FAUNA HAWAIIENSIS

VOL. III. PART III.

COLEOPTERA. II.

D. SHARP

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COLEOPTERA CARABOIDEA

By D. SHARP.

FAUNA HAWAIIENSIS

OR THE

OOLOGY OF THE SANDWICH (HAWAIIAN) ISLES:

Being Results of the Explorations instituted by the Joint Committee appointed by

THE ROYAL SOCIETY OF LONDON FOR PROMOTING NATURAL KNOWLEDGE AND THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

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EDITED BY

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SECRETARY OF THE COMMITTEE.

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COLEOPTERA.

III. COLEOPTERA CARABOIDEA[1].

By D. Sharp.

Contents. § 1, *General remarks;* § 2, *Systematic account;* § 3, *Bionomical notes;* § 4, *Bibliographic list.*

§ 1. General Remarks.

The Adephaga or Caraboidea form one of the great divisions of Coleoptera and include at present probably between 15,000 and 20,000 described species. About 212 species are here enumerated as members of the Hawaiian Fauna. The number of species in the United Kingdom of Great Britain and Ireland is about 450, the area of the Hawaiian Islands being about one-eighteenth that of the United Kingdom. The series Adephaga of modern authors consists of seven families, only two of which are represented in Hawaii. The five families unrepresented in the Hawaiian Fauna are however comparatively small and, with the exception of the Cicindelidae, unimportant.

The two families present in Hawaii are the Carabidae with 210 species and the Dytiscidae with 2. The Carabidae are entirely terrestrial, the Dytiscidae aquatic.

Of the 212 species composing the Fauna 211 are precinctive, or confined to the area. The single species that is not precinctive is one that is distributed in various parts of the world, it is believed, by travellers. This species, *Plochionus pallens*, has been found on the island of Maui near Lahaina, the port first frequented by foreign commerce, and does not appear to extend its range, though it is probable that many years have elapsed since its introduction, which probably dates from the time when Lahaina was frequented by whaling ships. It is now, and for many years past has been, I believe, a comparatively unimportant commercial locality.

Of the 212 species of Hawaiian Caraboidea 149 are here described as new; 60 were discovered and described by the Rev. T. Blackburn (now of Adelaide) during his residence at Honolulu, about twenty-five years ago, as a chaplain of Bishop Willis; the other three were known to earlier authors.

[1] Parts I and II of Coleoptera appeared in Vol. II; they dealt with Phytophaga, Rhynchophora, Heteromera, and Cioidae.

The number of specimens on which the following account is based is about 6500. By far the larger part of this material was obtained by Mr Perkins while working for the Committee. But I have also received specimens from other sources. I have to thank Mr Albert Koebele, the economic entomologist of the Hawaiian Islands, for some very interesting specimens. Mr Perkins has recently sent me specimens collected by himself and friends. And Mr Blackburn presented me with a set of the specimens described long ago by him.

Before entering on the systematic consideration of the genera and species, I may be pardoned for explaining the system I have adopted. It is indeed desirable that I should do this as the system is an unusual one, and some apology, as well as explanation, is demanded.

It is evident from the statistics I have already given that this part of the Hawaiian Fauna is quite apart from that of other parts of the world. We have no clue to its source. It is also clear that this isolated and precinctive fauna must have existed for an enormous period of time under most peculiar conditions. A small area separated almost completely from the rest of the world, but divided into islands of a wildly mountainous character, subjected for a vast, though uncomputed period[1] to the most extensive volcanic disturbances, while the history of the separate islands as to these disturbances is, chronologically, widely different—such an area offers biological conditions almost without parallel on the surface of our globe. Of such a precinct every philosopher must like to know the history. Its Fauna and Flora are to be looked upon as amongst the most interesting of the biological experiments of Nature.

Taxonomy. A preliminary scrutiny revealed the fact that these Hawaiian Carabidae are as regards their main divisions quite concordant with those of other parts of the world, but that they exhibit in an exaggerated form certain features that elsewhere are comparatively rare. The chief of these are (1) flightlessness, (2) a diminished chaetotaxy.

I have therefore used these two characters to an extent that has not been done by those who have treated of continental faunas, and I have relied on them, almost exclusively, for generic characters.

I am well aware that this system—as a system—has certain disadvantages. These indeed I hope to make evident in the following pages. But now that I have completed this part of the Hawaiian work I am of opinion that I have done right in adopting it. It at any rate brings the systematic divisions on to one plane with the bionomic aspects, and I think that by adhering to it my successors—and I wish I could hope they will be many—will find the interest of their work enhanced.

I may perhaps make the merits and demerits of this system clear by saying that under it an individual, by a simple process of discontinuous variation—such as there is

[1] Dana, who studied these islands, considered them to be of enormous antiquity, but declined venturing on any specific estimate of their age.

reason for believing actually occurs—may *ipso facto* pass from the genus of its parents to another. It follows that the contemporary members of one generation may possibly belong to two different genera, though having the same specific parentage.

In admitting this many will say that I have condemned the system I adopt, and that under such a system taxonomy would be merely a synonym with chaos.

To this I reply that I do not wish this method to be applied at once to the Carabidae of other parts of the world. The Hawaiian Fauna is, as regards this family, as isolated as are the islands, and we may be content with seeing how this method works with this isolated faunistic fragment.

And I may add that I have reason to believe that these dislocations of taxonomy—if they occur at all—occur but rarely.

If the study of the Hawaiian Fauna should show that they do occur; and if observation should show that, at the periods of the phylogeny when they occur, they do so in some cases with frequency, some evidence of real importance as to the mode of origination of species and of genera will have been disclosed.

A brief statement of this subject will reveal some very interesting facts. The 209 species of Hawaiian Carabidae belong to four groups, Anchomenides, Pterostichides, Bembidiides and Lebiides. The Lebiides should however be omitted, as the group contains only two species, neither of which has I believe any claim to be considered a natural member of the Hawaiian fauna. One of them, *Plochionus pallens*, I have already alluded to as having been probably introduced to Maui by the whalers that formerly frequented the roadstead of that island. The other, *Saronychium inconspicuum*, is not known to exist elsewhere. It was discovered by Mr Blackburn twenty-five years ago, one specimen being found in Honolulu, and a second among dead leaves on Konahuanui. It has never been found since, and it is therefore very doubtful whether it actually exists in the Archipelago. Its discovery elsewhere would finally discredit it as a natural member of the Hawaiian fauna.

The precinctive Hawaiian Carabidous fauna may therefore be considered to consist of 209 species, belonging entirely to three groups. The Carabidous fauna of the United Kingdom of Great Britain and Ireland consists of about 315 species, belonging to 25 groups. The remarkable taxonomic concentration of the Hawaiian fauna is not however adequately expressed by this brief statement because the Pterostichides form generally one of the largest and most varied of all the groups of Carabidae in all parts of the world; but in the Hawaiian fauna it includes 78 species, all of which would be placed in a single genus, *Cyclothorax*, were it not that I have separated them therefrom and divided them into four genera on certain of the degradational characters that form so marked a feature of the Hawaiian Carabidae.

Flightlessness. Vestigial wings. Much has been written on this subject, but the conclusions usually stated have a very small basis of fact, and interesting as the subject is, it must be considered a really neglected one. The data I here give are

therefore of some importance, though they are very imperfect. They show that of 204 species 184 are flightless—possessing only vestigial wings—while twenty are fully winged[1]. In other words, 90 per cent. of the Hawaiian Carabidae are flightless species. I believe that in most continental regions these proportions would be about reversed; but no statistics as to this exist so far as I know; and no doubt the proportion would be found to differ greatly according to the locality selected for investigation. The Carabidae are "ground beetles," and allied forms may be either flightless or winged. Anchomenides are usually winged; the only known allies of our *Cyclothorax*-forms are winged; and the whole of the European Bembidiides I have examined are winged. The forms to which the Hawaiian Carabidae are allied are therefore chiefly winged forms. A parallel to the remarkable flightless Bembidiid fauna of Hawaii is however found in St Helena, where eleven out of the twelve species discovered by Mr Wollaston are "wingless."

Table of Hawaiian Flightless and Winged Carabidae.

Genus etc.	Flightless. No. of species.	Winged. No. of species.
ANCHOMENIDES.		
Blackburnia	1	
Deropristus	3	
Atrachycnemis	3	
Anchotefflus	2	
Pseudobroscus	1	
Derobroscus	3	
Brosconymus	1	
Anchonymus	1	
Mauna	1	
Disenochus	12	
Chalcomenus		3
Barypristus	2	
Baryneus		1
Colpodiscus		2
Prodisenochus	1	
Apteromesus	1	
Mysticomenus		2
Colpocaccus		6
Atelothrus	15	
Mesothriscus	14	
Platynus	2	
Mecostomus	1	
Mecomenus	2	
Metromenus	26	
PTEROSTICHIDES.		
Mecyclothorax	30	
Thriscothorax	29	
Atelothorax	1	
Metrothorax	16	
BEMBIDIIDES.		
Gnatholymnaeum	1	
Nesolymnaeum		1
Bembidium		5
Nesocidium	10	
Atelidium	1	
Metrocidium	2	
Nesomicrops	1	
Macranillus	1	
Total	184	20

It would be out of place to discuss at any length the theories that have been or that might be promulgated in reference to the flightlessness of insular beetles. Charles Darwin believed "that the wingless condition of so many Madeira beetles is mainly due to the action of natural selection, combined probably with disuse." Since he wrote

[1] In the following table *Tachys*, of the Bembidiides, is omitted (as well as the two Lebiides previously alluded to) because I have no material for examination and it is doubtful whether they are more than recently introduced forms.

it has, I believe, been stated that the insects of islands fly either better or worse (in many cases not at all) than those of continents. The former of these alternatives can scarcely be true as regards the Hawaiian Carabidae. Several of the species that have powers of flight have so limited a distribution within their haunts that it is clear they avail themselves of their wings very little; *Colpocaccus*, one of the winged genera, is more numerous in individuals than most of the other Anchomenides, but it is a feeble form, and doubtless—like most other beetles—drifts rather than flies. I do not think that the factors that have induced loss of wings in Hawaiian Carabidae are at all well expressed by Darwin's formula. I look on the loss of wings as induced probably by changes of habit becoming correlative with modes of growth[1]; and though the results may be effected to some extent by disuse, I think they have been mainly controlled by changes in habits, in instinct, and in physiological processes resulting from those prior modifications, and again inducing changes in the correlation of various parts of the body. Whether selection has played any part in the matter is clearly uncertain.

VESTIGIAL WINGS. It is commonly supposed and frequently stated that flightless or wingless beetles are apterous. This is a complete mistake, nearly the whole of the species called apterous really possess four wings; the anterior pair being transformed into elytra and the posterior pair reduced to appendages of varying size and form according to species, genus, etc. That these appendages are vestiges of organs that were formerly larger and then functionally useful is, for a variety of reasons that cannot here be discussed, probably true in a majority of cases if not in all. At the same time this does not prevent it from being also true that they may in some cases be rudiments as well as vestiges; in the sense that they may become again increased after having undergone reduction. These vestigial organs have been examined by me in the Hawaiian Carabidae to a certain extent, and I have made use of them for the purpose of establishing genera. I have invariably treated a species in which the wings are capable of being used for flight as of a different genus from one in which they are useless for this purpose. A functional wing is, in Carabidae, in the condition of repose twice folded; once by being bent (not doubled, but turned as if hinged) just proximal to the stigma on the costa, and again quite near to the tip. The functionless wings, or vestiges, are never thus folded even when they are of their largest size; their nervuration is very much reduced, and the apical part of the wing—that part beyond the stigma—is in Hawaiian flightless forms completely absent. There is in fact a great gap structurally between the functional and the functionless wing.

On the other hand the functionless—or vestigial—wing differs greatly according to species, as will be seen by reference to our plates.

Although great interest attaches to these vestigial wings of Coleoptera they have been very little studied, and I think therefore it will be worth while for me to set forth

[1] The bionomical notes at the conclusion of this memoir are of special interest in connection with this subject.

what I have observed about our Hawaiian forms. As the results differ in the case of the three groups, I will take them separately.

Group ANCHOMENIDES. A fair standard of comparison as to the size of the wings can be found in this group by comparing the length of the wing with that of the elytron. Most of the Hawaiian winged genera of this group have the wings about the usual size, the length of the wing being about $1\frac{1}{2}$ that of the elytron. In *Baryneus sharpi* the measurement gives wing 15 mm., elytron $9\frac{1}{2}$ mm. Although no data have, so far as I am aware, been published previously on the subject, this is I believe about the same relation as is usual outside the islands; I find that in our well-known European *Anchomenus parumpunctatus*, the lengths are wing $6\frac{3}{4}$ mm., elytron $4\frac{1}{2}$ mm. The Hawaiian genera *Colpocaccus*, *Mysticomenus*, and *Colpodiscus*, as well as *Baryneus*, have similar relative measurements. In the genus *Chalcomenus* the dimension of the wing is distinctly reduced, it being in *C. molokaiensis* 7 mm. to $5\frac{1}{2}$ for the elytron. In the aberrant *C. costatus* (from Kauai) the reduction of the wing is strongly marked, as is evident from inspection of Pl. VI. fig. 22. Measurement here gives wing $5\frac{3}{4}$, elytra $4\frac{7}{8}$ mm. The wing is in this case however perfectly well developed, all the nervures being present and strong. There is no connecting link between this and the numerous forms of vestigial wings. These vary much in size according to the species, as may be seen by a glance at the plate; the transverse folding is completely absent, and the nervuration is very incomplete; the apical portion of the wing has in fact completely disappeared. The vestiges differ to some extent in shape, and a little in nervuration; the stigma, or large chitinous spot on the costa, can frequently be detected just at the tip of the vestige, and differs a little in position. The vestige is large in *Barypristus incendiarius* and also in *Apteromesus maculatus:* in the former measurement gives about, wing $6\frac{1}{4}$, elytron $10\frac{1}{4}$; and in *Apteromesus*, wing 2, elytron 4. The vestiges are extremely reduced in the most remarkable of the Hawaiian Anchomenides, being in *Deropristus* about $\frac{1}{2}$ mm. long, while the elytron is $5\frac{3}{4}$ mm.

In any single species of Anchomenid the vestiges vary but little so far as I have observed. In testing this I have had assistance from Miss Alice Embleton. Upwards of fifty examples of one species have been examined, the method being as follows. The vestiges not being visible in the ordinary condition of the insect with closed elytra, 38 examples of these were selected; the chosen being those that differed most in size and shape: one elytron and one vestigial wing (those of the right-hand side) were taken off each specimen and fastened with gum on ruled millimetre paper, specimen and appendages side by side. In addition to the examples measured and tabulated by Miss Embleton, I myself dealt with fifteen or sixteen others. In all upwards of fifty specimens of *Barypristus rupicola* were dealt with. It is scarcely necessary to give the measurements of all the individuals, it is sufficient to say that the elytra were found to vary in length about 2·7 mm., the longest being 11·2, the shortest 8·5. The vestiges

varied about 1 mm. in length, the longest being about 3·5, the smallest about 2·5 mm. Thus the vestiges in absolute variation varied much less than the elytra, but in proportion to their sizes the variation of the vestiges was somewhat the greater.

I have not made any other extensive special examination of these Anchomenid wings, but I have seen nothing to lead me to suppose that they are variable to any considerable extent; and I incline to believe that what is true of the variation of *Barypristus rupicola* applies to most of the other species. It amounts to this, that the vestiges are not very variable; and that if, where they are still fairly large, they are to be looked on as in process of diminishing, then the diminution is effected by factors that affect all the individuals of a species in an approximately similar manner[1].

Group Pterostichides. Our 78 species of this group are all I believe flightless. I have examined those species that from their shape and contour gave a suggestion that they might be winged, but I have found none that were so. *Mecyclothorax amaroides* is a robust, broad-shouldered form, and I thought would certainly have good wings. On the contrary they are completely vestigial. The vestiges are apparently but little varied; I have noticed that usually they are about as long as the metanotum; in *M. montivagus* they are about $\frac{7}{4}$ the length of the metanotum.

The phenomena in this group appear to be considerably different from those we find in the Anchomenides, the species being all flightless, and the vestigial wings but little varied.

Group Bembidiides. In this group the two genera *Nesolymnaeum* and *Bembidium* with five species, are winged. The other forms are doubtless all flightless, and many of them, judging from their general appearance, are probably in the most advanced condition of wing-degeneration. We have obtained but a small number of specimens in this group, so that of only two species have I had any material for examining the wing-variation. These are *Bembidium molokaiense* and *Nesocidium laeticulum*. In discussing them I shall narrate my observations and need not repeat them here. It is sufficient to say that during my examination of the Kauai examples that I supposed to belong to the flightless *Nesocidium* I discovered two individuals I had assigned to it to be fully winged. I am unable to distinguish them by any other character, and though I have at present treated them as distinct (and as a variety of *Bembidium molokaiense*) I cannot but think that if further investigation were made of this species in Kauai we should find some interesting facts. I anticipate that we should discover that the flightless *Nesocidium laeticulum* sometimes occurs with fully developed wings (and is then according to the present system *Bembidium molokaiense* var.). If so the varietal formula would be something of this sort, viz. this species of creature usually has only

[1] Casey examined vestigial wings of *Blapstinus* and found them but little variable (Ann. New York Ac. vi. 1892). It has been stated that certain European *Carabus* fly in certain localities, though the wings are atrophied elsewhere. This is contradicted by Lomnicki, who states that *Carabus* is always flightless, and that the vestigial wings are in most species constant in size; but that in one or two species they are dimorphic, being of two grades of development. My own observations lead me to believe that Lomnicki's statements are probably correct. Zool. Anz. 1898, p. 352.

small vestigial wings; but specimens occur in which the vestiges are larger, though functionless, and also other individuals in which the wings are of full size and functionally fit; the discontinuity of the variation being in this case very remarkable.

It will thus be seen that my observations, admittedly of a very imperfect character, tend to show that probably the phenomena of wing-variation are different in each of the three groups that make up the Carabidous fauna of Hawaii.

Chaetotaxy. This subject has become of an importance that is still increasing in several orders of Insects. From the chitinous skeleton there stand out hairs that in some cases penetrate the chitin and are connected with a special nerve, thus forming a simple but effective set of sense-organs. The description of the ways in which these hairs are arranged is called chaetotaxy. In Carabidae those on the head have been found to be of great importance for classification. The great sub-family Harpalini—possessing probably 100,000 species—is characterised by the possession of two intra-orbital setae on each side. All our Hawaiian Carabidae belong to this sub-family.

The setae on the thorax I consider to be also of considerable importance in the three groups to which the Hawaiian Carabidae belong. Their number is, normally, two on each side, one at or near the hind angle, the other a little before the middle. This condition is varied by the absence of one or of both of the setae in certain genera or subgenera[1]. Outside the Hawaiian islands this normal condition of a pair of thoracic setae on each side seems to be extremely usual in the two groups Anchomenides and Bembidiides, and it is the condition existing in the only extra-Hawaiian genus—*Cyclothorax*—that is allied to the Hawaiian Pterostichides. Just as we found the Hawaiian Carabidae to be remarkably subject to degeneration of the wings, so do we find them to be remarkable for the diminished number or total absence of these thoracic setae. The cephalic setae remain constant in their number in Hawaii, but of the 208 species no less than 146 have a diminished number of setae, as shown in the following Table of the thoracic setae of Hawaiian Carabidae.

Name of genus	2 pairs of setae No. of species	1 pair of setae; basal No. of species	1 pair of setae; median No. of species	No setae No. of species
ANCHOMENIDES.				
Blackburnia		1		
Deropristus		3		
Atrachycnemis		1		
Anchoteflus				2
Pseudobroscus		1		2
Derobroscus				
Brosconymus				3
Anchonymus				1
				1

[1] Systematists are not yet agreed as to the taxonomic value of these thoracic setae. In some divisions of Carabidae they are but of little importance; but in the three groups with which we are occupied I am convinced that they are of generic value. There are also a few cases that detract from the importance of the intra-orbital setae.

Name of genus	2 pairs of setae No. of species	1 pair of setae; basal No. of species	1 pair of setae; median No. of species	No setae No. of species
Mauna		1		
Disenochus		12		
Chalcomenus		3		
Barypristus		2		
Baryneus		1		
Colpodiscus		2		
Prodisenochus	1			
Apteromesus				1
Mysticomenus				2
Colpocaccus	6			
Atelothrus		15		
Mesothriscus			14	
Platynus	2			
Mecostomus			1	
Mecomenus				1
Metromenus				26
PTEROSTICHIDES				
Mecyclothorax	30			
Thriscothorax			29	
Atelothorax		1		
Metrothorax				15
BEMBIDIIDES				
Gnatholymnaeum	1			
Nesolymnaeum	1			
Bembidium	4			
Nesocidium	10			
Atelidium		1		
Metrocidium				2
Nesomicrops	1			
Macranillus	1			
Number of species	57	44	44	56

This table shows that about 28 per cent. of the species of Hawaiian Carabidae have the thoracic setae normal, the other 72 per cent. suffering reduction; the number that have suffered total loss of the setae being about as great as that in which the structures remain normal. The three groups are considerably different; only nine per cent. of the Anchomenides remain normal, while about 39 per cent. have totally lost the setae. In Bembidiides only three out of 21 species have any diminution of the setae.

Very little is known statistically as to Coleopterous chaetotaxy, and it will of course be long before statistics dealing with the whole order can be obtained. Even as to the Carabidae we must wait long for adequate information, but as I have at different times dealt with Carabidae from various other parts of the world I can say that I believe that nowhere else have the beetles of the corresponding groups anything approaching to similar statistics. We have not in Britain a single member of these three groups that

has undergone total loss of thoracic setae, and but very few that have lost even one of the pairs.

I have made use of the characters of prothoracic chaetotaxy for the purposes of arranging the species in genera. As I have examined about 6500 individuals and as this is the first time that these structures have been used to any great extent for taxonomical purposes I shall be pardoned for discussing this subject at some length. These setae are very easily removed by rough handling, and specimens in collections are often deprived of them. Each seta springs however from a pit extending to some depth in the chitin and this always remains. When such a pit exists we are justified in treating the specimen as one that had a seta there[1]. The pits are however rendered obscure in certain cases by both artificial and natural causes. Sometimes they are filled up by dirt —and this dirt may be either extraneous, or an excretion from the insect itself. The natural punctuation, or sculpture, of the surface is sometimes of a nature that makes it difficult to perceive the pit. In some cases, too, a decision as to the existence of the pit is rendered difficult by its situation; it may be on the side of a raised margin, and this may prevent the light from falling on it. With a little care and experience all these difficulties disappear.

There are however facts that to some extent invalidate the utility of this character. In some cases the pit and seta are present on one side of the thorax and not on the other. This however occurs but rarely. A similar anomaly occurs in some details of the nervuration of the wings of other insects, but it is found not to seriously affect the value of the character for taxonomic purposes, for it is believed that the anomaly only occurs on both sides as a very rare exception. This is certainly the case as regards the pit and seta. I have borne this in mind and am convinced that only in two or three cases is it probable that the complete anomaly occurs. These I shall subsequently mention as they are of extreme interest.

When, in the Hawaiian Carabidae, the pit and seta are present on one side only, the individual may be safely treated as one of a species in which the seta is present. This departure from bilateral symmetry is in fact a deficiency; it is not a sport, by excess, of a species having no seta[2]. It is recorded that in certain cases a seta may be in duplicate; that is to say, instead of there being one pit and one seta in a certain situation, there are two in close proximity. I have only observed one such anomaly in our Hawaiian Carabidae; it occurs in a specimen of *Thriscothorax unctus*, one individual of which has the setae doubled on one side of the thorax.

Under these circumstances I have found it safe to rely on the seta for discriminative purposes.

In the cases of *Mecyclothorax robustus* and *Atrachycnemis sharpi* I have acted

[1] This may not be absolutely true, as will be seen by my subsequent remarks as to *Atelothrus transiens*.

[2] This, again, may not be absolutely true; cf. what is said as to *Metromenus pavidus*, and *Mesothriscus truncatus*.

inconsistently. I have placed in *Atrachycnemis A. sharpi* with setae, though the other two species of the genus have none. But in the case of the *Mecyclothorax* I have separated specimens generically, solely on account of a difference in the setae. My reasons for this discrepancy are as follows. In *Atrachycnemis* the setae are extremely reduced in size, all of the setae of the body being very small and feeble: moreover in this division of the Hawaiian Carabidae the setae appear to be of less importance than they are elsewhere, they being, I suggest, rendered functionally useless by the exudation with which such genera as *Blackburnia, Atrachycnemis* and *Anchotefflus* are so frequently covered. On the other hand the *Cyclothorax* forms have the setae of the body well developed, and their presence or absence appears not to be affected by any considerations such as those I have alluded to as existing in the case of *Atrachycnemis*. The problem as to whether *Mecyclothorax robustus* and *Thriscothorax robustus* (differing almost solely by their setae) may be really only dimorphic forms of one species, is not the least interesting of the questions raised by my slight study of the Hawaiian Carabidae, and as the insects are apparently not rare on Haleakala it may be possible to decide it by observation of the forms in their haunts. I have alluded to it when speaking of those species.

A most interesting condition is present in *Atelothrus transiens*. In that species the pit is present but the seta that should grow out of it is usually absent. We have received fifty examples of this species, and in only one of them is the seta present; it is then on one side only, but it is of normal size. This is a highly interesting variation. Taken in connection with the fact that the setae in Hawaiian Carabidae are so much below the average it induces one to suggest that this is a case in which the structure is at present actually in the process of specific atrophy.

The case of *Metromenus pavidus* and *Mesothriscus truncatus* already alluded to is much more obscure. Among 240 examples of the former species—which is one having no thoracic setae—I found three examples that have a seta. It is medianly placed, and I have described them as a separate form, *Mesothriscus truncatus*. If this should prove to be a sport of *Metromenus pavidus* it may be considered a case of atavistic reversion; the species formerly had setae; has lost them; and yet examples are occasionally produced having the setae.

One more point may be mentioned; there are in the Hawaiian fauna a certain number of Anchomenids that depart considerably from the average of their fellows. They are more elongate in shape, with longer legs, and are also of a paler colour than is usual in other forms, Plate VI. fig. 10. In accordance with my system these forms come into three genera, *Atelothrus, Mesothriscus* and *Metromenus*. I was at first inclined to the opinion that the separation of these similar forms was a result that invalidated the system. On comparing these forms—of which there are some eight or ten—it appeared, however, that none of those that I considered different on account of the setae could be correctly associated as one species even if the setae were altogether left out of consideration; and I therefore look on these long-legged forms as instances of convergence. They are all very rare, and are, as it were, being brought together

from different origins by some agencies we do not understand. Should these examples —as we suppose many other Hawaiian Carabidae have done—lose their setae, it would then be a difficult matter to distinguish the species, and many entomologists would declare them all to be one.

Had I not adopted the condition of the wings and the thoracic setae as a basis for genera our Hawaiian Carabidae would have appeared as members of only three or four genera. The other structural characters I have used for discrimination are extremely slight. This should be borne in mind, as the picture thus presented of three distinct groups, each consisting of a considerable number of closely allied forms, is fairly correct.

There are one or two points of a general nature that may be noticed. The Hawaiian Carabidae are as a whole considerably below the average in stature; the largest form—*Barypristus incendiarius*—is scarcely so large as our *Pristonychus terricola*; and small forms predominate. The Bembidiids are on the average smaller than our European forms, and there is not a single instance of a form that is large for the group to which it belongs. Fine colours and elegant shapes are extremely rare, but there are examples of remarkable sculpture.

The fore-feet of the male are much less developed than usual. Their dilatation is so slight that it can generally scarcely be detected. The Bembidiids form to some extent an exception to this; but this group is one in which this character is everywhere inconspicuous.

Variation. That the Hawaiian Carabidae are variable is quite certain. To what extent they are variable in comparison with their analogues in other faunas is however a very difficult question. There are certain reasons that incline one to estimate too highly the variability of Hawaiian forms. In studying European beetles we have all sorts of books to help us, and these have been so drawn up as to put on one side the variable characters and draw our attention to those that are comparatively stable. In the Hawaiian fauna this is not yet the case. We have to look at everything, and unless one has a long series, it is very difficult to form an opinion as to the stability of the characters observed. After making allowance for this, and for the various isolated forms that are easily distinguished on one or two specimens, I think that as a whole the Hawaiian Carabidae are really more variable than the European.

There are many very variable species in Europe—protean they are frequently called—but I think the proportion of these is greater in Hawaii than in Europe. Some Hawaiian species are but little variable so far as extant evidence goes. The two species of *Deropristus*, *D. puncticeps* and *D. deroderus*, vary but little if I may judge from the 100 examples I have seen. *Metromenus pavidus*, of which I have seen 240 specimens, shows but little variation. But it must be recollected that our specimens come from but few localities, and the variation might be greater if the area of the distribution were more thoroughly scrutinised. Whether there is anything in Hawaiian species to correspond to the geographical variation one finds in European forms; or whether that geographical variation has become accentuated, so as to form species, by the separation

of the area into islands between which there is but little communication, it would be very difficult to say. But I have an impression that this is the case. The forms I have placed in *Colpocaccus* are well-winged, and they are more nearly allied than most of the other forms I have admitted as species, so that it would perhaps have been better to treat one or two of them as subspecies. I incline to think that this inferior differentiation may possibly be due to the greater frequency with which individuals of *Colpocaccus* pass from one island to another. The numerous flightless forms can in most cases be rarely, if ever, transmitted from one island to another. Careful inquiry may possibly show that the flying forms are represented by subspecies in different islands, and the flightless forms by distinct species. But on these points there is no adequate evidence.

Distribution. All the Hawaiian Carabidae are precinctive with the exception of one species that is probably not native. Three or four others may possibly be found elsewhere.

There is nothing whatever to indicate any particular region as that from which they were derived. *Platynus* and *Bembidium* are the two genera that Hawaii has in common with other parts of the world, and both of them are nearly cosmopolitan.

The species of the *Cyclothorax* division (Pterostichides) are very closely allied to the two or three species that constitute the genus *Cyclothorax*. These are found in Australia and New Zealand. But in those countries only two or three of these forms are known, whereas in Hawaii we have about 80. It would therefore be quite as reasonable to infer that the Antipodean forms have been derived from the Hawaiian as to assume the opposite proposition to be true.

Distribution within the islands. We may summarise this by saying that nearly the whole of the species are confined to a single island. When a species occurs on more than one island it is nearly always the case that the localities of its occurrence are on islands that are adjacent, such as Maui and Molokai.

TABLE. Showing the genera and their distribution in the islands, and the number of species in each island.

	Kauai	Oahu	Molokai	Lanai	Maui	Hawaii
ANCHOMENIDES						
Blackburnia		1				
Deropristus		1	1		1	
Atrachycnemis			1		2	*
Pseudobroscus					1	
Derobroscus		3				
Brosconymus		1				
Anchonymus					1	

* Since the remark on p. 195 was printed I have ascertained that the habitat of *Atrachycnemis kochelei* is W. Maui, not Hawaii.

