots, the first basal of irregular outline, leaving the umbone brown, behind this two smaller oval spots, followed by a broad sinuous fascia interrupted by the suture, near the apex a spot

of semioval form. Abdomen shining, sparsely, obsoletely, coarsely punctate. Legs entirely reddish yellow.

Length.—0.25 inch (6.5 mm.).

Type locality.—Southern Arizona.

Distribution.—Southern Arizona.

This species was not examined by me and the description is copied from Horn.

E. T. Cresson, who has kindly compared specimens for me, finds that it differs from the Mexican species *Oe. 10-guttata* by having the second row of pale spots on the elytra transverse and not oblique.

8. OEDIONYCHIS AEMULA Horn

Fig. 13

Oedionychis aemula HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 185.

Oblong-oval, faintly shining, pale yellow with black-spotted or banded pronotum, each elytron with three black vittae, a common sutural, a median, and a submarginal, the submarginal being only on posterior half. Antennae not half the length of body, rather stout, piceous, third joint slightly longer than fourth. Head shining black, with yellow spot between eyes, coarsely punctate about eyes and pale spot, median groove short and indistinct, interocular space half as wide as head. Pronotum over twice as wide as long, narrowed slightly anteriorly, with narrow margin having nearly straight sides, very faintly punctate; five more or less distinct black spots, sometimes united to form fascia. Scutellum rounded, black, shining. Elytra oblong-oval, with very narrow margin and slightly rounded humeral prominences, and faint trace of sulcus; faintly punctate; a rather narrow sutural vitta extending to apex, a median vitta a little broader on each elytron, not reaching apex, and a very narrow marginal vitta beginning at middle and extending nearly to apex, these vittae having a bluish or purplish luster. Body beneath finely pubescent, reddish brown or piceous except for yellow prosternum and yellow tip and margin to abdomen, in this resembling *vians*; legs dark brown or piceous, outer edge of hind legs darker; epipleura piceous.

Length.—5 mm.; width 3 mm.

Type locality.—Arizona.

Distribution.—Arizona.

In the British Museum is a type specimen of *Oe. dugesi* Jacoby from Mexico which closely resembles *Oe. aemula* except for elytral markings. The elytra are entirely green (blue or green, according to Jacoby's description) with pale yellow margin. It is possible that *Oe. dugesi* is a dark nonvittate form of *aemula*. Similar variation has long been known in *Oe. interjectionis*.

9. OEDIONYCHIS THORACICA (Fabricius)

Fig. 7.

Attica thoracica FABRICIUS, Syst. Ent. App., 1775, p. 821.—OLIVIER, Ent., vol. 6, 1808, p. 678.

Chrysomela flava GMELIN, Syst., vol. 1, pt. 4, 1790, p. 1691.

Oedionychis thoracica CROTCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 62.—HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 181.

Broadly oblong-oval, slightly convex, feebly shining, yellow with piceous-spotted pronotum and blue or purple elytra having narrow yellow margin in basal half. Antennae barely half length of body, moderately stout, third and fourth joints about equal, piceous, basal joints usually lighter. Head pale yellow or yellowish brown, sometimes with dark spot in middle of occiput, usually coarsely punctate except on occiput, occasionally entirely punctate; front flat with tubercles and median groove indistinct; interocular space over half width of head. Pronotum over twice as wide as long, nearly rectangular, having narrow explanate margin with arcuate sides, narrowed anteriorly, deeply and densely punctate, usually seven-spotted, the spots piceous, often partly or wholly uniting to form a zigzag fascia. Scutellum rounded, shining, piceous. Elytra broadly oblong-oval with almost parallel sides; humeri rounded and a slight trace of basal depression within, punctations shallow, dense, moderately coarse and sometimes confluent, finer toward apex; color dark purple or blue, with narrow yellow margin in basal half of elytra. Body beneath yellow brown, finely pubescent, tibiae and tarsi darker brown, epipleura pale.

Length.—6 to 8 mm.; width 3 to 4 mm.

Type locality.—America.

Distribution.—New Hampshire, Massachusetts, New York, Rhode Island, Connecticut, Pennsylvania, New Jersey, Delaware, Maryland, District of Columbia, Virginia, West Virginia, Kentucky, Indiana, North Carolina, Georgia, Florida, Texas, and Kansas.

This, the first species of North American *Oedionychis* to be described, is very uniform in its appearance and subject to few variations over its wide range.

10. OEDIONYCHIS FIMBRIATA (Forster)

Fig. 11

Chrysomela fimbriata FORSTER, Nov. Spec. Ins., vol. 1, 1781, p. 25.

Attica suturella SAY, Journ. Acad. Philadelphia, vol. 5, 1826, p. 299.

Oedionychis circumcincta CROTCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 62.

Oedionychis fimbriata HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 184.

Elongate-oval, slightly convex, dull red fading to yellow brown with indefinite dark brown or piceous spots on pronotum sometimes

uniting to form large rounded blotch, and very narrow sutural vitta, and in dark form a wide median vitta and narrow marginal one on each elytron. Antennae half length of body, stout, reddish brown basal joints deepening to piceous outer joints, third joint longer than fourth. Head varying from pale brown in paler forms to nearly black in vittate forms, in this dark form resembling *Oe. vians* in having two obscure reddish brown frontal spots, these spots often widening to leave only a narrow dark interocular band and a dark band or spot on posterior part of occiput; coarsely punctate except on middle of occiput; median depression rather indistinct, interocular space over half as wide as head. Pronotum twice as wide as long, nearly rectangular, narrowed anteriorly with straight sides; explanate margin very narrow, punctations distinct and not dense; five dark brown or piceous spots, frequently uniting to form a rounded blotch or even a broad fascia. Scutellum rounded, piceous. Elytra elongate-oblong, moderately convex, with narrow margin; humeri rounded, a distinct basal sulcus within; punctation variable, usually shallow and moderately coarse, smoother toward apex; in paler forms at most only faint trace of vittae, usually a darker area surrounding scutellum, and piceous sutural edges forming a narrow vitta; in vittate forms a broad piceous median vitta nearly covering each elytron, but not reaching apex, and narrow piceous margin uniting with sutural vitta. Body beneath finely pubescent, abdomen and prosternum reddish yellow, meso- and metasterna and tibiae and tarsi dark brown or piceous, outer edge of femora sometimes darker, epipleura pale.

Length.—5 to 7 mm.; width 2.5 to 3 mm.

Type locality.—North America.

Distribution.—Massachusetts, New York, Maryland, District of Columbia, Virginia, Ohio, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, and Texas.

11. OEDIONYCHIS GIBBITARSA (Say)

Fig. 9

Altica gibbitarsa SAY, Journ. Acad. Philadelphia, vol. 4, 1824, p. 83.

Oedionychis gibbitarsa CROUCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 60.—

HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 181.

Rounded oblong-oval, moderately convex, very lustrous, head and pronotum yellow brown, pronotum usually with piceous spots, elytra green, blue, or purple. Antennae about half as long as body, moderately stout, piceous, basal joints lighter, third and fourth joints about equal. Head nearly smooth, rather finely punctate on front and about eyes; front flat with tubercles and median depression indistinct, interocular space half width of head. Pronotum nearly three times as wide as long, almost rectangular, with wide explanate mar-

gin, slightly arcuately narrowed anteriorly; impunctate; from two to five piceous spots across pronotum, sometimes united to form fascia, or occasionally disappearing entirely. Scutellum rounded, shining, black. Elytra rounded oblong, with narrow margin, and with rounded humeral prominences and basal sulcus within, sometimes nearly impunctate, usually lightly but not densely punctate; very lustrous, varying in color from purple to bluish green or green. Body beneath sparsely pubescent, shining yellow or reddish yellow; tibiae and tarsi usually reddish or piceous; epipleura usually piceous.

Length.—5 to 7.5 mm.; width 2.5 to 4 mm.

Type locality.—Missouri.

Distribution.—Massachusetts, Rhode Island, New York, Pennsylvania, Ohio, Tennessee, Indiana, Illinois, Michigan, Iowa, Kansas, Missouri, Oklahoma, Maryland, District of Columbia, Florida, and Texas.

The bluish green or green form is more common in the north, while the purplish one is more southern. The spots on pronotum are often reduced in southern specimens. In one specimen from Kansas the pronotum is banded with a broad, piceous fascia, leaving only narrow pale margins.

L. G. Gentner found the beetle feeding on a mint, *Teucrium canadense*, in Michigan. E. M. Craighead also records finding both larvae and adult beetles feeding on an "undetermined mint" in Pennsylvania.

12. OEDIONYCHIS FLAVOCYANEA Crotch

Fig. 10

Oedionychis flavocyanea CROTCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 62.—HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 181.

