OCCASIONAL PAPERS
OF
BERNICE P. BISHOP MUSEUM
HONOLULU, HAWAII

Volume XVI February 26, 1941 Number 8

A Revision of the Genus Deretiosus (Coleoptera, Curculionidae)

By ELWOOD C. ZIMMERMAN
ENTOMOLOGIST, B. P. BISHOP MUSEUM

INTRODUCTION

SCOPE

The purpose of this paper is to rectify confusion existing among the many species described and listed as belonging to *Deretiosus* Pascoe (Cryptorhynchinae, Sophrorhini), to present keys to aid in the identification of the species, and to study the geographical distribution of the genus.

ACKNOWLEDGMENTS

I owe my sincerest thanks to the South Australian Museum and its Director, Dr. Herbert M. Hale, for their generosity and complete cooperation in lending me Lea's collection of *Deretiosus* for study. To the Staatliche Museen für Tierkunde und Völkerkunde Dresden and Dr. K. Gunther, I owe my thanks for lending me several types and specimens carefully compared with types which have enabled me to avoid some errors and to present a more valuable revision. To the British Museum (Natural History) and to Sir Guy A. K. Marshall, I am deeply indebted for many kind favors and for the loan of a number of specimens. Dr. Marshall's aid and comments during the preparation of the paper have been most valuable. The Smithsonian Institution at the United States National Museum and Mr. L. L. Buchanan have cooperated by sending me a large number of specimens of the tribes Colobodina and Sophrorhini.

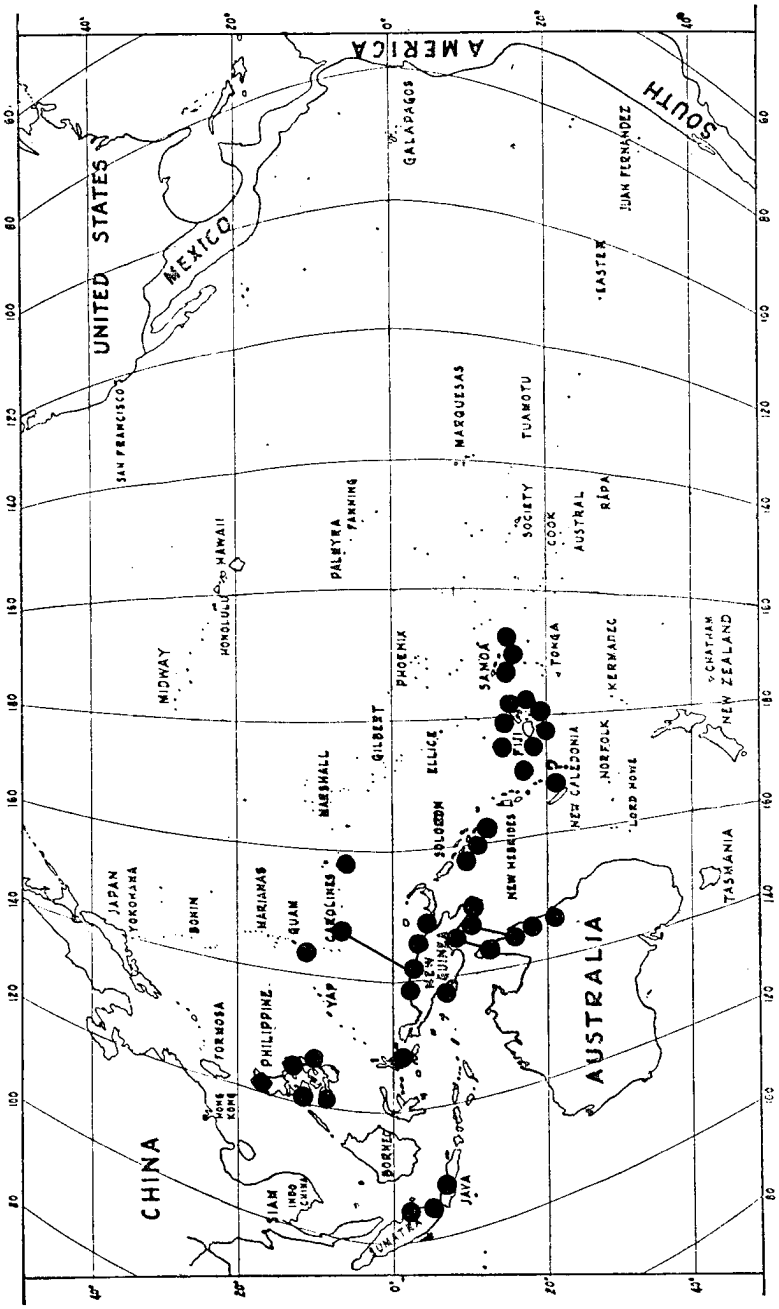

FIGURE 1.—Geographical distribution of species of *Deretiosus*.

REVISION

In the Cryptorhynchinae part of the Coleopterorum Catalogus (1936) there are 41 species listed in the genus *Deretiosus*. This study has resulted in the removal of 14 species from that list, and, together with the species described and other changes made since 1936, in the recognition of 35 forms as belonging to *Deretiosus*. For convenience, the discussion is divided into sections arranged principally in accordance with the zoogeographical regions of Wallace.

In my report "On Lea's Fijian Deretiosus" (1937),[1] I show that out of the 13 species Lea described as *Deretiosus* from Fiji, 7 belonged to that genus, 2 belonged to *Deretiodes,* and 4 to *Teleodactylus*. In my "Preliminary revision of the Fijian Baridinae" (1939), it was shown that not one of the five species described by Lea belonged to either of the two genera to which he assigned them, but that they belonged to four different genera. It is, therefore, not surprising to find that there are many errors in Lea's work on *Deretiosus*. Lea recognized 31 species of *Deretiosus*. Of this total, only 16 belong to *Deretiosus,* 3 are synonyms, and 13 belong to 8 different genera including one in a different subfamily. One of the genera is new.

On the map (fig. 1), showing the distribution of the species of *Deretiosus,* each dot shows only the general region from which a given species is found. The dots connected by solid lines indicate that the same species has been recorded from both areas.

It is noteworthy that only a few of the species of *Deretiosus* are represented in collections by series of specimens. More than half of the described species are known by unique holotypes only. During some recent exploration in Fiji, I procured a comparatively large number of specimens, but only a few species were represented by many individuals.

Deretiosus is placed in the subtribe Colobodina in Coleopterorum Catalogus; but, because of the fact that the pectoral canal invades the metasternum, the genus must be transferred to the tribe Sophrorhini of Lacordaire. Most of the genera included in the Colobodina in Coleopterorum Catalogus by Hustache do not belong to that group. I have a revisional study of the genera of the Colobodina and Sophrorhini in preparation and hope to publish the results of my research soon.

[1] Dates in parentheses refer to Bibliography, p. 214.

GEOGRAPHICALLY ARRANGED LIST OF SPECIES OF DERETIOSUS

Deretiosus Pascoe (1873: 184); genotype *D. aridus* (1873: 185, pl. 8, fig. 10).

Microbothrus Fairmaire (1881: 301), new synonym.

Deretiosominus Heller (1921: 561), new synonym.

Lobocodes[2] Heller (1921: 569), new synonym.

Solobrachis subgenus *Solobrachidius* Voss (1937: 158), new synonym.

1. **Deretiosus angulicollis** (Heller), new combination.
   Deretiosomimus angulicollis Heller (1921: 561).
   Philippines.
2. **Deretiosus angulicollis** (subspecies?) **lactifrons** (Heller), new combination.
   Deretiosomimus angulicollis subspecies *lactifrons* Heller (1921: 562).
   Philippines.
3. **Deretiosus venustus** Heller (1921: 573, pl. 3, figs. 1, 2). Philippines.
4. **Deretiosus subverrucosus** (Voss), new combination.
   Solobrachis (Solobrachidius) subverrucosus Voss (1937: 159).
   Philippines.
5. **Deretiosus nigromaculatus** (Voss), new combination.
   Solobrachis (Solobrachidius) nigromaculatus Voss (1937: 160).
   Philippines.
6. **Deretiosus enganoensis** (Voss), new combination.
   Deretiosomimus enganoensis Voss (1937: 166).
   Sumatra.
7. **Deretiosus dispar** (Voss), new combination.
   Solobrachis (Solobrachidius) dispar Voss (1937: 159).
   Java.
8. **Deretiosus persimilis** (Voss), new combination.
   Deretiosomimus persimilis Voss (1937: 165).
   Java.
9. **Deretiosus nodulosus** (Pascoe), new combination.
   Colobodes nodulosus Pascoe (1873: 485).
   Moluccas: Batchian.
10. **Deretiosus turbatus** (Faust), new combination.
    Colobodes turbatus Faust (1892: 210).
    Lobocodes turbatus (Faust) Heller (1921: 569).
    Deretiosus amplipennis Lea (1931: 283), new synonym.
    New Guinea: Fergusson Island.
11. **Deretiosus collaris** Lea (1931: 389). New Guinea.
12. **Deretiosus aridus** Pascoe (1873: 185, pl. 8, fig. 10), genotype.
    Deretiosus aridus variety *blandus* Lea (1909: 712), new synonym.
    Deretiosus zopherus Lea (1913: 283), new synonym.
    New Guinea; eastern Australia.

[2] Incorrectly spelled *Locobodes* by Hustache (1936: 67).

13. **Deretiosus subaridus** Lea (1928:70). New Guinea; Caroline Islands: Truk.
14. **Deretiosus carinirostris** Lea (1931:389). New Guinea.
15. **Deretiosus latus** Lea (1931:388). New Guinea.
16. **Deretiosus squamipennis** Lea (1931:390). New Guinea.
17. **Deretiosus verrucifer** Faust (1899:52).
    Deretiosus pustulosus Lea (1931:390), new synonym.
    New Guinea; northeastern Australia.
18. **Deretiosus manni** Zimmerman (1938:161). Solomon Islands.
19. **Deretiosus sternalis** Zimmerman (1938:162). Solomon Islands.
20. **Deretiosus fasciatus** Zimmerman (1938:159). Solomon Islands.
21. **Deretiosus hystricosus** Lea (1910:712). Northeastern Australia.
22. **Deretiosus alphabeticus** Lea (1931:393). Northeastern Australia.
23. **Deretiosus ficae** Zimmerman (in press). Marianas Islands; Guam.
24. **Deretiosus concolor** Zimmerman (1938:163). Caroline Islands; Ponape.
25. **Deretiosus fasciculiceps** Lea (1931:392). Fiji.
26. **Deretiosus v-niger** Lea (1928:65). Fiji.
27. **Deretiosus lectus** Lea (1928:62). Fiji.
28. **Deretiosus variegatus** Lea (1928:64). Fiji.
29. **Deretiosus apicalis** Lea (1928:67). Fiji.
30. **Deretiosus exithiodes** Lea (1928:64). Fiji.
31. **Deretiosus lateroalbus** Lea (1928:61). Fiji.
32. **Deretiosus squamituber** (Fairmaire), new combination.
    Microbothrus squamituber Fairmaire (1881:302).
    Fiji.
33. **Deretiosus scutiger** Marshall (1931:287). Samoa.
34. **Deretiosus gibber** Marshall (1931:289, fig. 13). Samoa.
35. **Deretiosus wilderi** Marshall (1931:290). Samoa.

