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## A REVIEW OF THE BEETLES OF THE GENUS *NEOBROTICA* AND SOME CLOSELY RELATED GENERA

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The genus *Neobrotica* was first described by Jacoby in the "Biologia Centrali-Americana" (Coleoptera, vol. 6, pt. 1, p. 571, 1887), who listed under it 21 species. Only one of these, *Diabrotica oberthüri* Baly, had been described previously. In the supplement published in 1892, Jacoby added three more species from Central America. In 1889 he published two new species of *Neobrotica* from South America. Weise added three, Bowditch two, and recently Bechyne ten more, all from South America. One from the United States (Arizona) was described by Fall. A few older species of Olivier and Fabricius have also been added to the genus thereby doubling the original number.

In Schenkling's "Coleopterorum catalogus" (1924, pt. 78, p. 103), Weise has taken the first species described by Jacoby under *Neobrotica*—*N. variabilis*—as the type of the genus, a rather unfortunate choice as Jacoby in a later publication assigned to *variabilis* a South American beetle different from the Mexican *variabilis*.

In his description of the genus, Jacoby (loc. cit.) gave the following generic characters to differentiate *Neobrotica* from related genera:



*Neobrotica* has entirely the appearance and in many instances the elytral pattern of *Diabrotica*. It might be easily mistaken for that genus unless the claws are examined, these being appendiculate in *Neobrotica* (instead of bifid as in *Diabrotica*); with this character a deeply sulcate thorax is generally combined. Several species described here offer a striking instance of so-called "mimicry" in regard to colour and markings of the elytra (and indeed of the antennae also), and in this respect agree in every particular with some forms of *Diabrotica*. As I have in several cases both sexes before me, there can be no question of sexual differences in regard to the structure of the claws, etc. The genus will no doubt include some species at present referred to *Diabrotica* and *Cerotoma*.

It is inevitable that some of the species under Jacoby's rather broad and general classification of a transversely sulcate prothorax, appendiculate claws, and open anterior coxal cavities should not be very close to the genotype as typified by *N. variabilis*. In a previous paper (Proc. U.S. Nat. Mus., 1958, vol. 108, no. 3395, pp. 59-102) I have shown that *N. sexplagiata* and *N. ruatinae* belong with the Galerucine beetles that have excised middle tibiae in the male. Others, the types of which I had not seen at that time, notably *N. pallida* Jacoby and *N. analis* Weise, also belong in the excised middle tibiae group. And there are still other species of Jacoby's that do not easily fit into the genus and belong elsewhere, although it is true that they fulfill the generic requirements as stated by Jacoby. None of the species described by Weise are in *Neobrotica*, and two of Bechyne's, *N. latifrons* and *N. lineigera*, belong to *Deutero-brotica*, a genus that Bechyne himself described.

In *Neobrotica*, as I am restricting the genus, the antennae are always filiform; the third joint is almost as long as the fourth, never longer, and not different in the sexes; the front of the head is not hollowed out but with a carina more or less distinct down the front. The frontal tubercles are distinct and usually with a median depression above them. The prothorax has an explanate margin usually obscured from view anteriorly when viewed from above; the disc has a transverse sulcus curving across the basal half; the elytra usually have traces of costae, in some groups more developed than in others and occasionally there is no sign of costation. The punctation tends to be feebly striate in the more costate species. The anterior coxal cavities are open and the claws appendiculate. The legs are moderately long; in the male the front tibiae are frequently stout and the first tarsal joint of the front feet is somewhat enlarged, but not so dilated as in some species of *Cerotoma*. The first joint of the hind tarsus is very long. The aedeagus is not a distinguishing factor in separating the species, as it varies little.

In markings, the head is most frequently dark at least over the occiput; the pronotum is almost always without dark markings; the



elytral pattern in many species is similar and consists of a dark spot more or less lengthened over the humerus; a dark area about the scutellum extending along the suture a little way and often connecting with a transverse median spot or circle of spots, and these dark markings may connect with the lateral dark mark from the humerus; after the middle there is often a lunate mark which may be separated into two spots near the apex. There is a group of species with short vittate markings along the side, down the middle of the elytra and along the suture. There are many variations in this basic pattern. A few species are entirely pale without any markings. One group of rather large pale species has elytral spots varying from two to twelve in number. Another group of pale species with distinct costae often has numerous small spots, usually placed in the typical pattern. The body beneath is usually pale with the breast often dark. *Neobrotica variabilis* is typical of the genus in its markings.

In the Bowditch collection of *Neobrotica* at the Museum of Comparative Zoology are a number of beetles to which Bowditch has attached manuscript names as new species of *Neobrotica*, evidently planning to describe them at a future date. The majority of these belong in a group closely related to *Neobrotica* but for which I believe a genus should be erected. They possess many characters common to both *Neobrotica* and *Eucerotoma*. They have the transverse sulcus across the prothorax, the appendiculate claws and the open anterior coxal cavities, which are common to both *Neobrotica* and *Eucerotoma* (in *Eucerotoma* the coxal cavities are not so widely open); but unlike *N. variabilis*, have strongly costate elytra, almost as strong as in *Eucerotoma*. Yet unlike *Eucerotoma* they do not have the excavated face and excavated antennal joints in the male; however, the lower front of the head goes a step towards the excavate face of *Eucerotoma* in being bent inwards and is without the carina down the lower front that is found in *Neobrotica*. It is true that in most species of *Neobrotica* there are more or less evident traces of costation, but not to the degree of these beetles, which in turn are not so strongly costate as in *Eucerotoma*. Like *Eucerotoma* they occur mostly in the Andes, but a few are from other parts of South America.

There is yet another group strongly suggestive of the genus *Cerotoma*, of which *N. denticornis* Jacoby is representative. Jacoby gave it its specific name because the third and fourth antennal joints in the male are cut out in a manner similar to that found in *Cerotoma*. These differ from species of *Cerotoma* in having the anterior coxal cavities open and they have a transverse sulcus across the prothorax. *N. denticornis* is only one of a fairly large group possessing these characteristics, that occurs in both Central and South America. Besides having the cut-out antennae, the front of the head is also



excavate in a manner similar to that found in the males of both *Eucerotoma* and *Cerotoma*. They differ from *Eucerotoma* in not having such costate elytra and in the long third antennal joint of the female. When compared with *N. variabilis*, however, they appear widely apart and far from being congeneric, and should be put in a separate genus.

Jacoby had only the female of the species that he named *Neobrotica vittatipennis*. Otherwise he would not have included that very different beetle in *Neobrotica*. It is unlike any that I know and deserves a generic place.

I have taken the opportunity here also to dispose of *Galeruca furcata* Olivier, a species that has been assigned to various genera from *Cerotoma* to *Neobrotica*, and recently placed by Bechyne in a genus he himself described as *Metrobrotica*. By Bechyne's definition of *Metrobrotica* "the third and fourth antennal joints of the male are of a very complicated build", which generic differentiation applies to his genotype *Cerotoma geometrica* Erichson but does not fit *Galeruca furcata* in which the antennae of both sexes are filiform.

Bechyne has transferred another species, *Neobrotica brasiliensis* Bowditch, from *Neobrotica* to *Andrector*. I have examined a female specimen he determined as *N. brasiliensis*, in the Frey Museum, and it is misidentified. As far as I know there is only one specimen of *N. brasiliensis* known—the type in the Museum of Comparative Zoology—and this is a female. There are two other species related to it, all three densely and quite coarsely punctate, all three with a broader prothorax than usual for *Neobrotica*, and all with closed anterior coxal cavities, but otherwise resembling *Neobrotica*. The antennae are like those found in *Neobrotica*, having the third joint no longer than the fourth, and the remaining joints gradually shorter. All three species are from the Amazon region. For these I am erecting the genus *Potamobrotica*.

Growing out of the study of this genus, *Neobrotica*, and its closely related genera, a second paper has been prepared to deal with some of the species that have been in the past relegated to *Neobrotica*, but having excised middle tibiae in the male. In this paper are treated such species as *Neobrotica pallida* Jacoby, *N. achroma* Bechyne, *N. analis* Weise, *N. latifrons* Bechyne and *N. lineigera* Bechyne. It is being published as "More New Galerucine Beetles with Excised Middle Tibiae in the Male" (Proc. U.S. Nat. Mus., 1966, vol. 118, no. 3528, pp. 233–266).

I wish to acknowledge the help I have had financially from the National Science Foundation in enabling me to visit museums in Europe and South America, both to study type specimens and to see and collect more material. The British Museum (Natural History)



(BMNH) and various museums in the United States have loaned me material, notably the Museum of Comparative Zoology (MCZ), the American Museum of Natural History (AMNH), and the California Academy of Sciences (CAS). John A. Wilcox of the New York State Museum has given freely his help in the classification of these difficult galerucine beetles. Gerhard Scherer has made notes and drawings of Bechyne's types in the Frey Museum collection at Tutzing, Germany.

### Key to the Genera of Galerucinae Here Treated

1. Head of male unlike that of female, with the front deeply excavated or with a median hole . . . . . 2  
Head of male similar to that of female . . . . . 5
2. Head of male with a small median hole over labrum.  
**Cyclotrypema**, new genus (p. 354)  
Head of male more or less deeply excavate or concave in front . . . . . 3
3. Third antennal joint of female usually longer than the fourth, rarely equal to it and never shorter . . . . . **Eccoptopsis**, new genus (p. 339)  
Third antennal joint of female equal to or shorter than fourth . . . . . 4
4. Male antenna with third joint only much widened and irregularly excised in middle, not at end . . . . . **Rachicephala**, new genus (p. 354)  
Male antenna with third and fourth joints widened and excised at adjoining ends . . . . . **Eucerotoma**
5. Anterior coxal cavities closed . . . . . **Potamobrotica**, new genus (p. 351)  
Anterior coxal cavities open . . . . . 6
6. Front of face with well-developed carina, elytral costae usually faintly developed.  
**Neobrotica**  
Front of face depressed with carina not much in evidence, elytral costation strong . . . . . **Hystiopsis**, new genus (p. 324)

### Key to North and Central American Species of *Neobrotica*

1. Elytra entirely pale or at most with faint humeral darkening . . . . . 2  
Elytra not entirely pale . . . . . 5
2. Head dark . . . . . 3  
Head pale . . . . . 4
3. Elytra strongly costate . . . . . **pallescent** Jacoby (p. 269)  
Elytra weakly costate . . . . . **modesta** Jacoby (p. 292)
4. Elytra strongly costate . . . . . **semicostata** Jacoby (p. 296)  
Elytra weakly costate . . . . . **inconspicua** Jacoby (p. 297)
5. Head pale with a median occipital spot . . . . . 6  
Head either pale or dark but without occipital spot . . . . . 7
6. Elytra with lateral vittate marking and two short median vittae on each elytron . . . . . **spilocephala**, new species (p. 287)  
Elytra without lateral vittate marking and with six spots on each elytron.  
**oblongo punctata** Jacoby (p. 308)
7. Elytra with a basal and apical, sometimes median, fascia . . . . . 8  
Elytra with spots, sometimes lunate, or vittate markings . . . . . 14
8. Basal fascia extending below middle of elytra.  
**cartwrightii**, new species (p. 281)  
Basal fascia not extending below middle of elytra . . . . . 9



9. Elytra with two fasciae . . . . . 10  
    Elytra with three more or less distinct fasciae . . . . . 12
10. Elytral fasciae piceous . . . . . **piceofasciata**, new species (p. 280)  
    Elytral fasciae bluish or violaceous . . . . . 11
11. Elytra strongly costate . . . . . **zonata**, new species (p. 281)  
    Elytra weakly costate . . . . . **coeruleofasciata** Jacoby (p. 278)
12. Basal fascia not connected with median fascia . . **simulans** Jacoby (p. 290)  
    Basal fascia more or less connected with median . . . . . 13
13. Median fascia not connected with apical fascia.  
    . . . . . **hondurensis** Jacoby (p. 290)  
    Median fascia connected along side and suture with apical fascia.  
    . . . . . **pterota**, new species (p. 291)
14. Elytra with a lateral vitta from humerus to apical curve . . . . . 15  
    Elytra with a humeral spot or short vitta not extending to apical curve or  
    dark area in middle of elytra . . . . . 17
15. Head pale . . . . . **duodecimsignata**, new species (p. 286)  
    Head dark . . . . . 16
16. A median vitta, sometimes interrupted . . . . . **oberthüri** (Baly) (p. 284)  
    No median vitta . . . . . **melanocephala** Jacoby (p. 287)
17. Elytra with a dark basal ring, more or less unbroken, enclosing a pale  
    area . . . . . 18  
    Elytra with basal spots or vittate markings . . . . . 22
18. Elytra very strongly and coarsely punctate . . **punctatissima** Jacoby (p. 288)  
    Elytra not so coarsely punctate . . . . . 19
19. Elytra dark with a basal round pale area and an apical rounded pale area  
    open at apex . . . . . **quadriplagiata** Jacoby (p. 289)  
    Elytra pale with a more or less complete dark apical as well as basal  
    ring . . . . . 20
20. Basal ring and usually apical ring complete . . . . **ornata** Jacoby (p. 277)  
    Basal and apical ring not usually complete . . . . . 21
21. Legs pale . . . . . **noumenia**, new species (p. 276)  
    Legs with tibiae and tarsi dark . . . . . **variabilis** Jacoby (p. 273)
22. Elytra with basal vittae . . . . . 23  
    Elytra with basal spots . . . . . 27
23. Elytra with 3 short basal vittae joined across base, one down the side, one  
    at middle and another at suture . . . . . **dentata**, new species (p. 277)  
    Elytra with a short basal and sutural or subsutural vitta . . . . . 24
24. Elytra with a short lateral and short subsutural basal vitta.  
    . . . . . **linigera** Jacoby (p. 285)  
    Elytra with a short lateral and a short sutural basal vitta . . . . . 25
25. Elytra with a spot at apical curve . . . . . **trichops**, new species (p. 283)  
    Elytra with a short vitta at apical curve . . . . . 26
26. Large, a large median apical spot and a short lateral apical vitta.  
    . . . . . **imitans** Jacoby (p. 274)  
    Small, a small median apical spot and a long lateral apical vitta.  
    . . . . . **coeruleolineata** Jacoby (p. 282)
27. Head dark . . . . . 28  
    Head pale . . . . . 29
28. Large, 7 mm. each elytron with three small spots (not counting the dark  
    scutellum) . . . . . **septemmaculata**, new species (p. 298)  
    Small, 5 mm. each elytron with 5 small spots (not counting the dark  
    scutellum) . . . . . **undecimmaculata** Jacoby (p. 275)



- |     |                                                                       |                                              |
|-----|-----------------------------------------------------------------------|----------------------------------------------|
| 29. | Each elytron with 4 spots (not counting dark scutellum).              |                                              |
|     |                                                                       | <b>pentaspilota</b> , new species (p. 299)   |
|     | Each elytron with more than 4 spots . . . . .                         | 30                                           |
| 30. | Each elytron with 5 spots (not including dark scutellum) . . . . .    | 31                                           |
|     | Each elytron with 6 spots or more . . . . .                           | 33                                           |
| 31. | A large spot in middle near base and a small spot below humeral spot. |                                              |
|     |                                                                       | <b>decimsignata</b> , new species (p. 297)   |
|     | No large median spot near base or small spot below humeral spot . . . | 32                                           |
| 32. | Large, claws with a long inner tooth . . . . .                        | <b>quinquepunctata</b> (Jacoby) (p. 300)     |
|     | Smaller, claws without inner tooth . . . . .                          | <b>schausi</b> , new species (p. 275)        |
| 33. | Each elytron with 6 spots . . . . .                                   | 34                                           |
|     | Each elytron with 7 spots . . . . .                                   | 35                                           |
| 34. | Strongly costate . . . . .                                            | <b>sexmaculata</b> Jacoby (p. 293)           |
|     | Feebly costate . . . . .                                              | <b>tampicensis</b> , new species (p. 295)    |
| 35. | Elytral punctures contiguous. . . . .                                 | <b>matamorasensis</b> , new species (p. 294) |
|     | Elytral punctures not contiguous . . . . .                            | <b>pluristieta</b> Fall (p. 294)             |

*Neobrotica variabilis* Jacoby

## FIGURES 1, 2

*Neobrotica variabilis* Jacoby, in Godman and Salvin, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, p. 572, 1887; Proc. Zool. Soc. London, p. 286, 1889. [Not *variabilis*.]

About 7 mm. in length, elongate oblong oval, somewhat shining, the elytra indistinctly alutaceous and semistriately punctate between the faint costae; pale yellow brown with the head piceous, the lower front of head brownish, antennae with the intermediate joints faintly brownish, elytra with piceous markings about the scutellum, on humeri, and along side, curving about towards the suture, and a narrow, somewhat curved apical band.

Head with the interocular space approximately half width of head, occiput piceous, the front reddish brown. Antennae pale with joints five to eight brownish and the tip of the terminal joint dark. Prothorax with rounded sides and well defined transverse sulcus, finely and not densely punctate, pale yellowish brown. Scutellum brownish. Elytra wider in apical half, indistinctly alutaceous, the punctation tending to be striate between the feebly marked costae. In the type, a piceous marking from humerus down along side about one-third the length of the elytra, then curving across to the suture and nearly meeting a scutellar dark marking that extends shortly down the suture; in the apical half a somewhat curved piceous marking. In the variety, the markings in basal half of the elytra are broken up into a humeral dark spot, a dark area about the scutellum, and two spots across the elytron before the middle, and in the apical half a rather broad semilunate dark marking. Body beneath with the breast dark, rest of the undersurface pale, legs pale, with outside of tibiae brownish in the type, and in the variety the tibiae and tarsi dark. Length of type 7 mm., width 3.5 mm.



Type, female, BMNH; type of variety, female, Bowditch collection, MCZ; both collected by Höge in Jalapa, Mexico.

Remarks: The two specimens from Jalapa, Mexico, one of which Jacoby named a variety, are probably the same species. But Jacoby in 1889 described briefly two specimens collected at Coroza, Venezuela, that he stated agreed in every way with the Mexican specimens except in the color of the legs and antennae, which were entirely pale in the Venezuelan specimens. The writer has examined one of these Venezuelan specimens that is in the Bowditch collection (MCZ) and believes it different and is describing it as a new species. Weise has selected *Neobrotica variabilis* as the type of the genus.

*Neobrotica imitans* Jacoby

FIGURE 9

*Neobrotica imitans* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 573, 1887.

Between 5.5 and 7 mm. in length, elongate oblong oval, shining, faintly alutaceous; body pale yellow brown, the antennae and legs entirely pale, the head, breast and spots on the elytra piceous.

Head with the interocular space less than half width of the head, shining piceous, the occiput with faint punctures and a median depressed spot above the frontal tubercles, a short carina down lower front. Antennae entirely pale. Prothorax not twice as wide as long, with rounded sides and a transverse sulcus, very finely punctate, faintly alutaceous, pale yellow brown. Scutellum deep brown. Elytra widened in apical half, rather densely, coarsely and shallowly punctate, the punctures tending to be striate, very faint traces of costae; pale yellow brown with a long inwardly curving black vitta from humerus about one-fourth the way down elytra; another vitta from about scutellum down the suture a short way, a triangular spot near these in the middle and before the apex a median and a lateral spot. Body beneath and legs pale with the breast dark. Length 5.5–7 mm.; width 2.7–3.5 mm.

Type, male; one female paratype; both BMNH; one female paratype, MCZ; all from Costa Rica, collected by Van Patten.

Other localities: Coronado, Costa Rica, 1400 m., 1932, collected by Nevermann.

Remarks: The three specimens of the series collected in Costa Rica by Van Patten are all very much alike. A specimen from the Baly collection without a legible locality is in the British Museum. As Jacoby writes, this species strongly resembles *Diabrotica novemmaculata* Jacoby in its elytral pattern.



*Neobrotica undecimmaculata* Jacoby

FIGURE 6

*Neobrotica undecimmaculata* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 575, 1887.

Between 5 and 6 mm. in length, elongate oblong oval, faintly shining, alutaceous, the elytra finely and not densely punctate, head on top, tibiae, tarsi, and breast piceous, elytra with reddish brown to piceous spots on the humeri, two transversely across elytron before the middle and two after the middle.

Head with the interocular space about half the width of the head, occiput shiny piceous, very minutely punctate, a median depression above the well-marked frontal tubercles, carina down front, lower front to labrum which is dark, pale reddish brown. Antennae with the three basal and three apical joints pale, the rest dark brown. Prothorax not twice as broad as long with a transverse sulcus most marked at the sides; sides nearly straight, surface finely punctate, pale. Scutellum either reddish brown or piceous. Elytra finely alutaceous and unusually finely punctate, with two or three feeble lateral costae, pale with reddish brown to piceous markings, the spots small and located as above; on the British Museum specimen a dark area about the scutellum and extending a little way down the suture, the specimen in the Bowditch collection without this. Body beneath pale with the breast dark; tibiae and tarsi dark, femora pale. Length 5.7 mm.; width 2.9 mm.

Type, male, MCZ; one female paratype, BMNH; both from Jalapa, Mexico, collected by Höge.

Other locality: Xilitla, Mexico, Dreisbach, July 23, 1954, Monrós collection, USNM.

Remarks: The dark head and unusually fine punctation of the elytra distinguish this species from many others with similar markings.

*Neobrotica schausi*, new species

FIGURE 5

About 6.5 mm. in length, elongate oblong oval, faintly shining and faintly alutaceous, the elytra with costae most marked in the middle of the elytra, finely punctate; pale yellow brown, somewhat deeper in color over the occiput but not at all piceous, the elytra with small reddish-brown humeral spot, two small spots before and two after the middle of each elytron, body beneath entirely pale.

Head with interocular space less than half width of head, a small median depression over the well-marked frontal tubercles and a short carina down the short lower front, occiput of head a shade deeper in color than the lower front but not at all piceous. Antennae with the



terminal joints missing, the basal joints a little paler than the reddish brown outer joints, third and fourth joints subequal. Prothorax with a transverse sulcus, surface alutaceous, finely punctate. Scutellum deeper reddish brown. Elytra with distinct costae, more marked from the middle to the side, punctation fine and confused; surface alutaceous; elytra pale yellow brown, each with five small reddish-brown spots, one on the humerus, one below on the side before the middle and the second lateral one near the apical curve, opposite this and near the suture two other spots. Body beneath entirely pale, the tibiae and tarsi a deeper reddish brown, front tibiae and first tarsal joint of male enlarged. Length 6.5 mm.; width 3.2 mm.

Type, male, AMNH, from Jalapa, Mexico, collected by W. Schaus.

Remarks: Possibly some specimens have a piceous head and piceous elytral spots, but the single male known appears to be a mature specimen and differs from *N. undecimmaculata* Jacoby in having a pale head and breast and a narrower interocular space. Both are from Jalapa, Mexico.

*Neobrotica noumenia*, new species

FIGURE 3

Between 6.5 and 7.5 mm. in length, elongate oblong oval, moderately shiny although feebly alutaceous, the elytra strongly and densely punctate, and feebly costate; pale yellow with dark upper half of head and dark mouthparts, entirely pale legs and antennae and brown breast, elytra with a dark humeral spot and narrow transverse fascia below, a narrow dark sutural line a little below scutellum, and a slender semilunate dark mark near apex, these dark markings sometimes with a purplish lustre.

Head with interocular space less than half width of head, shiny piceous over occiput, pale in lower front with the mouthparts dark, very finely punctate, the frontal tubercles distinct and a median depression above them, a narrow carina down lower front. Antennae entirely pale yellow. Prothorax only a little wider than long with slightly rounded sides and a transverse sulcus, very finely alutaceous, entirely pale yellow. Scutellum tan colored. Elytra with costate wrinkling, densely and distinctly punctate and with a tendency to being geminate striate punctate, faintly alutaceous; a piceous or deep purplish marking on humerus, a transverse fascia not quite across the elytron, interrupted at the suture, and a short narrow sutural vitta, also a narrow semilunate mark near apex. Body beneath entirely pale except brownish breast, legs pale, a spine on middle and hind tibiae. Length 6.7–7.5 mm.; width 3.3–3.7 mm.

Type, female, MCZ 30665; one female paratype, USNM; both from Cuernavaca, Mexico. One specimen from Cuernavaca, Aug. 30, 1944, on *Eupatorium adenophorum*, collected by N.L.H. Krauss.



Other localities: Escuintla, Guatemala, F. Knab, collector.

Remarks: On one of the specimens is an old label, *Diabrotica biannularis* Harold, a species that it strongly resembles in its elytral markings. There are three specimens, all females, in the MCZ with no locality label. They all have delicate narrow dark markings. The faint purple lustre of some is suggestive of *N. coeruleolineata* Jacoby, but I have not seen specimens of *N. noumenia* with a long stripe from the shoulder.

*Neobrotica dentata*, new species

FIGURE 7

About 7 mm. in length, elongate oblong oval, shining, the elytra faintly alutaceous and distinctly and somewhat striately punctate, with faint lateral costae; pale yellow brown, the head entirely piceous and the elytra with wide dark humeral, median and sutural vittae united at the base and not extending to the middle of the elytra, a wide dark lunate mark at apex, sometimes divided into two spots, the legs, antennae and undersurface except the dark breast, pale.

Head with interocular space less than half the width of head, occiput finely punctate, a depression above the frontal tubercles and a narrow carina down front; entirely piceous. Antennae entirely pale yellow brown. Prothorax about a third wider than long with rounded sides, finely punctate, a transverse sulcus and shining pale yellow brown. Scutellum dark brown. Elytra shining although faintly alutaceous, distinctly and somewhat geminately striate punctate, some traces of lateral costae, pale yellow with a dark marking having a faint bluish lustre, a broad darkening in basal fourth of elytra with very narrow pale inlets in middle and at suture in lower part, and a wide semi-circular mark opening at the apical end and at apex. Body beneath and legs entirely pale except for the black breast. Length 6.5–7.2 mm.; width 2.7–3.5 mm.

Type, female, USNM 66845, from San José, Costa Rica, collected by J. F. Tristan. Specimens also from San José, 1000–1200 m., collected by F. Nevermann, and by M. Valerio, Sept. 17, 1930, on *Chamaedorea*.

Remarks: The unusual elytral markings of this species differentiate it from the others. It was collected at San José, Costa Rica, by three different collectors. The specimen collected by M. Valerio is in the MCZ.

*Neobrotica ornata* Jacoby

FIGURES 23, 24

*Neobrotica ornata* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 572, 1887.

From 5 to 7 mm. in length, elongate oblong oval, feebly shining,



alutaceous, the elytra with three or four faintly marked short costae, head dark with the front paler, antennae with the intermediate joints darker; legs, pronotum and body beneath, except the breast, pale; elytra with a dark basal ring and a dark apical one, the middle of the ring being pale, apical ring sometimes not complete.

Head with interocular space a little less than half width of head, frontal tubercles well marked, a median depression above, occiput finely punctate, a narrow carina running down the front, the top of the head piceous, lower front deep reddish brown, sometimes even pale yellow, with the mouthparts dark. Antennae pale at base and apex, joints five to eight usually deeper brown. Prothorax somewhat wider than long with slightly curved sides and a transverse depression, alutaceous and very finely punctate, entirely pale yellow. Scutellum pale or reddish brown. Elytra with feeble costae, alutaceous and rather coarsely punctate, entirely pale yellow with a large basal and apical ring that is sometimes slightly purplish, the apical ring occasionally not complete on the apical side towards suture. Body beneath pale with the breast dark, legs pale, hind tibiae with spine, anterior coxal cavities open, claws appendiculate. Length 5-7 mm.; width 2.5-3.5 mm.

Type, BMNH; three paratypes, MCZ; all from Tapachula in Chiapas, Mexico.

Other localities: Tuxtla, Teapa, Tabasco, Mexico, collected by Sallé, H. H. Smith, and Höge; Cordova, Vera Cruz, Mexico, collected by Höge, A. Fenyès, and F. Knab; Rio Antonio, Oaxaca, Mexico, F. Knab, collector. Escuintla, Guatemala, and Izalco, Salvador, both collections by F. Knab. Turrialba, Costa Rica, O. L. Cartwright, collector, June 1951. Barro Colorado Island, Canal Zone, S. W. Frost, collector; El Valle, Canal Zone, N. L. H. Krauss, collector; Porto Bello, Canal Zone, Busck, Jennings, collectors.

Remarks: Jacoby wrote that this species resembles *Diabrotica biannularis* Harold in its elytral markings. In one specimen from Teapa, Mexico, he wrote that the rings were connected along the side by a dark line. I have examined one specimen marked like this which bears solely the locality label "Mexico" and is a female, now in the Bowditch collection at the Museum of Comparative Zoology.

*Neobrotica coeruleofasciata* Jacoby

FIGURES 19, 20

*Neobrotica coeruleofasciata* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 575, 1887.

About 5.5 mm. in length, elongate oblong oval, shining, the elytral punctation strong and semistriate, faint traces of costae along the sides, pale yellow, the head entirely dark, the breast piceous, antennal joints



five to eight deeper in coloring; elytra with a wide blue fascia at the base and another large roundish area near the apex which is excavate at the apical end.

Head with the interocular space less than half width of head, occiput shining, impunctate, carina narrow, not much elevated, with punctures on the lower front, and a depression above the frontal tubercles. Antennae pale yellow with joints five to eight deeper brown. Prothorax with the sides only slightly rounded, a sulcus across, alutaceous and finely punctate, pale yellow. Scutellum dark. Elytra with a wide dark blue basal fascia and a large rounded spot below the middle on each elytron joined at the suture; punctation dense and semistriate, with faint costae. Body beneath pale except for the dark piceous breast, legs entirely pale. Length 5.7 mm.; width 2.8 mm.

Type, male, BMNH; one paratype; both from Caldera, Panama, collected by Champion; two others from the Volcan de Chiriqui, also collected by Champion.

Remarks: In the British Museum are four specimens, two from Caldera, two from the Volcan de Chiriqui, that are of the same species. Jacoby listed under *N. coeruleofasciata* other specimens from Bugaba and Tolé that are not the same. He appeared doubtful about these as he noted that the space between the eyes was different. These are described under *N. confusa* and *N. piceofasciata*.

There are several specimens from Costa Rica that may be of this species also, although the markings are somewhat different in two of the three. In the Bowditch collection is a specimen from San Carlos, Costa Rica, collected by Schild and Burgdorf and also one in the U.S. National Museum of the same label, and another from Bataan, Costa Rica, collected by M. Stelzer; one of the San Carlos specimens and the Bataan specimen have only the outer half of the elytron covered with a dark violaceous spot. Otherwise these appear to be like Jacoby's *coeruleofasciata*.

*Neobrotica confusa*, new species

FIGURE 21

*Neobrotica coeruleofasciata* Jacoby (in part), in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 575, 1887.

About 7 mm. in length, elongate oblong oval, moderately shiny although alutaceous, elytra with numerous feeble costae, distinctly and irregularly striate punctate, head and breast dark, antennae, pronotum, legs and rest of undersurface yellow; the elytra yellow with a broad dark basal fascia having metallic blue or green lustre and sometimes enclosing a small pale spot; another broad fascia near the apex that is sometimes lunate; sometimes these fasciae represented only by a lunate basal and apical marking.



Head with the interocular space nearly half the width of head, frontal tubercles distinctly marked and with a median depression above them, a distinct carina down the lower front, the occiput finely punctate, entirely shining piceous. Antennae pale. Prothorax somewhat wider than long with a transverse sulcus, very finely punctate and finely alutaceous, entirely pale. Scutellum dark. Elytra strongly, densely and semistriately punctate and feebly costate, a broad dark basal fascia with a metallic green lustre extending one-third the length of the elytra and enclosing a small round pale spot in the middle, and at the apex another roundish dark fascia with the apex hollowed out as if the opening of an apical ring. Body beneath pale, except the breast, legs pale. Length 6–8 mm.; width 3.1–3.8 mm.

Type, ?female, MCZ 30668, from Bugaba, Panama, collected by Champion.

Other localities: Porto Bello, Canal Zone, A. Busck, E. A. Schwarz, collectors; Ancon, Canal Zone, A. H. Jennings, collector; El Valle, Canal Zone, N.L.H. Krauss, collector; Cabima, Canal Zone, A. Busck, collector; Muso, Colombia.

Remarks: Jacoby noted that there was a difference in the interocular space between some of the specimens that he had assigned to the species *N. coeruleofasciata*, the two from Bugaba having a wider interocular space as well as somewhat different elytral markings. There are other specimens in the U.S. National Museum from the Canal Zone and one from Colombia that resemble the Bugaba specimens. They are in general a little larger than *N. coeruleofasciata*.

***Neobrotica piceofasciata*, new species**

FIGURE 27

*Neobrotica coeruleofasciata* Jacoby (in part), in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 575, 1887.

About 7 mm. in length, elongate oblong oval, shining, the elytra rather coarsely punctate, head dark, thorax pale, elytra pale with a wide piceous basal band and another below the middle; antennae, legs and undersurface except the dark breast, pale.

Head with the interocular space less than half the width of head, occiput polished, finely punctate, tubercles distinctly outlined, a small depression above them; the carina distinct, with punctures on either side, head entirely piceous. Antennae pale yellow brown, the terminal joint tipped with piceous. Prothorax with the sides nearly straight, not deeply sulcate across, shining, finely punctate, pale yellow. Scutellum dark. Elytra with distinct short intrahumeral sulcus; punctures strong, tending to be geminate, pale yellow with a broad basal piceous fascia and another below the middle, the apex pale.



Body beneath pale with the breast dark, legs entirely pale. Length 7 mm.; width 3.5 mm.

Type, female, BMNH, from Tolé, Panama, collected by Champion.