Rounded oblong-oval, moderately convex, very shining, pronotum yellow brown with piceous markings, elytra greenish blue or purple having a narrow yellow margin. Antennae not half the length of body, moderately stout, third and fourth joints about equal, basal joints and terminal joint lighter colored. Head reddish brown, deeply and coarsely punctate except on middle of occiput; median depression short and distinct, interocular space over half width of head. Pronotum nearly three times as wide as long, convex, with moderately broad explanate margin arcuately narrowed anteriorly, faintly and sparsely punctate; a median piceous spot, sometimes a smaller spot on either side. Scutellum rounded, black and shining. Elytra rounded oval, with rounded humeral prominences and basal depression within, coarsely and shallowly punctate, smoother toward apex; shining, bluish green or purple, with moderately wide yellow margin. Body beneath shining reddish brown, sparsely pubescent; epipleura piceous.

Length.—5 mm.; width 3 mm.

Type locality.—Texas.

Distribution.—Texas.

This species closely resembles *gibbitarsa*, but differs in its reddish brown, coarsely punctate head, the yellow margin about elytra, and the coarser, deeper punctation.

13. OEDIONYCHIS LATERALIS Jacoby

Fig. 8

Oedionychis lateralis JACOBY, Biol. Cent. Amer., Coleopt., vol. 6, pt. 1, 1886, p. 412.

Broadly oblong-oval, shining, head yellow, pronotum yellow, usually indistinctly marked with from three to five pale reddish brown spots, elytra dark blue, bluish green or purplish, with yellow margin widening at apex and forming a scalloped pattern, body beneath also yellow. Antennae not half the length of body, stout, piceous, basal joints and terminal joint paler, third joint a little shorter than fourth. Head deep yellow, somewhat cribrately punctate on either side of occiput, occiput nearly smooth, median groove short but distinct, interocular space about half width of head. Pronotum about three times as wide as long, with moderately wide explanate margin, shining, paler yellow than head, very faintly and finely punctate, usually having from three to five pale reddish brown spots, these often obscure. Scutellum rounded, piceous. Elytra oblong-oval, with distinct humeral prominences with basal sulcus; finely, densely and usually shallowly punctate, sometimes rather coarsely punctate, shining; deep blue with green or violet luster, and with narrow yellow margin widening at apex and forming a scalloped pattern. Body beneath finely pubescent, shining, reddish yellow, epipleura pale yellow with piceous edges.

Length.—6 to 7 mm.; width 3 to 3.5 mm.

Type locality.—Oaxaca, Mexico.

Distribution.—Baboquivari Mountains, Ariz.

This species was described by Jacoby from Oaxaca, Mexico. I have examined specimens collected by the late F. H. Snow in southwestern Arizona and preserved in the collection of the University of Kansas. *Oe. lateralis* closely resembles several other Central American species. *Oe. extrema* Harold has a dark head, a distinct apical spot, and narrow yellow margin. *Oe. högei* Jacoby has a yellow head and similar apical markings but no pale elytral margin, and *Oe. purulensis* is similar to *högei* but with a black head. Of the species found north of Mexico, it bears a resemblance to *Oe. thoracica*, but differs in being smoother and shining, having less distinct thoracic spots and an entirely pale margin and apical pattern.

14. OEDIONYCHIS TENUILINEATA Horn

Fig. 15

Oedionychis tenuilineata HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 186.

Broadly oblong, slightly convex, moderately shining, yellow brown, pronotum indistinctly spotted, elytra with two narrow vittae and common sutural vitta, these often with a purplish or greenish luster. Antennae half as long as body, rather coarse, first joint broadly dilated and sparsely pubescent, third and fourth joints equal, first three joints and terminal joint paler. Head broad, reddish brown, coarsely punctate except on middle of occiput; median depression indistinct, interocular space half as wide as head. Pronotum nearly three times as wide as long, almost rectangular, slightly narrowed anteriorly, with broad explanate margin, very faintly punctate; small, somewhat indeterminate, pale reddish brown spots across pronotum, not forming a distinct fascia. Scutellum black. Elytra broad, oblong, slightly convex, with small rounded humeral prominences and narrow margin, finely punctate, surface shining; a common, narrow sutural vitta extending to apex, a narrow median vitta on each elytron not quite reaching apex, and a narrow submarginal vitta starting from the humeral prominence and nearly but not quite uniting with sutural vitta at apex, these vittae frequently with a purplish or greenish luster. Body beneath reddish brown, pubescent, epipleura pale.

Length.—5.5 to 7 mm.; width, 2.8 to 3.8 mm.

Type locality.—Southern Arizona.

Distribution.—Arizona.

According to Horn, the last antennal joint in the female is entirely pale, whereas in the male only the tip of the last joint is pale. This species is readily distinguished from *Oe. petaurista* by its flatter prothorax with wide explanate margin and without the heavy fascia or median blotch so characteristic of *petaurista*. The elytral vittae as a rule are very narrow, although in some specimens they are as broad as in *petaurista*.

15. OEDIONYCHIS PETAURISTA (Fabricius)

Figs. 16, 17

Galleruca petaurista FABRICIUS, Syst. Eleuth., vol. 1, 1801, p. 495.

Altica petaurista OLIVIER, Ent., vol. 6, 1808, p. 674.

Oedionychis petaurista CROTCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 62.—

HAROLD, Deutsche Ent. Zeitschr., vol. 25, 1881, p. 150.—HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 185.

Broadly oval, convex, moderately shining, yellow brown with reddish brown head, pronotum with a piceous median spot or band, elytra with a common sutural vitta and median and submarginal

vittae. Antennae rather stout, not half so long as body, dark brown, basal joints paler, third and fourth joints equal. Head broad, reddish brown, coarsely and somewhat cribrately punctate except on middle of occiput, finely pubescent about eyes; median groove usually distinct, interocular space about half width of head. Pronotum nearly three times as wide as long, arcuately narrowed anteriorly, moderately convex, finely punctate, with rather narrow explanate margin; an irregular piceous blotch often widening to a broad scalloped fascia in middle. Scutellum rounded, shining, black. Elytra broadly oval, convex, shining, punctate, punctation varying from coarse punctures, tending to be confluent, to fine and shallow; margin narrowly explanate, humeri rounded; usually five moderately broad vittae on elytra—a common sutural vitta, a median vitta, and a submarginal vitta curving over humerus on each elytron, these last two vittae not quite reaching apex, color of vittae usually greenish black or piceous, occasionally with a bronze or purple luster. Body beneath yellowish or reddish brown, finely pubescent, epipleura more or less piceous.

Length.—7.5 to 8 mm.; width, 2.5 to 4.5 mm.

Type locality.—Carolina.

Distribution.—Pennsylvania, District of Columbia, Maryland, "Carolina," North Carolina, Georgia, Florida, Alabama, Kentucky, Mississippi, Oklahoma, Kansas, Texas.

Horn described a variety *brevilineata* from Florida "in which with an entirely pale margin the disk is black or slightly bluish with a short yellow vitta beginning within the humeral umbone." At the opposite extreme there is a pale variety, which may be called

OEDIONYCHIS PETAURISTA PALLIDA, new variety

Head and antennae as in typical *petaurista*; pronotum with very pale reddish brown spot or blotch, smaller than usual in typical *petaurista*; elytra entirely lacking the median vittae, and with very narrow sutural and submarginal vittae, producing an elytral pattern closely resembling *Lema trilineata*.

Type and 1 paratype.—Cat. No. 29156, U.S.N.M.

Type locality.—Tyler, Tex.

Distribution.—Texas and Oklahoma.

Described from two specimens in the National Museum, one from Tyler, Tex., W. D. Pierce collection; the second labeled Ardmore, Indian Territory (now Oklahoma), C. R. Jones collection.

In Horn's collection are two specimens with the median vittae interrupted, that is, represented only by traces, and the submarginal vittae very narrow.¹⁸ Apparently, as in other vittate species of

¹⁸ See illustration, Trans. Amer. Ent. Soc., vol. 16, pl. 5, fig. 2.

this genus, there is great variability, and a large series of each species is necessary to understand and illustrate the many forms.

Oedionychis petaurista has been found feeding on *Verbena* species in Washington, D. C., and W. S. Blatchley reports it on strawberry and bitterweed (? *Helenium* species) in Florida. It is also reported as feeding on *Verbascum thapsus* and *Cassia* species.