Lucas in Montrouzier's paper on the New Caledonian fauna (1860:907) described *Ithyporus bigibbosus*. This species is probably a *Deretiosus;* it has been omitted from Coleopterorum Catalogus.

Synopsis of Nomenclatorial Changes Not Included in Preceding List

1. **Colobodes modestus** (Heller), new combination.
   Solobrachius modestus Heller (1921:562).
   Philippines.
2. **Colobodes atratus** (Lea), new combination.
   Deretiosus atratus Lea (1928:71).
   Java.
3. **Colobodes cristatus,** new name, new combination.
   Deretiosus fasciculatus Lea (1928:71).
   Malay Peninsula.
4. **Exapries intercoxalis** (Lea), new combination.
   Deretiosus intercoxalis Lea (1928:72).
   Borneo.

5. **Exapries lophonotus** (Marshall), new combination.
   Colobodes lophonotus Marshall (1926: 358).
   Borneo.
6. **Ocoblodes parvus** (Lea), new combination.
   Deretiosus parvus Lea (1931: 392).
   New Guinea.
7. **Ocoblodes setosus** (Lea), new combination.
   Deretiosus setosus Lea (1928: 72).
   Malay Peninsula.
8. Genus **Apries Pascoe** (1873: 196) returned to generic status.
9. **Apries eremita** Pascoe (1873: 196, pl. 9, fig. 6).
   Deretiosus eremita (Pascoe) Lea (1931: 395).
   New Guinea; Java, Batchian, Philippines.
10. **Apries palliatus** Pascoe (1871: 196).
    Deretiosus palliatus (Pascoe) Lea (1931: 395).
    New Guinea.
11. **Apries aversandus** (Boheman), new combination.[3]
    Cryptorhynchus aversandus Boheman (1837: 112).
12. **Perrhaebius tibialis** (Lea), new combination.
    Deretiosus tibialis Lea (1931: 73).
    Northeastern Australia; New Guinea ?; Java ?
13. **Aristoxenus lateripennis** (Lea), new genus, new combination.
    Deretiosus lateripennis Lea (1931: 391).
    New Guinea.
14. **Aristoxenus sanctus** (Lea), new combination.
    Deretiosus sanctus Lea (1931: 394).
    Northeastern Australia.
15. **Eprias aspratilis** (Lea), new combination.
    Deretiosus aspratilis Lea (1909: 711).
    Northeastern Australia.
16. **Storeus ziczac** (Lea), new combination.
    Deretiosus ziczac Lea (1931: 394).
    Eastern Australia.

INDO-MALAYAN DERETIOSUS

The following species have been listed as Indo-Malayan *Deretiosus:*

D. atratus Lea, 1928. Java.
D. fasciculatus Lea, 1928. Malay Peninsula.
D. intercoxalis Lea, 1928. Borneo; Malay Peninsula.
D. setosus Lea, 1928. Malay Peninsula.
D. venustus Heller, 1921. Philippines.

The only species in the above list that belongs to *Deretiosus* is *D. venustus* Heller. The following new combinations are necessary:

[3] From Marshall's data.

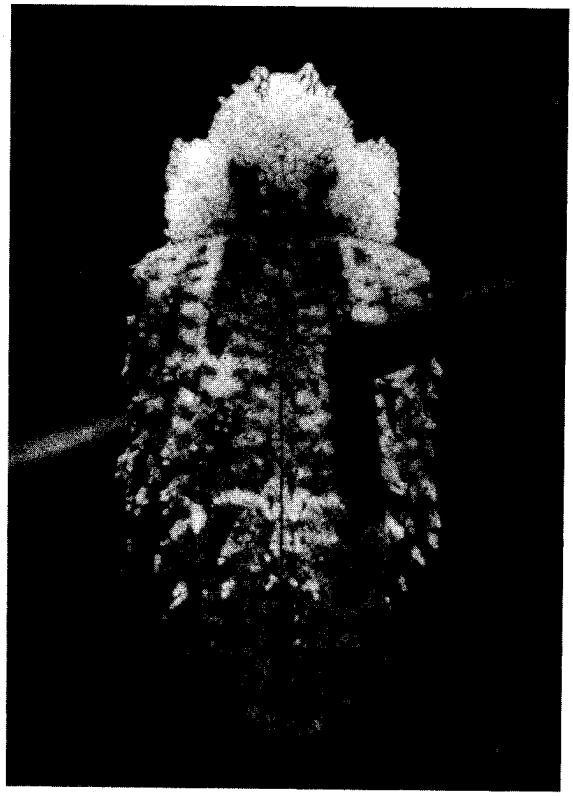

FIGURE 2.—A typical *Deretiosus* (*Deretiosus,* new species; photograph by W. Twigg-Smith).

Colobodes atratus (Lea), new combination.

Deretiosus atratus Lea (1928:71).

The unique holotype was taken at light at Buitenzorg, Java. It has a shiny bare scutellum and is a typical *Colobodes.* It has only a few poorly developed fascicles. The pronotum has a cluster of loosely placed erect setae on either side of the apex and on either side of the middle and only a few setae to represent the lateral discal fascicles. All of the elytral intervals bear a row of short, stout, erect, spatulate setae. Interval three has a very feebly developed callus near the base and another just in front of the middle; interval five has a pair of similarly developed calli each placed anterior to the corresponding one

on interval three; the humeral callus is well developed but not high. These elytral calli bear only a comparatively few erect setae and are only loosely fasciculate.

Colobodes cristatus, new name, new combination.

Deretiosus fasciculatus Lea (1928:71). Name preoccupied by *Colobodes fasciculatus* Pascoe (1873b:486).

The unique holotype, taken on Fraser's Hill, Malay Peninsula, has a smooth, bare scutellum and is a typical *Colobodes.* The elytral and pronotal fascicles are large and very conspicuous. Elytral interval one has no calli or fascicles, but a series of large, conspicuous, erect, broad, spatulate setae arising from feebly developed pustules. Interval two has a few erect setae at the apex only; interval three has a large, conspicuous callus within the basal third, another near the middle and another near the caudal third, the anterior one is longer than the breadth of the first three intervals, the others are smaller. The setae in the dense fascicles borne on these calli are unusually large, those on the anterior callus are as long as the breadth of the first two intervals. Interval four has no calli or erect setae excepting a few setae at the apex. Interval five has four well-developed fasciculate calli similar to those on three, the first three are each placed somewhat more anteriorly than the corresponding calli on interval three, the fourth callus begins opposite the apex of the third callus of interval three. Intervals six, seven, and eight form the large humeral callus and each has a number of small fascicles. Interval ten has a callus above the fore part of the metasternum; the other intervals have no calli or fascicles.

Exapries intercoxalis (Lea), new combination.

Deretiosus intercoxalis Lea (1928:72).

Lea described this species from two specimens, the holotype from Labuan Island, Borneo and a paratype from Fraser's Hill, Malay Peninsula. The Malayan specimen is darker in color than the holotype, but it belongs to the same species.

As indicated by Lea, one of the most outstanding characters on this species is a conspicuous arcuate fringe or fascicle of long, erect setae across the pectoral canal. This fringe, which Lea said was on the mesosternum, is on the prosternum. The posterior edge of the postcoxal area of the pectoral canal of the prosternum is slightly turned down, or perhaps this may better be illustrated by saying that the disk of the median postcoxal area is slightly depressed for the

reception of the apex of the rostrum and that the arcuate apex of the area bears a dense fringe of long, erect setae that reaches a level below that of the lowest parts of the coxae.

The prothorax has a large area on either side of the apex densely set with long, coarse, anteriorly inclined setae. Elytral intervals one and two are free from calli or setae, excepting an occasional seta on the declivity of one; interval three has a low fasciculate callus in the basal fourth and at the middle, the setae on these calli are very coarse and heavily ridged, otherwise there is only an occasional seta on the declivity; intervals four and six have no setae nor calli; intervals five and seven bear large, widely spaced erect setae only; the humeral calli are rather small and the posterior calli are obsolete. The third tarsal segment is bilobed.

The generic placement of this species has given me considerable difficulty, because it involves several other species and necessitates careful consideration of other genera. This species runs directly to *Eucolobodes* in Heller's key (1921: 557) and agrees with his description of that genus. In the description of *Eucolobodes* Heller says, "lobis ocularibus obsoletis"; but in his key he says, "ocular lobes distinct." The lobes are as distinct on a specimen of the genotype before me as they are on the genotype of *Colobodes*. However, I have at hand a specimen of the genotype of *Eucolobodes, E. horribilis,* and it is a much larger insect (8.5 × 4.5 mm.) than *Exapries intercoxalis* (3.0 × 1.5 mm.) and has a different facies. *Exapries intercoxalis* does, however, have the important diagnostic characters of *Eucolobodes,* which are: distinct ocular lobes, well-separated fore coxae, mesosternal and metasternal parts of the pectoral canal but slightly declivitous, rather continuous and not strongly interrupted, antennal funicle 7-segmented, intercoxal process of the mesosternum narrower (slightly so in this species) than the breadth of a mesocoxa, scutellum bare, rostrum less than four times as long as broad (only twice as long as broad in this species), antennae inserted nearer to the apex of the rostrum than the middle and the apices of the scrobes distinctly visible from above. In addition to its larger size *horribilis* differs from *intercoxalis* in only two conspicuous characters: the rostrum is proportionately thicker and considerably heavier and the tibiae are distinctly sinuate on the inner side, whereas they are straight on *intercoxalis*. However, these characters are subject to specific variation;

the problem is whether to assign *intercoxalis* to *Eucolobodes* or to *Exapries.*

I have before me three Javanese specimens which I have determined from the figure given by Voss (1937) as the genotype of his genus *Exapries, E. horridus.* I also have a specimen of Marshall's *Colobodes lophonotus.* These species are obviously closely allied species of the same genus. They are spectacular insects. Their dorsal setae are extraordinarily long, and the longer setae on the elytra are as long or longer than the prothorax. In addition to their unusual setae, both species have similar rostra with the antennae inserted beyond the middle at no great distance from the mandibles and with the apices of the scrobes visible from above. If *Exapries* is to be separated from *Colobodes,* it is apparently by this character that it must be distinguished. On the genotype of *Colobodes, C. billbergi* Boheman, the rostrum is a much longer and more slender organ with the antennae inserted slightly behind the middle in the female. The scrobes are entirely lateral and are not visible from above. The rostrum of neither *Exapries horridus* nor *Colobodes lophonotus* extends behind the mesocoxae, but the rostrum on *Colobodes billbergi* extends far behind the posterior margin of the mesocoxae. However, there is much variation in the length of the rostra among the various species of *Colobodes* and its comparative length is a specific character within that genus.