Remarks: This is one of the specimens under *N. coeruleofasciata* Jacoby in the British Museum collection. *N. piceofasciata* is, however, a distinct species, differing from *coeruleofasciata* in several points: the space between the eyes is less, the antennae are shorter and entirely pale, except for the tip, in contrast to the bicolored ones of *coeruleofasciata*. In addition, the elytral markings are piceous, without metallic lustre, and the beetle is larger and without costae. The apical spot on the elytra is not at all emarginate at the lower end.

*Neobrotica zonata*, new species

FIGURE 22

About 7 mm. in length, elongate oblong oval, shining, the elytra distinctly but not deeply costate, the interspaces with geminate striate punctation; pale yellow with a piceous head, and the elytra with a wide deep blue basal fascia having in the middle of each elytron a small pale spot, and a curved dark blue fascia before the apex, the antennae, legs and undersurface except the piceous breast, pale.

Head with interocular space about half width of head, occiput smooth, shining, a median depression over the frontal tubercles and a fovea on either side, a narrow carina down lower front, head shining black. Antennae with only eight joints, the rest missing, pale yellow brown. Prothorax not quite twice as broad as long with rounded sides, a distinct transverse sulcus, surface with a few fine punctures, faintly alutaceous, pale yellow, shining. Scutellum pale. Elytra wider in apical half, strongly but not deeply costate, the costae not much raised but smooth and broad, the interstices with rather coarse geminate striate punctures, surface finely alutaceous but shining; markings of deep violet blue, a basal fascia with a pale spot in the middle and an apical one, somewhat curved, near the apical end, apex pale. Body beneath and the neck of the head pale, but the breast shining piceous, legs entirely pale. Length 7 mm.; width 3 mm.

Type, female, BMNH, from Guatemala.

Remarks: Jacoby has attached a label to this "*?ornata*". It is with markings and coloration somewhat similar to *N. ornata*, but the elytra are more costate.

*Neobrotica cartwrighti*, new species

FIGURE 25

About 7.5 mm. in length, elongate oblong oval, shining, the elytra distinctly but not strongly costate with the intervals densely geminate



striate punctate; yellow with a black head and breast, brown tibiae and tarsi, the elytra with a wide dark blue fascia in the basal half and another narrower one in the apical half, the intervening pale fascia narrow, the apex and margin pale.

Head with the interocular space approximately half width of head, a median depression above, frontal tubercles distinct, and a narrow carina down the lower front, occiput smoothly rounded, shining, very finely punctate, entire head black. Antennae with the basal and apical four joints pale. Prothorax wider than long with slightly rounded sides and a transverse sulcus, polished, a few very fine punctures, yellowish brown. Scutellum tan colored. Elytra shining, although faintly alutaceous, with strong geminate striate punctation between the rather feeble costae; a broad steel blue fascia covering basal half of elytra, then a narrow pale yellow fascia and in the apical half another narrower dark blue fascia, the apex and margin pale. Body beneath very lightly pubescent, pale yellow with the breast dark, the femora pale, the tibiae and tarsi dark brown. Length 7.4 mm.; width 3.6 mm.

Type, female, USNM 66847; one female paratype; both from Turrialba, Costa Rica, May 28 and June 5, 1951, respectively, collected by O. L. Cartwright.

Remarks: The large size and the dark blue fasciae on the elytra readily distinguish this species. I take pleasure in naming it after its collector.

*Neobrotica coeruleolineata* Jacoby

FIGURE 8

*Neobrotica coeruleolineata* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 753, 1887.

Between 5 and 7 mm. in length, elongate oblong oval, feebly shining, alutaceous, the elytra strongly, densely and semistriately punctate between the feeble elytral costae, head tending to be dark on occiput, sometimes entirely dark, intermediate joints of the antennae dark, prothorax, legs, body beneath pale, except breast, elytra with a long dark, slightly metallic blue or green vittate marking from the humerus a little way down the side, another from scutellum down the suture a way, a spot before and after the middle, and another lateral vitta at apical curve not joined with the humeral vitta; front tibiae in the male enlarged.

Head with the interocular space less than half width of head, frontal tubercles somewhat swollen, a median depression above them, a narrow carina running down the lower front, occiput smooth with a few very fine punctures, usually the upper half of head deeper in color from tan to piceous, lower front paler, labrum dark, sometimes entire



head pale or entirely dark. Antennae with the three or four basal and three apical joints pale. Prothorax somewhat wider than long with slightly curved sides and a transverse sulcus, surface shining, very finely punctate, entirely pale. Scutellum pale. Elytra dull alutaceous with distinct dense punctation, tending to be geminate striate between the feeble elytral costae, pale yellow with dark metallic markings about the scutellum down the suture at base, down the side from the humerus and along the apical curve, and two spots, one before and the other after the middle in the middle of each elytron. Body beneath pale with the breast darker, legs sometimes entirely pale, sometimes with a dark streak on the outside of the tibiae, front tibiae much enlarged in the male, and first tarsal joint large. Length 5.2–6.8 mm.; width 2.5–3.2 mm.

Type, male, MCZ; six paratypes, MCZ; 5 paratypes, BMNH; all from Teapa, Tabasco, Mexico, collected in March by H. H. Smith.

Other localities: Tepansacualco, Mexico, Sallé, collector, Tapachula, Mexico, Höge, collector; San Isidro, Guatemala, Champion, collector.

Remarks: The specimen from San Isidro, Guatemala, is a female with distinct costae, very dull alutaceous surface, entirely pale legs and only faintly darker intermediate joints of the antennae. The distinguishing marks of this species are the blue or greenish lateral vittate markings interrupted in the middle along the side of the elytra, and, in the male, the swollen front tibiae.

*Neobrotica trichops*, new species

FIGURE 4

Between 6 and 7 mm. in length, elongate oblong oval, feebly shining, elytra distinctly and densely punctate, with traces of costae, pale yellow, head with dark mouthparts and often dark about the eyes, elytra with a long dark humeral vitta with a greenish or violet lustre, and a narrow dark vitta at the base along the suture, a small median spot before and two small spots below the middle; tibiae with a dark streak, breast dark, intermediate joints of the antennae dark.

Head with the interocular space less than half the width of the head, eyes very large, frontal tubercles distinct with a median depression above, occiput smooth, a few hairs about edge of eyes, a narrow carina down front, a dark area usually about eyes and dark mouthparts. Antennae with the basal and apical joints paler than the intermediate ones. Prothorax somewhat wider than long with slightly curved sides and a transverse sulcus across, alutaceous, with a few fine punctures, pale. Scutellum pale. Elytra feebly shining, alutaceous, distinctly and densely punctate, tending to be geminate striate between the feeble traces of costae; pale yellow with long dark vitta, often having a violet or green lustre, from humerus down the



side of the elytra, in one specimen almost connecting with a spot at apical curve, a shorter narrow sutural vitta below the scutellum, and a small median spot before and one after the middle on each elytron. Body beneath pale with the breast dark, legs pale, the tibiae usually with a dark streak. Length 6.8–7.2 mm.; width 3–3.6 mm.

Type, male, USNM 66842; three paratypes (one in MCZ), all from Tucurrique, Costa Rica, collected by Schild and Bergdorf.

Other localities: Turrialba, Costa Rica, May 21, 22, 1951, and June 19, 1951, O. L. Cartwright, collector.

Remarks: E. A. Schwarz has labeled specimens in the U.S. National Museum as *N. coeruleolineata* Jacoby, but *N. trichops* differs from that species in having no apical side vitta, and having dark tibiae as well as a differently shaped aedeagus. The elytra are longer and the head is usually paler than in *N. coeruleolineata*.

*Neobrotica oberthüri* (Baly)

FIGURES 16, 17, 18

*Diabrotica oberthüri* Baly, Trans. Ent. Soc. London, p. 452, 1886.

*Neobrotica oberthüri* (Baly).—Jacoby, in Godman and Salvin, Biologia Centrali-Americana, Coleoptera, vol. 6, pt. 1, p. 575, 1887; Proc. Zool. Soc. London, p. 286, 1889.

About 7 mm. in length, elongate oblong oval, shiny, the sulcus across the pronotum not very well defined in the middle, the elytra moderately, densely and strongly punctate, not at all costate, pale yellow with a black head and breast, dark tibiae and tarsi and intermediate joints of the antennae, and dark vittae or remnants of vittae on the elytra.

Head with the interocular space about half width of head, a depression above the frontal tubercles, occiput shining piceous and finely punctate, the tubercles, carina and much of the lower face brownish, the neck below yellow. Antennae pale with joints four to eight dark. Prothorax with slightly rounded sides, the transverse sulcus more distinct on the sides; surface shining, punctate, pale yellow. Scutellum piceous. Elytra without a trace of costae, densely and confusedly punctate with a tendency to being striate in some specimens; pale yellow usually with a lateral vitta from the humerus nearly to the apex, this may be broken so only a short humeral and apical vitta remain, the same being true of the median vitta, and the sutural often consisting only of a short basal and apical darkening. Body beneath pale with the breast dark, the femora pale, tibiae and tarsi dark. Length 6.8 mm.; width 3.3 mm.

Type, female, BMNH, Baly collection, without locality label (although in his description, Baly gives the locality simply as Guatemala).



Remarks: In the BMNH there are four specimens from Guatemala besides the type, and these have variable elytral markings in which the vittae are more or less interrupted. One of the specimens with unbroken vittae bears the label Capetillo, Guatemala, collected by Champion, and in the Bowditch collection is another from Capetillo in which the median vitta is broken. In a later publication Jacoby adds the locality Corozal, Colombia, for the species, but I have been unable to find the specimen either in the British Museum or the Bowditch collection. In the latter there are two specimens from South America under this species, one labelled Venezuela, the other Caracas, and in the U.S. National Museum is a specimen from Turnero, Venezuela, collected in November 1931 by Martorell. The only male specimen is the one from Caracas, and whether these South American specimens are the same as the ones from Guatemala is at present impossible to say.

As Jacoby notes, the markings of this species bear a strong resemblance to those of *Diabrotica nigrolineata* Jacoby.

*Neobrotica linigera* Jacoby

FIGURE 10

*Neobrotica linigera* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 574, 1887.

About 6.5 mm. in length, elongate oblong oval, shining, the elytra with traces of costae and the intervals strongly and semistriately punctate, pale yellow with a piceous head and the marks on the elytra having a bluish lustre, a subsutural vitta extending one-third the way down, another from the humerus of equal length and two short vittate marks below the middle, one on the side at the apical curve, and the other near the suture, and in some specimens the pale yellow of the elytra across the middle becoming a deeper yellow band, legs and body beneath pale yellow except the dark breast.

Head with interocular space approximately half width of head, frontal tubercles distinctly marked and a deep median depression over them, the occiput finely punctate, a narrow carina running down lower front, shining piceous with the mouthparts usually paler. Antennae pale yellowish brown. Prothorax a little wider than long, with curved sides and a transverse sulcus, finely punctate, shining, pale yellow. Scutellum pale. Elytra shining, with traces of costae especially marked near base, having the intervals geminate striate punctate; pale yellow with dark markings having a bluish lustre and consisting of a long vittate mark from the humerus down the side curving slightly inwards, in one specimen in the British Museum this inward curving fascia almost joined with a subsutural vitta of the same length; below the middle a vittate mark at apical curve and another often with a



spot beside it, near the suture; in some of the specimens the pale yellow becomes deeper yellow in a band across the middle. Body beneath and legs pale with the breast dark. Length 5.9–7 mm.; width 2.9–3.2 mm.

Type, male, MCZ; seven paratypes, three in MCZ four in BMNH, all from Volcan de Chiriqui, Panama, collected by Champion.

Other locality: Bugaba, Panama, collected by Champion.

Remarks: The markings of this species are very similar to many others except that the basal vitta from the scutellum is not quite sutural, but subsutural.

*Neobrotica duodecimsignata*, new species

FIGURE 11

Between 4 and 5 mm. in length, oblong oval, shining, faintly alutaceous, the elytra with fine punctation, feebly costate, yellow brown with a brownish margin about the eyes, brown intermediate joints of the antennae, often a brownish outer streak on tibiae and tarsi, the elytra with dark brown vittate markings extending part way down the suture, along the side, sometimes interrupted, and a median interrupted vitta, a short vittate marking at the base and two elongate spots in the middle sometimes joined into a vitta.

Head with the interocular space less than half width of the head, occiput shining and smooth, a depression above the frontal tubercles, carina smooth and narrow, a deepening in color about the eyes, otherwise pale. Antennae pale with the intermediate joints deeper brown. Prothorax about one-third wider than long with slightly curved sides and a transverse sulcus, shining yellow brown, finely punctate. Scutellum pale. Elytra alutaceous and distinctly punctate, a well-marked costa laterally and smaller ones near the middle, pale yellow brown with a deep brown vitta from the humerus along the side which may be broken into two elongate spots along the side, another in the middle consisting of a short vittate mark at the base, a longer one often connected with another below the middle, also a dark brown mark about the scutellum extending down the suture more or less to the middle. Body beneath pale, the legs either entirely pale or with a brownish streak on the outside of the tibiae. Length 4.4–5.2 mm.; width 2.2–2.5 mm.

Type, male, BMNH (bearing handwritten name "*12-signata*," probably by Baly), from Teapa, Mexico, Baly and Fry collection labels; one paratype, male, Bowditch collection, MCZ, with Baly collection and Jacoby 2nd collection labels.

Remarks: Only two specimens of this small species are known, one with the label Teapa, the other without locality label. The vittate markings are the distinguishing characteristics of this species.



The pale head is different from that found in *N. oberthüri* Baly and *N. atrilineata*.

*Neobrotica spilocephala*, new species

FIGURE 12

About 7 mm. in length, elongate oblong oval, alutaceous, not very shiny, the elytra faintly costate, pale yellowish brown, the head with a median occipital piceous spot and also a piceous area about the eyes, the elytra with a violaceous or greenish mark running across the base and down the side to the apical curve and another vitta a little way down the suture, two median spots, one before and the other after the middle on each elytron, antennae with the intermediate joints dark, breast dark.

Head with the interocular space half width of head, occiput finely punctate, a depression over the frontal tubercles, carina well developed, pale with a piceous spot at base of the occiput and a dark area about the back of the eyes, mouthparts more or less piceous. Antennae with pale basal and terminal joints, intermediate ones dark brown. Prothorax with slightly curved sides and a transverse sulcus, pale yellowish brown, finely punctate. Scutellum pale. Elytra faintly costate along the sides, finely and rather sparsely punctate, alutaceous, not very shiny, pale yellowish brown with violaceous or greenish markings along the base and side down to the apical curve and also about the scutellum down the suture, a median spot before and another one after the middle, and the lateral darkening opposite each wider, as if possibly in darker specimens to connect with the median spot. Body beneath pale with the breast dark; legs pale with the tibiae and tarsi a little deeper in coloring on the outside. Length 7 mm.; width 3.3 mm.

Type, female; one paratype, female; both in BMNH, Baly collection; from Teapa, Mexico.

Remarks: The occipital dark spot is unusual in the genus and besides this species is found only in *Neobrotica oblongopunctata* Jacoby and *N. ebraea* (Fabricius). This species has somewhat the same elytral pattern as *N. duodecimsignata* but in that species there is no metallic lustre and the legs are pale.

*Neobrotica melanocephala* Jacoby

FIGURE 28

*Neobrotica melanocephala* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 579, 1887.

About 7 mm. in length, elongate oblong oval, the elytra costate with geminate striate punctures in the intervals, head, breast, tibiae and tarsi dark, the elytra pale with a narrow piceous edging along the



base, the sides and half way down the suture, a small dark spot near the apex common to both elytra and a still smaller spot on each elytron near it.

Head with the interocular space more than half width of head, the occiput with fine punctures, a depression over the frontal tubercles, and a short and somewhat depressed carina down the lower front with punctures on either side. Antennae with the three basal and three terminal joints pale, the rest dark. Prothorax not twice as broad as long with the sides slightly rounded, a well defined transverse sulcus across disc; surface shining, very finely and sparsely punctate, pale. Scutellum pale. Elytra widened behind, shining, not alutaceous, distinctly costate, the costae not much elevated but broad and smooth and impunctate, between them rather fine geminate striate punctures, coarser on the sides; pale reddish brown with dark piceous markings along the side, base, and narrowly down the suture to the middle; a small spot common to both elytra before the apex and near it a still smaller spot on each elytron. Body beneath with the breast dark, the femora pale, tibiae and tarsi dark brown. Length 6.8 mm.; width 3.5 mm.

Type, female, BMNH, from Cordova, Mexico, collected by Sallé; only a single specimen known.

Remarks: The costate elytra and dark markings along the side differentiate this from other Central American species. The color pattern is similar to several South American species, which have more deeply costate elytra that are here treated in the genus *Hystiopsis*, a genus that appears to be confined to South America.

***Neobrotica punctatissima* Jacoby**

FIGURE 30

*Neobrotica punctatissima* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 573, 1887.

About 6 mm. in length, broadly oblong oval, somewhat shiny, the elytra very coarsely and irregularly geminate striate punctate, pale yellow brown, the head deep reddish brown to the frontal tubercles, antennae, legs and body beneath pale, elytra with metallic blue-green markings consisting of a circle in the basal part and a semicircle in apical half.

Head with interocular space fully one-half width of head, occiput finely punctate, a median depression over the frontal tubercles, a well developed carina down lower front, occiput deep brown to the frontal tubercles, lower front pale, jaws tipped with brown. Antennae entirely pale. Prothorax broad and with rounded sides, a deep rounded depression on each side but not much evidence of a transverse



sulcus otherwise, impunctate, shining, pale yellow brown. Scutellum pale. Elytra coarsely punctate with the punctures irregularly geminate striate and below the middle becoming larger and somewhat ridged; the bluish-green markings in the form of a large circle in basal half and a semicircle in the apical half on each elytron. Body beneath and legs entirely pale. Length 4.5–6 mm.; width 2.2–3 mm.

Type, female, BMNH; one paratype, female, Bowditch collection, MCZ; both from Acapulco, Guerrero, Mexico, collected by Höge.

Remarks: Only two specimens of this species have been examined, both of the original Jacoby material. The type in the British Museum has a heavier, thicker dark ring on the elytra, with the pale space within considerably smaller than in the MCZ specimen. The very coarsely punctate elytra distinguish this species.

*Neobrotica quadriplagiata* Jacoby

FIGURE 26

*Neobrotica quadriplagiata* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 546, 1887.

About 4½ mm. in length, oblong oval, shining although alutaceous, the prothorax very lightly sulcate, the elytra with a trace of lateral costa, head, tibiae, tarsi and breast dark, antennae bicolored, elytra dark with a faint violaceous gleam, the margin and apex pale and a large pale spot at base and another near apex opening widely behind into the pale apex.

Head with interocular space a little less than half width of head, frontal tubercles, carina and area about it brownish, the rest of head piceous. Antennae with the four basal and three apical joints pale, the intermediate ones dark. Prothorax with the sulcus across most evident at the ends; surface shining, finely punctate, sides slightly curved, pale yellow brown. Scutellum brownish. Elytra shrunk, probably an immature specimen, the sides a little narrowed, a trace of lateral costa; punctation not dense but distinct; the margins pale yellow and two pale roundish spots on each elytron, one near the base, the other at the apex, the apical one opening into and not distinct from the pale apex. Body beneath pale with the breast deep brown; femora pale, the tibiae and tarsi brownish. Length 4.5 mm.; width 2 mm.

Type, ?sex (the abdomen is hidden by the card on which the specimen is mounted), BMNH, from San Geronimo, Guatemala, collected by Champion.

Remarks: Only one specimen is known to the writer, and this is a poor, shrunk, immature one of undetermined sex, but quite distinct in its markings from any other species.



*Neobrotica hondurensis* Jacoby

## FIGURE 13

*Neobrotica hondurensis* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 577, 1887.

Between 6 and 7 mm. in length, oblong oval, moderately shiny, although alutaceous, the elytra faintly costate and with strong dense semistriate punctation; head, intermediate joints of the antennae, breast, tibiae and tarsi piceous, the thorax, femora and undersurface, except breast, pale; elytra pale with piceous basal, median and apical fasciae, the basal fascia sometimes partly joined with the median and the apical fascia usually with a long narrow indented pale area at the apical end.

Head with interocular space less than half width of head, frontal tubercles distinct with a median depression above, occiput finely punctate, a narrow carina running down lower front, entirely dark and shiny. Antennae with basal joints reddish brown, intermediate joints dark, the three terminal joints pale yellow. Prothorax a little wider than long with slightly curved sides and well-marked transverse sulcus, surface faintly alutaceous, finely punctate, entirely pale. Scutellum deep reddish brown. Elytra faintly costate, alutaceous and strongly punctate, a piceous fascia across base, sometimes connected at sides or in irregular toothlike projections with a broad median dark fascia, a third fascia at apex, having a long narrow concavity toward the apex, apex and margin pale. Body beneath pale with the breast piceous, femora pale, tibiae and tarsi dark. Anterior coxal cavities open, hind tibiae with a spine, claws appendiculate. Length 6-7 mm.; width 3.3-3.8 mm.

Type, female, BMNH; one paratype female, BMNH; one paratype, male, MCZ; all from Rio Hondo, British Honduras, collected by Blancaneau.

Other localities: Pancina and Cubilguitz, Vera Paz, Guatemala, Champion, collector; Cacao, Trece Agua, Alta Vera Paz, Guatemala, Barber and Schwarz, collectors.

Remarks: This is an unusually dark and heavily marked species and easily recognized.

*Neobrotica simulans* Jacoby

## FIGURE 14

*Neobrotica simulans* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 577, 1887.

About 5.5 mm. in length, oblong oval, somewhat shiny, although alutaceous, the elytra faintly costate and with strong, moderately dense semistriate punctures; head, intermediate joints of antennae and breast piceous, a piceous fascia on elytra divided narrowly by a



pale yellow irregular fascia from another wider dark fascia extending to a little below the middle, not quite meeting at the suture; before the apex another broad dark fascia having an oblong pale spot in the middle, apex and margin pale; legs pale, antennae pale with dark intermediate joints.

Head with interocular space less than half width of head, tubercles distinct and a depressed spot above them, a narrow carina down lower front; occiput smooth, very finely punctate, shining, black, except the tubercles which are brownish. Antennae pale with the fifth to ninth joints brown. Prothorax not twice as broad as long with only slightly curved sides, a deep transverse sulcus; surface although alutaceous shiny, very finely punctate, pale yellow. Scutellum pale. Elytra wider behind the middle, faintly costate, alutaceous but shiny, punctation strong, moderately dense, tending to be striate; pale yellow with a dark basal fascia, another broader one before the middle, an apical one enclosing an oblong pale spot in the middle of it, margin and apex pale. Body beneath pale, except the breast which is piceous. Length 5.5 mm.; width 2.7 mm.

Type, male, BMNH, from Chacoj in Vera Paz, Guatemala, collected by Champion.

Remarks: Only one specimen of this is known, the type. *N. simulans* is similar in markings to *N. hondurensis*; the only distinguishing marks are the pale tibiae and tarsi which are dark in *N. hondurensis*, and the slightly different color of the antennae. Possibly it may be only a color form of *N. hondurensis*.

***Neobrotica pterota*, new species**

FIGURE 15

About 6.5 mm. in length, elongate oblong oval, shining, the elytra densely and coarsely punctate, the punctures tending to be striate, feebly costate along the side, pale yellowish brown, the head piceous on occiput, pale in front, antennae with pale basal joints, the terminal joints missing; elytra with a dark brown band enclosing a round pale spot on each elytron, and extending down along the side not quite joining with another narrower band that extends narrowly down the suture and down the side.

Head with interocular space less than half width of head, occiput shining piceous with fine punctures, a depression over the frontal tubercles which are tan colored, a carina down lower front which is pale, the mouthparts dark. Antennae with the terminal joints missing, the four basal ones pale, rest dark. Prothorax with curved sides and transverse sulcus, finely punctate, yellowish brown. Scutellum dark brown. Elytra with dense, moderately coarse, semi-striate punctures, feebly costate along the side, pale yellow with a



wide dark brown basal fascia extending along the side, and enclosing a round pale median spot, suture narrowly dark and below the middle another narrower irregular fascia extending along the side and down the suture and almost connecting with the basal fascia along the side. Body beneath and femora pale yellow brown; breast, tibiae and tarsi dark; front tibiae and first tarsal joint in the male thickened, middle and hind tibiae with spine. Length 6.5 mm.; width 3.2 mm.

Type, male, BMNH, from Guatemala.

Remarks: The two chief characteristics of this species differentiating it from others are the coarse, dense elytral punctation and the dark brown color pattern on the elytra. The face is shorter than that of *N. hondurensis* Jacoby.

*Neobrotica modesta* Jacoby

FIGURE 35

*Neobrotica modesta* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 579, 1887.

Between 5 and 6 mm. in length, elongate oblong oval, faintly shining, alutaceous, the elytra with feeble costae, occiput of head, tibiae and tarsi piceous, breast a little deeper brown, rest pale yellow brown.

Head with interocular space half width of head, occiput shining, piceous, finely punctate, a median depression over frontal tubercles, lower front with a narrow carina, entirely dark. Antennae with the basal two and apical three joints pale, rest deep brown. Prothorax not twice as wide as long with slightly curved sides, shining, very finely punctate, the transverse depression most marked at the ends, very shallow in the middle. Scutellum a little deeper yellow than elytra. Elytra faintly alutaceous, not very shiny, with three or four feeble costae, distinctly but not densely punctate, the punctures tending to be striate, entirely pale. In one specimen in the British Museum the elytra with a dark humeral spot. Body beneath pale, the breast a little darker brown and deep brown in one specimen, femora pale, tibiae and tarsi dark brown, almost piceous. Length 5–6.5 mm.; width 3–3.4 mm.

Type, female, MCZ; one paratype, female, BMNH; both from Tuxtla, Mexico, collected by Sallé. There is another specimen in the British Museum, determined by Jacoby, from "Mexico."

Remarks: This species has much the same coloration as *N. inconstans* Jacoby from Venezuela, but the elytral bare lines found in *inconstans* are not so marked. In the Mexican female specimen (without definite locality), the head has pale frontal tubercles and a pale lower front and there is a dark humeral spot on the elytra.



*Neobrotica sexmaculata* Jacoby

FIGURE 32

*Neobrotica sexmaculata* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 578, 1887.

About 6.5 mm. in length, oblong oval, somewhat shiny, not at all alutaceous, the prothorax with a transverse sulcus, the elytra with many costae, the intervals being striate punctate, pale yellow, each elytron with six dark spots, slightly metallic violaceous, one on the humerus, one near the scutellum, a pair before the middle and a pair in line with them below the middle; antennae (except the last three joints), tibiae and tarsi dark.

Head with the interocular space about half the width of head, occiput finely punctate, a depression above the frontal tubercles, lower front almost flat, with a short broad carina only slightly raised, tips of mouthparts brownish. Antennae in the type specimen broken, the lower joints brown, ninth pale (in other specimens that correspond with the type the three last joints are pale). Prothorax almost rectangular, slightly rounded at the sides, the transverse sulcus across the middle well defined and deep; the surface shining, finely punctate, pale. Scutellum pale. Elytra with many costae between which the rows of punctures are deeply sunken either in a single row, sometimes geminate, or even alternate; each elytron with piceous spots having a faintly metallic violaceous lustre, one on the humerus, a small one between that and the scutellum near the base, a second row before the middle, one lateral, the other median, and a third row below the middle, one lateral, the other median. In the second specimen these spots are larger. Body beneath pale, the tibiae and tarsi brown. Length 6.5 mm.; width 3.3 mm.

Type, female BMNH, from Tlatingo, Mexico.

Remarks: Besides Jacoby's type from Tlatingo, Mexico, (Federal District), there are in the British Museum (Natural History) under that name three other specimens, only one of which closely resembles the type, and this one has the label "Mex." The other two specimens, one of which is labelled "Mex." are like the ones that I am describing from Matamoras, Mexico, as *Neobrotica matamorasensis*. In the unidentified material in the British Museum I have found two others like the type, one collected at Temascaltepec, circa 5000 ft., in 1913 by H. E. Hinton and R. L. Usinger, and one collected at Cuernavaca by Hinton. There is one in the U.S. National Museum from Cuernavaca collected in August by Krauss on the leaves of *Lantana*, and one in the California Academy of Sciences in the Fenyes collection from Cuernavaca, collected by Barrett.

*N. sexmaculata* is one of four closely related races, possibly species, that occur in Mexico and Arizona. Fall (Trans. American Ent.



Soc., vol. 36, p. 148, 1910) described the Arizona one under the name *N. pluristicta*. The one from Matamoras represents a race from the arid eastern area. A fourth race, represented by a single female collected by E. A. Schwarz at Tampico, is from the eastern coastal humid lowlands, and is the most divergent of the group. I am describing this as *N. tampicensis*.

*Neobrotica pluristicta* Fall

FIGURE 31

*Neobrotica pluristicta* Fall, Trans. American Ent. Soc., vol. 36, p. 148, 1910.

About 5.5 mm in length, oblong oval, somewhat shiny, the prothorax with a transverse sulcus, the elytra strongly costate with the intervals geminate striate punctate, pale yellow brown; each elytron has 7 spots: one on the humerus, another midway down the side and one at the apical curve, a second line of spots on the disk with the one nearest the apex having a smaller one beside it; the tibiae and tarsi dark, the antennae brown with the basal and terminal three joints usually paler.

Head with the interocular space a little more than half width of head, vertex densely and rather coarsely punctate, the cheeks on either side of the short carina also punctate, mouthparts edged with brown. Antennae sometimes entirely brownish, but often with the three basal and three terminal joints paler. Prothorax with rounded sides, more or less distinct transverse sulcus, alutaceous, finely punctate, pale yellow. Scutellum pale. Elytra distinctly costate, the intervals being coarsely and striately punctate, not very shiny, yellow brown with four spots across the base, four across the middle and six near the apex. Body beneath pale, the front tibiae dark on the outside, the other tibiae and all tarsi dark. Anterior coxal cavities open, claws appendiculate. Length 6–6.5 mm.; width 3.3 mm.

Type, Fall collection, MCZ, from Baboquivari Mts., Ariz., also collected in Santa Rita Mts., July 12–24, 1915, by Dury; Nogales, St. Cruz Co., collected by F. W. Nunenmacher, April 14, 1906; Penna Blanca, Ariz., collected by Lindsay, July 2, 1944, on *Chilopsis linearis*.

Remarks: This species while very much like *N. sexmaculata* Jacoby from the Federal District, Mexico, is smaller and not quite so coarsely punctate and the elytral costae are a little more distinct. The elytral spots are slightly different too. Whether it is a distinct species or only a geographic race is uncertain.

*Neobrotica matamorasensis*, new species

FIGURE 33

Between 6.5 and 7 mm. in length, oblong oval, not very shiny, the



elytra coarsely, striately and contiguously punctate, pale yellow brown, the elytra each with seven small spots.

Head with the interocular space more than half the width of head, vertex coarsely and densely punctate, a short carina down the front, cheeks coarsely and densely punctate, all pale yellow except the brownish mouthparts. Antennae brownish, sometimes the three basal and three terminal joints paler. Prothorax with rounded sides and transversely sulcate, pale, finely punctate. Scutellum pale. Elytra each with seven dark spots, the punctation coarse, contiguous and striate. Body beneath pale with the tibiae and tarsi dark. Length 6.6–7 mm.; width 3.4–3.5 mm.

Type, male, Bowditch collection, MCZ 30674, from Matamoras, Mexico, collected in May; two paratypes, Fenyés collection, CAS, bearing similar labels of Matamoras and May; one paratype, USNM without locality label.

Remarks: The three specimens from Matamoras, Mexico, are larger than the Arizona *N. pluristicta* Fall and are more coarsely punctate, the punctures being contiguous. The elytral spotting is also a little different. Whether this eastern form is really a species distinct from the Arizona *pluristicta* and the central Mexican *sexmaculata* is uncertain, but the elytral sculpture appears different from either the other two.

*Neobrotica tampicensis*, new species

FIGURE 29

About 5.5 mm. in length, oblong oval, shining, the elytra distinctly and yet not coarsely punctate, feebly costate in the middle, yellow brown, the antennae except the four basal joints, reddish brown, each elytron with a dark humeral spot, a spot at suture by the scutellum, two spots, one lateral the other median, before the middle, and two after the middle; legs with tibiae and tarsi dark, breast shining piceous.

Head with interocular space more than half width of head; pale reddish brown over occiput, front paler yellow; tubercles well marked, a carina down lower front. Antennae with the four basal joints pale yellow, the rest reddish brown. Prothorax with a transverse sulcus, shining, pale reddish brown. Scutellum pale. Elytra wider towards apex, shining, feebly costate in the middle, distinctly but not coarsely punctate, the punctures not dense and tending to be striate near base, markings as above. Body beneath pale with the breast shining piceous, tibiae and tarsi dark. Length 5.3 mm.; width 2.9 mm.

Type, female, USNM 66843, Tampico, Mexico, collected by E. A. Schwarz.

Remarks: This is the most distinctively different one of the *sexmaculata* group. The coloring is different in that the breast is piceous and the elytral spots slightly differently located, especially the one near



the scutellum. The sculpture is unlike that of the rest, the elytra being less costate and rather finely and sparsely punctate.

*Neobrotica semicostata* Jacoby

FIGURE 36

*Neobrotica semicostata* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 574, 1887.

About 6.5 mm. in length, elongate oblong oval, wider at the apical end, dull, not shining, the elytra with many costae, the intervals being coarsely geminate striate punctate, entirely pale.