In the National Museum are two specimens that superficially resemble *petaurista* but are probably not that species. They do not agree very closely with any of the vittate species described by Von Harold, but without examination of his types it is impossible to be sure that they do not belong to one of these. The species differs from *petaurista* in the more oblong shape, due to the wider prothorax which narrows only little anteriorly, and is fully three times as wide as long. The species also differs from *petaurista* in the more truly marginal outer elytral vittae, which are very narrow, not curving over humeral prominences or on sides of elytra, but almost confined to the explanate margin, although the outer edge of the margin is yellow. From above this narrow dark vitta is not readily seen. The third antennal joint in both specimens is slightly shorter than the fourth. The head in one is deep reddish brown, almost piceous, becoming paler on clypeus, and coarsely punctate throughout, and in the other yellow brown and smooth on occiput. The pronotum in both has a wide, undulated fascia. As in *petaurista*, none of the elytral vittae quite reaches apex. The punctation is fine and shallow, and the surface more shining than is usual in *petaurista*. The ventral surface is yellowish or reddish, and the epipleura differ from those of *petaurista* in being pale. Length 6 mm., width 3 mm. Both specimens were collected in Florida. (Haw Creek, Hubbard and Schwarz; Sunny Hill, in stomach of quail.)

16. OEDIONYCHIS AMPLIVITTATA, new species

Fig. 14.

Oblong-oval, moderately convex, shining, head mostly dark except for yellow margin about eyes, pronotum broadly explanate, yellow with a small, irregular spot on either side or these spots united into a large central blotch, elytra yellow with wide, black, sutural vitta and wide lateral vitta. Antennae stout, piceous, not half so long as body, third joint a little longer than fourth. Head shining, occiput and front covered with a large piceous spot, often with a metallic luster, and leaving only margin about eyes yellow; a deep median and transverse groove on front. Pronotum nearly three times as wide as long, with wide, slightly reflexed, explanate margin; shining, a few indistinct, scattered punctures; yellow with a reddish

brown, irregular spot on either side or these united into a large blotch. Scutellum rounded, shining, black. Elytra broad with wide, rounded apex and moderately wide explanate margin, humeral prominences rounded but not marked, basal sulcus within; punctuation indistinct, fine and sparse, deeper punctures along suture and in basal sulcus; a wide, black, sutural vitta at base covering one-third of either elytron and tapering to apex, and a lateral vitta, gradually widening from humeri and covering at middle half of elytron, leaving narrow, yellow, median space of regular width and only half as wide as lateral and sutural vittae; explanate margin yellow; sutural vitta not quite reaching apex, lateral vittae truncate before reaching apex. Body beneath finely pubescent, piceous except for yellow epipleura and margin of prosternum.

Length.—7 to 7.5 mm.; width 4 to 4.5 mm.

Type.—In British Museum. Paratype, Cat. No. 29354 U.S.N.M.

Type locality.—North America.

Described from two specimens from the DeJean collection in the British Museum, labeled *Oe. petaurista* from "Amer. bor." Permission has kindly been granted to deposit the paratype in the United States National Museum. The shape of the prothorax with its wide explanate margin and the broadly arcuate elytra, wider below the middle, as well as the markings on head and elytra, differentiate this from *petaurista*. It is much larger than *Oe. miniata*, as well as having pale yellow markings above and being deeply piceous below, with elytral vittae much wider and closer to the margin. This can not be *Oe. horni* because von Harold describes that species as being densely punctate and not shining, comparing it with *miniata*, which he says is much more finely punctate. On the contrary, *Oe. ampli-vittata* is remarkable for being smooth and shining. The species may prove to be a Central American one.

17. OEDIONYCHIS MINIATA (Fabricius)

Figs. 18, 19

Galleruca miniata FABRICIUS, Syst. Eleuth., vol. 1, 1801, p. 495.

Altica miniata OLIVIER, Ent., vol. 6, 1808, p. 685.

Oedionychis fallax MELSHEIMER, Proc. Acad. Philadelphia, vol. 3, 1847, p. 162.

Oedionychis miniata CROUCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 62.—

HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 187.

Broadly oblong-oval, convex, moderately shining, yellow brown with reddish brown band across pronotum, a reddish brown or piceous common sutural vitta and a median vitta on each elytron. Antennae barely half length of body, stout, reddish brown or darker, three basal joints reddish, third joint shorter than fourth. Head reddish-brown, coarsely punctate, sometimes occiput and surface

along median groove smooth; interocular space more than half as wide as head, median groove tending to be indistinct in coarsely punctate specimens. Pronotum over twice as wide as long, convex, arcuately narrowed anteriorly, with very narrow explanate margin, distinctly but finely punctate; a broad, reddish brown band of irregular, usually scalloped, outline. Scutellum rounded, reddish brown or piceous. Elytra oblong, convex, with sides nearly parallel; humeral prominences rounded with trace of sulcus within at base of elytra; margin very narrow; punctations coarse but usually not deep; a common reddish brown or piceous sutural vitta of varying width and a median vitta on each elytron, also varying in width, not quite reaching apex. Body beneath reddish brown, finely pubescent; epipleura more or less piceous.

Length.—4 to 7 mm.; width 2 to 3.5 mm.

Type locality.—Carolina.

Distribution.—Massachusetts, Rhode Island, New Jersey, Maryland, Virginia, "Carolina," Georgia, Florida, Louisiana, Alabama, Mississippi, Texas, Kansas, Missouri, Nebraska, Iowa, Illinois.

In the Bosc collection at Paris there are three specimens, all similar in markings, and one bearing on the label the name *miniata*. They represent cotypes of the Fabrician species. The specimen bearing the label has the third antennal joint shorter than the fourth, and the head moderately coarsely punctate. The pronotum is rather faintly marked with a wide reddish brown fascia, and the elytral vittae are very narrow, the sutural vitta being scarcely more than the darkened sutural edges. The specimen is 5.2 mm. long and 3 mm. wide.

There is great variability in this species, as in other vittate species of this group, both in size and shape, and in the width of the elytral vittae. It is possible that several of von Harold's species that are not identified in this country may be forms of *Oe. miniata*. In the National Museum is a series of six specimens from Florida and Mississippi strikingly different from the majority. They are smaller and more slender than the others and the vittae are very narrow. At the other extreme is the rounded dark form, with very wide vittae, that Horn called *Oe. ulkei*, which may not be specifically distinct. He differentiated this from *miniata* on the grounds of its smaller size, its smoother head, and the equality of the third and fourth antennal joints. Examination of a series of specimens shows that there is not only gradation in size of beetle and punctation of head, but even in the length of the third and fourth antennal joints, these two joints being rarely equal but varying from subequal to very unequal with the fourth joint nearly twice as long as the third.

W. S. Blatchley collected this species on dwarf huckleberry (*Gaylussacia* species).

18. OEDIONYCHIS ULKEI Horn

Fig. 20

Oedionychis ulkei HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 188.

Oval, convex, moderately shining, yellowish or appearing brown because of the usually wide reddish brown markings, a broad fascia across pronotum and wide sutural vitta and vitta in middle of each elytron. Antennae nearly half as long as body, stout, reddish brown, three basal joints paler, third and fourth joints subequal. Head reddish brown, moderately coarsely punctate, middle of occiput usually smooth and shining; median groove rather indistinct, interocular space more than half width of head. Pronotum about three times as wide as long, convex, narrowed anteriorly, with narrow explanate margin; finely but distinctly punctate; a wide reddish brown fascia. Scutellum reddish brown or piceous. Elytra rounded oblong, convex, sides nearly parallel; humeral prominences rounded, with faint depression within, margin very narrow; punctation coarse but shallow; a common entire sutural vitta reddish brown or piceous and of varying width, and a usually broad median vitta on each elytron, not quite reaching apex, occasionally uniting at some points below middle with sutural vitta. Body beneath reddish brown, finely pubescent, epipleura more or less piceous.

Length.—4 to 5.5 mm.; width 2 to 3 mm.

Type locality.—Florida.

Distribution.—Florida.

This species is closely allied to *miniata*, the only differences being in the length of the third and fourth antennal joints and the generally smaller size and more rounded outline. The punctation of the head is usually sparser. In some instances these differences do not appear sharply distinctive, and it is questionable whether *Oe. ulkei* is not a variety of *miniata*.

W. S. Blatchley found this species on flowers of *Desmothamnus* and other Ericaceae.

19. OEDIONYCHIS INDIGOPTERA LeConte

Fig. 21

Oedionychis indigoptera LECONTE, Proc. Amer. Philos. Soc., vol. 17, 1878, p. 416.—HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 190.

Elongate oval, moderately shining, with dark reddish brown head and pronotum and dark blue elytra. Antennae slender, half length of body, reddish brown, basal joints slightly paler, third and fourth joints about equal. Head finely punctate, median groove indistinct, interocular space less than half width of head, eyes large. Pronotum a little over twice as wide as long, feebly convex, narrowed arcuately

anteriorly, with narrow explanate margin, faintly punctate. Scutellum piceous. Elytra rounded, elongate, not wider at base than prothorax, with scarcely perceptible margin, and slight trace of humeral prominences and depression within; punctation coarse and shallow, finer toward apex; entirely dark blue. Body and legs beneath dark brown, finely pubescent; epipleura piceous.

