

## COLEOPTERA.

## V. COLEOPTERA (VARIOUS).

By **R. C. L. Perkins, Hugh Scott, and D. Sharp.**

Fam. ANOBIIDAE<sup>1</sup>.

The Anobiidae are represented by three genera containing endemic species, and by three genera containing species which are certainly introduced. Of the former, one genus also inhabits the warm parts of America, the other two are endemic. These genera contain, as here described, or listed, 134 species divided as follows: *Holcobius* 12, *Xyletobius* 52, *Mirosternus* (the non-endemic genus) 70. The three other genera contain in all but five species. In addition to these there are, I believe, one or two species representing other genera, which have been quite recently imported into Honolulu. Material is not at hand for the determination of these. So far as my own experience in working out Hawaiian insects is concerned, I have found the large genera *Xyletobius* and *Mirosternus* by far the most difficult of any group that I have undertaken, and I need hardly say that I am far from satisfied with the result, in spite of the great length of time that I have spent on this work. I think that years of careful observations in the field as well as in the study would be necessary for acquiring a thorough knowledge of these difficult insects.

## HOLCOBIUS Sharp.

*Holcobius* Sharp, Tr. Ent. Soc. London, 1881, p. 522.

The species of *Holcobius* are much less numerous, and the individuals much less easily procured, than many of those belonging to *Xyletobius* and *Mirosternus*. I have seen one or two of the species flying in some numbers at dark and all are nocturnal. Three of the species have not the form of palpi characteristic of *Holcobius* and will, doubtless, be removed from the genus. The following groups are easily recognized.

<sup>1</sup> By R. C. L. Perkins.

Palpi with emarginate terminal joints.

Pronotum seen from above appearing notched near the front angles....*H. major, simulans, insignis, haleakalae, hawaiiensis, diversus.*

Pronotum not appearing notched.

Elytra smooth, shining, glabrous, striae coarsely punctured....*H. glabricollis.*

Elytra not glabrous and polished, striae distinctly punctate....*H. granulatus, affinis.*

Palpi with terminal joints not apically emarginate....*H. simplex, minor, frater.*

(1) *Holcobius major* Sharp.

*Holcobius major* Sharp, Tr. Ent. Soc. London, 1881, p. 521.

Varies somewhat in size and in the colour of the antennæ.

HAB. Maui: Haleakala, 4000—5000 ft. (Blackburn, Perkins).

(2) *Holcobius simulans*, sp. nov.

*H. majori* forma colore et magnitudine simillimus, sed pronoto toto opaco, distincte subtiliter sculpturato, interstitiis parum convexis facile distinguendus. Long. 10 mm.

The antennæ in the single example are nearly black, excepting the apical joints. The sculpture of the pronotum is extremely fine and dense on the disc, where are a few shallow punctures, the surface very dull, the elytral interstices seem to be even flatter than those of *H. major*.

HAB. Maui: Haleakala, 5000 ft., but not taken with *H. major*.

(3) *Holcobius insignis*, sp. nov.

Statura majore, nigricans, robustus, opacus, antennis plus minus testaceis. Pronotum dense aureo-pubescent, granulatum, lateribus, desuper aspectis, antice quasi emarginatis. Elytra fusco-pubescentia, subfortiter striata, striis punctatis, interstitiis convexiusculis. Long. 11 mm.

Much more robust than *H. major* and *H. simulans* and with the thorax very densely clothed all over with golden pubescence. Punctures on the striae coarser than in most of the allied species, but difficult to see, unless denuded.

HAB. Kauai; 4000 ft.; one specimen.

(4) *Holcobius haleakalae*, sp. nov.

Sordide niger aut fusco-niger, opacus, dense fusco-pubescent, pube sub-aureomicante, antennis tarsisque (ex parte) testaceis. Antennarum articulus 9 ultimo evidenter brevior. Pronotum totum peropacum, subtiliter granulatum, lateribus quasi emarginatis.

Elytra sat dense appressa pubescentia vestita, subtiliter striata, striis punctatis, interstitiis haud convexis, parce subtiliter granulatis. Long. 8.5 mm.

Very like *H. insignis*, but of only about half the bulk.

*H. haleakalae* var. *chrysodytus* nov.

Pubescentia aurea vestitus.

Apparently not variable, so far as the few examples taken are concerned, except for the golden-clothed variety named above. Sometimes two or three of the intermediate joints of the antennae are infusate.

HAB. Maui: Haleakala, 4500—5000 ft.; I believe I have also taken it on Oahu.

(5) *Holcobius hawaiiensis*, sp. nov.

*H. haleakalae* persimilis, sed antennis pedibusque atris, pronoto anterius medium versus minus fortiter granulato distinguendus. Long. 7.5 mm.

I see no characters to distinguish a specimen from Hawaii, excepting those given above. I believe I have since met with the species there, and it is attached to tree-ferns. *H. haleakalae* was found on dead Ohia trees. In certain positions the interstices of *hawaiiensis* seem to be a little convex.

HAB. Hawaii: Kona, 3000 ft.; subsequently also taken at Kilauea.

(6) *Holcobius diversus*, sp. nov.

Sat elongatus, parum robustus, pronoto subnigricante, elytris fusco-brunneis, antennis pallidioribus, minus dense pubescens. Antennarum articulus 4 triangularis, longior quam trans apicem latior, sexto multo brevior; articulus ultimus praecedentibus multo longior. Pronotum subnitidum, supra punctatum, latera versus granulatum, lateribus, desuper aspectis, fortiter quasi-emarginatis. Elytra minus dense pubescentia, sat profunde striata, interstitiis rugulosis striis haud evidenter punctatis. Long. 6 mm.

Very distinct from any of the preceding species and superficially more resembling some of the following, which lack the quasi-emarginate character of the pronotum.

HAB. Kauai: 4000 ft.; one example.

(7) *Holcobius affinis*, sp. nov.

Fusco-brunneus, sat elongatus, antennis testaceis, pubescens. Caput crebre et conspicue granulatum. Pronotum crebre ubique granulatum, lateribus, desuper aspectis, haud quasi emarginatis. Elytra striata, pallide pubescentia, interstitiis dense et minute granulato-asperulis. Long. 7 mm.

Easily distinguished from the very closely allied *H. granulatus* Sh. by its paler colour and the more conspicuous pubescence.

HAB. Hawaii, Molokai, Oahu and Kauai.—Hawaii, Kona, 4000—6000 ft.; Molokai, 3000 ft.; Oahu, 2000 ft.; Kauai, 4000 ft.; bred from dead wood of *Euphorbia* and often seen flying at dark.

(8) *Holcobius granulatus* Sharp.

*Holcobius granulatus* Sharp, Tr. Ent. Soc. London, 1881, p. 520.

Varies a little in sculpture, the striae being more clearly and largely punctured in some specimens than in others, while the interstices are sometimes slightly convex, sometimes flat.

HAB. Maui, Hawaii.—Maui, Haleakala, not rare in dead Ohia trees; Hawaii, Kilauea, one example.

(9) *Holcobius glabricollis* Sharp.

*Holcobius glabricollis* Sharp, Tr. Ent. Soc. London, 1881, p. 520.

HAB. Oahu, Maui.—Oahu, scarce at low elevations in the mountains on Koa trees. Maui, Haleakala, 4000 ft., where one or two examples were taken on Koa, but I do not find these in the collection. I have a note of its occurrence and well remember the fact.

(10) *Holcobius* (?) *simplex*, sp. nov.

Fusco- aut atro-brunneus, minus opacus, subtiliter pubescens, antennis tarsorumque apicibus testaceis. Pronotum totum subtiliter punctatum, haudquaquam granulatum, lateribus haud quasi-emarginatis. Elytra levius striata, striis anterioribus punctatis, interstitiis crebre et conspicue punctulatis. Long. 5.5 mm.

Var. *a*. Niger, antennis testaceis.

Distinguished by the sculpture of the pronotum, the form of the palpi, as mentioned in the introductory remarks. The antennal joints are less elongate than those of *H. major*, *haleakalae* and *diversus*.

HAB. Kauai, Molokai.—Kauai, 4000 ft.; Molokai, 3000 ft. Four examples.

(11) *Holcobius* (?) *minor*, sp. nov.

Minor, brunneus aut fusco-rufus, subtiliter pubescens, parum robustus, antennis testaceis (nonnunquam totis vel ex parte obscuricoloribus). Pronotum subtiliter pubescens, vix nitidum, lateribus haud quasi-emarginatis, versus angulos anteriores obsolete granulatum-rugulosum, supra subtilissime punctulatum. Elytra distincte subtiliter striata, striis impunctatis, interstitiis ruguloso-punctatis. Long. circa 4 mm.

Distinct by its small (but variable) size and otherwise from all but the following.

HAB. Oahu, Molokai.—Molokai, 3000 ft. ; since found on Oahu near the coast.  
Not common.

(12) *Holcobius frater*, sp. nov.

Minor, parum robustus, subtiliter pubescens, fusco-niger (nonnunquam plus minus brunneus aut rufescens) antennis rufo-testaceis, et sat brevibus. Pronotum totum opacum et subtiliter granulatum, lateribus desuper aspectis haud quasi-emarginatis. Elytra subtiliter striata, striis impunctatis, interstitiis obsolete rugulosis. Long. circa 4 mm.

The type of this species is from Kauai, but it also occurs on Oahu. Examples from the latter island, that I have recently taken, generally have the pronotum less dull and granulate than the type and are brighter in colour.

HAB. Oahu, Kauai.—Kauai, 2000 ft. ; Oahu, 1200—1500 ft.

Xyletobius Sharp.

*Xyletobius* Sharp, Tr. Ent. Soc. London, 1881, p. 519.

The species of *Xyletobius* form a number of groups, difficult to define, but readily recognized after a reasonable time spent in the study of a representative collection. Some of these groups will certainly form distinct genera, when they are still further studied. In these descriptions I have not used characters drawn from the underside of the insect, especially the distance between the middle coxae, which is much greater in some (e.g. *X. monas*) than others, because it appears to vary in the sexes of some species. Nevertheless, it will certainly prove an important character. My grouping is largely based on male characters (i.e. the length of the antennae) which is of course unsatisfactory, but, at present, the best method I can discover.

**I.** Species in which the posterior lateral angles of the pronotum are distinct and not so rounded off as to be effaced. Pronotum always very uneven, raised or tuberculate, so that in lateral aspect the upper outline is angulated towards the middle.....*X. walsinghamii*, *durranti*, *sylvestrii*, *hawaiiensis*.

**II.** Species with the posterior pronotal angles rounded off and effaced ; pronotum very rarely formed as in the preceding section.....All the other species of the genus.

The latter group may be subdivided into a number of sections with the following characters :

- (1) Species entirely black, with the antennae very strongly serrate (for the genus), these and the legs black, the elytral striae hardly at all punctured (elytra scantily tomentose and pronotum very little convex above in profile in *X. nudus*).....*X. nudus* and ?*nigrinus* Sh.

- (2) Species usually brown of various shades or dull black or dark fuscous, the tomentum always scanty so that the sculpture of the insect is easily seen in dorsal aspect, form elongate, numerous evident punctures can be seen on the striae, second stria always confluent with the third alone at the apex, where they are very distinctly impressed. Pronotum seen in profile with its outline straight or hardly curved or convex.....*X. grimshawi* and *dollfusi*.
- (3) Species with elongate or very elongate antennae in the ♂, the several joints before the apical one all strongly elongate and usually very slender.
- (a) Species large or at least robust, never with yellow elytral spots or fasciae, the elytral striae distinct to the apex, the second confluent with the third only (as a very rare variety the second and third free at apex).....*X. marmoratus*, *meyrickii*.
- (b) Species not striate as in (a), the pronotum anteriorly strongly margined throughout, the margin usually shining.....*X. proteus*, *mesochlorus*, *nuptus*, *pele*, *euceras*, *mimus*, *submimus*, *affinis* Sh. (?).
- (c) Species not striate as in (a), sometimes yellow marked, the pronotum indistinctly or feebly margined in the middle in front; eyes of ♂ of the usual size.....*X. oculatus*, *suboculatus*, *carpenteri*, *ashmeadi*, *blackburni*, *beddardi*, *forelli*, *brunneri*.
- (d) Species as in (c), but the eyes of the ♂ abnormally large, the width of the two together at least subequal to that of the space between them, or sometimes much larger still.....*X. megalops*, *euops*, *insignis*, *kirkaldyi*.
- (4) Species with short antennae in both sexes, the several joints before the apical one not strongly elongate in the ♂ and never very slender.
- (a) Dark markings of elytra so disposed as to make a pattern of several alternate light and dark transverse bands or the elytra are dark with a very conspicuous transverse pale mark on the apical declivous portion; the interstices apically near the suture strongly convex.....*X. euphorbiae*, *cyphus*, *monas*.
- (b) Elytra with a great brown or golden subtriangular spot of tomentum, extending to the shoulders at the base, and with its apex beyond the middle of the suture.....*X. collingei*, *speiseri*.
- (c) Pronotum with two conspicuous round spots of pale tomentum.....*X. sharpi*.
- (d) Elytra with conspicuous yellow spots or bands.....*X. simoni*, *fraternus*, *roridus*.
- (e) Pronotum in dorsal aspect with the front margin laterally a little prominent (before the deflexed front angles) or rarely angulate or subangulate; not simply rounded; species mostly very small and narrow.....*X. sykesii*, *praeceps*, *mundus*, *aurifer*, *chryseis*, *flosculus*.
- (f) Pronotum in dorsal aspect with the front margin simply rounded at the sides, not slightly prominently rounded, or subangulate.....*X. scotti*, *stebbingi*, *lineatus*, *serratus* Bl. (?), *lasiodes*, *sulcatus*.

Although in the second part of this table the males alone are actually dealt with, yet in nearly all cases the characters used are also equally applicable to the females. The latter sex, in the sections wherein the males have strongly elongate antepical antennal joints, also generally has these too slender and elongate to be confused with the males in the other group, having short antennae. Only in two or three cases do the females, that belong to males with long antennae, have these organs with the joints so shortened as to be similar to those males that have the antennae most developed in the other section. *Xyletobius aleuritis* is not included in the table, as I doubt whether it really belongs to the genus.

The measurements of the Hawaiian Anobiidae, here given, are mostly taken from the type specimens. It is only necessary to examine a series of any species to find considerable variation in size, so that this becomes unimportant for specific distinction, unless there is a very considerable difference between that of any two species.

(1) *Xyletobius walsinghamii*, sp. nov.

Statura maxima, sat elongatus, totus dense pallido-tomentosus, antennis rufis aut fuscis. Caput dense tomentosum, oculis majoribus, antennis (praecipue maris) longis, articulo sexto et sequentibus fortiter elongatis, parum serratis. Pronotum perinaequale, juxta medium fortiter elevatum aut tuberculatum, margine laterali ante angulos posteriores exciso, his distinctissimis, haud rotundatim obsoletis, densissime pallido-tomentosum, antice saepius fusco-variegatum, elevatione plerumque nigro- aut fusco-notata. Elytra densissime pallido-tomentosa, lateribus aut ad media aut usque ad apices nigro- aut fusco-imbatis, stria secunda cum tertia sola ad apices confluenta. Long. 6.5 mm. var. *minor*, elytrorum dorso multo magis fusco-variegato, statura minore. Long. 4.5 mm.

I have seen only a few examples of this remarkable insect, which is the largest of the Hawaiian *Xyletobius*, and in some respects recalls the genus *Holcobius*. Were it not that it appears to be connected with more ordinary forms by *X. silvestrii*, I should have separated it and its close ally, as forming a different genus. If denuded of tomentum the colour of the insect is usually red, and when thus bare, the elytra show a somewhat deep striation, the interstices being noticeably convex. The larva of this insect is not rare near Honolulu, not only in native woods, but also in introduced dead trees, such as the guava. For this reason I long suspected it of being an introduction from some other country, but the discovery that there is a closely allied species on Kauai and of its relationship to *X. silvestrii*, as mentioned above, sufficiently prove that it belongs to the endemic series.

HAB. Oahu, Maui :—500 to 4000 ft., widely spread and no doubt not rare.

(2) *Xyletobius durranti*, sp. nov.

Forma facieque *X. walsinghamii*, et eisdem modis variabilis, forma pronoti bene distinctus. Pronotum, antice visum, sat fortiter curvatim transverse elevatum, elevatione haudquaquam conico-truncata. Long. 6 mm.

HAB. Kauai ; below 2000 ft. to over 4000 ft. in the mountains ; no doubt generally distributed, but neglected.

(3) *Xyletobius silvestrii*, sp. nov.

Rufescens, elongatus, subparallelus, plus minus infuscatus, antennarum articulis duobus basalibus aut pluribus rufis, caeteris plus minus infuscatis, pallide tomentosus. Antennae minus fortiter sive mediocriter elongatae, articulo septimo conspicue longiore quam latiore, octavo fere bis longiore quam latiore, sequentibus fortiter elongatis. Pronotum perinaequale, juxta, sive paullo post medium, fortiter elevatum, tomento pallido subvariegatim conspicue vestitum, angulis posterioribus lateralibus distinctis, quamvis obtusis. Elytra fortius striata, stria secunda cum tertia sola ad apices confluenta, interstitiis subconvexis, pallide tomentosa, tomento haud laevigato, sed quasi maculas parvas male definitas nitidiores formante. Long. 3.5—4.5 mm.

This species cannot possibly be confused with any other. It is obviously allied to *X. walsinghamii*, but differs in having the sides of the pronotum nearly straight in front of the hind angles, instead of being conspicuously excised, and the angles themselves consequently are less conspicuous. There are many other differences in detail of structure in addition to that of size. This insect seems to be rare, as I have seen only three or four examples, including a pair taken *in cop.*

HAB. Oahu; 2000 ft. or somewhat less.

(4) *Xyletobius grimshawi*, sp. nov.

Fusco-niger, fusco-brunneus aut brunneus, nonnunquam nigricans vitta lata flavescente longitudinali ab humeris elytrorum extensa ornatus, antennarum articulis nonnullis basalibus saepe rufescentibus, caeteris fuscis, pedibus fuscis aut rufescentibus, variabilibus, sat angustus, parce pallide tomentosus. Antennae breviores, sat serratae, articulo septimo minus elongato. Pronotum breve, latum, fortiter transversum, opacum, obscure sculpturatum. Elytra conspicue impressa, striis sat sinuatis, parce tomentosa, stria secunda cum tertia sola ad apices occurrente, ibique plerumque fortiter impressa. Long. 3 mm.