	Kauai	Oahu	Molokai	Lanai	Maui	Hawaii
Anchotefflus	1	1				
Mauna					1	
Disenochus	5		3		4	
Chalcomenus	1	1	1			
Barypristus					1	1
Baryneus					1	
Colpodiscus					2	1
Porodisenochus					1	
Apteromesus	1					
Mysticomenus		2				
Colpocaccus	2	1	1	1	1	2
Atelothrus	1		2	2	9	1
Mesothriscus	5	2	4	1	3	1
Platynus	1				1	
Mecostomus					1	
Mecomenus					2	
Metromenus	3	17	5	1	1	1
PTEROSTICHIDES						
Mecyclothorax			6		21	4
Thriscothorax		2 3 5	8	2	12	6
Atelothorax					1	
Metrothorax		(1)	4		7	3
BEMBIDIIDES						
Gnatholymnaeum	1					
Nesolymnaeum		1	1			
Bembidium	3	2	2		3	1
Nesocidium	5	2	1		2	
Atelidium	1					
Metrocidium	2					
Nesomicrops	1					
Macranillus	1					
Tachys		4				
LEBIIDES						
Plochionus					1	
Saronychium		1				
	34	44	40	7	80	21

This census shews:—Kauai 34, Oahu 44, Molokai 40, Lanai 7, Maui 80, Hawaii 21, species.

The most remarkable features are the richness of Maui and, in strong contrast, the poverty of the great island of Hawaii. Further researches will no doubt result in considerable modification of these figures. They are probably in part due to unequal collecting and to other circumstances that are not really connected with the natural distribution of the species.

The wealth of Maui and its neighbour island Molokai is very extraordinary; and

is most marked in the Pterostichides; these two islands possessing 59 out of a total of 78 species. The island of Kauai is rich in Anchomenides and Bembidiides, but possesses no Pterostichides. Oahu is the metropolis of the extensive genus *Metromenus* and has 17 of the 26 species thereof. Hawaii is poor in all the groups, least so in Pterostichides, of which it has 13 species.

If this table be studied with the map it seems to indicate that the movement of species has been on the whole from North to South. This is best shown in the Pterostichides and Bembidiides. From the metropolis—Maui and Molokai—of the former group, 4 species are found northwards in Oahu, but none have reached Kauai; on the other hand 13 species are found southwards in poverty-stricken (so far as Carabidae are concerned) Hawaii. Kauai is the metropolis of Bembidiides, and it seems probable that as species of this group are found in all the islands to the south (except Lanai), that most of them have been derived from Kauai. The Kauai species of Anchomenides are as a rule remarkably distinct; and it is not unreasonable to infer that—notwithstanding its superior age as a theatre for entomological action—it has been comparatively free from immigration from the other islands, though not infrequently sending emigrants to them.

Before passing to the enumeration of the species it is right to say that I think this collection of Hawaiian Carabidae is far from being a complete one. No Carabidae were known to live in the Hawaiian islands until about twenty-five years ago. The Rev. T. Blackburn, during his residence in the islands, at that time discovered and described no less than 60 species. The laborious exertion and great perseverance of Mr Perkins have increased the number to 210. When I recall the fact that large parts of the islands are entomologically still terrae incognitae, and also that Mr Perkins collected, in the localities he visited, not only all the Orders of insects, but likewise birds, molluscs, spiders, etc., I am warranted in saying that I think the Hawaiian Carabidae may prove to include about twice the number of forms here catalogued. The nature of the collection confirms this view, there being many forms represented by only one, two, or three specimens.

Hawaiian Carabidae are extremely subject to the attacks of Laboulbeniaceae, a form of Cryptogam that flourishes on chitin. This is carried to such an extent that some of the specimens are perfect gardens of these curious fungi. Some three or four years ago Professor Roland Thaxter visited Europe for the purpose of his phytological work on this group. On his attention being called to the collection of Hawaiian Carabidae formed by the Sandwich Islands Committee, he examined it in detail, and took away many specimens of the parasites. He has since published descriptions of some of them, and as he left a ticket attached to each beetle from which he took specimens of the parasites, I have added to my paper the numbers written on his tickets. The species of insect on which the Laboulbeniaceous parasite lived can thus be identified, as Professor Thaxter published these same figures in connection with his descriptions.

§ 2. Systematic account of the Coleoptera Caraboidea.

The Caraboidea, or Adephaga, as they are often called, are easily recognised by the five-jointed tarsi, the rather long, slender antennae not thickened at the tip; by the highly developed mouth-parts, mandibles large, outer lobe of maxilla divided, and by the structure of the under-surface of the abdomen, which has five segments visible along the middle and six at each side.

In Hawaii there are two families.

1. Carabidae; terrestrial beetles, with all the legs formed for running, and the antennae delicately pubescent and setose.

2. Dytiscidae; water-beetles, with the hind legs transformed to swimming organs, the antennae quite bare.

Fam. CARABIDAE.

Subfam. *HARPALINI.*

Two setae on the inner margin of the orbit, one of them just behind the eye, but varying as to proximity according to the size of the eye. The four groups may be distinguished as follows:

Elytra cut off in nearly a straight line behind; claws (in the two Hawaiian genera) serrate beneath ..... *Lebiides.*

Elytra not cut off behind; the tips are either coadapted with the body behind (Pterostichides, Bembidiides), or more or less flat and sinuate (Anchomenides). Claws simple.

Last joint of palpus minute, appearing as a small appendage of the penultimate joint, Pl. VII. fig. 25 ..... *Bembidiides.*

Last joint of palpi large.

Side margin of elytra near the tip distorted, Pl. VI. fig. 12 ..... *Pterostichides.*

Side margin of elytra simple ..... *Anchomenides.*

The Bembidiides and Pterostichides are nearly all smaller than the Anchomenides.

Group *ANCHOMENIDES.*

Division 1. Hind tarsi not sculptured.

(For Div. 2 vide p. 213.)

This includes seventeen genera. The tarsi are always evenly convex above, without any grooves or impressions.

[It should be noticed that in some members of Division 2 the tarsi are only very obscurely grooved.]

The following key will facilitate the determination of these forms.

Wingless forms, with remarkable sculpture, so that the large pits on the eighth stria near the extremity can scarcely be detected. *Blackburnia, Deropristus, Atrachycnemis, Anchoteflus.*

Wingless forms, without a definite thoracic margin, sculpture normal. *Pseudobroscus*, *Derobroscus*, *Brosconymus*.

Thorax margined; sculpture normal, not deep pits.

Wings fully developed	*Chalcomenus*, metasternum short	4th joint of hind tarsus not bilobed.
	Baryneus, metasternum elongate	
	Colpodiscus, a basal thoracic seta	4th joint of tarsus bilobed.
	Mysticomenus, no thoracic seta	
Wings atrophied	*Anchonymus*, tarsi not lobed	no thoracic seta.
	Apteromesus, tarsi bilobed	
	Mauna	1 basal thoracic seta.
	Disenochus	
	Barypristus	
	Prodisenochus	2 thoracic setae.

Blackburnia Sharp.

Blackburnia Sharp, Ent. Mo. Mag. xiv. (1878) p. 179 and op. cit. xx. (1884) p. 217.

This genus must be considered as among those that have a single pronotal seta on each side, though the incrustation of the surface leads to the concealment or destruction of the seta, and the rough sculpture makes it difficult to detect the point of insertion. This is the most deeply sculptured of the Hawaiian Anchomenids, but the surface is always covered with an incrustation by which the sculpture is concealed. The thoracic setae are destroyed in all the individuals before me except one: the point of insertion is on the upturned edge, close to the hind angle.

(1) *Blackburnia insignis*, Sharp.

Blackburnia insignis Sharp, Ent. Mo. Mag. xiv. p. 179, and Tr. Dublin Soc. n. s. iii. Pl. iv. fig. 4.

Although the dilatation of the front tarsi of the male is so slight as almost to be imperceptible, and although the two rows of sexual hairs on their underside are not visible, yet this sex may be distinguished from the female by there being only one seta on each side of the middle of the last ventral plate instead of two, as is the case in the female.

Hab. Oahu: Waianae mountains 2500 ft., July (Blackburn); February (Perkins).

Var. *kaalensis*, var. nov.

Elytra only were found of this form; the sculpture is not so extreme, the interstices being less raised and the foveae not so deep and not so definitely separated.

Hab. Oahu: Kaala mountains, 3000 ft., March 1893 (Perkins).

DEROPRISTUS, gen. nov.

Thorax marginatus, ad angulum posteriorem seta erecta munitus. Alis perminutis. Elytra grosse sculpturata, ad basin in medio haud marginata. Abdomen suturis perprofundis.

The species of this genus differ markedly from *Blackburnia* by the shape of the base of the elytra. The legs and antennae are moderately elongate. The males have the sexual clothing of the front feet similar to that of most of the other Hawaiian allied genera.

Although very different in appearance from *Atrachycnemis*, *Deropristus* appears to be really allied thereto. The different shape and sculpture and the longer legs, palpi and antennae, and the extraordinarily deep ventral sutures are the only characters I find to distinguish it. The vestigial wings are in these forms reduced to their extreme, being scarcely ·5 mm. long.

(1) *Deropristus blaptoides*, Blackb.

Blackburnia blaptoides Blackburn, Ent. Mo. Mag. xv. p. 157.

This is a very distinct species of large size, massive build, with the foveae of the elytra very large and crowded. It is known only by a single specimen.

HAB. Oahu: Konahuanui, 1500 feet; under a stone (Blackburn).

(2) *Deropristus puncticeps*, sp. nov.

Piceus, nitidus, capite thoraceque profunde punctatis, hoc basin versus evidenter angustato, margine laterali prope angulos posteriores fortiter elevata; elytris nitidis, sulcatis, sulcis numerose punctatis, interstitiis subconvexis. Long. 11 mm.

Plate VI. fig. 1, specimen with right elytron and vestigial wing extended.

Readily distinguished from the following species (*D. deroderus*) by the broader thorax, the sides of which stand up more behind, as well as by several characters of structure. The coarse sculpture of the thorax is deep but not dense, and is irregular, the interstices between the punctures varying much in their extent; the seta is placed on the lateral margin, some considerable distance ($\frac{1}{2}$ mm.) in front of the angle. The deep foveae in the grooves of the elytra are very numerous, there being 37 on the sutural groove. A small series.

HAB. Molokai. In the mountains below the densest forest, 4000 ft. May and June, 1894 (Perkins, Nos. 189, 589, 592, 594).

(3) *Deropristus deroderus*, sp. nov.

Piceus, sat nitidus; capite thoraceque grosse, profunde punctatis, hoc basin versus minus angustato, margine laterali parum elevata; elytris sulcatis, sulcis numerose foveolatis, interstitiis angustis, vix elevatis. Long. 9—10 mm.

Although at first sight extremely similar to *D. puncticeps* this is really very distinct; the side-margin of the thorax is but little elevated, even at the hind angles, the thorax is as broad behind as it is in front, and the anterior angles are not in the least prominent, the last ventral plate is transversely wrinkled, and the punctures, or foveolae, of the upper surface are larger. In addition to these characters the species is perfectly distinguished by the considerably shorter palpi, and the rather shorter legs.

The dilatation of the male front tarsi is very slight though distinct, and the sexual hairs on the under surface are very evident. There is in the male only one puncture on each side of the middle of the last ventral plate: in the female there are two. A fine series of over fifty specimens was procured by Mr Perkins, and exhibits little variation.

Hab. Maui: Haleakala 4—5000 ft., in March, April and October (Perkins, Nos. 356, 370, 382, 636, 661, 680).

Atrachycnemis Blackburn.

Atrachycnemis Blackburn, Ent. Mo. Mag. xv. p. 120; Sharp, op. cit. xx. 1884, p. 218.

Though the species for which this genus was founded was assigned both by Blackburn and Karsch to the sub-family Harpalidae there is now no doubt that it is an Anchomenid. I have examined the structure of the elytral margins, and find that they make no approach whatever to the Pterostichid structure; the tips of the elytra are closely adapted to the body, which is unusual in Anchomenides, but that is all. The mandibles are very thick, and so much bent down at the tip as to be almost hooked.

The insects of the genus are amongst the rarest of the Hawaiian Coleoptera. The three species are excessively similar, and yet, if I am not deceived, differ by the fact that one of them has a thoracic seta, while in the other two it is absent. They cover themselves with an exudation somewhat similar to that of *Blackburnia* (though of insignificant extent compared to the extraordinary coating of the latter genus), and it may be that this peculiarity prevents the proper development of the seta. All the setae are very small and fine, at the best, in *Atrachycnemis*. In these two genera the presence or absence of the seta seems to be a much less important criterion than it is in the other Hawaiian Carabidae. Notwithstanding the comparatively well developed shoulders the wing vestiges are very minute, as in *Deropristus*.

(1) *Atrachycnemis sharpi* Blackburn.

Atrachycnemis sharpi Blackburn, Ent. Mo. Mag. xv. p. 120.

Anisodactylus cuneatus Karsch, Berlin. Ent. Zeitschr. xxv. p. 3, pl. 1. fig. 4.

Plate VI. fig. 3.

This species may be distinguished from the other two by the more sharply marked hind angles of the thorax, as well as by the presence of a seta just in front of the angle

and by the denser and more rugose sculpture. Apparently however it varies somewhat both in the sculpture and in the form of the thorax. The sensitive seta, or its orifice of insertion, is however present in all the specimens before me. The male and female are extremely similar, but the former sex has, as usual, only one seta on each side of the middle of the hind margin of the last ventral plate; and the sexual clothing on the under surface of the scarcely dilated front tarsus is present.

HAB. Maui (Blackburn, Finsch, Perkins). Haleakala, 4—5000 ft., February to May and in October. Very rare. (Perkins, Nos. 112, 413, 582, 597, 610, 680). Found at Olinda both by Herr Otto Finsch and Mr Perkins.

(2) *Atrachycnemis perkinsi*, sp. nov.

Niger, opacus, antennis pedibusque piceo-rufis; thorace angulis posterioribus obtusis, sculptura subobsoleta; elytris striatis, striis vel impressionibus angustis elongatis vel foveolis parvis munitis, interstitiis vix convexis. Long. 7 mm., lat. elytrorum 3 mm.

Thorax distinctly narrower behind than in front, the hind angles slightly obtuse, the lateral margin fine, in front very fine; the sculpture is somewhat coarse, but very shallow, as if effaced. The elytra have rather fine striae which are here and there interrupted longitudinally, or are furnished with comparatively indistinct foveoles. The surface is very dull.

HAB. Molokai: 4000 ft. June 1896. (Perkins.)

(3) *Atrachycnemis koebelei*, sp. nov.

Minus latus, niger opacus, antennis rufis, pedibus piceo-rufis; thorace angulis posterioribus obtusis, disco crebre punctato, sed haud transversim rugoso; elytris sat profunde striatis, interstitiis convexis, striis impressionibus elongatis angustis, et foveolis parvis munitis. Long. 6½ mm., lat. 2½ mm.

This is narrower than *A. perkinsi*, and so far as I may judge from a single specimen, has a more regular punctuation than either of the other species; the impressions on the striae of the elytra are much smaller than they are in *A. sharpi* and are similar to one another. The head is narrower than it is in the other two species, it is dull and bears no punctures except those occupied by the sense-setae. The thorax is almost destitute of sinuation at the sides behind, the hind angles are distinctly obtuse and there is no sense-seta. The punctuation of the under-surface is very much reduced in comparison with that of *A. sharpi*.

Described from a single, male, specimen for which I am indebted to Mr A. Koebele, the State entomologist of the Hawaiian Islands.

HAB. Hawaii. (A. Koebele.)

It is not quite certain that this locality is correct. Some of Mr Koebele's specimens were labelled "Hawaii" in the sense of the Archipelago. I should think it probable that this species is really from Oahu.

ANCHOTEFFLUS, gen. nov.

Alae minutae. Thorax marginatus, absque seta erecta. Elytra sculptura profunda, regulari; ad basin modice conspicue marginata. Abdomen suturis tantum modice profundis.

Type *A. gracilis.*

Proposed for two species that are extremely rare, and apparently not closely related to any other Hawaiian forms. The two species are very different in appearance. They have no resemblance to *Derobroscus* and *Brosconymus* which also are destitute of a thoracic seta, but apparently are nearer to *Deropristus* in which a seta is present at the posterior angles. The internal portion of the basal margin of the elytra is not very definite, especially in *A. gracilis*. The ventral sutures (of *A. gracilis*) are normal. As in *Blackburnia* and *Deropristus*, the coarse deep sculpture seems to replace the large depressions that are seen on the 8th stria of other forms.

The four genera *Blackburnia*, *Deropristus*, *Atrachycnemis*, and *Anchotefflus* are difficult to distinguish by good characters, though they are very different in facies. *Atrachycnemis* can be separated by its short legs (Plate VI. fig. 3). *Deropristus* (Plate VI. fig. 1) has the elytra quite unmargined at the base. In *Anchotefflus* (Plate VI. fig. 4) and *Blackburnia* the elytra are margined at the base; the former has no thoracic setae. The latter normally has, but they are usually removed. In that case the genus may be recognised by the quite extraordinary sculpture, though this again is usually covered up by an exudation.

(1) *Anchotefflus gracilis*, sp. nov.

Angustus, niger, antennis pedibusque piceis vel rufis; prothorace angusto, basin versus angustiore, angulis posterioribus obtusis, circa margines punctato; elytris humeris carentibus, sulcatis, sulcis fortiter punctatis. Long. 9 mm.

Plate VI. fig. 4.

Antennae and legs long and slender. Head narrow, shining, without punctures, eyes prominent, very distant from the thorax. Thorax much narrower than the elytra, lateral margin normal, behind strongly raised, front angles not at all prominent, hind angles very obtuse; near the margins there are coarse punctures and the disc is slightly wrinkled. Elytra narrow, ovate, at the base the outline slopes inwards in a very gradual manner, the inner portion of the basal margin rather indefinite; the grooves are broad and regular, with narrow, strongly raised interstices; in the grooves there are rather large and deep punctures. The under-surface is very shining, except that the last

ventral segment is dull; there are a few punctures on the flanks of the prothorax, but none elsewhere.

Four specimens, all females. Three of them are old specimens much worn and broken, the fourth is very immature and shrivelled.

HAB. Oahu: Kawailoa gulch near the head of the left (or south) branch; from rocks in the stream, April 1893 (Perkins).

(2) *Anchotefflus elegans*, sp. nov.

Piceus, antennis, palpis pedibusque dilute rufis; capite vertice subobsolete punctato; thorace subquadrato, angulis posterioribus perobtusis, dense fortiterque punctato; elytris sulcatis, sulcis fortiter crenato-punctatis, interstitiis elevatis aequalibus. Long. $8\frac{1}{2}$ mm.

Head shining, eyes prominent, vertex with numerous subobsolete punctures on each side, in the middle the punctures less numerous and distinct. Thorax much narrower than the elytra, a little narrowed behind, hind angles obtuse, front angles slightly prominent, rounded; the surface with remarkably coarse, close punctuation. Elytra shining, each with eight or nine deep grooves extending quite from base to apex, the grooves are strongly punctured with incomplete punctures, and the interstices—differing little from one another—are rather narrow and strongly elevated; the inner portion of the basal margin is indistinct. Under-surface shining, with some large punctures about the sides, abdomen impunctate, the first ventral segment obliterated, the others only moderately deep.

HAB. Kauai: on the high plateau, August 1896 (Perkins).

PSEUDOBROSCUS, gen. nov.

Corpus convexum, elytrorum humeris fere nullis; prothorax angustus, immarginatus, ad angulum posteriorem seta erecta munitus; elytra margine basali fere nulla; tarsi posteriores minus graciles, supra glabri.

This genus is readily distinguished from all except *Derobroscus* by the unmargined edges of the thorax. From *Derobroscus* it is distinguished by the presence of a thoracic sense-seta, and by the robust build and comparatively thick tarsi. In general appearance it resembles *Mauna*, which however has margined sides to the prothorax.

(1) *Pseudobroscus lentus*, sp. nov.

Piceus, antennis, palpis pedibusque rufis; convexiusculus, sat nitidus; prothorace basin versus angustato impunctato, utrinque intra angulum posteriorem impression

profunda, ante hanc seta erecta munito; elytris regulariter, profunde striatis, striis punctatis. Long. 9—10 mm.

Plate VI. fig. 5.

Head narrowed immediately behind the eyes; bearing no punctures except those furnished with the erect setae. Thorax without any raised margins except just at the hind angles, the front angles not in the least prominent, much narrower than the elytra, much rounded at the sides, and a good deal narrowed behind; the hind angles very obtuse; just within each of them a rather deep depression, and just in front of this a large puncture bearing a seta; the disc sometimes transversely wrinkled. Elytra narrow at the shoulders which are entirely indistinct; the rather deep striae are continued quite to the base, where traces of a basal margin exist; the sculpture is very regular on them, it consists of rather deep striae which are crenate rather than punctured. The under-surface without punctures.

Hab. Maui: Haleakala 10,000 ft., April 1894. Very rare (Perkins).

Derobroscus, gen. nov.

Corpus angustum, elytrorum humeris nullis; prothorax angustus, immarginatus, absque setis erectis; elytra margine basali subobsoleta.

The species for which this genus is established, have a brilliant metallic colour on the upper surface. The narrow form is very remarkable, and in addition to the absence of a prothoracic seta, renders the members of the genus unmistakable.

(1) *Derobroscus micans*, sp. nov.

Angustus, supra viridescens, nitidus, antennis palpisque rufis, pedibus piceis; prothorace impunctato, utrinque ad angulum posteriorem fere in-impresso; elytris obsolete striatis, in disco seriebus foveolarum parvarum ornatis. Long. 8, lat. 2½ mm.

Plate VII. fig. 1.

Thorax narrow, rounded at the sides and greatly narrowed behind, the angles depressed and in no way prominent, the margins absent, except that the basal one exists for a short distance on each side; the surface is slightly wrinkled transversely and at the hind angles there is a very obscure depression bearing two or three punctures which however are more or less indistinct, so that, without careful looking, neither impressions nor punctures catch the eye. The elytra are very narrow, the shoulders altogether indistinct; the elytra are not really striate, but bear series of moderately large foveoles, which in some lights appear to be connected so as to give rise to an appearance of striation. The sculpture is much more obsolete at the apex and sides. The under-surface is black shining and polished, the first ventral suture extremely indistinct. The difference between ♂ and ♀ is extremely slight, except as to the setae of the last ventral plate.

It may be mentioned that the shrivelled, immature example does not exhibit the foveae on the elytra.

HAB. Oahu: Waianae mountains, lee-side, 2,000 ft., Feb. 1896, three specimens, two ♂, one ♀; an extremely immature example from the same locality, April 1892 (Perkins).

(2) *Derobroscus politus*, sp. nov.

Angustus, capite thoraceque politis, elytris viridi-auratis; nitidus, antennis palpisque rufis, pedibus piceis; prothorace impunctato, utrinque ad angulum posteriorem impresso-punctato; elytris in disco seriebus foveolarum profundarum munitis. Long. 8, lat. $2\frac{3}{4}$ mm.

Doubtfully distinct from *D. micans*, but with longer legs and antennae, with larger impressions on the elytra, and the shoulders not quite so obsolete. The colour of the elytra, if constant, would easily distinguish the two forms without an actual comparison of individuals of the two.

HAB. Oahu: Lanihuli ridge near Honolulu, 3,000 ft., 27th Oct. 1892 (Perkins, No. 42). One pair (♂ and ♀) "from leaves of trees."

(3) *Derobroscus solitarius*, sp. nov.

Angustus, capite thoraceque politis, viridi-micantibus, elytris auratis, antennis palpisque rufis, pedibus piceis; prothorace impunctato, utrinque impressione parva munito; elytris seriebus foveolarum munitis. Long. 8, lat. $2\frac{3}{4}$ mm.

Doubtfully distinct from the two preceding species, this unique example agrees with neither; it is of a more beautiful colour, and in general form agrees with *D. politus*; it has however the thorax rather longer and narrower behind, and bearing a small fovea at each hind-angle, and the foveoles on the elytra are not so large.

HAB. Oahu: Halemano, about 3,000 ft., under bark, Decr. 1892 (Perkins). One female.

BROSCONYMUS, gen. nov.

Corpus angustum, elytrorum humeris nullis; prothorax angustus, lateribus obsolete marginatis, margine perparum elevata, absque setis erectis; elytra margine basali subobsoleta.

Except for the fact that the thorax has the lateral margin distinct, the species has quite the appearance and characters of *Derobroscus*. There are a few species of *Disenochus* in which the prothoracic margins are more delicate than usual (*D. agilis* etc.). *Brosconymus* is not however allied to these; the thoracic margin in it is not strictly fine, but is due rather to an impressed line marking it off, than to its own elevation.

(1) *Brosconymus optatus*, sp. nov.

Angustus, capite thoraceque politis, vix viridi-micantibus, elytris auratis; nitidus, antennis palpisque rufis, pedibus piceis; prothorace impunctato, utrinque ad angulum

posteriorem impresso; elytris in disco seriebus foveolarum mediocriter profundarum munitis. Long. 8, lat. $2\frac{3}{4}$ mm.

This resembles *Derobroscus solitarius* almost exactly; the thorax is however slightly shorter and scarcely so narrow behind, and the foveolae of the elytra are not quite so well developed.

Hab. Oahu: Halemano, under bark of Koa tree, January 1893, two male specimens (Perkins).

Prof. Thaxter found Laboulbeniaceae on one of these and labelled it No. 1215.

Anchonymus, gen. nov.

Facies generis *Anchomeni*. Alae minutae. Thorax marginatus absque seta erecta. Elytris simpliciter striatis, margine basali arguta. Abdominis suturis haud profundis.

The Insect for which this genus is proposed resembles the Anchomenoid forms of *Disenochus*, so that it may readily be mistaken for *D. fractus*; it is distinguished therefrom by the absence of a thoracic seta. From *Anchotefflus* it differs in the delicate simple sculpture of the elytra. It is of metallic colour, and makes a first approach to the specialisation that has become so marked in *Brosconymus*. *Disenochus fractus* and *Anchonymus agonoides* make a distinct lead from an ordinary *Agonum* to the two remarkable Hawaiian genera *Derobroscus* and *Brosconymus*, and warrant us in supposing, without too great a stretch of the imagination, that these two aberrant genera may have arisen within the islands from ordinary forms of Anchomenides, such as are to be found in many parts of the world. It is, too, worthy of note that the two "leads" have some approximation in habits to the two forms that are highly specialised both in habits and sculpture.

(1) *Anchonymus agonoides*, sp. nov.

Niger, nitidus, gracilis, subdepressus, elytris laete viridibus, antennis palpis pedibusque rufis his interdum picescentibus; elytris regulariter striatis, interstitiis latis, planis. Long. 10 mm.

Plate VI. fig. 8.

This is readily distinguished from *D. fractus*, and most of the other Hawaiian allies, by the simple and regular striation of the elytra; the outer striae consist of series of fine, elongate punctures. The thorax is narrow, with the hind angles very obtuse; there is very little punctuation on the basal part. About fifty examples. There is not much variation in this series of specimens, but it is in the direction of *D. fractus*, so that the two forms approach rather closely, though the extremes are very distinct.

Hab. Maui; Haleakala, about 5000 ft., April 1894, under bark of Acacia (No. 250), nearly 50 specimens. One specimen in Oct. 1896 (No. 680).

This species is very much attacked by Laboulbeniaceae; Prof. Thaxter took specimens under the number 1229.

13

Mauna Blackburn.

Mauna Blackb., Ent. Mo. Mag. xxi. p. 25.

So far as I can find, the unique species of this genus is distinguished from some of the *Disenochus* only by the slightly deeper ventral sutures, and by the peculiar form of the thorax, which is small and subovate. The species might be placed in *Disenochus* without making that genus much more heterogeneous than it is at present.

(1) *Mauna frigida*, Blackburn.

Blackburnia frigida Blackburn, Ent. Mo. Mag. xv. p. 157.
Mauna frigida id., op. cit. xxi. 1884, p. 25.

Plate VI. fig. 9.

There is a little variation in the large series of this species, but nothing remarkable. A specimen searched for Laboulbeniaceae is labelled No. 1221 by Prof. Thaxter.

Hab. Maui (Blackburn, Perkins): a single specimen only was found by Mr Blackburn, at an elevation of about 10,000 ft.; Mr Perkins procured a good many specimens about the crater of the great mountain, and also met with it at an elevation of 5—6000 ft., February, May, October (Nos. 374, 602, 612, 655, Perkins).

Disenochus Blackburn.

Disenochus Blackburn, Ent. Mo. Mag. xv. 1878, p. 121 [nec Sharp, op. cit. xx. p. 218].

To the species for which this genus was originally established I now add several others, making it by far the most comprehensive genus of this division of Hawaiian Anchomenids. It is noteworthy that, although the facies shows so much variety that some of the forms look more like Pterostichini while others have the typical Anchomenoid appearance, I can yet find nothing but slight structural distinctions between the forms that are most different in appearance.

The characters distinctive of the genus are as follows. Wings reduced to mere vestiges about the length of the metanotum. Thorax margined; one seta on each side near the hind angle. Elytra with definite basal margin. Ventral sutures only moderately deep. Sculpture not extraordinarily coarse, though in *D. micantipennis* it is peculiar. Tarsi with the fourth joint not bilobed. The size does not exceed 10 mm.

The first five species are all excessively rare, so that I have not seen sufficient material to make me feel certain as to the forms being truly distinct species.

Species such as *D. fractus* may be considered as central forms for this first division of Hawaiian Anchomenids. I shall mention under *Mysticomenus* the fact that that genus appears central for the whole tribe. Those who think that Hawaiian Anchomenids

are probably derived from a single form should imagine a transition from *Mysticomenus* to *Anchonymus agonoides*. We have no such transition existing. *Baryneus* and *Barypristus*, which would answer such a purpose in several respects, appear to have only an indirect relationship with either of the two forms.

(1) *Disenochus anomalus* Blackburn.

Disenochus anomalus Blackburn, l. c.

Distinguished from the allied species by the more ovate elytra, in conjunction with a narrower head and thorax, and by the striae of the elytra being less deep and much obliterated at the base, sides and apex.

HAB. Maui: Haleakala, 5000 ft., March 1894, under logs in the forest, two specimens (Perkins). Haleakala, 5000 ft., February 1878 (Blackburn).

(2) *Disenochus brevipes*, sp. nov.

Niger, antennis, palpis pedibusque rufis; robustus, capite lato, thorace transverso, basin versus angustato, angulis posterioribus obtusis, elytris subovatis, sat profunde striatis, striis omnibus integris, minus fortiter punctatis. Long. 10 mm.

Head large, with large impressions between the eyes, mandibles thick. Thorax broader than long, rounded at the sides and narrowed behind, front angles not at all prominent, surface impunctate, depressed near the obtuse hind angles. Elytra large, shoulders rounded, the sides but little sloped; rather deeply striate, and with the striae distinctly punctured; the interstices near the suture and base a little convex.