Length.—4 to 4.5 mm.; width 2 to 2.2 mm.

Type locality.—Tampa, Fla.

Distribution.—Georgia, Florida, "Pennsylvania" (British Museum).

This species comes nearest *thyamoides* in shape and in lack of humeral or other discal prominences, but is more elongate and has narrower margins, narrower thorax, and larger eyes, and the elytra are entirely blue with no trace of yellow brown.

20. OEDIONYCHIS THYAMOIDES Crotch

Figs. 22 and 23

Oedionychis thyamoides CROUCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 63.—HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 191.

Oval, moderately shining, yellow brown, elytra with bronze-black or blue-black oval central area of varying size. Antennae over half as long as body, slender, darker at tip, third and fourth joints equal. Head faintly and finely punctate, median groove tending to be indistinct, interocular space half as wide as head. Pronotum over twice as wide as long, rounded, feebly convex, with wide explanate margin, arcuately narrowed anteriorly; shining, nearly impunctate. Scutellum black. Elytra rounded oval, with feeble humeral prominences and moderately wide margin; punctation usually dense and moderately coarse; a broad, oval, bronze or blue-black central area of variable size, sometimes nearly covering elytra except for margin, again narrowed to a broad sutural vitta extending over half of elytra, never reaching apex. Body beneath yellow brown or reddish, finely pubescent, epipleura pale.

Length.—3 to 4.5 mm.; width 1.7 to 2.5 mm.

Type locality.—Western States.

Distribution.—Colorado, Kansas, Iowa, Tennessee, Ohio, Maryland, Louisiana, Mississippi, and Texas.

In shape this species is nearest *Oe. indigoptera*, but it has much smaller eyes and there is always a yellow brown margin to the elytra. In the material at hand, the specimens from Louisiana, Mississippi, and Texas appear to be much smoother and more finely punctate and shining and the dark central area nearly covers the elytra, leaving only a very narrow yellow margin.

It has been collected on *Teucrium canadense*.

21. OEDIONYCHIS TEXANA Crotch

Fig. 24

Oedionychis texana CROTCHE, Proc. Acad. Philadelphia, vol. 25, 1873, p. 63.—
HORN, Proc. Amer. Ent. Soc., vol. 16, 1889, p. 191.

Elongate oblong-oval, moderately shining, yellow, usually with darker brown head, elytra with piceous sutural vitta and sometimes a median vitta, the latter often abbreviated or sometimes disappearing entirely. Antennae slender, over half as long as body, basal joints reddish brown, outer ones darker, third joint sometimes a little shorter than fourth. Head usually reddish brown on occiput, finely punctate, interocular space half width of head, median groove indistinct. Pronotum barely twice as wide as long, only slightly narrowed anteriorly, with narrow explanate margin; very faintly punctate. Scutellum piceous. Elytra oblong, scarcely wider at base than prothorax, with very faint trace of humeral prominences, and sides nearly parallel; margin narrowly explanate; punctations fine and shallow, nearly smooth at apex; a piceous sutural vitta of varying width extending to apex and occasionally two other vittae, one in middle of each elytron, these often abbreviated or united with sutural vitta, or disappearing entirely, never reaching apex. Body beneath deeper yellow, finely pubescent, epipleura pale.

Length.—3 to 5 mm.; width 1.5 to 2.5 mm.

Type locality.—Texas.

Distribution.—Texas.

22. OEDIONYCHIS FLAVIDA Horn

Fig. 25

Oedionychis flavida HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 190.

Elongate-oblong with sides nearly parallel, moderately shining, pale yellow, nearly impunctate. Antennae slender, about half as long as body, pale, outer joints slightly darker but not piceous, third joint shorter than fourth. Head pale, entirely smooth and shining, with deep transverse but no vertical median groove; interocular space half width of head. Pronotum over twice as wide as long, with arcuate sides and rather narrow explanate margin; narrowed slightly anteriorly making apex and base nearly the same width; shining, immaculate, impunctate. Scutellum slightly darker yellow brown. Elytra elongate, narrow, with sides nearly parallel; humeral prominences and sulcus within not at all marked; explanate margin not wide; pale yellow, moderately shining and smooth. Body beneath finely pubescent, deeper yellow brown, epipleura pale.

Length.—4 to 5 mm.; width 2.5 mm.

Type locality.—El Paso, Tex.

Distribution.—Texas, New Mexico.

Besides being the only entirely pale species known to occur north of Mexico, *Oe. flavida* is remarkable for its narrow oblong shape, by which it is differentiated from the several Central American pale, unicolorous species. The small, pale Central American species usually also differ in having antennae with deeply piceous outer joints.

23. *OEDIONYCHIS SALTATRA* Blatchley

Fig. 26

Oedionychis saltatra BLATCHLEY, Can. Ent., vol. 55, 1923, p. 32.

Rounded oval, moderately shining, moderately convex, yellow brown, elytra piceous with very narrow pale margin and apex. Antennae slender, half length of body, basal points pale, third and fourth joints equal. Head faintly and finely punctate, sometimes smooth, median depression well marked, interocular space about half width of head. Pronotum nearly three times as wide as long, very faintly and sparsely punctate, with rounded, explanate margin, narrowed anteriorly. Scutellum black. Elytra rounded oval, with narrow, not reflexed explanate margin, humeral prominences and depression within well marked; rounded and more convex at suture than dark form of *subvittata* or *circumdata*; moderately shining, punctation shallower and finer than *subvittata* or *quercata*; piceous, apex and narrow edge of margin pale. Body beneath dark brown, shining, sparsely pubescent, epipleura dark.

Length.—4 to 5 mm.; width 2 mm.

Type locality.—Dunedin, Fla.

Distribution.—Florida.

This species is very closely allied to *Oe. quercata* and appears to differ from it principally by its narrower explanate margin and traces of yellow brown on elytra, especially at apex. It has, too, smoother and more shining elytra than *quercata*. It differs from *Oe. circumdata* by being more convex and having arcuate elytra and narrower margin.

24. *OEDIONYCHIS QUERCATA* (Fabricius)

Fig. 27

Galleruca quercata FABRICIUS, Syst. Eleuth., vol. 1, 1801, p. 495.

Altica quercata OLIVIER, Ent., vol. 6, 1808, p. 687.

Oedionychis quercata CLARK, Catalogue of Halticidae, Journ. Ent., vol. 2, 1866, p. 167. (Not *quercata* of American authors.)

Rounded oval, moderately shining, head and prothorax reddish brown, elytra deep black, sometimes with ferruginous margin. Antennae slender, half length of body, third and fourth antennal joints nearly equal or third often a little shorter. Head reddish brown without occipital spot, finely and sparsely punctate, median impres-

sion short, often indistinct; interocular space about half width of head. Pronotum over twice as wide as long, with wide, explanate margin, sparsely and faintly punctate, reddish brown. Scutellum black. Elytra slightly convex, rounded oval, with moderately wide explanate margin, humeral prominences and basal callosities near suture well marked, with deep sulcus between; punctation shallow, fine, coarser at base; color entirely deep black, with no trace of yellow brown on margin or apex, margin sometimes deep reddish brown but not so light reddish brown as head and prothorax, moderately shining. Body beneath finely pubescent, shining dark brown, epipleura reddish brown.

Length.—4 to 5 mm.; width 2 to 2.5 mm.

Type locality.—Carolina.

Distribution.—Virginia, "Carolina," Florida, Alabama, Louisiana.

The name *Oedionychis quercata* was applied by Horn, who has been followed by most authors, to the species here treated as *circumdata* Randall. The writer examined the Bosc collection at the Paris Museum, and found the species there labeled *quercata* to be quite unlike Horn's concept of the species. Fabricius' description of the species as having immaculate, ferruginous head and prothorax and black elytra with ferruginous margin corresponds perfectly with the specimen at Paris. There is no trace of a yellow brown margin to the elytra. Again, contrary to Horn's description, the sides of the elytra are distinctly arcuate, in this respect resembling *Oe. subvittata*. Olivier's illustration, while correct, may have been misleading because of the too sharp distinction in color between the dark elytra and the red elytral margin. Examination of the Bosc specimen shows that this apparent difference in color is due simply to a thinning of the margin, which thereby appears deep reddish brown but not so light reddish brown as the head or prothorax. This is not the case in all specimens. The measurements of the Bosc specimen are: Length 4 mm., width 2.5 mm.; and the locality is simply "Carolina."