Head with interocular space half its width, a depression above the frontal tubercles, occiput finely punctate and alutaceous, lower front coarsely punctate on each side of the carina, a little pubescent, the tips of the mandibles piceous. Antennae entirely yellow brown with the three apical joints pale yellow. Prothorax almost rectangular with slightly curved sides, a deep sulcus across the middle, surface alutaceous, finely punctate, pale. Scutellum pale. Elytra widened below the middle, irregularly costate, the intervals with deep coarse geminate punctures. Body beneath pale, legs pale, the claws a little deeper in color. Length 6.7 mm.; width 3.5 mm.

Type, female, BMNH, from Panistlahuaca, Mexico, collected by Sallé.

Remarks: This is clearly closely related to *Neobrotica pluristicta* Fall and *N. sexmaculata* Jacoby, but unlike them is without any dark marks or spotting. Only a single specimen is known to me.

*Neobrotica pallescens* Jacoby

FIGURE 34

*Neobrotica pallescens* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 575, 1887.

About 7 mm. in length, elongate oblong oval, shining although faintly alutaceous, the elytra with numerous fairly distinct costae, with the intervals irregularly geminate striate punctate, pale yellowish brown with a piceous head, deeper brown intermediate joints of the antennae and brown tibiae and tarsi.

Head with interocular space half the width of head, a median depression over the frontal tubercles, a narrow carina running down the lower front, shining, impunctate, piceous except for the pale neck underneath. Antennae with paler basal and apical joints, intermediate ones deep brown. Prothorax much wider than long with rounded sides and a transverse sulcus, shining although feebly alutaceous and very finely and indistinctly punctate, entirely pale. Scutellum tan colored. Elytra with 8 or 9 more or less distinct costae, the interspaces irregularly geminate striate punctate, shining, although faintly



alutaceous, entirely pale. Body beneath entirely pale, femora pale, tibiae and tarsi deep brown, front, middle and hind tibiae with spine. Length 5.5–7 mm.; width 2.6–3.8 mm.

Type, female; one paratype, female; both Bowditch collection MCZ; two paratypes, females, BMNH; all from Rio Hondo, British Honduras, collected by Blancaneau.

Remarks: This species differs from the entirely pale species *Neobrotica semicostata* Jacoby, in having a dark head and darker tibiae and tarsi. All specimens examined are females and present a uniform appearance.

*Neobrotica inconspicua* Jacoby

FIGURE 40

*Neobrotica inconspicua* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 576, 1887.

About 7½ mm. in length, elongate oblong oval, the elytra wider behind, faintly costate and rather densely and finely punctate, entirely pale above except for the reddish brown scutellum; the antennae, breast, tibiae and tarsi also reddish brown.

Head with the interocular space half width of head, frontal tubercles not prominent, a depression above with dense fine punctures in it, occiput sparsely and finely punctate, carina short and broad. Antennae with only five basal joints remaining, the first joint pale, the rest reddish brown. Prothorax with rounded sides and a transverse sulcus, pale, impunctate. Scutellum reddish brown. Elytra widened below the middle, very faintly costate, a well marked intrahumeral sulcus, the punctures not coarse but dense and confused. Body beneath pale, shiny, very lightly pubescent, breast pale reddish brown; legs pale with the tibiae and tarsi pale reddish brown. Length 7.8 mm.; width 4.2 mm.

Type, female, BMNH, from Cerro de Plumas, Mexico, collected by Höge.

Remarks: Only one specimen, the type, is known of this large pale species. As Jacoby wrote in his description, "the lower five joints of the antennae are piceous, the rest broken off." It is not so costate as *N. semicostata* Jacoby, also from Mexico.

*Neobrotica decimsignata*, new species

FIGURE 38

Between 8 and 10 mm. in length, elongate oblong oval, not shining, alutaceous, the elytra densely and confusedly punctate, not at all costate, pale yellow brown with the intermediate joints of the antennae darker, the elytra with ten dark spots, sometimes the two near the humerus confluent.



Head with interocular space a little less than half width of head, a median depression over the frontal tubercles, occiput alutaceous and finely punctate about the depression over the tubercles, a poorly defined and narrow carina down the lower front, lower front more densely punctate, head pale with the mouthparts edged with brown. Antennae long with the basal and apical joints pale, the intermediate ones brownish. Prothorax considerably wider than long with slightly curved sides and a shallow transverse depression, another shallow median depression anteriorly, surface alutaceous and finely punctate, entirely pale. Scutellum pale. Elytra with no signs of costae, densely, confusedly and rather coarsely punctate, pale yellow, each elytron with a piceous spot on the humerus and a smaller spot below it on the side, these two spots sometimes confluent, a large spot below the scutellum near the suture, a fourth spot on the side at the apical curve and a fifth spot near the suture and slightly above the apical curve spot. Body beneath and legs entirely pale, the middle and hind tibiae with a spine. Length 8.5–9.7 mm.; width 4.5–5 mm.

Type, male, USNM 66848, from near Cot, Costa Rica, collected by P. Knight, Sept. 22, 1937, on potato.

Other localities: Coronado, Costa Rica, 1400–1600m. Nevermann, collector; Carpentera, Costa Rica, Feb. 2, 1936, collected by Sofia and C. H. Ballou, on *Anona*.

Remarks: In coloration and sculpture this resembles the Peruvian species, *N. octosignata*, but the Peruvian species lacks the small spot on the side below the humerus; the antennae are not so long, and the first tarsal joints of the middle and hind legs are shorter. In *N. decimsignata* the antennae and the first tarsal joints of the middle legs are longer than in any of the other large spotted species.

*Neobrotica septemmaculata*, new species

FIGURE 39

About 7 mm. in length, elongate oblong oval, not at all shiny, dull alutaceous, elytra with dense and rather shallow punctation, prothorax with a transverse sulcus most pronounced in the rounded depressions on each side; pale yellow brown, the head with a dark occiput and mouthparts, the antennae with pale basal and apical joints; the elytra with a small dark spot on the humerus and two in the middle on each elytron, one before the middle and one after the middle; front tibiae and first tarsal joint in male enlarged, the tibiae and tarsi more or less dark.

Head with interocular space less than half width of head, eyes large, frontal tubercles distinctly marked and a depression over them, carina short and distinct, occiput down to frontal tubercles piceous, lower front pale, mouthparts dark. Antennae not extending to the



middle of elytra, basal and terminal joints pale, intervening ones darker. Prothorax with slightly curved sides and a transverse sulcus most marked at each end in the form of a rounded depression; surface alutaceous, yellow brown. Scutellum reddish brown. Elytra wider behind the middle with traces of costae and with a short intrahumeral sulcus, not shiny, alutaceous, densely and shallowly punctate, pale yellow brown, a small dark spot on the humerus, another small spot before and one after the middle on each elytron. Body beneath pale, except the dark shiny piceous breast, femora pale, front tibiae of the male enlarged and first tarsal joint of the anterior legs in the male also enlarged, the front tibiae with a dark outer streak, the other tibiae and tarsi dark. Claws appendiculate, a spine at the end of the middle and hind tibiae. Length 7 mm.; width 3.5 mm.

Type, male, Bowditch collection, MCZ 30671, bearing locality label "Tex."

Remarks: This differs from the other large spotted species in having a dark occiput and large eyes, with the interocular space less than half the width of the head. It is possible that it differs from the others too in the greater enlargement of the front tibiae and first tarsal joint in the male, but since only one male is known of the other species this cannot be certain.

*Neobrotica pentaspilota*, new species

FIGURE 37

About 7.5 mm. in length, elongate oblong oval, not very shiny, the elytra dull and alutaceous, densely punctate, with faint traces of costae, pale yellow, the intermediate joints of the antennae brownish, scutellum piceous; four tiny brown spots on each elytron, two before and two after the middle; tibiae and tarsi streaked with dark on the outside, breast deeper orange yellow.

Head with interocular space about half width of head, a median depression over frontal tubercles, occiput finely punctate, a narrow carina down lower front, upper part of head a deeper yellow in color, mouthparts edged with brown. Antennae with pale basal and apical joints, the intermediate ones dark brown. Prothorax wider than long with slightly rounded sides and a transverse sulcus, very finely punctate, shiny, pale yellow. Scutellum piceous. Elytra with numerous faint costae, irregularly and densely punctate, alutaceous, not shiny, pale yellow with four tiny brown spots on each elytron, two before and two after the middle. Body beneath pale with the breast deeper orange brown. Femora pale, the front tibiae on outside and the middle and hind tibiae more or less dark, all tibiae with spines. Length 7.5 mm.; width 3.6 mm.



Type, female, USNM 66849, taken on a Bromeliad at Laredo, Texas (port of entry), January 19.

Remarks: The locality from which this species comes is unknown as the single specimen was intercepted on entry into the United States at Laredo, Texas, of a shipment from south of Texas. It differs from the other large pale species with spots in that there is no humeral spot and the scutellum, tibiae and tarsi are dark.

*Neobrotica quinquepunctata* (Jacoby)

FIGURE 41

*Diabrotica quinquepunctata* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 557, 1887.

About 7.5 mm. in length, elongate oblong oval, alutaceous, only feebly shining, the elytra with dense, shallow and rather coarse punctures, often contiguous; traces of costae, paler yellow brown with intermediate antennal joints a shade deeper and on the elytra ten small piceous spots.

Head with interocular space half width of head, a median depression above the clearly marked frontal tubercles, carina down front strong and not very long, head entirely pale. Antennae with basal four and apical three joints a little paler than intermediate ones, third antennal joint about equal to fourth. Prothorax with a deep transverse sulcus, sides rounded, surface feebly shining, a few punctures, pale yellow brown. Scutellum piceous. Elytra a little wider apically, densely, closely, and shallowly punctate, punctures not at all striate, often contiguous; faint traces of costae; pale yellow brown with a small dark humeral spot, two small spots before the middle, one lateral, the other median, and two spots after the middle in a line across, on each elytron. Body beneath and legs entirely pale, anterior coxal cavities open, the claws appendiculate although the inner tooth is longer and more slender than usual. Length 7.5 mm.; width 3.6 mm.

Type, female; two paratypes; all in Bowditch collection, MCZ, from Capetillo, Guatemala, collected by Champion, 1st Jacoby collection.

Remarks: Jacoby wrote that the "claws (were) bifid, the inner division rather short," but they are not bifid to the extent that is found in *Diabrotica*; the inner tooth, although unusually long and slender, is not nearly as long as the outer one. This clearly belongs to the group of large pale spotted species, and in its spotted elytral markings most resembles *N. pentaspilota*; but that species lacks the dark humeral spot and has darkened tibiae and tarsi. *N. septemmaculata* has a dark head and more closely set eyes.



Key to the South American Species of *Neobrotica*

1. Elytra entirely pale . . . . . 2  
Elytra not entirely pale . . . . . 3
2. Head, tibiae and tarsi dark piceous . . . . . **inconstans** Jacoby (p. 316)  
Head brown, tibiae and tarsi pale . . . . . **bowditchi** Bechyne (p. 319)
3. Elytra with broad reddish brown or piceous fasciae . . . . . 4  
Elytra without broad fasciae . . . . . 6
4. Elytra with two broad piceous fasciae separated by a narrow pale one below the middle . . . . . **flavolimbata**, new species (p. 314)  
Elytra with reddish brown fasciae . . . . . 5
5. Elytra with a basal and apical fascia enclosing a small pale area in the middle.  
**hepatica** Bechyne (p. 314)  
Elytra with three fasciae, the apical one having a small pale inner area.  
**rogaguaensis**, new species (p. 315)
6. Elytra with a long lateral vitta from humerus to apical curve . . . . . 7  
Elytra with shorter vittae or spots . . . . . 8
7. Elytra with a median vitta . . . . . **atrilineata**, new name (p. 313)  
Elytra without median vitta . . . . . **rendalli**, new species (p. 311)
8. Occiput pale with a small median dark spot or spots . . . . . 9  
Occiput pale or dark, without spots . . . . . 10
9. Each elytron with a long lateral vitta from humerus to below middle and four other dark spots . . . . . **ebraea** (Fabricius) (p. 309)  
Each elytron without lateral vitta and with 6 spots  
**oblongopunctata** Jacoby (p. 308)
10. Elytra with a moderately wide dark sutural vitta extending nearly to apex, remnants of a median vitta . . . . . **stalagma**, new species (p. 312)  
Elytra with only a short sutural vitta or darkened sutural edges or none at all . . . . . 11
11. Head entirely pale . . . . . 12  
Head not entirely pale . . . . . 16
12. Elytra dull, not at all shiny, rather coarsely punctate.  
**meridensis**, new species (p. 304)  
Elytra more or less shiny . . . . . 13
13. Large, 6–8 mm. . . . . 14  
Smaller, 5–6 mm. . . . . 15
14. Each elytron with 4 large spots, with one just below scutellum, near suture.  
**octosignata**, new species (p. 320)  
Each elytron with 4 spots, one before the middle and not near suture.  
**grandis**, new species (p. 321)
15. Elytra with the spot before the middle narrowly horizontal, Trinidad.  
**praeclara** (Weise) (p. 306)  
Elytra with the spot before the middle not narrowly horizontal, markings usually pale reddish brown . . . . . **dimidiaticornis** Jacoby (p. 305)
16. Head dark over occiput but with the front usually paler . . . . . 17  
Head entirely dark . . . . . 27
17. Head with area about eyes dark . . . . . **dimidiaticornis** Jacoby (p. 305)  
Occiput down to frontal tubercles entirely dark . . . . . 18
18. Elytra not at all costate . . . . . 19  
Elytra with traces of costae . . . . . 23
19. Large, about 6–7 mm. or more . . . . . 20  
Smaller, about 5–5.5 mm. . . . . 21







the suture joining with the transverse fascia, in other specimens a complete loose ring of these dark markings; at the apex, the piceous marks semilunate and more or less connected. Body beneath pale with the breast shining dark brown or piceous; legs entirely pale, middle and hind tibiae with a spine, anterior coxal cavities open, claws appendiculate. Length 6–7.5 mm.; width 3.2–3.7 mm.

Type, female, MCZ 30664, from Coroza, Venezuela.

Other localities: El Valle, D.F., Venezuela, on *Zea mays* Linnaeus, H. Pérez, collector; Huila, Colombia, B. Losadas, collector; Rio Dagua, Colombia, W. Rosenberg, collector.

Remarks: Although only female specimens have been examined, the writer believes the species is distinct from *N. variabilis*, the type of which comes from Jalapa, Mexico. These beetles differ from the Mexican ones in the color of the legs and antennae which in the Mexican species are more or less dark. Both species have similar elytral markings but these markings are common to many species of the genus.

*Neobrotica colombiensis*, new species

FIGURE 63

Between 6 and 7 mm. in length, elongate oblong oval, faintly shining, alutaceous, the elytra finely punctate, pale yellowish brown, the occiput of the head deeper brown, antennae pale with the intermediate joints deep brown; elytra with piceous spots, one on the humerus, a narrow dark edging about the scutellum and down the suture a little way, on each elytron a transverse spot not reaching the suture before the middle, and two spots after the middle, one on the side, one in the middle; legs pale, body beneath pale with the breast dark.

Head with the interocular space not quite half width of head, occiput alutaceous and finely punctate, a brown spot, sometimes widening to cover the occiput down to the frontal tubercles, from tubercles to mouthparts yellow brown, mouthparts tending to be brownish, a median depression over the frontal tubercles, a short, well defined carina down lower front. Antennae with the basal four joints yellowish brown, joints five to eight deep brown, nine to eleven pale yellow, tip of apical joint dark. Prothorax somewhat wider than long with nearly straight sides and a shallow transverse depression, surface alutaceous and finely punctate, entirely pale. Scutellum dark brown or piceous. Elytra wider in lower half, feebly shining, alutaceous and finely punctate, pale yellow brown with a piceous spot on the humerus, a narrow piceous edging about scutellum and down the suture a short way, on each elytron a transverse fascia or spot from near the margin, not reaching the suture, before the middle, and two spots near the apex, one near the margin, and the other larger and median. In some fresh specimens there is a deeper orange coloring in the apical



half of the elytra. Body beneath pale with the breast piceous; legs entirely pale, in one specimen the front tibiae with a dark streak, middle and hind tibiae with a spine, front tibiae in the male somewhat stouter. Length 6.1 mm.; width 3.3–3.5 mm.

Type, female, USNM 67136, from 3 miles north of Villacencia, Meta, Colombia, 92 m., collected March 11, 1955, by E. I. Schlinger and E. S. Ross.

Other localities: Bogotá; Cayenne, Venezuela.

Remarks: The markings of this species resemble those of many of the small and usually costate species. This is one of the larger species with little trace of costae on the elytra.

*Neobrotica meridensis*, new species

FIGURE 53

About 6.5 mm. in length, elongate oblong oval, dull, not at all shiny, the elytra coarsely and densely punctate, faintly costate in some specimens, pale yellow brown with reddish brown to piceous elytral markings, the breast a little more brownish.

Head with the interocular space less than half width of head, eyes prominent, tubercles clearly marked with a well defined median depression over them, occiput densely punctate about this depression, carina clearly distinct down the front, occiput often tan colored or even darker, lower front pale, labrum usually piceous. Antennae pale but in some darker specimens becoming brownish towards apex. Prothorax with the sides nearly straight, the transverse sulcus not deep in most specimens, most clearly defined at the ends, surface alutaceous and finely punctate, pale yellow. Scutellum pale. Elytra with a short intrahumeral sulcus; in some specimens traces of costae with the punctuation between tending to be geminate, and rather coarse; surface dull, not at all shiny, pale yellow with deep brown to piceous markings that are variable in extent, in the most heavily marked specimens with nearly a circle in the basal half, and a lunate shaped mark opening towards the apex in apical half; these marks present in a lesser degree, sometimes consisting only of a humeral spot and a spot in the middle at base and another near the apex on each elytron. Body beneath usually with the breast a little browner, legs entirely pale. Length 6–7.4 mm.; width 2.8–3.7 mm.

Type: male; eight paratypes; Bowditch collection, USNM 66844, all from Merida, Venezuela; two paratypes, MCZ; two paratypes, BMNH; these probably of the same series as Bowditch, who may have had these from the Jacoby collection. One specimen in the Museum of Comparative Zoology is very pale with some of the spots missing, and this was placed under *N. dimidiaticornis*.



Remarks: This species is readily distinguished from others of similar markings by its dull, coarsely punctate elytra. In this respect it resembles *N. pluristicta* Fall, but the latter species is much more definitely costate.

*Neobrotica poecila*, new species

FIGURE 45

About 5.5 mm. in length, elongate oblong oval, alutaceous, not very shiny, the elytra rather densely but not coarsely punctate, and with faint costae, pale yellow brown; the occiput, intermediate joints of the antennae, tibiae and tarsi, and the middle of the breast brown; the elytra with small piceous spots on the humerus, about the scutellum, two in a line down the middle and two along the side of each elytron.

Head with the interocular space about half width of head, occiput smooth except for the fine punctures about the median depression above the frontal tubercles, carina thin and not greatly elevated, occiput dark, lower front pale. Antennae pale with joints five to eight piceous. Prothorax not much wider than long, with the usual transverse sulcus well marked, sides slightly curved, alutaceous, pale yellow. Scutellum brownish. Elytra with traces of three or four costae, distinctly but not coarsely punctate, alutaceous, not shiny, pale with a small piceous spot on humerus, another surrounding the scutellum, two in a line down the middle and two along the side of each elytron. Body beneath pale with the middle of the breast brownish; femora pale, tibiae and tarsi mostly deeper brown. Length 5.5 mm.; width 2.8 mm.

Type, male, MCZ 30666, from "Brazil."

Remarks: The elytral pattern is similar to many species of *Neobrotica* from Central America. There is one specimen without locality label in the U.S. National Museum, a gift from the Bowditch collection.

*Neobrotica dimidiaticornis* Jacoby

FIGURES 56, 59

*Neobrotica dimidiaticornis* Jacoby, Proc. Zool. Soc. London, p. 285, 1889.

Between 5 and 7 mm. in length, elongate oblong oval, feebly shining, alutaceous, pale yellow brown with darker markings on the vertex, the intermediate joints of the antennae and spots or short vittate markings on the elytra, undersurface and legs entirely pale.

Head with interocular space less than half width of head, frontal tubercles swollen, a median depression above, occiput smooth, a narrow carina down lower front; occiput more or less piceous and mouthparts brownish. Antennae pale with the intermediate joints usually darker, sometimes nearly piceous, or in one specimen only



faintly brown. Prothorax not so long as wide with nearly straight sides and transverse sulcus across the pronotum, shining, finely punctate, pale yellow brown. Scutellum brown or piceous. Elytra with a small costa running down from humerus, sometimes traces of other lateral costae; finely punctate and finely alutaceous, pale yellow brown with variable pale reddish brown, sometimes piceous, each elytron with markings consisting of a spot on the humerus, another on the side below this and another on the side near the apex, two median ones, one before and the other after the middle; these last spots often absent in part or coalescing along the side, and forming short vittae. Body beneath and legs entirely pale, a spine on middle and hind tibiae, front tibiae of the male enlarged. Length 5.3–6.8 mm.; width 2.4–2.9 mm.

Type, male; one paratype; both in MCZ, from Caracas, Venezuela.

Remarks: In the Bowditch collection are four specimens, two from Caracas, one from San Esteban, collected by E. Simon, and one with no locality label. These are undoubtedly the specimens named by Jacoby in his original description, as *N. dimidiaticornis*; even the markings correspond with the variety having "spots or streaks." There are no specimens from Venezuela in the British Museum collection, but there is a male from Colombia, which is labelled by Jacoby as *Diabrotica piceolimbata* Baly; however it does not correspond with Baly's description of *piceolimbata*, and Jacoby's label should be disregarded. In the U.S. National Museum are other specimens of this species from Caracas collected by A. J. C. Rojas, and specimens from El Valle (near Caracas) collected by C. H. Ballou on *Paponax* and *Crescentia cujete*. There is a great variation in the two series in the elytral markings in that the spots frequently are elongated and coalesce, forming short vittae along the side, in the middle, and below the scutellum along the suture. The markings usually pale reddish brown become piceous brown in some darker specimens. The beetles differ from *N. ebraea* in having a dark piceous or brown occiput. In the latter species there is only a middle dark spot on the vertex.

*Neobrotica praeclara* (Weise)

FIGURE 47

*Cerotoma praeclara* Weise, Zool. Jahrb., suppl. 16, pp. 15–16, 1929.

*Neobrotica dimidiaticornis praeclara*.—Bechyne, Ent. Arb. Mus. G. Frey, vol. 7, no. 1, p. 316, 1956.

About 5.5 mm. in length, elongate oblong oval, feebly shining, alutaceous, the elytra strongly and densely punctate with a tendency to being geminate striate between the feeble costae, pale yellow, the



breast darker, elytral spots with a faint metallic lustre: a spot on the humerus, one about the scutellum, one on the side below the humerus, and a horizontal one before the middle, and one on the side and another in the middle near apex on each elytron.

Head with interocular space less than half width of head, frontal tubercles distinct and a median depression above them, occiput smooth, alutaceous, minutely punctate, a narrow carina down the front; entirely pale in some specimens, brown to piceous in others. Antennae pale. Prothorax not twice as wide as long with slightly rounded sides and a transverse sulcus, shining, very finely and indistinctly punctate, pale. Scutellum pale. Elytra alutaceous with strong dense punctation tending to be geminate striate between the feeble costae, pale yellow with dark markings usually with a violaceous lustre and consisting of a dark humeral spot, sometimes united across the base with a dark area about scutellum, the latter extending down the suture a little way but not meeting the transverse short fascia below; this fascia sometimes broken into a short horizontal mark and a lateral spot, near the apex a median and lateral spot, sometimes united in a semilunate mark. Body beneath and legs pale, the breast deeper brown, the anterior tibiae in male enlarged. Length 5.4–5.9 mm.; width 2.7–3 mm.

Type, whereabouts unknown, from Trinidad.

Other localities: Montserrat, Trinidad, collected by Augustus Busck, June 1903; Cocoa estate about six miles from LaBrea, Oct. 18, 1918, collected by H. Morrison; Dept. Agriculture grounds, Port-O-Spain, November 1918, collected by H. Morrison; Tobago Island, collected by A. Busck.

Remarks: In the Bowditch collection specimens of this species have been placed under *N. coeruleolineata* Jacoby, which is found in Mexico and Guatemala and has similar elytral markings. In the British Museum (Natural History) is a series of seven specimens, all from Trinidad and very constant in markings, that is labelled by Gahan with the manuscript name *trinitatis*. Bechyne has labelled the one specimen in the Frey museum, also from Trinidad, as *Neobrotica dimidiaticornis praeclara* Weise, a new combination for *Cerotoma praeclara* Weise. Although I have not examined the type, Weise's detailed description fits this species, and in particular his description of the distinguishing mark in the elytral spotting of this species, "the 2 and 3 spots lie in a straight cross row", applies to this species and not to *dimidiaticornis*. The species appears to be confined to Trinidad and Tobago Island.



*Neobrotica oblongopunctata* (Jacoby)

## FIGURE 54

*Diabrotica oblongopunctata* Jacoby, Cist. Ent., vol. 3, no. 26, p. 46, 1882.

*Diabrotica nigroguttata* Baly, Journ. Linnaean Soc. Zool., vol. 19, p. 243, 1886.

Between 7 and 8 mm. in length, elongate oblong oval, somewhat shiny although alutaceous, the elytra densely and shallowly punctate with faint lateral costae; pale yellow, the head with a spot on the occiput, sometimes two other spots at the very base of the occiput; elytra with three spots along the side of each elytron and three in the middle.

Head with the interocular space about half width of head, frontal tubercles a little swollen, a small median depression above them and a narrow carina running down the lower front, occiput smoothly rounded, sometimes with a few punctures, pale yellow with a small brown spot in the middle at base and when the head is protruded a smaller spot visible on each side; mouthparts edged with brown. Antennae pale with the basal and apical joints a shade lighter, tip of terminal joint black. Prothorax about a third wider than long with sides slightly rounded and with a transverse depression, finely punctate. Scutellum brown. Elytra faintly alutaceous, shining, with fine, dense and semistriate punctation, pale, each elytron with elongate brown spots, one on the humerus, a second along the side not connected with the humeral spot, and a third at apical curve, in the middle of each elytron one below the scutellum, a second before the middle, and a third after the middle. Body beneath and legs entirely pale, the breast a shade deeper in coloring, middle and hind tibiae with a spine. Length 6.7–8 mm.; width 2.5–4 mm.

Type, in Bowditch collection, MCZ from Caracas, Venezuela; probably several paratypes as some specimens beside the type are labelled "Caracas".

Other localities: Juan Mina, Canal Zone, collected by R. S. Shannon, Sept. 2, 1923, Pecora, Panama, collected Feb. 10, 1945, by H. H. Stage; Para Graso Mindi Dairy Farm, Mindi, Panama, collected by H. F. Dietz; Trinidad, collected by F. W. Urich and A. Busck; Cocoa Estate, about 6 miles from LaBrea, Trinidad, collected by H. Morrison, Oct. 18, 1918; Caracas, Venezuela; Mompos, Nare (on the Magdalena River), Colombia.

Remarks: In the Bowditch collection is a specimen from Caracas bearing the label *nigroguttata* Baly and beneath that the label *oblongopunctata* Jacoby. It seems likely that this is the original Jacoby specimen described by Jacoby from Caracas in 1882. Dr. Selman writes that there are no specimens of *Diabrotica oblongopunctata* Jacoby in the British Museum. There is on one specimen an old Chevrolat green label with the name "*Diabrotica oblongonotata* Chev."



which Dr. Selman has compared with *nigroguttata* and concluded they are synonymous. There is one labelled "*Diabrotica oblongoguttata* Chev." in the same series with the same sort of green label. In addition to these confusing old names, the species has been confused with *Neobrotica ebraea* (Fabricius) which it strongly resembles in its markings. It is, however, a little larger, the eyes are not so closely placed, the elytral punctation is more distinct, and there are traces of costae and the aedeagus is different, too. On the occiput the spot is smaller in *N. oblongopunctata* and there are two smaller spots visible when the head is protruded. On the elytra the humeral spot does not coalesce with the lateral spot below it. It is also similar in elytral markings to *Diabrotica significata* Gahan but lacks the two vittate marks on the prothorax.

*Neobrotica ebraea* (Fabricius)

FIGURE 58

*Crioceris ebraea* Fabricius, Mant. Ins., vol. 1, p. 89, 1787; Ent. Syst., vol. 1, pt. 2, p. 8, 1792; Syst. Eleuth., vol. 1, p. 459, 1801.

*Cryptocephalus* (*Crioceris*) *ebraeus*.—Gmelin, Systema naturae, ed. Linn., vol. 1, pt. 4, p. 1721, 1790.

*Galeruca hebraea*.—Olivier, Entomologie, vol. 6, p. 656, 1808.

*Neobrotica ebraea*.—Weise, in Schenkling, Coleopterorum catalogus, pt. 78, p. 103, 1924.

Between 5 and 6 mm. in length, elongate oblong oval, shiny, faintly alutaceous, the elytra very finely punctate; head pale with a triangular dark spot in the middle of the occiput, dark mouthparts; the thorax, legs and undersurface pale; elytra with an elongate piceous marking extending from the humerus to below the middle, an elongate spot near the middle of base of elytron and one before and one after the middle and one laterally near the apical curve.

Head with the interocular space less than half width of head, frontal tubercles swollen, a median depression above and a narrow carina down the lower front, occiput smooth and shining, head pale except for a triangular piceous spot in middle of base of occiput, and dark mouthparts. Antennae entirely pale except tip. Prothorax wider than long with nearly straight sides, a shallow transverse depression, pale, shiny, nearly impunctate. Scutellum dark. Elytra shiny, faintly alutaceous, very finely punctate, pale with markings as described above. Body beneath and legs usually entirely pale, anterior coxal cavities open, a spine on the middle and hind tibiae, the first tarsal joint and anterior tibiae of the male swollen. Length 5–5.9 mm.; width 2.5–3 mm.

Type, whereabouts not known, from Cayenne, French Guiana.

Other localities: Para, Bahia, Brazil; Rustenwerk, Surinam (Dutch Guiana), on cacao, collected by D. C. Geyskes; Cayenne, French



Guiana, collected by W. Schaus; San Rafael, Trinidad, collected by Adamson; Caucagua, Venezuela, on cacao, collected by Ed. Miranda; Caracas, Venezuela.

Remarks: The distinguishing mark of this species is the elongated spot extending from the humerus down the side of the elytron, which is broken into two spots in *N. oblongopunctata* (Jacoby).

*Neobrotica comma* Bechyne

FIGURE 50

*Neobrotica comma* Bechyne, Ent. Arb. Mus. G. Frey, vol. 7, no. 1, p. 316, 1956.

*Neobrotica comma* ssp. *additionalis*.—Bechyne, Ent. Arb. Mus. G. Frey, vol. 7, no. 1, p. 317, 1965.

From 6 to 7.5 mm. in length, elongate oblong oval, somewhat shiny, although alutaceous, the elytra very finely punctate and with traces of costae, pale yellow brown, the head piceous to antennal sockets, lower front pale, mouthparts dark; legs and antennae pale, breast dark; elytra with dark humeri, a narrow dark area about scutellum and dark a little way down the suture, on each elytron two subapical dark spots, one on the side, one in the middle; front tibiae and first tarsal joint of the male enlarged.

Head with interocular space less than half width of head, occiput alutaceous and very finely punctate, a median depression over the frontal tubercles, carina only visible a short way down lower front, the lower front pale, mouthparts and occiput dark. Antennae entirely pale. Prothorax somewhat wider than long with slightly curved sides and a transverse sulcus, shining, very finely punctate, pale yellow brown. Scutellum tan colored. Elytra finely alutaceous and distinctly and densely punctate, the punctation tending to be striate and with traces of four or five costae on each elytron, more apparent in the male; pale yellow with elongate piceous markings, sometimes with a greenish lustre, over the humeri, about the scutellum and down the suture and two elongate dark spots near the apex, one on the side and the other near the middle of each elytron. Body beneath pale except the shiny piceous breast, legs entirely pale. Length 6–7.5 mm.; width 3–3.5 mm.

Type, female, in G. Frey Museum, from Coroica, Bolivia.

Other localities: Yungas, tropical region, Chapare, 4000 m., Bolivia, collected by Zischka and E. W. Reitter; Cochabamba, Bolivia, collected by Germain; Huallaga, Tocache, Peru, collected by C. A. Baer; Monson Valley, Tingo Maria, Peru, October–December 1954, collected by E. I. Schlinger and E. S. Ross; Valley Chanchamayo, Peru, 800 m., collected by Weyrauch, August 1951; Colombia, Rio Juntas, Brazil.

Remarks: In Bechyne's subspecies of this genus, *additionalis*, described from specimens from Callanga, Peru, there is another line in



the middle of the base of the elytra. This may not be the same species, but since it is described from a female, one cannot determine the exact status. Bechyne includes under this subspecies a specimen from Puno, Peru, which is also a female with an extra line, and two others, one from Sicuani, Peru, and the other from Tingo Maria, Peru, both without the line and similar to the type of *comma*. I have examined a large series from Tingo Maria and all are without this additional line. In fact, the markings are remarkably constant. The species seems to be widespread, occurring from Colombia to Bolivia and eastward into Brazil.

*Neobrotica ruficollis*, new species

FIGURE 44

About 6 mm. in length, elongate oblong oval, shining although faintly alutaceous, the elytra densely but not coarsely punctate, not costate, pale yellow with the occiput, mandibles, antennal joints six to eight, and spots and vittate markings on the elytra piceous, prothorax reddish brown.