HAB. Molokai (Perkins): 4500 ft., two specimens 15th and 18th June 1893; one specimen at the same elevation in Sept. or Oct., all females. A fourth specimen, of the male sex, found in the same locality 18th June 1893, is rather smaller and narrower.

An *Acarus* or two were attached to one of the specimens.

(3) *Disenochus cephalotes*, sp. nov.

Niger, antennis palpisque rufis, pedibus rufo-piceis; robustus, capite lato, thorace haud transverso, basin versus angustato, angulis posterioribus obtusis, elytris subovatis, sat profunde striatis, striis omnibus integris. Long. 9½ mm.

Very near to *D. brevipes*, but with a rather narrower thorax, and less deeply striate elytra, the striae not punctured.

HAB. Maui (Perkins): West Maui mountains, 4000 ft., April 1894, one pair (♂ ♀).

(4) *Disenochus flavitarsis*, sp. nov.

Nigerrimus, antennis palpisque rufis, pedibus piceis tarsis dilute rufis; capite magno, thorace haud transverso, basin versus angustato, angulis posterioribus obtusis; elytris minus late subovatis, profunde striatis, striis punctatis. Long. 9 mm.

Readily distinguished from the preceding species by the darker colour, rather more slender form, and more pronounced elytral sculpture. The only two specimens found are male and female and are extremely similar; the female has the head slightly broader, which seems to be the case also in the other species of this group.

HAB. Molokai (Perkins): ♂, 4000 ft., VI. 96; ♀ Kalae, August 1893.

(5) *Disenochus agilis*, sp. nov.

Nigerrimus, antennis palpisque rufis, pedibus piceis tarsis rufis; capite sat lato, thorace haud transverso, basin versus angustato, angulis posterioribus obtusis; elytris vix subovatis, profunde striatis, striis punctatis. Long. 9 mm.

This species has the elytra less ovate than any of the preceding; it has also the thorax rather longer and narrower than *D. flavitarsis* and less rounded at the sides. It has therefore not quite the facies of the preceding members of the group, though in all structural characters it appears to be quite similar; the longitudinal impression on the middle of the base of the abdomen is particularly well marked. Only two individuals have been found. They are both males.

HAB. Maui (Perkins): one "Haleakala, 4500 ft., 28. III. 1894"; the second, "Haleakala, 5000 ft., 1. IV. 1894."

(6) *Disenochus curtipes*, sp. nov.

Piceus, nitidus, antennis, palpis pedibusque rufis; capite magno, thorace transverso, basin versus fortiter angustato, lateribus vix rotundatis, versus angulos posteriores basinque subobsolete punctato; elytris profunde striatis, striis omnium obsoletissime crenatis, interstitiis subinaequalibus. Long. 6 mm.

This peculiar little insect is not allied to any other species; the head is large, the eyes prominent, though small; the hind angles of the thorax are very obtuse, the surface near them largely depressed, so that the lateral margin appears a good deal elevated behind. The strongly elevated striae have the alternate interstices a little more elevated; this is best seen by looking at the third and fifth close to the basal margin. Two male, one female, specimens.

In shape and proportions this much resembles *Atrachycnemis sharpi*, but differs much therefrom in sculpture and the very definite basal margin to the elytra.

HAB. Kauai (Perkins): 4000 ft., mountains above Waimea May 1894: October 1895; July 1896.

(7) *Disenochus aterrimus*, sp. nov.

Niger, antennis palpis tarsisque rufis; thorace transverso, basin versus leniter angustato, angulis posterioribus indistinctis; elytris suboblongis, profunde striatis, striis externis punctatis, internis plerumque impunctatis. Long. 10, lat. 3 mm.

Plate VI. fig. 6.

Thorax rather large, gently rounded at the sides, without posterior angles, the lateral margin but little more strongly elevated behind; impunctate, basal impressions indistinct. Elytra rather narrow, elongate and parallel-sided, deeply and regularly striate; the external striae, at least, are distinctly punctured, and sometimes all the striae are. The legs are long, pitchy black, the tarsi red.

This species varies a good deal as regards the depth of the elytral striae and their punctuation. So far as I can judge, the variation is partly connected with locality. The more deeply sculptured forms approximate a little to *D. erythropus*. Additional remarks on the variation are given below.

This species is extremely subject to the attacks of Laboulbeniaceae, some of the individuals bearing many specimens of these parasitic plants. Specimens taken from *D. aterrimus* were numbered 1218 by Prof. Roland Thaxter.

Hab. Kauai (Perkins): Halemanu in May, Koholuamano in April, Makaweli in January and February; the high plateau in August. The species was also met with in October.

We have a series of 91 examples of this species, and I have submitted them to a slight examination as to their variation. The method adopted was to divide them first roughly into three groups, viz. (1) a form I have called typical, the characters of which are that the form is rather slender, the black colour very deep, and the inner striae of the elytra not perceptibly punctured: (2) specimens I have called variant, as they depart more or less distinctly from (1) in the direction of (3): (3) var. a, specimens of large size, broad form, with the thorax rather broader and more narrow behind, the legs not so black, and the striae of the elytra comparatively strongly punctured. All the specimens were then compared with the three selected exponents and each specimen treated as belonging to one of the three groups in accordance with which one of the types it most resembled. The extremes of (1) and (3) look so different that I thought they might possibly be two species, but I am quite convinced that this is not the case. I give below the numbers found in each locality so far as our labelling and records of locality permit this to be determined. Koholuamano, IV. 95, without any number, 1 typ., 2 variant; Halemanu, V. 95, 1 without number, var. a; Koholuamano, IV. 95, No. 505, 2 variant; Koholuamano, 16. IV. 95, No. 508, 1 var. a; Halemanu, 4000 ft., V. 95, No. 514, 1 var. a; Koholuamano, 15. IV. 95, No. 516, 8 typ., 1 var. a; Koholuamano, 13. IV. 95, No. 517, typ. 4, variant 9; Koholuamano, IV. 95, No. 519, 1 variant; Koholuamano, IV. 95, No. 519, 1 variant; Koholuamano, IV. 95, No. 527, 1 variant; Koholuamano, 13. IV.

95, No. 529, 1 variant; Kauai, 4000 ft., x. 95, without any number, 3 variant; Kauai, high plateau, VIII. 96, No. 631, 1 var. a; Makaweli, 2500 ft., II. 97, No. 668, 11 var. a; Kauai, 4000 ft., VIII. 96, No. 676, typ. 13, variant 16, var. a 4; Kauai, high plateau, VIII. 96, No. 682, 1 typ.; Mts. Waimea, Kauai, 4000 ft., VI. 1894, without any number, 8 var. a, but this lot is, as var. a, aberrant, showing the characters of the variety in a variable manner, one very large specimen, for instance, having the striae but little punctured.

So far as it can be permitted to form an opinion from such an imperfect record, it would appear that there is considerable segregation of the forms. It is only under No. 676 that we find the forms indiscriminately mixed, and that number represents a month's collecting presumably in different localities of Kauai, so that no importance can be attached to it.

This examination shows that, for the study of variation, detailed records separating each day's work of the collector are desirable.

I may also mention that var. a—the extreme form in one direction—is much more variable than the extreme form in the other direction; no doubt it was this that led me to call the latter the typical form, as I did before I had made any analysis as to the variation and its segregation.

(8) *Disenochus erythropus*, sp. nov.

Niger, nitidus, antennis, palpis pedibusque rufis; prothorace basin versus fortiter angustato, elytris profunde striatis, striis omnibus fortiter punctatis. Long. 9—10 mm., lat. $3\frac{1}{4}$ mm.

This species is very highly polished, and is remarkable on account of the very regular and conspicuous sculpture of the elytra. The antennae are long and slender. The thorax is much narrower than the elytra, rounded at the sides and much narrowed behind, the position of the obtuse hind angle distinct, the surface very shining, with a rather deep depression near the hind angle. The elytra are broad, with deep, punctate striae, that are similar both at the sides and suture though the punctuation is absent from the apical portion, the interstices are broad; there is no sinuation of the sides near the tip.

Sixteen specimens.

HAB. Kauai (Perkins): Koholuamano, 4000 ft., in August and October.

(9) *Disenochus sulcipennis*, sp. nov.

Piceus, antennis, palpis pedibusque dilute rufis; thorace transverso, basin versus fortiter angustato, basi punctata; elytris profunde striatis, striis haud punctatis, sed subtiliter crenatis, interstitiis subangulatis. Long. 8—9 mm.

The sculpture of the elytra is rather peculiar in this species; there are deep striae,

the sides of which slant so that, looked at in some directions, the striae seem broad and the interstices narrow, whereas in other light the reverse relations appear to exist. The thorax is short, very strongly narrowed behind, the side margin strongly elevated behind, the base punctate, deeply impressed near each hind angle. The abdomen longitudinally impressed at the base in the middle. About 30 specimens. The species apparently varies but little.

Hab. Kauai (Perkins): Makaweli, 2000—2500 ft., in January and February, Mts. Waimea and Halemanu, 4000 ft., May.

(10) *Disenochus fractus*, sp. nov.

Niger, nitidus, elytris viridi- vel aeneo-micantibus, antennis palpisque rufis, pedibus piceo-rufis; thorace ad basin et angulos posteriores subtiliter rugoso-punctato; elytris oblongo-ovatis, profunde punctato-striatis, striis hic inde plus minusve interruptis. Long. 10 mm.

Var. a. Paulo latior et robustior, supra aeneo-micans, thorace latiore, basin versus fortiter angustato, elytris magis ovatis.

A rather elongate and slender insect. Thorax a good deal narrower than the elytra, much rounded at the sides, and distinctly narrower at the basal than at the front angles; a large depression at the obtuse posterior angles, these depressions rugose-punctate, the surface a little in front of them and between them also rather indistinctly punctate. The elytra are deeply sculptured in a rather peculiar fashion, appearing in some cases to possess series of punctures two or three or more of which are joined to form portions of a stria, in other cases the striae are less interrupted: the outer striae or series of punctures are always strongly marked, and the impressions on the eighth stria are always large, even if vague. About 50 specimens.

The species varies in the direction of the variety diagnosed above, a good many specimens partaking more or less of the characters alluded to; one or two specimens approximate to *Anchonymus agonoides*, and can scarcely be distinguished therefrom except by the presence of the thoracic seta, and a slightly deeper, more interrupted striation of the elytra.

Hab. Maui (Perkins): Haleakala, most of the specimens in Oct. 1896, 4000—5000 ft. (Nos. 661, 680); a few specimens were also met with in April and May (Nos. 250, 597, 618, 620, 622).

Specimens of Laboulbeniaceae were taken from this species by Prof. Thaxter as No. 1222.

(11) *Disenochus longipes*, sp. nov.

Elongatus, angustus, nigro-piceus, antennis palpis pedibusque sordide rufis; haud nitidus; prothorace ad basin et angulos posteriores rugoso-punctato; elytris oblongo-ovatis, profunde punctato-striatis. Long. 10 mm.

Closely allied to *D. fractus*, but distinguished by the dull surface, the want of metallic colour, and by the remarkably narrow, elongate thorax; the striae of the elytra are deeper and broader, and the punctures in them larger. One male specimen.

HAB. Molokai (Perkins): 4000 ft., 8. VI. 1893.

(12) *Disenochus micantipennis*, sp. nov.

Piceus, capite nigro, antennis palpis pedibusque flavis; thorace dense rugoso-punctato; elytris inaequalibus, striatis, striis minus argute sculpturatis, interstitiis 5°, 7°-que costato-elevatis, spatio inter suturam et interstitium quintum longitudinaliter depresso, interstitiis 2°, 3°, 4° deplanatis, micantibus. Long. $7\frac{1}{2}$—$8\frac{1}{2}$ mm.

A very peculiar species having no near ally. Head shining black, impunctate, vertex more or less distinctly depressed in the middle. Thorax uneven, densely and coarsely sculptured, much narrowed behind, base a good deal rounded, hind angles distinct, slightly turned up. Elytra piceous, with the margins and apex more or less dilute, acuminate behind, the sculpture very peculiar, the interstices near the suture flat and with a glassy appearance, the post-humeral interstices more or less costate, the external grooves coarsely punctate. Under-surface piceous, becoming more dilute posteriorly so as to be flavescent behind.

A good series of about 90 specimens has been secured. They do not show much variation.

HAB. Kauai (Perkins); Mts. Waimea, 4000 ft., in April and May 1894; Koholuamano, 4000 ft., April and May 1895.

CHALCOMENUS, gen. nov.

Alae magnae, tantum parte apicali subobsolescente (Plate VI. fig. 22). Prothorax marginatus, ad angulum posteriorem seta erecta munitus. Tarsi posteriores filiformes articulo penultimo nullo modo bilobato.

This I distinguish from *Disenochus* on account of the large wings, of which only the apical portion is notably reduced in size. *Colpodiscus* has the hind tarsi strongly bilobed, *Mysticomenus* has no prothoracic seta. The shoulders of the after-body are better developed than they are in *Disenochus*, but the metasternum is but little longer.

(1) *Chalcomenus corruscus*, Er.

Anchomenus corruscus Erichson, Acta Ac. German. 1834, XVI. Supp. p. 223.

Niger, nitidus, supra aeneus, antennis, palpis pedibusque testaceis, his femoribus (geniculis exceptis) fuscis, antennis extrorsum obscurioribus; prothorace angusto, basi recta, lateribus sinuatis, angulis posterioribus discretis, obtuse rectis, ad angulos posteriores

impresso et punctato; elytris profunde striatis, striis internis fere omnino impunctatis, externis, praesertim basin versus, fortius punctatis. Long. 8—9 mm.

There can be no doubt that this is Erichson's species. It varies in colour, old specimens having the brassy surface tarnished, and more or less black. The species has more the facies of European forms than have most of the other Hawaiian Anchomenides. About twenty specimens have been found.

Hab. Oahu (Erichson, Perkins): Kaala mountains, 2000 ft., in Dec. 1892; near Nuuanu Pali, Nov. 1892, one specimen.

(2) *Chalcomenus molokaiensis*, sp. nov.

Niger, nitidus, supra aeneus, antennis fuscis, basi tibiisque testaceis; prothorace sat lato, transverso, basi subrotundata, angulis posterioribus minus discretis, perobtusis; elytris profunde striatis, striis ad basin punctatis. Long. 8½—10 mm.

Very closely allied to *C. corruscus*, but distinguishable in all the individuals by the rather different prothorax. The width in comparison to the length is fully as much as five to four; in correlation with this the base is a little more rounded and the sides less sinuate behind, so that the hind angles are more indistinct and obtuse. There are other slight but variable distinctions, although the character mentioned is the only one that justifies the distinction of the two forms.

Hab. Molokai: 3000 ft., 12. v. 1893 (Perkins). About fifty specimens.

(3) *Chalcomenus costatus*, sp. nov.

Niger, supra vix nitidus, antennis, palpis pedibusque testaceis, elytris vix subaenescentibus; prothorace rugoso, angulis posterioribus fere rectis paululum obtusis; elytris irregulariter sculpturatis, subsulcatis, sulcis punctis magnis, saepius obsoletis, munitis, interstitiis quibusdam costatis. Long. 8—9½ mm.

Plate VI. fig. 22, wing.

This distinct species is very readily recognised, the peculiar dull surface of the elytra, with some of the interstices elevated so as to be angular in cross section while the depressed portions bear a coarse obsolete sculpture, being characteristic. It is apparently sometimes found in company with *D. micantipennis*, and has several points in common therewith, but *D. micantipennis* may be distinguished at once by the flat and glass-like surface of the second, third and fourth interstices. In *C. costatus* these interstices are dull and the third is elevated and forms a costa. There is not much variation in the large series of examples, though in some of them the sculpture is more irregular than it is in others.

Hab. Kauai (Perkins): Mts. Waimea, 4000 ft., May and June, 1894 (Nos. 258, 262, 265, 267, 271); Koholuamano, in April (Nos. 508, 516, 519, 527, 529); Kauai, 4000 ft., Oct. 1895 (No. 551); Kauai, high plateau, 4000 ft., many specimens, August and October, 1896.

Barypristus Sharp.

Barypristus Sharp, Ent. Mo. Mag. xx. p. 217.

We may now, after separation of *B. sharpi*, add to the characters of this genus; metasternum short; wings vestigial, being small and not adapted for flight, though always longer than the metanotum.

This is the most important of the genera of this division of the Hawaiian Anchomenids, in which the wings exist in such a state as to lead us to suppose that they may formerly have been larger and functionally perfect. In most of the other genera the wings are either reduced to small vestiges or are so large as to enable flight to be executed.

The three genera, *Mauna*, *Disenochus* and *Barypristus*, have very similar characters, so that it is difficult to distinguish them by a definition. *Barypristus* has however a totally different shape and appearance from the other two; the individuals are much larger, and the vestigial wings are longer than the metanotum. There is no form intermediate.

(1) *Barypristus rupicola*, Blackburn.

Anchomenus rupicola Blackb., Ent. Mo. Mag. xv. p. 122.

Plate VI. fig. 23, varieties of vestigial wings.

Mr Perkins met with this species about half-way up the mountain in April and May, and procured a good series about the crater of Haleakala in October. It never occurs in the forest, but is found under stones outside. It varies a good deal in size, and a little in the width of the thorax. I have seen about 200 specimens.

Hab. Maui: Haleakala, 4—10,000 ft. (Blackburn, Perkins).

(2) *Barypristus incendiarius*, Blkn.

Anchomenus incendiarius Blackburn, Ent. Mo. Mag. xvi. p. 105.

Plate VI. fig. 7, ♀ individual: fig. 21, vestigial wing.

This is the largest Hawaiian Carabid and appears to be very rare. It occurs under the bark of Koa and oviposits in the chinks of the bark.

Although closely allied to *B. rupicola*, the species is certainly distinct. It is rather larger, has the elytra a little straighter at the sides and more acuminate at the tip, and slightly more deeply striate. The front angles of the thorax are more broadly rounded. The vestigial wings are 6 mm. long, whereas in *B. rupicola* they are usually less than 3 mm. and surpass that dimension only to a slight extent even in the largest examples.

Hab. Hawaii (Blackburn, Perkins): Mauna Loa, 4000 ft. (Blackburn); Kilauea in August (Perkins).

BARYNEUS, gen. nov.

Alae magnae, perfecte explicatae, metasternum elongatum. Tarsi posteriores articulo quarto haud bilobato. Elytra striata, nullo modo rugosa.

This genus is established for *Barypristus sharpi*, Blackburn. It has the wings of maximum size, and the metasternum correspondingly elongate, while the general shape and build is that of a winged Anchomenid. From *Colpodiscus* it is separated by the unlobed fourth tarsal joint (Plate VI. fig. 15). The other characters are those of *Barypristus*. The thoracic margin is largely developed and there is a conspicuous seta on the lateral margin, the hind angles being completely rounded. The sculpture of the elytra is entirely destitute of peculiarity, the impressions on the ninth interstice are small and numerous, and the basal margin well developed.

Colpodes macropterus Chaud. from New Zealand is in appearance similar to *Baryneus*, but has sculptured tarsi and two thoracic setae on each side, as is usual in Anchomenides.

(1) *Baryneus sharpi*, Blackburn.

Anchomenus sharpi Blackburn, Ent. Mo. Mag. XV. p. 122.

Barypristus sharpi id., Tr. Dublin Soc. (2) III. 1885, p. 213.

? Colpodes octocellatus Karsch, Berlin. Ent. Zeitschr. XXV. 1881, p. 3, pl. 1. fig. 3.

Plate VI. fig. 2, individual with elytron and wing expanded.

This is very distinct from *Barypristus incendiarius* on account of its shorter thorax and more slender legs. It is intensely black in colour. The wings are perfectly developed and are 16 mm. long, and 6 mm. broad in a specimen the elytra of which are 9½ mm. long.

HAB. Maui (Blackburn, Perkins): Haleakala, 3—5000 ft. A small series was found by Mr Perkins in April and May, 1894. The habits are the same as those of *Barypristus incendiarius* in Hawaii.

COLPODISCUS Sharp.

Colpodiscus Sharp, Ent. Mo. Mag. XX. p. 217.

Anchomenus lucipetens Blackb. may be taken as the type of this genus. The second species I reluctantly associated with it has the tarsi grooved, and belongs therefore to a different division of the Anchomenides according to the system I have here adopted (cf. *Colpocaccus*).

The ample wings, the strongly lobed foot (Plate VI. fig. 16), and the single thoracic seta, make this a very easily recognised genus.

(1) *Colpodiscus lucipetens* Blackburn.

Anchomenus lucipetens Blackb., Ent. Mo. Mag. xx. p. 217.

Colpodiscus lucipetens Sharp, Ent. Mo. Mag. xx. 1884, p. 217; Tr. Dublin Soc. n. s. III., pl. IV. fig. 3.

Plate VI. fig. 16, *a* and *b* upper and under surfaces of hind foot.

A good series has been found of this very distinct species. It varies but little. The four specimens from West Maui found by Brother M. Newell and Mr Perkins have the head rather darker in colour than any of the numerous specimens from Hawaii, though there is some variety in this respect amongst the individuals from the last-named locality.

A good many of the specimens seem to be infested by Laboulbeniaceae, especially on the under surface. Prof. Thaxter took specimens under the number 1217.

Hab. Hawaii (Blackburn, Perkins).—Maui (Perkins, Newell). Olaa, in June and September, Kilauea in August. West Maui, Jao Valley, in September.

(2) *Colpodiscus lahainensis*, sp. nov.

Subdepressus, niger, nitidus, antennis, palpis pedibusque testaceis, prothorace ad latera dilute piceo; elytris elongatis, striatis, striis nullo modo punctatis. Long. 15½ mm.

Very different from *C. lucipetens* by the elongate form, dark colour, and more oblong afterbody. It has more resemblance to *Baryneus sharpi*, from which it is strongly different on account of the large lobes of the fourth tarsal joint. Thorax not transverse, straight at the base, sides much raised, the intermarginal depression broad, even in front; without any punctuation. Elytra long, with nine striae bearing no trace of punctures, the inner striae fine but very definite, the seventh stria slighter, obsolete in front.

Described from two very immature examples, so that the full coloration is somewhat uncertain. But the species is very distinct from any other, and is certainly congeneric with *C. lucipetens*.

Hab. Maui (Perkins): West Maui, Jao Valley, August, 1894.

Prodisenochus, gen. nov.

Disenochus Sharp, Ent. Mo. Mag. xx. (1884), p. 218; nec Blackburn, op. cit. xv. (1878), p. 121.

The genus *Disenochus* was proposed by Blackburn for *D. anomalus*; subsequently he added *D. terebratus* as a second species; and it was on a specimen of the latter—I having never seen the typical species—that my remarks on the generic characters were based. The two genera are by no means closely allied. *Prodisenochus* is the only

genus of this division of the Hawaiian Anchomenides that has two setae on each side of the prothorax. It is also remarkable on account of the three or four large foveae close to the lateral margin of the elytron. These foveae are somewhat irregular in size and number. On the inner face of the elytra they appear as transparent spaces surrounded, each one, by a black ring.

(1) *Prodisenochus terebratus* Blackb.

Disenochus terebratus Blackb., Ent. Mo. Mag. XVII. p. 227.

Promecoderus fossulatus Karsch, Berlin. Ent. Zeitschr. XXV. (1881), p. 4, pl. 1. fig. 5.

This is one of the rarest of the Hawaiian Carabidae. It has very little of the appearance of an Anchomenid, and it is scarcely a matter for surprise that Karsch should have located it in another tribe. The species varies a good deal in the sculpture of the elytra. It may be known by the peculiar fossae at the sides of the elytra, and by the two thoracic setae. It is shining, intense black in colour of the body, the elytra have the peculiar broken striation, characteristic of several forms of Hawaiian Carabidae, they are not at all sinuate or truncate at the apex, the wing rudiments are small, but extend to the hind margin of the metanotum.

HAB. Maui (Blackburn, Finsch, Perkins): Haleakala, about 4000 ft., in February and April.

APTEROMESUS, gen. nov.

Alae parvae sed haud omnino obsoletae; prothorax absque setis erectis; tarsi articulo quarto bilobato, subtus piloso.

I establish this genus for an extremely interesting form in which the wings are present, and of considerable size though merely useless vestiges. In this respect it resembles *Barypristus*, though totally different in appearance therefrom. It is nearest to *Mysticomenus*, from which it is distinguished by the vestigial wings and by the shorter metasternum. It has the peculiar coloration of *Mysticomenus*, but is very different in sculpture, the striae of the elytra having nearly disappeared to give place to shallow grooves, the interstices of which are slightly elevated along the middle.

The vestigial wings (Plate VI. fig. 20) have not the same form as those of the genus *Barypristus*, being comparatively longer and narrower, nearly half as long as the wing-cases, with a strong thick costa, and also a thick subcostal nervure, without any chitinisation of the tip of the wing.

This genus has to a considerable extent the appearance of a *Metromenus*, and was at first supposed by me to belong to our second division of Anchomenides.

(1) *Apteromesus maculatus*, sp. nov.

Testaceus, parum convexus, capite fuscescente, elytris irregulariter fusco-variegatis; his subsulcatis, interstitiis minus alte angulariter elevatis. Long. $5\frac{1}{2}$—$6\frac{1}{2}$ mm.

Plate VI. fig. 20, vestigial wing.

This cannot be confounded with any other form, as it possesses the peculiar coloration of the elytra found in the genus *Mysticomenus*, and in addition to this has the fourth tarsal joint bilobed as in *Metromenus palmae*; to these peculiarities it adds another, namely, the angular elevation of the interstices found in some other species of Kauai Carabidae. The antennae and legs are pale yellow. The thorax is short, transverse, narrowed behind, with the hind angles completely rounded. The elytra are nearly rounded at the tips, only slightly sinuate; they have a somewhat irregular surface, and the middle of each interstice is slightly raised so as to give rise to a faint appearance of angularity in a transverse section. The maculation is very irregular, indeed it is not alike in the two wing-cases of an individual. The tarsi are short and grooves on them entirely absent.

We have received a series of about 60 specimens of this species. It does not vary much except in the markings of the elytra, and that the disc of the thorax is fuscescent in a variable degree.

HAB. Kauai: 4000 ft. on several occasions (Perkins).

MYSTICOMENUS, gen. nov.

Corpus subdepressum, thorax marginatus, setis erectis carens. Alae perfecte explicatae. Elytra ad basin argute marginata, ad apicem leviter sinuata. Tarsi articulo quarto bilobato, subtus densissime piloso. Palpi labiales breves.

The two species of this genus are very remarkable on account of the coloration of their elytra; this consists of a very irregular mixture of yellow and dark marks, the marks not being the same on any two specimens or on the two elytra of the same individual. In *M. tibialis* the yellow colour is more extensive than the dark colour, in *M. mysticus* the reverse is the case.

Mysticomenus is a very isolated genus. It resembles *Metromenus* in general appearance, but the tarsi have no trace of grooves, and the large lobes of their fourth joint are densely clothed with fine hair beneath, as in *Colpodiscus*.

Those who may think that the Hawaiian Anchomenides have probably been derived from a single form introduced into the islands long ago might find this original ancestor in some form like *Mysticomenus*.

(1) *Mysticomenus tibialis*, sp. nov.

Subdepressus, haud nitidus, flavescens, elytris irregulariter fusco-signatis, subobsolete striatis. Long. 6½ mm.

Mas, tibiis intermediis et posterioribus sinuatis.

Head broad, eyes prominent, placed near the thorax. Thorax broader than long, slightly narrowed behind, not much rounded at the sides, rather flat, impunctate. Elytra broad, very slightly striate. Legs pale yellow.

The smaller extent of the dark pigment on the elytra readily distinguishes this from the following species.

HAB. Oahu (Perkins); Waianae mounts. 2000 ft., February 1896. A small series.

(2) *Mysticomenus mysticus*, Blackb.

Colpodes mysticus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 147.
Metromenus mysticus Sharp, Tr. Dublin Soc. n. s. III. pl. IV. fig. 2.

HAB. Oahu (Blackburn): Waianae mountains, 2000 ft., July. "Very local, but not rare." I have seen only two specimens.

DIVISION 2. Hind tarsi more or less distinctly grooved (Plate VI. fig. 13).

The grooving of the tarsi is in all the Hawaiian forms obscure, and in some of them it requires a very rigorous examination for its detection. Nevertheless, it makes a fairly satisfactory division of the Anchomenides. In many exotic forms the sculpture of the tarsi becomes very perfect and remarkable. Possibly it may be a character that has become diminished in the Hawaiian islands. In that case it is quite likely that *Mysticomenus* and *Apteromesus* of Division 1 are forms that formerly possessed the grooves but have now lost them. Their general facies is that of members of Division 2, and if they be excepted, this character—slight as it is in Hawaii—makes a perfectly natural division of the Hawaiian Anchomenides. The character is easiest seen on the outer aspect of the basal joint of the hind tarsus, and in some cases it can only be detected there, and in the form of a slight longitudinal impression near the base of the joint.

The genera are easily tabulated as follows:

- Fully winged ..... *Colpocaccus.*
- Unwinged,
  - Mandibles somewhat elongate, *Mecomenus*, *Mecostomus.*
  - Mandibles short
    - no thoracic seta ..... *Metromenus.*
    - 1 thoracic seta, near hind angle ..... *Atelothrus.*
    - 1 thoracic seta, near middle ..... *Mesothriscus.*
    - 2 thoracic setae, 1 near hind angle, 1 near middle ..... *Platynus.*

COLPOCACCUS, gen. nov.

Dyscolus, part, Blackburn, Ent. Mo. Mag. XIV. 1877, p. 143.
Colpodiscus, part, Sharp, op. cit. XX. 1884, p. 217.

Alae perfecte explicatae, metasternum sat elongatum. Prothorax utrinque seta unica, ad angulum posteriorem sita, munitus. Tarsi posteriores ad margines sulcati; articulo quarto parvo, emarginato, haud bilobato.

The sculpture of the tarsi is not so strongly marked in most of the species of this genus as it is in *Mesothriscus* and *Atelothrus*, but it is present always in the form of a longitudinal groove on the outer side of the first and second joints, and may also be detected on the interior side of these joints as a flattening or compression of the surface, but there is no trace of a raised line along the middle. In the Kauai species, however, the grooves are very distinct and the tarsi flattened so that both grooves are visible on the upper face of the tarsus. Hence there are two well-marked groups in *Colpocaccus*. The structure of the feet thoroughly distinguishes the genus from *Colpodiscus*, in which I formerly very reluctantly located *C. tantalus*.

(1) *Colpocaccus tantalus*, Blackburn.

Dyscolus tantalus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 147.
Colpodiscus tantalus Sharp, op. cit. XX. 1884, p. 217.

Readily distinguished from the other species by the deep black colour, even the inflexed margin of the elytra being deeply pigmented. The middle of each femur is always more or less infuscate. The thorax is somewhat narrower and longer than it is in the other species and is usually darker in colour, but this varies a little. A very fine series of between three and four hundred specimens has been secured by Mr Perkins. Though apparently the most common of the Carabidae of Oahu, it varies but little.