This species varies a good deal but is always easily separable from any other by the following characters. It is scantily tomentose or pubescent, has shortish antennae in either sex (these not differing greatly), the pronotum seen in profile has its upper outline almost straight, hardly or not at all convex. The striation is as described above, and the elytral impressions are always conspicuous. The Kauaian examples tend to form a distinct species, characterized by lighter striation and more elongate elytra. In many specimens these features are very strongly marked, but others are identical with the Oahuan ones, and others are intermediate. The brown or dark fuscous colour of the insect, save in exceptional specimens, is very characteristic.

HAB. Kauai, Oahu.—This Anobiid is more frequently met with than any other in the immediate neighbourhood of Honolulu. A strongly striated example from this range has served as the type of the species.



(5) *Xyletobius dollfusi*, sp. nov.

Fusco-niger, opacus, parce tomento fusco subtilissime vestitus, antennis plerumque nigricantibus, articulo secundo rufescente. *X. grimshawi* evidenter affinis, pronoto supra parum convexo, lato, medio minus fortiter producto, stria elytrorum secunda tertiaeque ad apices confluentibus, striis usque ad apices subtiliter punctatis. Statura majore, vestitu, colore, multisque aliis modis subtilioribus distinguendus. Long. 3.75 mm.

The very uniformly dark appearance, and large size gives the above species a very different facies from that of *X. grimshawi*, to which it is closely allied. It is much more bulky than the finely striate and elongate examples of that species from Kauai, and has a finer striation and flatter, wider interstices than the typical Oahuan form. The pronotum, seen in profile, is a little less straight above in outline and the clothing of the elytra has not the same tendency to form pale lines on the interstices. Some examples of *X. dollfusi* are a good deal more elongate than others and seem to me to somewhat connect *X. marmoratus*, a rather isolated species with *X. grimshawi*.

HAB. Hawaii, Kilauea ; apparently rare.

(6) *Xyletobius marmoratus* Sharp.

*Xyletobius marmoratus* Sharp, Tr. Ent. Soc. London, 1881, p. 517.

Colore variabilis, rufus, rufo-fuscus, rufo-niger aut nigricans, elytris fortius quam in plurimis speciebus impressis, striis fortius sinuatis, secunda cum tertia sola confluenta.

I believe I have identified this species correctly from Dr Sharp's description. It varies a good deal in colour, some examples are dark fuscous, becoming distinctly red in parts. Some are not half the size of others, those from Oahu being on the average much less than those from Molokai. The striation (which is extremely distinct right to the apex) is apparently constant and a strong specific character.

HAB. Oahu, Maui, Molokai, Lanai.—Not taken anywhere in large numbers.

(7) *Xyletobius meyrickii*, sp. nov.

Statura majore, niger, flavescenti aut cinereo tomento conspicue vestitus, tibiis tarsisque saepius nigricantibus aut obscure rufis. Caput dense tomentosus, oculis mediocriter magnis, latissime separatis, antennis maris sat fortiter, feminae mediocriter, elongatis, articulo septimo et sequentibus maris valde, feminae conspicue elongatis. Pronotum subaequaliter tomentosum, plagis nonnullis quasi nudis notatum. Elytra

minus inaequalibus, leviter striata, stria secunda cum tertia sola conjuncta, aut harum apicibus liberis, stria quarta et quinta ad apices confluentibus, et praecedentibus multo brevioribus. Long. 4.25 mm.

Described from examples in fine condition, some being almost entirely abraded. It is a most distinct species on account of its large size, generally uniform clothing and the condition of the striation, which is almost always constant. The pronotum is not so conspicuously margined in front as in *X. proteus*. The tomentum of the elytra often has a peculiar iridescent or prismatic reflection. The colour of the legs and antennae is not quite constant; one example has the latter largely yellowish.

HAB. Hawaii, on the West side of Mauna Loa from 2000—5000 ft., mostly 4000 ft. or upwards.

(8) *Xyletobius proteus*, sp. nov.

Plerumque major, sat robustus, antennis sat elongatis, capite lateribusque pronoti densissime pallido-tomentosis, pronoti margine antico distincte fortius ubique elevato, nitido. Elytra in forma typica tomento pallido et nigro aut fusco longitudinaliter variegata. Long. solit. 3.5 mm.

The above characters are mostly constant in this very variable species. What may be considered as the typical form has the elytra variegated with longitudinal spots or lines of pale and dark tomentum. By spread of the dark colour or its concentration into certain parts and removal from others, or its partial or total disappearance, various striking varieties, having no superficial resemblance in pattern to the typical form are produced. By the examination of many specimens I have been able to trace the mode of formation of the extreme varieties. The actual colour of the integument (apart from the clothing) varies from entirely red to black.

A few of the most striking varieties of *X. proteus* may be characterized as follows:

*X. proteus* var. *simplex* nov.

Rufescens aut niger, elytris ubique tomento pallido, cinereo aut flavescente aut aureo, vestitis.

This form probably arises in two ways (1) by the spread of the pale tomentum over the whole surface, (2) by the dark tomentum of the typical form becoming flavescent and the spread of this over the general surface. Varieties in which the elytra are cinereous with light fuscous or yellowish markings may be looked on as intermediate between the typical form and the var. *simplex*. These intermediates are common.

*X. proteus* var. *maurus* nov.

Elytra nigro- vel fusco-tomentosa, apicibus extremis nonnunquam cinerascentibus.

A dark form, the elytra nearly uniformly dark, the tomentum generally with a ferruginous or golden reflection in certain aspects. About one example in 60 appears to belong to this variety.

*X. proteus* var. *apicalis* nov.

Elytra supra pallide tomentosa, lateribus fasciaque anteapicali, saepe etiam basi nigricantibus.

In this form, which is numerous, the base of the elytra (usually more widely at the shoulders), the sides, except a space behind the shoulders, and a transverse mark or band near the apex, are black. Rarely this subapical fascia alone is present.

*X. proteus* var. *dorsalis* nov.

Elytra plus minus pallide tomentosa, post media maculâ magnâ trans suturam positâ ornata, fasciaque subapicali saepe interruptâ.

This beautiful variety is not abundant. Of five hundred specimens counted, only one in fifty belongs to it. I have seen one very good intermediate form, in which the pale tomentum has not been entirely eliminated from the dorsal spot.

*X. proteus* var. *hastatus* nov.

Elytra nigro- vel fusco-tomentosa, ante media maculâ trans suturam positâ, subtriangulari, pallide tomentosâ ornata.

A very remarkable variation, the pale pubescent spot on the suture being subtriangular (the apex of the triangle in front) and a little produced backwards along the suture.

Only three examples in about 600 examined were of this variety.

*X. proteus* is apparently found on all the islands, but unless *X. nuptus* be considered a mere variety, it was only found abundantly on Hawaii. The var. *apicalis* has been taken on Kauai in company with *X. nuptus* and I have seen one var. *dorsalis* from Oahu, taken with nearly typical *proteus*.

*X. mesochlorus* from Molokai reminds one greatly of the var. *hastatus*, but the pale spot is differently shaped, and occupies a different position on the elytra and it is I suspect nearer to *X. nuptus* than to the var. *hastatus* of *proteus*. After the removal of *X. nuptus*, *X. mesochlorus* and *X. minus* all Hawaiian Anobiids of large size, with very densely tomentose head and sides of the pronotum, with the anterior margin of

the latter very definitely raised all round, and shining, with elongate antennae, which do not differ greatly in the sexes, though shorter in the female, may be assigned to *X. proteus*.

HAB. All the islands, but taken only rarely excepting on Hawaii; very numerous on that island near the active volcano Kilauea.

(9) *Xyletobius mesochlorus*, sp. nov.

Nigricans et rufus, sat robustus, forma *X. protei*, capite, pronotique lateribus densissime pallido-tomentosis. Pronotum antice distinctissime marginatum, margine laevi, nitido. Elytra fusco-nigro tomento vestita, macula magna, mediali et transuturali, pallide-tomentosa ornata, strigisque aut maculis aliis paucis pallidis. Long. 3.75 mm.

Form and structure very like that of *X. proteus*, but quite distinct in its clothing from any of the known varieties of that species, and apparently very constant, the five examples taken being closely similar. It reminds one a good deal of the var. *dorsalis* with the general colour of the elytra and that of the dorsal spot reversed. Perhaps it should be considered as a local race of *X. proteus* rather than a distinct species, though at present it is not connected with the ordinary forms of that insect by any intermediates.

HAB. Molokai, singly and rarely, 3000—4000 ft.

(10) *Xyletobius nuptus*, sp. nov. .

Rufescens, plus minusve nigro- aut fusco-variegatus, antennarum articulis tribus basalibus plerumque rufis, caeteris nigris. Caput sat dense pallide tomentosum, oculis mediocribus, latissime separatis. Antennae utriusque sexus fortiter elongatae, maris tamen evidenter longiores, articulo septimo circiter bis longiore quam latior. Pronotum latum, antice distinctissime marginatum, lateribus dense pallido-tomentosis, medium evidenter granulatum. Elytra plerumque notis plus minusve elongatis nigris aut fuscis variegata, lateribus versus media saepe macula triangulari aut subtriangulari fusca aut nigra notatis, stria secunda saepe cum quinta ad apicem confluyente, haud quaquam cum tertia sola conjuncta. Long. solit. 3.5 mm.

*Xyletobius nuptus* var. *kauaiensis* nov.

It will be convenient to use this name for the Kauai form of the above, even though the two are not definitely separable in all cases. The variation, so far as I can judge from the specimens collected, is very different on Lanai and Kauai, though certain individuals from each island closely resemble one another. In examples from Kauai the dark elytral markings are usually more elongate and sometimes are so extensive that nearly the entire elytra are black. Near their middle there is in many

examples an apparently bare, round, red spot, this being due to the direction of the pubescence and not really to its absence. The smallest examples are hardly one-fourth the bulk of the larger ones.

In both forms the colour of the legs varies from red to dark, and the lateral dark elytral marking, often triangular in shape, may lose its characteristic form by confluence with other dark markings. It becomes a question whether *X. nuptus* is really more than a special form of *X. proteus*. Both on Lanai and Kauai though *nuptus* is the dominant form in various localities, yet on both islands one or two individuals have occurred, that appear to belong to *X. proteus*. It is necessarily difficult to accurately distinguish between species so closely allied, each being very variable, but the average size of *X. nuptus* is much less, it is normally more elongate, and in proportion to its size the antennae of the male seem to be more strongly developed. It is the more typical forms of *X. proteus* that are most like *X. nuptus*.

HAB. Lanai, Kauai.—Probably common as I have examined over fifty examples in all.

(11) *Xyletobius pele*, sp. nov.

Nigricans et testaceus, statura majore, pedibus ex majore parte nigricantibus, antennarum articulis duobus basalibus rufis, pronoto testaceo sive rufescente, medio marginem versus posticum nigromaculato. Oculi mediocres. Antennae sat fortiter elongatae, articulo quinto fortius elongato, quam quartus evidenter longiore, quam sextus multo brevior, articulo septimo et sequentibus gracilibus et valde elongatis. Pronotum latum, antice distinctissime marginatum, margine nitido, partibus nigricantibus exceptis dense pallido-tomentosum, a latere visum supra haud aequaliter convexum. Elytra elongatula, plaga laterali, ab humeris fere ad mediam elytrorum longitudinem extensâ, testaceâ, dense pallido tomento vestitâ, caeteris partibus nigro-tomentosis, lineis maculis que nonnullis cinereis variegatis. Long. circa 4 mm.

No doubt distinct from *X. proteus*, possibly the representative on Hawaii of *X. nuptus* of the other islands; the unique example showing an apparently bare red spot on each side at about their middle in dorsal aspect. This bareness is of course only apparent, as in other species. The upper outline in profile of the pronotum is a good deal sinuate, and far from presenting an evenly convex curve. The dark marking on the pronotum is transverse and trilobate. The testaceous elytral markings, covered with pale tomentum, merge into a sanguineous colour (without pale tomentum) on the dorsum. It is quite probable that the unique example may be a remarkable colour variety and that the typical form is more like that of *X. proteus* or *X. nuptus*.

HAB. Hawaii; Kilauea, a single example was taken in July 1895. It is no doubt a male.

(12) *Xyletobius euceras*, sp. nov.

Colore nigro sive nigrofusco rufoque variegatus, facie totâ *X. nupti*, antennis exceptis. Antennae ♂ longissimae, articulo quarto brevi, haud quaquam longiore quam latiore, quinto fortiter elongato, fere bis longiore quam latiore, et praecedentibus permulto longiore, sexto quam quintus conspicue longiore et graciliore, articulis 8, 9 et 10 perelongatis et gracillimis. Long. 3.75 mm.

Differs in no wise, excepting the remarkable antennae, from some examples of *X. nuptus*. The pronotum has the usual strong shining margin of the *X. proteus* group. From Oahu there was a single mutilated, but no doubt originally fine, example of (probably) this species. Its antennae had been torn off and broken up by unskilled mounting and many joints lost.

HAB. Oahu, Lanai.—Lanai, Koele, 2000 ft., a single ♂ taken.

(13) *Xyletobius minus*, sp. nov.

Sat robustus, totus tomento cinereo aut subflavescente vestitus, pedibus ex magna parte nigricantibus, antennarum articulo secundo et nonnunquam etiam primo rufescentibus. Antennae utriusque sexus fortiter elongatae, maris quam feminae evidenter longiores, articulo sexto quam quintus multo longiore, articulis 9 et 10 maris valde, feminae sat fortiter elongatis. Pronotum latum, ubique granulatum, margine antico toto sat distincte elevatum et nitidum. Elytra latiora, parum aut haud variegata, stria secunda plerumque cum quinta confluenta, his tertiam quartamque includentibus. Long. 3—3.5 mm.

Very closely allied to *X. proteus*, but so far as the three dozen examples, that I have examined, show, it is very constant and uniform in appearance. Neither the typical form nor any of the varieties of *X. proteus* was taken in company with it. It differs from this species in being of smaller average size, with the antennae comparatively longer. It is excessively close to *X. subminus*, but is of larger average size than that species, and is more robust, the elytra being broader and less elongate.

HAB. Hawaii on the Western side of Mauna Loa, generally in the lowest forest belt, where introduced ants were absent.

(14) *Xyletobius subminus*, sp. nov.

Niger, haud latus, cinereo-tomentosus, *X. mimo* cognatissimus, differt statura plerumque minore, et forma magis elongata. Long. 2.5—3.25 mm.

This is another of the allied forms, which is separable with some doubt from *X. proteus*, of which it might be a small or degraded variety. It is of much smaller average size, of more elongate form and the antennae are as well or better developed than those of normal *X. proteus*, the sides of the thorax and the head are much less

densely covered with tomentum. From *X. mimus* it is separable by its smaller average size and its more elongate form, the elytra being usually very decidedly longer. In many examples the elytra are slightly, but distinctly, variegated; the tomentum instead of being uniformly cinereous is to a large extent blackish, so that pale lines are formed thereby. The legs are never altogether bright or clear red like *X. proteus*. I have seen not less than forty examples of *X. submimus*.

HAB. Hawaii, Kilauea near the crater.

(15) *Xyletobius affinis* Sharp.

*Xyletobius affinis* Sharp, Tr. Dublin Soc. III. (Ser. ii) p. 158.

I cannot identify this species with certainty, but I suspect it may be the same as either my *X. mimus* or *X. submimus*, though it is equally likely to be distinct from either. The nature of the anterior margin of the pronotum is of extreme importance in differentiating various species of *Xyletobius*, that are very similar in appearance and resemble *X. affinis*, so until this part is examined I should hesitate to assign any of my species to Dr Sharp's.

HAB. Hawaii, Mauna Loa, 6000 ft. (Blackburn).

(16) *Xyletobius aleuritis*, sp. nov.

Piceo-niger aut fusco-niger, statura magna, vivus, ut opinor, totus pallide tomentosus, antennis mediocriter elongatis, articulis quarto quintoque subaequalibus, sat fortiter elongatis, caeteris usque ad decimum quinto vix conspicue longioribus. Long. 5 mm.

I have only seen two examples, found dead, and much abraded, of this species, which is evidently very different from any other. The pronotum is much less strongly margined in front than in *X. proteus* and its allies, the striation is different from that of *X. marmoratus*, as well as the shape of the pronotum, while the antennal characters seem quite peculiar, in the small amount of dilatation of the fourth and fifth joints. In life the insect is probably almost evenly covered with pale flavescent tomentum.

HAB. Oahu; two examples were dug out of dead Kukui wood (*Aleurites*) in April 1892. I have never met with a specimen since, and doubt whether the insect is a true *Xyletobius*. It was found at a lower elevation than any other.

(17) *Xyletobius oculatus* Sharp.

*Xyletobius oculatus* Sharp, Tr. Ent. Soc. London, 1881, p. 519.

I have examined a series of examples that agree very well with Sharp's description of this species. It varies a good deal in size, some examples being nearly twice as

bulky as others, but very little in general appearance. The female has much shorter antennae, the 6th, 7th, 8th and 9th joints being only moderately elongate instead of very strongly so.

HAB. Hawaii, Kilauea and Kona.

(18) *Xyletobius suboculatus*, sp. nov.

Niger aut piceo-niger, antennarum articulis duobus basalibus rufis, rarius plus minus obfuscatis, pedibus (exceptis nonnunquam anticis) ex majore parte nigricantibus aut obscuricoloribus. Oculi minores, latissime separati. Antennae maris valde, feminae mediocriter, elongatae; maris articulo sexto fortiter elongato (praecedente multo majore) et longitudine sequentibus minus inaequali. Pronotum basim versus sat fortiter longitudinaliter convexum, margine antico medio vix aut parum distincte elevato, opacum, dense subtilissime sculpturatum. Elytra sat elongata et angusta, plus minus lineis tomenti cinerei (plerumque parum conspicue) variegata, rarissime unicoloria. Long. 2.5—3.25 mm.

I have examined about 150 examples of this species minutely, and others more superficially. Amongst these are a few, in which the pronotum in part, or wholly, and sometimes the elytra are red or reddish. In some of these examples the legs too are red or yellow. I suspect that the colour of these specimens is due to immaturity, in some it is certainly so. They have much the appearance of some specimens of *X. carpenteri* and perhaps *X. suboculatus* should be considered as a local race of that species. If so, the variation of the two forms is entirely different. To *X. suboculatus* I also refer a few specimens more recently taken on Kauai and Oahu, for I see no characters to distinguish them, in spite of the fact that *X. carpenteri* is found on the intermediate islands. *X. suboculatus* is not very variable, as compared with other species. Some examples have but little variegation of the elytra, but this is very rarely, if ever, entirely absent (unless abraded) and when almost absent, the surface is generally covered with a blackish or fuscous tomentum, not with the grey colour of *X. oculatus*.

HAB. Kauai, Oahu, Hawaii.—Hawaii, Kau and Hilo districts, on Mauna Loa and Mauna Kea.

(19) *Xyletobius carpenteri*, sp. nov.