Head with the interocular space scarcely half the width of the head, tubercles rather indistinctly marked, a median pit above them, carina indistinct, the lower front rather bulging, occiput to antennal sockets piceous, lower front pale yellow, labrum dark. Antennae brownish deepening to nearly piceous in joints six to eight, the three apical joints pale. Prothorax almost as long as wide with slightly curved sides, the usual transverse sulcus, very shiny, nearly impunctate, deep reddish brown. Scutellum dark brown. Elytra alutaceous but shiny, wider after the middle, finely and moderately densely punctate, not costate, pale yellow with a piceous spot on the humeri, extending along side to the middle, also a dark sutural vitta from base nearly to the middle, and two spots on each elytron below the middle, near apex, one along the side, the smaller one in the middle. Body beneath and legs pale with the breast dark, the sides of prosternum reddish brown as on pronotum. Length 6 mm.; width 3 mm.

Type, male, USNM 66841, from Loma Alta, Bolivia, collected by G. Pinckert, April 22, 1957.

Remarks: The markings are much like those of *N. comma* Bechyne but the prothorax is reddish brown, the antennae bicolored, and the elytra not at all costate.

*Neobrotica rendalli*, new species

FIGURE 48

About 6 mm. in length, oblong oval, shining, the elytra densely and tending to be geminately striate punctate, with faint ridges or costae between, pale yellowish, the head piceous on the occiput, the



mouthparts, intermediate antennal joints and elytral markings piceous, a long vitta extending from the humerus along the side but not covering the margin, a dark area about and below the scutellum, and a very small median spot near the apex; body beneath and legs pale except for the dark breast.

Head with the interocular space a little more than half width of head, a median depression over the frontal tubercles, occiput shining, very finely punctate, a narrow carina running down the lower front, occiput of head to the antennal sockets and around the eyes piceous, lower front pale, mouthparts dark. Antennae with the intermediate joints dark. Prothorax not twice as wide as long with slightly curved sides and a transverse sulcus, shining, finely punctate, entirely pale. Scutellum pale. Elytra faintly costate with geminate striate punctation in the intervals, shining, pale yellow with piceous or deep brown markings, a vitta extending from the humerus along the side to the apical curve of irregular outline, suggesting the coalescence of three spots, and a broad dark area about the scutellum and a little way down the suture, also a small median spot near the apex of each elytron. Body beneath and legs pale with the breast dark. Length 6.2 mm.; width 3 mm.

Type, female, MCZ 30670, from Caparo Valley, Port-of-Spain, Trinidad, collected by Dr. Rendall, January 1897.

Remarks: Only one specimen, a female, is known. The elytra are a pale lemon color, possibly faded from a green. The unusual irregular lateral vitta on the elytra is distinctive of this species. Bowditch had attached the manuscript name *Rendalli* to it, after its collector.

*Neobrotica stalagma*, new species

FIGURE 55

About 7 mm. in length, elongate oblong oval, shining although alutaceous, elytra feebly costate on sides and with punctures tending to be striate, yellow brown, the occiput of head piceous, the antennae with the intermediate joints dark and the elytra with a sutural dark vitta extending below the middle and a long dark humeral area uniting with a short median vitta and a shorter apical vitta on each elytron, breast dark, legs pale.

Head with the interocular space approximately half width of head, frontal tubercles swollen and a median depression above, the carina down the lower front not very distinct, but rather flat and punctate, upper half of head piceous, lower front pale, mouthparts dark. Antennae pale with brownish intermediate joints. Prothorax wider than long with curved sides and a transverse depression, alutaceous, very finely and indistinctly punctate, entirely pale yellow brown. Scutellum tan colored. Elytra with feeble costae along the sides,



distinctly alutaceous, finely and rather densely punctate, the punctures having a tendency to be geminate striate; pale yellow brown with a dark brown or piceous moderately wide humeral vitta curving inwards and connecting with a median spot or vitta, which extends down as far as the sutural vitta, another short vittate mark on the side at apical curve on each elytron. Body beneath pale with the breast dark, legs entirely pale. Length 7 mm.; width 3.5 mm.

Type, female, MCZ 30667, from Cali, Colombia, collected by Rosenberg, September–December 1894.

Remarks: There is one other specimen from Muso, Colombia, which may be a less heavily marked specimen of the same species. In this the median line does not connect with the humeral vitta. It is also a female.

*Neobrotica atrilineata*, new name

FIGURE 57

*Neobrotica lineigera* Bechyne, Ent. Arb. Mus. G. Frey, vol. 7, no. 1, p. 318, 1956.

Between 5 and 6 mm. in length, oblong oval, faintly shining, alutaceous, the elytra finely punctate and with traces of costae along the sides, pale yellow brown with piceous occiput and narrow piceous elytral vittae, one extending from the humerus along the side to apical curve, a shorter one on the disc not reaching the base, and a short sutural one from about the scutellum down a little way on the suture.

Head with the interocular space less than half width of head, frontal tubercles somewhat swollen, a shallow median depression above and a narrow carina down the lower front, surface of occiput alutaceous and finely punctate; upper half of head often to the antennal sockets deep brown to piceous, lower front pale, mouthparts usually dark. Antennae usually entirely pale, but in one specimen joints five to eight deeper brown. Prothorax nearly as long as wide with slightly curved sides and a transverse sulcus; surface alutaceous and indistinctly and faintly punctate, pale. Scutellum brown. Elytra with traces of lateral costae, alutaceous and finely punctate, pale yellow brown, each elytron with a piceous vitta extending from the humerus to the apical curve, not reaching the apex, and a shorter median vitta not reaching the base on the disc, and a very short sutural vitta extending from around the scutellum a little way down the suture. Body beneath pale with the breast shining piceous, legs entirely pale, a spine on the middle and hind tibiae, first tarsal joint of the male enlarged. Length 5.3–6.3 mm.; width 2.8–3.1 mm.

Type, male, in G. Frey Museum, Tutzing, near Munich, Germany, from Santa Cruz, Bolivia.

Other localities: Cochabamba, Bolivia, collected by Germain.



Remarks: In 1887 Jacoby described a *Neobrotica linigera* from Panama, a quite different species from the one Bechyne described from Bolivia as *N. lineigera* in 1956. Also different from either is a species that Bechyne described in 1958 as *N. lineigera* from Brazil. The name *lineigera* is essentially the same as *linigera*, and according to rules of zoological nomenclature, article 58, no. 2, it should not stand as distinct. Bowditch had attached the manuscript name *atrilineata* to this species in a series in his collection from Cochabamba. It differs from *N. oberthüri* in having pale legs as well as a narrower prothorax. There are also traces of elytral costae in this species which are not present in *N. oberthüri*.

***Neobrotica flavolimbata*, new species**

FIGURE 62

About 7 mm. in length, elongate oblong oval, dull, alutaceous, the elytra strongly punctate with a tendency to being striate, yellow brown, the elytra mostly piceous with a narrow pale fascia below the middle, the margin and apex pale; legs, antennae and the body beneath entirely pale.

Head with the interocular space approximately half the width of head, a median depression above the rather poorly defined frontal tubercles, occiput finely punctate, a narrow carina down the front, on either side of which the surface is wrinkled, pale yellow brown with the labrum piceous. Antennae pale except for the dark brown tip of the apical joint. Prothorax with slightly rounded sides and a transverse shallow groove, finely punctate, entirely pale yellow brown. Scutellum pale. Elytra widened below the middle, alutaceous, not shiny, punctation strong and tending to be striate, with faint traces of costae, a few scattered hairs along the sides; a broad piceous basal and an apical fascia separated narrowly by a pale fascia below the middle, the margins and apex pale. Body beneath and legs entirely pale. Anterior coxal cavities open, claws appendiculate, a spine at the end of middle and hind tibiae. Length 7.4 mm.; width 3.7 mm.

Type, female, BMNH, Baly collection, from Merida (no label for country).

Remarks: The unusual elytral coloring of this species differentiates it from any of the others without strong elytral costae.

***Neobrotica hepatica* Bechyne**

FIGURE 51

*Neobrotica hepatica* Bechyne, Ent. Arb. Mus. G. Frey, vol. 9, no. 2, p. 597, 1958.

Between 6 and 7 mm. in length, oblong oval, somewhat shiny, faintly alutaceous, the elytra distinctly punctate, pale yellow with a reddish brown occiput and two broad reddish brown elytral fasciae interrupted



at the suture and each with a median pale spot, a narrow pale yellow fascia between them; body beneath reddish brown with deeper brown to piceous shadings in the middle of the abdomen and breast, femora deep brown to piceous.

Head with interocular space fully half width of head, smoothly rounded over occiput, shining, finely punctate, a median depression above the frontal tubercles, a narrow carina down lower front; upper part of head tan colored, lower half pale yellow; mouthparts tipped with brown. Antennae entirely pale. Prothorax much wider than long but not twice as wide, and with curved sides, a shallow transverse sulcus, in some specimens only an oblique depression on either side; very indistinctly punctate, pale yellow sometimes with a faint brown spot in the middle at base. Scutellum tan colored. Elytra pale with a broad reddish brown basal and an apical fascia having pale median spot on each elytron, the first fascia not reaching the base and the apical one not reaching the apex, leaving the margins and suture pale and a narrow pale fascia between the tan colored ones below the middle. Body beneath tan colored with darker, often piceous, shadings on the side of the breast and middle of the abdomen and metasternum. Femora deep brown or piceous and usually pale at the apex; tibiae and tarsi pale, middle and hind tibiae with spine, front coxal cavities open, claws appendiculate. Length 5.7–7.2 mm.; width 3.1–3.6 mm.

Type, female; one paratype; both in G. Frey Museum, Tutzing, near Munich, Germany, from Rio Huallaga, Tingo Maria, Peru.

Other localities: A large series of this species in the California Academy of Sciences, was taken by E. I. Schlinger and E. S. Ross in the Monzon Valley, Tingo Maria, Peru, Sept. 21, 1954, and another series in the U.S. National Museum was also taken at Tingo Maria by J. Dieguez in October 1949, on *Erythrina*.

Remarks: The unusual color pattern of this species easily distinguishes it from other species of *Neobrotica*.

*Neobrotica rogaguaensis*, new species

FIGURE 52

About 6 mm. in length, elongate oblong oval, shining, densely and not coarsely punctate, the elytra with faint traces of costae; pale yellow with pale reddish brown markings on the occiput, on the intermediate joints of the antennae, tibiae and tarsi and the three broad elytral fasciae interrupted at the suture, the apical one with an elongate pale spot on each elytron.

Head with the interocular space half width of head, occiput although alutaceous finely punctate about the median depression over the frontal tubercles, carina very short ending in a depression between the rather bulging sides of the lower front, occiput and labrum reddish



brown, lower front pale yellow. Antennae brownish, shading to deep brown in the intermediate joints, terminal three joints pale yellow with the tip dark. Prothorax somewhat rectangular but not twice as wide as long with slightly rounded sides, the transverse sulcus well marked, surface shiny, very finely punctate. Scutellum brown. Elytra alutaceous, feebly shining, rather densely and distinctly punctate, faintly costate; pale yellow with a basal, median and apical fascia with an elongate pale spot, possibly in some specimens dividing this apical fascia into two. Body beneath and femora pale, tibiae and tarsi more or less brownish piceous, anterior coxal cavities open, the claws appendiculate. Length 5.8 mm.; width 3 mm.

Type, male, USNM 66846, from Rosario, Lake Rogagua, Bolivia, collected by W. M. Mann, Oct. 28–Nov. 9, 1921.

Remarks: The pale reddish brown markings and rather unusual elytral pattern sufficiently differentiate this species. In coloring it is closest to *N. hepatica* Bechyne, having similar reddish brown elytral markings.

*Neobrotica inconstans* Jacoby

FIGURE 61

*Neobrotica inconstans* Jacoby, Proc. Zool. Soc. London, p. 285, 1889.

About 6 mm. in length, elongate oblong oval, shining, faintly alutaceous, head, breast, intermediate joints of antennae, tibiae and tarsi piceous; base of head, thorax and rest of beetle pale yellowish brown, except in one specimen, which has a dark spot on the humerus; the elytra not at all costate but with bare lines instead, the intervals being geminate striate.

Head with interocular space about half width of head, shining piceous except at the base which is pale, a median depression above the rather indistinctly marked frontal tubercles, carina down front not distinguishable from the slightly swollen lower front. Antennae with the three basal joints and three apical ones pale, intervening ones piceous. Prothorax almost twice as broad as long with rounded sides and transverse sulcus, finely punctate, shining, pale yellow brown. Scutellum pale. Elytra widened in apical half, a short shallow intra-humeral sulcus, punctation in double rows between bare lines, not at all costate, surface faintly alutaceous but shiny, pale yellow brown; one elytron paler near the suture than on the sides, the other uniformly yellow brown. Jacoby writes that one specimen has a humeral dark spot. Body beneath pale with the breast piceous, femora pale, tibiae and tarsi dark. Length 6 mm.

Type, whereabouts unknown; "variety," female, in MCZ, from Tovar Colonia, Prov. Guzman, Blanco Mts., 1900 m., Venezuela, collected by E. Simon in 1888.



Remarks: Only one specimen of this species has been examined, the "variety" of Jacoby's description, which is in the Museum of Comparative Zoology. The species was described from a collection of beetles by E. Simon, made in Venezuela in 1888, and it is possible that the typical form was returned to the collector. It is not in the British Museum (Natural History). In the typical form Jacoby describes the elytral shoulders as having a "short narrow elongate and angular black mark, the lower angle of which turns inwards and a round piceous obscure spot below." He describes the variety as being immaculate, the specimen as having the left elytron pale green and the right one fulvous. In this specimen at present the green has entirely disappeared, leaving the elytron mostly pale yellow but not so deep in color as the right elytron, which is yellow brown. The distinctive thing about the species is the lack of costation and the presence of bare longitudinal lines on the elytra with the intervals geminate striate punctate.

*Neobrotica germaini*, new species

FIGURE 46

About 5.5 mm. in length, elongate oblong oval, feebly shining and somewhat alutaceous, the elytra distinctly and rather densely punctate, pale reddish brown with a dark piceous occiput on head and dark markings having a faint violaceous tint on the elytra, these consisting of a sutural vitta not reaching the middle and a dark lateral mark from the humerus down the side of the same length as the sutural vitta, which curves at the end across the elytron but does not reach the suture, and near the apex on each elytron a thick lunate mark opening towards the suture; breast dark, rest of undersurface and legs pale.

Head with interocular space approximately half width of head, a small median depression over the frontal tubercles, a carina down lower front which is reddish brown, the occiput being piceous. Antennae with third joint shorter than fourth, joints five to eight deeper brown, apical two joints pale yellow with the tip dark. Prothorax with rounded sides, shining, smooth, the transverse sulcus represented by an oblique depression on each side, entirely reddish brown. Scutellum piceous. Elytra faintly costate, distinctly and confusedly punctate, reddish brown with dark markings having a faint violaceous tint and as described above. Body beneath and legs reddish brown except the breast which is shining piceous. Anterior coxal cavities open, claws appendiculate. Length 5.5 mm.; width 2.5 mm.

Type, female, Bowditch collection, MCZ 30816, from Cochabamba, Bolivia, collected by Germain.



Remarks: Bowditch has attached the manuscript name *N. germari* to this distinctive little species, meaning, I believe, to name it after its collector. The label reads simply "Germ.," but I believe that instead of the German Germar who died in 1853, this abbreviation is for Germain (1827-1913), the Chilean entomologist who collected in the Andes and wrote many papers on the insects of Chile.

This species is more costate and more strongly punctate than *N. ruficollis*, and the third joint is shorter than the fourth antennal joint, which joints in *ruficollis* are subequal.

*Neobrotica erythrinae* Bechyne

FIGURE 43

*Neobrotica erythrinae* Bechyne, Ent. Arb. Mus. G. Frey, vol. 9, no. 2, p. 598, 1958.

Between 5 and 7.5 mm. in length, elongate oblong oval, somewhat shiny, although faintly alutaceous, the elytra densely and finely punctate, pale yellow with the upper part of the head piceous black and the breast black; the elytra varying from having heavy piceous markings over the base, middle and apex to being pale with only traces of these markings at the side, suture and apex; tibiae with a dark streak.

Head with the interocular space approximately half width of head, occiput smoothly rounded, alutaceous, very finely punctate, the frontal tubercles not well marked but somewhat swollen and above them a median depression; lower front with a very narrow carina, upper part of the head and about the eyes piceous, lower front sometimes entirely pale but usually with a median darkening and dark mouthparts. Antennae with the intermediate joints brownish, tip of terminal joint dark. Prothorax a little wider than long, with somewhat curved sides and a rather shallow transverse sulcus, often marked only by an oblique depression on either side, shining, impunctate, pale yellow. Scutellum piceous. Elytra very finely punctate, alutaceous, pale yellow with variable dark piceous markings; in the more darkly marked specimens on each elytron a large dark basal spot often connecting along the side with a median dark fascia that does not reach the suture, or this may be entirely lacking; at the apex another broad band, sometimes broken up into a semicircular dark marking near the apex, the suture dark about the scutellum, in the paler specimens only remnants of these fasciae marked by spots on the humerus, along the side, and at apex. Body beneath pale with the breast dark, legs pale, the tibiae with a darker streak on the outside, the abdomen dorsally somewhat darker. Length 6.5-7.5 mm.; width 2.5-3 mm.

Type and paratype in the George Frey Museum, Tutzing, near Munich, from Tingo Maria, Rio Huallaga, 700 m., collected by



Weyrauch, July 1947, and by J. Diaguez at the same locality in October 1949; both collections taken on *Erythrina*.

Remarks: In a large series of this species in the U.S. National Museum the markings are very variable, scarcely any two specimens being exactly alike. I cannot detect any sexual dimorphism in the color pattern as suggested by Bechyne.

*Neobrotica regularis*, new species

FIGURE 42

About 5 mm. in length, narrowly oblong oval, faintly shining, alutaceous, the elytra finely and densely punctate, pale yellow brown, the head over the occiput down to the frontal tubercles piceous, the elytra with piceous markings across the base and down the side at the middle united with a spot and sometimes before the apex united with a large spot, the breast dark, legs and antennae pale.

Head with the interocular space less than half width of head, frontal tubercles swollen, a median depression above them and a narrow carina down the lower front; occiput alutaceous, very finely punctate, piceous with the lower front pale. Antennae entirely pale. Prothorax a little wider than long with nearly straight sides and a transverse sulcus across disc; surface faintly alutaceous and shining, entirely pale. Scutellum tan colored. Elytra not at all costate with a short intrahumeral sulcus, strongly alutaceous and densely and finely punctate; on each elytron a broad piceous band across the base extending about the scutellum and a little way down the suture, and from the humerus down the side, uniting with another large spot before the middle and sometimes with another before the apex, or this may not be united. Body beneath pale with the breast dark, the legs entirely pale; middle and hind tibiae with spine. Length 5.3 mm.; width 2.8 mm.

Type, male, MCZ 30669; one paratype, BMNH; both from Venezuela and labelled "Laferté collection Venezuela."

Remarks: Bowditch has given this the manuscript name *N. regularis*. It is closely related to *N. erythrinae* Bechyne from Tingo Maria, Peru, but the elytral markings are slightly different and, unlike *N. erythrinae*, it has pale legs and pale antennae.

*Neobrotica bowditchi* Bechyne

FIGURE 60

*Neobrotica inconspicua* Bowditch, Canadian Ent., vol. 44, p. 15, 1912. [Not *N. inconspicua* Jacoby.]

*Neobrotica bowditchi* Bechyne, Ent. Arb. Mus. G. Frey, vol. 9, no. 2, p. 596, 1958.

From 6 to 7 mm. in length, elongate oblong oval, not very shiny, alutaceous, the elytra densely punctate, pale yellowish brown, one



specimen with a reddish brown humeral spot, and in the same specimen the head on top deep brown. Antennae pale yellowish brown.

Head with interocular space less than half width of head, occiput alutaceous, finely punctate, the frontal tubercles a little swollen with a median depression above and a narrow carina down lower front, in one specimen the occiput brown, in the rest entirely pale. Antennae moderately long, yellowish brown. Prothorax somewhat wider than long with slightly curved sides and a transverse sulcus, surface alutaceous, distinctly punctate. Scutellum pale. Elytra without signs of costae, densely, shallowly and rather coarsely punctate, the punctures tending to be in rows, surface dull alutaceous, pale yellowish brown, in one specimen a reddish brown humeral spot. Body beneath pale with the breast in some specimens a little deeper in shading, legs entirely pale, front tibiae in the male enlarged, a spine on the middle and hind tibiae. Length 6–7.3 mm.; width 3.4–4 mm.

Type, male; one paratype; both in MCZ, from Callanga, Peru.

Other localities. Five specimens in the Museum of Comparative Zoology all females, from Cochabamba, Bolivia, collected by Germain; one specimen in the U.S. National Museum, one specimen in the Frey Museum from Peru.

Remarks: Jacoby has already described a *Neobrotica inconspicua* from Mexico which is also an entirely pale species except for the antennae, but with elytral costae.

*Neobrotica octosignata*, new species

FIGURE 64

Between 6 and 8.5 mm. in length, elongate oblong oval, not very shiny, alutaceous, elytra not at all costate, coarsely and confusedly punctate, pale yellow brown; the elytra with reddish brown or piceous spots, one on the humerus, one large one below the scutellum near the suture, another near apex and suture, and one at the apical curve on the side of each elytron.

Head with interocular space about half width of head, a median depression over frontal tubercles, occiput alutaceous and finely punctate, a rather poorly defined carina down the lower front, lower front punctate on the sides, head entirely pale. Antennae pale with the intermediate joints a little deeper in color. Prothorax wider than long with slightly curved sides and a transverse sulcus; alutaceous and finely punctate, usually entirely pale but one specimen with a piceous spot on each side anteriorly, no trace of this spotting in the other four specimens. Scutellum pale. Elytra without costae, alutaceous, not shining, densely and rather coarsely punctate, the punctures tending to be striate; pale yellow brown with reddish brown to piceous spots, one covering the humerus, another large one a little below the scutellum



and near the suture, a third in line with the second near the apex, and a fourth at the apical curve on the side on each elytron. Body beneath and legs entirely pale, spines on all the tibiae. Length 6–8.5 mm.; width 3.1–4.2 mm.

Type, female, MCZ 30672, from Marcapata, Peru; one specimen labelled "Peru," collected by M. Kirsch, 1st Jacoby collection; five specimens, BMNH, three labelled "Peru," collected by M. Kirsch, and one without a label.

Remarks: The specimens in the British Museum have the name "*Diabrotica 8-punctata* Jacoby i.1." (in litt.) and those in the Bowditch collection "*Neobrotica 8-signata*," also a manuscript name. This species resembles one from Costa Rica but lacks the small spot below the humerus found in that species and the antennae are shorter. A specimen of this species was collected at Tingo Maria, Dept. Huanuco, Peru, 670 m., by G. H. Dieke Aug. 16–25, 1951.

*Neobrotica grandis*, new species

FIGURE 66

Approximately 8 mm. in length, elongate oblong oval, dull alutaceous, not at all shiny, the elytra very faintly costate with dense, not coarse punctation, pale yellow with darker mouthparts, the elytra with a deep brown almost piceous spot on the humerus, another before the middle and one after the middle and another at the apical curve, a dark edging about the scutellum on each elytron.

Head with interocular space half its width, a depression over the frontal tubercles and finely punctate about this depression, the occiput alutaceous, a narrow carina down the lower front with coarse punctures on either side, entirely pale except the brown mouthparts. Antennae pale with a little deeper coloring in the intermediate joints. Prothorax a little wider than long with slightly curved sides and a transverse sulcus, surface dull, alutaceous with fine punctures. Scutellum pale. Elytra faintly costate with the intervals irregularly geminate punctate, the punctures shallow and dense, surface dull, alutaceous, not at all shiny, pale yellow with small deep reddish brown spots, one on the humerus, one before and one after the middle, and one on the side at apical curve, the scutellum edged with dark. Body beneath and legs entirely pale, spines on all the tibiae. Length 8 mm.; width 3.7 mm.

Type, female, MCZ 30673, from Cauca, Colombia.

Remarks: The dull alutaceous surface together with the position of the elytral spots separate *N. grandis* from the other large spotted species. It is larger as well as paler than *N. colombiensis*, the under surface being entirely pale, and there are traces of costae which are



lacking in *colombiensis* and the dull alutaceous surface is unlike that species. Bowditch has attached the manuscript name *grandis* to it.

*Neobrotica quadrimaculata*, new species

FIGURE 65

About 7 mm. in length, elongate oblong oval, somewhat shiny, alutaceous, elytra densely and strongly punctate, the prothorax with a shallow transverse sulcus, pale yellow brown, the occiput of head piceous, breast dark, elytra with a small dark spot on the humerus and another small one before the middle of each elytron.

Head with interocular space half width of head, frontal tubercles swollen, a depression above, carina short, lost in the bulging lower front, head piceous over occiput, from frontal tubercles down yellowish brown. Antennae with the terminal joint missing, brownish with joints 9 and 10 pale yellow. Prothorax with sides slightly curved, a very shallow transverse sulcus, shiny, nearly impunctate, yellowish brown. Scutellum tan colored. Elytra wider towards apex, distinctly punctate, alutaceous, faintly shiny, no signs of costae, markings as above. Body beneath pale yellowish brown with the breast dark, legs entirely pale; middle and hind tibiae with a spine, anterior coxal cavities open, claws appendiculate. Length 7 mm.; width 3 mm.

Type, female, BMNH, from Mucutuy, La Veganilla, 5000 ft., E. Merida, Venezuela, collected by J. Hanbury Tracey, Oct. 21, 1938.

Remarks: This is another of the large pale spotted species. It differs from the others in having only four elytral spots with the occiput of the head dark.

*Neobrotica ludicra* Bechyne

FIGURE 67

*Neobrotica ludicra* Bechyne, Ent. Arb. Mus. G. Frey, vol. 9, no. 2, p. 599, 1958.

Approximately 8 mm. in length, elongate oblong oval, the elytra strongly and densely punctate, pale yellow with the head dark and dark markings along the base of the elytra extending down the side and down the suture about a quarter the length of the elytra, also a large dark spot on each elytron on the side near the apex.

Head with the interocular space more than half the width of the head, tubercles somewhat swollen with a shallow median depression above, occiput smooth, finely punctate, carina very short and broad, cheeks bulging. Antennae long and slender, the basal three and apical three joints pale, intermediate ones deeper brown; third joint not much longer than second and fourth joint nearly three times as long as second. Prothorax considerably wider than long, with slightly curved sides; the transverse sulcus not deep, very finely punctate,



shining, pale yellow. Scutellum pale. Elytra in type specimen shrivelled, probably wider in apical half, shiny, densely and strongly punctate; a piceous basal marking covering the entire base and running down side from the humerus and also extending down the suture about a quarter of the length of the elytra, a large piceous spot on the side near the apex of each elytron, not joined at the suture. Body beneath pale, legs entirely pale. Anterior coxal cavities open, claws appendiculate. Length 8 mm.

Type, female, in G. Frey Museum, Tutzing, near Munich, from Coroico, Bolivia.

Remarks: It is very doubtful whether this species should be included in the genus *Neobrotica*. The antennae are not typical of *Neobrotica*, the third joint being about the length of the second, and the fourth and fifth joints nearly three times as long as the third. The head is also different, having only a very short carina. Dr. Gerhard Scherer has made a drawing of the head for this paper. Unfortunately the only specimen known is a female. In this group with the short third antennal joint, the male usually has other characteristics, such as excised middle tibiae. Until a male is found, it is impossible to be certain of the genus in which this species belongs.

*Neobrotica anisocincta* Bechyne

FIGURE 68

*Neobrotica anisocincta* Bechyne, Ent. Arb. Mus. G. Frey, vol. 9, no. 2, pp 599-600, 1958.

About 5 mm. in length, elongate oblong oval, shining, the elytra coarsely and rugosely punctate, pale yellow with a dark head, dark basal fascia and another narrower one near the apex of elytra, dark breast and dark intermediate joints of the antennae.

Head with interocular space half width of head, a depression above frontal tubercles, occiput shining with a few punctures near base, no carina down lower front, the lower front somewhat bulging; entirely dark. Antennae with the basal and three apical joints pale, intermediate ones dark, the third antennal joint only half as long as the fourth. Prothorax with a transverse sulcus, the sides slightly rounded, entirely pale. Scutellum pale. Elytra widened behind, very rugosely punctate, shining, pale with a wide dark basal fascia extending one-third the length of the elytra, and another near the apex not so wide. Body beneath pale with the breast dark, legs entirely pale. Length 5.3 mm.

Type, female, in G. Frey Museum, Tutzing, near Munich, Germany, from Callanga, Peru.

Remarks: Unfortunately only one specimen, a female, is known, and this one is an old dirty specimen. This is probably not a species of



*Neobrotica*. The third antennal joint is only half as long as the fourth. The head lacks a carina. Dr. Gerhard Scherer has made a detailed drawing of the front of the head. Until a male is found I cannot place this in a genus. The claws while not bifid have a longer basal tooth than is usual in the *Neobrotica*.

### *Hystiopsis*, new genus

Elongate oblong oval, the head in both sexes with the lower front depressed below the antennal sockets, the antennae alike in both sexes, being filiform with the third and fourth joints subequal. Pronotum with a well defined transverse sulcus. Elytra strongly costate with the intervals more or less coarsely and usually geminate striately punctate. Anterior coxal cavities open, tibiae with a spine at the end, anterior tibiae in the male usually enlarged and the first tarsal joint in the male usually thickened, first tarsal joint of hind legs longer than the others together, claws appendiculate.

Type species: *Crioceris marginalis* Fabricius.

Remarks: The genus is erected for a group of South American beetles that are closely related to *Neobrotica*, *Eccoptopsis*, and *Eucerotoma*. They have the strong elytral costae of *Eucerotoma*, but lack the sexual differences found in the excavated face and antennal joints of the male in both *Eucerotoma* and *Eccoptopsis*. They are closely related to *Neobrotica* but differ in the depressed lower front of the face. This depressed lower front is common to both sexes and not so definitely excavated as in *Eucerotoma* and *Eccoptopsis*.

The name *Hystiopsis* is derived from the Greek ὕστιος, meaning "bent back," and ὤψις, meaning "face."

### Key to Species of *Hystiopsis*

1. Head pale on occiput . . . . . 2  
    Head dark on occiput . . . . . 3
2. Elytra with a dark lateral vitta from humerus to near apex and also a dark sutural vitta . . . . . **marginalis** (Fabricius) (p. 325)  
    Elytra with a dark area about scutellum and three dark spots on each elytron . . . . . **exarata**, new species (p. 338)
3. Elytra dark with pale spots or fascia . . . . . 4  
    Elytra pale with dark spots, fasciae or vitta . . . . . 8
4. Prothorax pale with a dark median vitta . . . . . **irritans**, new species (p. 334)  
    Prothorax entirely pale . . . . . 5
5. Each elytron with three pale spots, the apical one being open at apex . . 6  
    Each elytron with less than three spots . . . . . 7
6. Apical spot common to both elytra . . . . . **grossa**, new species (p. 337)  
    Apical spot not common to both elytra . . . . . **maculata**, new species (p. 334)
7. Elytra with a narrow pale fascia below middle and no spots.  
    . . . . . **zonata**, new species (p. 333)







being for the most part geminate striate punctate; explanate margin noticeably wide, surface dull and alutaceous; pale yellowish or reddish brown with dark brown or piceous markings, a broad lateral vitta extending from over humerus along the side nearly to the apex, a narrow sutural vitta which widens at apex, a roundish area on each side of the scutellum, another median roundish area near the apex. Body beneath entirely pale, legs with tibiae usually deeper brown on outside edge; in the male the front tibiae and first tarsal joint enlarged. Length 6.2–6.5 mm.; width 3 mm.

Type in Fabricius collection, Copenhagen, Denmark, "Habitat in America meridionali, D. Smidt, Mus. D. Lund."

Other localities: Two specimens, John Wilcox collection, from Caura River, Suapure, Venezuela, collected April 7, 1899, by E. A. Klages; two females, Bowditch collection, MCZ, without labels; one female, BMNH, from Surinam (Dutch Guiana).

Remarks: In markings this species closely resembles *H. peruensis* but the elytra are more strongly costate and the head is pale instead of being piceous.

*Hystiopsis nigriventris*, new species

FIGURE 79

About 7 mm. in length, oblong oval, faintly shining, alutaceous, the elytra distinctly costate with geminate punctation in the intervals; head, breast and abdomen, tibiae and tarsi, and part of femora dark; prothorax and elytra pale yellow, the latter with a long humeral dark vitta extending almost to the middle of the elytra, the area about the scutellum also piceous, the suture widely piceous in the apical half joining with a lateral dark vitta extending from below the middle to the apex, leaving the margin pale.

Head with interocular space half width of head, occiput finely punctate, alutaceous but shiny, frontal tubercles swollen and a median depression above them, lower front depressed, a fine elevated line down from between the antennal sockets; head entirely dark except the neck, antennae dark with the last three joints pale, the tip being dark. Prothorax considerably wider than long with nearly straight sides and a transverse depression, alutaceous, finely punctate, entirely pale yellow. Scutellum piceous. Elytra with 7 or 8 more or less distinct costae, the intervals being geminate punctate, alutaceous but feebly shining, pale yellow, a piceous marking extending from humerus along side nearly to the middle, and another along side from below the middle to apex and uniting there with a broad sutural vitta, the margin pale; another piceous marking extending from about scutellum down the



suture nearly to the middle, the intervals between that and the apical sutural dark area being very narrowly piceous. Body beneath with the breast piceous and abdomen dark brown, femora dark above and at apex, tibiae and tarsi dark. Length 6.8 mm.; width 3.5 mm.

Type, female, CAS, from the valley of the Rio Monzon, Tingo, Maria, Peru, collected by E. I. Schlinger and E. S. Ross, Dec. 2, 1954.