Oe. circumdata (confused by Horn with *quercata*) differs in shape, having elytra with more parallel sides, and in color, the head, prothorax, and elytral margins being yellow brown, and the head frequently with a darker spot on occiput. *Oe. quercata* differs from both *Oe. subvittata* (dark form) and *saltatra* by having no yellow brown on head, prothorax, or elytral margins, and no darker occipital spot.

25. OEDIONYCHIS PERVITTATA, new species

Fig. 28

Rounded oval, moderately shining, yellow brown with a broad, black lateral vitta on each elytron, widening in lower half and ex-

tending from humerus nearly to apex of elytra, and a short, broad, slightly inwardly curved median vitta extending from base to about one-seventh length of elytra. Antennae slender, over half length of body, basal joints yellow brown, outer joints gradually darkening, third and fourth joints equal. Head with darker spot on occiput, finely punctate; median groove faint, interocular space over half width of head. Pronotum over twice as wide as long, arcuately narrowed anteriorly, with broad explanate margin, faintly punctate. Scutellum piceous. Elytra with sides feebly rounded, and with wide, explanate margin; humeri well marked and a sulcus within; punctation fine and dense; from either humeral prominence a gradually widening, black vitta extending nearly to apex, in posterior half of elytra covering over half of elytra, a short, broad median vitta extending from base of elytra about one-seventh the length, slightly curved inward. Body beneath finely pubescent, meso- and metasterna and abdomen brown, legs and prosternum yellow brown; epipleura pale.

Length.—4.5 mm.; width 2 mm.

Type and paratype.—Cat. No. 29157, U.S.N.M.

Type locality.—Memphis, Tenn.

Distribution.—Tennessee.

Two specimens of this species in the National Museum collected by H. Soltan closely resemble *Oe. subvittata*, but differ in the clear-cut, heavily marked vittae. None of the specimens of *subvittata* examined has so entire or so distinctly marked black vittae. These two specimens are also not so convex, and are more finely punctate and shining, in this respect resembling *Oe. circumdata*, although the sides of elytra are much more arcuate.

26. OEDIONYCHIS SUBVITTATA (Horn)

Figs. 29, 30

Oedionychis limbalis var. *subvittata* HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 192.

Rounded oval, feebly convex, moderately shining, yellow brown, head usually with darker occipital spot, elytra varying from yellow brown with short brown vittae to reddish brown or more rarely piceous without vittae, the margin always pale. Antennae over half as long as body, slender, basal joints yellowish, last four or five joints dark brown, joints 3 and 4 subequal, third joint sometimes a little shorter. Head usually with darker occiput, finely and faintly punctate, median groove short, tending to be indistinct, interocular space over half width of head, eyes small. Pronotum nearly three times as wide as long, arcuately narrowed anteriorly, with wide,

explanate margin; pale yellow, usually immaculate, but in darker forms sometimes with obscure darker spots or even piceous spots united in form of an irregular fascia; very faintly and sparsely punctate. Scutellum small, reddish brown or piceous. Elytra broadly oval, feebly convex, sides distinctly arcuate, with broad, often reflexed, explanate margin, humeri small, short basal sulcus within; punctation coarse, moderately deep; elytral markings very variable, frequently pale yellow brown, usually with median reddish brown or dark brown vitta not reaching base or apex and of varying length, often a spot on humeri elongated sometimes to a lateral vitta extending half length of elytron, frequently a short vitta at base near suture, usually not extending more than one-third length of elytra, these vittae often in part disappearing or occasionally widening and uniting to cover most of elytra with only yellow streaks between and paler margin; a form with reddish brown elytra without vittae having somewhat paler margin; sometimes entirely piceous with pale margin. Body beneath finely pubescent, yellow brown, usually with meso- and metasterna and abdomen dark brown, often last ventral segment pale, epipleura pale.

Length.—3.5 to 5 mm.; width 2 to 2.5 mm.

Type locality.—Not given.

Distribution.—Quebec, Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, Illinois, Iowa, Wisconsin, Ohio, Michigan, Maryland, Virginia, West Virginia, North Carolina.

Horn, who first described this species as a variety of *Oe. limbalis*, wrote that the striped form seemed the more abundant and that it was remarkable that it had not received a name. Examination of the specimens in Horn's collection labelled *Oe. limbalis* shows no specimens corresponding with Melsheimer's *limbalis*. Horn's *limbalis*, in other words, is the dark form of his variety *subvittata*. *Oe. subvittata*, Horn writes, is the most broadly oval species in our fauna. The head is broad, with wide interocular space, the pronotum is nearly three times as wide as long, the elytra are rounded with wide explanate margin. There are, as Horn also remarked, fewer dark forms; in fact, the black form with pale margin is rare. More frequently the subvittate form becomes reddish brown with more or less indistinct vittate markings. Sometimes the vittae are not discernible, at other times they are very dark reddish brown, or even piceous, and widening at points coalesce in a variety of patterns¹⁹ and occasionally they entirely cover the elytra, leaving the margin pale. The dark form, which is comparatively rare,

¹⁹ See Horn's illustration, pl. 7, fig. 20.

is to be distinguished from *Oe. quercata* by its pale margin. *Oe. quercata*, moreover, has reddish head and prothorax (not yellowish brown), and is without any darker occipital spot. The dark form of *Oe. subvittata* is to be separated from *Oe. saltatra* by its wide elytral margins. It is to be separated from *Oe. circumdata* by its broader and more rounded elytra, the elytra in *Oe. circumdata* tending to be quadrate in shape.

27. OEDIONYCHIS SEXMACULATA (Illiger)

Fig. 31

Haltica sexmaculata ILLIGER, Mag. f. Insektenkunde, vol. 6, 1807, p. 104.

Haltica palliata RANDALL, Bost. Journ. Nat. Hist., vol. 2, 1838, p. 47.

Oedionychis sexmaculata CROUCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 63.—HORN, Trans. Amer. Soc., vol. 16, 1889, p. 193.

Small, oblong, dull yellow brown, deeply and coarsely punctate, the pronotum with piceous or reddish brown spots, and elytra with irregular, zigzag markings and a lateral fold parallel to margin of elytra. Antennae barely half length of body, moderately stout, basal joints paler, third and fourth joints equal. Head with occiput rounded, reddish brown or piceous, front paler, coarsely punctate; median groove not distinct, interocular space half as wide as head. Pronotum nearly three times as wide as long, with wide explanate margin, nearly rectangular, slightly narrowed anteriorly, coarsely punctate; generally two oblique, reddish brown or even piceous marks on either side, sometimes meeting at anterior half, in middle at base a brown spot. Scutellum dark brown. Elytra oblong, narrow, with humeral prominences and a sulcus within continuous nearly to apex, thus forming a lateral fold parallel to margin; margin moderately wide; punctations coarse and deep; a reddish brown or piceous spot on humerus, oblique mark at basal fourth, sometimes meeting and forming a V at suture, a broad marginal spot below this, these marks sometimes running together to form a narrow zigzag across the upper half of elytra, a broad zigzag fascia across lower half of elytra, occasionally breaking up into spots. Body beneath yellow or reddish brown, finely pubescent; epipleura pale.

Length.—2.8 to 4 mm.; width 1.5 to 2 mm.

Type locality.—Pennsylvania.

Distribution.—Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, Georgia, Florida, Alabama, Louisiana, Texas, Ohio, Indiana, Illinois, Michigan, Missouri, Kansas, Oklahoma, Nebraska.

This is a most distinctive species on account of its small size, its deep, coarse punctation, and the lateral fold on the elytra. It is the

only species of the genus that has been known to occur in sufficient numbers to be an injurious insect. In New York and Connecticut it has been reported as a pest on ash, *Fraxinus* species.²⁰ H. S. Barber has collected it in numbers at Plummer Island, Maryland, on the fringe-tree (*Chionanthus virginica*).

28. OEDIONYCHIS SUTURALIS (Fabricius)

Fig. 32

Galleruca suturalis FABRICIUS, Syst. Eleuth., vol. 1, 1801, p. 499.

Altica suturalis OLIVIER, Ent., vol. 6, 1808, p. 692.

Oedionychis suturalis HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 193.

Oblong oval, feebly shining, pale yellow or even waxen with reddish brown head and sutural vitta extending three-fourths the length of elytra and spreading across base and extending down over humeral prominences, a spot frequently present in middle of each elytron and sometimes at apical three-fourths, these occasionally uniting with sutural vitta to form fasciae. Antennae over half as long as body, slender, yellow, terminal joints somewhat darker, third joint a little shorter than fourth. Head rounded, reddish brown across occiput and front, densely and somewhat coarsely punctate; median groove short and faint, interocular space nearly half as wide as head. Pronotum over twice as wide as long, narrowed a little anteriorly, with moderately wide, explanate margin somewhat thicker than usual, faintly punctate, yellow, sometimes almost waxen. Scutellum reddish brown. Elytra oblong-oval, with rather narrow explanate margin and rather small humeral prominences forming a sulcus within; coarsely and shallowly punctate; a reddish brown sutural vitta varying in width extending to apical three-fourths and broadening at base to spread over whole base of elytra and down over humeral prominences, frequently a spot in middle of either elytron and often one opposite the apical end of vitta, both of these occasionally uniting with sutural vitta to produce fasciae. Body beneath yellow, finely pubescent; epipleura pale.