Niger aut fusco-niger, pronoti marginibus aut margine antico saepe rufo, rare pronoto toto rufescente, elytris juxta media utrinque saepe rufonotatis, antennarum articulis duabus aut pluribus basalibus rufis, pedibus colore variantibus, nonnunquam totis rufotestaceis, nonnunquam nigris vel ex parte nigris, maris tamen fere semper pallidis. Caput opacum, subtiliter granulatum, oculis mediocribus, late distantibus, antennis sat elongatis, maris longitudine elytris subaequalibus, feminae  $\frac{2}{3}$  longitudinis elytrorum aequalibus, articulo maris sexto cum sequentibus sat fortiter elongato, feminae



articulo sexto minus elongato, sed praecedente evidenter majore. Pronotum opacum, lateribus dense pallide-tomentosis. Elytra tomento pallido, plus minus lineas longitudinales formante, variegata, leviter striata, stria secunda cum quinta, vel cum stria quadam exteriori, confluenta, et striam tertiam et quartam aut complures alias includente. Long. 3 mm.

Structurally this species is closely allied to *X. beddardi* and others. It is very variable and difficult to describe. The male, as is often the case in the genus, is generally a narrower and more elongate insect than the female though sometimes the sexes closely resemble one another. The pale tomentum of the elytra is nearly always so disposed as to form a number of linear markings; in a few males the surface is so generally covered with pale tomentum or pubescence as to almost obliterate this character. In various parts of the elytra the tomentum is set in different directions, giving it a microscopically roughened appearance, and in some specimens, in consequence of this, there appear to be two well-marked bare red spots near the middle of the wing-cases. This bareness is not real, and many examples show no trace of the red spots. Sometimes there is a good deal of red suffusion of the elytra otherwise. In many specimens a conspicuous patch of pale tomentum is placed on each side of the elytra about the middle of their length. The pronotum is often bordered with red and sometimes entirely red. The legs are variable in colour in the female but in the male are yellow or clear red. The variability seems to affect the species on each island, and even if there is a tendency for the examples from one to vary in a special direction (which is probably true to some extent) yet individuals from each that match each other very well can be picked out without difficulty.

HAB. Lanai, Maui.—Elevations from 1500—5000 ft.; common.

(20) *Xyletobius brunneri*, sp. nov.

Rufofuscus, cinereo- aut aureo-tomentosus, sat elongatus, pedibus flavescentibus, antennarum articulo basali aut rufo aut nigricante, articulo secundo rufo-tincto aut nigro, caeteris articulis nigris. Caput nigricans, antennis ♂ fortiter elongatis, sat serratis, articulo quinto paullo aut haud longiore quam latiore, articulis subapicalibus fortiter elongatis, sed minus gracilibus. Pronotum antice obscurius marginatum, et transversim vel ad medium subdepressum, aureo-tomentosum. Elytra lineis tomenti pallidi conspicue ornata et colore fusco-nigro rufoque plus minus variegata, lateraliter juxta media impressa, parte impressâ rufa, hoc colore nonnunquam ad basim elytrorum extenso. Long. 2.5—3 mm.

I have seen only two males of this species and assign also a single female to it. It belongs to the *X. oculatus* group, not having the distinct anterior margin of the pronotum of *X. nuptus*, some smaller examples of which it greatly resembles, the elytra showing two more distinct red spots on the dorsum towards the middle. The pro-

notum if viewed from the side, has its upper outline a little sinuate, not simply curved or convex. This is due to the lateral impressions extending right across the pronotum, but the character is much less marked than in well-developed specimens of *X. sulcatus*, of which this is so characteristic a feature. The subapical joints of the antennae of the male, though strongly elongate, are not so slender as is usual in males of this group. What I believe to be the female has much shorter antennae, the eighth joint evidently elongate, the two preceding hardly or not at all so.

HAB. Kauai, 4000 ft.

(21) *Xyletobius ashmeadi*, sp. nov.

Niger, plerumque minus dense griseo-tomentosus, elytris ante media rufo-fasciatis, fascia lateraliter elytrorum basim attingente, post media rufo-bimaculatis. Tibiae nigricantes aut piceae. Antennarum articulus secundus (aliique hujus vicini nonnunquam) rufus. Caput subtiliter granulatim sculpturatum, oculis mediocribus, late separatis. Antennae elongatae, maris toto corpore paullo breviores aut saltem elytris evidenter sat longiores, feminae elytris nonnihil breviores, articulo secundo parvo, subgloboso, tertio intus distincte angulato, quarto pro longitudine sequentibus latiore, haud tamen transverso, caeteris versus apices antennarum longitudine accrescentibus, cunctis (praesertim ♂) elongatis. Pronoti latera desuper visa quasi emarginata, pronoto a latere viso supra fere aequaliter convexo. Elytra leviter striata, stria secunda plerumque cum quinta confluenta, et tertiam quartamque includente, haudquaquam cum tertia sola apicaliter conjuncta. Long. 3 mm.

This species is easily recognized by its general appearance. The tomentum is usually more or less flavescent on the red markings of the elytra, and is pretty evenly distributed, so as to give the insect a generally smooth appearance. The five or six terminal joints of the antennae are very elongate, more strongly in the ♂ than in the ♀, and they become more slender towards the apex of the antennae.

HAB. Oahu, 2000 ft.

(22) *Xyletobius blackburni*, sp. nov.

Nigricans aut fusco-niger, capite pronotique lateribus pallide tomentosus, antennarum articulis 2 aut 3 basalibus rufis, tibiis laete testaceis aut rufescentibus, elytris trans basim nigricantibus aut nigro-fuscis, tum fascia transversa pallide tomentosa, post hanc nigricantibus aut nigro-fuscis, apicibus plus minusve pallido tomento ornatis. Caput obscurius granulatatum, oculis mediocribus, maris late distantibus, spatio, quod interest, una conjunctis latioribus, antennis sat elongatis, ♂-is elytris longitudine aequalibus, ♀-ae elytris paullo brevioribus, articulis 5 apicalibus sat fortiter elongatis. Pronotum, a latere visum, supra convexum, parum inaequale. Elytra subtiliter striata, stria secunda cum tertia sola apicaliter haud confluenta, sed saepe cum quinta conjuncta, et tertiam quartamque includente. Long. 3 mm.

*X. blackburni* var. *scutellaris* nov.

Elytrorum dimidium basale pallide pubescens, maculam magnam circa scutellum nigricantem includens, post hoc elytra fascia nigricante vel fuscescente irregulari signata, parte apicali pallide tomentosa, plus minus nigro-vel fusco-notata. Pronotum saepius rufescens vel ex parte rufescens.

*X. blackburni* var. *suturalis* nov.

Elytra, ut in praecedenti varietate, fascia nigricante irregulari postmediana ornata, sutura usque ad basim sat late nigricante, vittam longitudinalem cum fascia postmediali conjunctam formante.

*X. blackburni* var. *simplex* nov.

Elytra rufescentia, nonnunquam paullo plus minusve fusco-variegata.

HAB. Oahu, 1500—2000 ft.

(23) *Xyletobius beddardi*, sp. nov.

Nigricans, antennarum articulis 2 basalibus vel compluribus rufis, rarius obscurioribus, elytris basim versus rufo-bimaculatis, maculis rufis sub tomento aureo vel flavescenti abditis, tibiis nigricantibus aut obscuricoloribus. Caput subtiliter densius granulatum, oculis mediocribus, late distantibus. Antennae sat fortiter elongatae, maris, quam elytra, distincte longiores, sed elytris pronotoque una conjunctis haud aequales, feminae, quam elytra evidenter breviores, articulo maris sexto cum sequentibus fortiter elongato, feminae articulis eisdem sat elongatis, maris tamen brevioribus. Pronotum, a latere visum, supra convexum et parum inaequale, haud nitidum, pallide tomentosum. Elytra fortius elongata, subtiliter striata, stria secunda cum tertia sola apicaliter haud confluenta, sed saepe cum quinta vel cum alia exteriori conjuncta, et tertiam quartamque vel complures alias strias includente. Long. 3 mm.

This species is somewhat variable, and sometimes bears a strong superficial resemblance to *X. ashmeadi*. It is, however, a less smooth insect, with a much duller pronotum, unless this be very much rubbed. The red spots towards the base of the elytra are best seen when the elytra are viewed from the apex; in dorsal aspect the tomentum conceals the colour. They vary in size, and, as the yellow tomentum is developed on them, in some examples nearly the whole basal half of the elytra is covered with this tomentum. The latter fades to greyish, and is usually brighter and more extensive in the females. Towards the apex of the elytra a second pair of inconspicuous red spots is sometimes present, the tomentum behind the anterior spots being dark coloured, as also at the apex of the elytra, this dark tomentum being traversed usually by a more or less extensive arc of pallid tomentum, whether the posterior red

spots be present or not. The tibiae are usually all black or dark, the hind ones are always obscured, not clear red or yellow.

HAB. Oahu, widely distributed, found in the Waianae mountains, as well as in the Honolulu range.

(24) *Xyletobius forelii*, sp. nov.

Niger aut nigro-fuscus, pronoto saepius antice rufescente, rarius toto rufo, elytris plerumque ex magna parte rufescentibus, aut rufomaculatis, rarius totis nigris, antennarum articulis duobus basalibus aut pluribus rufis, pedibus omnibus flavescentibus. *X. beddardi* affinis, angustus, pallide tomentosus. Long. 2.5 mm.

I have only seen a small series of this species and the individuals exhibit a good deal of variety. The tomentum is golden or flavescens in fresh examples, fading to whitish. In the reddest specimens the elytra are black only narrowly along the lateral margins, the black colour becoming a little wider near, or a little behind, the middle. In others this dilatation of the lateral dark colour extends inwards to form a transverse band, and the suture becomes dark, dividing the red colour into four spots of variable size. In two examples the elytra are almost entirely dark. The antennae of the ♂ are very elongate, and formed much as in the allied species, being fully as long as, or a little longer than the elytra, the sixth and following joints strongly elongate, the sixth, as usual, being noticeably wider, in proportion to its length, than the ninth or tenth. The tomentum on each side of the suture before the middle of the elytra is very conspicuously disposed transversely to their length, so that the vestiture does not appear very smooth. The legs are always of a clear yellowish colour.

HAB. Oahu, Waianae mountains.

(25) *Xyletobius kirkaldyi*, sp. nov.

Rufescens, angustus, capite nigro vel infuscato, antennis, articulis duobus aut pluribus basalibus exceptis, nigris. Caput minus dense pallide pubescens, dense subtiliter granulatum, opacum. Oculi maris majores, una conjuncti spatio, quod interest, latitudine subaequales. Antennae maris fortiter elongatae, elytris longitudine aequales, aut his nonnihil breviores, articulis sex apicalibus fortiter elongatis, quarto triangulari, vix vel haud longiore quam latiore, quinto elongato; feminae articulo quinto parum elongato, sequentibus, quam maris, evidenter brevioribus. Elytra angusta, elongata, tomento pallido, lineas longitudinales formante, variegata, stria secunda tertiaque ad apices haud confluentibus. Pedibus flavis aut rufescentibus. Long. 3 mm.

Much like *X. carpenteri*, *X. forelii* etc. having the antennae very similarly formed. It does not appear to vary much in general appearance, though sometimes the disc of the pronotum is more or less infuscate and the elytra are, rarely, suffused with black. The female resembles the male in general appearance, but has the eyes much smaller, in

fact of the usual size, whereas the large eyes of the male form the chief distinguishing character of the species. There is evidently a slight variation in the length of the antennae and in some males the eyes are rather larger than in others.

OBS. I do not feel certain that I have correctly determined the sexes of this species. Of supposed females there appear to be only two examples, and one of these is doubtful. It is possible that these really belong to some other species and that some of the specimens that I have considered males are really of the female sex. It is certainly unusual to find only one or two females in a series of about two dozen of a *Xyletobius*. Some examples from Kilauea are very small and ill-developed, others are not different from Maui specimens.

HAB. Maui, Hawaii.—Maui, Haleakala ; Hawaii, Kilauea.

(26) *Xyletobius megalops*, sp. nov.

Rufescens, capite nigro, elytris et pronoto nonnunquam plus minusve partim infuscatus, antennis nigricantibus, articulis 3 aut 4 basalibus rufis aut flavidis, haud robustus, sat fortiter elongatus, pallide tomentosus. Antennae fortiter elongatae, maris articulo quinto sat fortiter elongato, sexto fere bis longiore quam latiore, septimo quam praecedente longiore, caeteris gracilibus, fortiter elongatis. Oculi maris permagni, capite a fronte viso singuli spatio, quod interest, haud minus lati. Oculi feminae late separati, una conjuncti spatio, quod interest, vix latitudine aequales. Pronotum latum, lateribus densius pallide tomentosus. Elytra fortiter elongata, lineis tomenti pallidi variegata, striis minus conspicue sinuatis. Long. 3.5 mm.

Allied to *X. kirkaldyi*, but readily distinguished by the still much larger eyes of the male. Whether Blackburn's *X. insignis* is allied more closely to this species or the one just mentioned I do not know. Its antennae are different in colour from those of any specimen I have seen of either, and the eyes I should judge from the description to be very likely intermediate in size, perhaps more like the following (*X. euops*). The female of *X. megalops* is very like the male in the antennal structure, but its eyes are much more widely separated and smaller, though a good deal larger than is usual in the genus.

HAB. Lanai, 2000 ft., near Koele.

(27) *Xyletobius euops*, sp. nov.

*X. megalopi* affinis, sed minor et oculis minoribus distinguendus. Long. 2.5 mm.

I have seen only two examples of this species and cannot decide whether they represent the sexes or not. They are alike in all respects except that the eyes of the one are decidedly larger than those of the other. In the type the eyes (in a front view of the face) are together wider than the space (where narrowest) between them,

in the other example they are slightly smaller. They are clearly closer together than in *X. kirkaldyi*, just as they are clearly wider apart than those of *X. megalops*. I should think they represent a distinct species.

HAB. Oahu.—The type specimen was taken in the Honolulu range at an elevation of somewhat less than 2000 ft. I have since procured the second (mentioned above) some fifteen miles from the original locality.

(28) *Xyletobius insignis* Blackburn.

*Xyletobius insignis* Blackburn, Tr. Dublin Soc. 1885, p. 158.

Blackburn's diagnosis is as follows: "Angustus; dense subtilissime tomentosus; capite nigro, ore prothoraceque rufis; elytris piceis testaceo-variegatis subtiliter striatis, striis plus minusve sinuatis; antennis (toto corpore vix brevioribus), palpis, pedibusque rufis; oculis permagnis. Long. 5 mm."

Blackburn, in his further remarks, adds that "the antennae are entirely of a pale red colour." Though this latter character of itself would not be sufficient to define a species, since several *Xyletobius* present this colour of the antennae as a variation, still I do not feel justified in considering *X. insignis* as identical with either my *X. euops* or *X. megalops* without actual comparison of the types.

HAB. Hawaii, Kilauea (Blackburn) unique.

(29) *Xyletobius euphorbiae*, sp. nov.

Oblongus, sat robustus, fusco-niger aut fuscus, partibus nonnunquam rufescentibus, pedibus antennarumque 2 aut 3 articulis basalibus flavidis aut rubris, dense tomentosus. Caput dense pallide tomentosum, oculis latissime separatis, antennis brevibus, articulo sexto et sequentibus haud aut parum elongatis. Pronotum, desuper visum, haud quasi fortiter utrinque excisum, disco brunneo- aut fusco-tomentoso, lateribus dense pallide tomentosus. Elytra latiora, breviuscula, tomento nigro, fuscoque vestita, fascia tomenti cinerei valde curvata aut angulata juxta media elytra suturam attingente, post media fascia secunda transversa cinerea, et post hanc saepius fascia, plus minus distincta, flavescens, interstitiis apices versus convexiusculis. Long. 3.5 mm.

This species is very distinct in appearance from any excepting *X. cyphus*, and does not vary sufficiently to present any difficulty in determination. Its transversely banded elytra, the tomentum forming three or four dark and two or three pale bands, are characteristic. Probably the pale tomentum should be considered the ground colour, and the bands are due to longitudinal apposed markings of dark tomentum on the interstices. The latter are a little raised or convex towards their apices. The granulation of the pronotum is very noticeable along the hind margin.

I have examined a good series of this species, but nearly all of these were bred

from a small piece of dead *Euphorbia*, brought down from Mauna Loa on Hawaii. Single examples only were collected on Oahu and Lanai. No doubt it is on all the islands, excepting possibly Kauai.

HAB. Oahu, Lanai, Hawaii.—Hawaii, Mauna Loa.

(30) *Xyletobius cyphus*, sp. nov.

*X. euphorbiae* cognatus, forma, colore et vestitu simillimus, pronoti structura distinctissimus. Pronotum medium nigro-bimaculatum, subbituberculatum, a latere visum haud supra simpliciter convexum sed juxta medium evidenter angulatum. Long. 3.5 mm.

I have seen but one example of this species, which superficially is identical with *X. euphorbiae*. The pronotum, however, is quite differently formed, being strongly raised about the middle, so as even to have a bituberculate appearance; in profile the outline is not an almost simple curve as in *euphorbiae* but the front and posterior half meet at a very distinct angle. The unique specimen had been badly handled in mounting, and its antennae were broken off, but portions of these were found stuck on the ventral surface and, when removed, were found to be similar to those of *X. euphorbiae*.

HAB. Oahu, above 2000 ft., 1892.

(31) *Xyletobius monas*, sp. nov.

Nigricans, plus minus rufo-tinctus, antennarum articulo secundo, tarsisque pallidis, tomento nigricante, aureo-micante vestitus, apices versus elytrorum fascia tomenti pallidi transversa ornatus. Antennae sat breves. Long. 4 mm.

Allied to *X. euphorbiae*, which it resembles in shape and in the subconvex termination of the inner interstices of the elytra. Tenth and ninth antennal joints longer than broad, but not at all strongly elongate in the unique specimen, which is probably a male. Owing to the arrangement of the dark tomentum and irregularities of the surface a number of deep black spots are seen in dorsal aspect of the thorax and elytra. The tomentum has a dark golden or coppery sheen in certain lights. The subapical fascia on the elytra is interrupted by the suture and is very conspicuous, being formed of yellowish tomentum, the surface itself beneath the fascia being pale.

HAB. Maui; one example in the West Maui mountains above 2000 ft.

(32) *Xyletobius nigrinus* Sharp.

*Xyletobius nigrinus* Sharp, Tr. Ent. Soc. London, 1881, p. 518.

I have not met with this species, which appears to be very distinct.

HAB. Maui, Haleakala, 5000 ft. (Blackburn).

(33) *Xyletobius nudus*, sp. nov.