Remarks: This is an unusually dark colored species, but very similar to *H. peruensis* with slightly different markings.

*Hystiopsis beniensis*, new species

FIGURE 86

Between 5.5 and 7.5 mm. in length, oblong oval, somewhat shiny although alutaceous, the elytra strongly costate with the intervals geminate striate punctate; pale yellow brown, the head on top and sometimes below shining piceous, the elytra with a piceous lateral vitta extending part way down the side to below the middle, a short sutural vitta not reaching the middle, a large spot at the apical curve on each elytron and a short apical sutural vitta; breast piceous, legs pale.

Head with the interocular space about half its width, occiput polished, finely punctate, frontal tubercles somewhat swollen with a median depression above, lower front depressed; piceous, sometimes the lower front pale or in part pale. Antennae deep brown to piceous with the terminal three joints pale, tip of last joint dark. Prothorax a little wider than long, with slightly curved sides and a transverse depression, alutaceous and in places densely and finely punctate; pale yellow brown. Scutellum tending to be pale, sometimes dark brown. Each elytron with 7 or 8 costae, the intervals being geminate striate punctate, pale yellow brown with a wide piceous lateral vitta extending not quite to middle, and another shorter sutural one near the apex, and a large spot at apical curve. Body beneath pale with the breast shining piceous, legs pale. Length 5.7–7.5 mm.; width 3.2–3.7 mm.

Type, female, MCZ 30680; two paratypes, one USNM, one MCZ; all from Salinas, Beni River, collected by M. Stuart, July 1895. There are also five specimens, all females, from Cochabamba, Bolivia, collected by Germain; specimens from Siamas and Rurrenabaque, Rio Beni, Bolivia collected by W. M. Mann, October 1922, from Loma Alta, Bolivia, collected by Pinckert, May 21, 1957; Misiones Province, Argentina, Monros' collection, USNM.

Remarks: Bowditch has attached the manuscript name *beniensis* to this species. It is closely related to *H. marginalis* (Fabricius) and others with the front of the face depressed and the elytra strongly costate.



*Hystiopsis peruensis*, new species

FIGURE 69

About 6.5 mm. in length, elongate oblong oval, shining although faintly alutaceous, the elytra distinctly costate with geminate striate punctation in the intervals between; pale yellow with the head dark brown to the pale mouthparts, elytra with a broad metallic blue vitta running from the humerus down the side, a short sutural vitta below the scutellum and a median elongate spot before the apex on each elytron.

Head with interocular space about half width of head, occiput polished, with a few fine punctures, frontal tubercles somewhat swollen and a shallow median depression above; lower front somewhat depressed, a faint trace of median carina from between the antennal sockets; head dark brown except for pale yellow mouthparts. Antennae brown with the three terminal joints paler. Prothorax somewhat wider than long with nearly straight sides and a transverse depression; surface shining although faintly alutaceous and with scattered punctures; entirely pale yellow. Scutellum pale. Elytra with seven or eight pronounced costae and in the intervals between these shallow and rather coarse geminate striate punctation, pale yellow with a broad metallic blue vitta covering the humerus and extending down the side to apical curve; another short sutural vitta running down a little way below the scutellum, and an elongate median spot near the apex. Body beneath and legs entirely pale. Length 6.5 mm.; width 3.5 mm.

Type, female, Bowditch collection, MCZ 30681, from "Peru."

Remarks: Bowditch has attached the manuscript name *peruensis* to this species. Only one specimen is known, but it is clearly closely related to *H. marginalis* (Fabricius) and others with the lower front of the face somewhat depressed and without distinct carina and with costate elytra.

*Hystiopsis terminalis*, new species

FIGURE 71

About 6 mm. in length, elongate oblong oval, moderately shiny although alutaceous, the elytra strongly costate with the intervals geminate striate punctate, pale yellowish brown, the head with a dark occiput, the elytra with dark piceous vittae along the side and suture not reaching the middle, and a wide dark apical fascia, breast dark; head depressed in front in the male.

Head with the interocular space less than half width of head, eyes prominent, occiput shining piceous, finely punctate, a median depression over the poorly marked frontal tubercles and the lower front depressed with a ridge on either side below the antennal sockets,



carina only visible between the antennal sockets, lower front pale yellow. Antennae yellowish brown with joints five to eight a little deeper in color. Prothorax with slightly curved sides and a transverse sulcus, yellowish brown. Scutellum bicolored. Elytra wider towards the apex, strongly costate with the intervals geminate striate punctate, pale yellowish brown with a wide piceous vitta from the humerus down the side not reaching the middle, a common sutural vitta of about the same length, and a wide dark apical band, the apex pale. Body beneath and legs pale, the breast dark. Anterior tibiae and tarsi in male much swollen, middle and hind tibiae with a spine. Length 6 mm., width 3 mm.

Type, male, BMNH, Baly collection, from the upper Amazon.

Remarks: The elytral markings are slightly different from any other species of *Hystiopsis*.

*Hystiopsis flavipes*, new species

FIGURE 73

Between 6.5 and 7.5 mm. in length, elongate oblong oval, somewhat shiny although alutaceous, the elytra strongly costate with the intervals between geminate striate punctate, pale yellow brown with a piceous head and broad piceous fascia across base of elytra and two large piceous spots at apex not quite meeting at the suture, other specimens less heavily marked; antennae with the intermediate joints darker.

Head with the interocular space fully half as wide as head, frontal tubercles not very well marked and a depression above; in the male no sign of a carina, the area below the antennal sockets depressed; in the female not quite so depressed with a fine line scarcely at all elevated marking the usual carina, below the depression the lower front a little bulging; occiput shiny and finely punctate, head shiny piceous down to the paler mouthparts. Antennae with the basal three and terminal four joints pale yellow brown, the middle joints deeper brown. Prothorax considerably wider than long with nearly straight sides and a transverse depression, strongly and moderately densely punctate, entirely pale. Scutellum pale. Elytra with seven or eight costae on each elytron, the intervals being more or less geminate striate punctate; surface faintly alutaceous, a broad piceous fascia in basal half not reaching the middle; in one specimen with a narrow pale median area near the base, and another fascia divided into two spots by the suture near the apex; in one specimen the basal fascia only a humeral and sutural elongate spot. Body beneath pale with the breast dark, legs pale, front tibiae and first tarsal joint of the male not enlarged, a spine at the apex of tibiae, claws appendiculate. Length 6.5–7.6 mm.; width 3.3–3.9 mm.



Type, male, John A. Wilcox collection, from Caura River, Suapure, Venezuela, collected by E. A. Klages, March 20 and April 14, 1899; paratype, female, USNM; one female specimen, MCZ, from Rio Madeira, Brazil, collected by Mann and Baker.

Remarks: In the more heavily marked specimens this species resembles *Neobrotica coeruleofasciata* Jacoby but that species is not so strongly costate and has metallic colored spots and is somewhat smaller. The head of *N. coeruleofasciata* has no such depression in the lower front as in this species.

*Hystiopsis mansei*, new species

FIGURE 83

About 6.5 mm. in length, elongate oblong oval, shining, the elytra strongly costate, the intervals geminate punctate; pale yellow brown, the head piceous with paler mouthparts; the elytra with piceous or dark blue spots on humerus, about scutellum and along side at apical curve and another spot near the suture at apex, breast dark.

Head with interocular space about half width of head, occiput smooth, shiny, finely punctate, frontal tubercles not very distinct, but swollen, a median depression above, no carina down front, the lower front depressed, the head piceous except for the light brownish neck below and paler mouthparts. Antennae reddish brown with the three terminal joints paler, tip of last joint dark. Prothorax considerably wider than long with nearly straight sides and a transverse depression, a few fine punctures, otherwise smooth, shining, pale. Scutellum pale. Each elytron with 7 distinct costae, the intervals being geminate punctate; surface faintly alutaceous, shiny, pale yellow brown with a piceous spot on humerus, a piceous marking about scutellum, running down the suture a short way, an elongate piceous spot at the apical curve and another near the suture at apex of each elytron, these dark markings sometimes with a dark blue or violaceous lustre. Body beneath pale with the breast dark, legs pale. Length 6.5–7 mm.; width 3.5 mm.

Type, female, Bowditch collection, MCZ 30682, from Rio Manse, Amazon, collected by Staudinger, 1st Jacoby collection; one paratype, female, USNM, from same locality; four specimens, BMNH, two from the Amazon region, one from Rio Purus, collected Dec. 9, 1874, and one from Barreiras das Araras, Amazon, collected by R. Solimoes, Nov. 15, 1874; one specimen, John A. Wilcox collection, from Caura River, Suapure, Venezuela, collected by E. A. Klages, April 1899.

Remarks: Bowditch has attached the manuscript name of *mansei* to this species which is another of those with a depressed lower front of the face and strongly costate elytra. It is closely related to *H. marginalis* (Fabricius).



*Hystiopsis bryanti*, new species

FIGURE 72

About 6 mm. in length, elongate oblong oval, shining, the elytra with many flat costae, the interstices being geminate striate punctate, yellow brown with the occiput of the head piceous, a brown lateral vitta interrupted before the apex on the elytra, and a brown area about scutellum.

Head with the interocular space half width of head, frontal tubercles swollen but not very definitely marked, a median depression above them, carina a thin line down front, lower front depressed, punctate, tan colored, the occiput and mouthparts piceous. Antennae brownish with the three basal and three apical joints paler. Prothorax almost rectangular, the sides slightly curved, a shallow transverse sulcus, shiny, impunctate, yellowish brown. Scutellum yellowish brown. Elytra shining and with many low costae, the intervals being irregularly and rather coarsely geminate-striately punctate, yellowish brown with deeper brown lateral markings and a narrow brown area surrounding the scutellum. Body beneath and legs pale, the breast piceous, middle and hind tibiae with a spine. Length 6 mm.; width 3 mm.

Type, female, BMNH, from Trinidad, collected by G. E. Bryant, March 1903.

Remarks: Only one specimen, a female, is known. The coloration is unlike any of the other species. It is less strongly costate than most of the group, but the costae are still apparent. It differs from *H. marginalis* (Fabricius) in having a dark instead of pale occiput and not so long antennae.

*Hystiopsis mapirii*, new species

FIGURE 85

About 5 mm. in length, oblong oval, somewhat shiny although alutaceous, the elytra strongly costate; pale yellow, the head piceous down to antennal sockets, elytra with a short reddish brown vitta along the side below the humerus and a spot at the apical curve, suture about scutellum and below faintly reddish brown and another faint darkening near the apex, breast brown, tibiae and tarsi brownish.

Head with the interocular space approximately half width of head, occiput finely punctate, frontal tubercles not clearly marked but swollen and with a median depression above; lower front depressed and without any trace of carina, the top of head down to antennal sockets shining piceous, lower front pale yellow with the mouthparts tipped with brown. Antennae pale, except the dark tip of the terminal joint. Prothorax not twice as broad as long with somewhat curved sides and a transverse depression; surface alutaceous, finely punctate and en-



tirely pale yellow. Scutellum tan colored. Elytra strongly costate with the intervals geminate striate punctate; surface alutaceous, somewhat shiny, pale yellow with a lateral brown stripe running down the side but not reaching the middle, and a brownish spot at the apical curve of each elytron, the suture brownish about and below the scutellum and near apex. Body beneath pale with a brown breast and the tibiae and tarsi and apex of hind femora brown. Length 4.7 mm.; width 2.2 mm.

Type, female, Bowditch collection, MCZ 30683, from Mapiri River, Guanay, Bolivia, 1500 ft., August 1895.

Remarks: This is the smallest as well as palest of the species with the depressed lower front of the face. Bowditch has attached the manuscript name *mapirii* to it.

*Hystiopsis bella*, new species

FIGURES 75, 77, 78

About 5.5 mm. in length, oblong oval, shining, although finely alutaceous, elytra strongly costate, antennae dark except the last two or three joints, head dark over occiput, pale in lower front, thorax and body beneath except the breast pale yellow, the femora pale with a dark apex, tibiae and tarsi more or less dark, elytra with a pale margin and dark piceous within, on each elytron a pale spot in the basal half variable in size and a pale fascia, varying in width, below the middle.

Head with interocular space approximately half width of head, a shallow median depression above the somewhat swollen frontal tubercles, the upper half of head deep piceous, alutaceous although shiny with fine punctation, lower front depressed, without carina and with two transverse ridges, one on either side, lower face pale, mouth-parts tinged with brown. Antennae long, slender, dark brown except the terminal joints which are pale, the last joint tipped with brown. Prothorax nearly twice as wide as long with slightly curved sides and a transverse depression, alutaceous, finely punctate, entirely pale yellow. Scutellum tan colored. Elytra not very convex, each with 7 or 8 more or less distinct costae, the intervals having irregularly striate punctation; surface alutaceous but shiny, deep piceous with a pale margin and in the basal part a pale spot, sometimes enlarged to reach the base, and a broad pale fascia below the middle that occasionally is narrowed and sometimes does not reach the margin. Body beneath pale with a brown breast, the femora pale with dark apices, hind tibiae and tarsi more or less dark, in one specimen the legs entirely pale. Length 5.5–5.7 mm.; width 2.8–3 mm.

Type, male, USNM 66838; two paratypes, females, all from Loma Alta, Bolivia, collected by G. Pinckert, March 21, 1957. Other speci-



mens from Cochabamba and Beni River, Salinas, Bolivia, collected by M. Stuart, July 1895.

Remarks: There is considerable variation in the markings of this species. One specimen has entirely pale legs, in others the variation in the pale terminal joints of the antennae is noticeable, and the elytral markings vary to the extent that the basal spot may be so large as to leave only a narrow sutural and lateral dark vitta; the fascia below the middle varies from a narrow to a wide band. Bowditch has attached the manuscript name *bella* to this species.

*Hystiopsis zonata*, new species

FIGURE 76

About 6 mm. in length, oblong oval, feebly shining, the elytra strongly costate with the intervals striately punctate, the head down to antennal sockets piceous, pale yellow in lower front, antennae brown with the apical joints paler; prothorax pale, elytra piceous with a pale margin and a pale transverse fascia below the middle; body beneath pale with the breast dark, femora pale with a dark streak; tibiae and tarsi piceous.

Head with the interocular space about half width of head, occiput finely punctate, a median depression above frontal tubercles, no carina down lower front but the lower front depressed with a small transverse ridge on either side under the antennal sockets. Occiput to antennal sockets piceous, lower front pale yellow, mouthparts brown. Antennae brown with the apical joint pale and its tip dark. Prothorax not twice as broad as long with slightly curved sides and a transverse depression, entirely pale. Scutellum piceous. Elytra strongly costate, the intervals with striate, sometimes geminate punctation, alutaceous, feebly shining; dark piceous with a feeble violaceous blue lustre, the margin pale yellow and a transverse pale fascia below the middle. Body beneath pale with a piceous breast, femora pale with a dark streak above and the hind femora with a dark apex; tibiae and tarsi more or less dark, in the male the front tibiae thickened and the first tarsal joint long and wide. Length 6.2 mm.; width 3 mm.

Type, male, CAS, from Valley of the Monzon, Tingo Maria, Peru, collected by E. I. Schlinger and E. S. Ross, Sept. 18, 1954.

Remarks: The similarity of all these species with the depressed lower front of the face makes the group as homogeneous as the species of *Eucerotoma*, a group of larger beetles with stronger costae and more developed male characters. This species is a little larger than *H. bella*, and the male has more strongly dilated first front tarsal joints.



*Hystiopsis maculata*, new species

## FIGURE 81

About 6.5 mm. in length, oblong oval, shining, the elytra strongly costate with the intervals geminate striate punctate; head, antennae, undersurface, tibiae and tarsi and part of the femora dark; elytra dark with large roundish pale spots, three down the middle of each elytron and an elongate one below the humerus on the side and margin.

Head with the interocular space more than half width of head, occiput polished, impunctate, the tubercles swollen, a depression above them, lower front depressed without carina, a thin median line down the front on each side of which the surface wrinkled and with a few punctures, the head dark except a pale line along the labrum and the neck beneath also pale. Antennae long and slender, piceous with the three terminal joints deep brown. Prothorax almost twice as wide as long, widely sulcate across, alutaceous and finely punctate, entirely pale. Scutellum dark. Each elytron with 8 costae, the intervals with geminate striate punctures, shining, piceous, with three large roundish pale spots down the middle of each elytron and an elongate pale spot along the margin below the humerus; apex and epipleura pale. Body beneath with the breast and abdomen dark, basal part of femora pale, tibiae and tarsi dark, all tibiae with a spine. Length 6.5 mm.; width 2.5 mm.

Type, female, USNM 66839, from Campinas, Brazil, collected by P. A. Berry, March 19, 1939.

Remarks: This is closely related to the preceding species found in Peru and Bolivia, *H. bella* and *H. zonata*.

*Hystiopsis irritans*, new species

## FIGURE 80

About 5.5 mm. in length, oblong oval, faintly shining, alutaceous, the elytra strongly costate with the intervals geminate striate punctate, depressed along the suture below the scutellum, pale with the antennae except the terminal joints dark, the occiput dark, tibiae and tarsi dark, a dark streak along the femora, the pronotum with a dark median vitta, the elytra dark except for a large pale median spot not joined at the suture and a pale apical area.

Head with the interocular space about half width of the head, the occiput finely punctate, tubercles prominent, lower front depressed and rugose, front pale, occiput and mouthparts dark. Antennae long and dark with the three apical joints pale, no difference in the sexes. Prothorax almost rectangular, with only slightly curved sides, a well marked transverse sulcus but not so deeply carved as in



*Eucerotoma*; surface alutaceous and with scattered fine punctation; pale yellow with a broad median piceous vitta extending the length of pronotum and narrowed at the base. Scutellum dark. Each elytron with 8 distinct costae and the intervals geminate striate punctate; black with faint purplish lustre, in the middle of each elytron a large pale spot not reaching the suture or margin and another pale area along the apical margin to the apical curve. Body beneath with the abdomen and most of the breast dark, but the forepart of the breast pale, the mesothorax dark in the middle. Legs with the femora pale except for a dark streak on the apex, the tibiae and tarsi mostly dark. Front tibiae of the male and the first tarsal joint enlarged. Length 5–6 mm.

Type, male; one paratype, female; both in Zoologische Sammlung des Bayerischen Staates, Munich, Germany, from Guayaramerin, 150 m., Beni Gebiet, Bolivia, collected by W. Forster, 1954.

Remarks: Bechyne has labelled this as a new species of *Eucerotoma* and attached the specific name *irritans* to a specimen in the zoological collection at Munich. I have been unable to find that the name has ever been published. It does not belong to the genus *Eucerotoma* as it does not have the sexual characteristics shown in that genus, consisting of the excavate face and enlarged third and fourth antennal joints of the male. Neither do the elytral costae resemble the much stronger costae of *Eucerotoma*, and the sulcus across the pronotum has none of the intaglio-like carved impression of that genus. It belongs rather with the group found mainly in Peru and Bolivia with a depressed lower front of the head not differing in the sexes.

*Hystiopsis maxima*, new species

FIGURE 88

Approximately 9 mm. in length, elongate oblong oval, shiny, the elytra strongly costate with geminate striate punctation in the intervals, pale yellow brown with a piceous head and the elytra with a metallic blue green lateral vitta and a shorter sutural vitta.

Head with interocular space approximately half width of head, occiput with a median depression over the frontal tubercles, lower front depressed and without a carina (no male examined); entirely piceous. Antennae long, pale, with the intermediate joints a little browner. Prothorax with slightly curved sides and a shallow transverse sulcus, reddish brown. Scutellum reddish brown. Elytra strongly costate with the intervals with geminate striate punctures, pale yellow brown with a greenish or bluish lateral vitta extending from the humerus to apical curve, and a shorter sutural dark vitta extending a little below the middle. Body beneath and legs pale,



breast piceous, a spine on all the tibiae. Length 9.2 mm.; width 4.4 mm.

Type, female, BMNH, from New Grenada (Colombia).

Remarks: Only the female is known, but the size and markings differentiate it from related species. It is larger and more strongly costate than *H. bryanti* from Trinidad.

*Hystiopsis megala*, new species

FIGURE 82

Between 8 and 9 mm. in length, elongate oblong oval, somewhat shiny, the elytra strongly costate and the front of the head depressed, pale yellow brown with the head mostly piceous except about the mouthparts, the elytra with a dark vitta down the suture and another down the side, not reaching the middle, sometimes a median spot and also a larger apical spot often with a similar one beside it on each elytron, the breast tending to be dark.

Head with the interocular space less than half width of head, occiput finely punctate, a depression above frontal tubercles, lower front depressed, head piceous except about mouthparts, often only the jaws pale and the labrum sometimes also pale. Antennae reddish brown (terminal joints missing). Prothorax somewhat rectangular with slightly curved sides and often not a very conspicuous transverse sulcus, yellowish or reddish brown, finely punctate. Scutellum pale. Elytra wider towards apex, strongly costate with the intervals having geminate striate punctures, pale with dark markings, sometimes with a metallic lustre, a vitta from base covering humerus down the side and another from about the scutellum down the suture, neither reaching the middle, sometimes a median spot opposite the end of these and near the apex a large median spot, sometimes broken into two spots. Body beneath pale with the breast darker, often only along the sides, legs entirely pale; a spine on middle and hind tibiae. Length 8–9 mm.; width 4.2–4.4 mm.

Type, female, BMNH, Fry collection, from Ecuador, collected by Buckley; another female labelled "Cuenca" [Ecuador], and a third female, Baly collection, without any locality label.

Remarks: This is as large as *H. maxima*, but with a slightly different elytral pattern.

*Hystiopsis phaica*, new species

FIGURE 87

About 7.5 mm. in length, elongate oblong oval, moderately shiny, the elytra costate, the intervals geminate striate punctate, pale yellowish brown with the head piceous and mouthparts somewhat paler, antennae with the intermediate joints dark, the elytra having a dark



spot on the humerus, the apex dark with 2 round pale spots in the middle, tibiae and tarsi dark.

Head with the interocular space half width of head, occiput shiny, finely punctate, a depression over the frontal tubercles, lower front depressed, without carina, piceous, except about the jaws. Antennae pale with the intermediate joints deeper brown. Terminal joints missing. Prothorax with a transverse sulcus, alutaceous, finely punctate, pale yellow. Scutellum pale. Elytra shrunken as specimen is immature, but still with signs of costae discernible, and the punctures in the intervals geminate striate, pale yellowish brown with a small spot on the humerus and at the apex a dark band with 2 median round pale spots. Body beneath pale with the breast dark; tibiae and tarsi more or less dark. Length 7.4 mm.; width 3.5 mm.

Type, female, BMNH, from Cuenca, Ecuador.

Remarks: The elytral color pattern of this species is unlike that of any other examined.

*Hystiopsis grossa*, new species

FIGURE 84

Between 8 and 10 mm. in length, oblong oval, shining, although faintly alutaceous, the elytra with 7 or 8 feeble costae and with rather coarse geminate striate punctures in the intervals; pale yellow brown with a piceous head and dark intermediate joints of the antennae, the elytra dark with metallic green or purplish lustre, the margin, apex and four spots pale yellow brown, in one specimen the apical two spots coalesce at the suture; breast, tibiae and tarsi dark.

Head with the interocular space approximately half the width of the head, a median depression above the rather swollen but indistinctly marked frontal tubercles, occiput alutaceous and finely punctate, the lower front smooth, shining black, with very little evidence of a carina in the female (no males examined), and in some specimens the lower front somewhat concave; antennae long, the three basal and three terminal joints pale. Prothorax broad but not twice as wide as long with slightly curved sides and a rather shallow transverse depression; surface shining although alutaceous, finely punctate, entirely pale. Scutellum pale. Each elytron with 7 or 8 distinct costae, the intervals tending to be geminate-striate punctate; surface alutaceous but somewhat shiny metallic green with four large pale yellow spots, two on each elytron, the ones below the middle in one specimen coalescing at the suture, apex widely pale and the margin pale. Body beneath pale with the breast dark, femora pale, tibiae and tarsi brownish, all tibiae with spines, anterior coxal cavities open, claws appendiculate. Length 7.5–9.8 mm., width 4–5 mm.



Type, female, MCZ 30684; two paratypes, females, (one USNM); all from Cachabé [labelled "low c."], Province Esmeraldas, Western Ecuador, approximately 500 ft., collected by Rosenberg, December 1896; one female, BMNH, Baly collection, without locality label.

Remarks: The large size and the dark elytra with the pale spots make this species easily recognized. Most of the species of this genus have been collected in the Andes or from the eastern side of the Andes, but this was taken in western Ecuador in the low country.

*Hystiopsis exarata*, new species

FIGURE 74

Between 4.5 and 7 mm. in length, oblong oval, faintly shining, the elytra costate with the intervals geminate striate punctate, pale yellow brown with piceous tibiae and tarsi; the elytra often with metallic blue or purplish markings on the humerus, below the scutellum along the suture, a large spot on each elytron slightly below the middle and a smaller spot at the apical curve, these markings often evanescent in part or enlarged to form three fasciae across the elytra.

Head with the interocular space a little more than half the width of the head, occiput alutaceous and finely punctate, the frontal tubercles swollen, a median depression above, no carina down the lower front but sometimes a median elevated line, the lower front depressed, entirely pale yellowish brown. Antennae brown with the three basal and three terminal joints pale. Prothorax nearly twice as wide as long with curved sides and a transverse sulcus, shining, impunctate, pale yellow brown. Scutellum pale. Elytra costate, the intervals with coarse geminate-striate punctures, finely alutaceous but somewhat shiny, pale yellow brown with often pale metallic blue or purplish markings consisting of a spot covering the humerus, a long spot on each side of the scutellum and a little way down the suture, a large spot nearly across the elytra but usually not joined at the suture in the middle, and a lateral spot near the apex, the suture narrowly dark at this point; these markings sometimes enlarged to form three fasciae across the elytra, or again the spots in part evanescent. Body beneath pale with the breast sometimes darker, femora pale, tibiae and tarsi dark. All tibiae with a spine. Length 4.5–7 mm.; width 2–3.7 mm.

Type, female, MCZ 30685, from Brazil.

Remarks: This species is represented mostly by females, only one male being examined, most are very old specimens. There is one specimen, USNM, from Buenos Aires, ten specimens, BMNH, all from Bahia and Rio de Janeiro, Brazil. The most recent specimen found was collected by G. E. Bryant at Corcovado, Rio de Janeiro, May 8, 1912. The only male examined does not show any head or



antennal differences from the female. On two old specimens of the British Museum is the Dejean Catalogue name "*Cerotoma exarata*."

*Eccoopsis*, new genus

Elongate oblong oval, the head with the eyes widely set and the face of the male more or less deeply excavated, often with spines, the third and fourth antennal joints in the male usually swollen and always excavated at the adjoining ends. Antennae in the female with the third joint usually longer than the fourth, rarely equal, never shorter. Prothorax with a more or less distinct transverse sulcus, sometimes only marked by a depression on each side. Elytra usually with distinct costae, but in some species only feeble traces of costae, the punctation in the intervals being geminate striate. Anterior coxal cavities open, the tibiae with a spine, the first tarsal joint of the middle and hind legs long, claws appendiculate.

Type species: *Neobrotica denticornis* Jacoby.

Remarks: This genus has been erected for some species that have been assigned to the genus *Neobrotica* but which are in reality intermediate between that genus and *Eucerotoma*. They resemble both *Cerotoma* and *Eucerotoma* in the development of the sexual characteristics of the male in having the face excavated and the third and fourth antennal joints cut out. In the female the third antennal joint is usually longer than the fourth, rarely equal to it, and never shorter. There is considerable variation in the extent of development of these male characters. In some species, such as *Neobrotica denticornis* Jacoby, the face and antennae resemble species of *Cerotoma* or *Eucerotoma*. In two other species, one of them *Neobrotica cavifrons* Jacoby, there is a different modification of the antennal joints as well as differences in the face in the male. And in three South American species, the third and fourth antennal joints are only slightly swollen, but have the excavation at the adjoining ends, and the face is only shallowly excavate but with spines.

This genus is distinguished from *Cerotoma* by having the anterior coxal cavities open; from *Eucerotoma* it is distinguished by having the elytra usually considerably less costate and the prothorax with a transverse sulcus, like that found in *Neobrotica*, not so deeply carved as in *Eucerotoma*. It is distinguished from *Neobrotica* and *Hystiopsis* by the development of the male characters in the antennae and face. And it is distinguished from *Eucerotoma*, *Neobrotica* and *Hystiopsis* by having the third antennal joint in the female longer than (rarely equal to) the fourth joint, never shorter as is the case in *Eucerotoma*, *Neobrotica* and *Hystiopsis*.

The name *Eccoopsis* is derived from the Greek ἐκκόπτω, meaning "cut out" and ὄψις, meaning "face."



Key to Species of *Eccoptopsis*

1. Elytra entirely dark except the margin . . . . . 2  
Elytra not entirely dark . . . . . 3
2. Elytra strongly costate, Brazil . . . **cyanocosmesa**, new species (p. 346)  
Elytra only feebly costate, Argentina . . **argentinensis**, new species (p. 347)
3. Elytra dark with four pale spots . . **quadrifasciata**, new species (p. 350)  
Elytra not dark with four pale spots . . . . . 4
4. Elytra with a basal and an apical fascia . . . . . 5  
Elytra not with a basal and an apical fascia . . . . . 6
5. Prothorax twice as wide as long, Costa Rica . **laticollis**, new species (p. 342)  
Prothorax not twice as wide as long, Peru . . **clara**, new species (p. 344)
6. Elytra distinctly and usually strongly costate . . . . . 7  
Elytra at most only feebly costate . . . . . 9
7. Occiput of head piceous, Costa Rica . . **costaricensis**, new species (p. 341)  
Occiput of head pale . . . . . 8
8. Prothorax approximately twice as wide as long, Bolivia.  
**boliviensis**, new species (p. 343)  
Prothorax not twice as wide as long, Central America.  
**denticornis** (Jacoby) (p. 340)
9. Third and fourth antennal joints in male not noticeably enlarged and  
inconspicuously excised at adjoining ends.  
**piceofasciata**, new species (p. 345)  
Third and fourth antennal joints in male much widened and much excised  
at adjoining ends . . . . . 10
10. Elytra pale with a lateral dark vitta from humerus to apical curve and a  
short sutural vitta to the middle and on each elytron three spots in a row  
between vittae . . . . . **mexicana**, new species (p. 348)  
Elytra mostly dark with a pale median vitta that turns horizontally to the  
margin and at apex another pale curving ring enclosing a dark sutural  
spot . . . . . **cavifrons** (Jacoby) (p. 347)

*Eccoptopsis denticornis* (Jacoby)

## FIGURE 91

*Neobrotica denticornis* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 578, 1887.

About 6 mm. in length, oblong oval, shining, the elytra strongly costate, pale yellow with deep brownish or even piceous markings across the elytra in the shape of a humeral spot, a spot common to both elytra below the scutellum on the suture, a band across the middle sometimes interrupted at the suture, and another before the apex, sometimes lunate or sometimes abbreviated to a spot on each elytron. Antennae in the male with the third and fourth joints deformed, much swollen and excavated at adjoining ends, and the head with the front excavated and having odd developments in the shape of shelving and spines.

Head with the interocular space more than half width of head, the frontal tubercles swollen and a median depression above them, lower front in female slightly excavate and with no trace of a carina down



the front, in the male there is a similar lack of carina, the front directly below the antennal sockets being scooped out and on either side a projecting shelf curving downwards over a deeply excavated lower front, on each side of which is a strongly curved long spine. Antennae in the female with the third joint longer than the fourth, in the male with the third joint swollen and excavate at the apex, the fourth joint excavated at the end joining the third and somewhat swollen, similar to the development in species of *Cerotoma*, pale with the intermediate joints brownish and the three terminal joints pale yellow. Prothorax not twice as broad as long, somewhat rectangular, with the sides slightly curved, almost straight in some specimens, and a well developed transverse sulcus, shining, finely punctate. Scutellum pale. Elytra shining, strongly costate, the intervals with coarse geminate-striate punctation, pale yellow with reddish brown to piceous markings, a humeral spot, a spot below scutellum common to both elytra, a fascia that may be broken into spots across the middle and another before the apex, the last frequently lunate in shape or sometimes reduced to a spot. Body beneath entirely pale, the femora pale, tibiae and tarsi brownish, all tibiae with a spine, claws appendiculate, anterior coxal cavities open. Length 6–6.5 mm.; width 3.3–3.5 mm.

Type, male, BMNH, from Chontales, Nicaragua, collected by Janson.

Other localities: Cubilguitz, Vera Pas, and Paso Antonio, Guatemala, 400 ft., collected by Champion. Punta Garda, British Honduras, collected by Peck, Sept. 10–20, 1906. Trinidad River, Panama, collected by A. Busck, May 6, 1911; Porto Bello, Panama, collected by E. A. Schwartz, May 1, 1911, and by A. Busck, Feb. 18, 1912; Cabima, Panama, collected by A. Busck, May 27, 1911. Ciricito, Canal Zone, collected by R. E. Blackwelder, March 1930.

*Eccoctopsis costaricensis*, new species

FIGURE 89

About 8 mm. in length, oblong oval, somewhat shiny; in the male the front of the head excavated and the third and fourth antennal joints swollen and excavated at adjoining ends, the prothorax deeply sulcate, the elytra with feeble costae and with shallow geminate-striate punctation between the costae, pale yellow brown with the head on top piceous, the elytra with reddish brown markings.