Hab. Oahu, Blackburn, Perkins. Found in several localities, both in the Waianae and Kaala ranges: very abundant at Halemano in December and January.

(2) *Colpocaccus hawaiiensis*, sp. nov.

Piceus, nitidus, subtus testaceo-variegatus, antennis, palpispedibusque flavis, his plus minusve infuscatis, elytrorum margine elevata ferruginea; thorace transverso, angulis posterioribus perparum argutis; elytris leviter striatis. Long. corp. 8—9 mm.

In this species the inflexed margin of the elytra is always bright yellow, and the raised margin shews red or yellow on the upper surface. The femora are always somewhat infuscate, and the thorax has the hind angles a little less marked than the other species.

Mr Perkins has secured a series of about 200 specimens of this species. It varies somewhat more than *C. tantalus* does, but there is no doubt about even a single specimen, slight as are the characters.

Hab. Hawaii (Perkins): Kona and Kilauea from June to September.

(3) *Colpocaccus lanaiensis*, sp. nov.

Niger, prothorace picescente, antennis, palpis pedibusque flavis, elytrorum margine inflexa ferruginea; thorace transverso, angulis posterioribus obtusis, sat argutis; elytris minus leviter striatis. Long. corp. 8—9 mm.

Very closely allied to *C. hawaiiensis*, but darker in colour, with the legs paler (being nowhere infuscate), and with the thorax more transverse and less rounded at the posterior angles.

These characters distinguish satisfactorily a large series of about 70 examples from Lanai. In addition, I assign to the same species a small series from Molokai and Maui (nine or ten examples from each island). The specimens from these two islands have the thorax decidedly a little narrower, and have not the shape of this part so characteristic as in the Lanai specimens. But I am not able to detect anything to lead me to suppose that they belong to a really separate form.

Hab. Lanai, Maui, Molokai (Perkins). Lanai, 2—3000 ft., in January, June and July. Molokai mountains in August. West Maui mountains, 4000 ft., in April.

(4) *Colpocaccus apicalis*, sp. nov.

Fusco-ferrugineus, nitidus, capite elytrisque nigricantibus, his subtiliter striatis, limbo ad apicem late testaceo. Long. corp. $8\frac{1}{2}$—9 mm.

Closely allied to *C. hawaiiensis*, but readily distinguished by the broadly yellow tip of the elytra: it is also a somewhat broader insect, with more transverse thorax. From *C. posticatus* it can be known at a glance by the delicate striation of the elytra. Most of the small series of specimens are immature.

Hab. Hawaii, Perkins and Koebele. Kilauea and near Hilo in August, apparently rare.

(5) *Colpocaccus posticatus*, sp. nov.

Piceus, minus nitidus, antennis palpisque pedibusque flavis; elytris limbo late ad apicem testaceo, profunde striatis; corpore subtus variegato. Long. 7—8 mm.

Easily distinguished from all the other species except *C. marginatus* by the deep striation of the elytra. The colour is a little variable, but is less pigmented with black than any of the other species. The thorax is strongly transverse, and the posterior angles are sharply marked, though slightly obtuse.

Hab. Kauai, Perkins. Koholuamano in April. Mts. Waimea in May. Rare.

(6) *Colpocaccus marginatus*, sp. nov.

Piceus, antennis, palpis pedibusque flavis, elytris anguste ferrugineo-marginatis, profunde striatis; corpore subtus variegato. Long. corp. 8 mm.

Doubtfully distinct from *C. posticatus*, though wanting the broad yellow apex of the elytra. The thorax is a little narrower.

HAB. Kauai, Perkins. Very rare: found in the same localities as *C. posticatus*.

ATELOTHRUS, gen. nov.

Alae vestigiales. Prothorax utrinque seta unica ad angulum posteriorem sita munitus.

In the highly aberrant *A. transiens* the thoracic setae are very rarely present, but the pits of their insertion exist.

(1) *Atelothrus politus*, sp. nov.

Elongatus, angustus, nitidus, niger, antennis, palpis pedibusque flavis, elytrorum margine laterali angustissime rufescente, thorace plus minusve picescente, abdomine flavo-variegato; elytris sat profunde striatis, striis ad basin discretis, interstitiis politis. Long. 8 mm.

Closely allied to *A. erro*, but readily distinguished by the polished elytra, the striae of which are deeper and not so effaced at the base. The thorax is a little sinuate at the sides behind; the hind angles would be almost rectangular were it not that the base is sloped where it joins the sides, so that the angles are markedly acute; the sides behind are but little elevated.

HAB. Maui (Perkins); Haleakala, 5000 ft., in March, April and May 1894, and in September and October 1896. Some of the specimens are described as found under bark of *Acacia*.

(2) *Atelothrus erro*, Blackburn.

Anchomenus erro Blackburn, Ent. Mo. Mag. xv. 1877, p. 121.
Platynus planus Karsch, Berlin. ent. Zeitschr. xxv. 1881, p. 2.

This is closely allied to *A. politus* as already mentioned, but is readily identified by the peculiar dull surface of the elytra, due to a dense minute sculpture, and by the less deep striation of the elytra, all the striae being very fine at the base, and some indeed of the outer quite effaced there. We have received about 300 specimens of *A. erro*, and there can be no doubt it is distinct from that species and not merely a dimorphic form, as there are slight differences in form and colour; these, however, are not so constant as the diagnostic characters mentioned.

HAB. Maui (Blackburn, Perkins); Haleakala, 4—5000 ft., in March, April and May, and in September and October. The localities and dates are the same as those for *A. politus*, and if these two closely allied species do not actually live together, they must be very close neighbours.

(3) *Atelothrus limbatus*, sp. nov.

Elongatus, angustus, nigro-piceus, antennis, palpis pedibusque flavis; prothorace marginibus ferrugineis, angulis posterioribus leviter obtusis, parum rotundatis; elytris limbo (ad apicem late) testaceo-ferrugineo; abdomine testaceo-variegato. Long. 8¼ mm.

Antennae very long (just over 5 mm.), basal joints yellow, those beyond somewhat darker. Head as broad as the thorax. Thorax narrow, much rounded at the sides and narrowed behind, hind angles obtuse and a little rounded. Elytra blackish with a definite pale margin; this marginal band is very broad at the tip, though narrow at the shoulder. The apex is but little sinuate. Fourth joint of hind foot not lobed, its angles, however, are acute and somewhat produced.

Three specimens only have been found of this insect in its typical form.

Var.? *concolor* n. var. Paulo latior fere unicolor, ferrugineus, prothorace angulis posterioribus minus obtusis. Three specimens.

Hab. Maui (Perkins, Koebele); West Maui mountains, 4000 ft., April 1894, the type form and var. *concolor*. Lahaina, 3000 ft., Koebele.

(4) *Atelothrus longicollis*, sp. nov.

Major, elongatus, ferrugineus, nitidus, antennis, palpis pedibusque flavis; prothorace elongato, nitido, lateribus anterius parum elongatis, parte basali elongata, angulis posterioribus acute rectis; elytris sat profunde striatis, ad apicem parum sinuatis. Long. corp. 9 mm.

Distinguished from the var. *concolor* of *A. limbatus* by the more elongate thorax and the sharp hind angles. The small series of eight examples varies a good deal, and it is possible there may be two species among them; but I think it is more probable that all belong to one variable species.

Hab. Maui (Perkins). Haleakala, 5000 ft., March and April 1894, and at 4000 ft. in May 1896. Apparently it occurred only in single examples.

(5) *Atelothrus constrictus*, sp. nov.

Angustus, convexiusculus, niger, nitidus, antennis, palpis pedibusque flavis; prothorace angusto, basi recta, angulis posterioribus subrectis minutissime obtusis; elytris anguste ovatis, sat profunde striatis, apice parum sinuato. Long. corp. 7—7½ mm.

The rather narrower and more convex form, and especially the narrower thorax, readily distinguish this species from its congeners of similar size, such as *A. longulus*. The thorax is a good deal narrowed and sinuate behind, but in front the sides are less rounded than usual. The antennae and legs are long and slender, the fourth joint of the hind foot produced under the fifth, but not bilobed.

Hab. Molokai (Perkins).

(6) *Atelothrus longulus*, sp. nov.

Sat elongatus, nitidus, niger, antennis, palpis pedibusque flavis; prothorace basin versus minus fortiter angustato; elytris sat profunde striatis, apicibus parum sinuatis, sat prolongatis. Long. $7\frac{1}{2}$ mm.

Closely allied to *A. politus*, but rather smaller, with the elytra only obsoletely sinuate at the tip, and the abdomen not variegate in colour. Almost equally close to *A. depressus* and *A. gracilis*, but with the elytra more prolonged at the tips, and the fourth joint of the hind tarsus not bilobed, but formed as in *A. politus*. Three specimens.

Hab. Maui (Perkins). The same doubt exists as to the locality of this species as does to that of *L. gracilis*; but the habitat is probably "West Maui mountains, 4000 ft., IV. 1894," one of the specimens bearing that label.

(7) *Atelothrus stenopus*, sp. nov.

Nigerrimus, politus, pedibus fuscis, antennis palpisque rufo-obscuris; prothorace sat elongato, basin versus sat angustato; elytris sat profunde striatis, apice modice sinuato; tarsis posterioribus gracilibus, articulo quarto haud lobato. Long. 8 mm.

This is not likely to be confounded with any species except *A. filipes*, but *A. stenopus* is a little larger and has a decidedly longer prothorax. Only two specimens, both males, have been found.

In 1900 Mr Perkins found on Haleakala, 3000 ft., a third specimen that agrees with the two types so well that I cannot treat it as distinct, although it has no seta on the thorax and is therefore to all intents and purposes a *Metromenus*. There is no species of *Metromenus* to which this specimen can be assigned, and therefore I at present treat it as an aberration or sport of *A. stenopus*.

Hab. Maui, Perkins. Haleakala, 5000 ft., April 1894, May 1895.

(8) *Atelothrus filipes*, sp. nov.

Nigerrimus, politus, pedibus fuscis, antennis rufo-obscuris, basi palpisque dilutioribus; prothorace minus elongato, basin versus minus angustato; elytris sat profunde striatis, apice parum sinuato; tarsis posterioribus gracilibus, articulo 4to haud lobato. Long. $6\frac{1}{2}$—7 mm.

The thorax is comparatively little narrowed behind; it is slightly sinuate at the sides behind, the hind angles a little obtuse and rounded, the side-margin fine, but little elevated. The colour of the elytra is very black with a very slight green reflection. Compared with the dark-legged variety of *A. depressus*, the species is readily distinguished by the shape of the thorax, which is less elongate and less narrowed behind, and by the rather more slender hind legs. Twenty-two specimens.

Hab. Lanai (Perkins). Halepaakai, July 1894; Mts. Koele, Jan. and Feb. 1894.

(9) *Atelothrus hawaiiensis*, sp. nov.

Nigricans, corpore subtus, antennis, thoraceque rufis, illarum basi, palpis pedibusque flavis; thorace basin versus angustato, haud sinuato, angulis posterioribus obtusis; elytris margine laterali flavo, profunde striatis, ad apicem sat profunde sinuatis. Long. corp. 6½ mm.

We have only one specimen—a male—of this obscure insect, and some doubt exists as to its belonging to the genus *Atelothrus*, as there is a fovea for a thoracic seta at the left angle only of the thorax; if this is not really a fovea, but due to a small piece being chipped out of the thoracic margin by some accident, the specimen will be referable to the genus *Metromenus*. As the supposed fovea exists in exactly the normal situation, it is probable the individual is really correctly placed in *Atelothrus* and I describe it, notwithstanding the doubt that exists about it, because it indicates an extension of the genus to the island of Hawaii.

The species is not at all closely allied to any other *Atelothrus*, but is extremely similar to *Mesothriscus hawaiiensis*, from which it differs however by its shorter thorax, which also is rather broader at the base. It has but little resemblance to *A. filipes*, the hind tarsi being considerably thicker, though the fourth joint is not in the least lobed.

Hab. Hawaii (Perkins). Kilauea, August 1896. No. 656.

(10) *Atelothrus gracilis*, sp. nov.

Nitidus, niger, antennis, palpis pedibusque flavis; prothorace parum elongato, basin versus satis angustato; elytris anguste ovatis, ad apicem parum sinuatis, apicibus parum prolongatis, sat profunde striatis. Long. corp. 7 mm., antennae vix 4 mm.

Closely allied to *A. depressus*, but with smaller thorax less narrowed behind, and rather narrower elytra, which are scarcely more sinuate, but are rather more prolonged at the tip. The hind tarsi are shorter, but their fourth joint is quite as long and as distinctly bilobed as it is in *A. depressus*. The fifth and sixth striae are connected at a rather greater distance from the tip than they are in *A. depressus*. The species is also extremely similar to *A. longulus*, from which it is readily distinguished by the distinctly bilobed fourth joint of the hind feet. *A. filipes* is also very similar, but in it the fourth joint is not bilobed.

Hab. Maui (Perkins). There is some doubt as to the exact locality of this species. The specimens (11 in number) are marked with the number 357, the entry corresponding to which is "Haleakala, 4000 ft., IV. 94." There has, however, been a mistake in connection with this number, as several insects bearing it are also labelled "West Maui mountains." This is probably the actual habitat of these specimens of *A. gracilis*. In addition to them Mr Perkins has recently found two specimens on Haleakala (3000 ft.) that are a little larger, but are apparently the same species.

No. 1232, Prof. Thaxter for Laboulbeniaceae.

(11) *Atelothrus dyscoleus*, sp. nov.

Nitidus, niger, parum convexus, antennis palpisque rufis, pedibus piceis; prothorace basin versus angustato, angulis posterioribus obtusis, rotundatis; elytris minus profunde striatis. Long. 7—8 mm.

Very black, shining. Head broad and short. Thorax only very slightly broader than long, a good deal narrowed behind, and usually with a very slight sinuation just before the hind angles. Elytra a good deal sinuate at the sides near the tip, but not appearing truncate, the striae fine, never very deep. Legs moderately long and stout, fourth joint of hind tarsus slightly bilobed.

This differs from *A. gracilis* by the colour of the legs and the less deeply striate elytra: the colour of the under-surface is black, the epipleuron not being at all yellow.

The small series varies a good deal. One specimen—the largest—has the antennae dark. In most of the specimens the third and the fourth, and the fifth and the sixth striae are separately paired, that is, united at the extremity; but in three others this is not the case, the third and the sixth striae meet together, enclosing the tips of the fourth and fifth. These examples have shorter legs than the previously mentioned specimens, and may possibly prove to be different. The four specimens from West Maui are very small, more deeply striate, and less elongate and shining. There is some doubt as to the locality, as explained in the remarks on *A. gracilis*; the clue being 357 as in that species.

HAB. Maui, 3000 ft., in 1900 (Perkins, No. 845). W. Maui? (Perkins, No. 357).

(12) *Atelothrus insociabilis*, Blk.

Anchomenus insociabilis Blackburn, Ent. Mo. Mag. xv. 1878, p. 121.

The type is like a very elongate *A. dyscoleus*: the head is not so broad, the thorax is straighter at the sides, and the elytra longer and rather more convex. It is unique.

HAB. Maui. Haleakala, 4000 ft. (Blackburn).

(13) *Atelothrus depressus*, sp. nov.

Subdepressus, nitidus, niger, antennis, palpis pedibusque flavis; prothorace basin versus fortiter angustato; elytris ad basin angustis, posterius latioribus, ad apicem perparum sinuatis, sat profunde striatis. Long. corp. $7\frac{1}{2}$ mm., antennae $4\frac{1}{2}$ mm.

Var. *fuscipes*, var. nov.; antennis pedibusque fuscis, elytris vix profundius striatis.

Thorax small, much narrowed behind, not sinuate at the sides, the base straight, hind angles rather indistinct. Elytra narrow at the base, much disconnected from the thorax, the apical sinuation just perceptible. Legs slender; fourth joint of hind tarsus slightly bilobed. Twenty-two specimens.

This species has a good deal the shape of the European *Platyni*. The margins of the thorax and elytra are dilute in colour to a variable extent. The var. *fuscipes* is represented by only four specimens: three of them have the elytra more deeply striate, especially at the tip, but the fourth agrees in this respect with the pale-legged form.

HAB. Lanai (Perkins); Lanaihale, Halepaakai Mts. Koele. Var. *fuscipes*, Lanai, 2000 ft., January 1894.

No. 1231, Prof. Thaxter for Laboulbeniaceae.

(14) *Atelothrus platynoides*, sp. nov.

Subdepressus, nigro-piceus, antennis, palpis pedibusque fusco-testaceis; thorace subplanato, basin versus fortiter angustato; elytris posterius latioribus, profunde striatis, ad apicem fortiter sinuatis, apicibus parum productis, fere singulatim rotundatis. Long. $6\frac{3}{4}$—$7\frac{1}{2}$ mm.

Var. *flavipes*, var. nov. Pedibus flavis.

This is extremely similar to *A. depressus* var. *fuscipes*, but is slightly broader, has the elytra a little more sinuate behind, and the fourth joint of the hind tarsus quite distinctly bilobed.

I originally described this species from a single specimen, and quite recently have received three others from Mr Perkins that confirm its distinctness. The tarsal structure approaches that of *A. dyscoleus* and of *Metromenus palmae*. There is no difference in form in the tarsi of the two sexes. Of the var. *flavipes* only a single specimen has been found. I see no distinction in it except the colour of the legs, and in this group of *Atelothrus* this character does not appear to me to indicate specific distinctness. This variety is very near *A. gracilis*, though the form in *platynoides* is considerably narrower, and the tarsi are distinctly more slender.

HAB. Molokai, Perkins. Molokai mts. 4000 ft., May 27th, 1893; No. 191. Molokai, 1902, Perkins.

(15) *Atelothrus transiens*, sp. nov.

Piceo testaceoque variegatus, antennis pedibusque flavis; prothorace inaequali, basin versus angustato; elytris sat nitidis, piceis, flavo-marginatis, interstitiis elevatis, angulatis, alternis saepius altioribus. Long. 6—7 mm.

In this extraordinary species the setae on the thorax are very rarely present, though their pits are always evident on the inner face of the side-margin quite near to, if not on, the summit. It differs from all the other species of the genus in its sculpture, and in this respect resembles the aberrant forms of *Mesothriscus* and *Metromenus* from the same island—Kauai. The head is black. Thorax a good deal narrowed behind, yellowish, more or less infuscate, with the margins pale, the surface always more or less crumpled, sometimes strongly so. The elytra are rendered somewhat dull by an

extremely minute sculpture; there are no true striae, but angular ridges separated by broad grooves; in some species the alternate ridges are more elevated, but in others there is little difference in this respect: the lateral margin is always yellow. The under-surface is piceous variegate with yellow.

We have received about fifty specimens of this species; in all of them the thoracic setae are absent, except that in one specimen the seta exists on one side, and is of normal size[1]. A variety occurs in which the colour is more extensively yellow, and then there is an extreme resemblance to *Metromenus limbatus*, but in that species the sides of the elytra are always more broadly yellow than they are in these extreme varieties of *A. transiens*.

Hab. Kauai (Perkins). Makaweli, 2500 ft., in February 1896, and again in February 1897. Nos. 668 and 703.

Mesothriscus, gen. nov.

Corpus apterum. Prothorax utrinque seta unica ad medium lateris sita munitus.

(1) *Mesothriscus vagans*, sp. nov.

Piceo-niger, antennarum basi, palpis pedibusque testaceis, antennis extrorsum obscurioribus; prothorace subtransverso, basin versus fortiter angustato, angulis posterioribus obtusis; elytris sat profunde striatis, interstitiis haud deplanatis, margine laterali rufa. Long. 7—9 mm.

The species varies a good deal in colour, the thorax being sometimes blackish and a little paler at the sides, while in other cases it is red, and intermediate conditions occur. The thorax is much rounded at the sides in front, and a good deal narrowed behind; the base is not straight, but a little directed forwards on each side; the hind angles are both obtuse and indefinite. The legs are usually dirty yellow. Eighty or ninety specimens. The thorax varies a good deal in form.

Hab. Molokai Mountains, 4000—4500 ft., on several occasions in June and August 1893 (Perkins).—? Maui (Perkins).

I have some little doubt as to the correctness of the labelling of the single individual on which the Maui record is based. It is numbered 384, which refers to Haleakala III. 1894. I incline to think it is a specimen from Molokai that has been misplaced during the preparation.

[1] In a letter recently received from Mr Perkins he suggests that the absence of the setae in *A. transiens* may be to a considerable extent a post mortem occurrence. It is quite probable that this may be the case. In other words *A. transiens* may be a species liable to lose its thoracic setae from slight mechanical causes more easily than most other species do. If shewn to be the case, this would in itself be of considerable interest.

(2) *Mesothriscus muscicola*, Blackburn.

Anchomenus muscicola Blackb., Ent. Mo. Mag. XIV. p. 147, and XXI. p. 25.

Niger, antennarum basi, palpis pedibusque testaceis, antennis extrorsum obscurioribus; thorace haud transverso, basin versus angustato, angulis posterioribus rectis; elytris sat profunde striatis, interstitiis planis, margine laterali rufo. Long. corp. 7—9 mm.

This is very closely allied to *M. vagans*, but has the thorax a little differently shaped, and the base of the elytra more deeply bayed, or scooped out, on each side for the reception of the base of the thorax. The thorax is much sinuate behind, its hind angles nearly or quite rectangular, and well defined. The elytra are broad, deeply and very regularly striate, with the interstices quite flat. More than 60 examples.

This species, like *M. vagans*, varies a good deal, but as no specimens of the two species agree, I treat them as distinct. The thorax is always somewhat longer in proportion to the width than it is in *M. vagans*, and the hind angles are more sharply defined. Small examples have the thorax narrower at the base, and the hind angles not so acute, they therefore come nearer to *M. vagans*. The specimens that approach nearest to the Molokai Insect are two found on the Waianae mountains, 2000 ft., in February 1890, and one found on the mountains near Honolulu in August 1896.

Hab. Oahu. Apparently common; Honolulu mts., August 1896; Waianae mts., 2000 ft., February 1896; Kawaaloa, April 1893; Kaala mts., December 1892 (Perkins). 21

Nos. 1236, 1237, 1241, 1244, Prof. Thaxter for Laboulbeniaceae.

(3) *Mesothriscus prognathus*, sp. nov.

Piceus, antennis fuscescentibus, earum basi pedibusque flavis; capite gracili, elongato; prothorace vix transverso, cordato, angulis posterioribus perfecte, rectis; elytris sat profunde striatis. Long. 8½ mm.

I have seen only one specimen of this insect, and it is so close to certain extreme forms of *M. muscicola* that I cannot feel sure that it will prove distinct; it is, however, rather more elongate in form, with a distinctly longer head and slightly longer mandibles and the elytra rather less deeply striate, and I think should be distinguished till connected certainly with *M. muscicola*.

The unique example, for which I am indebted to Mr Koebele, is a female.

Hab. Oahu (Kobele).

(4) *Mesothriscus lanaiensis*, sp. nov.

Piceus, antennis palpis pedibusque rufis; prothorace transverso basin versus fortiter angustato et sinuato, angulis posterioribus obtusis; elytris ovatis, sat profunde striatis. Long. 7 mm.

Of this form only two specimens have been received; they do not agree with any example of *M. vagans*, but are so near thereto that a series may possibly show that it is not distinct. *M. lanaiensis* is of the size of the smallest examples of *M. vagans*, but is paler in colour, the thorax is altogether a little smaller, and the elytra rather narrower at the base so as to be somewhat differently shaped. The specimens are both male.

HAB. Lanai (Perkins), 2000 ft., January and February 1894.

(5) *Mesothriscus tricolor*, sp. nov.

Ferrugineus, capite elytrisque nigricantibus, his margine laterali (saepiusque sutura) ferrugineo; prothorace transverso, basi recta, angulis posterioribus levissime obtusis; elytris minus profunde striatis. Long. 7 mm.

This is closely allied to *M. vagans*, but besides the differences in colour, which are by no means invariable, it differs decidedly in the shape of the thorax and some other details. The basal part of the thorax is flatter, the sides behind being less upturned and less sinuate, with the posterior angles more sharply defined. The elytra are slightly broader and less rounded at the shoulders, their striation usually slightly finer and more regular. The female has only two abdominal setae on each side of the extremity of the last abdominal segment.

There is considerable variation in the small series of eighteen examples of this species; the red colour of the thorax being in some cases much infuscate. I also refer as varieties to this species the following two forms.

Var. *concolor*, var. nov. Paulo minor, totus ferrugineus, thoracis ad basin paulo angustiore. Molokai, five examples, W. Maui mountains, two examples.

Var. *rudis*, var. nov. Major, praesertim latior, corpore nigro, thoracis ad angulos posteriores lateribus magis elevatis. This variety approaches *M. muscicola*, but the thorax is considerably more transverse. Molokai, two specimens.

HAB. Molokai.—Maui (as a variety). Molokai, 4000—4500 ft., on several occasions in 1893 (Perkins). W. Maui, 4000 ft., April 1894. Var. *concolor* (Perkins).

No. 1239 of Prof. Thaxter, Laboulbeniaceae.

I am by no means sure that the var. *concolor* may not consist of one or two distinct species. The two specimens from W. Maui are very small and have a narrower thorax.

All the females of typical *M. tricolor* have, except one, only two setae on each side of the last ventral. The only female of the Molokai *M. tricolor concolor* has three on each side. The two W. Maui *M. tricolor concolor* (minor) are both males.

(6) *Mesothriscus hawaiiensis*, sp. nov.

Angustior, piceus, antennis rufis, basi palpis pedibusque flavescentibus; thoracis angulis posterioribus obtusis; elytris profunde striatis, ad apicem fortius sinuatis, margine laterali ferrugineo. Long. corp. $6\frac{3}{4}$ mm.

Var. Prothorace ferrugineo.

Antennae short. Thorax much narrowed behind, the hind angles very distinctly obtuse, the side margin not strongly upturned. Female, with two abdominal setae on each side.

The small series of thirteen examples indicates that this is probably distinct from *M. vagans*. The thorax is less contracted and sinuate behind, and the sides there less upturned, so that the surface appears to be flatter.

The variety with red thorax has a great resemblance to *Atelothrus hawaiiensis*.

Hab. Hawaii. Kilauea, July 1896 (Perkins).

No. 1238, Prof. Thaxter for Laboulbeniaceae.

(7) *Mesothriscus truncatus*, sp. nov.

Robustus, subdepressus, niger, nitidus, antennis palpis pedibusque testaceis; thorace transverso, basin versus angustato, angulis posterioribus rotundato-obtusis; elytris regulariter striatis, apicibus sinuatim subtruncatis. Long. corp. 8 mm.

This is not closely allied to any other species; by the form it resembles more *Atelothrus depressus* and allies and *Metromenus pavidus*, rather than any other *Mesothriscus*. The thorax is much narrowed behind; the angles are very indistinct. The elytra are broad, the angle formed by the junction of the lateral and basal margins is very indistinct; the striation is rather deep, very regular, and the broad interstices are quite flat: the apex is more depressed and truncate than usual. The fourth joint of the hind tarsus is not at all lobed. The female has three setae on each side of the last ventral segment. Three specimens.

The resemblance to *Metromenus pavidus*, in company with which this insect was found, is so great that I shall not be surprised if it prove to be a sport thereof.

Hab. Kauai (Perkins). Waimea, 4000 ft.

(8) *Mesothriscus collaris*, sp. nov.

Major, elongatus, piceo-ferrugineus, nitidus, antennis palpis pedibusque flavis, elytrorum limbo late ferrugineo; prothorace elongato, angusto, angulis posterioribus leniter obtusis; elytris elongatis, profunde striatis, ad apicem perparum sinuatis. Long. corp. 10 mm.

This resembles *Atelothrus longicollis* and *A. limbatus*: it has the thorax longer than the second of this species; while from *A. longicollis* it differs by the colour of the elytra and the less sharp posterior angles of the thorax. It is even more similar to certain specimens of *Metromenus cinctus*, but it has the thorax less constricted and narrow behind. Until more specimens are found it cannot be considered certain that these two are distinct. It is, however, very unlikely that a *Mesothriscus* can be a sport

from a species of *Metromenus*, though the reverse case (in which the setae disappear) possibly happens as a rare phenomenon.

Only one specimen has been found: it is a female, and has three setae on each side of the last ventral segment. Prof. Thaxter took specimens of Laboulbeniaceae from it with the number 1240 (? 46).

Hab. Molokai (Perkins). Molokai mountains, 4000 ft., 15th June 1893.

(9) *Mesothriscus microps*, sp. nov.

Ferrugineus, nitidus, antennarum basi, palpis pedibusque flavis; prothorace lateribus posterius fere rectis, vix perspicue sinuato-angustatis, angulis exacte rectis; elytris humeris anterius prominulis, sat profunde striatis, ad apicem profunde sinuatis. Long. corp. 7 mm.

This insect to some extent connects *M. tricolor* with the abnormal *M. abax*. The thorax is a little narrowed in front, the base is quite straight; the angle formed by the junction of the sides and base of the elytra is very marked, and projects somewhat forwards. A single male example. The exact locality is somewhat doubtful, the specimen being one of those numbered 357, the entry for which is Haleakala, but, as stated under *Atelothrus gracilis*, the true locality is probably West Maui mountains.

Hab. Maui (Perkins).

(10) *Mesothriscus abax*, sp. nov.

Piceus, nitidus, antennis palpis pedibusque rufis; prothorace haud transverso, lateribus posterius fere rectis, nullo modo angustatis, angulis exacte rectis; elytris humeris anterius prominulis, profunde striatis, ad apicem minus profunde sinuatis. Long. corp. $6\frac{1}{2}$—7 mm.

Plate VII. fig. 2.

The form of the thorax distinguishes this from all the other species except *M. microps*, in which, however, the thorax is less elongate. The colour varies from piceous to ferrugineous, the epipleura being pallid as in the other *Mesothriscus* of the central islands of the Archipelago.

Hab. Molokai.—Maui. Molokai, 4500 ft., June and August 1893. Maui, Haleakala, 5000 ft.

(11) *Mesothriscus kauaiensis*, sp. nov.

Fusco-testaceus, nitidus, antennis palpis pedibusque dilutioribus; prothorace haud transverso, basin versus fortiter angustato, angulis perobtusis; elytris profunde striatis, interstitiis convexiusculis, septimo vix magis elevato. Long. corp. 7 mm.

Readily distinguished from all the preceding species by the more convex interstices of the elytra, and from the following species by the interstices appearing broad instead of being angulate and therefore narrow at the summit. The seventh interstice is slightly more elevated than the others, and there is also an extremely slight, increased elevation of the fifth. The base of the thorax is not straight, and the hind angles are extremely indistinct. The female has three setae on each side of the last ventral segment.

The species is of considerable interest, as to a certain extent it connects the very peculiar Kauai species of *Mesothriscus* with those found on the central islands of the group. The species to which it comes nearest is *M. lanaiensis*. It is apparently of the greatest rarity.

HAB. Kauai (Perkins).

(12) *Mesothriscus optimus*, sp. nov.