Niger, haud robustus, antennis pedibusque nigris, subtilissime, parum conspicue, cinereo-tomentosus. Caput parum pubescens, dense subtilissime sculpturatum, antennis longitudine mediocribus, fortiter intus serratis, articulis 3, 4, 5 et 6 transversis, aut saltem haud longioribus quam latioribus, 7 et 8 fere aequae latis ac longis aut paullulo elongatis, 9 et 10 sat conspicue longioribus quam latioribus. Pronotum subnitidum, laeve, subtilissime punctulatum, subtilissime nec dense tomentosum, fortiter transversum, antice distincte marginatum. Elytra subtiliter striata, striis fere impunctatis, distincte sinuatis, interstitiis crebre rugulosis, stria secunda cum tertia ad apices confluenta, tomento albido minus conspicuo, sculpturam elytrorum haud celante. Long. 4 mm.

I think this species must be closely allied to *X. nigrinus* Sharp, which I have not examined, but it does not agree in detail with Dr Sharp's full description of that species, and is, I should think, clearly distinct. It is not closely allied to any other known to me. I have seen only the type (which I believe to be a male) and one other example. The latter has the pronotum less strongly transverse and more produced in the middle in front, but is clearly the same species, agreeing in other respects with the type.

HAB. Kauai; 3000 and 4000 ft.

(34) *Xyletobius speiseri*, sp. nov.

Fuscus, antennis fusco-testaceis sive brunneis, pedibus brunneo-testaceis, ubique aequaliter tomentosus. Caput dense tomentosum, antennis brevibus, articulis 3 antepicalibus minus fortiter elongatis, haud bis longioribus quam latioribus. Oculi majores, sed late distantes. Pronotum latum, plaga dorsali dense aequaliter brunneo-tomentosa, hac plaga utrinque albido-marginata, latera versus cinereo-tomentosum. Elytra utrinque sat evidenter compressa, plagâ brunneâ dorsali magnâ subtriangulari (sive postice attenuatâ) post mediam suturam extensâ, utrinque albomarginatâ, ornata, apicibus latius aureo-brunneis, partibus caeteris cinereo-tomentosis, stria secunda cum tertia sola haud confluenta. Long. vix 5 mm.

I have seen only one example of this species, probably a male. It was taken at light. It is allied only to *X. collingei*, but is very distinct.

HAB. Kauai, 4000 ft.

(35) *Xyletobius collingei*, sp. nov.

Fusco-niger aut fusco-rufus, antennis nigricantibus, articulis basalibus haud, aut parum distincte, rufescentibus. Antennae conspicue breves, articulis intermediis haud, apicalibus minus fortiter, elongatis. Pronotum dense granulatim sculpturatum, peropacum, tomento fusco-pallido aut pallido vestitum, maculis compluribus, plus minus distinctis, quasi nudioribus signatum. Elytra albido-tomentosa, plagâ dorsali permagnâ,



postice attenuatâ (sive forma subtriangulari), a basi post media elytra extensâ, colore variabili, sive atro-brunneo sive brunneo-aureo, ornata. Long. 4.5 mm.

This pretty species is closely allied to *X. speiseri*, from which it can be distinguished at a glance by the fact that the remarkable pattern on the elytra is not continued on to the pronotum. In addition to the great brown or golden area, which extends from the base of the elytra, there is generally more or less trace of a subapical band or spot and sometimes the surface is noticeably red in that position. In one specimen the whole elytra appear clothed with uniform whitish tomentum, the pattern having entirely disappeared. This is no doubt due to long exposure, and such specimens would be entirely robbed of their most characteristic appearance.

HAB. Hawaii, Kilauea. I took several examples in 1906, but had never met with it previously. It occurs close to the Volcano house hotel and is attached to *Cheirodendron*, in the bark of which I found it ovipositing. The type is with those of the other species collected by me.

(36) *Xyletobius sharpi*, sp. nov.

Niger, antennarum nonnullis subbasalibus articulis saepius flavescens aut rufus, rare omnibus nigris. Corpus minus dense subtilissime albido-tomentosum, pronoto postice macula utrinque rotundata tomenti conspicue flavescens ornato, elytris ante media fasciâ ejusdem coloris tomentosâ conspicue signatis. Antennae ♀ breves, maris minus fortiter elongatae, articulo 6 et 7 hujus haud fortiter, illius haudquaquam elongatis. Elytra hinc illic leviter sed distincte impressa, distincte striata, stria secunda cum tertia sola ad apices confluenta (rare ambarum apicibus liberis). Long. 4 mm.

It is impossible to confuse this remarkable species with any other described form. It belongs to the group of *X. fraternus* and *simoni*. The type specimen alone of the four or five examined appears to be a male and it differs a good deal in the pronotum from the others, this part in dorsal aspect having an appearance of strong lateral emargination. In the females this false emargination is slight or appears only as a light inward sinuation of the lateral outline. I suspect the ♂ is abnormal in this respect. It was taken in company with one of the females.

HAB. Oahu, about 1500 ft. in the Koolau range, and also in the Waianae mountains.

(37) *Xyletobius simoni*, sp. nov.

Niger, antennis colore variabilibus, nigris, fuscis, flavescens, aut articulis nonnullis basalibus rufescens, caeteris nigris. Elytra fere aequaliter cinereo- aut flavido-tomentosa, plaga circum scutellum magna picea aut nigra, post hanc fascia flavescens, lateribus dilatatis et ad humeros extensis, ornata, post fasciam nigra aut nigrescens, maculis duabus flavescens plerumque magnis signata. Caput parum

dense vestitum, antennis brevibus, articulis 7, 8 et 9 vel in mare minus elongatis. Pronotum minus transversum, medium subtilissime punctatum, haudquaquam granulatum, circa marginem posteriorem etiam densissime punctulatum. Striae elytrorum parum sinuatae, apicibus indistinctis plerumque aut obsoletis. Long. 3.5 mm.

A black species with conspicuously yellow-marked elytra, resembling *X. ashmeadi* in appearance. The smooth and uniform covering of tomentum, together with the colour, the very short antennae, and smooth, finely punctate pronotum readily distinguish it from any others. A short series examined.

HAB. Oahu, in both ranges, but chiefly from the Koolau or Honolulu range.

(38) *Xyletobius fraternus*, sp. nov.

Niger, antennis flavescens, articulis primo et ultimo fuscis aut nigris, nonnunquam compluribus aliis etiam infuscatis, pedibus plerumque ex magna parte nigricantibus aut piceis, elytris plaga vel macula magna basali utrinque flavida aut rufa ornatis. Corpus totum tomento pallido quasi lanoso vestitum, haudquaquam laevigatum disposito. Antennae breves, articulis 7, 8 et 9 haud fortiter elongatis. Pronotum supra laeve, subtilissime punctulatum, haud granulatum, minus transversum. Long. 3.75 mm.

Very similar to *X. simoni*, but with the minute hairs, forming the tomentum, very irregular in disposition, giving the clothing a woolly appearance. The tomentum is white, but on the basal red or yellow marks of the elytra it becomes yellowish and again tends to form two yellowish spots near the apex. The yellow subapical spots or markings so conspicuous in *X. simoni* are altogether absent or very indistinct.

*Xyletobius fraternus* var. *laetior* nov.

A single example in my collection from the Honolulu range of mountains is clearly a local race of the above and may conveniently be given a name. It combines with the woolly vestiture of *X. fraternus* the more extensive yellow markings of *X. simoni*, the flavescens tomentum of the anterior pale markings being connected along the suture with the large posterior yellow patches, so that only a small area remains which is covered with white tomentum. Antennae clear yellow, the basal and apical joints dark and the subapical ones subinfuscate. Tibiae yellow or red, much lighter than in the type.

HAB. Oahu, Waianae mountains (typical); the variety, Honolulu range.

(39) *Xyletobius roridus*, sp. nov.

Niger, elytris post basim transverse rufofasciatis, fascia ad latera dilatata, apices versus rufo-bimaculatis, his maculis, fasciaque et pronoto tomento haud laevi, cinereo conspicue vestitis, caeteris partibus elytrorum parum evidenter tomentosis. Antennae

breves, articulis 2 aut compluribus basalibus rufis. *X. fraterno* persimilis et affinis, pronoto haud simpliciter punctulato sed subtiliter sat distincte granulatim sculpturato bene distinctus. Long. 3.5 mm.

The coarser tomentum is confined to the pale elytral markings and covers the pronotum except apparently for a nearly bare median longitudinal line (whereon the fine granular sculpture is evident). It is of a somewhat woolly appearance as in *X. fraternus*. Though so like the allied forms I have little doubt *X. roridus* is a distinct species. I have seen only two examples.

HAB. Oahu, Waianae mountains.

(40) *Xyletobius sykesii*, sp. nov.

Statura minore, angustus, elongatus, elytris subfortiter inaequalibus, tomento quasi irregulariter vestitis, nigricans, thorace et nonnunquam aliis partibus piceis aut rufotinctis, antennarum articulis nonnullis basalibus rufescentibus, pedibus pallidis, rufis aut flavis. Oculi minores. Antennae sat breves, articulo sexto et sequentibus parum fortiter (♂) aut haud elongatis. Pronotum quasi irregulariter aureo- aut argenteo-tomentosum desuper inspecto, margine antico juxta angulos laterales nonnihil utrinque prominulo. Elytra angusta, conspicue quasi irregulariter tomento saepius fusco, aureo-nitente, vestita, post apicem striae primae suturam juxta plerumque subfoveata. Long. 2.75—3.25 mm.

In its typical condition this species is very characteristic, by its narrow form, golden clad thorax, and dark tomentum of the elytra, which shines in certain lights with golden or other bright reflections. This tomentum, owing to the irregularities of the surface of the elytra, appears to leave bare spots, the shape and appearance of which change in different aspects of the insect. In some examples the elytra have golden tomentum, that on the thorax being then still paler or silvery.

*Xyletobius sykesii* var. *molokaiensis* nov.

Formae typicae persimilis, sed plerumque brevior, pronoto compluribus impressionibus fortioribus signato, distinguendus.

This should perhaps be considered as a distinct race or subspecies rather than a mere variety. The tomentum though variable in depth of colour is for the most part similar on the pronotum and elytra, being golden or silvery or golden-fuscous.

HAB. Oahu, Molokai, Lanai, Maui, Hawaii.—The type form is from Hawaii. Usually not common. I have seen 40 or more specimens mostly from Hawaii.

(41) *Xyletobius praeceps*, sp. nov.

Niger aut fusco-niger, pedibus antennarumque articulis 3 basalibus aut compluribus rufescentibus aut flavescentibus. Caput albido-tomentosum, antennis brevibus, articulis 4—9 latis. Pronotum, desuper visum, medium nigro-fusco-tomentosum, lateribus dense albido-tomentosis, margine antico versus angulos laterales sat fortiter (nonnunquam angulariter) explanato sive prominente. Elytra nigro-fusco-tomentosa, hinc illic plus minus ferrugineo- aut aureo-nitentia, lateribus tomento argenteo (plus minus aureo commixto) vestitis. Long. 3.5 mm.

Evidently allied to *X. sykesii* and its allies, the elytra shorter than in most of these and less uneven. Tomentum for the most part dark fuscous with golden or ferruginous reflections, but silver or mixed silvery and golden on the sides of the pronotum and of the elytra. Pronotum angulate at the sides or almost so, in dorsal aspect, owing to the anterior margin being explanate before attaining the lateral angles.

I have seen but two examples taken together in June 1896, one of which is more slender and only half the bulk of the other, though probably both are females. They are obviously of the same species and otherwise differ very little except in minute details of vestiture. The pronotum is much smoother and the colour of the clothing utterly unlike that of *X. sykesii molokaiensis*, which is found in the same locality, while the elytra also are not conspicuously impressed.

HAB. Molokai, about 3000 ft.

(42) *Xyletobius mundus*, sp. nov.

Brunneo- sive fusco-niger, capite cinereo-tomentoso, pronoto elytrisque tomento simili fusco, aureo-micante, vestitis, horum lateribus dense argenteo-tomentosis, pedibus flavis, antennis articulis nonnullis basalibus rufescentibus. Long. 3 mm.

Evidently closely allied to *X. sykesii*, but very different in superficial appearance from the dark fuscous tomentum on the pronotum, resembling that on the elytra and the other differences in the latter, as noted in the diagnosis. The anterior margin of the pronotum near the lateral angles is strongly prominently rounded or explanate, of the same general form as that of *X. sykesii*. The three or four joints preceding the terminal one of the antennae are more elongate than in any examples of that species. It is however possible that it may prove a local form of *X. sykesii*, although that insect in its typical condition or in one rather approaching the var. *molokaiensis* is found on Oahu.

HAB. Oahu, about 2000 ft. One example only taken.

(43) *Xyletobius aurifer*, sp. nov.

Piceus aut fusco-niger, antennarum articulis basalibus pedibusque flavis aut rufescentibus. *X. sykesii* affinis, sed minus angustus, elytris pronotoque tomento aureo concolori vestitis, illis minus fortiter impressis distinguendus. Long. 3 mm.

Shorter and wider than *X. sykesii* (typical), the pronotum much less uneven than in the var. *molokaiensis*, the clothing of tomentum more uniform in colour, this form is at present to be regarded as a distinct species. Nevertheless future observations may prove it to be no more than a constantly occurring variation of *X. sykesii*, some examples of which evidently approach it more closely than others.

HAB. Hawaii, Kilauea.

(44) *Xyletobius chryseis*, sp. nov.

Parvus, elongatus, angustus, dense aureo et fusco-aureo tomento vestitus, pedibus antennarumque articulis basalibus flavis aut rufis, antennis brevibus. Margo pronoti, desuper visi, anticus juxta angulos laterales fortius prominulus sive explanatus. Elytris minus fortiter inaequalibus. Long. 2.5 mm.

Closely allied to *X. sykesii* but smaller, the surface less uneven and consequently appearing more regularly clothed. Pronotum in dorsal aspect with the front margin rather strongly prominent or explanate at the sides. The tomentose covering is more like *X. aurifer* than that of *sykesii*, but the former is at once separated by its much wider form.

HAB. Oahu, Waianae mountains, about 2000 ft. I have only seen half a dozen examples, obtained together and showing no variation.

(45) *Xyletobius scotti*, sp. nov.

*X. sikesii* subsimilis, angustus, parvus, tomento argenteo aut pallide aureo vestitus, nigricans aut fusco-niger, pedibus pallidis, flavescentibus, antennarum 2 aut 3 articulis basalibus flavis aut rufis, pronoto antice, nonnunquam etiam postice, rufescente, elytris juxta humeros supra rufomaculatis. Antennae sat breves, articulo sexto et sequentibus aut transversis aut parum elongatis (maris quam feminae paullo longioribus). Pronotum, desuper adspectum, fere simplex, lateribus levissime concavis, haud subfortiter quasi excisis, margine antico versus angulos laterales haud evidenter prominulo sive explanato. Elytra et pronotum tomento fere simili colore vestita. Long. 3 mm.

The tomentum on the elytra, as in *X. sikesii* and its allies, is conspicuously irregular, some of the short hairs of which it is composed being directed transversely inwards, some outwards, while some are longitudinal in direction, some of the striae a good deal sinuate at the elytral impressions. The species is quite distinct from any of

these by the more regular pronotal outline laterally, as described above. The single example from Molokai has the tomentum pale golden, rather than silvery, but otherwise seems identical with three examples from Hawaii, which show no noticeable variation. With these, however, was taken an example of a uniformly brown colour, which may be known as var. *castaneus*.

HAB. Molokai, Hawaii.—Hawaii, Kilauea, Molokai, 3000 ft.

(46) *Xyletobius flosculus*, sp. nov.

Parvulus, angustus, rufescens, capite nigricante, pedibus antennarumque articulis 2 basalibus aut compluribus pallidis, totus aureo tomento aequaliter et laeve vestitus, antennis brevibus. *X. chryseidi* cognatissimus. Long. 2.5 mm.

Allied to *X. chryseis*, but readily distinguished by the very uniformly distributed pale golden pubescence, the surface of the elytra being smooth, the tomentum not at all rough or shaggy. Elytral striae invisible in perfectly fresh examples, the tomentum concealing them. Pronotum formed as in *X. chryseis* and allies, the front margin towards the sides a little produced or with a rounded explanation in dorsal aspect.

HAB. Hawaii, Kilauea; a single example taken on each of three occasions.

(47) *Xyletobius stebbingi*, sp. nov.

Minus fortiter angustus, parvulus, niger, dense tomento argenteo aut pallide aureo ubique vestitus, antennis sat brevibus, articulis basalibus pedibusque rubris. Pronotum dense tomentosum, medium postice plaga quasi nuda magna nigricante signatum, margine antico versus angulos laterales haudquaquam explanatim prominulo. Elytra paequaliter tomentosa, haudquaquam variegata, leviter striata, striis parum fortiter sinuatis. Long. 3 mm.

Remarkable amongst the species with short antennae for the very uniform and regular clothing of the elytra, on which the tomentum lies in a very even manner, and is neither variegated from differences in colour of the clothing, nor from inequalities of the surface. The pronotum is of a simple form, not appearing excised laterally as in the *X. sykesii* group, nor with the front margin laterally prominent in dorsal aspect. Three examples taken.

*Xyletobius stebbingi* var. *notatus* nov.

Paullo major, elytris circa aut post media plus minusve fusciscentibus.

I have seen four examples taken on Molokai, which I refer to this species as a local race or variety. They are not in very good condition, but the tomentum of the elytra is generally slightly darker in tint than in the type form and near or behind the middle

there is a more or less distinct fuscous band or marking, caused by a change of colour in the tomentum. A specimen with rufescent elytra taken with the others is also clearly the same species.

HAB. Molokai, Hawaii.—Hawaii, Kilauea; Molokai, 3000 ft., the variety.

(48) *Xyletobius lineatus* Sharp.

*Xyletobius lineatus* Sharp, Tr. Dublin Soc. 1885, p. 159.

This species, if I am correct in my identification, is one of the most abundant of all *Xyletobius* and very variable in colour. It is particularly abundant on the uplands of Hawaii, but occurs on all the islands. On Maui only a few examples were collected and hardly any I think on Lanai or Molokai, but the specimens from these three islands were so roughly handled in mounting by not very skilled workers, as to be spoiled for practical purposes. From Oahu and Kauai good specimens were available.

Specimens from the West side of Hawaii at elevations of 3000—5000 ft. or more are generally darker than those from 4000 ft. on the other side. Four individuals in 120 examined from the former locality are entirely black, while from the other side only one in over 1500 is of this variety. It is convenient to name this melanochroic form:

*X. lineatus* var. *holomelas* nov.

Niger, antennis pedibusque nigris.

Another very distinct form has the elytra black and is broadly red on the apical portion and may be called var. *apicalis*.