Head with interocular space approximately half width of head, a deep median depression above the frontal tubercles, occiput piceous, this deep color decreasing in lower front so that the mouthparts are yellowish brown; under each antennal socket in the male a broadly rounded shelf with long hairs, beneath which the lower front is deeply excavated, and on each side a long curved spine. Antennae in the



male with a very long basal joint, a short compressed second joint, the third joint swollen and excavated near the apex, the fourth joint swollen and excavated in the basal portion, remaining joints long and slender (the last three missing), pale yellow brown with the first three on the outside touched with deep piceous. In the female the third joint is approximately equal to the fourth. Prothorax nearly twice as wide as long with slightly rounded sides and a deep transverse sulcus, entirely yellowish brown, nearly impunctate. Scutellum pale. Elytra wider in apical half, rather depressed with a short intrahumeral sulcus and feeble costae, the intervals being obsoletely geminate-striate punctate; pale yellow brown with reddish brown markings on the humerus, about scutellum and a little way down the suture, a broad fascia before the middle not extending to the suture and a rounded half circle of two spots before the apex on each elytron. Body beneath yellow brown with the breast deep reddish brown, legs entirely pale; first tarsal joint in all legs unusually long, anterior coxal cavities open, claws appendiculate. Length 8 mm.; width 4 mm.

Type, male, USNM 66855, from Piedra Negra, Costa Rica, collected by Schild and Burgdorf; paratype, female, from same collection.

Remarks: The second specimen, a female, has a slightly different coloration, the entire head being yellow brown, the markings on the elytra are more indistinct, but of the same pattern, and the underside is entirely pale. A third specimen, also a female, from Waldeck, Costa Rica, collected by C. H. Ballou, has also a pale head and under-surface, but more distinct reddish-brown elytral markings of similar pattern. Still another male, from Lolola, Costa Rica, collected June 22, 1957, on cacao by M. J. Stelzer, is of similar coloring. In all of these specimens the elytral sculpture is like that of the type, and in this respect differs from *denticornis* in which the costae are very distinct and the punctation deep and coarse. The third antennal joint in the female is about equal to the fourth, whereas in *denticornis* it is a little longer in most specimens.

*Eccoptopsis laticollis*, new species

FIGURE 92

From 5 to 6 mm. in length, oblong oval, shining, the face in the male excavate and antennal joints three and four swollen and excavated at the adjoining ends, prothorax with a scooped-out depression in the lower half and the elytra strongly costate, pale yellow; the occiput of the head piceous, a broad dark blue basal elytral fascia and another before the apex, the former sometimes enclosing a pale spot; legs, undersurface and antennae pale.



Head wide, with the interocular space more than half width of head, occiput smooth and shining with a median depression, piceous to the antennal sockets, lower front pale yellow to below the excavation, then piceous with a piceous mouth; in male lower front below a broadly projecting shelf edged with long hairs under each antennal socket, deeply excavated, and on either side a long strongly curved spine. Antennae long, in the male the basal joint very long, second joint knoblike and short, third broad and excavated at the end, fourth broad and excavated at the base, remaining joints long and subequal, pale yellow with the first three joints with a piceous spot on the outside, joints five to eight deep brown, tip of terminal joint also dark. Prothorax almost rectangular, approximately twice as broad as long, impunctate, shining pale yellow. Scutellum pale. Elytra broad and a little wider at apical end, humeri well marked with a deep intrahumeral sulcus; surface irregularly costate, the intervals rugose with obsolete geminate-striate punctation, shining, pale yellow; a broad deep blue fascia extending across the base, sometimes with a small pale spot in it, and another broad dark blue fascia near the apex and interrupted at the suture. Body beneath and legs entirely pale yellow, anterior coxal cavities open, claws appendiculate, all tibiae with a spine, front tibiae in the male stout and the first basal joint of tarsi cylindrical. Length 5.2–6 mm.; width 2.6–2.8 mm.

Type, male, MCZ 30677, Port Limon, Costa Rica, collected by P.J. Darlington, May 9, 1959; one paratype, male, USNM, same locality.

Remarks: This species is closely related to *denticornis* (Jacoby), but it has a different elytral pattern and not so well marked elytral costae or so deep punctation. The head and prothorax are wider too. In the structure of the antennae and the excavated front of head in the male the two species are similar.

*Eccoptopsis boliviensis*, new species

FIGURE 90

About 7 mm. in length, elongate oblong oval, faintly shining, the prothorax nearly twice as wide as long with a transverse sulcus, the elytra strongly costate to apical curve, and the intervals geminate striate, pale yellow brown; the elytra with reddish brown markings, consisting of a lateral vitta from the humerus nearly to apex, a spot in the middle near the base, a median fascia connected both on the side and at suture with a curved fascia near the apex, body beneath and legs pale, the tibiae slightly brownish, this description being of the female, the male unknown.

Head with interocular space half width of head, a rounded median depression over the frontal tubercles, no carina between antennal sockets or down front but the lower front depressed in the female,



and probably deeply excavate in the male; pale yellow brown with the tips of jaws brownish, impunctate. Antennae not extending to the middle of the elytra; in the female with the third joint long, the remainder shorter and subequal, pale with a slight deepening in color in the intermediate joints; the third and fourth joints in the male probably deformed. Prothorax nearly twice as wide as long, with slightly rounded sides and a transverse sulcus, alutaceous, nearly impunctate, entirely pale yellow. Scutellum pale. Elytra long and strongly costate, with 8 or 9 costae on each elytron, the intervals being coarsely geminate punctate, pale yellow brown with deep reddish brown markings consisting of a lateral vitta extending from the humerus nearly to the apex, a median spot near the base, and a median and apical fascia, both connected along the suture and side, the apical fascia semilunate. Body beneath entirely pale, legs pale with a slight brownish tinge along the lower tibiae, anterior coxal cavities open, claws appendiculate, middle and hind tibiae with a spine. Length 7 mm.; width 3.5 mm.

Type, female, MCZ 30678, from Salinas, Beni River, Bolivia, collected by M. Stuart, July 1895.

Remarks: The single female from which this species is described was among the specimens under *N. denticornis* Jacoby in the Bowditch collection. In its elytral pattern it is similar to but unlike that species in having a dark lateral vitta as well as a shorter dark sutural one. Although no male has been examined, the male undoubtedly has the front of the face excavated and some peculiarity of the third and fourth antennal joints such as occurs in *denticornis*. In the female the third antennal joint is longer than the fourth, as is usual in this genus.

*Eccoptopsis clara*, new species

FIGURE 93

Between 7 and 7.5 mm. in length, elongate oblong oval, shining, the head in the male excavate, and the third and fourth antennal joints enlarged and cut out at adjoining ends, the prothorax with a transverse depression, the elytra with a broad basal and apical dark blue fascia, the breast, tibiae and tarsi dark brown.

Head in male with an excavation below the antennal sockets and on either side a rounded shelf fringed with long hairs and curving down over the hollowed out lower front; in the female the area below the antennal sockets shallowly scooped out without any trace of a carina, frontal tubercles in the male swollen with a depression above them, in the female not so swollen, a median depression above; interocular space more than half width of head, head entirely black and shiny. Antennae in male with the basal joint enlarged, the third and fourth joints much enlarged and excavate at the apex of the third



and base of the fourth, the first four basal joints pale, joints five to nine brown; in the female the first eight joints dark brown, the ninth pale, the rest missing. In the female the third antennal joint about equal to the fourth. Prothorax wider than long with almost straight sides and a transverse sulcus, shining pale yellow brown with scattered punctures. Scutellum pale. Elytra slightly wider towards apex, with feeble costae, not so marked in the female, and dense but not contiguous geminate-striate punctation; shining pale yellow brown with a broad blue fascia in basal half of elytra and another before the apex, the margins and apex being pale. Body beneath pale except for the brown breast, femora pale, tibiae and tarsi dark brown, the tarsal claw joint pale, all tibiae with a spine; anterior coxal cavities open, claws appendiculate. Length 6.8–7.5 mm.; width 2.5–3.5 mm.

Type, male, MCZ 30679; one paratype, female, USNM; both from Peru.

Remarks: This species with its narrow elongate shape and elytral blue fasciae resembles *Neobrotica coeruleofasciata* Jacoby, but the male characters of the excavate face and swollen antennal joints place it near *denticornis* and its relatives. Unlike the rest of the genus, the third antennal joint in the female is the same length as the fourth.

*Eccoptopsis piceofasciata*, new species

FIGURE 95

About 7 mm. in length, elongate oblong oval, dull, alutaceous, the elytra strongly punctate, the prothorax with a transverse sulcus, the head in the male with the lower front depressed and with a small shelf under each antennal socket, the elytra feebly costate, reddish brown, the elytra with dark brown or piceous bands.

Head with the interocular space half width of the head, occiput punctate, a depression over the frontal tubercles, lower front depressed; in the male with a slight shelf under each antennal socket and a short spine in the middle of lower front; shiny yellowish or reddish brown. Antennae with the basal joints pale reddish brown, the intermediate joints dark brown, and the three terminal joints pale yellow; in the male the third joint long but not swollen and at the apex excavated, the fourth joint at the base very slightly excavated. Prothorax slightly shiny although alutaceous and finely punctate, with a transverse sulcus, reddish or yellowish brown. Scutellum pale. Elytra wider towards apex, strongly alutaceous with feeble costae and strong punctures in the intervals; reddish or yellowish brown. A dark brown or piceous band near the base, a median one interrupted at the suture and a third near the apex enveloping a large round pale spot on each elytron at the apex. Body beneath entirely reddish or yellowish brown, with the tibiae and tarsi deep



brown or piceous, front tibiae and first tarsal joint in the male much enlarged. Length 6.5–7.5 mm.; width 3–4 mm.

Type, male, BMNH, from the Amazon region, Brazil; other specimens from Peru.

Remarks: This species has the smallest alteration in the male antennae of any so far described in the genus, the third and fourth joints being barely perceptibly swollen and the tiny excavation of the third and fourth joints being almost unnoticeable. The development of the shelf under each antennal socket and the median spine in the face of the male is more or less typical of the other species.

*Eccoopsis cyanocosmesa*, new species

FIGURE 98

About 6.5 mm. in length, broadly oblong oval, shining, the head in the male somewhat excavate and the antennae with the third and fourth joints swollen and excavated at the adjoining ends, the prothorax with a deep transverse sulcus, the elytra strongly costate, the intervals with geminate-striate punctures, yellow brown with the elytra dark greenish blue except for the pale margin; antennae more or less piceous and the tibiae and tarsi deep brown.

Head with the interocular space approximately half the width of the head, occiput smooth, shiny, finely punctate, a depression above the well marked frontal tubercles, lower front in the male shallowly excavated below the antennal sockets, a short median spine below this and a shorter one on each side, entirely yellow brown except for the brown jaws. Antennae in the male with the third joint somewhat swollen and excavated near the apex and the fourth joint excavated at the base, the rest subequal and slender, dark brown. Prothorax nearly twice as wide as long with rounded sides and a deep transverse sulcus across the middle, shining although alutaceous, finely punctate, yellow brown. Scutellum pale. Elytra alutaceous with distinct costae and between them rather coarse geminate-striate punctures; dark green or blue, with a pale margin a little wider near the apex, the apex somewhat pinched in. Body beneath entirely pale, in one specimen the color of the breast darker, femora pale, tibiae and tarsi dark. Anterior coxal cavities open, the claws appendiculate, a spine on the middle and hind tibiae, the anterior tibiae of the male stout and the first tarsal joint long and dilated at the base. Length 6.5 mm.; width 3.3 mm.

Type, male, BMNH, Sharp collection, from Brazil.

Remarks: A second mutilated specimen in the British Museum from "Rio" has deep blue elytra. There are eight old specimens, mostly bluish, in the Bowditch collection, one from Rio de Janeiro, four without labels, and one from South America and two from Brazil.



The only recently collected specimen is a male in the Carnegie Museum from Rio de Janeiro. Although lacking the shelf below the antennal sockets of the male that is prominent in the Central American species, and not having so deeply excavated a front as in those, this species appears to be the South American counterpart of *E. denticornis* and its relatives and fits into the genus very well.

*Eccoptopsis argentinensis*, new species

FIGURE 99

From 5.5 to 6.5 mm. in length, broadly oblong oval, shining although alutaceous, the head of the male a little excavated and antennal joints three and four somewhat swollen and excavated at adjoining ends; prothorax transversely sulcate, elytra feebly costate with geminate-striate punctures between; yellow brown with blue or greenish elytra having a pale margin.

Head with the interocular space about half the width of the head, in the male the lower front a little excavated with a median spine below the antennal sockets and two short spines on either side, in the female a feeble carina down the front which bulges a little. Antennae in the male with a long basal joint, a short second joint, the third and fourth long and excavated, the remainder slender and subequal, reaching about to the middle of the elytra. In the female the third joint longer than the fourth. Scutellum pale yellow brown. Elytra dark violet blue or greenish with a pale margin, alutaceous, faintly costate with geminate-striate punctation in the intervals, the costa on the side being more pronounced in the male, the apex somewhat pinched in. Body beneath with the breast and abdomen brownish, the femora pale except at the apex, the tibiae and tarsi brown, a spine on the hind tibiae; anterior tibiae of the male stout and the first tarsal joint broadly cylindrical as well as long. Anterior coxal cavities open, claws appendiculate. Length 5.5–6.8 mm.; width 3–4 mm.

Type, male, BMNH, Baly collection, from Entre Rios, Argentina, collected by Camille van Voixem; other specimen from Constanica, collected by H. Clark, January 1857.

Remarks: This is closely related to *E. cyanocosmesa*. It is not so distinctly costate and is less densely punctate.

*Eccoptopsis cavifrons* (Jacoby)

FIGURE 97

*Neobrotica cavifrons* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 758, 1887.

About 5.5 mm. in length, oblong oval, shining, the elytra rather finely and not densely punctate, with lightly raised costae, the head of the male excavate in front, the antennae of male with the third and



fourth joints swollen and excavated at adjoining ends, the prothorax with a shallow round depression on each side, reddish yellow; the elytra piceous with pale yellow diagonal vitta from the middle of the base curving at the middle of the elytron and extending downwards to the lateral margin, another pale curved vitta on each elytron forming a circle at the apex.

Head with interocular space more than half width of head, tubercles swollen over the antennal sockets, in the male the lower front scooped out with a small tooth in the middle, and the sides rising smoothly bowl-like; in the female a slight depression in the lower front and no spine; labrum rather short, hairy and like the occiput reddish brown, paler in the lower front. Antennae in the male with the third joint much swollen and excavate at apex and the fourth joint with an apical tooth, the rest rather short and subequal, all reddish brown; in the female the third joint much longer than the fourth or succeeding joints which are subequal. Prothorax not twice as wide as long with the sides a little rounded, the disc with a rounded depression on each side, reddish brown. Scutellum black, shining. Elytra shining, piceous, with faint costae and fine punctures tending to be geminate striate, the margin pale yellow and a pale vitta extending somewhat diagonally from the base to the middle, then abruptly curved towards the margin, another pale vitta on each elytron from the suture curved about to form a circle at the apex. Body beneath dark except the sides of the prosternum, femora reddish brown, sometimes streaked with black on the outside, the tibiae reddish brown, sometimes with a darker outer color and the tarsi reddish brown or darker. Anterior coxal cavities open, claws appendiculate. Length 5.6–6 mm.; width 2.7–3.6 mm.

Type, male, BMNH, from La Parada, Mexico collected by Sallé.

Remarks: Jacoby wrote that he had seen only a single specimen of this, a male, which is in the British Museum now. There is one male specimen in the Bowditch collection of the Museum of Comparative Zoology, labelled "Boucard, Mex. coll.", and one female specimen in the U.S. National Museum from 5 miles east of C. (?Ciudad) del Maiz, 4700 ft., Mexico, collected by R. R. Dreisbach, Aug. 25, 1954, from the Monrós collection. In this female specimen the third antennal joint is longer than the fourth or succeeding joints.

*Eccoopsis mexicana*, new species

FIGURE 96

Approximately 6.5 mm. in length, oblong oval, faintly shining and somewhat alutaceous, the antennae in the male with the third joint long and swollen and excavate at the end, the fourth joint hollowed out, the lower front of the head in the male scooped out and with a



median spine; prothorax with a rounded depression on each side; pale yellowish brown, the femora and front tibiae pale with a dark outer streak, other tibiae and tarsi dark, lower surface dark, the elytra with an irregular dark lateral vitta not reaching the apex and a sutural vitta extending down to the middle, on each elytron three irregularly shaped dark spots down the middle.

Head with the interocular space more than half the width of the head, occiput smoothly rounded, shining, impunctate, with a median depression over the somewhat swollen frontal tubercles that are marked by a depressed line only; in the male no carina but the lower front scooped out in the middle into a bowl-like depression from which protrudes a long thick spine; head entirely pale except for the brownish tips of the jaws. No female known. Antennae not extending to the middle of the elytra, yellowish brown becoming a little deeper in color towards the end, in the male the third joint long and swollen with a lateral long depression that divides it into a sort of upper and lower lip, the lower one protruding at the end and united with an excavated and upwardly curved fourth joint, the remainder of the antennal joints short, subequal and filiform. Prothorax somewhat rectangular with only slightly curved sides and on the disc a rounded depression on each side, surface slightly alutaceous, faintly shining, impunctate, pale yellowish brown. Scutellum dark. Elytra with faint traces of two or three raised lines, distinctly but not coarsely punctate, the punctures tending to be striate and becoming less distinct on the sides and at apex; pale yellow, each elytron with an irregularly outlined lateral piceous vitta extending from the humerus to about the apical curve but not reaching the apex or margin, a sutural vitta extending to the middle and three large irregularly shaped spots down the middle, the apical one being subvittate and close to the suture. Body beneath with neck, middle of prosternum, breast and abdomen black, the anterior coxal cavities open, femora pale except a dark outer streak, front tibiae of male with a dark outer streak, swollen, and the first tarsal joint cylindrical, front tarsal joints pale, but the middle and hind tibiae and tarsi entirely dark, middle and hind tibiae with a short spine; claws appendiculate. Length 6.6 mm; width 3.5 mm.

Type, male, USNM 66837, from Zacapu, Michoacan, Mexico, collected by J. J. MacKelvey, July 28, 1951.

Remarks: This is closely related to *Eccoopsis cavifrons* (Jacoby) having a similar structure in the male antennae and the excavated front of the head, and even the elytral dark markings although much abbreviated appear to have the same general pattern as in *cavifrons*. But the third antennal joint in the male is heavier and longer than in *cavifrons* and slightly differently shaped.



*Eccoopsis quadrimaculata*, new species

FIGURE 94

About 7 mm. in length, oblong oval, shining, the elytra with a bronzy lustre, in the male the third and fourth antennal joints swollen and excavate near the end, and the front of the head excavate, elytra strongly costate with punctures between, piceous with four large pale yellow brown spots, the side margin and apex also pale; head, breast, tibiae and tarsi and part of femora dark.

Head in male with a deep excavation in the middle of the front below the antennal sockets, a rounded shelf with a fringe of hairs overhanging the transverse depression across the whole front on either side, the upper half of head dark, the lower depression pale yellow brown, labrum dark; head in the female with somewhat swollen frontal tubercles, no carina below but a slight depression, surface of lower front rugose with a slightly elevated median line; frontal tubercles in the male more bulging than in the female. Antennae dark, in the male the basal joint swollen, second joint very short, third and fourth joints widened and cut out, paler in color, remainder long and slender, in the female the joints slender and the third joint longer than the fourth, the last three pale. Prothorax about one-third wider than long with a deep curved transverse depression, shining, pale yellow brown, obsoletely punctate. Scutellum brownish. Elytra widened towards apex, shining, strongly costate, the intervals geminate punctate with the punctures often confluent, producing cross wrinkles between the costae; piceous with a bronzy lustre, on each elytron two large pale yellow brown spots, one before, the other, larger, and after the middle, the lateral margin in part pale, the apex pale. Body beneath with the breast dark, the rest pale, the femora pale with a dark streak, tibiae and tarsi dark. Length 6.8–7.5 mm.; width 3.2–3.6 mm.

Type, male; three paratypes, female; USNM 66836, all from Villavicencio, Colombia, collected by H. Dybas, July 12, 1938; another specimen, AMNH, from Rio Guayuriba, Meta, Colombia, collected by L. Richter, December 1946.

Remarks: This species is a connecting link between the two genera, *Eucerotoma* and *Eccoopsis*, combining the deeply impressed transverse sulcus of the prothorax that is typical of *Eucerotoma* with the somewhat less deeply costate elytra of *Eccoopsis*. In its coloration it resembles more the species of the latter genus, and like them has the third joint of the female antennae longer than the fourth, which is not the case in *Eucerotoma*. But as in *Eucerotoma* the anterior coxal cavities are only slightly open.



*Potamobrotica*, new genus

Head with a very short carina, a mere knob vanishing below the antennal sockets; antennae filiform, with the third, fourth, and fifth joints long and subequal, remaining joints somewhat shorter, but not as short as in *Cerotoma*; prothorax rather short and broad with a transverse sulcus. Elytra coarsely and densely punctate, the punctures tending to be striate; traces of costae. Anterior coxal cavities closed, claws appendiculate.

Type species: *Potamobrotica trifasciata*, new species.

Locality: All three species of this genus are from the Amazon part of Brazil, one extending into Venezuela.

Remarks: Except for the head with the very short carina visible only between the antennal sockets, and the closed anterior coxal cavities, this genus is similar to *Neobrotica*. However, the prothorax is a little shorter and broader. The genus differs from *Cerotoma* in not having the third antennal joint longer than the fourth. The antennae in this respect resemble most species of *Neobrotica*. No male of any of the three species has been examined, so there is the remote possibility that there are sexual differences in the face and antennae.

The name *Potamobrotica* is derived from the Greek ποταμός, meaning "river," and βρώτικα, meaning "voracious."

*Potamobrotica trifasciata*, new species

## FIGURE 102

Between 7 and 8 mm. in length, oblong oval, feebly shining, alutaceous, the elytra densely and coarsely punctate and feebly costate, pale reddish or yellowish with deep brown markings on the head and three deep brown fasciae on the elytra often interrupted at the suture and sometimes connected along the lateral side.

Head with the interocular space almost half width of head, carina short, only a little knob between the antennal sockets, below it the front depressed and then swollen transversely over the labrum, frontal tubercles distinctly marked and with a median depression above, occiput well rounded, reddish brown, lower front pale yellowish brown. Antennae pale brownish, the ninth joint pale yellow and two apical joints deep brown. Prothorax almost rectangular with slightly curved sides and a well marked transverse sulcus, alutaceous, very finely and inconspicuously punctate, pale yellowish brown. Scutellum pale. Elytra alutaceous, not shiny, densely and coarsely punctate, the punctures tending to be striate, surface somewhat rugose with indistinct traces of costae, yellowish brown with three deep chocolate colored fasciae not reaching base, apex, suture or margin in one specimen, the fasciae at base in three of the four specimens broken into two spots.



Body beneath and legs entirely pale; anterior coxal cavities closed, claws appendiculate. Length 7.3–7.8 mm.; width 3.6–3.8 mm.

Type, female, USNM 66840; one paratype, female, John A. Wilcox collection, from Caura River, Suapure, Venezuela, collected by E. A. Klages, March 12, 1899; two other specimens in USNM, from Manaos, Brazil, collected by F. Knab.

Remarks: This is closely related to *Potamobrotica brasiliensis* (Bowditch).

*Potamobrotica brasiliensis* (Bowditch)

FIGURE 100

*Neobrotica brasiliensis* Bowditch, Psyche, vol. 20, p. 128, 1915.

*Andrector brasiliensis* (Bowditch).—Bechyne, Ent. Arb. Mus. G. Frey, vol. 7, no. 8, p. 606, 1958. [Not correctly identified.]

About 5½ mm. in length, elongate oblong oval, moderately shining, elytra alutaceous, distinctly punctate, the punctures tending to be striate, head reddish yellow, the thorax with a touch of green (? not all green in living specimens), elytra with the yellowish areas having a greenish tint, two deep brown basal spots, a broad dark median fascia extending along the suture and sides, and a large dark apical spot on each elytron. Anterior coxal cavities closed.

Head with the interocular space half width of head, occiput rounded, finely punctate, orange yellow becoming paler in lower front, a median depression over frontal tubercles and below them a narrow and not much elevated short carina. Antennae with the three basal and three apical joints yellow, the terminal one with a dark tip, and the intermediate joints dark brown. Prothorax considerably wider than long with rounded sides, finely and moderately densely punctate, and with a well defined transverse sulcus, pale greenish on sides and in sulcus (? green faded to yellow elsewhere). Scutellum brownish. Elytra with the pale areas yellow having a slightly greenish tint, most marked on the sides and explanate margin, with deep brown fasciae, the basal one broken into two spots on each elytron, not joined at the suture, the middle fascia entirely across the elytra and tending to join at the suture and sides with the other fasciae, the apical fascia interrupted at the suture. Surface alutaceous, punctation rather coarse, shallow and tending to be striate. Body beneath pale with the breast reddish brown, femora pale, tibiae with dark outer streak, tarsi more or less bicolored. Length 5½ mm.

Type, female, MCZ, from Porto Velho, Rio Madeira, Brazil, collected by Mann and Baker.

Remarks: Bechyne has placed this as a species of *Andrector*. I have examined the specimen he identified as this in the Frey Museum and it is not *brasiliensis*, but it is the succeeding species that I am describing as *Potamobrotica viridis*, new species. No males of any of



these three species have been examined, but in all the females the third antennal joint is not longer than the fourth, which is not true of species of *Cerotoma* or *Andrector*.

***Potamobrotica viridis*, new species**

FIGURE 103

About 6 mm. in length, elongate oblong oval, not shining, the elytra densely, coarsely and tending to be striately punctate, bright green, the elytra with reddish brown lunate markings at base and near apex, the antennae with the intermediate joints brown, abdomen in places yellowish, probably faded from green, tibiae somewhat deeper brown. Anterior coxal cavities closed, claws appendiculate.

Head with interocular space about half width of head, a median depression over the faintly marked frontal tubercles, finely punctate over the occiput; carina very short and in lower front not elevated; green with the occiput deeper in color, mouthparts brownish. Antennae pale with joints five to eight and tip of terminal joint brownish. Prothorax nearly twice as wide as long, with slightly rounded sides and transverse sulcus, surface finely punctate, entirely green. Scutellum green. Elytra wider apically, a short intrahumeral sulcus, in one specimen traces of costae; punctation very close, almost contingent, coarsely and irregularly striate; surface alutaceous, not at all shiny; bright green with deep reddish brown markings in the form of a half circle at base and apex of each elytron, these marks often broken into spots. Body beneath green, in some specimens faded to more or less uniform yellow. Anterior coxal cavities closed, the middle and hind tibiae with spine, claws appendiculate. Length 5.8–7.5 mm; width 3.2–4 mm.

Type, female, BMNH, Baly collection, from "Amazon."

Remarks: There are three specimens, all females, in the British Museum all from the Baly collection, but only one with a legible locality label. A single female without any label is in the Bowditch collection, and another female in the U.S. National Museum, all old and faded. This is the species that Bechyne wrongly identified as *Neobrotica brasiliensis* Bowditch (from a specimen in the G. Frey Museum, also a female), and placed in the genus *Andrector*.

***Rachicephala*, new genus**

Elongate oblong oval, the head with wide-set eyes, protuberant frontal tubercles; in the male an excavated lower front with forward protruding appendages on each side above the labrum, and a long median spine below the antennal sockets; in the female no such appendages or spine but the lower front uneven with a small depression on each side and in the middle. Antennae in the male with the first



joint swollen, second small, third widened in basal part, then narrowed with an outer hook, and at apex much narrowed, joints four to six long, thence the joints becoming shorter. In the female, joints three to five long and filiform and the remaining joints shorter. Prothorax rather depressed and with a faint transverse sulcus, often only marked at the ends, a narrow and inconspicuous lateral edging, scarcely a margin, with a blunt tooth at the base. Elytra long, faintly costate, with the intervals irregularly striate punctate; epipleura vanishing before the apical curve; anterior coxal cavities open, legs long and slender, the first tarsal joint of all feet long, claws appendiculate.

Type species: *Neobrotica vittatipennis* (Jacoby).

Remarks: The name *Rachicephala* is derived from the Greek *ράχis* meaning "spine," and *κεφαλά*, meaning "head."

***Rachicephala vittatipennis* (Jacoby)**

FIGURE 104

*Neobrotica vittatipennis* Jacoby, in Godman and Salvin, *Biologia Centrali-Americana*, Coleoptera, vol. 6, pt. 1, p. 577, 1887.

Jacoby had a single specimen of this from Juquila, Mexico, Sallé coll., and this a female. If he had had a male he would probably have realized how unlike *Neobrotica* the species is. The development of the appendages on the front of the head as well as the enlargement of the third antennal joint are unlike that in *Neobrotica* or any species known to me.

Type female, BMNH, from Juquila, Mexico.

Other localities: Mexico: one specimen, Cuernavaca (Bowditch collection), also two specimens in the U.S. National Museum from Cuernavaca collected by N.L.H. Krauss in August 1955; Guadalajara.

***Cyclotrypema*, new genus**

Elongate oblong, the head with a smooth occiput and a median depression over the frontal tubercles, carina short and not prominent, lower front rather bulging but not protuberant; in the male over the labrum a median hole, almost as large as the antennal socket; no trace of this in the female. Antennae reaching the middle of the elytra, filiform, in the male the third joint a little longer than in the female, but in both sexes longer than the fourth joint, remaining joints shorter. Prothorax without a lateral edging, a faint transverse sulcus across the disc, sometimes only a dent on each side. Elytra smooth and flat, without depressions. Epipleura vanishing at apical curve. Anterior coxal cavities open. First tarsal joint of anterior legs inflated and the front tibiae much enlarged at apex. First tarsal joint of hind legs as long as the remaining joints together. Claws appendiculate.



Type species: *Galeruca furcata* Olivier.

Remarks: The name *Cyclotrypema* is derived from the Greek κύκλος, meaning "round," and τρύπημα, meaning "hole."

***Cyclotrypema furcata* (Olivier)**

FIGURE 101

*Galeruca furcata* Olivier, Entomologie, vol. 6, p. 643, 1808.

*Cerotoma furcata* (Olivier).—Dejean, Catalogue de la collection de Coleoptères . . . , ed. 3, p. 403, 1837.

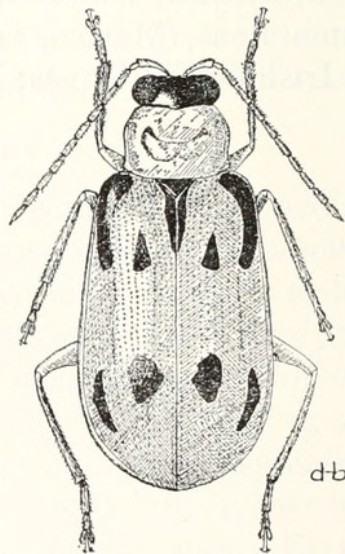
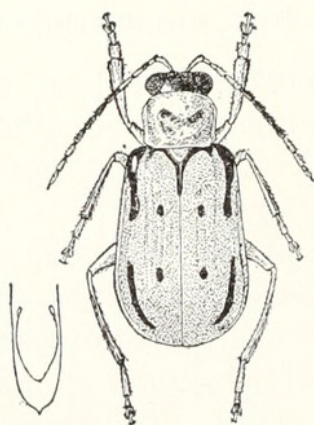
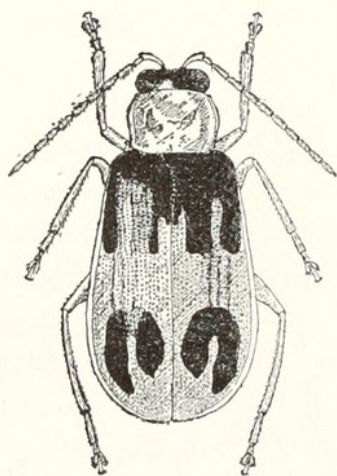
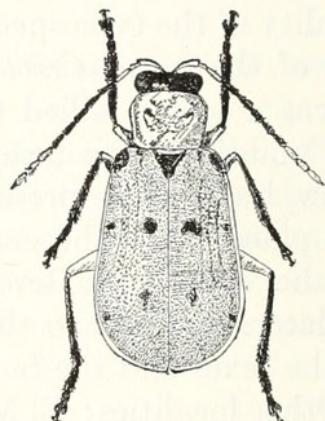
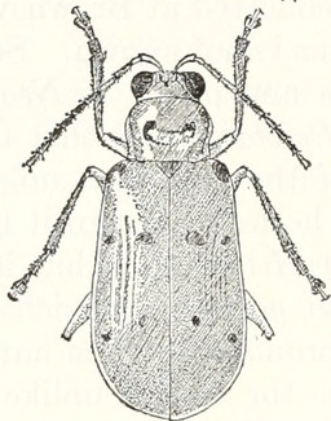
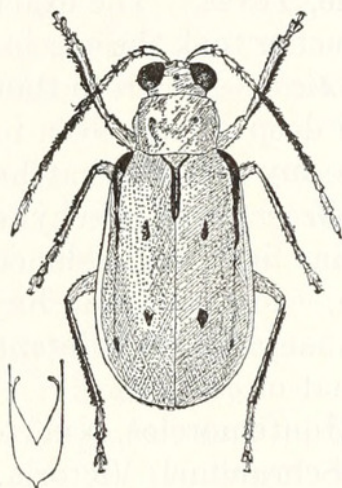
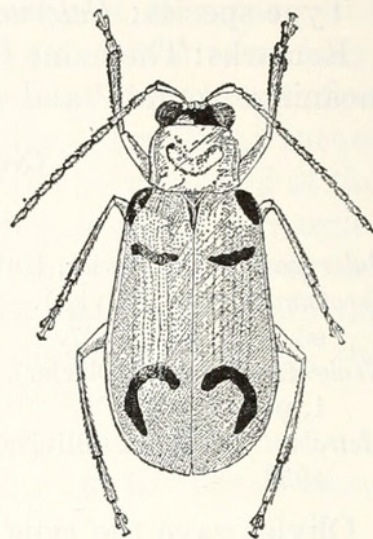
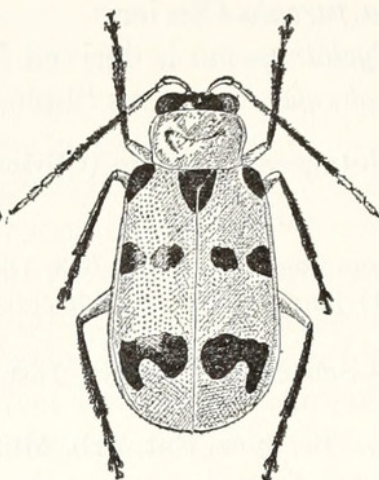
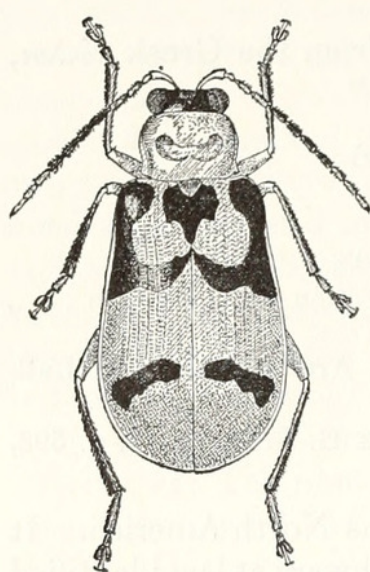
*Neobrotica furcata* (Olivier).—Schaeffer, Brooklyn Inst. Arts Sci. Mus. Sci. Bull. 1, p. 245, 1906.