Colobodes lophonotus must be removed from *Colobodes* as follows:

Exapries lophonotus (Marshall), new combination.
Colobodes lophonotus Marshall (1926: 358).

Except for the unusual setae, which give the species a distinctive facies, the morphological details on the three species now included in *Exapries* are quite similar, but the tibiae on *intercoxalis* and *horridus* are straight on the inner sides, whereas those of *lophonotus* are sinuous. All three species run to *Eucolobodes* in Heller's key. If some genetic mutation took place and elongated the dorsal setae of *intercoxalis,* the three species would be very similar.

The conspicuous erect setae on the median postcoxal area of the prosternum, as described above for *intercoxalis,* are present on both of the other species. On *intercoxalis* the setae continue entirely across the pectoral canal, but the rostra of *horridus* and *lophonotus* extend

beyond the apex of the prosternum, and the setae are consequently confined to the sides only of the median coxal area.

I have little doubt that the three species now placed in *Exapries* are correctly associated, but I am dubious of the status of *Exapries* and *Eucolobodes*. Someday, when more extensive collections are assembled, it may be shown that these genera are variant groups of *Colobodes* and that that genus contains a great number of species varying to extreme degrees but with so many connecting species that it will be advisable to consolidate these genera or maintain them as subgenera. Because of the larger body, much heavier rostrum and distinct facies, I believe that at present it is best to maintain *Exapries* separate from *Eucolobodes*.

Ocoblodes setosus (Lea), new combination.

Deretiosus setosus Lea (1928: 72).

The holotype and one paratype were taken by Lea at Fraser's Hill, Malay Peninsula.

In Heller's key to the genera of the Colobodina, this species will run to *Parapries,* rather than to *Ocoblodes,* because the intercoxal process of the metasternum forms "an acute transverse, slightly sinuate edge between the mesocoxae." I believe, however, that this character is of little generic importance among the species of *Ocoblodes* and closely allied genera. I have a paratype of the genotype of *Ocoblodes* (*O. lineola* Heller, 1921: 569) before me, and the only difference between the metasternal receptacles is the fact that on this species it is slightly more steeply declivitous and a little more concave than on the genotype. This condition is similar to that discussed later (p. 188), under *Deretiosus* and is certainly no more than specific in nature. The structure of the third tarsal segment coupled with other structural details, shows, I believe, that these two species undoubtedly belong to the same genus. It is most unusual to find a cryptorhynchine weevil with a solid, unbilobed third tarsal segment (similar to the type found among the Calandrinae), but each of these species has such third tarsal segments. Neither Lea nor Heller noted this important character. A specimen before me of *Parapries biauriculatus* Heller (1923: 12), from the Philippines, has bilobed third tarsal segments.

The prothorax of this species has no distinct fascicles, but there is a scattering of stout, erect setae on either side of the apex and on

the areas usually occupied by fascicles on the disk and sides. The odd numbered elytral intervals each has a row of widely spaced, stout, erect spatulate or peglike setae the bases of which are surrounded at most by feebly developed pustules. The third interval has a low subbasal callus, but, other than this callus and the small humeral callus, the elytra have no other calli. There are no distinct fascicles on the elytra except feebly developed ones on the subbasal calli of the third intervals. There are no conspicuous dorsal markings; the ground color is gray or fawn and is tessellated with small patches of white and darker brown.

The preceding notes dispose of four of the five so-called *Deretiosus* which have been recorded from the Indo-Malayan subregion. We must now discuss *Deretiosus venustus* Heller, but before that is done it is necessary to submerge Heller's *Deretiosomimus* as a new synonym of *Deretiosus*. Heller separated *Deretiosomimus* from *Deretiosus* on the basis of his characters "Intercoxal process of metasternum between the intermediate coxae slightly declivitous, passing off in a plane with the mesosternum" and "intercoxal process of the metasternum steeply declivitous between the intermediate coxae." He erred when he placed *Deretiosomimus* in the first of these categories, thus placing it far from *Deretiosus* in his key. I have had several specimens of *Deretiosomimus angulicollis,* some of them determined by Heller, and a series of *Deretiosus aridus* Pascoe from many widely separated and representative localities. *Deretiosus aridus* is a variable species, and *Deretiosomimus angulicollis* is very closely allied to it. In fact, it is so closely allied to it that the two species must be critically examined before they can be specifically separated. There can be no doubt that *Deretiosomimus* is an absolute synonym of *Deretiosus*.

In the genus *Deretiosus* there is a gradation between two extreme types of metasternal receptacles. On the genotype, *D. aridus* Pascoe, the mesosternum and metasternum between the mesocoxae slant rather evenly downward and backward at about 45 degrees from the prosternum, and the metasternum is but slightly steeper than the mesosternum. On *D. verrucifer* Lea, for example, the metasternal receptacle reaches the opposite extreme and is actually cavernous because the metasternum is discontinuous with the slope of the mesosternum; it is quite concave, its hind wall slants downward and forward so that its ventral edge is acute and underhangs the receptacle which is thereby

made cavernous. *D. verrucifer* runs directly to Heller's genus *Paraprics* in his key. If the two extremes found in *D. aridus* and *D. verrucifer* were constant, they might be taken as being of more importance. However, there are intergradations between the two and the character is useful only for separating species. On *D. hystricosus* Lea, the metasternal receptacle seems to be underhanging until the clothing is removed from the posterior edge, and it is then evident that the metasternal part of the receptacle is very steep in its posterior part, but that it cannot be said to distinctly underhang. This species is about intermediate between *D. aridus* and *D. verrucifer,* but tending slightly more toward *D. verrucifer. D. subaridus* Lea, obviously closely allied to the genotype, *D. aridus,* approaches the cavernous form of *D. verrucifer.* On *D. squamipennis* Lea, the receptacle is almost identical with that of *D. aridus,* but the metasternum is slightly more concave and the setae on the ventral edge of the declivity make the metasternal part of the receptacle appear slightly cavernous. On *D. latus* Lea the metasternal receptacle is identical in structure with *D. aridus.* The Samoan *D. wilderi* Marshall, and *D. gibber* Marshall have receptacles that have lower gradients than *D. aridus* and approach those found in some *Colobodes.* I could continue to cite examples of similar intergradation until I had listed all of the *Deretiosus* in the collections before me, but I believe that those discussed are quite enough to show that such modifications of the mesometasternal receptacle are not generic differences in this group but are variations found in allied species.

The structure of the pectoral receptacle is of great importance in the Cryptorhynchinae and is a major character used in classification. However, in spite of its diagnostic significance, we should not be misled into believing that genetical changes of the receptacle are always of generic nature and overlook the fact that evolutionary modifications act differently and proceed with different tendencies and intensities in various groups. One group of insects may have a selection of characters that are of undoubted generic significance, another group may display similar characters as unquestioned specific variations. In my studies of *Microcryptorhynchus,* I have found that on certain islands of southeastern Polynesia the species show amazing variations in the structure of their pectoral receptacles. Intergradation takes place from receptacles which are deep and cavernous with high side walls through many types to the extreme in which the receptacle is

obsolete and can hardly be traced. An unwary person might well have taken a few of these extremes and described them as several new genera in different tribes. The consistent combinations of their other characters show, however, that they all belong to one genus, and that genus contains a genetic complex of factors which makes for extremes in variability and types of pectoral canals and receptacles.

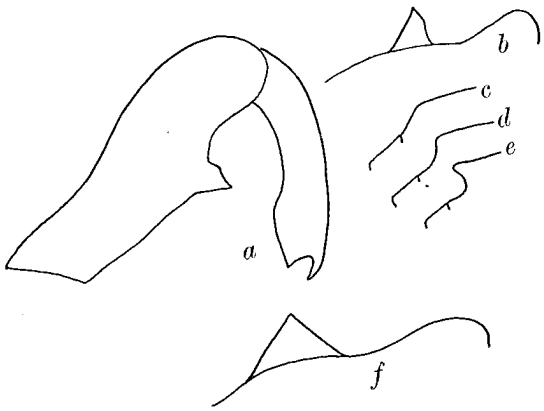

FIGURE 3.—Features of *Deretiosus*: **a**, outline of hind femur and tibia of *Deretiosus verrucifer* Faust; **b**, hind femoral tooth of *Deretiosus collaris* Lea; **c,d,e**, diagrams of longitudinal contours of meso-metasternal receptacles in *c*, *Deretiosus aridus* Pascoe, *d*, *D. hystricosus* Lea; **e**, *D. verrucifer* Faust; **f**, hind femoral tooth of *Deretiosus turbatus* Faust.

Now that *Deretiosominus* is merged with *Deretiosus* we must add its included forms, *D. angulicollis* Heller and *D. angulicollis lactifrons* Heller, to the other Philippine species of *Deretiosus, D. venustus* Heller. These species may be separated as follows:

KEY TO THE PHILIPPINE DERETIOSUS

1. Third elytral interval with three fasciculate calli in addition to pustules; scutellum small but conspicuously protuberant, longer than broad, acutely pointed, projecting upward and forward and protruding distinctly above the level of interval one.....**D. venustus** Heller
   Third elytral interval with only two calli in addition to pustules; scutellum not protuberant, low, rounded and convex..... 2
2. Scaling on the front of the head not conspicuously white; setae on the elytral intervals short and stubby, hardly rising above their small pustules.....**D. angulicollis** (Heller)
   Scaling on the front of the head "strikingly milk white"; setae on the elytral intervals long, conspicuously erect and projecting far above the derm.....**D. angulicollis lactifrons** (Heller)

This key is incomplete because Voss' species, described under *Solobrachidius* Voss, *S. subverrucosus, S. dispar, S. nigromaculatus,* and *Deretiosomimus enganoensis* Voss, and *Deretiosus persimilis* Voss, belong here. Voss (1937: 158-60) gives a key to the species described in *Solobrachidius,* however I have not seen them. *Solobrachidius* is a synonym of *Deretiosus.*

Deretiosus venustus Heller (1921: 573, pl. 3, figs. 1, 2).