*X. lineatus* var. *apicalis* nov.

Elytris nigris aut nigricantibus, apicibus late longeque rufis, ibique pallide tomentosis.

This variety was rarer on the West side, only two examples in 120 examined were discovered. From the other side 1100 were counted, one in twenty being var. *apicalis*.

On Oahu most of the examples were very small and narrow, but some occurred with these that were inseparable from some individuals taken on Hawaii and others on Kauai. No var. *apicalis* was found.

Some of the Kauai specimens were large and with a tendency to greater elongation of the antennae, some identical with those from Maui and Oahu.

The species as a whole is excessively close to *X. lasiodes* and the latter may be only a race or variety, yet the different character of the pubescence or tomentum on the elytra readily separates the two, unless it be in very exceptional cases. The variation of the two forms is very different.

One other very remarkable variety I was for some time inclined to consider of specific rank, but I have since found it to be connected with the typical form. I here-with diagnose it as follows :

*X. lineatus* var. *humeralis* nov.

Niger, elytris nigris, nigro aut fusco-nigro tomento vestitis, utrinque macula magna rufa humerali fere ad suturam extensa et plagam circumscutellarem nigram includente, conspicue ornatis, his maculis rufis pulchre aureo-tomentosis, parte apicali elytrorum nigra saepe paullo tomento pallido variegata.

HAB. Kauai, Oahu, Maui, Molokai, Lanai, Hawaii.—From 1500 ft. to 6000 ft. above sea-level.

(49) *Xyletobius serricornis* Blackburn.

*Xyletobius serricornis* Blackb., Tr. Dublin Soc. 1885, p. 159.

This will probably prove to have been described by me under another name, unless, as is quite likely, it is a variety of *X. lineatus*, perhaps the other sex. *X. lasiodes* is, doubtless, common on Lanai, and it may be one of the forms of that very variable species. Except that *X. serricornis* is said to have the antennal joints more serrate, I see nothing in Blackburn's description to separate this from *X. lineatus*, as described by Sharp.

HAB. Lanai (Blackburn).

(50) *Xyletobius lasiodes*, sp. nov.

Niger, aut rufescens, aut particolor, pedibus flavis aut rufis, antennarum articulis basalibus 2 aut compluribus basalibus rufis aut flavis, caeteris nigris aut nigrofusis. Antennae breves, ut in *X. lineato* formatae. Pronotum dense aureo aut argenteo tomento vestitum, margine antico, desuper viso, simpliciter rotundato, haud angulos versus laterales prominulo, a latere visum supra simpliciter sat distincte curvatum sive convexum. Elytra dense conspicue aureo aut pallido tomento vestita, hoc parum evidenter lineas pallidas formante, nec levissimo. Long. 2.75 mm.

Differs from *X. lineatus* Sh. in the conspicuously rougher tomentum, showing little tendency to form distinct pale lines on the elytra. Specimens from Lanai are sometimes very large and with rather more developed antennae. There is a var. *apicalis* corresponding not to the var. *apicalis* of *X. lineatus*, but to that of *X. sulcatus*, the apical red colour being deeply excised in front. When the elytra are entirely red this *apicalis* variety may still occur, the apical red colour being paler than the other.

HAB. Oahu, Lanai and no doubt also on the other intermediate islands.—Common and widely distributed, occurring close to Honolulu and in all other localities on Oahu.



(51) *Xyletobius sulcatus*, sp. nov.

Rufescens, plerumque plus minus nigro- aut fusco-variegatus, aut niger plerumque plus minus rufo-variegatus, antennis nigris aut nigrofuscis articulis 2 aut pluribus basalibus rufis, pedibus rufis aut flavis, conspicue pallide tomentosus. Antennae ♂ breviores, articulis subapicalibus elongatis, sed latioribus, haud gracillimis. Pronotum latum, antice transversim conspicue impressum, a latere visum supra sinuatum, haud simpliciter convexum, pallide tomentosum. Elytra plerumque tomento albido aut aureo variegata, saepe rufescentia et circum suturam plus minus nigricantia aut infuscata, rare nigra aut fere nigra, saepe fere tota rufescentia aut rufa, lineatim plus minus infuscata. Long. 3 mm.

*X. sulcatus* var. *apicalis* nov.

Elytris nigris, supra tomento nigro aut nigro-fusco vestitis, apicibus rufis.

This very variable species is allied to *X. lasiodes*, but is easily distinguished by the transversely impressed front portion of the pronotum. This impression itself varies in strength and distinctness, but is always apparent. Otherwise, apart from colour, there is some variation in the development of the antennae, which are rather longer in some examples than in others, especially in the males.

HAB. Kauai, 2000—4000 ft.; common and probably ubiquitous in suitable parts of this island.

(52) *Xyletobius hawaiiensis*, sp. nov.

Sordide rufo-fuscus, antennis pedibusque nigricantibus, sat dense pallide tomentosus, *X. walsinghamii* v. *minor* affinis. Pronotum perinaequale, medium fortiter elevatum, marginibus ante angulos posteriores levissime concavis. Elytrorum interstitia convexiuscula, stria 2 et 3 ad apices confluentibus. Long. 4 mm.

This species is described from a single specimen, which having been smeared all over with gum was not recognized as distinct, till after I had completed my manuscript of the genus. It is nearest to *X. walsinghamii* var. *minor*, next to which it should be placed, and from which it is readily distinguished by its much smaller size and black legs and antennae.

HAB. Hawaii, Kona, 2000 ft.

## ANOBIUM.

*Anobium paniceum* L.

HAB. Oahu and probably the other islands.

## LASIODERMA.

*Lasioderma serricorne* F.

HAB. Hawaiian islands, generally distributed and injurious.

## CATORAMA.

(1) *Catorama mexicana* Chev.

HAB. Oahu, Maui, Hawaii and no doubt the other islands.

(2) *Catorama pusilla* Sharp.

*Catorama pusilla* Sharp, Tr. Dublin Soc. 1885, p. 160.

HAB. Maui (Blackburn). I do not remember having noticed this species, but I paid very little attention to the introduced Anobiids of which there are other species now present in Honolulu.

## MIROSTERNUS Sharp.

*Mirosternus* Sharp, Tr. Ent. Soc. London, 1881, p. 526.

The species of this genus, which, though described originally from Hawaiian specimens, is also found in the central parts of America, are numerous in the islands and extremely difficult to distinguish from one another. They are also very difficult to expand for purposes of examination, and are, unless the greatest care is taken, very easily damaged in the process. No doubt, with specimens recently captured this difficulty would be comparatively slight, but in the case of those kept in carbolyzed boxes for years before manipulation it is extreme.

The four most important characters are (1) the size of the eyes, (2) the form of the antennae, (3) the structure of the metasternum, (4) the general sculpture and clothing. Each of these characters is unfortunately subject to vary both individually and according to sex. Thus the eyes may be nearly the same size in both male and female of a species or entirely different; a carina may be well-developed on the metasternum of the ♂, and feeble or absent in the ♀, and the antennae may be nearly alike in both sexes or very different, according to the species; so too, the puncturation varies sexually and individually.

I herewith have made some attempt to group the species on the first and last of the above mentioned characters, but such grouping is not altogether natural. It is so to a considerable extent, in that many evidently allied species fall naturally together and it may serve, though very imperfectly, for the more ready discrimination of the species. It is based essentially on male characters and often will not be correct for examples of the female sex.

I. Eyes always of enormous size at least in the ♂, the width of one of these never less than the space, where least, between them, and often very much wider than this space

- (a) Species chiefly testaceous or ferruginous in colour.....*M. oculatus, testaceus, punctatissimus, excelsior, pyrophilus, basalis.*
- (b) Species black, dark brown, or piceous.....*M. sordidus, hawaiiensis, frigidus, epichrysus, duplex* (♀ with small eyes), *lanaiensis.*

II. Eyes rarely so large that the width of one in the ♂ is subequal to the space, where least, between them, usually widely separated and often of comparatively small or moderate size (*M. muticus* ♂, *discolor* ♂ and a few others approach *M. lanaiensis* in the size of the eyes, so that there is no abrupt division between these sections and *M. nigrocastaneus* should perhaps be placed in the first, though I have included it in Div. II.).

(1) Elytra above (i.e. not considering the deflexed lateral parts) always with an extremely sparsely punctured, glabrous, or almost bare area on the more basal part at least, sometimes with the whole or almost the whole surface glabrous or nearly and extremely few punctures, or in a condition intermediate between these extremes; surface of the glabrous or subglabrous part usually polished, rarely dull and with fine rugulosity, the very remote punctures of the glabrous portion often of rather large size (compared with parts densely punctured) and feebly impressed.

(a) Elytra either with no dense puncturation or only so punctured more or less narrowly along the suture or on the basal margin or on both basal and sutural margins.

(a') Basal joint of the antennal club, at least in the ♂, of unusual form, elongate and very narrow.....*M. kauaiensis, molokaiensis, and ignotus.*

(b') Insects brightly marked black and yellow.....*M. xanthostictus* and *bicolor.*

(c') Species not as in (a') and (b').....*M. affinis, montanus, rugipennis, simplex, denudatus, latifrons, irregularis, maurus, laevis, fractus, parvulus, eutheorus, nigrocastaneus, angulatus, pallidicornis, glabripennis, peles.*

(b) Elytra with an extremely dense puncturation on the apical portion, extending far outwards from the suture, sometimes to the lateral margins.

(a') Elytra with excessively minute whitish tomentum on the apical portion, in front of this with a patch or band of coarser yellow or golden pubescence.....*M. blackburni, blackburnioides.*

(b') Elytra not so clothed.....*M. sculptus, varicolor, lugubris, pusillus, parvus, subparvus, amatus, cognatus, konanus, hypocoelus.*

(2) Elytra above without a glabrous and extremely sparsely punctured area near the base, sometimes densely punctured all over, or all but a space along the lateral margins, and often nearly evenly pubescent all over. In some species the punctures are noticeably less dense on the part between the densely punctured apical part and the extreme base, but the punctures are never extremely sparse and remote. Sometimes the puncturation, though sufficiently dense, is shallow and indefinite.

(a) Antennal club large in the ♂ or with the first or first and second joints in some aspects subquadrangular.....*M. eximius, solitarius, punctatus* (?), *amaurodes, elongatulus, discolor, muticus, carinatus, acutus* (?), *lugubris* var., *plebeius, dubiosus, tetragonus, rufescens, marginatus.*

(b) Antennal club moderate or small, or with the basal joint unusually elongate for its width.....*M. tristis, vestitus, varius, debilis, hirsutulus, stenarthrus, dimidiatus, obscurus, solidus.*

In this table the species likely to cause most difficulty are (*a*) those in which the eyes are unusually large, but not so greatly developed as those in section I; species most likely to cause difficulty are *M. nigrocastaneus* and *M. discolor*, which might almost be placed in the first division: (*b*) species in which the puncturation is of a feeble and indefinite character or variable, e.g. *M. maurus*, *lugubris*, *varius*, *discolor* and a few others, which, either from individual variation, or from ill-definition of the sculpture, it is hard to tell whether to refer to (1) I or to I (2). Fortunately these difficult forms are, when all told, comparatively few. The pubescence is of great value in deciding the position of a species, for when it is markedly distinct immediately along the suture behind the base of the elytra and very scanty external to this, such a form will be placed under I (1); when fairly regular in distribution, even though not at all dense, the species so clothed will fall under I (2). Unfortunately the clothing is subject to abrasion, when the antennae are being extracted, and this abrasion usually occurs a little behind the base, in fact on the most critical part of the insect. In these cases most careful examination of the puncturation is necessary. If the punctures are very few and of unusually large size and very shallow, the species should be placed in I (1). Species like *M. debilis* (or at least examples that I refer to *debilis*) clearly belong to I (2); so too does *M. lugubris* ♂, though I have placed it under both sections, since it varies in sculpture.

Although I have obtained a good many *Mirosternus* in various localities since I ceased to collect for the Sandwich Islands Committee, I have (with one exception) not considered these specimens in the present paper. I have been much struck with the entire absence of distinct new forms in those recently collected, and, I may say, that so far from throwing light on the species here described, these later specimens will greatly increase the difficulty of distinguishing the species, there being either a number of new species excessively closely allied to those here described, or forming variations of a most perplexing nature.

(1) *Mirosternus oculatus*, sp. nov.

Ferrugineus aut testaceus, oblongus, capite et pronoto nonnunquam sordidioribus, antennarum clava nigricante aut fusciscente. Oculi permagni, singulis spatio frontis intermedio duplo latioribus. Antennarum clava permagna, articulo primo triangulari, angulo interno haud acuto, apice producto. Caput et pronotum pallide pubescentia, hoc nitido subtilissime nec distincte punctato. Elytra pallide pubescentia, sat nitida, subtiliter, subaequaliter, parum fortiter punctata. Long. 3.5 mm.

In some examples the suture and lateral margins of the elytra are dark. The pubescence of the elytra is not dense, but in fresh examples is evenly distributed over their dorsal surface. The puncturation is rather stronger in some examples than in others. The metasternum is strongly carinate in front.

HAB. Kauai; 3000—4000 ft.

(2) *Mirosternus testaceus*, sp. nov.

Praecedentis forma et colore, elytris parum pubescentibus, circum suturam rugulosis vel ruguloso-punctatis, caeteris partibus parcissime punctatis distinguendus. Long. 3.5 mm.

Distinguished from the preceding by the sculpture of the almost glabrous elytra. This sculpture varies in intensity. The basal club joint sometimes appears subquadrate rather than triangular but this is not constant, the antennae of the same example not always appearing alike in this respect.

HAB. Kauai, 3000—4000 ft.

(3) *Mirosternus punctatissimus*, sp. nov.

Praecedentibus forma et colore simillimus, elytris usque ad margines et partibus apicalibus dense aequaliter punctatis, pubescentia densiore vestitis distinguendus. Long. 3.25 mm.

Antennae varying as in the preceding, the basal joint of the club usually triangular, but sometimes appearing subquadrate. Sculpture not varying much, very dense and even on the apical portion of the elytra, sparsely or little punctured only near the shoulders. Pronotum more distinctly punctured than in the preceding. Colour variable, in one example the head and thorax are black, as well as the sides of the elytra broadly, the rest of their surface being dark brown, instead of the usual ferruginous colour.

HAB. Oahu, Maui.—Oahu, widely distributed, in both ranges; Maui, Haleakala.

(4) *Mirosternus excelsior*, sp. nov.

Praecedentibus forma et colore simillimus, sed oculis minoribus, singulis spatio frontis intermedio latoribus. Elytra juxta suturam utrinque angustissime dense subtiliter punctata, caeteris partibus fere glabris, parce sed grossius punctatis. Long. 3.5 mm.

Head and thorax no doubt densely pubescent in fresh examples, and with a narrow line of pubescence on each side of the elytral suture, where the puncturation is dense. Elsewhere the elytra are smooth and shining with remote largish punctures, which tend to form rows. The antennae are entirely reddish, but the colour of these varies in the preceding species also. The sex of the specimen described is uncertain, since in the allied forms both sexes have the metasternum strongly carinated, and in this insect the carina is both long and strong. If it be a female the male would probably have the space between the eyes less wide. In any case this species is quite distinct.

HAB. Lanai, in January 1894.

(5) *Mirosternus pyrophilus*, sp. nov.

Praecedentibus simillimus, ferrugineus, flavido-pubescentibus, antennalis clavae articulo-  
rum 1 et 2 angulo interno sat acuto facile distinguendus. Long. 3.5 mm.

Apical side of basal club joint a little irregular or sinuate, its inner angle consequently appearing somewhat produced, the following joint with this angle quite sharp. Elytra more or less densely pubescent along the suture and there densely and finely punctured, external to this with larger and more remote punctures and the surface more rugulose, at the sides shining, longitudinally rugulose and with sparse punctures or impunctate, the sculpture of the elytra showing some variation. The space between the eyes varies in width, but whether this is sexual is uncertain. Each of these is as wide or wider than the least frontal space between them.

HAB. Hawaii, Kilauea, two examples.

(6) *Mirosternus basalis*, sp. nov.

Testaceus, capite et pronoto picescentibus, plaga elytrorum basali subtriangulari marginibusque nigricantibus. Pronotum subopacum, densissime subtiliter punctatum, dense pubescens. Elytra juxta marginem basalem suturamque et in parte apicali dense punctata, partibus caeteris remote minus subtiliter punctatis, et parum pubescentibus. Long. 3.7 mm.

General appearance and form of the several preceding species, but distinct by its colour and sculpture. The antennal club is largely developed, but the first and second joints have the inner angle rounded off and quite blunt. Metasternum carinate, apical joint of antennae very long and narrow. Sex uncertain.

HAB. Maui, Haleakala, 4000 ft.

(7) *Mirosternus sordidus*, sp. nov.

Nigricans aut piceoniger, pallide pubescens, oculis permagnis. Pronotum indistincte, subtilissime punctatum. Antennalis clavae articulus basalis triangularis, latere interno quam latus apicale evidenter brevior. Elytra densius distincte punctata, sat aequaliter pallide pubescentia. Long. 3.5 mm.

Quite unlike all the preceding in general appearance, owing to its dark colour, but with similar enormous development of the eyes. The elytra are rather strongly punctured, and the basal club joint of the antennae is remarkable, the side between the base and the inner angle being considerably shorter than the side between this angle and the apex. The latter side also is slightly irregular or sinuate. The metasternum is flat in front and strongly carinate.

HAB. Kauai; apparently rare.

(8) *Mirosternus hawaiiensis*, sp. nov.

Niger, oblongus, subrobustus, griseo-pubescentibus, femoribus anterioribus saepe rufescentibus, oculis spatio frontis intermedio singulis latioribus, antennarum clava permagna. Elytra lateribus exceptis subaequaliter distincte punctata et griseo-pubescentia. Long. 3.5 mm.

A more robust species than any of the preceding, black, with the tarsi often yellow or reddish, the face and pronotum pitchy red, the antennal club usually black, rarely obscure reddish, the other joints frequently more or less red. Puncturation of elytra very close and distinct, but at the sides the surface becomes shining and the sculpture of a punctate-rugulose character, the punctures sparser and coarser. The inner angles of the largely developed club joints of the antennae are not sharp and these joints are less developed in some specimens, which may be females.

HAB. Hawaii, at lower elevations, 2000—3000 ft.

(9) *Mirosternus frigidus*, sp. nov.

Praecedenti simillimus, et illius forte varietas, oculis evidenter fortius separatis tantum certe distinguendus. Long. 3.75 mm.

Doubtfully distinct from the preceding, which it resembles in nearly all respects, except that the eyes are very obviously and considerably more widely separated.