Fusco-testaceus, antennis palpis pedibus elytrorumque margine laterali flavis; prothorace haud transverso, basin versus angustato, angulis obtusis; elytris quasi sulcatis, interstitiis fortiter sed inaequaliter elevatis, ad apicem haud truncatis, parum sinuatis. Long. corp. $7\frac{1}{2}$ mm.

This species—like so many other of the Kauai Carabidae—has the sculpture of the elytra strangely abnormal; the interstices are strongly elevated and angular at the top so that the spaces between them form grooves, the true striae having disappeared: the small impressions on the third interstice cause an interruption of the costa, breaking it up more or less distinctly into elongate bullae, reminding one of the sculpture in the genus *Carabus*.

M. optimus is distinguished from *M. alternans* by the larger size, more elongate form and longer elytra, by the thorax narrowed behind, but not at all sinuate at the sides, and by the obtuse and rounded hind angles of the thorax. Only two specimens have been found.

HAB. Kauai (Perkins).

(13) *Mesothriscus opacus*, sp. nov.

Picco-testaceus, opacus, antennis palpis pedibusque flavis, elytrorum limbo testaceo; prothoracis angulis posterioribus obtusis; elytris ad apicem profunde sinuatis interstitiis alternis elevatis, crenulatis. Long. 7 mm.

Distinguished by the peculiar sculpture of the elytra, these parts being dull, and the more elevated part of each interstice wavy. It is larger than *M. alternans*, and has the thorax different in form, being comparatively broader, more strongly narrowed behind, with the hind angles more obtuse, and the sides more broadly explanate. Only two specimens have been found. The female has only two setae on each side of the apex of the abdomen.

HAB. Kauai (Perkins).

(14) *Mesothriscus alternans*, sp. nov.

Minor, nigro-piceus, nitidus, antennis palpis pedibusque testaceis; minus depressus, prothorace angusto, angulis posterioribus obtusis; elytris parum elongatis, sulcatis, interstitiis alternis magis elevatis, apicibus fortiter sinuatis. Long. corp. 5—6 mm.

This is one of the species with the peculiar sculpture of the elytra that occurs in so many of the Kauai Carabidae of different genera; the true striae having disappeared, while in their place are grooves with the interstices more or less angularly elevated, the alternate interstices being more elevated than the others. The thorax is not transverse, and is always long and narrow, though it varies somewhat in form. The apices of the elytra are unusually strongly sinuate. The legs are rather short. The setae on the last ventral of the female are two in number on each side in most, if not all, of the specimens examined.

A large series.

Hab. Kauai (Perkins). Koholuamano, 4000 ft., in April, mts. Waimea, 4000 ft. in May.

Nos. 1220, 1242, 1243, Prof. Thaxter for Laboulbeniaceae.

Platynus Bonelli.

This genus, as at present understood, comprises numerous species and has a very wide distribution. It is, however, a very composite one, and will no doubt be divided. The two species I place in it agree fairly well with the apterous forms of *Platynus* found in California. They are distinguished from the other Hawaiian Anchomenides by possessing two setae on each side of the thorax as is normal in Anchomenides. It is very remarkable that there are in the islands these two normal forms, while all the others are unusual in possessing a diminished number of thoracic setae, the majority of species in the islands being highly peculiar on account of the total absence of these setae. Both species are extremely rare.

(1) *Platynus ambiens*, sp. nov.

Depressus, fuscus, subtus nigricans, elytrorum epipleuris fusco-testaceis; prothorace elytris multo angustiore, basin versus angustato, angulis posterioribus leniter obtusis; elytris profunde striatis, apicibus oblique subtruncatis, parum sinuatis. Long. corp. 7 mm.

We have received only one specimen of this species; though at first sight very similar to *Atelothrus platynoides*, it is very distinct therefrom. The lateral margin of the thorax is very fine, and the sides behind are very slightly sinuate, the angles being sharply marked, though distinctly obtuse. The elytra are broader behind, with the

apices scarcely at all prolonged behind the sinuation; the junction of the lateral and basal margins forms a definite, though very obtuse angle; they are deeply striate, and the interstices are a little convex. The legs are slender, the fourth joint of the hind tarsus scarcely at all bilobed. One male.

HAB. Kauai (Perkins). Without indication of locality or date.

(2) *Platynus calathiformis*, sp. nov.

Angustus, parum nitidus, piceus, elytrorum margine rufo, antennis palpis pedibusque testaceis; thorace basin versus vix angustato, angulis posterioribus rectis; elytris subtiliter striatis, striis ad basin obsolescentibus. Long. $7\frac{1}{2}$ mm.

This species resembles only *Atelothrus erro*, from which it is readily distinguished by the thorax being slightly broader at the base than it is at the front angles. The base is quite straight and the hind angles are very sharply marked. The seventh stria can scarcely be detected near the base. The fourth joint of the hind tarsus is not lobed. The female has three setae on each side of the last ventral segment. Five specimens.

HAB. Maui (Perkins). Haleakala, 4000—5000 ft., March and April 1894.

MECOSTOMUS, gen. nov.

Mandibulae elongatae, acuminatae, parum curvatae. Palpi elongati, labiales pertenues. Thorax elongatus, utrinque seta erecta ante medium lateris sita.

This genus can only be placed next to *Mesothriscus*; although there are no connecting links between the two, I think it is undoubtedly allied to the genus in question more nearly than it is to *Mecomenus*, which is the only genus having a similar mouth-structure. *Mecomenus* appears indeed to be allied to *Metromenus* rather than to *Mecostomus*. The elongation of the trophi is analogous to that of the European genus *Stomis*, but there is no other affinity between the two, and the trophi are far from similar in their details. There is a single well-marked seta on the middle of each side of the thorax. The female has two abdominal setae on each side of the last ventral plate.

(1) *Mecostomus perkinsi*, sp. nov.

Angustus, subparallelus, piceus, nitidus, palpis antennis pedibusque flavis; prothorace elongato, lateribus posterius sinuatis, angulis posterioribus rectis; elytris sat profunde striatis, ad apicem fere esinuatis. Long. corp. 7 mm.

Plate VI. fig. 11.

This is readily identified by the elongate mandibles. In general form and appearance it has some resemblance to the narrowest examples of *Mesothriscus abax*, but it is very different on account of the thorax being narrowed behind and of the elytra being much

narrower. The thorax is as long as broad. The shoulders of the elytra form a well-marked denticle or angle outside the hind angle of the thorax. The legs are short. The front tarsi of the male very little dilated.

I have great pleasure in naming this interesting insect in honour of Mr R. C. L. Perkins, who has been so remarkably successful in his entomological work in the Hawaiian islands. It is very curious to find what appears to be an entirely precinctive insect possessing a strongly marked specialisation that to some extent has an analogue in two or three other of the Island forms (*Mecomenus, Gnatholymnaecum, Nesolymnaecum*) that are only distantly, or not at all, related to it. I have, however, found that *Mesothriscus prognathus* apparently forms a lead to it. The insect appears to be of great rarity.

Hab. Maui (Perkins). Haleakala.

Mecomenus, gen. nov.

Partes oris graciles, mandibulae elongatae, tenues, parum curvatae. Prothorax transversus sine setis erectis.

The genus is established for *M. koebelei* and *Anchomenus putealis* Blk., two of the rarest of the Hawaiian Carabidae. It is allied by the elongate slender trophi to *Mecostomus*, but in other respects is similar to *Metromenus*. The sculpture of the tarsi is that of such species as *Metromenus epicurus*. The section of *Metromenus* to which it is nearest is placed at the end of the genus, consisting of *M. latifrons* and *calathoides*. *Mecomenus* has the broad base of the elytra in common with the section named of *Metromenus*.

The genus like *Mecostomus* is confined to the island of Maui.

(1) *Mecomenus koebelei*, sp. nov.

Latus, nigro-piceus, nitidus, antennis pedibusque testaceis; prothorace transverso, lateribus subrectis, angulis posterioribus perfecte rectis; elytris sat profunde striatis. Long. 7—8 mm.

This very distinct species has a broad head, which is definitely constricted almost immediately behind the eyes. The shoulders of the elytra are quite free. The thorax is very shining; the base is just perceptibly broader than the front, the posterior angles are remarkably definite, and the sides near them much directed upwards. The elytra are unusually broad, deeply striate, with the interstices quite flat; the lateral groove is yellow, and the tips are sometimes pale.

In addition to the six examples of this species from Lahaina, there is an individual without any locality label that I treat as a variety of *M. koebelei*. It is narrower, and

the shoulders of the elytra less prominent. Except for the longer trophi, this individual appears scarcely to differ from some of the specimens of *Metromenus latifrons*.

HAB. Maui. Lahaina (Koebele).

(2) *Mecomenus putealis*, Blackburn.

Anchomenus putealis, Blackburn, Ent. Mo. Mag. XVII. 1881, p. 227.

The species will be readily recognised by the long mandibles and by the fact that the lateral margin of the thorax is fine and less elevated than usual. The lateral margin of the thorax is not so much incurved at the junction with the basal margin as it is in the normal *Metromeni*; on the other hand, it is more incurved than it is in the aberrant species of the *latifrons* group of *Metromenus*. The elytra are yellow at the tips but not at the sides. The antennae and legs are rather short, and the eyes are reduced below the normal size.

HAB. Maui. "In damp rotting leaves on the margins of a stagnant pool, at an elevation of about 4000 ft. on Haleakala," April or May 1880 (Blackburn). Haleakala, in forest, 4000—5500 ft., March 1894, one specimen (Perkins, No. 384).

METROMENUS Sharp.

Metromenus Sharp, Ent. Mo. Mag. XX. 1884, p. 217.

The characters of this genus—among the Hawaiian Anchomenides—are tarsi distinctly depressed longitudinally along each side, wings vestigial, thorax without any seta.

Most of the numerous species are confined to the island of Oahu, and several of them are still very inadequately known. Their discrimination is a very difficult matter, several of the species being extremely close to one another and so variable that knowledge of a good series is necessary to enable anyone to form an opinion as to their validity. There are a few very distinct forms among them, such as *M. palmae* Blackb. and *M. perpolitus*. I have explained previously that in other genera, where thoracic setae exist, the seta may, as an anomaly, be present on one side and absent on the other, and, as an extremely exceptional case, may be absent from both sides: so that the individual then becomes systematically a *Metromenus*. I believe this phenomenon really occurs (and Mr Perkins shares this opinion), but that it is extremely rare. Under *Atelothrus stenopus* I have remarked on such a case. Still the evidence on this point is far from being completely satisfactory. However interesting this question may be from a biological point of view, it does not much affect the question of the systematic importance of the seta. There are only one or two cases in which a species I have considered

a *Metromenus* could belong to any known species of a genus possessing setae even if the difference as to setae were left out of consideration.

With regard to the tarsal structure, I should explain that I have not made use of it for dividing the genera because of the intermediate forms that exist. In the preceding division of the Anchomenides I found that the species with lobed tarsi readily separated from the others; but here the reverse is the case. The character is, however, of the greatest value for discriminating species, as there seems to be extremely little variation in it.

Division 1. Lateral margin of elytra greatly curvate, rounded at the shoulders. Species 1—24.

(1) *Metromenus palmae*, Blackburn.

Dyscolus palmae Blackburn, Ent. Mo. Mag. xiv. p. 147.

This species cannot be confounded with any other. It has a broad, lobed fourth joint on the hind tarsus, and is dark in colour. *M. mutabilis* has a large fourth tarsal joint, but is red in colour and different in shape. Several species of *Atelothrus* approach *M. palmae* in shape and in the tarsal structure.

Hab. Oahu. Not uncommon on the leaves of *Freycinetia*; usually at an elevation of about 1500 ft. (Blackburn). In several localities about Honolulu (Perkins).

(2) *Metromenus mutabilis*, Blackburn.

Dyscolus mutabilis Blackburn, Ent. Mo. Mag. xiv. p. 148.

Plate vi. fig. 17, *a*, *b* hind foot, above and below.

This species is of rather depressed form, has the elytra moderately deeply striate, and the fourth joint of the hind feet deeply divided so as to form distinct, slender, free lobes. The colour is peculiar and quite characteristic. It is a rather bright yellow, with the head somewhat infuscate and the elytra marked with black at the sides behind.

I have upwards of a hundred examples before me and all are recognisable at a glance except in the case of six examples. Two are of an entirely yellow colour without the black marks. Four, on the contrary, have the black colour very much extended, so as to have the head quite black, the middle of the thorax infuscate, the elytra blackish with the outer margin remaining yellow, and the suture and base yellowish. Though these aberrant examples greatly resemble varieties of *M. caliginosus* and *M. aequalis*, yet the structure of the tarsi is quite unmistakeable, and there is no doubt as to the distinctness

of this species. It is in fact, notwithstanding its name, much less variable than its immediate allies. The tarsal structure differentiates it from all the other *Metromenus* except *M. palmae*.

Hab. Oahu. Rather plentiful on the leaves of a species of the lily tribe (locally known as "silver sword"); also in stems of fern; at an elevation of 2000 ft. and upwards (Blackburn). Honolulu, in various spots and in several months, apparently always between 2000 and 3000 ft. (Perkins).

No. 1259, Prof. Thaxter for Laboulbeniaceae.

(3) *Metromenus caliginosus*, Blackburn.

Dyscolus caliginosus Blackburn l. c.

This species differs from *M. mutabilis* by the narrower form, rather more deeply striate elytra, and by the less deeply divided fourth joint of the hind feet. It is extremely variable in colour, some examples being concolorous testaceous or yellowish, while in others the head, the disc of the thorax and the elytra are blackish. The dark colour of the elytra is not formed (as it is in the dark varieties of *M. mutabilis*) by an extension of dark colour from behind forwards, but by a general suffusion of the surface. I have examined about sixty specimens.

Hab. Oahu. Found occasionally in the stems of ferns and other plants at an elevation of about 2000 ft. (Blackburn). Honolulu, in various places in the mountains (Perkins).

No. 1261, Prof. Thaxter for Laboulbeniaceae.

(4) *Metromenus aequalis*, sp. nov.

Flavescens, plus minusve nigro-infuscatus, antennis pedibusque laete flavis; elytris subtiliter striatis; tarsorum posticorum articulo quarto emarginato haud bilobato. Long. 7 mm.

Plate VI. fig. 14, hind foot above and below.

Very closely allied to *M. caliginosus*, but can be distinguished by the tarsal structure as well as by the less deeply striate elytra, the broader form, and the rather broader base of the thorax. It is always broader. Although the species varies in colour in the same manner as *M. caliginosus* does, yet I do not entertain any doubt as to the distinctness of the two forms, though at first I did so.

The head is black or blackish. The thorax is reddish-yellow, with the disc more or less broadly and deeply infuscate. The elytra are obscure yellow, more or less deeply tinged with black; in some examples quite black, with the suture and epipleural margin reddish. The thorax is $1\frac{1}{2}$ mm. broad and scarcely shorter than this; it is distinctly

narrowed behind but scarcely at all sinuate, the lateral and basal margins are quite fine, the latter very broadly interrupted in the middle, the hind angles are moderately definite and slightly obtuse. The fourth joint of the hind tarsus is quite as large as it is in *M. caliginosus*, but the fifth joint is not inserted so near the base of the fourth, hence the tarsi are a little less lobed.

HAB. Oahu. Halemano, 2000 ft., December 1892.

A variety occurs in which the colour is entirely yellow, with a slight infuscation of the head; this superficially resembles *M. mutabilis*, but that species has the tarsus much more bilobate. This variety was found in the Waianae mountains, 2000 ft., February and April 1896. Six specimens.

No. 1260, Prof. Thaxter for Laboulbeniaceae.

(5) *Metromenus angustifrons*, sp. nov.

Piceus, sat nitidus, elytris nigris, margine externo suturaque rufis, antennis pedibusque testaceis; capite angusto; prothorace leviter transverso, basin versus sat angustato, angulis posterioribus obtusis, haud rotundatis; elytris profunde striatis. Long. 6 mm.

This may be compared with *M. caliginosus*, but it cannot be confounded therewith on account of the narrower and longer form of the head and the fact that the eyes are not prominent and exhibit only a very slight convexity. The hind angles of the thorax are less rounded than they are in *M. caliginosus*, and the striation of the elytra is deeper: the yellow margin along the external groove of the elytra is very conspicuous. It is equally near to *M. protervus*, and in some respects is intermediate between it and *M. caliginosus*, but it has less convex eyes, a smaller thorax, and less elongate, less deeply striated elytra. Only one specimen has been found.

HAB. Oahu. Honolulu, 2000—3000 ft. (Perkins).

(6) *Metromenus meticulosus*, Blackburn.

Anchomenus meticulosus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 146.

I know so little of this species that I scarcely like to remark on it. According to two specimens sent me by Mr Blackburn it is a small species of depressed black, with the margins of the thorax and elytra and the suture red, antennae and legs bright yellow; the tips of the elytra very little sinuate, and the striae not deep. Mr Perkins has not met with the species; a specimen he found in the Waianae mountains (2000—3000 ft., April 1892) comes near *M. meticulosus*, but I think is clearly not the same species. Another specimen from Halemano is entirely yellow in colour, but may be a variety of *M. meticulosus*.

HAB. Oahu. Under the bark of trees on the mountains; not common (Blackburn).

(7) *Metromenus scrupulosus*, Blackburn.

Anchomenus scrupulosus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 145.

This species has a very broad yellow tip to the elytra, and the lateral margins broadly yellow. Mr Perkins found at Pauoa a single specimen that may belong to it, but it has the thorax longer than the original type, now in the British Museum.

HAB. Oahu. Unique; found under bark at an elevation of 1500 ft. (Blackburn).

(8) *Metromenus lentus*, sp. nov.

Piceus, capite thoraceque rufescentibus, antennis palpis pedibusque flavis; prothorace parvo, basin versus angustato; elytris sat profunde striatis. Long. 6—7 mm.

One of the smallest of the genus; with short antennae and legs. The thorax is narrow, much narrowed behind, the hind angles not rounded but definite and obtuse. The elytra are blackish, with the inflexed margin yellow, the tips narrowly yellow. The striation is rather deep but the interstices are not in the least convex. The tarsi are short with the sculpture on the upper surface very conspicuous, the fourth joint not in the least lobed.

Very similar to *Mesothriscus hawaiiensis*, but smaller and with shorter antennae. I have mentioned that *Atelothrus hawaiiensis* is also very similar. As the three examples of *Metromenus lentus* are the only trace we have of the existence of *Metromenus* in Hawaii, it is not impossible that they may be depauperated examples of *Atelothrus hawaiiensis*, but I think this highly improbable.

HAB. Hawaii. Kilauea, 1½ miles on the Hilo road, August 1895, one specimen; Kilauea in August and September 1896, one specimen on each occasion (Perkins); Hawaii, one specimen (Koebele).

(9) *Metromenus epicurus*, Blackburn.

Anchomenus epicurus Blackburn, Ent. Mo. Mag. XIV. 1877, p. 145.

This species may be recognised by its large size[1] and robust build, and by the rather dull surface and clear yellow legs. The inflexed margin of the elytra is yellowish, and on the upper surface this shows but little, the yellow colour there being confined to the fine groove inwards from the raised margin. There is no yellow colour at the tip. The surface of the elytra is more dull in the female than it is in the male, except near the tip, where in each sex the peculiar minute reticulation, on which the dullness depends, is very visible. These characters apply well to a large series of specimens from Halemano, from the Kaala mountains and from Kawailoa Gulch (in all about 100 specimens). From other localities there is but a small series, and though in each case the examples are some of

[1] Blackburn, l. c., gives the length as 9—9½ mm., but I find it to be about 8½ mm.

them more or less aberrant, they connect by means of intermediate examples with the type or with *M. velox*, a form doubtfully distinct from *M. epicurus*. The most marked departure from the average are examples in which the tibiae are dark in colour, those of the hind legs being most conspicuously so; this condition I have labelled var. *fuscipes*. Should *M. velox* prove to be not distinct, it is likely to be found connected by a series of these dark-legged forms.

Hab. Oahu. "Oahu mountains very local" (Blackburn): Halemano 2000 ft. in winter: Kaala mountains, 2000 ft., in winter: west head of the south branch of Kawailoa Gulch, in April: Waianae mountains in April: Honolulu mountains in April 1896, three aberrant specimens, No. 681: Honolulu mountains, August 1896, one specimen: Wahiawa, April 1901, three specimens: Mokuleiia in April 1901: Waialua in March: on *Pipturus*, back of Tantalus, November 1900, four specimens, one very aberrant: Waianae mountains, 2000—3000 ft., February 1896, 14 specimens more or less aberrant and approaching *M. velox* (Perkins).

No. 1262, Prof. Thaxter for Laboulbeniaceae.

(10) *Metromenus velox*, sp. nov.

Niger, nitidus, antennis pedibusque testaceis, tibiis plus minusve infuscatis; elytris margine externo angustissime flavo, sat profunde striatis, apicibus post sinuositatem parum elongatis; thorace versus margines rufescente. Long. $6\frac{1}{2}$—7 mm.

This is very closely allied to *M. epicurus*, but is smaller, less robust, more shining black, and has the elytra more truncate behind: the thorax is shorter, and the legs more slender, and with the tibiae and the middle of the femora infuscate.

Hab. Oahu, Waianae mountains, lee side, February 1896, seventeen specimens, No. 542.

This will probably prove to be a form of *M. epicurus*; it will be noticed that it is not ...ly localised, as *M. epicurus* also occurs in the Waianae mountains.

(11) *Metromenus fraternus*, Blackburn.

Anchomenus fraternus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 145.

Of moderate size, rather depressed, moderately deeply striate, with broad yellow tip to the elytra; this colour is continued forwards along the sides but fades out before reaching the shoulder, where only the upturned margin is pale. The species appears not to be very variable. The specimen found on *Pipturus* is very large.

Hab. Oahu. Not rare; under bark of trees at an elevation of about 2000 ft. (Blackburn). Waianae mountains 2000—3000 ft., lee side, February 1896, 32 specimens; on *Pipturus*, back of Tantalus, August 1900, one specimen; ridge Ceryone, N. of Pauoa Valley, November 1892, one specimen (Perkins).

(12) *Metromenus fraudator*, sp. nov.

Nigerrimus, nitidus, antennis pedibusque (tibiis interdum) infuscatis; prothorace subquadrato, basin versus leviter angustato, angulis posterioribus obtusis; elytris sat profunde striatis. Long. $6\frac{1}{2}$—7 mm.

Plate VI. fig. 18, vestigial wing.

This species is more black and shining than most of its congeners. It has no specially characteristic feature so far as I can detect, and perhaps is nearest to *M. meticulosus*, but it is rather larger, and is of less depressed form with rather longer antennae and legs, and the thorax is less narrowed to the base, with the hind angles less rounded. In colour it seems very different. The epipleuron is yellowish, but this colour does not extend to the upper surface. It is more similar in appearance to *Atelothrus filipes*, but the side of the thorax stands up more at the hind angle, and the obtuseness of the hind angles is caused more by the narrowing of the sides and less by the curving forwards of the base, and the tarsi are not quite so slender. Thirty-six specimens.

HAB. Molokai, 4000 ft., in May and June, 1893; Boggy plateau about 4000 ft., below the densest forest, June 1896 (Perkins).

Nos. 1253, 1255, Prof. Thaxter for Laboulbeniaceae.

(13) *Metromenus mœrens*, sp. nov.

Niger, minus convexus, antennis testaceis articulo tertio infuscato, pedibus fusco-testaceis; prothorace haud transverso basin versus parum angustato, angulis posterioribus haud rotundatis, parum obtusis; elytris leviter striatis. Long. $8\frac{1}{2}$—9 mm.

A rather large *Metromenus*, with dark legs, and with the third (sometimes also the fourth) joint of the antennae darkened. The antennae and legs are rather long, the fore femora about 5 mm. Head broad. Thorax dark in colour with the margins scarcely at all paler, the breadth just perceptibly greater than the length, the base nearly as broad as the front margin, the hind angles nearly rectangular, but slightly obtuse. Elytra rather broad at the base, the angle at the junction of basal and lateral margins less prominent and acute than usual, the striation not deeply impressed; the yellow colour but little developed on the epipleura and not extending to the upper surface. Femora broadly infuscate about the base, tibiae infuscate. Hind tarsi long and slender, their fourth joint rather longer than usual but not lobed. Fourteen specimens.

This species is not very close to any other. In general form it has a good deal of resemblance to *Platynus calathiformis*. The variation does not seem to be great, but some specimens are more shining and have the elytra more deeply striate than others.

HAB. Molokai (Perkins). The localities the same as for *M. fraudator*.

(14) *Metromenus pavidus* sp. nov.

Robustus, parum convexus, nitidus, niger, antennis palpis pedibusque flavis; prothorace transverso, basin versus angustato, angulis posterioribus obtusis, subrotundatis; elytris apice sinuatim subtruncato profunde striatis, interstitiis levissime convexis. Long. 7—8½ mm., lat. 3—3⅔ mm.

Plate VI. fig. 13, hind foot.

This very distinct *Metromenus* is not closely allied to any other. The short prothorax (the breadth of which to the length is as about 6 to 5), the sinuate-truncate apices of the elytra and the shining black colour give it a slight resemblance to some of the shining species of *Disenochus*. The tarsi are however distinctly grooved, and there is no real affinity with *Disenochus*. The legs, antennae and palpi are bright yellow, the epipleuron is quite black. The fourth joint of the hind tarsus is small, not bilobed. The female has three setae on each side of the middle of the last ventral segment, and the elytra are more prolonged at the apices. A large series of about 240 examples has been obtained. The series does not exhibit much variation.

Mesothriscus truncatus is so extremely similar to this insect, that I am doubtful whether it is more than a sport. If this be the case it is almost the only instance among the Hawaiian Carabidae of a species in which no thoracic setae usually exist offering abnormal specimens in which they are occasionally present. It is not uncommon for species that normally possess the seta to occasionally throw off individuals in which it is absent on one or (as an occurrence of extreme rarity) on both sides; but the reverse case is exhibited only in this species (if *M. truncatus* be actually a sport) and possibly in the case of *Mesothriscus collaris*, which I have suggested may possibly be a sport of *Metromenus cinctus*, though I do not think it will prove to be so.

♀. Kauai; Waimea, 4000 ft., May and June 1894, August 1896 (Perkins).

(15) *Metromenus sphodriformis* sp. nov.

Elongatus, piceo-ferrugineus, vel ferrugineus, antennis pedibusque elongatis, flavis; prothorace haud transverso, ad basin angusto, angulis posterioribus exactis, fere rectis; elytris sat profunde striatis. Long. 8—10 mm.

Plate VI. fig. 10, individual from Molokai; fig. 19, vestigial wing of example from Maui, (*b*) of example from Molokai.

The elongate form, in conjunction with the large size, long antennae and legs, and comparatively narrow thorax readily distinguish this insect from the others of the genus (except *M. cinctus*). The antennae are nearly 6 mm. long; the head is narrow. The thorax is never broader than long, and in some specimens is distinctly longer than broad, usually it is just perceptibly longer along the middle than it is broad; it is much narrowed behind, and the hind angles are nearly rectangular, but just a little obtuse. The elytra

are long and narrow, their striation moderately fine. The long antennae and legs are clear yellow.

This is a rare species, but Mr Perkins has obtained in all 37 specimens that I attribute to it. If I am correct in treating them all as one species, it is a variable one, and one that occurs in two islands, viz. Molokai and Maui. The specimens from Molokai vary to some extent in the shape of the thorax and the depth of the striae of the elytra. The examples from Maui also vary a little in these respects; they have on the whole the thorax a little broader, and its hind-angles very sharply defined, but these characters—bearing in mind the variation—are not sufficiently marked to justify treatment of the two as distinct.

I have examined the vestigial wings in one of the Molokai (Plate VI. fig. 19*a*) examples, and find that they are peculiar in being about twice as long as is usual in *Metromenus*, they extend considerably beyond the spiracle and are fully 1 mm. long instead of half a millimetre as is the rule in most of the other flightless species.

I have also examined (Plate VI. fig. 19) these organs in a specimen from Haleakala, Maui, and find that they are distinctly larger than they are in the Molokai specimen, being about 1½ mm. long. This does not seem to be beyond the limits of variation, and, unless it should be confirmed as a constant distinction after the examination of more individuals, cannot be considered an evidence of the two forms being distinct.

Hab. Molokai, Maui. Molokai, 4000—5000 ft. on several occasions, but very rare (Perkins). Maui, Haleakala, 3000—5000 ft., on several occasions, but always rare (Perkins).

(16) *Metromenus cinctus* sp. nov.

Elongatus, piceo-ferrugineus, antennis pedibusque elongatis flavis; elytris ad apicem et ad latera te[illegible]-cinctis; prothorace haud transverso, basin versus angustato, angulis posteriori[illegible]s perfecte rectis; elytris sat profunde striatis. Long. 9—10 mm.

This is distinguished from some of the specimens of *M. sphodriformis* only by the elytra being broadly and definitely pale at the tips; this yellow colour also extends forwards along the sides.

We have received only a small series of ten specimens, and it is doubtful whether it may prove distinct from *M. sphodriformis*. I have suggested (but with the greatest doubt) that *Mesothriscus collaris* may be a sport of this species.

Hab. Molokai, 4000—5000 ft., June 1893 (Perkins).

(17) *Metromenus fossipennis*, Blackburn.

Anchomenus fossipennis Blackburn, Ent. Mo. Mag. xiv. 1877, p. 146.

A rather small *Metromenus* of dull red colour, with deeply striated elytra, and with

the foveae thereon deep and remarkably conspicuous. The thorax is transverse, scarcely narrower at the base than in front.

Hab. Oahu. Not rare, generally in company with *M. mutabilis* (Blackburn). Near Honolulu, rare (Perkins).

(18) *Metromenus bardus*, Blackburn.

Anchomenus bardus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 146.

This is a peculiar species of dull brown colour, with broad convex, deeply striated elytra, and transverse thorax which is just perceptibly broader at the base than at the front angles. It is apparently extremely rare.

Hab. Oahu. Mountains (Blackburn): Mountains near Honolulu, 2000—3000 ft. (Perkins).

(19) *Metromenus oceanicus*, Blackburn.

Anchomenus oceanicus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 146.

This remarkable insect has not been found by Mr Perkins and remains unique. It has an extremely narrow, long head.

Hab. Oahu. "Mountains, apparently very rare" (Blackburn).

(20) *Metromenus fugitivus*, Blackburn.

Anchomenus fugitivus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 147.

Similar to *M. fraternus* in colour, but with very deeply striated elytra and a broader thorax.

Hab. Oahu. Rare, 2000 ft. (Blackburn). Under stones in wet gulches of Koolau Range, far back of Waialua, 2000 ft., January 1893. Mountains near Honolulu, July. Wahiawa, April. On *Pipturus*, back of Tantalus. Always rare (Perkins).

(21) *Metromenus protervus*, Blackburn.

Anchomenus protervus Blackburn, Ent. Mo. Mag. xiv. 1877, p. 145.

This also is a species with deeply striate elytra, which are yellow to a small extent at the tip. It differs much from *A. fugitivus* by the narrow head and thorax.