This is a predominantly white or gray species, but it has small dark patches of scales. The four discal fascicles of the pronotum are strongly and subequally developed. The apical pronotal fascicles are smaller and somewhat less dense than the discal fascicles. Heller's statement that the pronotal squamae are "only partly touching one another" does not apply to all specimens. Each of the elytral intervals bears a row of long, erect, narrowly spatulate or spike-like setae which are not surrounded by pustules. The first callus on the third interval is only slightly larger than the second and is separated from the base almost as far as the distance between it and the second callus. The third callus is smaller and bears a less strongly developed fascicle than the second and is closer to the second than the second is to the first. Interval five has several feeble calli, although the one between the first and second calli of the third interval may be as large as the third callus of the third interval, and it bears the posterior callus which is conspicuously fasciculate and is as large as the second or third callus.

To Heller's record of Los Baños, Laguna, Luzon and Dapitan, Zamboanga, Mindanao, may be added Irisan, Benguet, Luzon, and Mount Makiling, Luzon.

Deretiosus angulicollis (Heller), new combination.

Deretiosomimus angulicollis Heller (1921: 561).

This species is closely allied to *Deretiosus aridus* Pascoe, but the thorax is somewhat different in shape and the calli and fascicles differ in degree of development. The central calli of the pronotum are comparatively close, strongly developed and bear well-developed fascicles. The lateral fascicles are more or less obsolete because their setae are short and scattered and blend into the dense scaling of the lateral angulations. The elytral intervals all bear small pustules from which arise short setae that do not or hardly project above the surrounding elevated scales. The two calli on interval three are large. The first is separated from the base for a distance about equal to its own length and is separated from the second by only half that distance. The

second callus is evidently usually slightly longer than the first. The fifth interval bears four smaller fasciculate calli, but sometimes has some pustules interspaced between these. The first callus is opposite the anterior part of the subbasal callus of interval three, the second between the calli of the third interval, the third opposite the hind edge of the second callus of the third interval, the fourth is the posterior callus at the declivity and is about as large as the anterior one of the third interval. The seventh and eighth intervals bear some irregular calli in addition to the prominent humeral callus. Interval nine has a few calli near the base.

The M of white or pale scales on the declivity may have the lateral arms obscure so that there appears to be only a pale V-shaped mark on the declivity.

Heller recorded this species from Los Baños, Laguna, Luzon; to this may be added Mount Makiling, Laguna, Luzon, and Surigao, Mindanao.

Deretiosus angulicollis subspecies (?) **lactifrons** (Heller), new combination.

Deretiosomimus angulicollis subspecies *lactifrons* Heller (1921: 562).

Heller indicated that when additional material was found that this subspecies, based on a unique, might have to be raised to specific standing. It seems to me that he was correct in this assumption. There is a series of specimens from several localities in the United States National Museum collection that may be this species or a new one. Heller's description is too short for me to be certain of the status of these unnamed examples, but if they are *lactifrons,* they represent a distinct species. The holotype, taken on Luzon, must be seen before this problem can be solved.

There are ten new species of Philippine *Deretiosus* in the National Museum material before me, but I have not described them because they are all represented by unique specimens. The genus is evidently well developed in the Philippines.

In addition to the two forms assigned to *Deretiosomimus* by Heller, Voss, in 1937, described two other Indo-Malayan species in the genus. These species are:

Deretiosus persimilis (Voss), new combination.

Deretiosomimus persimilis Voss (1937: 165).

Java.

Deretiosus enganoensis (Voss), new combination.

Deretiosomimus enganoensis Voss (1937: 166).

Sumatra.

Unfortunately, I have not seen these species. Voss had *Deretiosus (Deretiosomimus) angulicollis* Heller with which to compare his species, and it is probable that they belong to the same genus and must be transferred to *Deretiosus* with the genotype. Voss gave a key to separate the three species.

In the Zoological Record for 1937 (vol. 74), *Parapries sumatranus* Voss is incorrectly recorded as a *Deretiosomimus*.

The following species from Indo-Malaya should be added to the list:

Deretiosus nodulosus (Pascoe), new combination.

Colobodes nodulosus Pascoe (1873b: 485).

Moluccas: Batchian.

Pascoe's description of *Deretiosus* appears in the same volume as his description of this species, and I do not understand why he did not refer the species to that genus. In his description Pascoe said "scutello suborbiculari, squamoso", thus necessitating the removal of the species from *Colobodes*. I have not seen the species, but Marshall has examined the type and says that it is a *Deretiosus*.

AUSTRO-MALAYAN SPECIES

The following species have been listed as Austro-Malayan *Deretiosus:*

D. amplipennis Lea, 1931. New Guinea.
D. aridus Pascoe, 1873. New Guinea; Queensland.
D. carinirostris Lea, 1931. New Guinea.
D. collaris Lea, 1931. New Guinea.
D. eremita (Pascoe, 1873) Lea, 1931. Moluccas; New Guinea.
D. fasciatus Zimmerman, 1938. Solomon Islands.
D. lateripennis Lea, 1928. New Guinea.
D. latus Lea, 1928. New Guinea.
D. manni Zimmerman, 1938. Solomon Islands.
D. palliatus (Pascoe, 1873) Lea, 1931. New Guinea.
D. parvus Lea, 1931. New Guinea.
D. pustulosus Lea, 1931. New Guinea.
D. squamipennis Lea, 1931. New Guinea.
D. sternalis Zimmerman, 1938. Solomon Islands.
D. subaridus Lea, 1928. New Guinea.
D. tibialis Lea, 1928. New Guinea; Banks Islands; Java.
D. verrucifer Faust, 1899. New Guinea; Queensland.

The following species from this list have been erroneously assigned to *Deretiosus:*

D. eremita (Pascoe) Lea
D. lateripennis Lea
D. palliatus (Pascoe) Lea
D. parvus Lea
D. tibialis Lea

These species are reallocated as follows:

Genus **APRIES** Pascoe

Apries Pascoe (1873: 196).

This genus was reduced to a synonym of *Deretiosus* by Lea (1931: 395), but *Apries* is quite distinct from *Deretiosus* and is a perfectly valid genus.

Lea says that *Apries eremita* Pascoe, the genotype, had the pectoral canal "open at the apex, in exactly the same way as (*Deretiosus*) *aridus,* and many other species of *Deretiosus.*" Lea correctly identified specimens of *Apries eremita* in his collection, but he must not have been looking at specimens of that species when he wrote the above statement. On *Apries eremita* the intercoxal process of the metasternum is strongly produced forward between and beyond the middle of the mesocoxae. The protuberance thus formed projects conspicuously forward and very distinctly underhangs the pectoral receptacle which is thus made deeply and obviously cavernous. The tibiae bear a median tooth on the lower edge, the rostrum is stout, coarsely sculptured and at least densely setose to the apex; the mandibles are slightly decussate and entire and not toothed.

Apries eremita Pascoe (1873: 196, pl. 9, figs. 6, 6a).

Deretiosus eremitus (Pascoe) Lea (1931: 395).

Pascoe's figure of this large (9-11 mm.) species will aid considerably in its identification. The color of the scaling is subject to some variation but is brown with areas and spots of darker and paler brown scales. The four longitudinal ridges on the disk of the pronotum are characteristic. All of the elytral intervals have conspicuous, long, slender, erect setae; there is a transverse group of fascicles on intervals two to eight at the top of the declivity; interval one has no fascicles on the disk and only a few on the declivity; interval two bears a number of prominent pustules; intervals three and five have promi-

nent elongate basal fascicles, that on the third interval largest; seven, eight, and nine form the humeral callus, intervals five and seven bear several pustules between the basal calli and the declivital calli; but the other intervals bear few or no pustules.

This species has a range that evidently stretches from New Guinea to the Philippines, although I know of records of its capture only from New Guinea, Batchian, and the Philippines, and I have specimens from Java.

Apries palliatus Pascoe (1873: 196).

Deretiosus palliatus (Pascoe) Lea (1931: 395).

I have not seen this Papuan species but it seems probable that it belongs to *Apries* because Pascoe described it with the genotype *Apries eremita.* (Marshall has examined the type and says that it is a true *Apries.*)

In Heller's key to the genera of the Colobodina (1921) part of the dichotomy bearing this genus has been misplaced, on page 558, the c^4 should go above b^2 and follow c^3. As the key now stands, it is most misleading.

Apries aversandus (Boheman), new combination.

Cryptorhynchus aversandus Boheman (1837: 112).

Marshall kindly added this new combination to my manuscript. The species is Javanese.

Ocoblodes parvus (Lea), new combination.

Deretiosus parvus Lea (1931: 392).

The third tarsal segment of this species is solid, not bilobed, the antennal funicle is 7-segmented, the femora are strongly dentate, the pectoral receptacle is moderately steep with both the mesosternal and metasternal parts independently shallowly concave and the metasternal part is not margined at the posterior edge. For these reasons the species must be transferred to *Ocoblodes.*

The pronotum of this species has the fascicles represented by small clusters of loosely placed stubby setae only. The odd-numbered elytral intervals bear stout, stubby, erect setae the bases of which are not surrounded by well-developed pustules; interval three has a small subbasal callus, but the other intervals are devoid of callosities. The color is rather uniform brown above, speckled with small patches of paler and darker brown scales. There are no outstanding markings.

The unique holotype is from Mount Lamington, northeast Papua, elevation 1,300-1,500 feet.

Perrhaebius tibialis (Lea), new combination.

Deretiosus tibialis Lea (1928:73).

The bare scutellum suffices to show that this species does not belong to *Deretiosus;* it is a typical *Perrhaebius.*

Lea noted the great variability in coloration of his specimens. I have seen three of the four specimens of his type series and, without seeing more specimens, I cannot accept his opinion that they are all of the same species. In addition to the differences in color pattern, there are structural differences between the specimens which indicate to me that the holotype probably does not belong to the same species as do the "cotypes." Each of Lea's four specimens came from a different locality—the holotype from Moa Island, Torres Straits, Queensland; one paratype from Java; one from "Australie"; and the third from New Guinea.