*Metrobrotica furcata* (Olivier).—Bechyne, Ent. Arb. Mus. G. Frey, vol. 9, p. 596, 1958.

Olivier gave the type locality of this species as North America. It was not found again for many years until E. A. Schwarz at last identified the species with material collected at Brownsville, Texas. The exact locality of the type specimen is not known. Schaeffer took the species out of the genus *Cerotoma* and put it in *Neobrotica*. He wrote that it was not even allied to *Cerotoma*, and that the deep round fovea in the middle of the head of the male was unlike any species that he knew, but for the present he would assign it to *Neobrotica*. Bechyne has placed it in the genus *Metrobrotica*, but it has little resemblance to the genotype, *Cerotoma geometrica* Erichson, except that it has no lateral margin to the pronotum. The antennae are not different in the sexes and the face in the male is unlike that of *geometrica*.

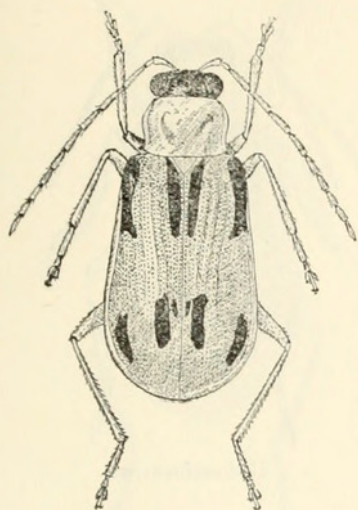
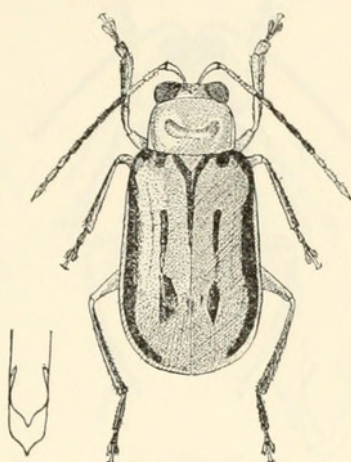
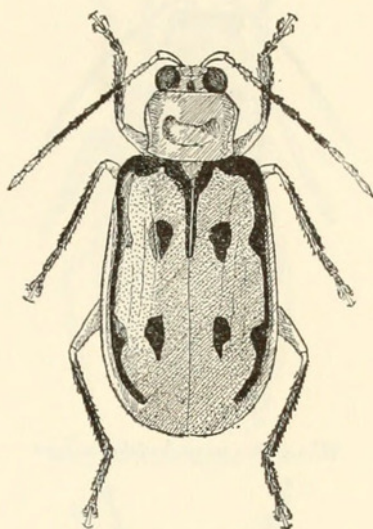
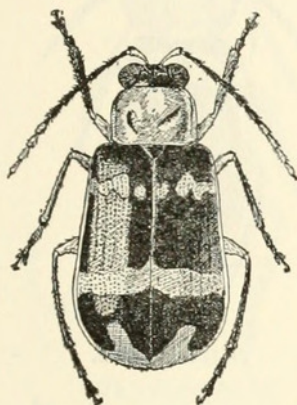
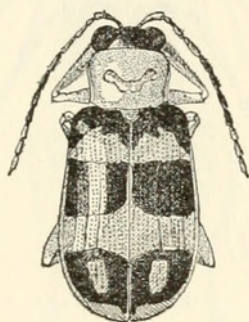
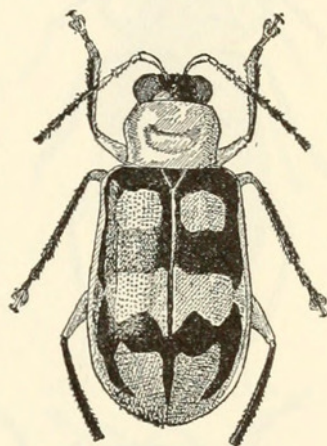
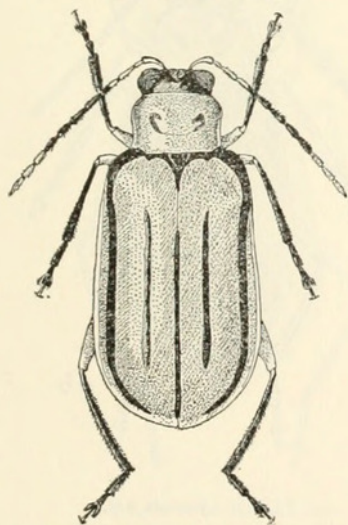
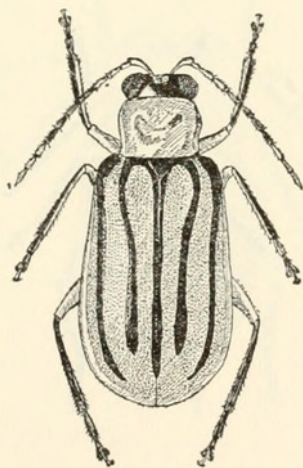
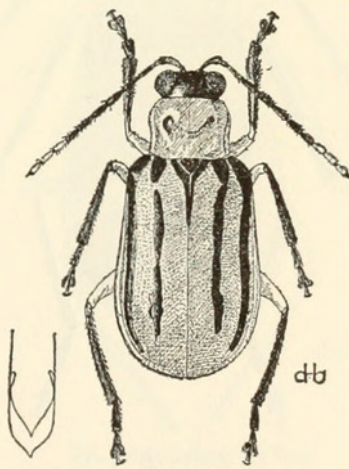
Other localities: El Monte, Tamaulipas, and Montemorelos, Nuevo Leon, Mexico, collected by W. Gertsch and P. Schrammel; Victoria, Tamaulipas, Mexico, collected by W. Gertsch; Russelltown, Texas, on Irish potato leaves; Brownsville, Texas.





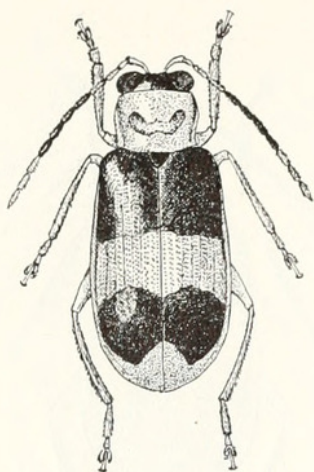
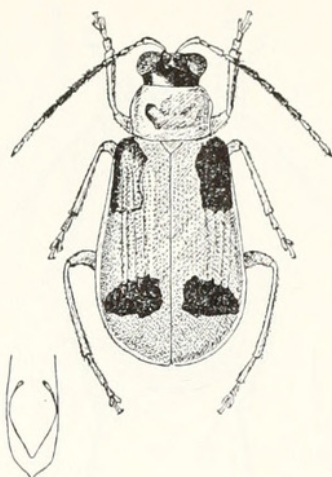
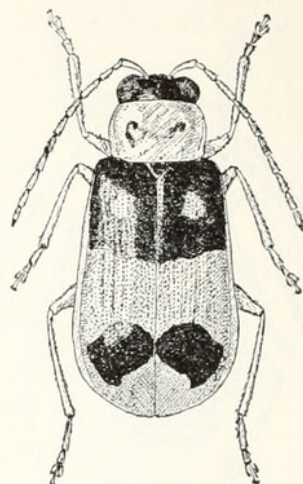
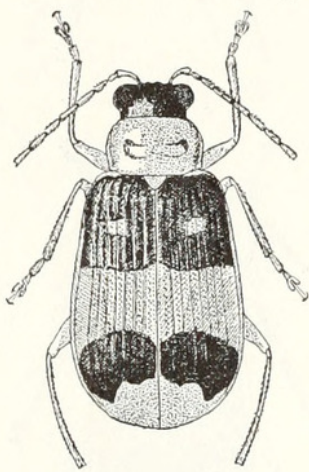
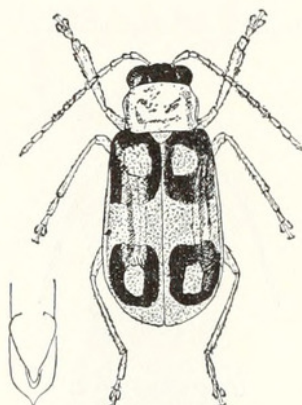
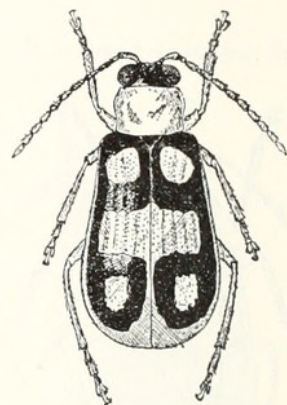
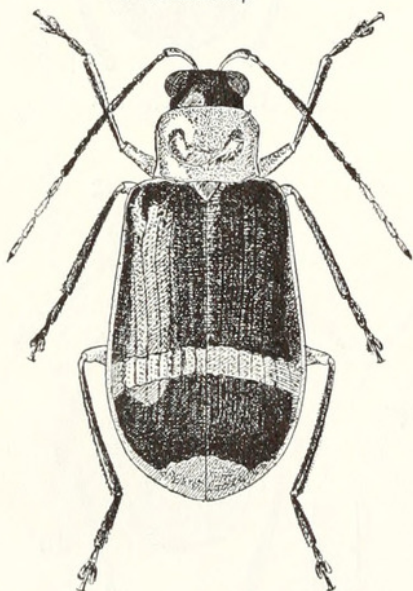
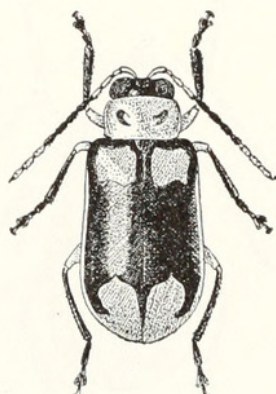
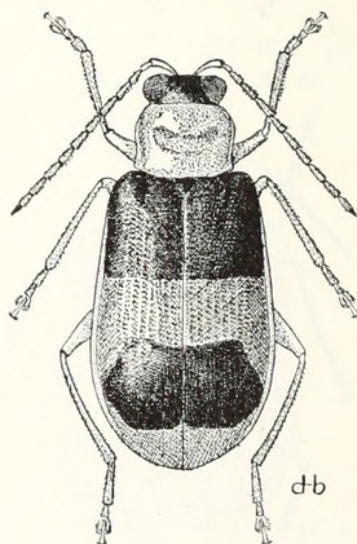
FIGURES 1-9.—1, *Neobrotica variabilis* Jacoby, type; 2, *N. variabilis* var. Jacoby, type; 3, *N. noumenia*, new species; 4, *N. trichops*, new species; 5, *N. schausi*, new species; 6, *N. undecimmaculata* Jacoby, type; 7, *N. dentata*, new species; 8, *N. coeruleolineata* Jacoby; 9, *N. imitans* Jacoby.



10. *Neobrotica linigera* Jac.11. *N. duodecimsignata* n.sp.12. *N. spilocephala*, n.sp.13. *N. hondurensis* Jac.14. *N. simulans* Jac. Type15. *N. pterota*, n.sp.16. *N. oberthüri* (Baly) Type17. *N. oberthüri* (Baly) Guatemala18. ?*N. oberthüri* (Baly) Caracas, Venezuela

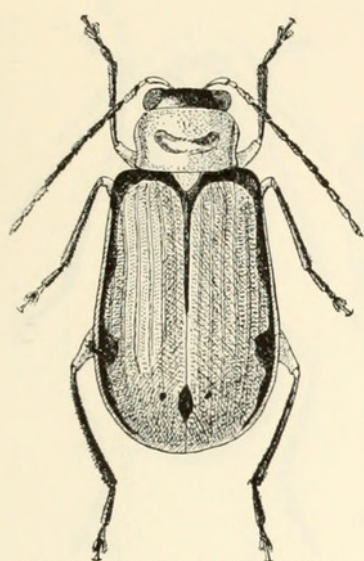
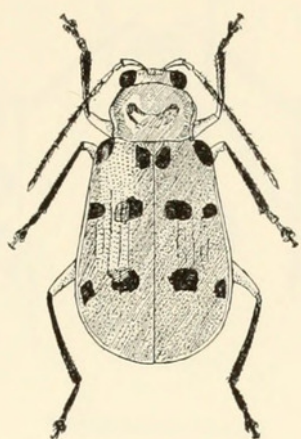
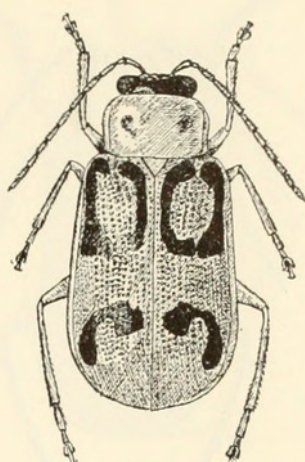
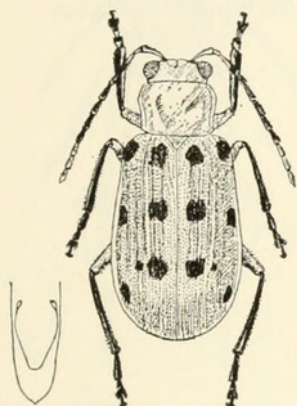
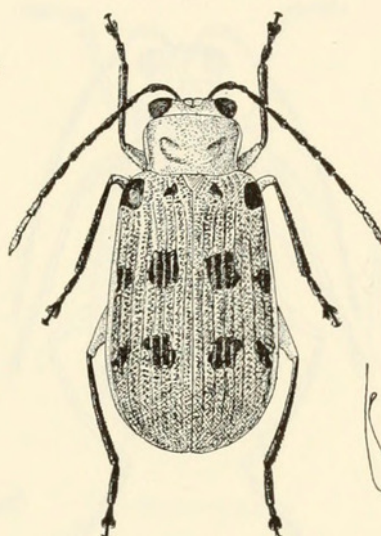
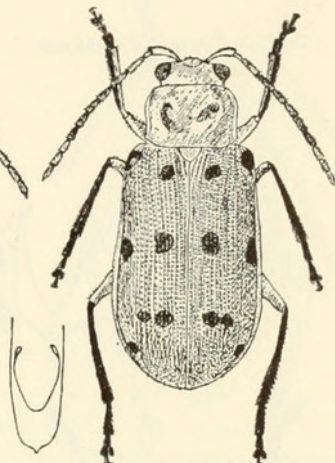
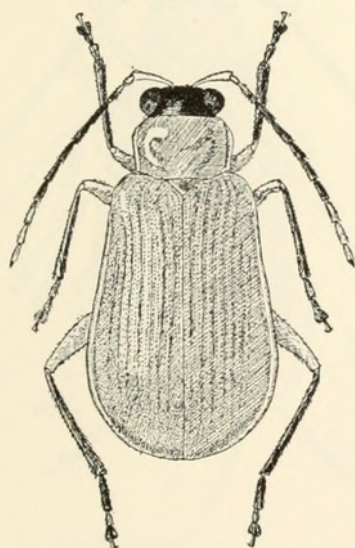
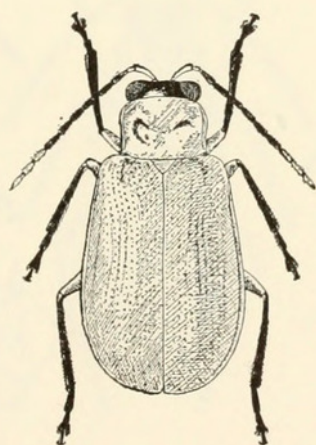
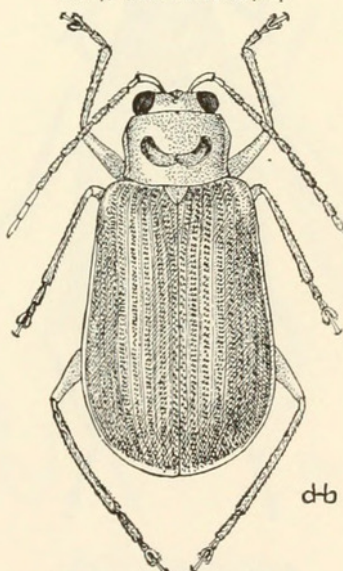
FIGURES 10-18.—10, *Neobrotica linigera* Jacoby; 11, *N. duodecimsignata*, new species; 12, *N. spilocephala*, new species; 13, *N. hondurensis* Jacoby; 14, *N. simulans* Jacoby, type; 15, *N. pterota*, new species; 16, *N. oberthüri* (Baly), type; 17, *N. oberthüri* (Baly), Guatemala; 18, *N. ?oberthüri* (Baly), Caracas, Venezuela.



19 *Neobrotica coeruleofasciata* Jac. Type20 *N. coeruleofasciata* Jac.21. *N. confusa*, n.sp.22. *N. zonata*, n.sp.23. *N. ornata* Jac.24. *N. ornata* Jac.25. *N. cartwrighti*, n.sp.26. *N. quadriplagiata* Jac. Type27. *N. piceofasciata*, n.sp.

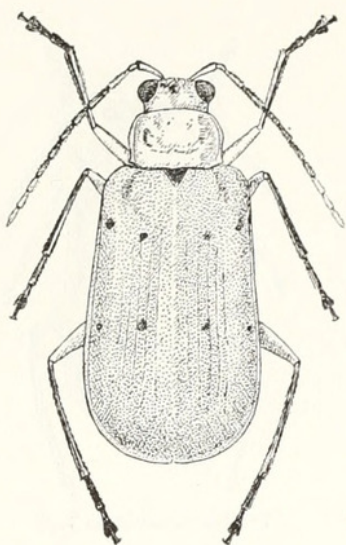
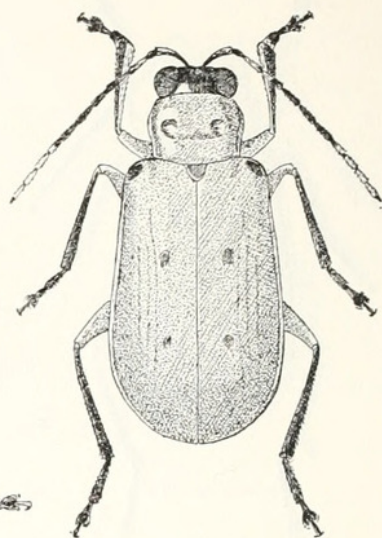
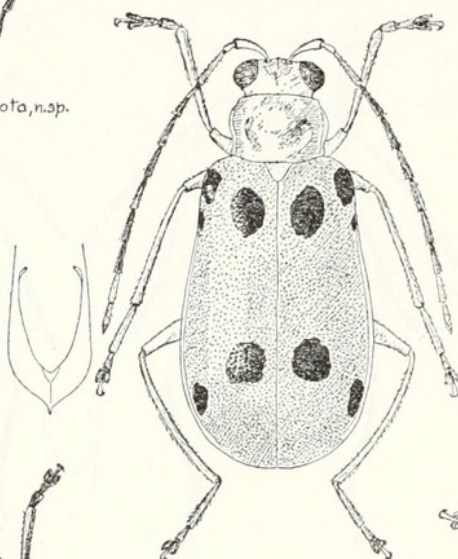
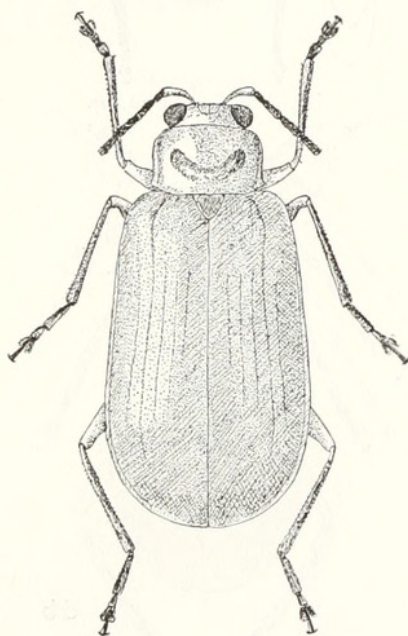
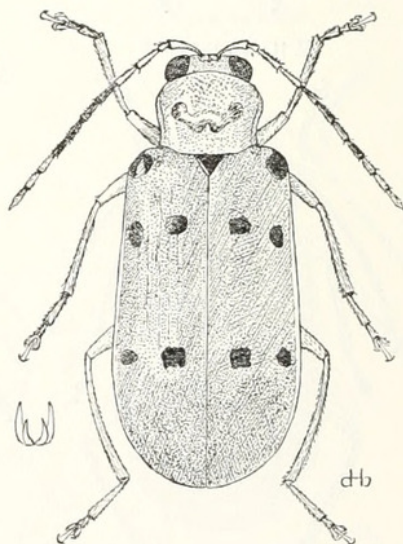
FIGURES 19-27.—19, *Neobrotica coeruleofasciata* Jacoby, type; 20, *N. coeruleofasciata* Jacoby; 21, *N. confusa*, new species; 22, *N. zonata*, new species; 23, *N. ornata* Jacoby; 24, *N. ornata* Jacoby; 25, *N. cartwrighti*, new species; 26, *N. quadriplagiata* Jacoby, type; 27, *N. piceofasciata*, new species.



28 *Neobrotica melanocephala* Jac. Type29 *N. tampicensis*, n.sp.30. *N. punctatissima* Jac. Type31. *N. pluristicta* Fall32. *N. sexmaculata* Jac. Type33. *N. matamorasensis*, n.sp.34. *N. pallescens* Jac. Type35. *N. modesta* Jac Type36. *N. semicostata* Jac. Type

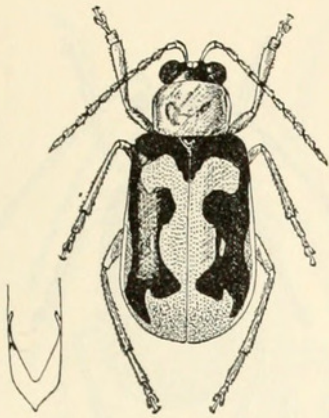
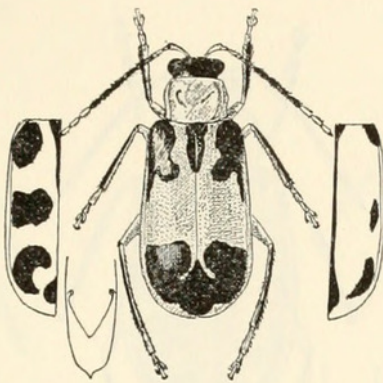
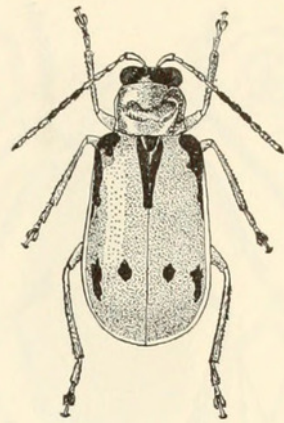
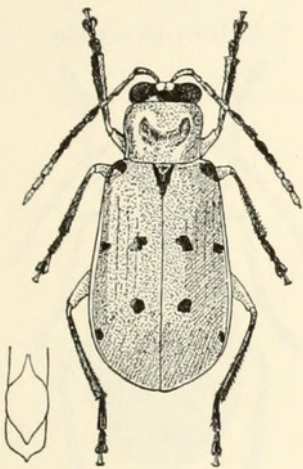
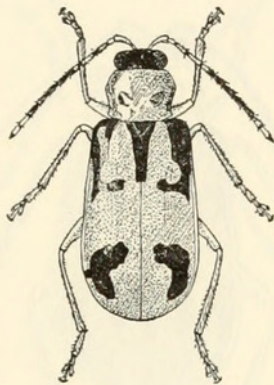
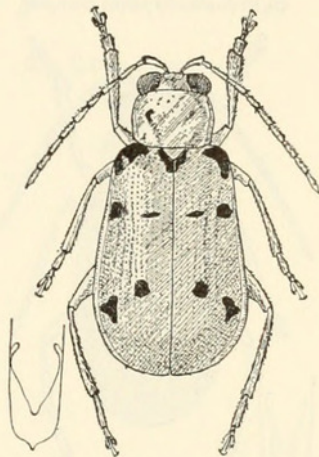
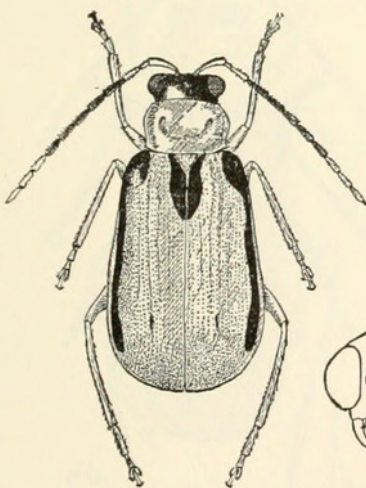
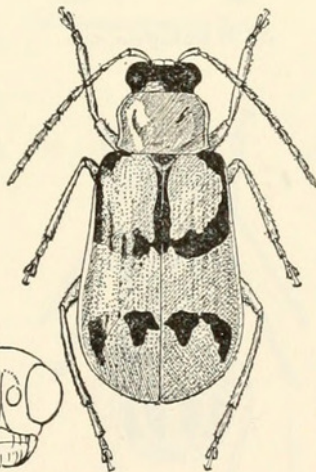
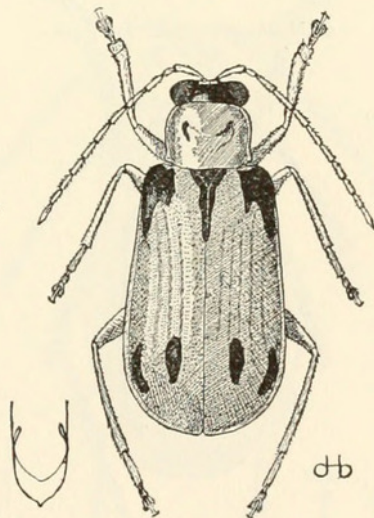
FIGURES 28-36.—28, *Neobrotica melanocephala* Jacoby, type; 29, *N. tampicensis*, new species; 30, *N. punctatissima* Jacoby, type; 31, *N. pluristicta* Fall; 32, *N. sexmaculata* Jacoby, type; 33, *N. matamorasensis*, new species; 34, *N. pallescens* Jacoby, type; 35, *N. modesta* Jacoby, type; 36, *N. semicostata* Jacoby, type.



37. *Neobrotica pentaspilota*, n.sp.39. *N. septem maculata*, n.sp.38. *N. decimsignata*, n.sp.40. *N. inconspicua* Jac. Type41. *N. quinquepunctata* (Jac.)

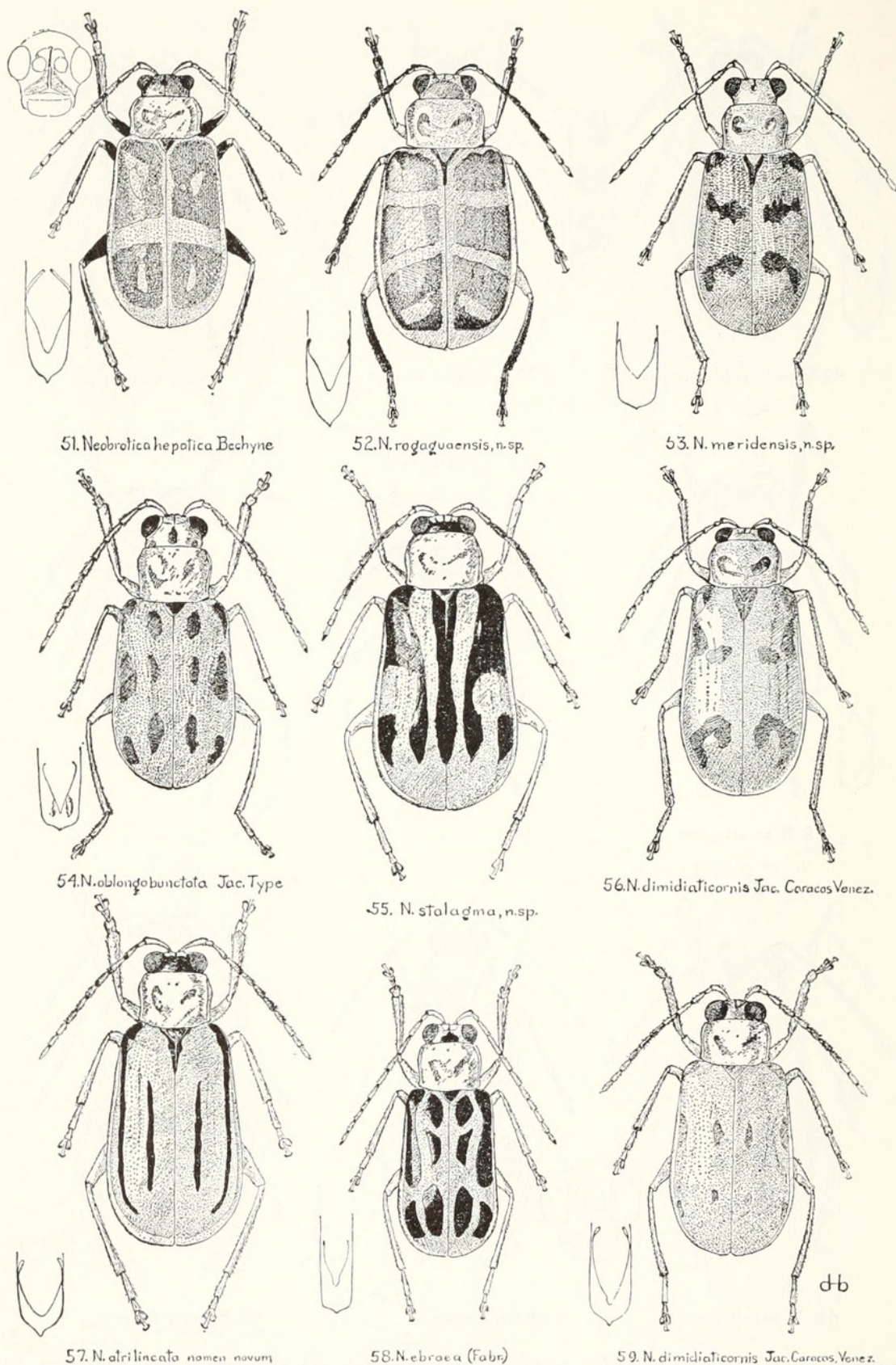
FIGURES 37-41.—37, *Neobrotica pentaspilota*, new species; 38, *N. decimsignata*, new species; 39, *N. septemmaculata*, new species; 40, *N. inconspicua* Jacoby, type; 41, *N. quinquepunctata* (Jacoby).