Hab. Oahu. In various localities on the mountains but not common, under bark (Blackburn). Behind Pauoa valley. Mountains near Honolulu. On *Pipturus* back of Tantalus. Very rare (Perkins).

(22) *Metromenus cuneipennis*, Blackburn.

Anchomenus cuneipennis Blackburn, Ent. Mo. Mag. XIV. 1877, p. 146.

A very distinct species of elongate form, not at all depressed, of black, not very shining, colour, with narrow head, thorax not transverse, and deeply striated elytra, the interstices evidently convex. It occurs in several localities but apparently only in very small numbers.

HAB. Oahu. "Mountains" (Blackburn). Halemano, 2000 ft.: Mountains near Honolulu. Rare (Perkins).

(23) *Metromenus perpolitus*, sp. nov.

Nigerrimus, politus, antennis pedibusque fusco-testaceis; prothorace basin versus angustato, lateribus rotundatis, angulis posterioribus rotundato-obtusis; elytris disco sulcato, exterius striis obsoletis. Long. 8 mm.

One of the most distinct species, recognisable by the deep black, highly polished surface, and the peculiar striation of the elytra; near the suture the striae are deeply impressed and the interstices convex, while more externally the striae are altogether obsolete.

This is one of the rarest as well as most remarkable of the Hawaiian Carabidae. Only three specimens have been found and I have been able to examine its structure far from thoroughly. The tarsal grooves are excessively obscure, but I think really exist on the outer side of the basal joint, and I therefore place the species in this division of the Hawaiian Carabidae. In general form as well as some other characters it makes a certain approach to *Disenochus* (cf. *D. aterrimus*).

HAB. Oahu. Wahiawa (Perkins).

(24) *Metromenus limbatus* sp. nov.

Sat depressus, nitidus, flavescens, capite, thoracis disco elytrisque piceis, his late testaceo-limbatis; elytris sulcatis, interstitiis angulatim elevatis. Long. 6—7 mm.; lat. vix $2\frac{3}{4}$ mm.

This resembles no other species of the genus but approximates by its peculiar sculpture to the aberrant forms of *Mesothriscus* and *Atelothrus* that inhabit the same island—Kauai. The thorax is evidently shorter than broad, a good deal narrowed behind but scarcely at all sinuate, the front angles scarcely at all prominent, the side-margin behind the middle more elevated, the disc with a broad vague longitudinal depression, the hind angles broadly rounded. Elytra broadly yellow at the tip at sides, shining, black or piceous except as mentioned, and that the suture and basal margin are also yellow; they have no true striae, but there are seven longitudinally elevated ridges, the summit of each being sharp; the tip is slightly sinuate on each side, not truncate. The legs and antennae are bright yellow; the undersurface is broadly yellow laterally, but is infuscate

along the middle. The fourth tarsal joint seen from beneath is only a little emarginate. The female has three setae on each side of the extremity of the abdomen.

This species may be very easily confounded with those examples of *Atelothrus transiens* that are most brightly coloured; but independently of the entire absence of any pits for the reception of setae on the thorax, this part is shorter and broader, and the elytra are polished, without the dulness arising from the minute sculpture of *A. transiens*. The yellow margin of the body is always broader than it is in *A. transiens*. The two species have not been found in company.

A good series of about 65 specimens was obtained.

HAB. Kauai; at an elevation of about 4000 ft. Waimea, May and June 1894; Koholuamano, April and October 1895; and on the high plateau in August, September and October 1896 (Perkins).

DIVISION 2. Lateral margin of elytra but little curved in at the shoulders, the basal margin much extended laterally and with sharply marked angle. Thorax with a straight base received on the base of the elytra.

(25) *Metromenus latifrons* sp. nov.

Robustus, piceus, parum nitidus, antennis pedibusque sordide testaceis; capite lato; prothorace transverso, angulis posterioribus rectis. Long. 7 mm.

Antennae moderately long and stout. Thorax distinctly broader than long, base straight, sides straight behind, a little narrowed in front so that the base is distinctly broader than the apex. Elytra dull, the groove at the outer margin near the shoulders strongly developed, and its red colour striking. The striae are rather deep behind. Fourth joint of hind tarsus longer than broad, not bilobed.

The small series of nine specimens exhibits a good deal of variation in the width of the thorax. They were nearly all found as single specimens on different occasions.

HAB. Molokai. Mountains, 4000—5000 ft. (Perkins).

Nos. 1254, 1256, Prof. Thaxter for Laboulbeniaceae.

(26) *Metromenus calathoides* sp. nov.

Rufo-piceus, nitidus, antennis pedibusque flavis; capite angusto; prothorace basin versus latiore; elytris minus profunde striatis. Long. 7 mm.

One of the most distinct species of the genus; with a narrow head and a thorax considerably wider at the base than in front; the species it most resembles is *Mesothriscus microps*. Antennae rather slender. Head long and narrow, eyes but little convex. Thorax becoming broader from apex to base, the sides slightly curvate, behind much elevated, hind angles rectangular. Sides of the elytra somewhat widely explanate. Tarsi slender, fourth joint long. One male specimen.

HAB. Kauai. "Hal. 4000 ft. 5, '95" (Perkins). I have no doubt this label refers to Halemanu in Kauai.

Group *PTEROSTICHIDES*.

This is one of the most enormous of the divisions of Carabidae, but in the Hawaiian islands comprises only a small group of closely allied forms. They may be easily recognised by the "fault" in the margins of the elytra (Plate VI. fig. 12).

The genera I adopt are of the simplest kind depending entirely on the thoracic setae.

No prothoracic seta ..... *Metrothorax.*
One prothoracic seta, at hind angle ..... *Atelothorax.*
One prothoracic seta, at middle of side ..... *Thriscothorax.*
Two prothoracic setae, one at hind angle, one at middle ..... *Mecyclothorax.*

MECYCLOTHORAX, gen. nov.

Prothorax utrinque setis duabus munitus, una ad angulum posteriorem, altera paulo ante medium lateris sita. Alae vestigiales.

This genus includes a considerable variety of forms all of which are distinguished by their atrophied wings from the antipodean genus *Cyclothorax*, which seems to be the only nearly allied form yet known.

It is very difficult to tabulate the species, but the following may serve as a key to the arrangement here adopted.

Small forms with a decidedly transverse, non-cordate thorax (Plate VII. fig. 4), which is never furnished with a distinct neck or basal constriction ..... species 1—8.
Larger, but otherwise as above ..... species 9, *M. bradycellinus.*
Small forms, with narrow base to the thorax, and sharp posterior angles; this group leads by gradations to the group with cordate thorax, but has the thorax shorter in proportion to the width ..... species 10 to 14.
Species with cordate thorax, i.e. a neck, or basal constriction (Plate VII. fig. 6) ..... species 15 to 18.
Larger forms with broad base to thorax and elytra (if the base of thorax is narrow, *M. pele*, *montivagus*, *bembidicus*, there is no neck to it) ..... species 19 to 30.
(*a*) sculpture of elytra abnormal, the foveoles being more or less increased in number or size ..... species 19 to 22.
(*b*) sculpture simple ..... species 23 to 30.

(1) *Mecyclothorax pusillus* sp. nov.

Angustus, subparallelus, piceus, antennis pedibusque rufo-testaceis, ...rum marginibus suturaque rufescentibus, apice testaceo; thorace fortiter trans... basin haud constricto, basi lata, punctata; elytris subtilissime striatis, striis ...is, externe desinentibus, apicem versus obsoletis. Long. $3\frac{1}{4}$—$3\frac{3}{4}$ mm.

Plate VII. fig. 4.

The smallest of the group, and readily recognised by th... series of punctures on the elytra; of these series there are six, but t'... ...ry fine, and much abbreviated, and there is no trace of a seventh; at... ...atural two can

be seen. The thorax is not greatly narrower than the elytra, and is more gently narrowed behind than in most of the other species, the base being broad. Twenty-three specimens.

This is only likely to be confounded with *M. rusticus*, but the much narrower elytra, with the punctures very fine and more obliterated at the tip, readily distinguish it: there is almost a complete absence of real striation, the sculpture consisting of series of fine punctures. This distinguishes the species from *M. angusticollis*.

Hab. Maui. Haleakala: 9000—10000 ft., April 1894; "above the forest," one specimen (Perkins). No. 1263, Prof. Thaxter for Laboulbeniaceae.

(2) *Mecyclothorax nubicola*, Blackburn.

Cyclothorax nubicola Blackburn, Ent. Mo. Mag. xv. 1877, p. 156.

Cyclothorax rupicola (in error) Sharp and Blackburn, Trans. Dublin Soc. (2) III. 1885, pp. 216 and 276.

This insect is known only from a single specimen found by Mr Blackburn 25 or 30 years ago. I have examined this specimen, and find that it is nearest to *M. pusillus*, but is considerably larger and more elongate, and of a pale reddish colour. It may prove to be a very aberrant form of *M. pusillus* but at present we have nothing to connect the two.

Hab. Maui. Haleakala (Blackburn).

(3) *Mecyclothorax rusticus*, sp. nov.

Colore variabilis; piceus vel piceo-rufus, interdum nigricans, elytrorum sutura marginibusque rufis; haud angustus; antennis pedibusque rufo-testaceis; thorace transverso, basin versus sat angustato, ante basin haud constricto; elytris seriebus 4 vel 5 punctorum minus subtilibus sed ante apicem obsolescentibus, ibidem striis subtilibus. Long. 4 mm.

The after body in this species is of more oblong form than it is in *M. micans*, the thorax is rather longer and less rounded at the sides, and the elytral punctuation is coarser and more effaced. The colour is usually obscure red, or piceous, but sometimes is black. *Thriscothorax apicalis* is also very similar to *M. rusticus*, but besides the chaetotaxal distinction it always has a remarkably definite pale patch at the tip of the elytra. *M. pusillus* is smaller and narrower and has series of punctures, rather than punctate striae on the elytra. Many specimens.

Hab. Maui. Haleakala. About the crater; in April and October (Perkins).

(4) *Mecyclothorax micans* Blackburn.

Cyclothorax micans Blackburn, Ent. Mo. Mag. xv. 1877, p. 122.

Niger, nitidus, subdepressus, antennis rufis, pedibus flavis; thorace fortiter transverso, lateribus multum rotundatis, ante basin nullo modo constricto, basi lata; elytris

latiusculis, nitidis, seriebus 4 vel 5 punctorum ad apicem desinentibus; pedibus debilibus. Long. 4 mm.

The varieties of *M. rusticus*, that are short in form, and dark in colour, resemble this a good deal; but *M. micans* can be readily distinguished by its shorter form, shining black surface, yellow legs, and shorter thorax. The legs are always shorter and more slender than they are in *M. rusticus*. The elytral punctuation is of a kind that reappears quite a number of times throughout the allied genera, it consists of series of punctures abbreviated at both base and apex (the sutural one being however entire) and becoming shorter gradually so that the fifth or sixth can scarcely be detected: these punctures are usually placed in indistinct striae. Fifty or sixty specimens.

Mr Blackburn's description is not very characteristic. The specimen in his collection at the British Museum is however this species. He originally captured two specimens, but I have not been able to ascertain the fate of the second individual. In this very difficult genus it is possible that the two specimens alluded to may have been different species, it being in several cases very difficult to decide from single specimens.

Hab. Maui. Haleakala, 9000 ft. (Blackburn). Haleakala, 9000—10000 ft. (Perkins).

(5) *Mecyclothorax microps* sp. nov.

Rufo-piceus, antennis, palpis pedibusque testaceis; prothorace vix transverso, lateribus posterius leniter angustatis, angulis posterioribus brevissime denticulato-rectis; elytris quinque-striatis, striis punctatis. Long. 4¼ mm.

This obscure form appears by the shape of the thorax to connect the *M. rusticus* group of species with *M. laetus*. It is I think nearer allied to the first-mentioned forms, from which it is distinguished by the thorax being considerably narrower in proportion to its length, as well as by a different shape of the elytra and other parts. The head is narrow. The thorax is considerably narrower than the elytra, with the sides gently rounded and but little narrowed behind, where they are however slightly sinuate, there is an extremely minute projection of the setigerous hind angle and this prevents the angle from being obtuse; the surface is shining, the lateral margin very fine, the median channel rather deep, not extending to the base, the transverse anterior impression less deep: the length of the thorax is only very slightly less than the width. The elytra are moderately rounded at the shoulders, and each bears five striae, these striae are not very definite at the base and are fine at the tip but they are very distinctly punctate, and there is a subobsolete sixth stria. We have only one specimen, in rather bad preservation.

Hab. Molokai. Kalawao, 1st August, 1893 (Perkins).

(6) *Mecyclothorax obscuricornis*, sp. nov.

Nigricans, elytris late, sed minus definite testaceo-limbatis, pedibus antennisque fusco-testaceis, his ad basin anguste rufis; prothorace transverso, basi angusta, angulis posterioribus obtusis; elytris profunde striatis, striis fere impunctatis. Long. 3½ mm.

A most obscure little form; resembling most *T. obscuricolor*, but with a shining surface, and broad yellow outer margin on the elytra; bearing also some resemblance to *M. daptinus*, but with the thorax not strigose, and the elytra less deeply striate. The antennae are obscure in colour, only the basal joint being yellow. Thorax shining; transverse, much narrowed behind, hind angles obtuse or almost acute on account of the minute prominence for the insertion of the seta; the surface has a just perceptible metallic tinge; the transversion impression and median channel definite. The elytra are yellowish but each has a very large black patch occupying the greater part of the surface, and leaving the suture pale, as well as the lateral margins; the striae are deep, and a very feeble punctuation can be traced. The legs are entirely yellow. We have only two examples of this species, but I have recently received a third taken by a friend of Mr Perkins on Haleakala last year. It is a marked variety, very small, and has the black colour of the upper surface very definite without any brassy tinge, and the striae distinctly punctate.

Hab. Maui. Haleakala, 4000—5000 ft., April 1894 (Perkins).

(7) *Mecyclothorax angusticollis*, Blackburn.

Cyclothorax angusticollis Blackburn, Ent. Mo. Mag. xv. 1877, p. 156.

One of the smallest forms; red, largely picescent or black, leaving the margins of the thorax and elytra red; the latter have the striae deep, but the outer one (the seventh) obsolete; the striae are punctate; the antennae and legs very short. The thorax is not narrow, but strongly transverse. The species may be readily distinguished from *M. pusillus* by the colour and by the deep striation. *M. obscuricornis* is similar but has the thorax strongly narrowed behind. About 30 specimens.

Hab. Maui. Haleakala (Blackburn). Haleakala, 400—500 ft., on several occasions in the first half of the year. Under stones, in moss etc. (Perkins).

(8) *Mecyclothorax bicolor*, sp. nov.

Rufus, nitidus, elytris late nigricantibus; prothorace fortiter transverso, lateribus rotundatis, basin versus parum angustato, basi lata, angulis posterioribus denticulato-rectis; elytris profunde striatis, striis subcrenatis sed haud punctatis. Long. $3\frac{1}{2}$ mm.

This is only half the size of *M. bradycellinus*, the species it most resembles. It is broader than *M. angusticollis*, with longer antennae and legs and rather more rounded sides to the thorax, and has deeper striation on the elytra; the form of the thorax is quite different from that of *M. daptinus* (which has very deeply striated elytra). The thorax is not greatly narrower than the elytra; its anterior impression and the median channel are deep, the punctate basal area is small and bears but few punctures. The

elytra are shining, blackish, with the suture and outer margin red, but not red at the tip; the eight striae are entire and very deep. The under surface entirely red.

We have only two examples of this species but it is clearly distinct from any other, and seems to come very naturally between *M. angusticollis* and *M. bradycellinus*.

HAB. Molokai, 4000 ft., June 1896 (Perkins).

(9) *Mecyclothorax bradycellinus*, sp. nov.

Sat elongatus, nitidus, rufus, thorace medio et disco elytri singuli picescentibus; thorace fortiter transverso, lateribus rotundatis, angulis posterioribus perfectis sed subobtusis; elytris profunde striatis, striis punctatis. Long. $4\frac{1}{2}$ mm.

Plate VII. fig. 5.

This is another peculiar and distinct species; the seta at angle of the thorax is but small, and the orifice it leaves on removal from the hind-margin is so slight that the species may without a careful examination be only too probably referred to *Thriscothorax*. The thorax is very strongly transverse, but little narrower than the elytra, a good deal rounded at the sides and narrowed behind, but without constriction; the anterior impression definite, the median channel continued to the base; the sides are much spread out, but not much turned up; their colour is much more dilute than the picescent middle parts; the base moderately punctate. Elytra rather long, each picescent or black with the suture and margins red; the striae are very deep, and all the eight are entire from the base to the extremity: they are distinctly punctate or crenate. Three specimens.

HAB. Molokai, 4000 ft., June 1896 (Perkins).

(10) *Mecyclothorax laetus*, sp. nov.

Rufus, elytris (marginibus exceptis) interdum picescentibus, antennis, palpis pedibusque testaceis; prothorace ad basin breviter constricto, angulis posterioribus perfecte rectis; elytris subtiliter striatis, striis subtilissime punctatis, externis perobsoletis; antennis pedibusque brevibus. Long. 4—$4\frac{1}{2}$ mm.

Allied to *M. konanus* and *cymindicus* though with very different sculpture. Antennae short, yellow. Head rather narrow. Thorax with the base narrower than the front, with the sides rounded and sinuate behind, so that there is present a distinct basal constricted part; the transverse anterior impression is obsolete, the median channel distinct, the base flat and but little punctate. The sides and suture of the elytra are paler than the discoidal parts; the striation is very fine, but even the seventh stria can be detected. A small series.

This must not be confounded with *M. rusticus*, which has no constricted base of the thorax, and has also the punctures of the elytral striae much coarser.

The species has an extreme resemblance to *Thriscothorax laetus*, but it usually has the base of the thorax more distinctly constricted: this character is however variable,

and it may be that, as I have suggested may be the case with *M. robustus* and *T. robustus*, they are dimorphic forms of one species. It seems probable that, however this may be, the two rarely occur together. The following are the particulars about our small series of 13 specimens. Haleakala, 5000 ft., 1 April 1894 No. 371; two specimens; one of these is a most remarkable aberration, the seta on the left side coming not from the hind angle but from a little distance in front of the normal situation, the specimen is small, very narrow, with strongly cordate thorax: Haleakala, Maui, 4500—6000 ft., March 1894 No. 383; one specimen, highly aberrant and possibly a distinct species, being large, convex, with elongate convex thorax and more distinct striae: Haleakala, 4000 ft., May 1896 No. 597; one specimen: Haleakala, 5000 ft., October 1896 No. 661; seven specimens: Haleakala, 4000 ft., October 1896 No. 680; one specimen: Lahaina, W. Maui, December 1896 (Koebele); one specimen, abnormal, the thorax formed as in *T. laetus* though the setae are perfectly developed. For particulars as to *Thriscothorax laetus* see that species.

Hab. Maui. Haleakala and Lahaina, as above (Perkins).

(11) *Mecyclothorax konanus*, sp. nov.

Rufo-piceus, elytris subaenescentibus, antennis rufis, basi, palpis pedibusque testaceis; prothorace transverso, haud cordato, angulis posterioribus minutissime prominulis; elytris profunde striatis, striis septima et octava subobsoletis. Long. 4½ mm.

Closely allied to *M. cymindicus*, but with the thorax not all sinuate at the sides behind, the posterior angles being only made prominent and rectangular by a very minute projection of the angle itself. The elytra are much less perfectly sculptured, the striation being less deep, and the outer striae indistinct. The thorax is much narrowed behind, so that the width at the base is less than that at the front angles. Two specimens.

Hab. Hawaii. Kilauea, August 1895 (Perkins).

(12) *Mecyclothorax cymindicus*, sp. nov.

Rufescens, supra subaeneus, antennarum basi, palpis pedibusque testaceis; prothorace transversim subcordato, angulis posterioribus rectis; elytris regulariter perprofunde striatis, striis punctatis. Long. 4½ mm.

A distinct species; rather flat; distinguished by the rufescent colour, which becomes rather strongly brassy above and by the remarkably regular and deep striation. The antennae are rather short and stout. The thorax is moderately rounded at the sides and narrowed behind, and just before the hind angles is sinuate, so that the angles are rectangular, though there is no real constriction; the base has a few punctures and is depressed on each side, the median channel and the anterior impression are deep, the

latter feebly strigose. The elytra are rather broad at the shoulders, and all the striae are remarkably deep, distinct and regular from base to apex; a feeble crenation or punctuation is seen in the depth of each stria. Legs short and stout. Six specimens.

HAB. Maui. Haleakala, 5000 ft., October 1896 (Perkins).

(13) *Mecyclothorax daptinus*, sp. nov.

Nigricans, antennarum basi palpis pedibusque testaceis; prothorace transverso, basin versus fortiter angustato, supra transversim rugoso; elytris ad latera late testaceo-limbatis, profunde striatis, striis haud punctatis. Long. $3\frac{1}{8}$ mm.

One of the smallest of this division; very distinct. Antennae dark, yellow only at the extreme base. Thorax small, very strongly narrowed behind, so that the base is narrow, hind angles obtuse not at all rounded; the upper surface covered with fine transverse wrinkles, the median channel distinct, the anterior impression and the basal sculpture indefinite, the lateral margin but little raised even at the hind angle. Elytra strongly rounded at the shoulders, yellow, each with a very large black mark near the suture (the two black marks separated only by the yellow suture), very deeply and, for the size of the insect, broadly striate, so that the striae appear crowded. Undersurface of head reddish. Legs clear yellow; ventral segments more or less yellow at the hind margins. Forty specimens.

HAB. Maui. Haleakala, 5000 ft., April and June 1894 (Perkins).

(14) *Mecyclothorax inaequalis*, Blackburn.

Cyclothorax inaequalis Blackburn, Ent. Mo. Mag. xv. 1877, p. 157.

A beautiful and very distinct insect; the upper surface of a peculiar submetallic coloration and very dull; the elytra have several foveoles on the third interstice and others on the fifth; the striae are subobsolete and irregular, and are rendered more indistinct by the peculiar "bloom" of the surface. The thorax is transverse with a somewhat narrow base, and a short constricted basal part, with the hind-angles rectangular. The species may therefore be considered as one with cordate thorax. It is apparently very rare.

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

(15) *Mecyclothorax vulcanus*, Blackburn.

Cyclothorax vulcanus Blackburn, Ent. Mo. Mag. xvi. 1879, p. 108.

I can give but little information as to this species. I have before me four individuals that I refer to it with confidence. According to them it is a species with a general resemblance in colour and form to *Thriscothorax unctus* but with a longer thorax, the

head and thorax are red or nearly black, as the case may be; the thorax is rather long, gently narrowed behind, with however only an imperfectly formed constricted basal part. The elytra are shining, rather flat, with very definite yellow margin, and with about five series of fine punctures, the outer two of which are extremely abbreviated and indistinct; the legs are red, with a broad infuscation of the tibiae, which however is variable.

Besides these there are four or five specimens that may belong to the species, but if they do it must be an extremely unstable one. Mr Blackburn says if he understands it right, "the species has the unusual character of extreme variableness in the striation of the elytra."

Hab. Hawaii. Mauna Loa, under bark near the mouth of the crater Kilauea (Blackburn). Kilauea, in August 1895, 1896; Kona, Sept. 1892, 4000 ft. (Perkins). The specimens from Kona are those that doubtfully pertain to the species.

(16) *Mecyclothorax ovipennis*, sp. nov.

Fusco-testaceus, antennarum basi, palpis pedibusque testaceis, elytris ad apicem late pallidis; prothorace cordato, basi elongata; elytris ovatis, convexiusculis, subtiliter striatis, striis vix perspicue punctatis. Long. 4—4½ mm.

Plate VII. fig. 6.

A rather narrow species, less dark in colour than usual, with narrow, convex elytra, and the neck formed by the base of the thorax unusually long. The thorax is much rounded at the sides, near the base parallel-sided, the hind angles rectangular, almost acute; the surface somewhat shining, very finely wrinkled on the disc; the anterior impression obscured by longitudinal strigosities, the median channel distinct, the base not much punctate. Elytra narrow and convex, almost regularly oval, their colour in large part dark, but largely yellow at the tip, the yellow colour extending somewhat forwards along the suture and sides; they are finely striate, six striae on each are distinct, the outer or seventh stria indistinct. Legs pale yellow.

About fifty specimens.

The species varies much as to the depth of the dark colour, but not much in other respects.

Hab. Maui. Haleakala, 4000—6000 ft., March 1894 (Perkins).

Nos. 1266, 1267, Prof. Thaxter for Laboulbeniaceae.

(17) *Mecyclothorax iteratus*, sp. nov.

Elongatus, niger, elytris viridi-micantibus, palpis, antennarum basi pedibusque testaceis, tibiis plus minusve fuscescentibus, antennis extrorsum obscuris; thorace elongato, basi constricta subelongataque, lateribus tenuissime marginatis; elytris fere estriatis, sericeo-micantibus. Long. 5½—6 mm.

Head broad, with prominent eyes, basal three joints of antennae pale red, the others more obscure. Thorax elongate, with a comparatively long and abrupt basal

part; shining black, the base much punctate, the anterior impression marked with longitudinal strigosities, the median channel fine. Elytra rather elongate, narrow at the shoulder, of a peculiar greenish-black colour, with a silky reflection, almost without sculpture; traces of series of very fine punctures can sometimes be detected, as well as a slight appearance of ridges that have been effaced, and so scarcely separate grooves that are hardly perceptible. Legs very slender, yellow, with the knees and tibiae more or less infuscate.

This species has a superficial resemblance to *Metrothorax haleakalae*, but differs in many points, independently of the generic character. The thoracic setae are very long, but are only too easily removed after death. The small series of ten examples shows very little variation.

HAB. Maui. Haleakala, 4000—5000 ft., on several occasions (Perkins).

(18) *Mecyclothorax oculatus*, sp. nov.

Elongatus, niger, elytris viridi-micantibus, apice summo testaceo, antennis palpis pedibusque rufis; thorace elongato, basi constricta subelongataque, lateribus tenuissime marginatis, margine flavescente; elytris subtiliter seriatim punctatis. Long. $5\frac{1}{2}$—6 mm.

Closely allied to *M. iteratus*, but not so deeply black in colour, the elytral tips and the margin, and even the thoracic margin, flavescent, the elytra with five distinct, abbreviated series of fine punctures. Besides this the form is a little different, the elytra being broader behind the middle.

One of the finest of the species; the head broad with largely developed eyes. The constricted basal part of the thorax elongate, the anterior impression strigose, the median channel fine.

This species was discovered in 1902 by Mr Perkins; he captured two specimens on Molokai at an elevation of about 4000 ft.

HAB. Molokai; as above (Perkins).

(19) *Mecyclothorax longulus*, sp. nov.

Angustus, haud nitidus, nigricans, supra capite medioque thorace picescentibus; thorace lato, valde transverso, fere elytrorum latitudine, angulis posterioribus obtusis; elytris subtiliter striatis, foveolis quatuor sat magnis, et ante apicem impressione utrinque. Long. $4\frac{1}{2}$ mm.

Allied to *M. sobrinus*, yet very distinct, smaller, narrower, with the thorax almost as broad as the elytra, and no metallic lustre. We have only one specimen; it is a male with sexual characters similar to those of *M. sobrinus*, the front tarsi being distinctly dilated and the front femora much thickened. The elytra get a little broader from the shoulders to behind the middle. The striation of the elytra is very shallow except at the tip, the outer striae being obsolete except there. The four foveoles of the elytra

are larger than normal, but in this respect are not at all comparable with the large deep depressions of *M. multipunctatus* and *M. sobrinus*. One specimen.

HAB. Maui. Haleakala, 5000 ft., 6. IV. 1894 (Perkins).

(20) *Mecyclothorax multipunctatus*, Blackburn.

Cyclothorax multipunctatus Blackburn, Ent. Mo. Mag. XV. 1878, p. 122.

Readily distinguished from *M. sobrinus* by its smaller size, more shining elytra, and the fact that the elytra foveoles are increased in number by additions placed laterally. It is apparently extremely rare, only four examples being known.

HAB. Maui. Haleakala, two examples, at an elevation of about 4000 ft. (Blackburn). Haleakala, 4500 ft., 28. III. 1894, and 4000 ft. in May 1896 (Perkins).

(21) *Mecyclothorax interruptus*, sp. nov.

Elongatus, nigricans, antennarum basi, palpis pedibusque testaceis, elytris fuscis, margine late rufescente; prothorace magno, transverso, basin versus sat angustato, angulis posterioribus denticulato-rectis; elytris profunde striatis, ultra medium striis tertia et quarta interruptis, interstitiis tertio et quinto propter hoc conjunctis. Long. $5\frac{1}{2}$ mm.

A very peculiar form, exhibiting as it were the earliest form of the peculiarity of sculpture that is developed in such a remarkable manner by *T. perkinsi* and *T. laticollis*. The antennae are rather long, dusky, the basal joint yellow, the following two dusky reddish. The thorax is broad, not greatly narrower than the elytra, blackish, with the sides narrowly yellow, and the base somewhat yellowish; the hind-angles would be obtuse, were it not that the angle itself is a little prominent and sharp; the anterior depression is very deep, and so is the median channel, but it is not continued to the base. The elytra are deeply striate, all the eight striae being entire, they are not punctate, though their margins are slightly waved; the anterior foveole on the third interstice is very definite, the posterior foveole is followed by an irregularity of sculpture, an isthmus connecting the third and fourth striae; there may be one or two other similar irregularities of sculpture present; the colour is blackish about the suture, with the outer margin broadly reddish.

Var. *integer* var. nov. Formae typicae affinis; elytrorum striis tertia quartaque haud interruptis.

Var. *dubius* var. nov. Formae typicae affinis sed minor, supra aenescens, elytris minus profunde striatis, striis tertia quartaque haud interruptis, margine externo angustissime flavo.

These three varieties were not found in company. The type form was found in May 1896, number 680; the var. *integer* in October 1896, the var. *dubius* in May 1896, but as numbers 622 and 623.

HAB. Maui. Haleakala, 4000 ft., May and October 1896 (Perkins).

(22) *Mecyclothorax sobrinus*, sp. nov.

Nigricans, supra fusco-subaeneus, parum nitidus, antennarum basi, palpis pedibusque testaceis, femoribus fusco-plagiatis; prothorace fortiter transverso; elytris foveolis quatuor magnis, et versus apicem utrinque impressis, subtiliter striatis, striis impunctatis, externis obsolescentibus. Long. 6—6½ mm.

Antennae elongate; head broad. Thorax very strongly transverse, the sides but little rounded, only moderately narrowed behind, the hind angles slightly prominent so as to be minutely rectangular; the surface with a dull silky lustre, the transverse impression and the median channel distinct, the base but little punctate, the lateral margin moderate. Elytra rather long, not much rounded at the shoulders, of a peculiar pale-reddish, obscure colour with slight metallic reflections, the foveoles very large and deep; the ante-apical impression very strongly marked.

In the male the femora are thicker, the front femora being very thick; the front tarsi are more perceptibly dilated than they are in most of the other species.