The holotype has the sutural intervals elevated toward the base and these bear some pustules; the third, fifth, and seventh each bear a fasciculate basal callus; three and five bear scattered pustules and the other intervals bear short, stout, erect setae.

Genus **ARISTOXENUS,** new genus

Body densely squamose above and below. *Head* concealed from above by the prothorax; interocular area slightly narrower than the broadest part of the base of the rostrum; eyes comparatively narrowly separated below by a distance equal to only about half the breadth of the rostrum; with a deep, prominent, glabrous, vertical sulcus at the fore margin of the eyes arising at the scrobes. *Rostrum* slender, subcylindrical, strongly arcuate, fully four times as long as broad; antennae inserted at or slightly behind the middle. *Antennae* with the scape slender; funicle 7-segmented, the first two segments longer than any of the others; club elongate-oval, the first segment making up about half its bulk. *Prothorax* transverse or as long as broad; the postocular lobes strongly developed. *Scutellum* bare. *Elytra* elongate, subparallel-sided; striae well impressed; intervals broader than the striae; base sinuous and there broader than the prothorax; humeri prominent. *Legs* with the femora stout, but not strongly clavate, compressed, all strongly dentate, the hind pair reaching beyond the apex of the third ventrite; tibiae arcuate and slightly sinuous, carinate below, strongly uncinate, minutely mucronate; tarsi with the first segment longer than the two following segments together, three deeply bilobed, four as long as two plus three. *Sternum* with the pectoral canal for the most part bare, the receptacle confined to the metasternum, steep and concave, the posterior margin distinct, the mesosternum horizontal between the coxae where it joins the metasternum; anterior coxae separated by not quite half the breadth of a coxa, angulate internally and with a distinctly elevated, oblique, ventro-cauded carina separating these angulate

faces running from near the anterior top edge of the coxa to the hind end of the trochanter; prosternum with a distinct nodose process behind each coxa; mesocoxae separated by more than two thirds the breadth of a mesocoxa; the greatest length of the metasternum between the inner edges of the mid- and hind-coxae about equal to the median length of the first ventrite; metacoxae somewhat more widely separated than the breadth of a mesocoxa; metepisternal suture distinct. *Venter* with the sutures distinct, the first two ventrites subequal in length, two longer than three plus four which are subequal, five obviously shorter than three plus four.

Genotype: *Deretiosus lateripennis* Lea (1931: 391).

In Heller's key (1921: 557), this genus runs either to *Parapries* or to between *Ocoblodes* and *Deretiosus*. It differs from all of these genera in having the scutellum bare. In both of the species thus far described, the elytra are entirely without calli or fascicles. *Aristoxenus* perhaps most closely resembles *Tadius* Pascoe, but it easily can be separated from that genus because of its narrowly ventrally separated eyes and strongly toothed femora. The new genus belongs to the Sophrorhini.

Aristoxenus lateripennis (Lea), new combination.

Deretiosus lateripennis Lea (1931: 391).

This predominantly grayish, subparallel-sided insect may be easily recognized among the Colobodina. From the dorsum it resembles a *Menectetorus*. The prothorax is as long as broad, there is a cluster of stout erect setae on either side of the apex, thence a scattering of setae back to the middle where there is a loosely arranged fascicle of similar setae on either side of the median line and loosely clustered setae marking the usual place of the lateral discal fascicle in the Colobodina and with a scattering of erect setae elsewhere. The scutellum is flat and round. Each elytral interval bears a row of conspicuous, stout, closely placed erect setae from base to apex, but there are no fascicles nor pustules. There is a conspicuous black mark above the metacoxae extending over the three lateral intervals. The pectoral canal is entirely bare except for a few scales on the inner sides of the nodose, side-wall-like processes behind the fore coxae.

The other species of this genus (*Aristoxenus sanctus*) is discussed under the Australian section.

Key to the New Guinean Deretiosus

1. Third elytral interval with two large fascicle bearing calli..... 2
   Third elytral interval with only one large fascicle bearing callus and that near the base (do not confuse fascicles with "large fascicle bearing calli")..... 5

2(1). Prothorax subtriangular, the sides converging from base to apex, the distance between the outer edges of the lateral dorsal fascicles obviously narrower than the base..... 3

Prothorax expanded toward the middle on the sides, the lateral dorsal fascicles strongly developed, the distance between their outer edges fully as broad or distinctly broader than the base..... 4

3(2). Elytra without a fascia on the declivity, third intervals with the second calli conspicuously posteriorly divergent; hind femoral tooth very broad, the two sides sloping with subequal inclines from base to apex (fig. 3, *f*); pectoral canal with the metasternal part of the receptacle not cavernous, but almost continuously inclined with the mesosternal part, broadly and shallowly concave..**D. turbatus** (Faust).

Elytral declivity with a conspicuous black, arcuate fascia, extending from the suture across the first four intervals; the second calli on the third intervals subparallel; hind femoral tooth comparatively slender, the distal side almost perpendicular and obviously much steeper than the proximal side (fig. 3, *b*); pectoral canal distinctly cavernous, the metasternal part of the receptacle deeply concave and not at all continuously inclined with the mesosternal part..... **D. collaris** Lea.

4(2). Second fascicle on the third elytral interval as large or larger than the first; posterior callus of the fifth interval strongly developed and bearing a conspicuous fascicle; sides of the prothorax very strongly explanate and fasciculate, with four or more small fascicles in the middle of the disk; elytral declivity normally with a common V or M of white or pale scales..... **D. aridus** Pascoe.

Second fascicle on the third elytral interval smaller and less strongly developed than the first; posterior callus of the fifth interval almost obsolete; side margins of the prothorax not unusually explanate, disk with but two median fascicles..... **D. subaridus** Lea.

5(1). Elytral setae long, erect, sharply pointed, spikelike, about as long as the breadth of the intervals and giving the insect a spiny appearance; elytra without distinct pustules, at least on the sides and distal half; metasternal part of the pectoral canal almost vertical in both sexes, appearing very slightly cavernous in the female; a grayish and brownish white species..... **D. carinirostris** Lea.

Elytral setae short or comparatively short, shorter than the breadths of the intervals, spatulate or clavate, not sharply pointed and spikelike, usually stubby, blunt and surrounded by distinct pustules..... 6

6(5). Prothorax almost evenly narrowed on the sides from base to apex, the fascicles very small, with a large, conspicuous, subhemispherical patch of black scales from base to beyond the middle that occupies most of the disk and is outstanding to the unaided eyes; elytra dirty brown and without conspicuous markings except a short, black scutellar vitta; the callosities on the third interval rather poorly developed, with two poorly developed fascicles behind the subbasal callosity; metasternal part of the pectoral canal not at all cavernous but on an almost even incline with the mesosternal part..... **D. latus** Lea.

Prothorax without a black discal patch, the sides expanded near the middle and not evenly narrowed..... 7

7(6). Elytra dirty grayish brown, with a conspicious broad V of black scales, easily seen with the unaided eyes, that extends laterally from the suture just behind the middle to the fourth interval, thence slightly interrupted and thence expanding to the sides; subbasal fascicles on the third interval black; discal prothoracic fascicles obsolete or nearly so, marked only by a few stout setae; metasternal part of the pectoral canal more steeply inclined behind than the mesosternal part, the setae along the ventral margin making it appear very slightly cavernous, but not actually cavernous....**D. squamipennis** Lea.

Elytra without a black V, the discal prothoracic fascicles well developed, or at least moderately so..... 8

8(7). First elytral interval without distinct pustules in front of the declivity; posterior calli on the fifth intervals poorly developed; subbasal callosity of the third interval not broader than the first two intervals.....**D. subaridus** Lea.

First elytral interval with numerous well-developed pustules; posterior calli of the fifth intervals strongly developed and conspicuously elevated; subbasal callosity of the third interval broader than the first two intervals measured immediately back of the callus.....**D. verrucifer** Faust.

Deretiosus turbatus (Faust), new combination.

Colobodes turbatus Faust (1892: 210).

Lobocodes turbatus (Faust) Heller (1921: 569).

Deretiosus amplipennis Lea (1931: 387), new synonym.

This species is one of the more extreme types of the genus. Faust assigned it to *Colobodes,* but it has the densely squamose scutellum of *Deretiosus.* Heller was evidently so impressed by its appearance that he erected a new genus, *Lobocodes,* to receive it. I believe it necessary, however, to submerge *Lobocodes* as a new synonym of *Deretiosus.* The character used by Heller to separate *Lobocodes* from *Deretiosus* was the following: "thorax more or less conical, broadest at base, lateral margin not edged" as opposed to "thorax not conical, sides rounded or more or less parallel in basal half, contracted anteriorly" which leads to *Deretiosus* in his key. I believe that Heller was misled by the appearance of various species in the collection before him at the time he wrote his paper "New Philippine Coleoptera" in 1921 and that he erected a number of genera which have been based on superficial or specific characters only. If Heller had had a more extensive collection before him, I believe that he would not have erected as many genera as he did because he would have seen how the characters he thought were of generic value intergraded between the species. I have examined more than 40 species which belong to *Deretiosus* alone, and it is apparent that the sides of the prothorax are subject to great

variation among the species and that there is a gradual intergradation between the type in which the sides are explanate (as in *D. aridus*) and those in which the sides are not explanate and on which the lateral margins are greatly reduced or obsolete. The shape of the prothorax is also subject to great variation among the species. On *D. latus* Lea, the prothorax is as conical as on *D. turbatus* (Faust), and there is an intergradation among the various species before me to extreme individuals of *D. aridus* Pascoe. On *D. aridus* the prothorax is usually distinctly broader near the middle than near the base. On several species such as *D. subaridus* and *D. verrucifer,* the prothorax is only slightly narrower across the base than at or before the middle. On such species as *D. hystricosus* and *D. latus* the prothorax is slightly broader at the base than at the middle.