The whole of the front legs and the femora of the middle pair, as well as the scape and funicle of the antennae are red or testaceous. As compared with a specimen of the preceding the metasternum was more strongly concave, the channel finer and not distinctly crenulate, the carina in side view very short and strongly curved.

HAB. Hawaii; at 5000 ft. The preceding species was found in the wet belt of Mauna Loa, the present one above it.

(10) *Mirosternus epichrysus*, sp. nov.

Fusco-niger, totus dense aureo-pubescentibus, scapo clavaque sordidioribus. Oculi singuli spatio frontis intermedio evidenter latiores. Pronotum subtilissime punctulatum. Elytra densissime et subtilissime aequaliter punctata, et pubescentia, lateribus tantum fere glabris, parce punctatis. Long. 3 mm.

Quite distinct by its dense golden vestiture and other characters. The antennal club joints are large with the inner angles very distinct but not sharp. The width of one of the eyes is somewhat greater than the distance, where least, between them. The metasternum is carinate.

HAB. Oahu, near Honolulu.

(11) *Mirosternus duplex*, sp. nov.

Niger, fusco-niger aut piceus, flavido-pubescens. Oculi maris permagni. Antennarum clava magna, articuli 1 et 2 angulis interioribus subacutis. Elytra dense subrugulose fortius, apices versus minutissime, punctata, lateribus rugulose punctatis. Long. 3 mm.

The above diagnosis applies only to the male, which is fairly easily distinguished by the characters given. Except near the shoulders the sculpture on the sides of the elytra is close and rugulose to, or very near to, the lateral margin. The eyes are very large, the club joints of the antennae in certain aspects have an appearance of being slightly produced at their inner angles, making them acute.

The female is entirely different in many ways, the eyes are small and very remote, the antennae are much smaller, but the club joints appear to be similarly formed, though the characteristic appearance, owing to their small size, is less noticeable; the elytra, except on the apical portion, are much more sparsely punctate, while at the sides they are smooth, except for some very fine longitudinal sulci, and very sparse punctures.

HAB. Hawaii, occurs at Kilauea and the sexes have been taken in cop.

(12) *Mirosternus euceras*, sp. nov.

Major, oblongus, castaneus, antennis nonnunquam nigricantibus, sat dense flavido-pubescens. Oculi permagni, spatio frontis intermedio fere bis latiores. Antennarum clava permagna, angulis interioribus haud acutis. Pronotum dense, minutissime punctulatum. Elytra ex majore parte dense distincte punctata, lateribus fere ad apices glabrioribus, parce punctatis. Long. 3.5 mm.

Distinct by its colour, robustness, sculpture, huge eyes, etc. The elytral puncturation is less dense from a little way behind the base, and becomes excessively dense and minute on the apical portion.

HAB. Molokai, 3000 ft.

(13) *Mirosternus lanaiensis*, sp. nov.

Praecedenti cognatissimus, sed colore magis nigricante, elytris apices versus plus minus pallidioribus. Elytra parte apicali excepta distincte, minus dense punctata. Long. 3.5 mm.

The elytra are closely punctate along the basal margin as in *M. euceras*, and also are more sparingly punctured behind this, while on the apical portion both species have similar dense puncturation, except that in the present species these dense punctures extend to the lateral margins for a considerable distance towards the base. The eyes



are perhaps rather less developed and this is a smaller and darker insect. It greatly resembles some examples of *M. muticus*, but the large eyes separate it. The metasternal carina is obsolete.

HAB. Lanai.

(14) *Mirosternus blackburni*, sp. nov.

Niger, pronoto dense punctato, pubescentia grisea plus minus aureo-tincta vestito. Oculi maris magnitudine mediocres, latissime separati. Antennarum maris articuli 3 ultimi magni, horum primo intus sat acute angulato, latere apicali fortiter concavo sive emarginato. Antennae feminales mediocriter magnae. Elytra albida sive cinerea pubescentia appressim vestita, post media maculam pulchram pubescentiae aureae densam utrinque ferentia, his maculis fasciam, ad suturam valde angustatam, formantibus, parte longa apicali basi summa densissime punctatis, plaga intermedia fere glabra, nitidissima, sparsissime punctata, sulcis longitudinalibus obsoletis faciliter distinguendis, sutura elevatula. Metasternum ♂ antice fortiter carinatum. Long. 2.3—3 mm.

Cannot be confused with any other species except the following, which is perhaps hardly more than a local race. The antennae in these species sometimes have the club joints yellow.

HAB. Oahu; Waianae mountains, 2000 ft. or more; five specimens.

(15) *Mirosternus blackburnioides*, sp. nov.

*M. blackburni* affinis et persimilis, sed pubescentia elytrorum aurea fasciam latam formante, multo latius suturam attingente, et plagam multo majorem elytrorum postice tegente.

HAB. Oahu; common in the Honolulu range; easily distinguished, when in good condition, but often abraded.

(16) *Mirosternus affinis*, sp. nov.

Niger, nitidus, pronoto subtilissime punctato, pubescentia pallida vestitus. Oculi latissime distantes. Maris antennarum clava magna, articulo primo et secundo triangularibus, apicibus sat fortiter productis. Clava antennarum feminalis quam in mare multo minor. Elytra juxta suturam utrinque dense subtilissime punctata, parte caetera fere glabra, subseriatim et minus subtiliter, obsoletius, parce punctata, longitudinaliter obsolete sulcata. Long. 2.5—3.25 mm.

F. H. III.

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*M. affinis* var. *suturalis* nov.

Praecedenti simillimus, elytrorum parte dense punctata et pubescente posterius latiore distinguendus.

HAB. Kauai, Oahu, Molokai.—Kauai (var. *suturalis*) one example; Molokai; 3000 ft., three specimens.

(17) *Mirosternus sculptus*, sp. nov.

Castaneus, plus minus nigrotinctus, elytris apices versus pallidioribus. Antennae (? sexus) mediocres, clava mediocri, articulo primo multo longiore quam latiore, latere apicali leviter concavo sive emarginato, apice evidenter, sed parum fortiter producto. Oculi mediocres, latissime separati. Pronotum dense flava sive aurea pubescentia obtectum, subtilissime et ad medium remote punctatum. Elytra ex magna parte fere glabra, nitida, parum punctata, longitudinaliter fortiter canaliculata sive rugosa, basi extrema, apicebusque longe, densissime punctatis et conspicue pubescentibus. Long. 2.5 mm.

The sex of the unique example is uncertain. The longitudinal grooves on the glabrous portion of the elytra are nearly regular almost to the suture, where the sculpture becomes more ordinarily rugose.

HAB. Oahu, a single specimen in the mountains behind Waimea, 2000 ft.

(18) *Mirosternus varicolor*, sp. nov.

Nitidus, rufescens, capite pronotoque plus minusve obscuratis aut nigricantibus, elytrorum parte media plus minusve nigricante aut obscurata, antennarum clava nigra. Oculi mediocriter magni, late distantes. Antennarum ♂ clava magna, articuli primi angulo interno haud acuto. Pronotum dense subtiliter punctatum, pallide pubescens. Elytra ad basim extremam necnon in parte apicali dense et subtilissime punctata et pallide pubescentia, parte intermedia fere glabra, sparsissime punctata, punctis his majoribus. Long. 2.5 mm.

This little species varies in colour and may be either rufescent with more or less of the middle part of the elytra dark, or black with the red of the elytra forming a spot on each side at the base and an apical pale area.

Three males were captured in the same spot and a single female, which no doubt belongs to the same species, was taken with them. This has the antennae much wider apart, the head and pronotum paler, the intermediate portion of the elytra less smooth, being a little more punctured and with fine but rather conspicuous rugulosity of the surface.

HAB. Molokai; on the lower edge of the forest above Kaunakakai.

(19) *Mirosternus montanus*, sp. nov.

Niger, piceus aut rufopiceus, sat nitidus. Pronotum trans basim subtilissime dense punctatum et pubescens, antice sparsius pubescens, puncturatione vix discernenda. Oculi mediocres, latissime distantes. Antennarum clava mediocriter magna, articulo primo minus fortiter dilatato. Elytra nitida fere glabra, circum suturam dense, subtilissime, obscure, sive obsoletim punctulata, ibique subtiliter pallide pubescentia, parte caetera subtilissime longitudinaliter rugulosa et sparsissime obsolete punctata. Metasternum haud aut obscurissime carinatum. Long. 2.5—3 mm.

The sexes apparently do not differ greatly in the development of the club joints of the antennae, or else the ten examples are of the same sex and the individuals rather variable. What I consider to be males have the club joints of only moderate size.

HAB. Kauai; various localities.

(20) *Mirosternus rugipennis*, sp. nov.

Niger, nitidus, pronoto plus minus pallide pubescente, elytris glabris. Oculi ♂ mediocres, latissime distantes. Antennarum clava ♂ magna, articulo primo acute intus angulato, latere apicali concavo sive emarginato, angulo apicali sat producto. Clava feminalis maris multo minor, sed angulo interno articuli primi sat acuto. Pronotum posterius dense, subtilissime, antice vix evidenter punctatum. Elytra sparsissime (nonnunquam vix evidenter) punctulata, longitudinaliter subregulariter subtiliter sulcata, suturam juxta haud lineam dense punctulatam praebentia. Metasternum ♂ parum concavum, sed posterius sulcatum, antice carina elongata et distincta praeditum. Metasternum ♀ sat fortiter concavum, carina obsoleta aut absente. Long. 2—3.5 mm.

HAB. Hawaii; Mauna Loa, about 3000 ft.

(21) *Mirosternus simplex*, sp. nov.

Niger aut piceus, nitidus, pronoto minus dense pallide pubescente. Oculi ♀ (? et ♂) minores, latissime separati. Antennarum clava ♀ (? et ♂) haud magna, angulo articuli primi interno et secundi haudquaquam acuto. Pronotum subtilissime puncturatum, nitidum, minus dense pubescens. Elytra nitida, fere glabra, juxta suturam angustissime impressa sive deplanata, ibique subtilissime punctulata et brevissime pallido-pubescentia, basi extrema a scutello ad humeros hoc modo vestita et punctulata, caeteris partibus sparsissime punctatis, vix aut haud rugulosis. Long. 2.4 mm.

HAB. Hawaii, Kona, 3000 ft. I have seen two examples, one of which is a little immature and is a female; the other is probably of the same sex. It is black and has been badly damaged by unskilled mounting.

(22) *Mirosternus denudatus*, sp. nov.

Niger, subnitidus, pronoto subtilissime punctato et pallide pubescente, *M. simplici* simillimus, sed elytris ad suturam haud impressis, ibique haud densissime punctulatis et pubescentibus distinguendus.

I have seen but two examples of this species, probably females, since the club joints of the antennae are not at all large. Both have been badly damaged by unskilled mounting. The punctures near the suture of the elytra are not so small as usual, quite different from the dense and excessively minute ones of other allied species, though towards the apex of the elytra they become denser and finer and there the surface becomes pubescent. The extreme basal margin is also more or less closely punctate and pubescent.

HAB. Molokai, 3000 ft.

(23) *Mirosternus latifrons*, sp. nov.

*M. simplici* simillimus, niger, nitidus, pronoto pallide pubescente, elytris ex majore parte fere glabris, parce subseriatim punctatis, suturam juxta et ad marginem basalem densissime punctulatis, ibique pubescentibus. Antennarum clava magna, articulo primo late triangulari, apice fortiter producto, angulo interno acuto. Oculi latissime separati. Metasternum antice fortiter carinatum. Long. 2.2 mm.

I have seen only one example of this minute species. It may prove to be the male of *M. simplex*.

HAB. Oahu.

(24) *Mirosternus pusillus*, sp. nov.

Niger, nitidus, pallide pubescens. Oculi haud magni, latissime separati. Antennarum clava ( $\delta$ ) magna, articulo primo late triangulari, angulo interno fortiter acuto, secundo sat lato, margine apicali et margine interno fere aequilongis. Pronotum minus dense pubescens. Elytra ex magna parte perparce (nec subtilissime) punctata, parum pubescentia, parte apicali minutissime punctulata et minus dense pallido-pubescente, basi summa subtiliter vix sparsim punctata, sutura apicem versus sat fortiter impressa. Metasternum antice planum, fortiter carinatum. Long. 2.2 mm.

I have seen only one example of this species.

HAB. Oahu, in company with *M. latifrons*.

(25) *Mirosternus irregularis*, sp. nov.

Niger, sat nitidus, pube pallida subflavescente vestitus. Oculi haud magni, latissime separati. Antennarum clava sat magna, articulo primo ad apicem producto, angulo interno haud acuto. Pronotum minutissime punctatum, antice punctis vix

discernendis, nitidum. Elytra haud dense subirregulariter punctata, punctis magnitudine inaequalibus, leviter sive subobsoletim impressis, minus dense sed subaequaliter pallida pubescentia ubique vestita. Metasternum antice deplanatum et fortiter carinatum. Long. 2.3 mm.

I have seen only one example of this very obscure species, which is not at all closely related, I think, to any of the preceding. It is not in very good condition and I was unable to examine it very minutely. It may belong to one of the species near *M. carinatus* Sharp.

HAB. Maui, Haleakala (5000 ft.).

(26) *Mirosternus laevis*, sp. nov.

Oblongus, nitidus, pronoto picescente, elytris (♀?) testaceis aut (♂?) nigrosuffusis, parte apicali tantum maculaque utrinque humerali testaceis. Oculi minores, latissime distantes. Antennarum clava fusca, articulo primo minore. Pronotum pallide pubescens. Elytra nitida, glabra, suturam juxta obsolete punctata, parte caetera laevi, sparsissime, vix evidenter, punctata, sutura apicem versus evidenter impressa. Long. 2.2 mm. (alter minor, sed fractus).

I have seen but two examples of this species and both have been more or less damaged by unskilled handling in the attempt to expand the antennae. In the paler example, which is, no doubt, a female, the metasternum is concave and there is a feeble, elongate, raised line or carina in front. In the other example possibly a male the metasternum has been damaged and I cannot determine its structure.

HAB. Kauai, 4000 ft.

(27) *Mirosternus fractus*, sp. nov.

Niger, antennarum clava minor, elytris ex majore parte rufescentibus, fere glabris, parcissime punctatis. Long. 3 mm.

I have only seen one specimen in a fragmentary condition, but the species appearing rather remarkable, I have ventured to describe it. The antennal club is not at all strongly developed, the first and second joints with the inner angle not acute, and the apex not much produced. The elytra are mostly red, having a basal transverse black band, which is continued down the suture for two-thirds of their length. Along the suture the puncturation is excessively minute, and posteriorly it is impressed and bears a little pale pubescence. Elsewhere there are very sparse punctures, feebly impressed and of larger size. The basal black colour is also continued for some distance along the lateral margins beneath the shoulders.

HAB. Lanai, 2000 ft.

(28) *Mirosternus molokaiensis*, sp. nov.

Niger (nonnunquam plus minus piceus) nitidus, elytris postice saepe, ad humeros nonnunquam, rubromaculatis, pronoto pallide pubescente. Oculi minores, late separati. Antennarum clava angustior, articulo primo haud aut haud multo, quam secundus, latiore, elongato, margine externo internoque ex magna parte fere parallelis. Elytra glabra, nitida, subtilissime rugulosa, parum (saepe vix evidenter) punctata. Long. vix 2—2.5 mm.

A most distinct species in spite of the variability in colour. I suspect that the examples with the narrowest and most strongly parallel-sided basal joint of the club of the antennae are males, those in which it is more normal, that is more triangular in shape are females. I have seen only eight or nine examples, most of which have been roughly handled in mounting. The bright red markings are very characteristic, when present.

HAB. Molokai, on the lowest skirts of the forest.

(29) *Mirosternus kauaiensis*, sp. nov.

Niger, nitidus, pronoto plus minusve pubescente, elytris fere glabris, antennarum clava tenuissima et elongata, articulo primo angustissimo, elongato, lateribus fere parallelis, secundo circa bis longiore quam latiore, tertio angustissimo et valde elongato. Elytra suturam juxta dense subtiliter punctulata, parte caetera sparsim, minus subtiliter punctata, punctis ex majore parte seriatim dispositis. Oculi latissime separati. Long. 2.2 mm.

Allied to *M. molokaiensis* but with the antennal characters still more exaggerated, and the elytra differently sculptured. One example, probably a ♂, taken.

HAB. Kauai; 4000 ft.

(30) *Mirosternus ignotus*, sp. nov.

Niger, parum nitidus, pronoto griseo-pubescente, subtiliter punctulato. Oculi minores, latissime distantes. Antennarum clavae articulus primus parum fortiter dilatatus, hujus et secundi angulo interno haudquaquam acuto. Elytra juxta suturam, necnon in parte basali circa scutellum subfortiter ruguloso-sculpturata, ibique griseo-pubescentia, parte caetera subtiliter rugulosa, punctis obsoletis perpaucis, vix videndis. Long. 2.5 mm.

The single example taken had been very roughly manipulated, being partly broken and very dirty and covered with gum. It has not been possible to study it very satisfactorily, as it could only be handled very carefully in cleaning off the dirt. It appears to most nearly resemble some examples (probably ♀) of *M. molokaiensis*, but the basal

joint of the antennal club is less narrow and less parallel-sided than in the probable males of that species. Its duller and (in parts) more strongly sculptured elytra will also readily distinguish it. No doubt the pubescence is more or less abraded in the type.

HAB. Hawaiian Islands, perhaps Hawaii. The specimen was without any number.

(31) *Mirosternus lugubris*, sp. nov.

Niger, nitidus, pronoto pallide pubescente, oculis mediocribus, late distantibus. Antennarum clava ♂ magna, articulo primo et secundo late dilatatis, apicibus fortiter productis; antennarum clava ♀ multo minor. Pronotum ubique pubescens, subtilissime punctatum. Elytra nitida, apices versus densissime minute punctata et pubescentia, basi extrema sat dense punctata et pubescente, parte intermedia ♂ parce aut haud dense, ♀ parce aut parcissime punctata, fere glabra aut minus pubescente. Metasternum ♂ antice fortiter carinatum. Long. 2.5—3.2 mm.

This is a variable species and difficult to characterize. Normally the elytra behind the extreme base are extremely sparsely punctured in the ♀, but a good deal less sparsely in the ♂. In the former sex the surface is often glabrous with slight longitudinal sulci and a few punctures only. In extreme ♂♂ the same part is not very remotely punctate and is pubescent, but both punctures and pubescence are less dense than on the apical portion of the elytra. Some males however closely resemble the female in sculpture, and some of the latter more nearly approach males. Exactly the same difficulty occurs with other species of the genus. On account of its variability, difficulty may be encountered in separating *M. lugubris* from forms on other of the islands, but it cannot be confused with species of similar sculpture on Hawaii, because it has smaller eyes than these.

HAB. Hawaii; found in the wet belt of the forests at an elevation of 2000—3000 ft.