42. *Neobrotica regularis*, n.sp.43. *N. erythrinae* Bechyne44. *N. ruficollis*, n.sp.45. *N. poecila*, n.sp.46. *N. germani*, n.sp.47. *N. praeclara* (Weise)48. *N. rendalli*, n.sp.49. *N. flavipes*, n.sp.50. *N. comma* Bechyne

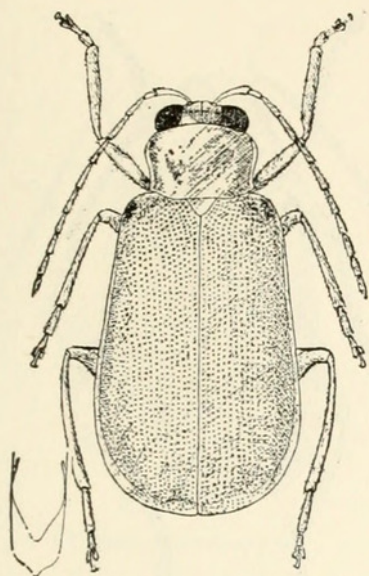
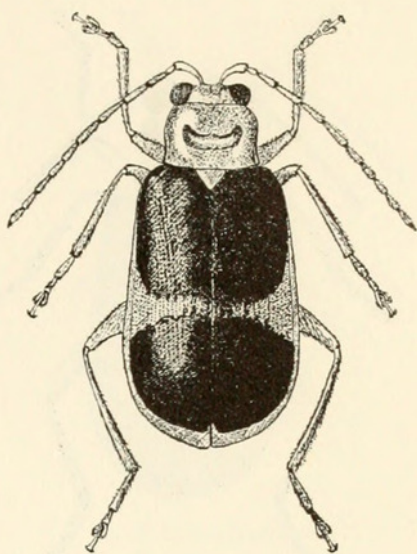
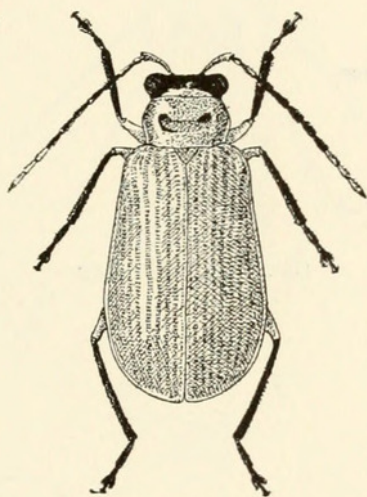
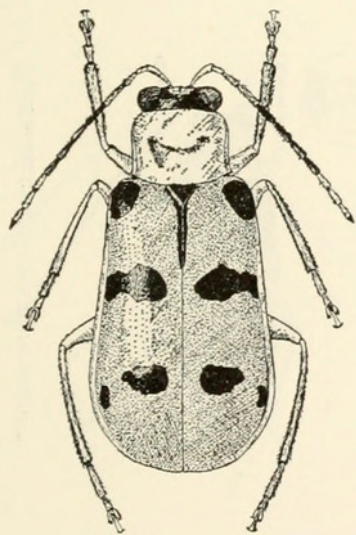
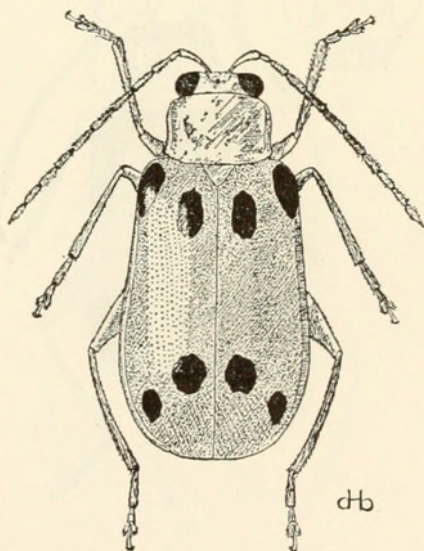
FIGURES 42-50.—42, *Neobrotica regularis*, new species; 43, *N. erythrinae* Bechyne; 44, *N. ruficollis*, new species; 45, *N. poecila*, new species; 46, *N. germani*, new species; 47, *N. praeclara* (Weise); 48, *N. rendalli*, new species; 49, *N. flavipes*, new species; 50, *N. comma* Bechyne.





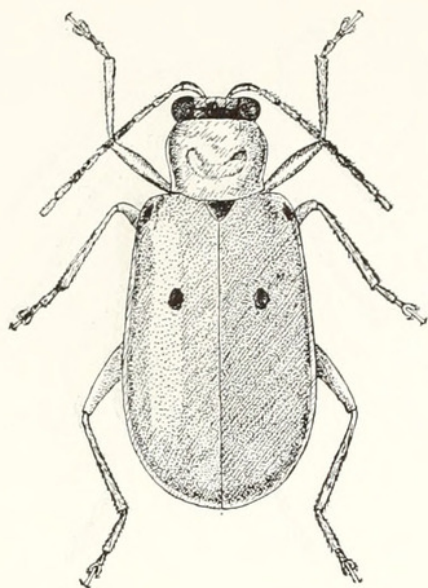
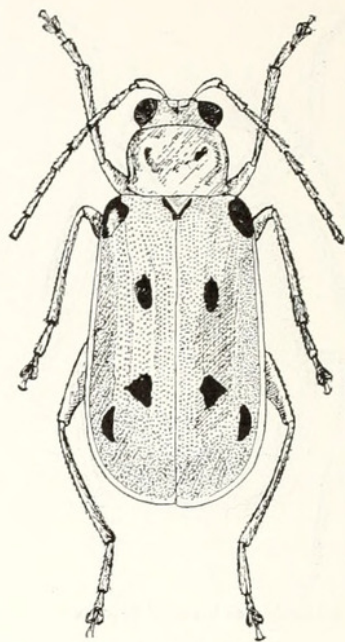
FIGURES 51-59.—51, *Neobrotica hepatica* Bechyne; 52, *N. rogaguaensis*, new species; 53, *N. meridensis*, new species; 54, *N. oblongopunctata* Jacoby, type; 55, *N. stalagma*, new species; 56, *N. dimidiaticornis* Jacoby, Caracas, Venezuela; 57, *N. atrilineata*, new name; 58, *N. ebraea* (Fabricius); 59, *N. dimidiaticornis* Jacoby, Caracas, Venezuela.



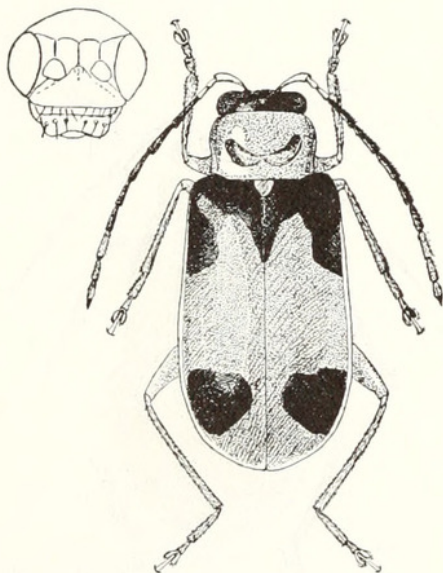
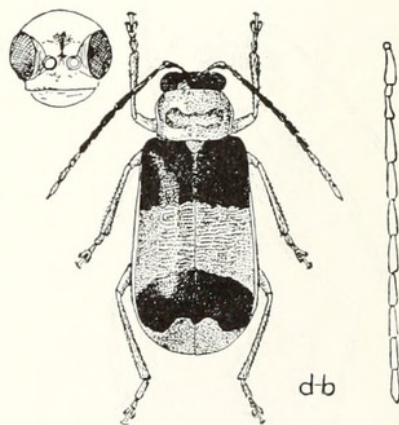
60. *Neobrotica bowditchi* Bechyne62. *N. flavolimbata*, n.sp.61. *N. inconstans* var. Jac. Type63. *N. colombiensis*, n.sp.64. *N. octosignata*, n.sp.

FIGURES 60-64.—60, *Neobrotica bowditchi* Bechyne; 61, *N. inconstans* var. Jacoby, type; 62, *N. flavolimbata*, new species; 63, *N. colombiensis*, new species; 64, *N. octosignata*, new species.



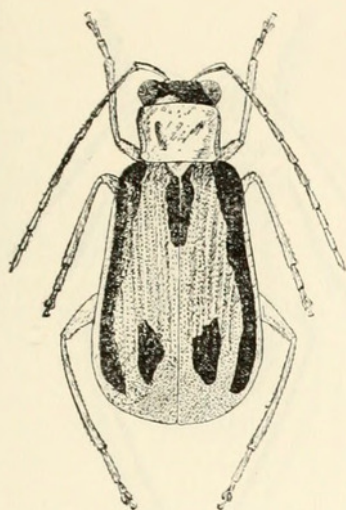
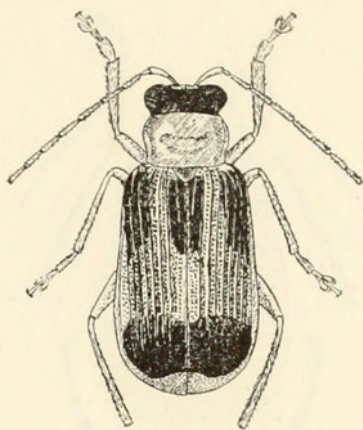
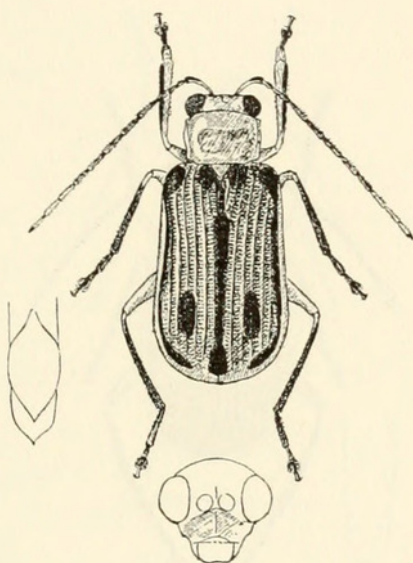
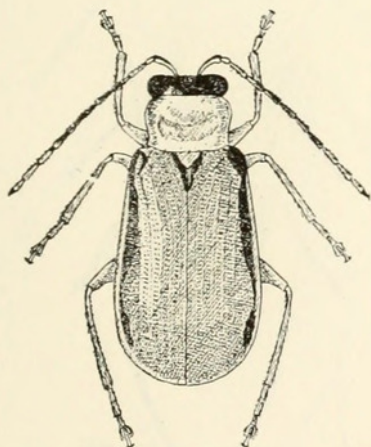
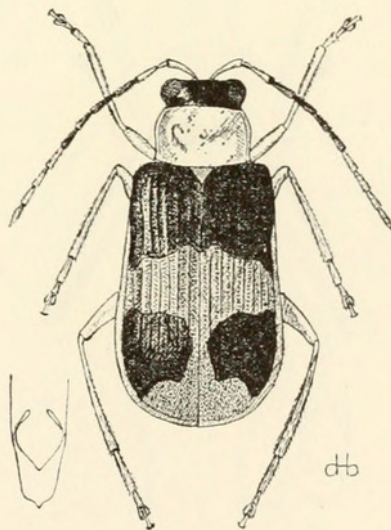
65. *Neobrotica quadrimaculata*, n.sp.66. *N. grandis*, n.sp.

## DOUBTFUL SPECIES

67. *N. ludicra* Bechyne Type68. *N. anisocincta* Bechyne Type

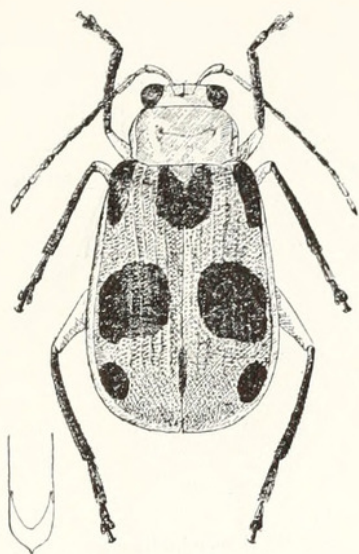
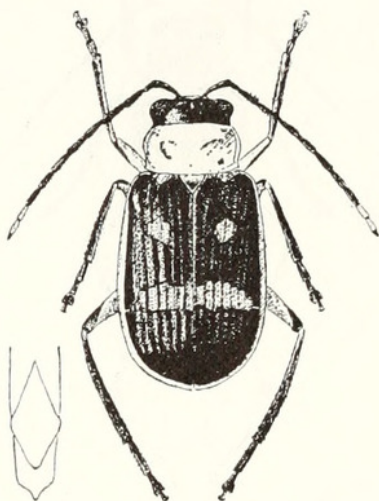
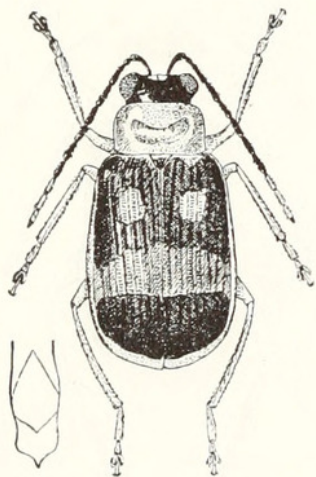
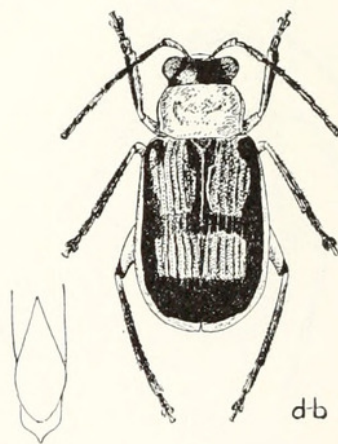
FIGURES 65-68.—65, *Neobrotica quadrimaculata*, new species; 66, *N. grandis*, new species; 67, *N. ludicra* Bechyne, type; 68, *N. anisocincta* Bechyne, type.



69. *Hystiopsis peruensis*, n.sp.71. *H. terminalis*, n.sp.70. *H. marginalis* (Fabr.)72. *H. bryanti*, n.sp.73. *H. flavipes*, n.sp.

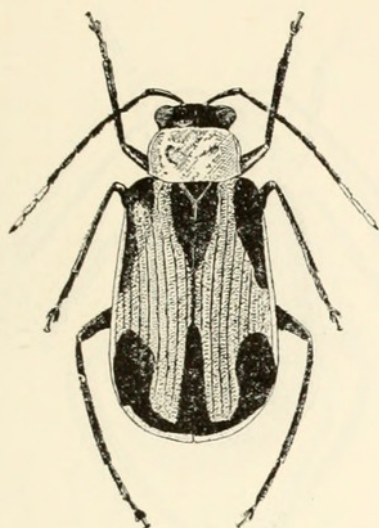
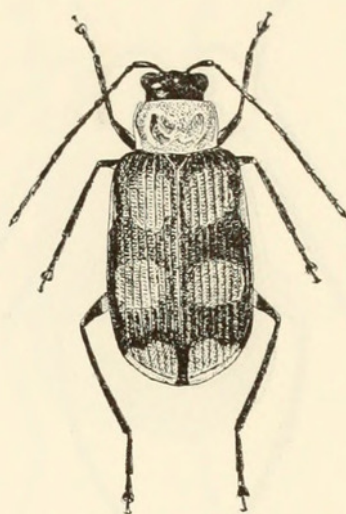
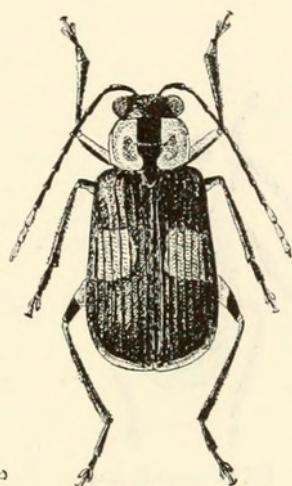
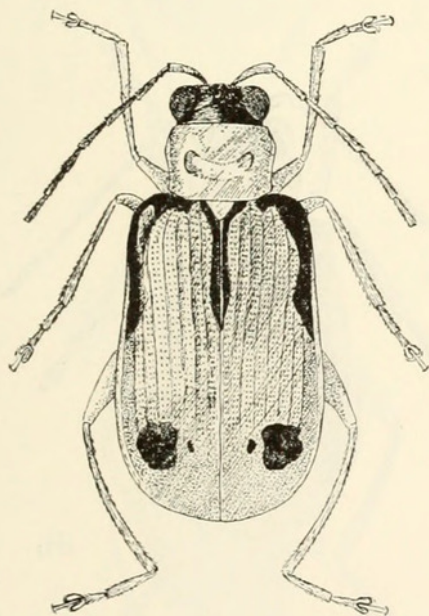
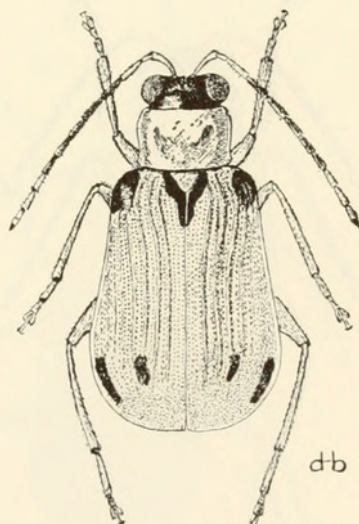
FIGURES 69-73.—69, *Hystiopsis peruensis*, new species; 70, *H. marginalis* (Fabricius); 71, *H. terminalis*, new species; 72, *H. bryanti*, new species; 73, *H. flavipes*, new species.



74. *Hystiopsis exarata*, n.sp.76. *H. zonata*, n.sp.75. *H. bella*, n.sp. Salinas77. *H. bella*, n.sp. Loma Alta78. *H. bella*, n.sp. Cochabamba, Bolivia

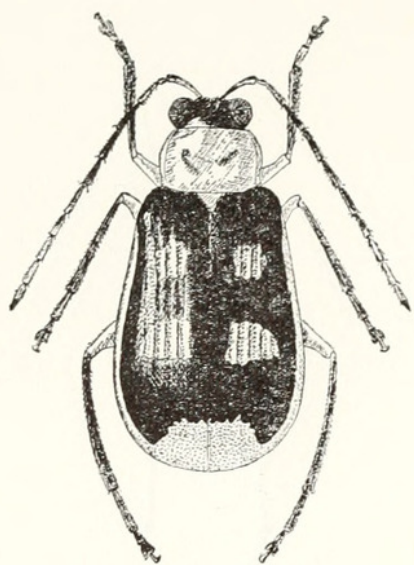
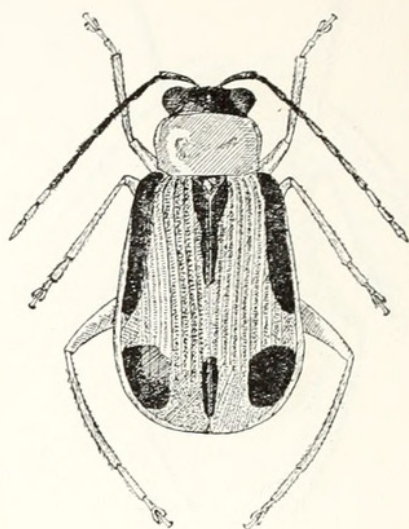
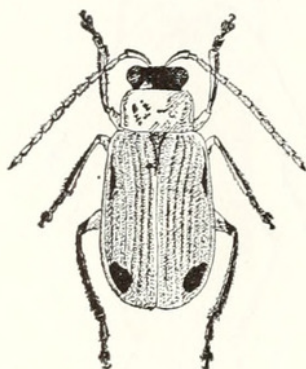
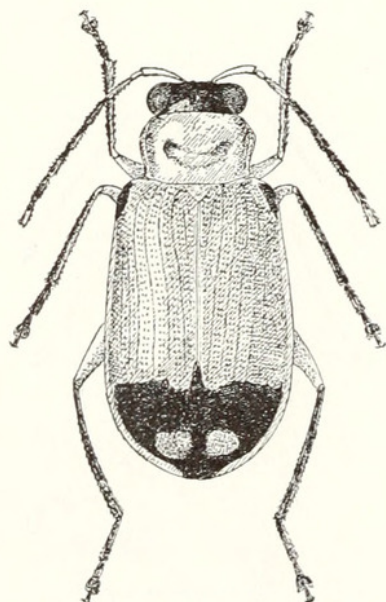
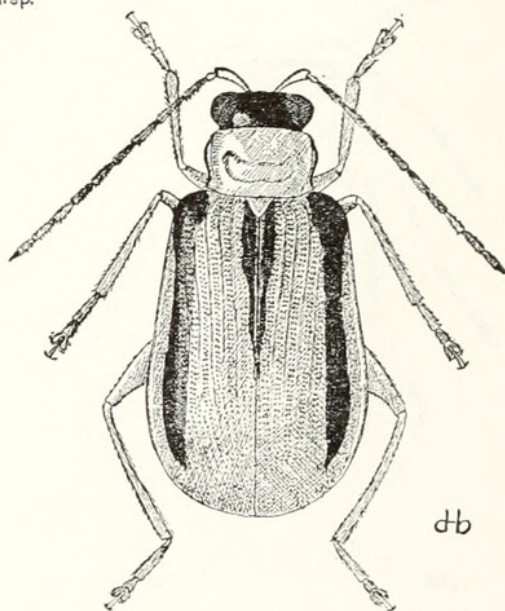
FIGURES 74-78.—74, *Hystiopsis exarata*, new species; 75, *H. bella*, new species, Salinas; 76, *H. zonata*, new species; 77, *H. bella*, new species, Loma Alta; 78, *H. bella*, new species, Cochabamba, Bolivia.



79. *Hystiopsis nigriventris*, n.sp.81. *H. maculata*, n.sp.80. *H. irritans*, n.sp.82. *H. megala*, n.sp.83. *H. mansei*, n.sp.

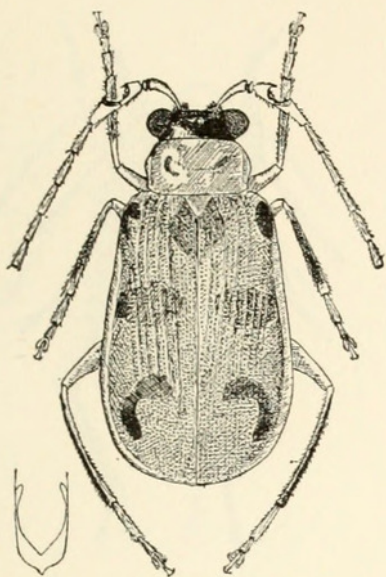
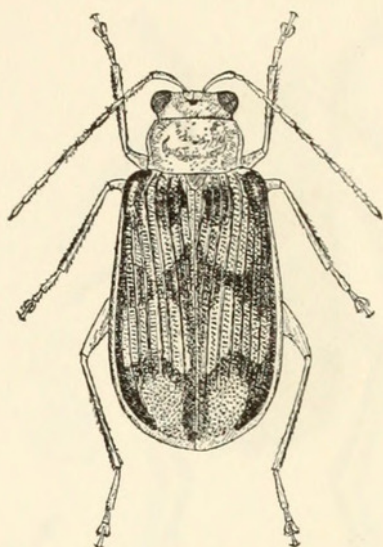
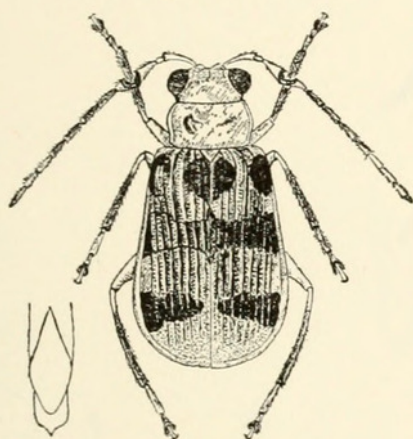
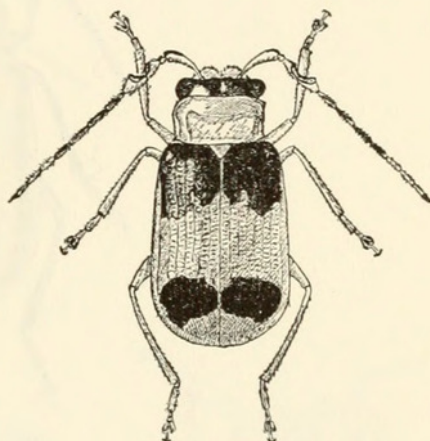
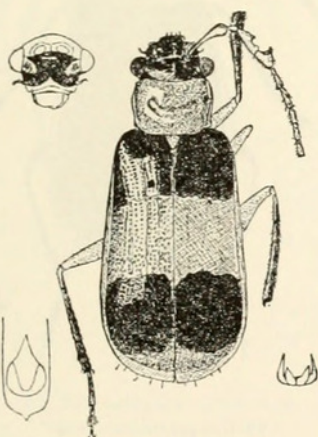
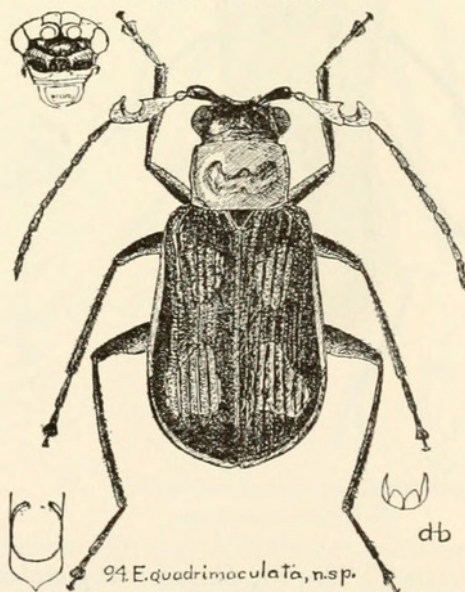
FIGURES 79-83.—79, *Hystiopsis nigriventris*, new species; 80, *H. irritans*, new species; 81, *H. maculata*, new species; 82, *H. megala*, new species; 83, *H. mansei*, new species.



84. *Hystiopsis grossa*, n.sp.86. *H. beniensis*, n.sp.85. *H. mapirii*, n.sp.87. *H. phaica*, n.sp.88. *H. maxima*, n.sp.

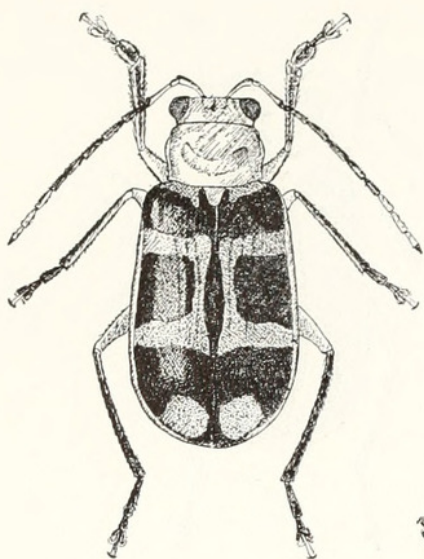
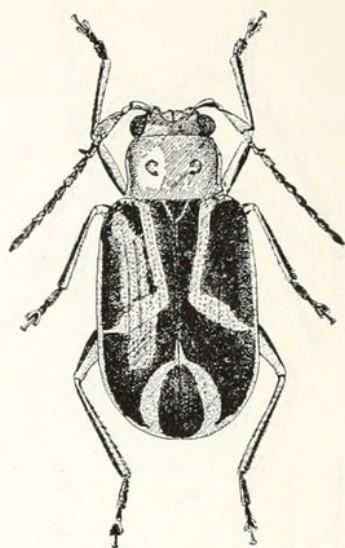
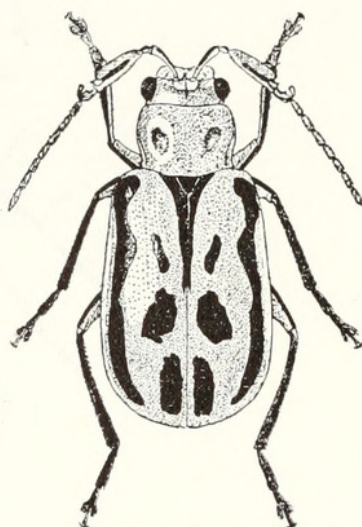
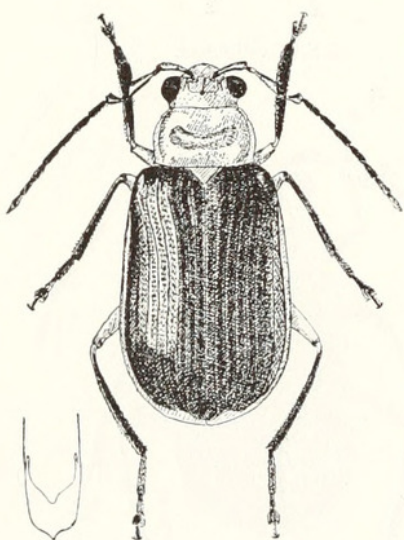
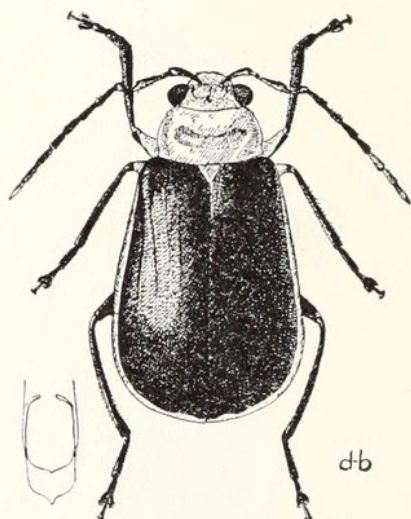
FIGURES 84-88.—84, *Hystiopsis grossa*, new species; 85, *H. mapirii*, new species; 86, *H. beniensis*, new species; 87, *H. phaica*, new species; 88, *H. maxima*, new species.



89. *Eccoptopsis costaricensis*, n.sp.90. *E. boliviensis*, n.sp.91. *E. denticornis* (Jac)92. *E. laticollis*, n.sp.93. *E. clara*, n.sp.94. *E. quadrimaculata*, n.sp.

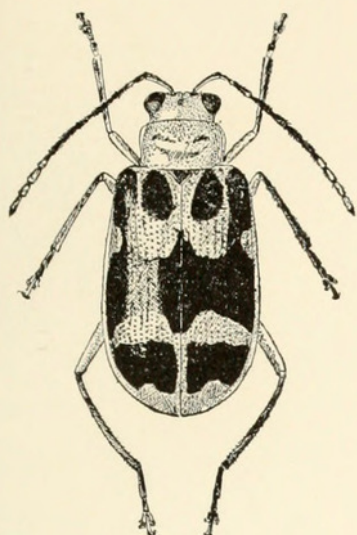
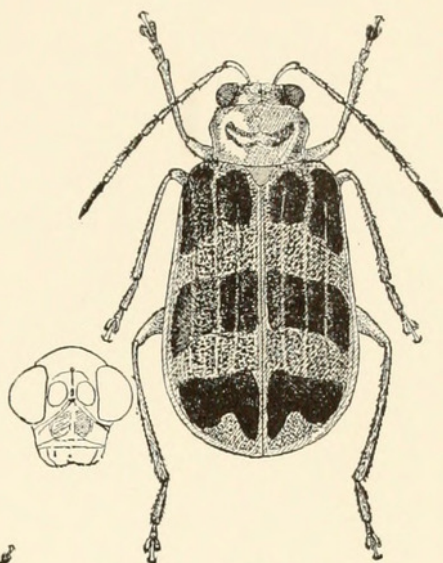
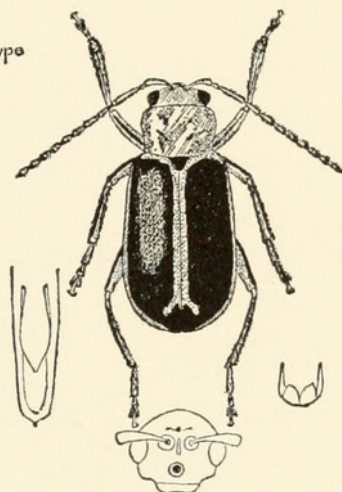
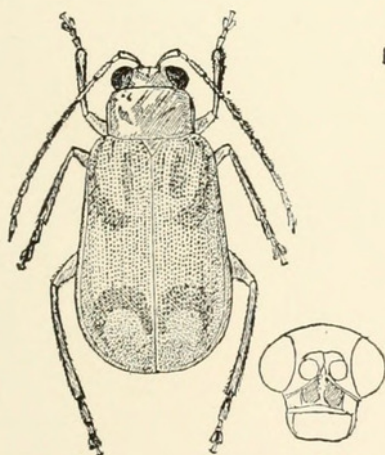
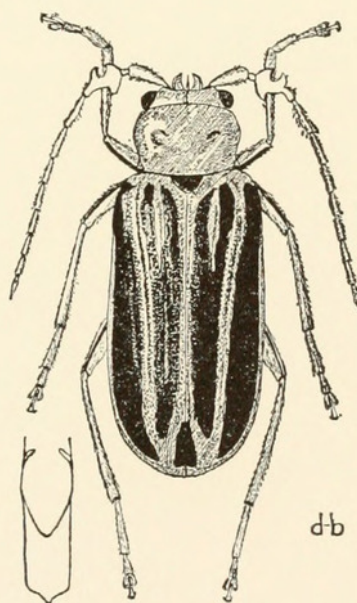
FIGURES 89-94.—89, *Eccoptopsis costaricensis*, new species; 90, *E. boliviensis*, new species; 91, *E. denticornis* (Jacoby); 92, *E. laticollis*, new species; 93, *E. clara*, new species; 94, *E. quadrimaculata*, new species.



95. *Eccoptopsis piceofasciata*, n.sp.97. *E. cavifrons* (Jac) Type96. *E. mexicana*, n.sp.98. *E. cyanocosmesa*, n.sp.99. *E. argentinensis*, n.sp.

FIGURES 95-99.—95, *Eccoptopsis piceofasciata*, new species; 96, *E. mexicana*, new species; 97, *E. cavifrons* (Jacoby), type; 98, *E. cyanocosmesa*, new species; 99, *E. argentinensis*, new species.



100. *Potamobrotica brasiliensis* (Bowd.) Type102. *P. trifasciata*, n.sp.101. *Cyclotrypema furcata* (Oliv.)103. *Potamobrotica viridis*, n.sp.104. *Rachicephala vittatipennis* (Jac.)

FIGURES 100–104.—100, *Potamobrotica brasiliensis* (Bowditch), type; 101, *Cyclotrypema furcata* (Oliver); 102, *P. trifasciata*, new species; 103, *P. viridis*, new species; 104, *Rachicephala vittatipennis* (Jacoby).





Blake, Doris Holmes. 1966. "A review of the beetles of the genus *Neobrotica* and some closely related genera." *Proceedings of the United States National Museum* 118(3529), 267–371.

<https://doi.org/10.5479/si.00963801.118-3529.267>.

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