Length.—3.5 to 4.8 mm.; width 1.8 to 2.5 mm.

Type locality.—Carolina.

Distribution.—New Jersey, North Carolina, "Carolina," Georgia, Florida.

The fasciate form of the species might be confused with *scalaris*, but the paler coloring, reddish markings, and coarse punctation of the head easily distinguish it.

W. S. Blatchley found it in Florida on the flowers of *Ilex glabra*.

²⁰ Britton, Conn. Rept., vol. 16, 1917, p. 141.

29. *OEDIONYCHIS NIGROSIGNATA* Schaeffer

Fig. 33

Cedionychis nigrosignata SCHAEFFER, Journ. New York Ent. Soc., vol. 27, 1919, p. 333.

Elongate oval, pale yellow, moderately shining, with black-spotted elytra. Antennae slender, half the length of body, basal joints paler, third and fourth joints about equal. Head faintly and finely punctate in front, occiput shining, median groove distinct, interocular space less than half width of head. Pronotum over twice as wide as long with a moderately narrow explanate margin, not so thinly transparent as in *scalaris*, arcuately narrowed anteriorly, shining, very faintly punctate. Scutellum pale. Elytra elongate oval, with slight humeral prominences, and narrow margin, shining, nearly impunctate; on each elytron black spots or blotches as follows: On humeral prominence, a common spot at basal fourth at suture, sometimes in part disappearing, one opposite this medially, a larger blotch a little below middle, one on lateral margin, and one at apical fourth in middle, these spots varying in size and sometimes in part disappearing. Body beneath finely pubescent, pale.

Length.—4.5 to 5.5 mm.; width 2.5 mm.

Type locality.—Brownsville, Tex.

Distribution.—Texas.

This species is generally narrower than *scalaris*, and is smooth and shining. It differs also in the narrower margin of the prothorax and in having feebly marked humeral prominences.

30. *OEDIONYCHIS SPILONOTA*, new species

Fig. 34

Elongate oval, feebly shining, yellow with piceous sutural vitta, this not reaching apex, each elytron with a narrow black basal edging and five or six black spots. Antennae slender, half length of body, pale, third and fourth joints nearly equal, the fourth slightly longer. Head finely and rather densely punctate, a piceous spot on occiput; median depression distinct, interocular space a little less than half width of head. Pronotum over twice as wide as long with moderately wide explanate margin, arcuately narrowed anteriorly, shining, with few, scattered, indistinct punctures. Scutellum black. Elytra elongate oval-oblong, a little wider at base than prothorax, with narrow explanate margin and small humeral prominences, shallowly and rather coarsely punctate; a narrow black margin at base often uniting with spots on humeri, a usually piceous sutural vitta, extending from basal fourth to apical three-fourths,

expanding at middle and apex as if joined with spot, two lateral and three median spots on each elytron, the first median near base of vitta, the second median opposite middle expansion of vitta, and third median at apical expansion, the two lateral not opposite but placed between these median spots. Body beneath yellow, finely pubescent, abdomen and meso- and metasterna slightly darker.

Length.—4.5 mm.; width 2 mm.

Type and paratype.—Cat. No. 29158, U.S.N.M. One paratype in British Museum.

Type locality.—Crescent City, Fla.

This species is based on two specimens, one collected at Crescent City, Fla. (Hubbard and Schwarz), the other merely labeled Fla. Coll. C. V. Riley, probably from the same source. It differs from *scalaris* in having smaller eyes and narrower elytra, and in having an additional spot on margin of elytra. It differs from *nigrosignata* in having coarser punctation and dark basal margin and sutural vitta and smaller number of spots. The humeral prominences are slightly more marked. There is one specimen of the same species in the British Museum without locality label.

31. OEDIONYCHIS CIRCUMDATA (Randall)

Figs. 35, 36

Haltica circumdata RANDALL, Bost. Journ. Nat. Hist., vol. 2, 1838, p. 48.
Oedionychis limbalis MELSHEIMER, Proc. Acad. Philadelphia, vol. 3, 1847, p. 162.
Oedionychis quercata (not of Fabricius) CROUCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 63.—HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 194.

Oblong-oval, feebly shining, yellow brown, the elytra piceous with yellow margin, this slightly wider at apex. Antennae slender, half length of body, basal joints paler, third joint usually not quite so long as fourth. Head with occiput darker, finely and faintly punctate, median groove distinct, interocular space fully half as wide as head. Pronotum over twice as wide as long, with wide explanate margin, arcuately narrowed anteriorly, shining, very faintly and sparsely punctate. Scutellum piceous. Elytra broadly oblong-oval, with sides nearly parallel, with broad, explanate margin; umbone prominences well defined with deep depression within; punctation shallow, moderately coarse, finer toward apex; color usually entirely piceous except for yellow margin, this broader at apex, occasionally with two oblique reddish brown marks or dots at basal third of elytra, near suture. Body beneath finely pubescent, with meso- and metasterna and abdomen dark brown, legs yellowish or reddish brown, anterior legs paler, epipleura pale.

Length.—3.5 to 5 mm.: width 1.7 to 2.5 mm.

Type locality.—Vicinity of Boston, Mass.

Distribution.—Massachusetts, New York, Pennsylvania, New Jersey, Ohio, Illinois, Michigan, Missouri, Maryland, District of Columbia, Virginia, North Carolina, Alabama, and Tennessee.

Oedionychis circumdata has been one of the most confused of the North American species of *Oedionychis*. In most collections it has been labeled *Oe. quercata* Fabricius. Examination of the old Bosc collection at Paris shows that the original *Oe. quercata* has rounded elytra, and elytral margins varying from reddish (Fabricius' *ferrugineus*) to piceous (see description of *Oe. quercata*). Randall's brief description of his *Oe. circumdata* appears to be the earliest recognition of this wide-spread species. He described it as having the head somewhat black, the thorax testaceous and elytra black, densely punctured, with a testaceous margin. It was collected in the vicinity of Boston. Nine years later Melsheimer described a species from Pennsylvania, closely allied to *quercata*, as *Oedionychis limbalis*. The Melsheimer type at the Museum of Comparative Zoology has the pronotum rather obscurely yellowish brown, which is undoubtedly the result of discoloration and not a specific character. Crotch in 1873 placed *limbalis* as a synonym of *quercata*. Horn in 1889 added a finishing touch of confusion by describing a variety of *Oe. limbalis*, var. *subvittata*, and also by putting the Fabrician species, *Oe. obsidiana*, as a variety of *Oe. quercata*. Examination of the Horn collection shows that what Horn described as *Oe. limbalis*, together with his variety *subvittata*, is a distinct species and not at all the *limbalis* of Melsheimer (see *Oe. subvittata*).

Oe. circumdata differs from Horn's dark form of *limbalis* in shape. Horn lays much stress on the fact that *limbalis* is the most "broadly oval species in our fauna," whereas *Oe. circumdata* tends to have quadrate elytra, especially in the male. In Horn's collection are no specimens with so darkly piceous elytra as the original Melsheimer *limbalis*. Horn's specimens are plainly the darker, usually reddish brown form of his variety *subvittata*. The punctuation in the main is sparser and coarser than in *circumdata*. I have not seen any specimens of *Oe. circumdata* from north of Massachusetts, whereas Horn's *limbalis* (*subvittata*) occurs as far north as Quebec.

The beetle described by Horn as a form of *Oe. quercata* with yellow thorax is really Randall's *Oe. circumdata*. But he has confused under the form having a dark thorax the Fabrician species *Oe. obsidiana* which bears only a superficial resemblance to *Oe. circumdata*. In *circumdata* the prothorax is never piceous and the eyes are small and widely set, the interocular space being fully one-half the width of the head, whereas in *obsidiana* the prothorax is more or less piceous and the eyes are large, the interocular space

approaching one-third the width of the head. In *circumdata* the shape of the elytra is more quadrate, in *obsidiana* the prominences at scutellar angle are more distinct. The punctation in *circumdata* as a rule is coarser and the surface only moderately shining. The apical pattern of *obsidiana* never occurs in *circumdata*, the latter having only a slightly wider yellow margin at apex. In both *obsidiana* and *circumdata* are forms having two oblique marks or dots, reddish brown or yellowish, on upper half of elytra.