In separating *Lobocodes* from *Ocoblodes,* Heller used the following characters: "posterior femora not extending beyond second sternite; tibiae compressed and slightly enlarged toward apex" as opposed to "posterior femora extending beyond second sternite; tibiae not distinctly compressed, mostly attenuate toward apex" which leads to *Ocoblodes* in his key. *Lobocodes* belongs to a genus distinct from *Ocoblodes,* but the characters used by Heller to separate them break down and are of no value here. *Ocoblodes* has the third tarsal segment solid, whereas in *Lobocodes* that segment is bilobed. The hind femora of *Lobocodes turbatus* are, it is true, comparatively short for the size of the insect. When the hind femora on this species are bent backward close to the body, their apices will reach the posterio-lateral angles of the second ventrite. The hind femora of *D. verrucifer* reach to the same place or are slightly shorter. The hind femora of *D. alphabeticus* do not extend quite to the apex of the second ventrite. On *D. aridus* and some of the other species the femora extend to or beyond the apex of the third ventrite. On *D. carinirostris* the hind femora extend to the apex of the fourth ventrite and on *D. subaridus* the hind femora extend well beyond the apex of the fourth ventrite.

The tibial character is worthless and will not hold good to separate even the genotypes of *Lobocodes* and *Ocoblodes.* The tibiae of *Lobocodes turbatus* are comparatively slightly broader than those of *Ocoblodes lineola,* but I should certainly call those on *Ocoblodes lineola* "compressed" and "slightly enlarged toward apex." Some of the other species of *Ocoblodes* have broader, more strongly compressed and distally expanded tibiae.

For these reasons I believe that *Lobocodes* should fall as a synonym of *Deretiosus*.

Deretiosus turbatus is one of the largest species of the genus (8.5 × 4.5 mm.). It is rather uniformily clothed with dark reddish-brown scales and much of the dorsal scaling may be black. The pronotum has a solid sub-V-shaped macula of paler, yellowish-brown scales that begins at the middle of the base and runs forward to the central discal fascicles. There is a short black patch on the first interval behind the scutellum. The elytral scaling in the area bounded by the base, the third interval, and from the second callus on the third interval to a point near the apex of the second ventrite, is paler than the dorsal scaling and there may be a paler patch above the suture between the first and second ventrites.

The crown of the head has three vague, perpendicular zones or brown lines in which the scaling is more erect than on the surrounding area. The prothorax is sub-triangular and not strongly angulate on the sides; there is a large, strongly developed apical callus on either side of the median line surmounted by a well-developed fascicle of long setae, and the pronotum appears canaliculate between them because of their height; the two central and two lateral discal calli are small and low, and they bear only a few erect setae and are not densely fasciculate. The scutellum is emarginate anteriorly. All of the elytral intervals bear medium-sized setae that arise from pustules. The third intervals each bear two large conspicuous, densely fasciculate calli, the subbasal ones tend to be slightly convergent posteriorly, the submedian ones, which are separated from the subbasal ones by a distance equal to half their lengths, are distinctly oblique and converge anteriorly. The posterior calli are very broad and moundlike and not conspicuously fasciculate. The humeral calli are broad and not fasciculate. The other intervals bear only small calli beneath some of the pustules. The meso- and metasternal parts of the pectoral receptacle are almost evenly inclined with no tendency toward the cavernous type.

Lea's unique female holotype representing his *D. amplipennis,* which is incorrectly spelled *amblipennis* in Coleopterorum Catalogus (151), 1936, came from Mount Lamington, northeast Papua, elevation 1,300-1,500 feet. The specimen sent from Dresden is from the Faust collection and was taken on Fergusson Island.

Deretiosus collaris Lea (1931 : 389).

The dorsal scaling on this species is rather uniformily dark reddish brown, but the scutellum is pale and there is a conspicuous sublunate black fascia across the first four or five intervals on the declivity. The anterior pronotal fascicles are strongly developed, high, subconical and close together; the median discal calli are small and bear only one or two stout erect setae; the lateral discal calli are small and situated well inside the lateral margins, and each extends back to the hind corner of the prothorax as a low oblique ridge on which the setae or setiform scales are low and dense, and are similar to those surrounding the elytral pustules, the anterior corner bears a single erect seta, but no fascicle. All of the elytral intervals bear stout erect setae projecting from small pustules; the third intervals bear conspicuous calli similar to those described for *Deretiosus amplipennis,* but they are not so obliquely placed on the intervals. The humeral calli are well developed, the posterior calli are obsolete, and there are no other distinct calli present. The pectoral receptacle is distinctly cavernous.

The unique male holotype (5 × 2.5 mm.) is from Mount Lamington, northeastern Papua, elevation 1,300-1,500 feet.

Deretiosus aridus Pascoe.

See the Australian section for a discussion of this species. Among the specimens before me, the following localities are represented: Mount Lamington, northeastern Papua; Paumomu River, southeast Papua; Varea, Finschhafen, Papua; Koitaki, Papua; Menado, Celebes; and Larat.

Deretiosus subaridus Lea (1928 : 70).

This species is covered dorsally with grayish brown or reddish brown scales interspersed with small patches of paler and darker scales. The base of the pronotum in back of the median fascicle is usually darker or black, the base of the elytra is dark or black around the scutellum and the dark or black scaling continues back on the third interval to the callus. Lea said, "the V on the elytra inconspicuous or absent." This pale mark on the declivity is more often M-shaped and on some examples is quite distinct. The anterior fascicles of the pronotum are loose arrangements of stout setae, and they are not supported by calli; the discal fascicles are moderately well developed and arise from distinct calli, the lateral ones form the angulation of the sides of the pronotum. All of the elytral intervals bear stout setae

surrounded by pustules; the third interval bears three calli, the anterior one is the most prominent, the distance from its posterior end to the base of the elytra is equal to the breadth of the first four intervals; this subbasal callus is followed at a distance equal to about the breadth of the second and third intervals by a distinctly smaller callus, and this is closely followed by a still smaller callus, these two posterior calli are subject to some variation in size. The fifth interval bears the lower posterior callus and four small, variable calli between it and the base, the basal one is opposite the base of the first callus of interval three, the second between the first two calli of the third interval, the last two close to, the anterior one opposite, the posterior one behind the third callus of the third interval. The prominent humeral calli are not fasciculate. The pectoral receptacle appears slightly cavernous; the fore edge of the mesosternal part is elevated into a distinct carina.

The three specimens of Lea's type series came from Manumbo, Madang District, New Guinea. I have two specimens taken by C. E. Pemberton 200-300 miles up the Middle Fly River, New Guinea, July 1928. In Bishop Museum there are also three damaged specimens, dug from their pupal cells by Z. Ono, on Dublon Islet, Truk, Caroline Islands, December 21, 1935. I have compared these specimens with the type series and can find no characters which might be taken as specific to separate them. This record extends the range of the species considerably. I have no data that might indicate whether or not the species has been introduced by man from New Guinea to the Carolines.

Deretiosus carinirostris Lea (1931 : 388).

This rather small (4-5 × 2-2.5 mm.) species resembles some species of *Ocoblodes* or *Deretiodes* at first sight. The dorsal scaling is gray to grayish brown interspersed with paler and darker scales; there are no conspicuous maculae. There are long, slender, erect setae scattered over the pronotum but no fascicles, the discal fascicles are represented by small pustules surrounding usually a single erect seta, the lateral discal pustule is well separated from the side margin, and there are only small low bosses under the pustules, but no prominent calli. The elytra are quite spiny because each interval bears a row of long erect, narrow, pointed, spikelike setae which may or may not arise from pustules. The third elytral interval bears a small subbasal callus which is at most only loosely fasciculate; the posterior calli

are obsolete; the humeral calli are comparatively small and not fasciculate; there are no other calli present. The pectoral receptacle is steep and shallowly concave in its metasternal part and may appear very slightly cavernous. A row of long, slender, erect setae extends along the inner margins of the eyes and down the rostrum as far as the scaling goes.

Lea's type series of four specimens came from Mount Lamington, northeast Papua, 1,300-1,500 feet.

Deretiosus latus Lea (1931 : 388).

This is a rather small (4 × 2.5 mm.) species with basically grayish-brown dorsal scaling, but the disk of the pronotum bears a large hemispherical patch of black scales that extends from the base to the median fascicles, and the sutural intervals are black for a short way behind the scutellum. On the holotype this black postscutellar mark ends before the calli on the third intervals, but on the paratype it extends across the second intervals onto the calli to make a triangular black macula. The prothorax is subtriangular, the anterior fascicles are small and low and not borne from calli; the discal fascicles are very small and borne from small, feebly developed calli. All of the elytra intervals bear short, stubby, erect setae. The third interval bears three small fascicles, the anterior one of which is largest and is borne from a low callus, the other two are not supported by distinct calli. The fifth interval has five clusters of setae that mark obsolete calli, including the subobsolete posterior calli. The humeral calli are small and not fasciculate. The pectoral receptacle forms a continuous slope of about 45 degrees.

The male holotype is from Mount Lamington, northeast Papua, elevation 1,300-1,500 feet. The male paratype is from Doret, New Guinea, and is one of Wallace's specimens from Pascoe's collection.

Deretiosus squamipennis Lea (1931 : 390).

This somber species is basically grayish brown above, the basal calli of the third intervals are black, and there is a conspicuous black, broad V of scales whose apex is at the suture at about the apex and whose arms are most distinct and more oblique over the first three intervals, the scaling, on the holotype, is thence paler and the arm becomes almost vertical to the side margin of the elytron but is expanded from the seventh interval outward. The pronotum is rounded on the sides behind the not very strongly developed subapical constric-

tion. The fascicles are all small and almost obsolete, and there are stubby spatulate or peglike setae scattered over the dorsum. Each elytron has but one fascicle and that arises from a well-developed callus that is closer to the base than the breadth of the first two intervals and is about as long as the breadth of the first three intervals. The posterior calli are low and the humeral calli are small. There are no other calli on the elytra. Each interval bears a row of stout, erect, clavate or spatulate setae which are surrounded by small rosettes of erect or suberect scales. The meso- and metasternal parts of the pectoral receptacle are subcontinuous in their general contour, but the metasternal part is concave and appears to be very slightly cavernous because of the overhanging scales at its ventral margin.

The unique male holotype (5 × 2.25 mm.) was taken on Mount Lamington, northeast Papua, elevation 1,300-1,500 feet. The species is allied to *Deretiosus carinirostris*.

Deretiosus verrucifer Faust (1899: 52-53).

Deretiosus pustulosus Lea (1931: 390), new synonym.

I have carefully compared the holotype of *D. pustulosus* with the holotype of *D. verrucifer* and have found that they unquestionably belong to the same species. Both holotypes are old, faded specimens, and they lack the bright coloration of fresh examples of the species.