The four examples obtained of this remarkable species are rather immature and in bad condition. It is doubtless distinct from *M. multipunctatus*, the elytral foveoles not being laterally duplicate. One individual has a supernumerary foveole on the right elytron placed some distance in front of the anterior foveole.

Hab. Maui. Haleakala, 5000 ft., in March and April 1894 (Perkins).

(23) *Mecyclothorax montivagus*, Blackburn.

Cyclothorax montivagus Blackburn, Ent. Mo. Mag. xv. 1878, p. 122.
Olisthopus insularis Karsch (nec Motsch.), Berlin. Ent. Zeit. xxv. 1881, p. 1.

This species is easily recognised. It is of rather large size, and depressed form, with short broad head, strongly transverse thorax, which is greatly rounded at the sides and much narrowed behind, and each elytron has six abbreviated series of coarse punctures. It is extremely variable, and I have noticed several curious aberrations of sculpture and colour.

It appears to be one of the commonest Carabids on Haleakala; Mr Perkins has fifteen records of it from there, and it occurs from 4000 to 10,000 ft. It would be very remarkable if it should also occur on the island of Hawaii. Mr Perkins has a specimen labelled "Kilauea, Hawaii, without date." Thus considerable doubt attaches to this individual. Curiously the species is also recorded from Hawaii in the papers by Mr Blackburn and myself, Tr. Dublin Soc. (2) III. 1885, pp. 214 and 276. I can, however, find no direct record of its occurrence there, by Mr Blackburn, and I think this is therefore probably an error, arising maybe from a hasty determination of *M. pele*, the Hawaiian ally of *M. montivagus*. Under these circumstances I shall consider *M. montivagus* as a species peculiar to the island of Maui until satisfactory evidence of its occurrence on Hawaii is forthcoming.

M. montivagus in its general appearance bears a great resemblance to the Australian and New Zealand species *Cyclothorax insularis*, and, as noticed above, was recorded by Karsch as being actually the antipodean species. I find, however, that the wings in it are as fully aborted as they are in the other Hawaiian forms, whereas they are perfectly developed in the antipodean forms. Whether the Australian and New Zealand species are really one, as has been supposed, only indirectly concerns us, but I may mention that I believe they will prove to be distinct.

HAB. Maui. Haleakala, 4000 ft. (Blackburn) (Karsch as *Olisthopus insularis*). Haleakala, 4000—10,000 ft. on several occasions (Perkins).—? Hawaii (cf. above).

No. 1269, Prof. Thaxter for Laboulbeniaceae.

(24) *Mecyclothorax pele*, Blackburn.

Cyclothorax pele Blackburn, Ent. Mo. Mag. XVI. 1879, p. 107.

This is undoubtedly closely allied to *M. montivagus*, though its recognition is extremely easy by "facies" when the two are known. *M. pele* is a little narrower and considerably more convex transversely, its legs and antennae are considerably stouter, and are more red than yellow, the legs are often blackened on the femora and tibiae, and the surface is intensely black, with a glassy appearance: the thorax is much narrower and more convex, and the hind angles are less prominent: the punctures of the elytra are larger and deeper. Although *M. montivagus* is variable, the variation does not tend towards *M. pele*, and there is no example about which a mistake could be possible.

M. pele is apparently rare, but has been found several times at the crater of Mauna Loa, called Kilauea, in August and September.

HAB. Hawaii. Kilauea (Blackburn and Perkins).

(25) *Mecyclothorax bembidicus*, sp. nov.

Robustus, niger, elytris obscure aeneis, antennarum basi, palpis pedibusque testaceis, his plus minusve fuscescentibus; prothorace transverso, basin versus angustato, haud sinuato, angulis posterioribus obtusis; elytris profunde striatis, striis integris, crenato-punctatis. Long. 5¼ mm.

A very distinct species; differs from *M. pele* by the deep striae of the elytra, which extend from base to tip, and from *M. robustus* by the deep striation and the unsinuate sides of the thorax. The elytra are very broad, about twice as broad as the thorax, and their eight deep striae are also rather broad, and are very deep even at the tip, they are of a brassy colour, but dull. The thorax is a good deal narrowed behind, the anterior impression is obliterated, and the median channel is not deep, and does not extend to the base. Eighteen specimens.

HAB. Hawaii. Kilauea, 4000 ft., August 1894 (Perkins).

(26) *Mecyclothorax aeneus*, sp. nov.

Niger, supra aeneus, antennarum basi, palpis pedibusque rufis, femorum basi nigra; prothorace lateribus sinuatis, angulis posterioribus rectis; elytris regulariter, sat profunde octostriatis, striis fere impunctatis. Long. $5\frac{1}{2}$—$6\frac{1}{2}$ mm.

Antennae rather long and slender. Thorax large, not strongly transverse, the sides slightly round in front and sinuate behind, the hind angles very sharply marked, rectangular, the base punctate, rather deeply impressed on each side; the median channel very distinct, the anterior impression quite obsolete. The striation of the elytra very regular, complete, but not deep, the four foveoles very small.

We have only two specimens of this species, which is not closely allied to any other. The posterior one of the thoracic setae is not present in these specimens—which are rather worn—but the spots of their insertion—on the margin at the hind angle—are very distinct.

Hab. Maui. Haleakala, 4500—6000 ft., March 1894 (Perkins).

(27) *Mecyclothorax cognatus*, sp. nov.

Niger, supra aeneus, antennarum basi, palpis pedibusque testaceis, tibiis fuscescentibus; prothorace fortiter transverso, lateribus rotundatis, posterius fortiter angustatis, angulis posterioribus rectis; elytris regulariter, sat profunde striatis, striis fere impunctatis. Long. $5\frac{1}{4}$ mm.

Very closely allied to *M. aeneus*, but with shorter thorax, and a more distinct basal constriction of this part; the elytra more oval, less oblong in form, rather more deeply striated. I think a distinct species, though I have seen only one specimen.

Hab. Maui. Haleakala, 5000 ft., April 1894 (Perkins).

(28) *Mecyclothorax robustus*, sp. nov.

Convexus, nitidus, piceus, (abdomine dilutiore interdum flavescente), supra nigropiceus, elytris aeneomicantibus, marginibus pallidis, antennarum basi, palpis pedibusque flavis; thorace lateribus rotundatis, angulis posterioribus breviter rectis; elytris profunde striatis, striis evidentius punctatis. Long. 6 mm.

One of the largest *Mecyclothorax*, with the shoulders of the elytra less square than in *M. platysminus*; the after-body convex and heavy, the head narrow in comparison with it. The thorax is very shining, the median channel very distinct, the anterior impression definite, obsoletely strigose, the base punctate, the hind angles very definite, rectangular. The striae of the elytra are all deep, definite and distinct from base to apex, and their punctuation is more distinct than it is in most of the similar forms; the suture behind, and the margins, especially at the tip, reddish.

Our small series of examples exhibits a moderate amount of variation as to size, and blackness; the abdomen is nearly always flavescent. The striation of the elytra is a little less deep in the small, dark individuals.

The only distinction between *Mecyclothorax robustus*, and *Thriscothorax robustus*, beyond the generic character, is a slight difference in the form of the hinder part of the thorax; this in *M. robustus* is rather less constricted behind, and the hind angle is slightly more acute, the side margin there being less directed upwards. This distinction is but slight, and is less than occurs as variation in some of the allies, so that it is quite probable that the two may be dimorphic forms of one species. They seem to be, so far as I can judge, very closely associated geographically. The locality numbers for this species are 363, 599, 605, 621, 622, 679, 680.

HAB. Maui. Haleakala, on several occasions, at an elevation of 4000 or 5000 ft. (Perkins).

(29) *Mecyclothorax occultus*, sp. nov.

Robustus, niger, supra aeneus, parum nitidus, antennarum basi, palpis, pedibusque rufis; prothorace fortiter transverso, lateribus rotundatis, angulis posterioribus fere rectis; elytris minus profunde striatis, striis impunctatis, externis obsoletis. Long. $5\frac{1}{2}$ mm.

Distinguished, in this group of large forms with brassy surface and broad base to the thorax, by its very short thorax, and the slighter striation of the elytra. The thorax has a definite red margin, and the sides are sinuate exactly in front of the hind angles as if to prevent these from being obtuse; the anterior impression and median channel are distinct, and the base is much sculptured. The striation of the elytra is quite distinct, but the outer striae are obsolete, and all except the sutural one are very faint at the extreme base. One specimen.

HAB. Molokai. 4500 ft., June 18th, 1893 (Perkins).

(30) *Mecyclothorax amaroides*, sp. nov.

Major, robustus, niger, supra aeneus, antennarum basi, palpis pedibusque rufis, illis extrorsum, femorum basibus tibiisque fuscescentibus; prothorace fortiter transverso, ad basin breviter constricto; elytris striis omnibus integris, profundis, punctatis. Long. 7 mm.

Plate VII. fig. 7.

The largest insect of the Hawaiian Pterostichides, and one of the most distinct species. Head very broad. Thorax strongly transverse, with strongly rounded sides, a short basal constriction and rectangular hind angles; very shining, the anterior impression moderately, the median channel very, distinct, the broad base much punctate; the lateral margin rather strongly explanate, more or less rufescent. Elytra large, oblong, the shoulders but little rounded, all the eight striae deep from base to apex and rather strongly punctate; shining, brassy, the raised margin and tip rufescent. Five specimens.

The robust after-body and general appearance led me to suppose that the species is winged; but examination shows the contrary, the wings being as completely vestigial as they are in all the other species of this group of genera.

Hab. Molokai. On the boggy plateau below the densest forest, about 4000 ft. (Perkins).

Thriscothorax, gen. nov.

Prothorax utrinque seta unica, paulo ante medium lateris sita. Alae vestigiales.

Type *T. unctus*.

Like *Mecyclothorax* this is a most difficult complex to tabulate; but the following key may help any one wishing to determine species of it.

1. Thorax cordate (i.e. with a distinct constricted basal part and sharp hind angles, Plate VII. fig. 3), the base usually narrow .....species 1—13.
2. Thorax not cordate, shorter and usually broader; the true base of the elytra (i.e. the part between the incurved lateral margins of the two sides) and base of the thorax narrower than in group 4; hind angles sometimes (not always) obtuse .....species 14—21.
3. Species difficult to place; base of thorax moderately broad, without neck, hind angles obtuse or very nearly so.....species 22—24.
4. Base of thorax comparatively broad; robust and comparatively large insects; width of elytra across shoulders considerable .....species 25—29.

(1) *Thriscothorax unctus*, Blackburn.

Cyclothorax unctus Blkn., Ent. Mo. Mag. XVII. 1881, p. 227.

This species has in most individuals a slight brassy tinge on the upper surface, the elytral margins are strongly elevated and always yellow, the thoracic elevated margins are generally yellowish. There is but little variation in the shape and form of the thorax, which is transverse, abruptly narrowed and constricted behind, with very definite, rectangular hind angles. The striation is rather variable; the sutural stria is present, and behind is moderately deep, in front it is often distinctly punctate, the more external striae are always indistinct, and they also may, one or two of them, be punctate; very rarely can more than four striae be seen, on each wing-case. The length is $4\frac{1}{4}$ to almost 5 mm. About 100 specimens.

Hab. Maui. Haleakala (Blackburn). Haleakala, 4500—6000 ft., on several occasions (Perkins).

(2) *Thriscothorax filipes*, sp. nov.

Niger, parum convexus, elytris subviridescentibus, antennis, palpis pedibusque flavis; prothorace minus fortiter transverso, lateribus rotundatis, ad basin constricto; elytris levissime striatis. Long. 5—$5\frac{1}{4}$ mm.

Similar to *T. unctus*, but quite distinct by its longer thorax, which is much less narrowed behind the middle. The basal constricted part of the thorax is rather long,

and the hind angles are exactly rectangular: the anterior transverse impression is deep, and the basal punctuation deep, the lateral margin is not strongly elevated. The elytra have usually a faint greenish tinge, and are not polished: their striation is very slight and the striae are not punctured. The legs and antennae are slightly longer than they are in *T. unctus*. Twenty-one specimens.

HAB. Lanai. Halepaakai, July 1894, mts. Koele (Perkins).

(3) *Thriscothorax gracilis*, sp. nov.

Piceus, vel nigricans, thoracis elytrorumque marginibus lateralibus, illorum sutura, antennis palpis pedibusque testaceis; thorace parum transverso, ad basin constricto, angulis posterioribus rectis; elytris subtiliter striatis, striis fere impunctatis, ad apicem sat profundis. Long. 5 mm.

Allied to *T. unctus* and similar in colour, but with a longer and more slender thorax and a quite different striation of the elytra. The thorax is a good deal narrowed behind, with a distinct narrow basal portion and sharply rectangular angles, the median channel deep, the anterior transverse impression well-marked, the base strigose punctate; the lateral margin moderately elevated. Elytra with a faint brassy tinge, the lateral margins rather broad, yellow, the fine striation rather deep at the tips, the sixth stria is obsolete the other five distinct. Thirteen specimens.

This is smaller than *T. filipes* with a narrower thorax and with elytral striation distinct at the tip.

HAB. Hawaii. Kona, 4000 ft., September 1892 (Perkins).

(4) *Thriscothorax palustris*, sp. nov.

Niger, parum nitidus, antennis, palpis pedibusque fusco-rufis; prothorace transverso, lateribus rotundatis, ad basin constricto, angulis posterioribus perfectis; elytris striis quinque abbreviatis et punctatis, sutura posterius marginibusque rufescentibus. Long. 5 mm.

Plate VII. fig. 3, thorax.

Allied to *T. unctus*, of darker colour, differing a good deal in outline and readily distinguished by the five distinct though abbreviated series of punctures on the elytra. The thorax is much rounded at the sides, and narrowed behind, the constricted basal part not short, the angles rectangular and definite; the anterior depression deep and definite, but not sculptured, the base punctate: the median channel well-marked. The sutural stria of the elytra is deep at the tip, the second stria extends nearly to the tip though very fine there, outside this each stria is more abbreviate; each of the striae commences as a series of punctures. The legs are dark yellow, more or less infuscate beyond the femora. The margin of the elytra is distinctly red, and the same colour is indistinctly present on the lateral margin of the thorax. About forty specimens.

HAB. Molokai; mts. May 22, 1893 (Perkins).

(5) *Thriscothorax modestus*, sp. nov.

Piceo-niger, parum nitidus, palpis pedibusque testaceis, antennis, prothoracis elytrorumque marginibus elevatis rufis; elytris subaenescentibus parum nitidis, subtiliter striatis, striis haud punctatis; prothoracis lateribus rotundatis, basi constricta, angulis posterioribus rectis. Long. $3\frac{3}{4}$—4 mm.

This is considerably smaller than *T. filipes*, it is a little more deeply striated on the elytra, and the outer striae are less obliterated, seven striae can be counted in addition to the deep marginal stria, the suture of the elytra and its outer margin are red, and the lateral margins aad even the base of the thorax are reddish. The antennae are slender, yellow at the base, darker beyond. The head is rather broad. The thorax is rounded at the sides, and the hind angles are sharply rectangular, the base is moderately punctate, the median channel well-marked, the anterior transverse depression not deep and without distinct sculpture. There is no greater extent of red at the tips of the elytra than what is due to the junction of the red colour of the suture and margins. Five specimens.

Hab. Maui. Haleakala 4000—5000 ft. in March and April 1894 (Perkins).

(6) *Thriscothorax cordaticollis*, Blackburn.

Cyclothorax cordaticollis, Blackburn, Ent. Mo. Mag. xv. 1878, p. 156.

The two specimens in the British Museum indicate a species similar to *modestus*; with less basal constriction to the thorax: the striae not punctate. I have failed to match them with any specimens found by Mr Perkins. A specimen sent me some years ago by Mr Blackburn as this species is apparently a damaged specimen of a *Mecyclothorax* differing very little from *M. vulcanus*.

Hab. Maui. Haleakala (Blackburn).

(7) *Thriscothorax subconstrictus*, sp. nov.

Niger, vel piceus, antennis, palpis pedibusque testaceis; elytris nigris, sutura versus apicem lateralique margine rufis; thorace haud lato, lateribus rotundatis, basi angusta, constricta, angulis posterioribus rectis; elytris quinque-striatis, striis subtiliter punctatis, apicem versus profundis. Long. $3\frac{1}{2}$—4 mm.

This little *Thriscothorax* somewhat resembles *Mecyclothorax micans*, but it is readily distinguished by the striae carried to the tips of the elytra; this also separates it from the *T. palustris* and *modestus*; in the latter species the striae are visible at the tip, but are not so deep as in *subconstrictus*, and they are not punctate.

The transverse anterior impression of the thorax is rather obsolete; the surface is shining but there are some very indistinct transverse wrinkles on the disc, and the

median channel is indistinct, the base is punctate; the sides are rounded and much narrowed behind, sinuate so that there is a short basal constricted portion with rectangular angles. The striation of the elytra is fine, and the punctures, though quite distinct on the anterior parts, are also fine. Many examples.

HAB. Maui. Haleakala, 10,000 ft. (Perkins).

(8) *Thriscothorax molokaiae*, sp. nov.

Convexiusculus, nitidus, nigricans, antennarum basi, palpis pedibusque flavis, antennis extrorsum rufo-obscuris; prothorace lato, lateribus rotundatis, basin versus fortiter angustato, basi constricta, angusta, angulis posterioribus rectis; elytris convexiusculis, breviter ovalibus, subaenescentibus, apice testaceo, marginibus parum conspicue testaceis, profunde striatis, striis subpunctatis. Long. 3½ mm.

Head rather narrow. Thorax shining black, only slightly paler at the lateral margin, which is fine; the strongly rounded sides are much narrowed behind, so that the base is narrow; the base punctate, the median channel very distinct, the anterior impression less definite. The elytra rather short and convex, shining, with a feeble brassy reflection, deeply striate, the striae a little fainter at the extreme base, the outer two striae very fine, the others distinct at the apex, the punctuation fine: the tip yellow, and this colour extends a good way forwards along the suture and sides. Legs pale yellow. Four specimens.

HAB. Molokai, 4000 ft., 15 June, 1893 (Perkins).

(9) *Thriscothorax perstriatus*, sp. nov.

Angustus, convexiusculus, nitidus, nigricans, antennis rufis, basi, palpis pedibusque flavis; prothorace lato, lateribus rotundatis, basin versus angustato, basi constricta, angulis posterioribus rectis; elytris convexiusculis, subaenescentibus, apice testaceo, margine anguste testaceo, profunde striatis, striis a basi ad apicem ductis, plus minusve punctatis. Long. 4 mm.

Plate VII. fig. 8.

Though very like *T. molokaiae* this species is more elongate, and has the base of the thorax broader, the striation of the elytra is very deep, even at the basal margin each stria is deep and distinct, and all the eight striae are easily seen on each wing-case. There is but little punctuation at the base of the thorax.

In this species and in *T. molokaiae*, the under surface is to a large extent yellow, the ventral segments being entirely yellow in *T. perstriatus*. I have seen only a small series of each and though both appear to be variable I think them distinct. I am indeed more doubtful whether the specimens in each case may not be more than one, but the examples are too few in number to enable me to form any decided opinion.

HAB. Maui.

(10) *Thriscothorax mundanus*, sp. nov.

Latiusculus, parum convexus, nitidus, piceus, limbo, antennis, palpis pedibusque flavis; prothorace fortiter transverso, lateribus rotundatis, basi constricta, angulis posterioribus rectis; elytris brevibus, rotundatis, quinque-striatis, striis ad apicem evanescentibus, ad basin punctatis, externis obsoletis. Long. 4½ mm.

This species is very different from *T. filipes*, and is nearer to *T. unctus*. It is distinguishable from the former by the broadly oval elytra with extremely rounded shoulders, and by the punctate striae. The thorax is like that of *T. unctus*, short, strongly rounded at the sides so as to be much narrowed behind, with a very short straight-sided basal portion and sharply rectangular hind angles. The broad elytra are a little convex, with pale margins and suture; each has five striae and traces of a sixth; these striae are distinctly punctate at the tip and all, except the sutural one, become more indistinct behind; the second one is however quite definite at the tip, and the others can be traced there. The only two specimens found are rather immature, and the colour is probably less deep than in mature examples.

Hab. Lanai. On the summit, July 1894.

(11) *Thriscothorax constrictus*, sp. nov.

Robustus, haud latus, nigricans, supra subaenescens, elytrorum thoracisque marginibus, antennarum basi, palpis pedibusque testaceis; prothorace lato, lateribus rotundatis, basin versus abrupte angustatis, basi constricta, angulis posterioribus rectis; elytris octo-striatis, striis impunctatis, ad apicem sat discretis. Long. 5¼ mm.

Plate VII. fig. 9.

A very distinct species. The transverse thorax is abruptly narrowed behind, with a short basal constricted part, the sides of which are upturned; the surface is not polished, the disc is slightly wrinkled transversely, and along the anterior impression there are many fine longitudinal striae; the median channel is distinct but there is very little sculpture at the base. The elytra are elongate, the disc subaeneous, the sides broadly flavescent, the suture also yellow; the fine striae extend from the base to the apex and are not punctate. Two specimens.

Hab. Molokai. 4500 ft., June 1893 (Perkins).

(12) *Thriscothorax insolitus*, sp. nov.

Convexus, niger, politus, elytris ad apicem et ad latera late testaceis, antennis palpis pedibusque flavis; prothorace angusto, convexo, lateribus leniter rotundatis, angulis posterioribus brevissime rectis; elytris convexis, brevissime quadristriatis, striis punctatis. Long. 4½ mm.

Plate VII. fig. 10.

A very distinct species of which only one example has been found. In form like *Metrothorax*—e.g. *M. debilis* or *simiolus*—but the lateral thoracic seta is present, though excessively delicate. Thorax very shining, much narrower than the elytra, convex, very shining, lateral margin very fine, the median channel and anterior impression subobsolete, the former however deepening into a fovea behind the middle, the sides gently rounded, and the angles rectangular, though the sinuation that prevents them from being obtuse is excessively short. Elytra broad, short and convex, very shining, black, very broadly yellow behind, very finely striate, but with very definite punctures on the short striae, the sutural stria reaching to the tip as usual. Legs short. One specimen.

The glassy surface and the sculpture make this approach *T. variipes* and *ducalis*, but it differs entirely from them in other respects. The extremely minute thoracic seta and the *Metrothorax*-like form, together with the large area of yellow at the tip of the elytra, should make it easily recognisable.

Hab. Maui. Haleakala 3000 ft., in 1900 (Perkins).

(13) *Thriscothorax laetus*, Blackburn.

Cyclothorax laetus Blackburn, Ent. Mo. Mag. xvii. 1880, p. 228.

This species greatly resembles *Mecyclothorax rusticus*, but has a distinctly constricted base to the thorax, and only very fine elytral striae. I have suggested that it may possibly be a dimorphic form of *Mecyclothorax laetus*. The following are the particulars as to our small series of 19 specimens: Haleakala April 1894, Olinda woods 4000 ft. and downwards, two specimens; Haleakala, 4000 ft. May 1896, two specimens, No. 599; as preceding, but 5000 ft., one specimen, No. 600; as preceding, but No. 605, one specimen; as preceding, but No. 608, one specimen; as preceding, but No. 609, one specimen; as preceding, but No. 615, one specimen; as preceding, but 4000 ft. and No. 622, two specimens; as preceding, but No 623, one specimen; Haleakala 4500—5000 ft. October 1896, four specimens, No. 679; as preceding, but 4000 ft. and No. 680, three specimens; Haleakala, in 1902, seven specimens given to Mr Perkins by a friend.

These data render it probable that if *T. laetus* and *M. laetus* are dimorphic forms, yet they rarely, if ever, occur in company. For the data as to *M. laetus* see that species, p. 248.

Hab. Maui. Haleakala, about 4000 ft. on several occasions (Perkins, Nos. 599, 608, 609, 623, 679, 680).

(14) *Thriscothorax bembidioides*, Blackburn.

Cyclothorax bembidioides Blackburn, Ent. Mo. Mag. xvi. 1879, p. 107.

A remarkable little insect with highly polished, glassy surface. Thorax much narrowed behind, with very obtuse angles.

Elytra with only a sutural stria which is punctate at the base.

Mr Blackburn's specimens in the British Museum do not exhibit a seta; but they have been much damaged by dirt and mould, and I think are this species.

HAB. Hawaii. Mauna Loa, about 3000 ft., under a stone, one specimen (Blackburn). Kilauea, September 1896, three specimens (Perkins).

(15) *Thriscothorax paradoxus*, Blackburn.

Cyclothorax paradoxus Blackburn, Ent. Mo. Mag. XVI. 1879, p. 108.

Plate VII. fig. 11.

Distinguished by the red colour, the surface as if varnished, and the strongly transverse thorax much narrowed behind, but without the slightest sinuation, so that the hind angles are very obtuse, and the sides are only narrowly turned upwards at the base. The anterior transverse impression is very deep, and the median channel strongly marked. There are only two striae on each elytron. Mr Blackburn found but one specimen and Mr Perkins has just sent me another, which agrees with it except in being smaller. Mr Perkins has also sent a specimen of a *Mecyclothorax* from the same island, that is extremely like *T. paradoxus*.

HAB. Hawaii. Mauna Kea, 3000 ft., under bark of a tree (Blackburn).

(16) *Thriscothorax discedens*, sp. nov.

Niger, antennis rufo-obscuris, earum basi palpisque testaceis, pedibus fusco-testaceis; prothorace fortiter transverso, basin versus angustato, basi angusta; elytris striis punctatis profundis circiter tribus, externe tantum stria altera, munitis. Long. vix 4 mm.

Readily recognised by the deep striae next the suture, while outside these there are only one or very abbreviated striae, and by the short thorax, greatly narrowed behind with obtuse angles. The anterior transverse impression is rather indefinite, the median channel very distinct, the narrow base but little punctate. The short striae on the elytra do not commence at the base, with the exception of the sutural one which is deep from base to the tip, the fourth stria is very short, and there are traces of a fifth outside it. The legs are much infuscate, especially the tibiae and the bases of the femora. Four specimens.

Var. *terminalis*, var. n.

One specimen, from Olaa, is rather smaller, and has the elytra broadly yellow at the tip, the raised margins of elytra and of thorax are also yellow, as well as the legs, there are five striae all of which are strongly punctate. It is possibly a distinct species.

HAB. Hawaii. Kilauea (Perkins).

(17) *Thriscothorax chalcosus*, sp. nov.

Rufus, supra piceus, aeneo-micans, antennis, palpis pedibusque flavis; thorace transverso, lateribus rotundatis, posterius breviter constricto; elytris sat profunde striatis, striis obsolete punctatis. Long. $4\frac{1}{2}$ mm.

Perhaps nearest to *T. laetus*, but of brassy colour above, and with much more deeply striate wing-cases. Differs from *T. laticollis* and its allies by the smaller thorax, with a much narrower base. Head moderately broad. Thorax much narrower than the elytra, much rounded at the sides, and with a short constricted basal portion; hind angles rectangular; the side margin strongly elevated, the anterior impression definite, the median channel deep, the base with some coarse punctures, and on each side deeply depressed. Elytra rather strongly rounded at the shoulders, shining, brassy, but the suture behind, the tip and even the lateral margin, paler red than the rest; each with eight striae, beginning quite at the base, where they are deep and are feebly punctate, at the tip only moderately deep, the outer two striae quite distinct though not so deep as the others. Legs clear yellow. One specimen only.

Hab. Maui. West Maui mountains (Perkins).

(18) *Thriscothorax apicalis*, sp. nov.

Niger, parum convexus, sat nitidus, antennis, palpis pedibusque flavis, elytrorum apice discrete sed haud late testaceo; prothorace transverso, lateribus leniter rotundatis, basi haud constricta sed angulis posterioribus minute rectis; elytris septem-striatis, striis ad apicem profundis, sed externis anterius obsoletis. Long. 4 mm.

Plate VII. fig. 12.

A rather short insect with the upper surface a little flattened; to be recognised by the well-marked but impunctate striae, and the form of the thorax, which, though gently rounded at the sides and somewhat narrowed behind, so that the base though rather broad is narrower than the front, yet has not any distinct constricted portion, the hind angles being nevertheless exactly rectangular, though if a very minute section be taken off the base the angles would be obtuse: the lateral margin is very fine and only at the base is it minutely thicker; the base is straight, rather broad, distinctly punctate and slightly strigose, the anterior impression and the median channel are quite definite, indeed rather deep. The elytra are but little rounded at the shoulders, with the striae fine, though distinct at the apex, not punctate; the legs are rather short.

We have a small series of this species, 25 specimens. It does not vary much and a good deal resembles *Mecyclothorax rusticus* and *micans*.

Hab. Maui. Haleakala, 10,000 ft., April 1894 (Perkins).

(19) *Thriscothorax perkinsi*, sp. nov.

Fuscus, supra vix subaeneus, abdomine et pectore nigricantibus, antennarum basi palpis pedibusque fusco-testaceis, femoribus extrorsum flavis; elytris profunde abnormaliter sculpturatis, profundissime striatis, interstitiis subsymmetrice fractis. Long. $4\frac{1}{2}$ mm.

Plate VII. fig. 13.

Antennae dark, with the basal joint yellow, and the following two more or less yellow. Thorax strongly transverse, sides greatly rounded, much narrowed behind, the base constricted, the hind angles rectangular, the disc shining, slightly wrinkled transversely, the median channel and anterior impression very deep, the base punctate, deeply impressed on each side. Elytra with very peculiar sculpture, the striae or grooves very deep, the sutural two interstices angular, those more external broken here and there, and where broken rendered irregular, so that some of the fragments connect with their lateral neighbours; near the base on each side a peculiar loop is thus formed.

I have much pleasure in naming this remarkable little insect after its discoverer. It is, I suppose, next to impossible to attempt any explanation of these remarkable freaks of sculpture. This sculpture varies a little. We have a small series of eight individuals.

Hab. Molokai, 5000 ft., in the autumn of 1893 (Perkins).

(20) *Thriscothorax variipes*, sp. nov.

Niger, politus, antennis, palpis pedibusque testaceis, femorum basi tibiarumque medio fuscis; prothorace basin versus angustato, lateribus haud sinuatis, angulis posterioribus obtusis; elytris seriebus quatuor punctorum valde abbreviatis, stria suturali ad apicem profunde exarata. Long. 6 mm.

A large *Thriscothorax* with highly polished surface, and very obtuse hind angles to the thorax. Antennae not elongate. Head usually piceous. Thorax very polished, much narrowed behind, but without any sinuation at the sides, the hind angles obtuse, not rounded, the base narrow; the anterior impression deep and definite, not sculptured, the median channel distinct, the base punctate. Elytra polished, with four series of punctures that commence some little distance behind the base, the sutural one is continued as a stria to the apex where it is deep, the second can be just detected near the apex, but the others cannot be detected there. Legs with yellow coxae, the femora broadly black at the base, and the tibiae blackish in the middle. Six specimens.

Hab. Hawaii. Kilauea, August 1896 (Perkins).

(24) *Thriscothorax brevis*, Blackburn.