I have found the beetles feeding in early spring on the tender leaves of beech (*Fagus grandifolia*) and walnut (*Juglans cinerea*) as well as feeding on the leaves of *Plantago lanceolata* and *Verbena urticaefolia*.

32. OEDIONYCHIS OBSIDIANA (Fabricius)

Figs. 37, 38, 39, 40, 41

Galleruca obsidiana FABRICIUS, Syst. Eleuth., vol. 1, 1801, p. 499.

Attica obsidiana OLIVIER, Ent., vol. 6, 1808, p. 691.

Oedionychis quercata HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 194 (not Fabricius).

Small, oblong-oval, shining, piceous with pale margins and pale apex to elytra. Antennae half length of body, slender, pale with darker terminal joints, third and fourth joints nearly equal, fourth occasionally slightly longer. Head more or less piceous, very faintly and finely punctate; median groove distinct, interocular space considerably less than half width of head. Pronotum over twice as wide as long, with wide, pale, explanate margin, arcuately narrowed anteriorly, shining, with few faint, indistinct punctures; entirely piceous except for margin, occasionally a lighter median streak. Scutellum piceous. Elytra oblong-oval with explanate margin; basal callosities at scutellar angle and humeral prominences, especially the former well marked, depression between deep; shining, punctation fine and shallow, indistinct toward apex; entirely piceous except for pale margin and apex; apical pattern differing from broad, pale apical margin of *circumdata* by having a somewhat scalloped outline. Body beneath finely pubescent, meso- and metasterna and abdomen dark brown or piceous, sometimes femora of hind legs piceous, anterior legs and tibiae and tarsi of hind legs paler, epipleura usually pale.

Length.—3 to 4 mm.; width 1.8 to 2 mm.

Type locality.—Carolina.

Distribution.—Maryland, North Carolina, "Carolina," Georgia, Florida, Alabama, Louisiana, Tennessee, Arkansas.

Specimens from Florida in the National Museum differ from the typical form by having elytra almost entirely black with only the

extreme apex pale. Another series of specimens from Florida are entirely deep chocolate brown in color, with no distinctly paler margins or apex.

Oedionychis obsidiana in its typical black form has long been confused with *quercata*.²¹ Both species were described by Fabricius, *obsidiana* as shining black with margin of thorax and tip of elytra and legs pale, and *quercata* as with head and thorax ferruginous and elytra black, with a ferruginous margin. Olivier gives two figures²² showing these differences. The most striking characters of *obsidiana* are its darker head and pronotum and its typically pale apical pattern and paler legs. It differs also in having larger, more closely set eyes. In *quercata* the interocular space is about half the width of the head, whereas in *obsidiana* it is less than half, approaching one-third the width of head. The elytra in *obsidiana* are not so wide and rounded and the rounded callosity at base of each elytron at scutellar angle is very prominent. The punctation is finer and the surface more shining.

A cotype was examined by the writer in the Bosc collection at Paris.

OEDIONYCHIS OBSIDIANA FLAVA, new variety

Head more or less piceous even in palest forms, pronotum with dark blotches, usually in form of two oblique marks on either side, variable in size, elytra very variable in pattern, sometimes pale yellow with piceous spots on humeral prominences, sometimes this dark marking extending across base of elytra, spots laterally and medially, frequently uniting to form band across middle of elytra, and usually a band or remnant of band at apical fifth.

Type and 20 paratypes.—Cat. No. 29159, U.S.N.M.

Type locality.—Mobile, Ala.

Distribution.—Alabama, Louisiana, Tennessee, Illinois, Arkansas, and Kansas.

Described from 21 specimens in the National Museum from Alabama, Louisiana, Tennessee, and Arkansas.

This pale form intergrades with typical *obsidiana* through specimens with spots and fasciae of varying width, the elytra sometimes being almost entirely piceous except for yellow streaks or spots at basal third, again with three broad fasciae across elytra resembling in pattern *Oedionychis scalaris*. It was described and figured by Horn as a color variety of *quercata*.²³ A series of specimens from Alabama, also two from Arkansas in the National Collection, show a perfect gradation of pale yellow forms to typical black *obsidiana*.

²¹ Horn, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 194.

²² Ent., vol. 6, p. 691, pl. 2, fig. 32, and pl. 3, fig. 40.

²³ Horn, Trans. Amer. Ent. Soc., vol. 16, 1889, pl. 6, fig. 4.

A most striking characteristic holding throughout the series is the apical pattern. In the pale forms there is a band at the apical fifth with scalloped outline, the apex always pale. In typical *obsidiana* this scalloped apical pattern is nearly always present. The yellow variety appears to be a more southern and perhaps inland form, all specimens examined occurring in Alabama, Louisiana, Tennessee, Illinois, Arkansas, and Kansas. Typical black *obsidiana* occurs in Florida, North Carolina, and Maryland, as well as westward to Alabama and Arkansas.

Specimens of the typical *obsidiana* have been collected near Baltimore, Md., by W. A. Hoffman, feeding on *Ilex verticillata* and *Euonymus americanus*. W. D. Pierce collected the yellow variety on *Ilex opaca* and oak, and R. A. Cushman collected it also on *Vaccinium virgatum*.

33. OEDIONYCHIS SCALARIS Melsheimer

Figs. 42, 43, 44, 45

Oedionychis scalaris MELSHEIMER, Proc. Acad. Philadelphia, vol. 3, 1847, p. 163.

Oedionychis lobata LECONTE, Col. Kaus., 1859, p. 24.

Oedionychis scalaris CROUCH, Proc. Acad. Philadelphia, vol. 25, 1873, p. 63.—
HORN, Trans. Amer. Ent. Soc., vol. 16, 1889, p. 194.

Broadly oblong-oval, feebly shining, yellow brown; elytra usually three-banded, varying from lightly blotched or even subvittate with only remnants of reddish brown bands to almost entirely piceous. Antennae slender, about half length of body, third joint sometimes slightly shorter than fourth, basal joints pale yellow, terminal darker. Head faintly and finely punctate, usually a dark spot on occiput, median groove distinct; eyes very large and closely set, interocular space less than half, approaching one-third width of head. Pronotum nearly three times as wide as long, with broad, explanate margin, arcuately narrowed anteriorly, very faintly and finely punctate; usually immaculate, in darker forms indeterminate darker markings on either side. Scutellum small, varying from yellow brown to piceous. Elytra broadly oblong-oval with distinct basal callosities near suture and umbone prominences and well-marked depression between, and with wide, slightly reflexed, explanate margin; punctations dense but shallow, coarser at base; pattern on elytra usually consisting of wide sutural vitta not reaching apex and three transverse bands of irregular outline near base, at middle, and at apical three-fourths, usually broadening at ends, these fasciae and sutural vitta often disappearing in part and leaving in lighter specimens irregular blotches, or in darker specimens widening to cover a large part of elytra; margin and apex nearly always unmarked. Body beneath finely pubescent, meta- and mesosterna and abdomen darker than legs, last ventral segment usually lighter; epipleura pale.

Length.—4 to 5.5 mm.; width 2 to 2.5 mm.

Type locality.—Pennsylvania.

Distribution.—Massachusetts, western New York, Pennsylvania, Indiana, Iowa, Michigan, Missouri, Mississippi, Louisiana, Georgia, Florida, and Texas.

This is a most variably marked species, to be distinguished by its large, closely set eyes, its rather short and broad pronotum, and broadly oblong elytra. It is to be separated from the banded forms of *obsidiana* var. *flava* by its relatively larger size and coarser punctation. Specimens examined from Florida present an unusually varied pattern in elytral markings. They are all of the same proportions and have the distinguishing character—the large, closely set eyes.

W. S. Blatchley collected this species at Florida on some species of Ericaceae.

34. OEDIONYCHIS DURANGOENSIS Jacoby

FIG. 46

Oedionychis durangoensis JACOBY, Biol. Cent.-Amer., Coleopt., vol. 6, pt. 1, Supplement, 1892, p. 318.

Broadly oval, feebly shining, yellow brown or drab, with five or six small black spots on each elytron. Antennae slender, half as long as body, third joint slightly shorter than fourth, first four and part of fifth basal joints and terminal joint paler. Head faintly punctate, more coarsely about eyes, with occiput nearly smooth; median groove indistinct, interocular space not half so wide as head; eyes large. Pronotum nearly three times as wide as long, with moderately wide explanate margin, arcuately narrowed anteriorly, very faintly punctate. Scutellum small, shining black. Elytra long and broadly oval, with wide, sometimes slightly reflexed explanate margin, and with basal callosities near suture and humeral prominences forming sulcus; finely and densely punctate; six small black spots on each elytron placed in two longitudinal rows: First row with spot on humerus, second near lateral margin at basal fourth, third near lateral margin slightly below the middle; second row with first spot in middle of elytron at base, second near suture at basal third, and third near suture, slightly below middle, in some specimens spots in middle at base missing. Body beneath yellowish brown, finely pubescent, epipleura pale.