Lea described this species as *D. pustulosus* from Wareo, Finschhafen, New Guinea. Both of his specimens (5-6 × 2.5-3 mm.) are dull, old, faded individuals. In Lea's collection are five Australian specimens from Queensland labeled "*Deretiosus verrucifer* Faust" which are unquestionably the same species as his holotype. One of these specimens is worn and is identical with the holotype, the other four are fresh individuals and show brighter coloration. All are identical in color pattern; it is only the brightness of the color that differs. I cannot understand why Lea did not include these specimens with his description of this species; perhaps he overlooked them when he drew up his description. One of these examples came from Cooktown, the other four from Endeavor River.

The basic dorsal scaling on this species ranges from grayish brown to reddish brown with considerable areas of pale scaling. The color pattern is quite complicated and difficult to describe. On fresh specimens (and to the unaided eyes or under low magnification), the pronotum is quite pale with an apparent dark fascia between the central fascicles on the disk. The elytra are clothed with black scales

along the base from the pale scutellum to the fourth interval. There is a rather vague, sub-Λ-shaped, narrow band of dark scales that begins on interval two or three at the basal third and then runs obliquely backward to the sixth interval and terminates well before the posterior callus. The area in front of this line is usually distinctly darker than that behind the line which contains much pale, whitish or white scaling at the sides and around the apex, but the area enclosed by the posterior calli is darker and similarly colored to the more anterior parts of the elytra. In old specimens the scaling is rather uniformly muddy brown in color.

The apical fascicles of the pronotum are low, dense and broad, the central discal ones are small and low and not very distinctly set off from the surrounding scaling; the lateral fascicles are obsolete. All of the elytral intervals bear prominent, variable, irregularly placed, small to large pustules whose stout enclosed setae hardly project above them. The third interval bears a large, broad, prominent, densely, but shortly fasciculate basal callus of which the narrowed anterior part usually begins at the actual base of the elytra and the longitudinal axis of which is parallel to that of the suture. Interval five has a calluslike pustule opposite the middle of the basal callus of the third interval, and a prominent, elongate, rather narrow, well elevated, densely squamose, shortly setose, but not conspicuously fasciculate posterior callus. The humeral calli are prominent, but not fasciculate.

The pectoral receptacle is distinctly and deeply cavernous. The ventral margin of the metasternal part obviously underhangs the receptacle. The cavernous pectoral receptacle is a diagnostic character.

In Lea's collection are two New Guinean specimens labeled as *D. verrucifer* and one labeled as a possible variety of *D. verrucifer,* from Mount Lamington, northeastern Papua, elevation 1,300-1,500 feet. Though these specimens represent a new species, I do not wish to describe them because they are damaged. The arrangement of the calli and fascicles is similar to that on *D. verrucifer,* but the pronotal ones are apparently somewhat better developed and the basal calli on the third elytral intervals converge posteriorly. The color pattern is evidently basically quite similar, although the two specimens labeled *"verrucifer"* are so faded that they offer little basis for sound judgment, and the third example labeled as a possible variety is a darkly colored insect with much dark brown and black scaling. However,

on these examples the pectoral canal is not cavernous, but the meso- and meta-sternal parts are subcontinuously inclined, there being no tendency toward a cavernous metasternal part or an underhanging of the canal by the metasternum.

KEY TO THE SPECIES OF SOLOMON ISLANDS DERETIOSUS

1. Only the third elytral intervals with distinct fasciculate calli..... **D. manni** Zimmerman.
   With the third as well as some of the other intervals with distinct calli..... 2
2. Basal part of the disk of the pronotum occupied by a large conspicuous hemisphere of dark brown scales; pectoral canal not modified as in *D. sternalis*..... **D. fasciatus** Zimmerman.
   Pronotum without such a large mark, but with a dark brown patch on either side in front of the fourth elytral intervals; pectoral receptacle with a rectangular sclerotic ridge projecting inward from the metasternum on either side within the inner edges of the mesocoxae, thus underhanging the pectoral receptacle on either side..... **D. sternalis** Zimmerman.

These three Solomon Islands *Deretiosus* were adequately described in Haw. Ent. Soc., Proc. **10**: 159-163, 1938. It is probable that a large number of species of the genus inhabit the Solomons.

AUSTRALIAN SPECIES OF DERETIOSUS

The following species have been listed as *Deretiosus* from Australia:

D. alphabeticus Lea, 1931
D. aridus Pascoe, 1873
D. aridus var. blandus Lea, 1909
D. aspratilis Lea, 1909
D. hystricosus Lea, 1931
D. sanctus Lea, 1931
D. verrucifer Faust, 1899
D. ziczac Lea, 1931
D. zopherus Lea, 1913

The following changes are necessary to correct the errors in Lea's work on the Australian species:

Eprias aspratilis (Lea), new combination.

Deretiosus aspratilis Lea (1909: 711).

This is an easily recognized species. The dorsum is not only densely squamose, but it often has a dense amorphous incrustation. The third elytral interval bears the only distinct callus, excepting the

humeral calli. The callus on the third interval is very prominent, is fully a third as long as the elytra and bears a dense fascicle of very large, broad, erect, spatulate setae. The odd numbered intervals bear widely spaced, large, coarse, erect setae surrounded by pustules. The intervals are otherwise without calli or fascicles. The bases of the elytra are so strongly sinuate as to produce a broad nodose process on the base of each elytron at the humerus and at the third interval. The prothorax has a row of stout, erect setae around the apical margin, a loose fascicle of stout spatulate setae on either side of the middle of the apex and a loose cluster of setae marking the usual places of the central and lateral fascicles.

The type series came from Endeavor River, Queensland. An additional specimen from Blackburn's collection bears a label, evidently written by Blackburn, indicating that the specimen represented a new genus.

This is an aberrant species and has caused me much difficulty. Before I saw the holotype of the genotype of *Eprias* Heller, I had considered the species to represent a new genus. However, it now appears to me that it is best to place the species in *Eprias*. The insect is twice as large as *Eprias binotata* Heller (5 mm. as compared with 2.5 mm.) and has a distinct facies, principally, I believe, because of the well-developed elytral fascicles. The fore coxae extend back so that they are subcontiguous to the mesocoxae and the club of the antenna is more elongate than the stoutly oval club of *Eprias binotata*. There are several new species that belong to this genus in the United States National Museum collection, and these appear to break down the difference between *E. binotata* and *E. aspratilis;* I, therefore, believe it unwise to separate the two species generically.

Aristoxenus sanctus (Lea), new combination.

Deretiosus sanctus Lea (1931: 394).

This species is closely allied to the New Guinean *A. lateripennis* and is the Australian counterpart of that species. It can be separated from *A. lateripennis* by its darker scaling and obviously transverse prothorax. The prothoracic setae are shorter and less numerous. The elytra are quite similar in shape and arrangement of the setae; the black spot on the side is much larger on this species and extends to the base and down across the mesosternal side pieces and extends dorsally over the five lateral intervals above the metacoxae.

The unique holotype is from Endeavor River, Queensland.

Storeus ziczac (Lea), new combination (1931 : 394).

It is difficult to understand why Lea placed this species in *Deretiosus,* because it belongs to an entirely different subfamily. He probably was misled by its densely squamose, fasciculate dorsum and did not examine the tarsal claws. Each tarsal claw bears a prominent basal tooth, the metacoxae reach almost to the elytra, there is a well-developed fovea, or "peep hole" in the sides of the prothorax anterior to the coxae. In the above-mentioned characters it agrees with *Storeus,* but its vestiture and tibiae, which are angulate on the outer side, are characters which differ from the *Storeus* I have seen.

The zigzag mark on the elytra mentioned by Lea in his description is not at all prominent, as his description would lead one to believe. There is a fasciculate callus near the base and before the middle on interval three, interval five has a similar basal callus and the humeral callus is prominent.

The holotype and paratype came from New South Wales.

We thus have four species remaining from a list of nine *"Deretiosus"* that have been recorded from Australia.

KEY TO THE AUSTRALIAN DERETIOSUS

1. Erect setae on the elytral intervals spikelike, long and conspicuous, as long or longer than the breadths of the intervals; a very "spiny" species with a single subbasal callus on the third interval; fawn colored above excepting a black postscutellar vitta and dark elytral declivity.....**D. hystricosus** Lea.
   Elytral setae short, thick and stubby, extending but little above their surrounding pustules..... 2
2(1). Posterior calli of the fifth elytral interval obsolete, not fasciculate; elytra with a black V whose arms begin at the suture slightly behind the middle and extend to the humeri.....**D. alphabeticus** Lea.
   Posterior calli strongly developed, either strongly elevated or strongly elevated and fasciculate..... 3
3(2). Third elytral interval with two large, elongate, very conspicuous fasciculate calli; sides of the pronotum strongly explanate behind the subapical constriction, the lateral fascicles very broad and dense, the disk irregular and with pustules in addition to the central fascicles; elytral declivity usually with a conspicuous M of pale scales.....**D. aridus** Pascoe.
   Third elytral interval with only one callus and that basal or subbasal, the other characters different from those of *D. aridus*.....**D. verrucifer** Faust.

Deretiosus hystricosus Lea (1909 : 712).

This species (3.75-5 × 1.8-2.5 mm.) is basically yellowish brown or fawn colored above, but there is a short, sutural vitta of black

scales behind the scutellum and the declivity is almost entirely clothed with very dark brown or black scales. The sides of the prothorax are not explanate, the apical pronotal fascicles are very long and conspicuous, the central and lateral discal fascicles are composed of prominent mounds of dense scaling from which project a few long, narrow setae. All of the elytral intervals bear single rows of conspicuously long, slender, erect, spikelike setae, surrounded by small pustules, which are fully as long as the breadths of the intervals. The third interval bears a prominent, strongly developed, fasciculate basal callus. The posterior callus of the fifth interval is obsolete, the humeral calli are prominent, but there are no other calli present. The metasternal part of the pectoral receptacle is steep, and concave and when the canal is viewed from directly below it appears that the ventral margin of the metasternal part slightly underhangs the canal.

Lea had numerous specimens from Cairns, Queensland.

Deretiosus alphabeticus Lea (1931 : 393).