(32) *Mirosternus maurus*, sp. nov.

Niger, aut piceus, nonnunquam (immaturus?) testaceus, oblongus, elytris elongatis, lateribus fere parallelis. Antennarum ♂ clava maxima, articulo primo ad apicem valde producto, triangulari aut quasi quadrangulari, magnitudine et forma variabili, articulo ultimo, quam solitus, latiore, apice truncato. Oculi minus magni, et latissime distantes. Clava antennalis ♀ maris multo minor. Pronotum nitidum, subtilissime punctulatum, griseo-pubescentia. Elytra nitida, ex majore parte fere glabra, linea pubescentiae griseae suturali sat distincta, ibique minus subtiliter ruguloso punctata, sutura apicem versus sat fortiter impressa. Long. 3 mm.

The puncturation of the elytra varies, as well as other features mentioned above, the punctures being sometimes close and rugulose only narrowly along the suture, at

other times spread much further over the dorsum. Club of antennae not at all large in the female and sometimes pallid. In one example the sides and apex of the elytra are reddish brown.

HAB. Kauai, 4000 ft.

(33) *Mirosternus parvulus*, sp. nov.

Niger, nitidus (pronoto et capite saepe plus minus piceis) pronoto pallide pubescente et subtilissime punctato. Oculi ♂ sat magni sed late distantes, spatio intermedio frontis, quam unus ex his, multo latiore. Oculi ♀ sat magni, oculis ♂ vix minores. Antennarum ♀ clava haud magna, angulo interno articuli primi haud acuto; clava maris sat magna, articuli primi apice sat fortiter producto. Elytra pernitida, fere glabra, postice circum suturam pubescentia pallida anguste (saepe lineatim) vestita, ibique subtilissime dense punctata, partibus caeteris usque ad marginem basalem perparce (nec subtilissime) punctatis et longitudinaliter rugulosis. Long. 2—2.5 mm.

Varies a little in the puncturation, the very fine punctures sometimes extending to the base of the elytra along the margins of the scutellum in an unbroken narrow line on each side of the suture, while sometimes these lines are interrupted on the basal portion of the elytra, but become distinct again on either side of the scutellum. This densely punctured area also sometimes spreads out more widely on the more apical portion of the elytra.

I have seen a small series only of this little species, but I think it is not at all rare in the Honolulu range.

HAB. Oahu; Honolulu range, 1500—2800 ft.

(34) *Mirosternus eutheorus*, sp. nov.

Nigricans aut piceo-niger, elytris nitide rufo-brunneis aut testaceis, oblongus. Oculi permagni, sed sat late distantes, spatio frontis intermedio, quam unus ex his, haud minus lato. Antennarum ♂ clava magna, articulo primo late triangulari, angulo interno minus acuto, secundo etiam late triangulari, angulo interno rotundato. Pronotum sat nitidum, pubescentia pallida conspicue vestitum. Elytra ex maiore parte fere glabra, nitida, sparsim remote punctata, suturam juxta et ad marginem basalem dense subtilissime punctulata, ibique pallide pubescentia. Metasternum totum concavum, antice fortiter carinatum. Long. 2.75 mm.

A small species with unusually large eyes, which are widely separated. The metasternum is concave for its whole length, not flat (or almost so) in front, where it bears the carina, as is the case in most of the strongly carinated species. I have seen only a few specimens.

HAB. Oahu, Waianae mountains.



(35) *Mirosternus nigrocastaneus*, sp. nov.

Nigrocastaneus, minus nitidus, antennarum basi rufescente, clava nigricante. Oculi magni, singulis ac spatium frontis intermedium fere aequae latis. Pronotum pallide pubescens, nitidum, parum distincte punctatum. Elytra ad suturam dense punctata, ibique pallide pubescentia, parte caetera subtiliter rugulosa, sparsim subobsolete minus subtiliter punctata, sparsim et parum conspicue pubescentia, sutura versus apicem haud impressa. Metasternum ♂ anterius fortiter carinatum. Long. vix 3 mm.

I have seen but one example, no doubt a male; the antennae are strongly developed, but of usual form, the two basal club-joints triangular, somewhat strongly dilated, with the inner angle blunt.

HAB. Kauai, Halemanu.

(36) *Mirosternus xanthostictus*, sp. nov.

Nigricans aut plus minusve piceus, antennarum articulis basalibus pedibusque rufescentibus, capite pronotoque pallide pubescentibus, hoc subtilissime minus distincte punctulato. Oculi sat magni sed late distantes. Antennarum articuli 3 ultimi sat magni, horum primo haud acute intus angulato, apice fortius producto. Elytra flavescentia, plaga magna subtriangulari basali, fascia transversa postmediana, sutura, marginibusque lateralibus, nigrificantibus, fere glabra, parcissime obsoletim punctata. Long. 2.5 mm.

The two examples described are probably males and the species is unlike any other. A third example taken subsequently and I think in another locality is a marked and perhaps constant variety, the posterior yellow colour of the elytra is reduced to two small spots, the punctures are more evidently serially arranged in shallow grooves and are more distinct, while the antennae are also slightly different.

HAB. Oahu, Waianae mountains; the variety probably in the Honolulu range.

(37) *Mirosternus bicolor* Sharp.

*Mirosternus bicolor* Sharp, Tr. Ent. Soc. London, 1881, p. 525.

I have seen one example of this insect, taken either by Koebele or myself, when collecting together. Previously I had supposed that the specimens of *M. xanthostictus* would prove to be *M. bicolor*, since they came from the same locality as the type of the latter species. The two are, however, quite distinct. The eyes of *M. bicolor* are of moderate size and are widely separated.

HAB. Oahu, Waianae mountains (Blackburn); Honolulu mountains.

(38) *Mirosternus glabripennis* Sharp.

*Mirosternus glabripennis* Sharp, Tr. Ent. Soc. London, 1881, p. 524.

This species greatly resembles *M. montanus* and allied species in sculpture but is easily distinguished by the much larger eyes, the width of one of these being not much less than the space, where least, between them. There is a slight tendency in the elytra to become uneven from longitudinal grooves or depressions and of the very sparse subobsolete punctures to be serially arranged. Whether the types, which are supposed to be ♂ and ♀, are really so, and not slightly differently developed examples of one sex is I think doubtful.

Since the above was written I have myself taken an example of *M. glabripennis*, which before was wanting in my collection, in the Honolulu range of mountains, and still more recently another yet nearer to Honolulu itself. I have never found it in the Waianae mountains nor is it likely to exist there now at so low an elevation (1000 ft.) as that at which it was found by Blackburn. The antennae are sometimes rufescent.

HAB. Oahu, Waianae mountains (1000 ft.) Blackburn; near Waialua and near Honolulu, 1200—1500 ft.

(39) *Mirosternus pallidicornis*, sp. nov.

Nigrocastaneus, nitidus, capite, pronoto elytrorumque apicibus plus minus rufescentibus, antennarum clava lucide testacea. Oculi majores sed late separati. Antennarum clava (♀ et ♂?) mediocriter magna, articulo primo triangulari, angulo interno haud acuto. Pronotum parum nitidum, pubescens, subtilissime punctatum. Elytra elongata, nitida, ex majore parte fere glabra, tantum juxta suturam (praecipue apicem versus) dense et minutissime punctulata, ibique aureo-pubescentia, parte glabra sparsissime minus subtiliter punctata. Long. 3.75 mm.

Very closely allied to *M. glabripennis* Sh., but distinguished by the more elongate elytra, which become very gradually narrower from base to apex. Having seen but one example, I do not know whether the colour of the antennae is constant. The same pallid colour is known to appear as a variation in several other species and probably occurs in most.

HAB. Kauai, 4000 ft.

(40) *Mirosternus peles*, sp. nov.

Nitidus, niger, pronoto pallide pubescente. Elytra elongata, fere glabra, nitidissima, sparsissime punctata, circum suturam (saltem posterius) minutissime punctata, pallideque pubescentia, parte apicali latera versus obsolete ruguloso-sculpturata. Oculi

maris majores sed late separati. Metasternum anterius obsolete sive vix evidenter carinatum. Long. 3—3.5 mm.

Very like *M. glabripennis*, but a more elongate insect, and easily distinguished by the fact that the pubescence, instead of forming a narrow line along each side of the suture, spreads out posteriorly as a thin covering over the general surface, the surface having a feeble, but close, rugulose sculpture to, or nearly to, the lateral margins on the apical portion. The club of the antennae is only very moderately developed. I have examined a satisfactory series.

HAB. Hawaii; widely distributed at 4000 ft. and above in dry localities.

(41) *Mirosternus angulatus*, sp. nov.

Brunneus, nitidus, capite nonnunquam obscuriore. Oculi haud magni, latissime separati. Antennarum clava sat magna, articulo primo triangulari, fortiter dilatato, angulo interno conspicue acuto. Pronotum flavido-pubescentis, nitidum, ex majore parte obsolete, sive vix evidenter, punctatum. Elytra ad suturam, anterius angustissime, posterius late, subtilissime dense punctulata, ibique pubescentia, caeteris partibus fere glabris, nitidissimis, parcissime punctatis, punctis majoribus, levissime impressis, latera versus subtilissime longitudinaliter rugulosa. Metasternum carinatum. Long. 3 mm.

This appears to be a very distinct species. The fine puncturation of the elytra is confined to the sutural margin anteriorly, but posteriorly spreads widely outwards, though not nearly attaining the lateral margins. The inner angle of the antennal club joints is unusually sharp.

HAB. Maui, Haleakala, 4000—5000 ft.

(42) *Mirosternus konanus*, sp. nov.

Niger, nitidus, capite et pronoto obscure rufescentibus, hoc elytrorumque apicibus sat dense aureo-pubescentibus. Oculi ♂ magni, ex his unus spatio frontis intermedio vix minus latus, oculi ♀ multo minores et late distantes. Antennarum clava ♂ magna, articulo primo lato, angulo interno haud acuto. Antennarum clavae ♀ articulus primus articulo maris secundo vix major. Elytra nitida, sat elongata, parte apicali usque ad margines laterales densissime punctata, et pubescente, parte reliqua fere glabra sparsissime punctata, parum aut haud rugulosa, basi extrema haudquaquam dense punctata. Long. 2.75—3 mm.

I have seen only three examples.

HAB. Hawaii; Mauna Loa within the wet belt.

(43) *Mirosternus cognatus*, sp. nov.

Nigricans, nitidus, capite pronotoque et parte apicali elytrorum plerumque plus minusve rufescente. *M. konano* similis et affinis, sed antennarum ♂ clavae articulis minus dilatatis, oculisque minoribus distinguendus. Metasternum anterius haud carinatum. Long. 3.5 mm.

I have examined about a dozen examples of *M. cognatus* and find only small differences between the joints of the antennal club in any of these, although it is hardly possible that both sexes are not represented. The antennae, in fact, are very like those of the female of *M. konanus*. If, therefore, I understand the species rightly, and both sexes of *M. cognatus* are present, the males having a slightly more developed antennal club, then this species is entirely distinct from *M. konanus* by the only slight, sexual dimorphism, and the much smaller eyes and antennal club of the ♂.

HAB. Maui, Haleakala, 5000 ft.

(44) *Mirosternus amatus*, sp. nov.

Rufobrunneus, pronoto sat dense flavo-pubescente. Oculi magni, prominentes, sed sat distantes, unus ex his spatio frontis intermedio vix latitudine aequalis. Antennarum clava sat magna, angulis internis sat rotundatis, haud acutis, articuli secundi apice parum producto. Elytra parce pubescentia, nitida, minus subtiliter punctata, apicibus opacis, densissime minute punctatis, densius flavo-pubescentibus, parte basali extrema (nisi juxta humeros) haud dense punctata. Long. 2.75 mm.

Closely allied to *M. konanus* &c. The punctures on the more glabrous parts of the elytra are less fine than usual, and seem uneven in size. Even along the suture the puncturation is not very dense and fine except posteriorly. Along the basal margin the punctures are by no means dense except perhaps close to the humeral prominence.

I have seen but one specimen, which having been bred is in very fine condition; and probably more clothed with hairs on the smooth parts of the elytra than a caught specimen would be. Its antennae are pale in colour, but this is not likely to be a constant character. The tree from which it was bred was entirely dead, but I think it was a *Cheirodendron*.

HAB. Oahu, Honolulu range, 1500 ft.

(45) *Mirosternus parcus*, sp. nov.

Castaneus aut castaneo-niger, sat nitidus, pronoto sat dense pubescentia pallida, saepe flavescente, vestito, subtilissime (anterius perparce) punctato. Oculi ♂ majores sed sat distantes, feminae, quam maris, multo minores et latissime distantes. Antennarum clava ♂ magna, articuli primi apice fortiter producto, angulo interno haud acuto;

clava ♀ multo minor, articulo primo angusto, circa bis longiore quam latiore. Elytra minus fortiter elongata, ex majore parte fere glabra, parcissime vel etiam vix evidenter punctata, conspicue subtiliter longitudinaliter rugulosa, parte apicali dense minute punctata et pallide saepe flavide pubescente. Long. 2.75—3 mm.

I have seen only 5 examples of this species and there is some variation in the development of the individuals, but I cannot doubt that they are one species. The colour of the antennae &c. varies as in many other species. One example was taken close to Honolulu in the mountains at 1500 ft. in 1896, two more in 1900, and two in the same range but twenty miles away in 1901. It would therefore seem to be rather scarce.

HAB. Oahu, near Honolulu and elsewhere, 1500 ft.

(46) *Mirosternus subparcus*, sp. nov.

Capite et pronoto brunneis aut rufescentibus, elytris brunneo-nigris, marginibus et circa suturam apicem versus pallidioribus, *M. parco* cognatissimus, sed oculis conspicue majoribus distinguendus.

I separate a single specimen from *M. parcus* on account of the conspicuously larger eyes, the width of one of these, in a front view of the face, being about equal to the space between the eyes. I see no other specific character.

This specimen was collected by Koebele on Oahu, on one of the occasions when he accompanied me, but it bears no definite locality label.

HAB. Oahu; collected by A. Koebele in 1900 or 1901.

(47) *Mirosternus hypocoelus*, sp. nov.

Major, rufescens, flavo-pubescentis, elytris nigrocastaneis, apicaliter rufescentibus. Oculi magni, sed late distantes. Antennarum clava major, articuli primi et secundi angulo interno haud acuto, apicibus minus fortiter productis. Elytra ex magna parte fere glabra, perparce punctata, nitida, parte apicali densissime subtilissime punctata, ibique conspicue flavo-pubescente, parte suturali utrinque angustissime crebre punctata, basi extrema evidenter flavo-pubescente et subtilissime crebre punctata, sutura in parte elytrorum declivi fortiter impressa. Metasternum postice profunde concavum, antice distincte carinatum. Long. 3.75 mm.

Only one example of this species was taken. It was in company with *M. euceras*, which in some respects it greatly resembles. It is allied apparently to *M. cognatus*, but easily distinguished from that and *M. konanus* by the close puncturation at the base of the elytra. I feel quite uncertain of the sex of the unique specimen.

HAB. Molokai, on the lowest edge of the forest above Kaunakakai.

(48) *Mirosternus muticus* Sharp.

*Mirosternus muticus* Sharp, Tr. Ent. Soc. London, 1881, p. 523.

This species is very abundant on Hawaii and no doubt is common on Maui, though I did not take many specimens there. It varies in size, colour and puncturation. The eyes are large, but rather widely separated even in the ♂.

HAB. Maui, Hawaii.—Maui, Haleakala; Hawaii, widely distributed (4000—5000 ft.).

(49) *Mirosternus discolor*, sp. nov.

Colore variabilis, fusco-niger, castaneus, aut nigro-castaneus, capite cum pronoto saepe elytris pallidior, subnitidus, parcius pallide pubescens. Oculi magni, singulis ac frontis spatium intermedium fere aequae latis. Antennarum clava sat magna, plerumque brunnea aut rufescens, articulo primo triangulari, fortiter dilatato, angulo interno haud acuto, apice fortiter producto. Pronotum subtilissime indistincte punctulatum, pallide pubescens. Elytra subnitida, haud dense pubescentia, puncturatione indistincta et plus minus obsoleta, male definita. Long. 3—3.5 mm.

This is an obscure species but not difficult to recognize, having the eyes of large size and the elytral puncturation feeble. In fresh examples the pubescence is most noticeable along the sutural portion of the elytra, where the puncturation is usually close and very fine. Beyond this there is a good deal of very fine surface rugulosity and the punctures are remote and feeble. The puncturation varies considerably. I am not able to be sure as to the sexes in this species.

HAB. Hawaii, Kilauea.

(50) *Mirosternus marginatus*, sp. nov.

Ferrugineus sive rufo-brunneus, pronoto sordidior, sat dense pubescentia pallida flavescens vestitus. Oculi magni, sed late separati, singulis spatio frontis intermedio evidenter minus latis. Antennarum clava magna, articulis 2 basalibus quodam in aspectu quasi quadrangularibus. Pronotum subtilissime minus distincte punctatum, bene pubescentia vestitum. Elytra subaequaliter subtiliter punctata, et pubescentia, marginibus obscurioribus aut plus minus nigricantibus, sutura apicem versus fortiter impressa. Metasternum anterius planum et fortiter carinatum. Long. 3.25 mm.

Superficially like *M. oculatus* &c., but with much smaller eyes, which are much more widely separated.

HAB. Kauai, 4000 ft.

(51) *Mirosternus eximius*, sp. nov.

Niger, antennis rufis, clava nigra, elytris densissime punctatis, postice subtilissime cinereo-tomentosis, anterie pubescentia aurea, ad latera postice prolongata, vestites. Oculi mediocres, latissime separati. Antennarum clava maxima, articulis 2 basalibus latis, angulo interno quasi levissime producto, conspicue acuto. Elytra anterie dense punctata, posterius omnium densissime et minutissime punctulata, lateribus humeros juxta nitidis. Metasternum antice brevissime carinatum sive tuberculatum. Long. 2.75 mm.

Quite unlike any other species, the rather coarse yellow pubescence of the basal half of the elytra is prolonged backwards towards the sides, the grey apical tomentum being excessively fine and short; the antennae are also remarkable, the basal joint of the club having a slight irregularity or sinuation of the margin of its sides, which increases the acuteness of its inner angle. This structure is also more or less perceptible in the second club joint.

HAB. Oahu, without locality, collected by Koebele and myself; two specimens.

(52) *Mirosternus punctatus* Sharp.

*Mirosternus punctatus* Sh., Tr. Ent. Soc. London, 1881, p. 526.

Unless I have taken it recently, I do not know this species. I believe I possess a specimen from Kauai that agrees fairly well with the description, but it is not at present available for examination.

HAB. Oahu, Waianae mountains (Blackburn).