Length.—5 to 6.2 mm.; width 3 to 3.5 mm.

Type locality.—Ventanas, Durango, Mexico.

Distribution.—Arizona.

This species is not closely related to any other North American *Oedionychis*. It is one of the largest of its group, *Oedionychis scalaris* alone approaching it in size. It is, however, quite distinct

in its shape and markings from *scalaris*. The most outstanding character is the very wide explanate margin. The type has been examined by me at the British Museum.

DOUBTFUL SPECIES

OEDIONYCHIS JOCOSA Harold

Oedionychis jocosa HAROLD, Col., Heft 15, 1876, p. 124.

Flava, capite, corpore subtus cum pedibus antennisque, thoracis macula transversa elytrorumque sutura et vitta laterali ferrugineis, thorace longitudine paullo plus quam duplo latiore. Long. 5 mm. North America.

OEDIONYCHIS LONGULA Harold

Oedionychis longula HAROLD, Deutsche Ent. Zeitschr., vol. 21, 1877, p. 434.

Oblonga, ferruginea, thorace flavo, obsolete punctato, ferrugineo-fasciato, elytris humeris intus non sulcatis asperulato sat dense punctulatis, sutura vittaque discoidali fusco-ferrugineis; epipleuris flavis, intus ferrugineis; antennis fuscis, articulis 1 — 3 rufescentibus, 3 quarto dimidio brevioribus. Long. 6½ mm. California.

OEDIONYCHIS HORNI Harold

Oedionychis horni HAROLD, Col., Heft 15, 1876, p. 124.

Ovalis, nitidula, capite ferrugineo, thorace elytrisque testaceis, illo fascia piceo-rufa, his dense et fortiter punctatis, sutura sat late vittaque lata margini approximata piceis, subtus picea, pedibus piceo-rufis. Long. 6 mm. Texas.

EXPLANATION OF THE PLATES

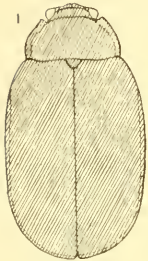
(All figures $\times 5$)

PLATE 1

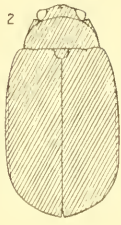
- FIG. 1. *Oedionychis violascens* LeConte.
 2. *lugens* LeConte.
 3. *concinna* (Fabricius).
 4. *vians* (Illiger).
 5. *rians* var. *badia* Blake.
 6. *discicollis* (Crotch).
 7. *thoracica* (Fabricius).
 8. *lateralis* Jacoby.
 9. *gibbitarsa* (Say).
 10. *flavocyanea* Crotch.
 11. *finbriata* (Forster).
 12. *interjectionis* Crotch.
 13. *aemula* Horn.
 14. *amplivittata* Blake.
 15. *tenuilineata* Horn.
 16. *petaurista* (Fabricius).
 17. *petaurista* var. *pallida* Blake.
 18. *miniata* (Fabricius).
 19. *miniata* (Fabricius).
 20. *ulkei* Horn.

PLATE 2

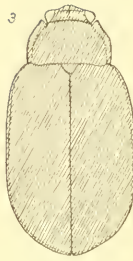
- FIG. 21. *Oedionychis indigopectera* LeConte.
 22. *thyamoïdes* Crotch.
 23. *thyamoïdes* Crotch.
 24. *tevana* Crotch.
 25. *flavida* Horn.
 26. *sallatra* Blatchley.
 27. *quercata* (Fabricius).
 28. *pervittata* Blake.
 29. *subvittata* (Horn).
 30. *subvittata* (Horn).
 31. *scæmaculata* (Illiger).
 32. *suturalis* (Fabricius).
 33. *nigrosignata* Schaeffer.
 34. *spilonota* Blake.
 35. *circumdata* Randall.
 36. *circumdata* Randall.
 37. *obsidiana* var. *flava* Blake.
 38. *obsidiana* var. *flava* Blake.
 39. *obsidiana* var. *flava* Blake.
 40. *obsidiana* var. *flava* Blake.
 41. *obsidiana* (Fabricius).
 42. *scalaris* Melsheimer.
 43. *scalaris* Melsheimer.
 44. *scalaris* Melsheimer.
 45. *scalaris* Melsheimer.
 46. *durangoensis* Jacoby.



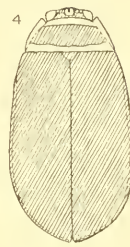
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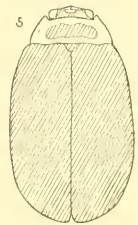
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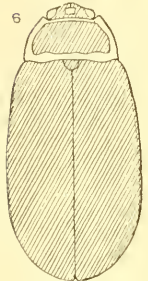
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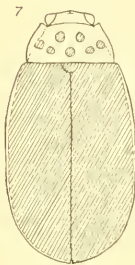
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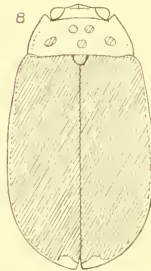
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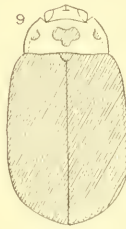
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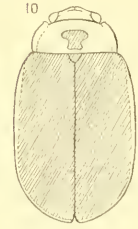
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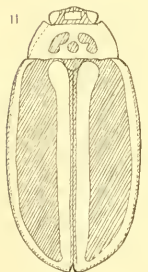
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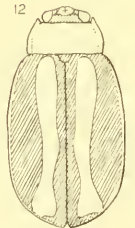
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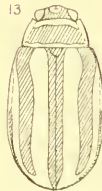
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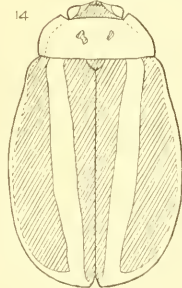
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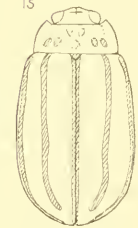
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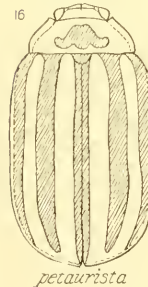
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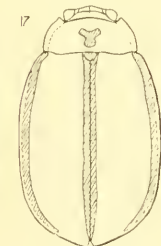
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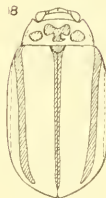
tenuilireata



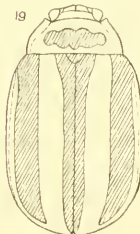
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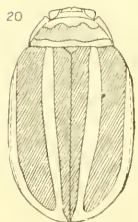
petaurista v. pallida



miniata



miriata



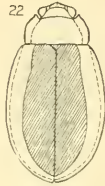
ulkei

NORTH AMERICAN BEETLES OF THE GENUS OEDIONYCHIS

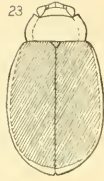
FOR EXPLANATION OF PLATE SEE PAGE 44



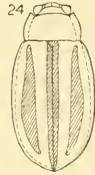
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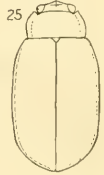
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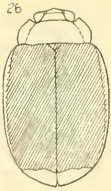
thymoides



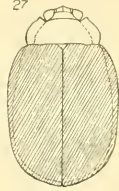
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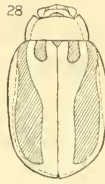
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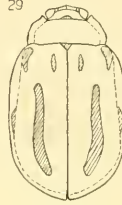
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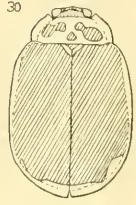
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pervittata



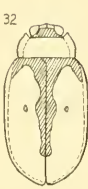
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subvittata



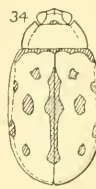
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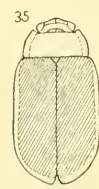
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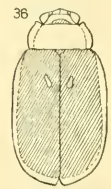
nigrosignata



spilonota



circumdata



circumdata



obsidiana
v. flava



obsidiana
v. flava



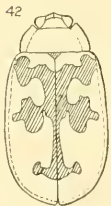
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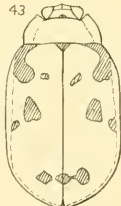
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v. flava



obsidiana



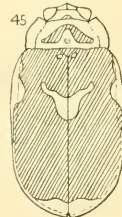
scalaris



scalaris



scalaris



scalaris



durangoensis

NORTH AMERICAN BEETLES OF THE GENUS OEDIONYCHIS

FOR EXPLANATION OF PLATE SEE PAGE 44