This small species (4 × 2 mm.) is closely allied and quite similar to the New Guinean *Deretiosus squamipennis* Lea. Although almost identical in structure, this species differs from the New Guinean species by having the dark elytral V extending to the humeri. The dorsal scaling is predominantly yellowish brown, the scaling around the scutellum and on the anterior parts of the basal calli on the third interval is dark brown to black, there is a conspicuous V of dark scales, the arms of which begin on the suture at just behind the middle and extend to the humeri; the arms of this V are followed by a subparallel, rather vague, dark line that extends from the fourth or fifth intervals to the sides and if this mark continued to the suture there would be two dark V-shaped bands; the scaling on the central part of the declivity is dark. All of the pronotal fascicles are very small, subobsolete, and are represented by only a few stout, erect setae in the usual places. Each third elytral interval has a small, low, subbasal callus on which the scales and setae are not much elevated, the posterior callus of the fifth interval is obsolete, the humeral calli are poorly developed, and there are no other calli present. Each interval bears a single row of comparatively short, stubby, erect setae, each of which is surrounded by a small rosette of scales. The pectoral receptacle is slightly cavernous.

The unique female holotype of this species came from Murray Island, Torres Straits, and is now in the South Australia Museum.

Deretiosus aridus Pascoe (1873:185, pl. 8, fig. 10). [This reference is incorrectly quoted in Coleopterorum Catalogus (141) as p. 187, 1871.]

Deretiosus blandus Lea (1909:710).

Deretiosus aridus var. *blandus* Lea (1931:395), new synonym.

Deretiosus zopherus Lea (1913:283), new synonym.

Deretiosus aridus Pascoe is a widespread, variable species; it not only varies in size and color, but in the degree to which the pronotal and elytral calli and fascicles are developed. Lea's *D. blandus* does not deserve even varietal ranking. *D. zopherus* Lea has been based on an abraded specimen of *D. aridus*; the unique holotype is a very badly abraded individual which was unfit for description.

This species is easily recognized because of its strongly developed fascicles and the usually outstanding pale M-shaped line on the declivity. The sides of the pronotum behind the subapical constriction are strongly explanate and these side expansions are usually densely and conspicuously fasciculate throughout; the apical fascicles are comparatively small and the disk has several small fascicles or large pustules behind the middle. The elytral intervals bear small erect setae that hardly protrude above the pustules. The third interval bears two large, conspicuous, fasciculate calli, the first is separated from the base for about the breadth of the first two intervals, and is as long as about the breadth of four intervals. The second callus is lower, but usually as long as the first and follows it at about half the length of the first. The anterior fascicles sometimes converge slightly posteriorly and the posterior ones converge anteriorly. The fifth interval has three small calli in front of the strongly developed, conspicuously protuberant, fasciculate posterior calli; the first of these is opposite the anterior edge of the first callus of the third interval, the second between the third interval calli, the third opposite the hind edge of the second callus of the third interval. The humeral calli are prominent but not strongly elevated. There may be several other small calli on some of the outer intervals. The metasternal part of the pectoral canal is steep, but there is no tendency toward a cavernous type of receptacle. Specimens range in size from 6×3 to 9×4.5 mm.

For a discussion of the other species of *Deretiosus* found in Australia, *D. verrucifer* Faust, see the Austro-Malayan section.

POLYNESIAN DERETIOSUS

Micronesian species

Deretiosus ficae Zimmerman (in press).

Marianas Islands: Guam.

Deretiosus concolor Zimmerman (1936: 163).

Caroline Islands: Ponape.

Deretiosus subaridus Lea.

Caroline Islands: Truk. For a discussion of this species, see the New Guinea section.

Fijian Species

Lea described 13 Fijian species which he called *"Deretiosus."* In my paper "On Lea's Fijian Deretiosus," 1937, I showed that of these 13 species, only seven belonged to *Deretiosus* and that two belonged to *Deretiodes* and four to *Teleodactylus*. When I wrote that paper I gave a key to six of the species of *Deretiosus* but did not include *Deretiosus fasciculiceps* Lea because I had not seen that species. My key is amended to read as follows:

Key to the Fijian Deretiosus[4]

1. Head with a prominent fascicle of elongate, erect setae next to the eyes on either side of the interocular area; scaling very pale, white interflaked with buff; the two largest calli on the third interval small as compared to the other species, one situated at the middle and one back of the base.....**D. fasciculiceps** Lea.
   Not so 2
2(1). Third elytral interval with only one large callosity and that near the base; elytra with a conspicuous black V at the middle..**D. V-niger** Lea.
   Third elytral interval with two prominent callosities.....3
3(2). Anterior callosity of the third elytral interval distinctly larger and more conspicuous than the second; first interval with a number of conspicuous fascicles from a point between the calli on the third interval and the apex; the general ground color fawn or buff.....**D. lectus** Lea.
   Anterior callosity of the third elytral interval not much larger and more conspicuous than the second; the elytra always with angulate markings 4
4(3). Second callosity of the third elytral interval larger than the first; the fifth interval with a rather conspicuous callosity on the declivity; elytra with a white V connecting the two posterior calli of the third intervals.....**D. variegatus** Lea.
   Calli on the third intervals more or less similar, the hind ones never conspicuously larger than the anterior ones.....5

[4] *D. squamituber* (Fairmaire) is omitted, as I have not seen it.

5(4). Posterior half of the elytra with a predominance of white scales making that area conspicuously pale as compared to the darker anterior portion; fifth interval with only four fascicles.....**D. apicalis** Lea.
Elytra more concolorous, the apical part not conspicuously paler than the anterior part; fifth interval with more than four fascicles.....6

6(5). Elytra with a conspicuous black V between the second calli on the third interval bounded posteriorly by an outstanding V of white scales, without a white patch on the margin of the elytra above the first ventrite.....**D. exithioides** Lea.
Elytra without a dark patch between the second calli, but with a common M of white scales made up of two V-shaped lines whose apices touch the posterior calli, with a conspicuous, rounded, white spot of scales on the eighth and ninth intervals above the first ventrite, and with a black patch of scales anterior to this and above the hind coxa.....**D. lateroalbus** Lea.

During the Henry G. Lapham Expedition to Fiji (1938), I procured a quantity of *Deretiosus* which will be recorded and described after the collection has been prepared for study.

Unfortunately, I cannot give descriptive synopses of the described Fijian *Deretiosus* at this time because I do not have access to the types or to a complete set of the species.

Deretiosus squamituber (Fairmaire), new combination.

Microbothrus squamituber Fairmaire (1881: 302).

Fiji: Ovalau.

I have not seen this species, but the description is sufficiently detailed to make possible the merging of *Microbothrus* with *Deretiosus*. Fairmaire gave the locality as "Ile Tonga; Ovalau." There is some error in this statement, because Ovalau is a Fijian island. Much of Fairmaire's material came from Ovalau, which was formerly the seat of the Fijian government.

Samoan Species

In "Insects of Samoa" (1931: 287-292), Marshall described three *Deretiosus* which may be distinguished by the following key:

1. All of the elytral intervals with rows of distinct pustules, interval three with only one callus and that subbasal and prominent.....**D. scutiger** Marshall.
Not all of the elytral intervals with pustules, at least the alternate intervals without pustules, interval three with at least two calli.....2

2. Dorsal scaling mostly brown; elytra with conspicuous dark brown V-shaped mark running from the calli on the fifth intervals opposite the interspace between the basal and median calli on the third intervals to the suture above the top of the declivity; pronotal scaling honeycomb-like .....**D. gibber** Marshall.

Dorsal scaling obviously pale, mostly pale buff; elytra without such a dark V-shaped mark; pronotal scales large and conspicuously imbricated.....**D. wilderi** Marshall.

The holotype of *D. wilderi* Marshall is similar to the holotype of *Deretiosus fasciculiceps* Lea of Fiji in color and general arrangement of the calli, fascicles and pustules, but it is broader and stouter than the Fijian species. *D. gibber* is figured by Marshall (1931 : 289, fig. 13).

BIBLIOGRAPHY

BOHEMAN, C. H., 1837, in Schoenherr's Gen. Spec. Curc. 4(1).

FAIRMAIRE, LEON, 1881, Essai sur les Coléoptères des îles Viti (Fidji), Ann. Soc. Ent. France 1(6) : 242-318.

FAUST, JOHANNES, 1892, Curculioniden aus dem Malayischen Archipel: Stett. Ent. Ztg. 53 : 184-228.

———1899, Viaggio di Lamberto Loria nella Papuasia orientale, xxiii, Curculionidae: Ann. Mus. Civ. Genoa 40 : 1-130.

HELLER, K. M., 1921, New Philippine Coleoptera, Philippine Jour. Sci. 19 : 523-625.

HUSTACHE, A., 1936, Coleopterorum Catalogus (151), Cryptorrhynchinae.

LEA, A. M., 1909 (1908), Revision of the Australian Curculionidae belonging to the subfamily Cryptorhynchides, part 9, Linn. Soc., New South Wales, Proc. 33 : 701-732.

———1913, Notes on Cryptorhynchides (Coleoptera, Curculionidae) in the South Australian Museum with descriptions of new species, Royal Soc. South Austr., Trans. 37 : 182-300.

———1928, Cryptorhynchides (Curculionidae) mostly from Australia, Records South Austr. Mus. 4 : 49-90.

———1931, Australasian Coleoptera: Records South Austr. Mus. 4 : 365-407.

MARSHALL, G. A. K., 1926, New Curculionidae from the Malay Archipelago: Phil. Jour. Sci. 30(3) : 349-359.

———1931, Curculionidae, in Insects of Samoa 4(5) : 249-346.

PASCOE, F. P., 1873, Contributions toward a knowledge of the Curculionidae, part 2, Linn. Soc. Lond., Jour. 11 : 154-218.

———1873b, Contributions toward a knowledge of the Curculionidae, part 3, Linn. Soc. Lond., Jour. 11 : 440-492, pls. 10, 11, 12, 13.

VOSS, EDUARD, 1937, Ein Weiterer Beitrag zur Kenntnis der Curculioniden Java, Tijdschrift voor Entomologie 80 : 126-166.

ZIMMERMAN, E. C., 1937, On Lea's Fijian Deretiosus: B. P. Bishop Mus., Occ. Papers 13(7) : 67-73.

———1938, Four new Solomon and Caroline Island Deretiosus: Haw. Ent. Soc., Proc. 10(1) : 159-164.

———1938b, Idosaulus, A new Genus of Fijian Cryptorhynchinae: Pan-Pacific Entomologist 14(4) : 158-160.

———1939, Preliminary revision of the Fijian Baridinae: B. P. Bishop Mus., Occ. Papers 14 : 335-348.

———Curculionidae of Guam, in press.

The author is responsible for all statements in this paper.