(53) *Mirosternus solitarius*, sp. nov.

Niger, dense subtiliter subaequaliter punctatus, totus pubescentia pallida flavescenti vestitus. Oculi sat magni, sed late separati. Antennarum clava magna, articulo primo triangulari, fortiter dilatato, angulo interno haud acuto. Pronotum subtiliter (ad basim dense) punctatum. Elytra crebre distincte punctata, lateribus versus humeros nitidis et perparce punctatis. Metasternum ♂ fortiter carinatum. Long. 3.5 mm.

I have seen only one ♂ of this species. It appears to be distinct from *M. punctatus* Sharp by the more widely dilated basal two joints of the antennal club and the apical joint is also less narrow and, owing to the oblique truncation, sharper at the apex.

HAB. Oahu, Honolulu range, 1500 ft.

(54) *Mirosternus amaurodes*, sp. nov.

Niger, antennis fere nigris, tibiis nigris, femoribus anterioribus rufis. Oculi magnitudine mediocres, latissime separati. Antennarum clava ♂ magna, articulo primo fortiter dilatato, angulo interno haudquaquam acuto, apice fortiter producto. Elytra dense subtiliter punctata. Long. 3.25 mm.

I have seen two males only of this species, both entirely denuded of pubescence, and one much mutilated by unskilled mounting. It is very similar to *M. solitarius* of Oahu, but the eyes of that species are so much larger, it is impossible to treat them as belonging to one species.

HAB. Hawaii, Kona, 3000 ft., in the wet belt.

(55) *Mirosternus plebeius*, sp. nov.

Nigricans, fusco-niger aut piceus, capite (et nonnunquam pronoto) elytris saepe pallidiore, pallida (cinerea aut flavescente) pubescentia vestitus. Oculi magnitudine mediocres, aut minores, latissime separati. Antennarum clava ♂ sat magna, articulis 1 et 2 fortiter dilatatis, angulis internis haud acutis. Pronotum nitidum, ex majore parte vix evidenter punctatum. Elytra crebre plus minus obsolete punctata, puncturatione plus minus rugulosa, lateribus nitidis rugulosis, parce punctatis, punctis versus humeros perpaucis. Metasternum carinatum. Long. 2.75—3.25 mm.

This species is best recognized by the elytral puncturation, which is dense and of an indefinite character, the punctures tending to run into one another, and making the surface rugulose. The antennae of the female are small, much less developed than in the ♂, the eyes are remote and not at all large in either sex. There is some variation in the intensity of the puncturation. In both sexes the metasternum is carinate, the carina in the ♂ longer than that of the female.

HAB. Hawaii, Kilauea.

(56) *Mirosternus elongatulus*, sp. nov.

Brunneus aut fusco-niger, pubescentia flavescente crebre vestitus, forma sat elongata. Oculi mediocres, late separati. Antennarum clava magna, articulo primo triangulari, fortiter dilatato, apice (necnon etiam secundi) fortiter producto, angulo interno acuto aut saltem parum obtuso. Elytra densius aequaliter pubescentia, crebre punctata, lateribus humeros juxta nitidis, parce punctatis. Long. 3—3.5 mm.

Except that one example is black or nearly so, the three examples agree very well in most respects. Though everywhere dense on the dorsal surface, the puncturation of the elytra becomes still more dense and minute on the apical part. It is also dense along the lateral margins except towards the shoulders. The legs and two basal joints



of the antennae are red in all the specimens, the club joints black, the intermediate joints red in two and dark in the other example. I should think all three are certainly males and I do not know the other sex. The elytra are unusually elongate.

HAB. Maui, Haleakala, about 4000 ft.

(57) *Mirosternus tetragonus*, sp. nov.

Niger, fusco-pubescentis, elytris dense punctatis, antennarum articulo secundo rufo, tibiis nigricantibus. Caput subtiliter punctatum, oculis mediocribus, latissime separatis. Antennarum clava magna, articulo basali subquadrangulati, apice fortiter producto, articulo secundo triangulati, apice fortiter producto. Elytra ex majore parte aequaliter crebre punctata, fusco-pubescentia, lateribus fere ad humeros dense punctatis, sutura postice impressa. Metasternum anterius fortiter carinatum. Long. 2.75 mm.

The single example is no doubt a male and is easily distinguished by the antennae and sculpture. The punctation of the pronotum appears to be very indistinct, much more so than that of the head.

HAB. Kauai, 4000 ft.

(58) *Mirosternus rufescens*, sp. nov.

Rufescens, capite obscuriore, pronoto antice, elytrorum lateribus, sutura, antennarumque clava nigricantibus, pallide pubescens. Oculi magnitudine mediocres, latissime separati. Antennarum clava magna, articulo primo quodam in aspectu quasi subquadrangulati, apice fortiter producto. Pronotum subtiliter vix dense sat evidenter punctatum. Elytra pubescentia pallida flavescente vestita, apices versus usque ad margines laterales densissime et subtilissime punctata sive sculpturata, ad basim et juxta suturam subtiliter sat crebre punctata, caetera parte minus dense punctata. Long. 2.5 mm.

The single example is no doubt a male, the antennal club being well developed. The first joint of this club in certain aspects has an almost subquadrangular appearance, part of the inner margin appearing to be nearly parallel to the outer. This character with the colour, sculpture of thorax and elytra &c. distinguish the species.

HAB. Maui, Haleakala, about 5000 ft.

(59) *Mirosternus dubiosus*, sp. nov.

Nigricans, pronoto picescente, pubescentia flavescente vestitus. Oculi minores, latissime separati. Antennarum clava sat magna, articulo primo quasi quadrangulati, vix latissime dilatato, apice fortius producto. Pronotum densius pubescens, vix nitidum, crebre ubique (sed indistincte) minutissime punctulatum. Elytra supra dense punctata et pubescentia, latera versus nitida, fere glabra, longitudinaliter rugulosa, parce (nec

subtiliter) plus minus seriatim punctata. Metasternum late depressum, carina forti et elongata antice instructum. Long. 2.75 mm.

The single example described is no doubt a male. Both the first and second club joints of the antennae have a more or less evident quadrangular shape. The sculpture of the elytra is dense and they are well clothed with pubescence over the middle third or more of their width, exterior to which the punctures become remote and the surface nearly bare.

A female example taken at the same time and place probably belongs to this male; the antennae are a good deal smaller and the first and second joints of the antennal club are triangular (as it is quite likely they would be in some specimens of the male) and the whole club is more or less pale in colour. The latter is also a character of no importance in Hawaiian Anobiidae.

I have a male specimen procured in another locality and at a later time which considerably resembles the male described. The antennal club is rather larger, the puncturation of the elytra is coarser in part, and the area of dense punctures does not extend so far outwards from the suture. It is impossible to decide whether this is another species or a variety of *M. dubiosus*.

HAB. Oahu, Koolau range.

(60) *Mirosternus carinatus* Sharp.

*Mirosternus carinatus* Sharp, Tr. Ent. Soc. London, 1881, p. 524.

The male of the species, which I refer to *M. carinatus* Sharp, from the description, is a black insect, but the female is brown in colour. I have examined many specimens and have no doubt as to the sexual dimorphism, since I have taken examples in cop. There is a very considerable variation in the puncturation, at least in the females, some having this much more sparse than others. The eyes in both sexes are not at all large and very widely separated. The metasternum of the female is without a carina in front, or at least has only a rudimentary one, much more feeble than that of the ♂. I refer to the same species numerous specimens from Kauai, which are of much smaller average size, sometimes even minute, but the largest examples of these equal or exceed the smaller ones from Maui. Both on Kauai and Maui the puncturation of the elytra shows the same variability and is very perplexing. I should think it very probable that Blackburn's *M. acutus* is a variety of the Kauai form of this species.

HAB. Kauai, Maui.—Maui, Haleakala (4000—5000 ft.); Kauai (3000—4000 ft.), a common species.

(61) *Mirosternus acutus* Blackburn.

*Mirosternus acutus* Blackburn, Tr. Dublin Soc. 1885, p. 160.

I have suggested under *M. carinatus*, that *M. acutus* may be a form of that species. Ten years ago I made a superficial examination of *M. acutus*, but for purposes of identification it would be necessary to relax and thoroughly clean the unique type, before coming to any decision on this point.

HAB. Kauai (Blackburn).

(62) *Mirosternus tristis*, sp. nov.

Niger, griseo-pubescentis, antennis (articulo secundo saepissime excepto) nigris aut fere nigris, tibiis nigris aut nigricantibus, femoribus anterioribus plerumque, et nonnunquam caeteris, rufescentibus. Oculi minores et latissime separati. Antennarum clava magnitudine mediocris, articulo secundo triangulari, angulo interno plus minusve acuto. Pronotum ex majore parte obsolete punctatum, nitidum. Elytra dense subtiliter, plerumque plus minus rugulose, punctata, griseo-pubescentia, lateribus longitudinaliter rugulosis, et plus minus nitidis. Long. 2·5—3·25 mm.

If I am correct in assigning a short series of examples to this one species, this is one of the most difficult and obscure forms in the genus. I cannot determine the sexes, for while some examples have larger antennae than others, some are intermediate in this respect. There is a good deal of variation in the puncturation also. The black colour, generally dense elytral puncturation, grey pubescence, moderate antennal club, with the inner angle of the basal joint sharper than usual, and the very widely separated eyes are the chief characters. The metasternum appears to be usually if not always carinate, but the carina is not strong and varies in development.

HAB. Hawaii, Kona district, above the wet belt.

(63) *Mirosternus vestitus*, sp. nov.

Rufescens aut castaneus, elytrorum apicibus subpallidioribus, totus sat dense flavo-pubescentis. Oculi sat magni, sat late distantes. Antennarum articuli 3 ultimi mediocres, horum articulo primo sat elongato (minus lato) angulo interno haud acuto, apice haud fortiter producto. Elytra dense subtiliter punctata, parte apicali vel subtilius et densissime punctulata, lateribus nitidis et ruguloso-punctatis. Long. 3·25 mm.

There is not much difference between the four examples I have examined; at most the basal club joint of the antennae is rather wider in proportion to its length in some than in others, and this might indicate a sexual distinction. It is, however, quite likely that all are of the same sex. The colour, clothing and puncturation seem to distinguish the species.

HAB. Oahu, Honolulu range, 1500 ft.

(64) *Mirosternus debilis* Sharp.

*Mirosternus debilis* Sharp, Tr. Ent. Soc. London, 1881, p. 525.

To this species I refer four examples taken on Oahu, and I believe it to be very variable in colour. Some of these specimens are black with a red spot on each wing case towards the apex, or there may be in addition to these a basal red spot on each, or the whole insect may be reddish, a darker area traversing the elytra behind the base. The puncturation varies in intensity. The eyes are small and very remote.

HAB. Oahu, Waianae mountains.

(65) *Mirosternus varius*, sp. nov.

Niger, elytris ad basim singulis saepe rufo-notatis, versus apices etiam saepe rufo-maculatis, sat nitidus. Oculi minores, latissime separati. Antennarum clava haudquaquam magna, articuli 1 et 2 angulo interno haud acuto. Pronotum nitidum, pallide pubescens, sed vix distincte punctatum. Elytra subaequaliter pallida pubescentia vestita, subtiliter sat aequaliter sed plus minus indistincte aut obsolete punctata. Long. 3.25 mm.

Except when more or less brightly marked with four red spots on the elytra (some or all of these spots may be absent), this is an obscure species. It is chiefly distinguished by the small eyes, moderate or small antennae (sometimes even the club being pallid) and the close but indefinite or subrugulose puncturation of the elytra, which is very shallow. The clothing of these is evenly distributed.

HAB. Kauai, 4000 ft.

(66) *Mirosternus hirsutulus*, sp. nov.

Brunneus, elytris nigro-marginatis, pubescentia pallida flavescente dense vestitis. Oculi minores, late separati. Antennarum clava angustula, elongata, articulo primo elongato, minus fortiter dilatato, angulo interno haud acuto. Pronotum subtiliter punctatum, sat dense pubescens. Elytra subtiliter, sat crebre subaequaliter punctata, lateribus nitidis, fere glabris, rugulosis et parce punctatis, punctis majoribus, leviter impressis. Long. 2.5—3 mm.

I have examined two specimens, which agree in nearly all respects, except that one is much larger than the other. The pubescence is rather coarse and shaggy. This character, together with the colour and the elongate narrow basal joint of the club of the antennae, the puncturation, and glabrous sides of the elytra will distinguish the species.

I have also a specimen, given me by Koebele, from Oahu, but without special locality, which differs in the colour of the elytra, the side margins not being black, and

also another in which the basal joint of the club of the antennae is less elongate, wider in proportion to its length. I suspect these belong to the above species and the one with the wider club joint may be the other sex.

This species somewhat resembles *M. vestitus*, but that has smoother pubescence and larger eyes.

HAB. Oahu, Waianae mountains; Honolulu mountains (?), Koebele.

(67) *Mirosternus stenarthrus*, sp. nov.

Niger, dense ubique punctatus, dense cinereo-pubescent. Oculi minores, latissime separati. Antennarum clava angustior, articulo primo elongato, minus fortiter dilatato, angulo interno haud acuto. Pronotum distincte, subfortiter, ubique dense punctatum. Elytra dense, subaequaliter, distincte punctata, lateribus humeros juxta nitidis, ruguloso-punctatis. Long. 3—3.5 mm.

There are two examples of this species, which I have marked as ♂ and ♀, but it is not stated that they were taken in cop. If they truly represent the sexes, then these must be extremely similar in this species. The comparatively strong and distinct puncturation of the pronotum is characteristic of the species and will greatly facilitate its determination as also the basal antennal joint, which is longer than usual in proportion to its width.

HAB. Oahu, Honolulu mountains.

(68) *Mirosternus dimidiatus*, sp. nov.

Nigricans, dense pubescentia pallida flavescenti vestitus, elytris crebre punctatis. Oculi minores, latissime separati. Antennarum clava mediocriter magna, articulo primo fortius elongato, minus fortiter dilatato, angulo interno haud acuto. Pronotum subtilissime indistincte punctatum, dense pubescens. Elytra dense subtilissime punctata, lateribus versus humeros nitidis, parce punctatis, punctis majoribus, subobsoletis. Long. 2.5—2.75 mm.

In most respects very like *M. stenarthrus*, but much less in bulk, and at once distinguished by the feebleness of the pronotal puncturation. The pubescence of the elytra is rather rough, being directed in different directions. Only two specimens have been examined which agree very closely in all respects, and the sex cannot be determined without dissection.

HAB. Oahu, Honolulu mountains.

(69) *Mirosternus obscurus* Sharp.

*Mirosternus obscurus* Sharp, Tr. Ent. Soc. London, 1881, p. 523.

I refer to this species a series of specimens obtained on four of the islands. It varies in colour from brown to pitchy or almost black. The club joints of the antennae are usually pale, or at least not black, and compared with most species of the genus the club joints are unusually ill-developed. The eyes are small and very widely separated. The dense puncturation is continued right to the lateral margins of the elytra, and extends along these the whole way to the base. Very fresh examples from Oahu have the pubescence of the elytra more irregularly disposed than those from Hawaii, but otherwise seem to be identical.

HAB. Oahu, Molokai, Maui, Hawaii.—Widely distributed on Hawaii.

(70) *Mirosternus solidus*, sp. nov.

Major, fusco-niger, antennis testaceis. Oculi mediocriter magni, latissime distantes. Antennarum clava parum magna, articulo primo elongato, parum fortiter dilatato, angulo interno haud acuto. Pronotum crebre et distincte ubique punctatum, dense pallido-pubescentis. Elytra distincte crebre punctata, apices versus densissime minutissime punctulata, ubique flavido-pubescentia, lateribus usque ad humeros dense punctatis. Metasternum haud carinatum; abdominis segmentum ultimum ventrale ad apicem sat distincte impressum. Long. 3.75 mm.

I have seen only one example of uncertain sex. The pubescence is of a rather obscure yellowish colour. The species is allied to *M. obscurus* Sharp.

HAB. Kauai, 4000 ft.

Fam. BOSTRYCHIDAE<sup>1</sup>.

All the Bostrychidae found in the islands have, no doubt, been introduced by man. Some of them are now extremely common and *Schistoceros cornutus*, *Apate lifuana* and *Sinoxylon conigerum* may be considered as injurious insects, and perhaps some of the others should be placed with these.

## SCHISTOCEROS Lesne.

*Schistoceros* Lesne, Ann. Soc. ent. France LXVII. 1898 (1899), p. 502.

(1) *Schistoceros cornutus* Pall.

*Schistoceros cornutus* Pall., sec Lesne, Ann. Soc. ent. France, 1898, p. 510.

*Bostrichus migrator* Sharp, Tr. Dublin Soc. 1885, p. 160.

HAB. Hawaiian Islands, abundant. I have taken the same species in Mexico. Hawaiian specimens vary greatly in size. Widely distributed in America and the Antilles.

<sup>1</sup> By R. C. L. Perkins and D. Sharp.

## XYLOTHRIPS Lesne.

*Xylothrips* Lesne, Ann. Soc. ent. France LXIX. p. 624.

(1) *Xylothrips religiosa* Boisd.

*Xylopertha religiosa* Boisd., Lesne, l. c.

*Apate lifuana* Mont., Ann. Soc. ent. France, 1861, p. 267.

HAB. Hawaiian Islands, very abundant.

## XYLOPSOCUS Lesne.

*Xylopsocus* Lesne, Ann. Soc. ent. France LXIX. p. 627.

(1) *Xylopsocus castanoptera* Fairm.

*Apate castanoptera* Fairm., Essai sur les Col. de la Polyn. p. 77.

HAB. Oahu, Kauai and no doubt all the islands.

## SINOXYLON Duftsch.

*Sinoxylon* Duftsch., Lesne, Ann. Soc. ent. France LXXV. p. 462.

(1) *Sinoxylon conigerum* Gerst.

*Sinoxylon conigerum* Gerst., Lesne, l. c. p. 504.

HAB. Oahu and no doubt all the islands.

## DINODERUS Stephens.

*Dinoderus* Steph., Lesne, Ann. Soc. ent. France LXVI. p. 321.

(1) *Dinoderus minutus* Fab.

*Dinoderus minutus* Fabr., Lesne, Ann. Soc. ent. France LXVI. p. 329.

HAB. Oahu.—I have seen a specimen, determined by Schwarz. It was taken from bamboo furniture.

## RHYZOPERTHA Stephens.

(1) *Rhyzopertha dominica* Fabr.

*Rhyzopertha pusilla* Steph., Ill. Brit. Ent. III. p. 354; *dominica* Fabr., Lesne, Ann.

Soc. ent. France LXXVII. p. 332.

HAB. Oahu, Hawaii and no doubt the other islands.