Cyclothorax brevis Blackburn, Ent. Mo. Mag. xv. 1878, p. 123.

Not very likely to be confounded with any other species though it has no very salient character. Size medium, colour above dark bronzy, after-body short and convex, moderately deeply striate; hind angles of thorax obtuse. Eighteen specimens.

Hab. Oahu. Not very rare; among decaying leaves at an elevation of about 2000 ft. (Blackburn). Mountains Honolulu, December 1900 (Perkins).

(25) *Thriscothorax laticollis*, sp. nov.

Fuscus, antennarum basi, palpis pedibusque testaceis, femorum basi nigricante; prothorace lato, valde transverso, opaco; elytris abnormaliter sculpturatis, profunde striatis, interstitiis hic inde subsymmetrice fractis, fragmentis disordinatis. Long. $4\frac{3}{4}$ mm.

By the extraordinary sculpture of the elytra allied to *T. perkinsi*, but with a very different thorax: this is but little narrower than the elytra, gently rounded at the sides, and slightly narrowed behind, but without a constriction; the hind angles are very sharply marked and slightly obtuse: the surface is flat and dull, feebly wrinkled, of a dull reddish colour at the sides, darker on the middle, the median channel is present, the anterior impression is rendered somewhat indistinct by the numerous minute longitudinal strigosities that are connected with it. The grooves on the elytra are deep, and the convex interstices are here and there broken; on each side, about the fifth, sixth and seventh striae, there is an elongate patch of irregular fragments of the disintegrated interstices. One specimen.

In the form of the thorax this insect is allied to *Mecyclothorax multipunctatus*; and at each hind angle of the thorax there is an excessively minute erosion of the surface at the spot where the seta is situate in the species of *Mecyclothorax* referred to.

Hab. Molokai, 3500 ft., 5 June, 1893 (Perkins).

(26) *Thriscothorax bradyderus*, sp. nov.

Brevis, latus, robustus, niger, supra aeneus, antennis palpis pedibusque testaceis, illis extrorsum, his tibiis tarsisque sordidis; thorace valde transverso, lateribus posterioribus leniter breviter sinuatis, angulis posterioribus fere rectis; elytris sat profunde striatis, striis impunctatis. Long. vix 5 mm.

Remarkable by its short, broad form; head short and broad. Thorax very broad, dull, brassy, the lateral margin yellowish, the anterior impression rather deep, strongly crenate, the central channel deep, the base much punctate. Elytra broad, shoulders but little incurved: deeply striate, but the striae not punctured. Two specimens.

Hab. Molokai. On the boggy plateau below the densest forest, about 4000 ft., June 1896 (Perkins).

(27) *Thriscothorax robustus*, Blackburn.

Cyclothorax robustus Blackburn, Ent. Mo. Mag. XVII. 1881, p. 228.

This species is so closely similar to *Mecyclothorax robustus* as to suggest that the two may be dimorphic forms of one species. We have only a small series of sixteen examples; the locality numbers are 372, 599, 605, 620, 622, 679, 680, or almost the same as for *M. robustus*. Mr Blackburn's type was the only example he found; it is very large, and feebly striate in comparison with the examples procured by Mr Perkins, but as it may be the same species I adopt his name.

HAB. Maui. Haleakala on several occasions at an elevation of 4000 or 5000 ft. (Perkins). Blackburn found only one example; it has a similar record.

(28) *Thriscothorax platysminus*, sp. nov.

Robustus, piceus, antennis, palpis pedibusque testaceis; prothorace lateribus subcurvatis, posterius leniter angustato, angulis posterioribus obtuse rectis; elytris oblongis, sat crasse marginatis, subtiliter striatis. Long. $5\frac{1}{2}$ mm.

Plate VII. fig. 15.

Antennae rather slender, entirely yellow. Thorax transverse, sides but little rounded, narrowed a little behind the middle, with an almost imperceptible sinuation before the hind angle, but enough to prevent this from being markedly obtuse; median channel distinct, anterior impression strigose, the base strigose, with but few punctures. Elytra more oblong than usual, but little rounded at the shoulders; with the full complement of striae, but these fine, minutely punctate, extending from base to tip, but the outer one or two very obsolete. Legs slender. Two specimens.

Readily distinguished from *T. robustus*, by the scarcely at all metallic surface, less convex form, and much finer striation of the elytra.

HAB. Molokai. About 4000 ft., probably on the side of a stream at the bottom of the gulch, June 1896 (Perkins).

(29) *Thriscothorax argutor*, sp. nov.

Angustus, subparallelus, rufus, politus, antennis, palpis pedibusque flavis; prothorace subquadrato, basin versus leniter angustato et sinuato, angulis posterioribus rectis; elytris suboblongis, sat profunde punctato-striatis. Long. 5 mm.

Antennae long, head rather narrow. Thorax not much narrower than the elytra, broader than long in the proportion of about five to four, the sides slightly rounded, distinctly narrowed and sinuate behind, the hind angles rectangular; the anterior impression distinct, but with many strigosities about it, the median channel distinct and carried to the base, the lateral margin fine in front, but more elevated behind, and at the hind angles strongly elevated, the base but little punctate. Elytra rather long and

narrow, parallel-sided, the striae definite, impressed and entire, extending from base to tip, but here not deeply impressed, the external one or two obsolete; the suture and external margin paler. Legs quite pale.

We have only one female of this distinct species; of all this Hawaiian group it is the one that looks most like an ordinary Pterostichid, and is therefore of considerable interest. It occurs with some of the Anchomenids that are most differentiated, *Atrachycnemis* and *Deropristus*.

Hab. Molokai. In June 1896 at an elevation of about 4000 ft. (Perkins).

Atelothorax, gen. nov.

Corpus apterum. Prothorax utrinque seta unica ad angulum posteriorem sita.

This genus, the analogue of *Atelothrus* in Anchomenides, is represented only by a single species of which only one specimen is known. It is the most recent discovery in Hawaiian Coleoptera, having been captured by a friend of Mr Perkins, who made the ascent of Haleakala in 1901 or 1902. He collected 16 species of the *Cyclothorax* group, of which two have proved to be new. If it should prove that the absence of the seta is not a constant character, the species would take its place in *Mecyclothorax* next to *M. cognatus*, to which it is very similar.

(1) *Atelothorax optatus*, sp. nov.

Convexus, piceus, supra aeneus, nitidus, antennis rufis, palpis pedibusque flavis; thorace transverso, angulis posterioribus rectis; elytris sat profunde striatis, striis impunctatis. Long. 5 mm.

Extremely similar to *Mecyclothorax cognatus*, but with the sides of the thorax less sinuate behind. Both thorax and elytra have the raised lateral margin red. The thorax is strongly transverse, the anterior impression and median channel distinct. The elytra have the full complement of striae which run from base to apex.

The unique exponent was found on Haleakala last year by a friend of Mr Perkins. I regret that I do not know his name.

Hab. Maui. Haleakala.

Metrothorax, gen. nov.

Prothorax setis erectis carens. Alae vestigiales.

In this genus I have placed the more elongate and larger forms first.

(1) *Metrothorax molops*, sp. nov.

Elongatus, robustus, nitidus, niger, antennis pedibusque flavis; prothorace convexo, vix transverso, lateribus valde rotundatis, postice brevissime coarctato, angulis posteri-

oribus subobtusis, margine laterali subtilissimo; elytris fere unistriatis, stria secunda valde abbreviata. Long. $7\frac{1}{2}$ mm.

Plate VII. fig. 16.

Head broad, eyes convex, very large. Thorax finely, but not obsoletely canaliculate on the middle, almost impunctate, anterior transverse impression very deep. Elytra elongate and convex, shining, impunctate, with a single well-marked stria near the suture; the lateral margin unusually fine.

This remarkable species cannot be confounded with any other. The general shape, the subglobular thorax, with the fine margins of thorax and elytra, are distinctive. *M. macrops* is the only species at all near it. Only two examples have been found, one of which is very immature.

HAB. Maui. Haleakala, 5000 ft., in March 1894 and May 1896 (Perkins).

(2) *Metrothorax macrops*, sp. nov.

Elongatus, angustus, piceus, antennis pedibusque flavis, elytrorum apice testaceo; thorace elongato, cordato, angulis posterioribus rectis, subtilius canaliculato; elytris unistriatis vel bistriatis, striis externis obsoletis. Long. 6 mm.

Smaller than *M. molops*, with a distinctly constricted base to the thorax, so that the angles are quite rectangular. The shape is transversely a little less convex than it is in *M. molops*, but is more convex than in the following species. Eleven examples.

HAB. Maui. Haleakala, on several occasions; 4000—6000 ft.; once at Olinda under bark of Koa, April 1894 (Perkins).

(3) *Metrothorax deverilli*, Blackburn.

Cyclothorax deverilli Blackburn, Ent. Mo. Mag. XVI. 1879, p. 108.

In this species the elytra have a greenish tint and are very shining: the thorax is much narrowed behind with a distinct constricted part which is punctate, the angles rectangular. The striation varies but is always very slight, even the sutural stria being faint except at the apex, and there it is not very deep; the antennae beyond the fourth joint are infuscate-red, and the tibiae are sometimes slightly infuscate. There is always some extent of yellow colour at the tip of the elytra.

I have seen ten examples. They vary a little in the width of the thorax, and slightly in the striation of the elytra, which in one or two is evident though very faint.

HAB. Hawaii; various localities, generally under bark of trees at an elevation of about 3000 ft. (Blackburn); Hilo, Kilauea, on several occasions, always singly (Perkins).

(4) *Metrothorax perkinsianus*, sp. nov.

Niger, elytris viridescentibus, perpolitis, antennis pedibusque rufo-testaceis, illis extrorsum fuscescentibus; elytrorum apice suturaque posterius conspicue testaceis;

thorace elongato, basin versus minus abrupte constricto, angulis rectis, medio canaliculato, basi mediocriter punctata, impressione transversa anteriore parum profunda haud sculpturata; elytris obsolete striatis, stria suturali ad basin et versus apicem sat profunda. Long. 5 mm.

Closely allied to *M. deverilli*, but with the constricted basal portion of the thorax more definite and the hind angles therefore sharper. Almost equally near to *M. haleakalae* but smaller, with the thorax less abruptly constricted at the base, and with a broad, definitely yellow apex to the elytra; the highly polished surface of the elytra is remarkable. Five specimens.

This species was discovered by the naturalist to whom we are indebted for *Atelothorax optatus*.

Hab. Maui. Haleakala.

(5) *Metrothorax haleakalae*, sp. nov.

Elongatus, parum convexus, niger, elytris subviridescentibus, antennis pedibusque rufis, illis extrorsum, tibiis tarsisque plus minusve fuscescentibus; prothorace majore, vix transverso, basi constricta et punctata, angulis posterioribus rectis, fere acutis; elytris tenuissime striatis, stria suturali tantum ad apicem sat profunde impressa. Long. $5\frac{1}{2}$—6 mm.

Closely allied to *M. deverilli*, rather larger, with a larger thorax which is more abruptly constricted behind, with the angles sharper. The elytra are not at all pale at the tip and the suture is not, or only faintly red behind. The antennae and legs are rather longer. Eleven examples.

Hab. Maui. Haleakala, 5000 ft., on several occasions (Perkins).

(6) *Metrothorax laticollis*, sp. nov.

Niger, politus, elytris viridescentibus, antennis (articulo basali excepto) palpisque fuscis, pedibus antennarumque basi testaceis; prothorace lato, posterius abrupte angustato, angulis acute rectis, canaliculato; elytris fere estriatis, stria suturali subtili. Long. 5 mm.

I have seen only five examples of this species. Though extremely near to *M. perkinsianus* I think it may prove distinct on account of the broader thorax which is very abruptly narrowed behind, and is less punctate at the base. The colour is more that of *M. haleakalae*, and so is the form of the thorax. The elytra also are comparatively shorter in proportion to their width.

Hab. Maui. Hawaii? Haleakala 4000—6000 ft. No. 680 (Perkins). I am not convinced that the exponent, supposed to be from Hawaii, was really found there. It is No. 686, = Kilauea VIII. '95. A confusion between 680 and 686 is very easy.

(7) *Metrothorax blackburni*, sp. nov.

Angustulus, convexus, nitidus, niger, antennis extrorsum fuscescentibus, basi palpis pedibusque flavis; prothorace elongato, profunde canaliculato, basi constricta punctataque, angulis posterioribus acute rectis; elytris 5- vel 6-striatis, striis punctatis sed brevibus. Long. 5 mm.

This species is—like however to other allied forms—very Bembidioid in appearance. It is not likely to be confounded with other species of this genus, but more resembles certain species of *Thriscothorax*; e.g. *T. karschi*; it has however a narrower thorax with the constricted basal portion more elongate. The head is rather narrow; the antennae have the first three joints and the base of the fourth yellow, the others rather darker. The thorax is but little broader than long, the sides gently rounded in front; sinuate behind, and meeting the base so as to form a sharply-marked right angle. The median channel and the basal punctuation are very distinct, the lateral margin, as well as that of the elytra, quite fine. The elytra transversely convex, rather narrow, shining black, only narrowly yellow at the tip; towards the base with well-marked series of punctures—about five in number: these are continued backwards as fine striae, but only the sutural one is definite at the tip. Legs clear yellow. I have named this distinct in species after the Rev. T. Blackburn, who was almost the first to call attention to the interesting nature of the Hawaiian Insect-fauna. The six examples found show little or no variation.

Hab. Molokai. On the mountains, in June, in 1893 and 1896 (Perkins).

(8) *Metrothorax scaritoides*, Blackburn.

Cyclothorax scaritoides Blackburn, Ent. Mo. Mag. xv. 1878, p. 156: Blackburn and Sharp, Tr. Dublin Soc. (2) III. pl. IV. f. 6.

We have received a very large series of this species. It has a broad thorax, which is moderately long, and has a very short basal constriction, just sufficient to make the angles rectangular; the length of the insect is about 5 mm. and that of the thorax $1\frac{1}{3}$ mm.[1]; the legs and antennae are yellow, the elytra convex, and with but feeble and not extensive striation. The striation is rather variable, and some examples (as stated by Mr Blackburn) have several short striae visible and in some cases these are series of punctures. The species has been found on the two adjacent islands of Maui and Molokai, and there is no difference between the specimens from the two islands. One highly aberrant example from Molokai has the elytral sculpture almost as well developed as it is in *M. blackburni*, but has none of the other characters of that species.

Hab. Maui. Haleakala (Blackburn), 4000—5000 ft., on several occasions (Perkins).

[1] Mr Blackburn gives the length as 6—$6\frac{1}{2}$ mm., but he seems to have exaggerated the length of most of the species of this division. It is probably however rather greater in quite fresh than it is in dried specimens.

(9) *Metrothorax rotundicollis*, sp. nov.

Convexus, nitidus, niger, antennis pedibusque flavis; prothorace fortiter transverso, lateribus aequaliter rotundatis, angulis posterioribus perobtusis fere nullis; elytris bistriatis, striis magis externis parum discretis. Long. 5 mm.

Plate VII. fig. 17.

Extremely similar to *M. scaritoides*, but distinguished from it and all the other species by the extremely obtuse hind angles of the thorax; this part is nearly $1\frac{1}{4}$ mm. long, and about $1\frac{3}{4}$ mm. broad, and is not greatly narrower than the elytra; the lateral margin is very fine, and is scarcely at all prominent at the hind angle; the median channel is also very fine, and there is very little sculpture at the base. The legs are very short. Seven specimens.

Hab. Molokai. Mountains, 3000 ft., May 1893 (Perkins).

(10) *Metrothorax curtipes.*

Brevior, niger, politus, antennis palpis pedibusque flavis; prothorace fortiter transverso, angulis posterioribus obtusis, haud rotundatis, subtilissime canaliculato, basi parum punctata; elytris latiusculis, convexis, stria suturali profunda, stria secunda sat discreta, preterea parum striatis. Long. 4—$4\frac{3}{4}$ mm.

Of this species we have received also a large series of about 150 examples; though closely allied to *M. scaritoides* there is no doubt that it is perfectly distinct, besides being smaller, the hind angles of the thorax are less acute, and the legs considerably shorter. The penultimate joint of the maxillary palpus is considerably shorter. The male genitalia also exhibit well-marked distinctions. The striation of the elytra varies a little as it does in *M. scaritoides*. The thorax is extremely finely margined, and the elytral margin is also fine.

Hab. Molokai. Mountains, 3000—4000 ft., on several occasions (Perkins).

(11) *Metrothorax extimus*, sp. nov.

Nigro-piceus, supra niger, politus, antennis, palpis pedibusque rufis, tibiis antennisque ex parte fuscescentibus; prothorace fortiter transverso, basin versus angustato, angulis posterioribus perobtusis; elytris striis quinque punctatis, externis valde abbreviatis. Long. $4\frac{1}{2}$ mm.

Nearest to *M. curtipes* but very distinct; rather narrower, with a narrower base to the thorax, and in colour and sculpture more like *Mecyclothorax pele*. Above coal-black, polished, the suture behind rufescent, the raised external margins feebly piceseent. The antennae red, at the base, darker outwardly. Thorax strongly transverse and much narrowed behind; the anterior impression and the median channel distinct. Elytra with a sutural stria extending from base to apex, and with four other very abbreviated striae of punctures. Legs short, red, tibiae and bases of the femora infuscate. One specimen.

Hab. Hawaii. Kona, 3000 ft., August, 1894 (Perkins).

(12) *Metrothorax simiolus*, Blackburn.

Cyclothorax simiolus Blackburn, Ent. Mo. Mag. xv. 1878, p. 123.

Brevior, niger vel piceus, nitidus, antennis pedibusque flavis; prothorace cordato, parum transverso, ad basin constricto, angulis posterioribus rectis; elytris latis, convexiusculis, stria suturali profunda, punctata, striisque aliis duabus valde abbreviatis. Long. 4 mm.

Closely allied to *M. curtipes*, but with shorter and more convex elytra, with the thorax constricted, and the hind angles very distinct and definite. The head is narrower and the eyes less prominent. The elytra are but little longer than broad, $2\frac{2}{5}$ mm. long by 2 broad, and are nearly twice as broad as the thorax. The sutural stria is deep and definite throughout, all its anterior part is deeply and definitely punctured, outside it there is another stria of punctures much abbreviate, and external to this an exceedingly abbreviate one; none of the striae, except the sutural one, is in the least visible at the tip; the suture is reddish, and the raised lateral margin very distinctly yellowish.

I think the identification of Mr Koebele's insect with Blackburn's type is correct.

HAB. Oahu. One specimen (Koebele). Mountains of Oahu, rare (Blackburn).

(13) *Metrothorax oahuensis*, Blackburn.

Cyclothorax oahuensis Blackburn, Ent. Mo. Mag. xv. 1878, p. 123.

I have seen only the two specimens of Mr Blackburn, in the British Museum. They seem to be a small *Metrothorax*, with yellow margin to elytra and thorax, so that the former are almost plagiate; the striation of the elytra is less reduced than it is in *M. simiolus*.

HAB. Oahu. In the mountains, very rare (Blackburn).

(14) *Metrothorax crassus*, sp. nov.

Robustus, haud latus, politus, niger, antennis palpis pedibusque flavis; prothorace transverso, basin versus angustato, angulis posterioribus obtusis; elytris stria suturali profunda, preterea parum striatis. Long. 5 mm.

Thorax very shining, much narrowed behind, but not at all sinuate, hind angles well-marked but obtuse; not greatly narrower than the elytra, so that the base is broad; lateral margin very fine, the median channel fine but definite, the base feebly punctate. The elytra are elongate, the suture pale, the apex flavescent, the lateral margin quite fine.

We have received only one specimen of this species, which is nearly equally allied to *M. laticollis*, *curtipes* and *scaritoides*. Its form is like that of *M. laticollis*, but the

thorax is different, being more narrowed behind and that in a straighter (less curved) line, the hind angle is much better marked. It is larger than *M. curtipes*, and has a more elongate after-body. In the shape of the thorax and the polished elytra it is different from *M. scaritoides*.

HAB. Maui. Jao Valley, W. Maui; March 1894 (Perkins).

(15) *Metrothorax debilis*, sp. nov.

Brevior, piceus, politus, antennis palpis pedibusque flavis, elytris nigricantibus, marginibus et apice rufo-testaceis; prothorace transverso, basin versus fortiter angustato, angulis posterioribus parum obtusis fere rectis, basi fere impunctata; elytris brevibus, stria suturali sat profunda, striis externis obsoletis. Long. vix 4 mm.

Closely allied to *M. curtipes*, rather smaller than the smallest individuals of that species, with the thorax less strongly transverse, and the elytra in proportion shorter; the hind angles of the thorax are better marked, the base is narrower, and the anterior parts of the insect are more dilute in colour. Four specimens.

HAB. Molokai. Kalawao, 4000 ft., August 1893 (Perkins).

(16) *Metrothorax discedens*, sp. nov.

Subdepressus, sat nitidus, niger, antennarum basi, palpis pedibusque testaceis; thoracis et elytrorum marginibus elevatis flavescentibus; thorace transverso, angulis posterioribus obtusis; elytris subtiliter striatis, striis externe et ad apicem evanescentibus. Long. $3\frac{1}{2}$ mm.

This is quite different from its congeners, and by its appearance recalls *M. micans* and allies. The antennae are short. Thorax strongly transverse, a good deal narrowed behind, hind angles very obtuse, anterior impression absent, median channel distinct, basal punctuation slight. Elytra rather broad and flat, with four or five striae, not distinctly punctured, and much abbreviated: the suture behind as well as the external margin rufescent.

Though we have received only one example, there can be no doubt this is a quite distinct form.

HAB. Maui. Mount Lahaina, 3000 ft., January 1897 (Perkins).

Group *BEMBIDIIDES*.

We have obtained a comparatively small number of species of this group, but they are of great interest, and being small forms it is probable that careful research would reveal several others. Kauai is clearly the metropolis of the Hawaiian Bembidiides, and its high plateau and ridges will require to be very carefully worked before we can consider that the island has revealed to us all its small forms.

I have previously remarked that St Helena possessed a parallel Bembidiid Fauna

to that discovered by Mr Perkins on Kauai. It was nearly all brought to light by Wollaston, who found it concealed in the decaying wood and stems of the precinctive vegetation. The St Helena species exhibit a remarkable variety of forms. Some of our species show a condition parallel with the St Helena forms, in sculpture, in form, and in the reduction of the eyes and atrophy of the wings. Some of Wollaston's species of *Endosomatium* would not look out of place intercalated in the Hawaiian series. If the two faunas can be more completely ransacked for Bembidiids I shall not be surprised if this parallelism is found to be more extensive. Some of the St Helena Bembidiids are very different from the Hawaiian forms and it is clear that the two faunas have had totally different origins.

The Hawaiian genera are easily distinguished.

Trophi elongate (Plate VII. fig. 24),
  Wings vestigial ..... *Gnatholymnaeum.*
  Wings ample ..... *Nesolymnaeum.*
Trophi normal in length,
  Thorax with two pairs of setae,
    Wings fully developed ..... *Bembidium.*
    Wings atrophied,
      Eyes well developed ..... *Nesocidium.*
      Eyes reduced or absent ..... *Nesomicrops* and *Macranillus.*
  Thorax with one pair of setae or none,
    With one pair placed at the hind angles ..... *Atelidium.*
    With no setae ..... *Metrocidium.*

Tachys is not included in this table. The species have a deficient complement of striae, one of which is peculiarly recurved behind; and the front tibiae are not straight externally.

GNATHOLYMNAEUM, gen. nov.

Trophi elongati; mandibulae et maxillae pertenues. Maxillarum lobus externus valde elongatus, integer, ad basin vix divisus. Oculi parvi. Elytra sulcata. Corpus apterum.

This very abnormal form of Bembidiid is remarkable for the sharp and slender long mandibles (Plate VII. fig. 25) which have very little power of movement. The division of the external lobe of the maxilla is rather incomplete, and is indicated only by a very oblique suture near the base. The insect has the facies of *Trechus* quite as much as it has of *Bembidium*, but it is completely connected with the latter genus by means of *Nesolymnaeum*, which looks quite like a flat *Bembidium*. The genus should be placed at the beginning of the Bembidiides, near *Lymnaeum*.

(1) *Gnatholymnaeum blackburni*, sp. nov.

Rufo-piceus, elytrorum plaga posteriore palpis pedibusque testaceis, antennis rufo-obscuris, basi dilutiore; elytris sulcatis. Long. $4\frac{1}{2}$ mm.

Plate VII. figs. 18 & 25.

Antennae rather long and slender. Head with two large but not definitely limited, longitudinal and parallel impressions; eyes small but borne on prominences of the genae. Thorax strongly transverse, a little rounded at the sides, minutely sinuate at the hind angles so as to prevent these from being obtuse; median channel prolonged to the base; on each side at the base a large and deep depression limited externally in front by a slight plica. Elytra parallel-sided, with a patch of paler colour (variable in extent) at or close to the tip; each with seven grooves (in addition to the one contiguous with the lateral margin), the interstices rather narrow at their summits, the third with two minute impressions. Legs rather long. Five specimens.

I have much pleasure in naming this interesting form after my friend the Rev. T. Blackburn, now of Adelaide, but formerly of Honolulu; it was owing to his exertions that attention was first directed to Hawaiian entomology.

Hab. Kauai (Perkins).

NESOLYMNAEUM, gen. nov.

Mandibulae et maxillae elongatae, subrectae. Maxillae lobo externo prope basin diviso. Oculi mediocres. Elytra regulariter punctato-striata, striis octo fere integris. Corpus alatum.

This insect has the facies of a *Bembidium* but it is nearer to *Lymnaeum*. The impressions on the front of the head are rather more like grooves than they are in *Lymnaeum*, but not so groove-like as they are in *Bembidium*. The slender trophi are much like those of *Gnatholymnaeum*; and the lobe of the maxilla is conspicuously transversely divided near the base; the elongation and straightening of the inner lobes, and their denticulation, are not quite so perfect as in *Gnatholymnaeum*, and the tips of the mandibles are rather less dagger-like. The basal joint of the front tarsus of the male is much enlarged, and both it and the second joint have the interno-distal angle so much prolonged as to be spinose. The thoracic setae are normal, viz. two on each side. The wings appear to be fully developed.

(1) *Nesolymnaeum spurcum*, Blackburn.

Bembidium spurcum Blackburn, Ent. Mo. Mag. XVII. 1881, p. 228.

The longer trophi distinguish this from all the other forms of Bembidiides except *Gnatholymnaeum*, and from that the black colour and delicately striate elytra separate it at once.

I have seen only two specimens of this species, besides Mr Blackburn's type.

Hab. Oahu, Molokai, Maui. Molokai, June 1892 (Perkins). Oahu, Waialua mountains 1902 (Koebele). Haleakala, 4000 ft. (Blackburn).

Bembidium Latreille.

This is an enormous genus, and as regards exotic forms is but little known. Its European members have however been extensively studied and distributed in numerous subgenera. Mr Blackburn placed two of the Hawaiian species in the European subgenera *Notaphus* and *Lopha*. But I cannot follow him in this course. One of our species, *B. teres*, comes sufficiently near to the subgenus *Synechostictus* to warrant its location there. A second species, *B. pacificum*, comes near to *B. normannum* of the subgenus *Emphanes*, and I associate it therewith and accompany it with a second species that appears to me to be closely allied. *B. ignicola* Blackburn, is perhaps allied.

Though I place *Bembidium advena* here, it has but little relation to any of the others. Only one specimen of it has been found, and I expect that when it can be investigated it will be found to form another peculiar, possibly flightless genus, allied to *Nesocidium*. This insect has not the peculiarity of the head I refer to in connection with *B. pacificum*, and at present may be treated as more allied to *B.* (*Synechostictus*) *teres*.

(1) *Bembidium* (*Synechostictus*) *teres*, Blackburn.

Bembidium (*Lopha*) *teres* Blackburn, Ent. Mo. Mag. XVII. 1881, p. 229.

This species has remarkably flat elytra; this, in conjunction with the normally short trophi, the striate elytra, and the thorax strongly narrowed behind, will lead to its identification. The length is about 5 mm.

Hab. Kauai, Oahu, Molokai, Maui; apparently scarce (Blackburn, Perkins).

(2) *Bembidium* (*Synechostictus ?*) *advena*, sp. nov.

Subdepressum, fusco-aeneum, antennis nigris, basi, palpis, pedibus elytrisque flavis, his nigro-pictis. Long. $3\frac{1}{2}$ mm.

Plate VII. fig. 19.

Antennae dark, with the first two joints and base of the third yellow. Head very short, eyes moderate, frontal grooves quite parallel, intra-orbital setae approximate, the surface dull metallic. Thorax transverse, greatly narrowed behind, so that the base is narrow, the surface golden, with a peculiar very fine sculpture, a sort of chasing, making it dull, except in the middle where it is a little shining. The median channel distinct. Elytra not elongate, rather parallel-sided, the shoulders obliquely rounded, the disc very distinctly quadrifoveolate; each with seven well-marked striae, continued to near the tip, with faint indications of punctuation, the very fine lateral margin is black, and there is an angular patch of dark purple-black colour at each side, and a transverse, black, common one before the apex. Legs pale yellow. Male with two basal joints of front tarsi dilated, and spinose at the interno-anterior angle. One specimen.

Hab. Maui. Haleakala, 5000 ft., April 1894 (Perkins).

(3) *Bembidium* (*Emphanes*) *pacificum*, Blackburn.

Bembidium (*Lopha*) *pacificum* Blackburn, Ent. Mo. Mag. xv. 1878, p. 157.

This species is of a brassy colour above, with yellow marks on the elytra. It is readily distinguished from *Synechostictus* by the deep clypeal suture which causes the front part of the upper surface of the head to look much more uneven. I have seen only half a dozen examples.

It would not be difficult to imagine this species to be the progenitor of *B. molokaiense*, and the allied forms of *Nesocidium*.

Hab. Kauai, Oahu. "Oahu, not rare, but very local, though found in several localities; it generally occurs running on damp ground" (Blackburn). Kauai, Mountains, Waimea, 4000 ft., May 1894 (Perkins).

(4) *Bembidium* (*Emphanes*) *ignicola*, Blackburn.

Bembidium ignicola Blackburn, Ent. Mo. Mag. xvi. 1879, p. 109.

I have seen only the specimen in the British Museum, Mr Blackburn's type. It apparently comes somewhat near both *B. pacificum* and *B. molokaiense*. It is smaller and darker than *B. pacificum* and very deeply sculptured.

Hab. Hawaii. One specimen, Kilauea; "I almost burned my fingers in securing it" (Blackburn).

(5) *Bembidium* (*Emphanes*) *molokaiense*, sp. nov.

Nigrum, supra plus minusve viridi-micans, antennarum basi pedibusque rufo-testaceis, antennis extrorsum fuscescentibus; prothorace transverso; elytris versus basin subplanatis, ibidemque late bi-impressis; fortiter seriatim punctatis, dimidio apicali impunctato, perpolito. Long. $2\frac{3}{4}$—3 mm.

Plate VII. fig. 23, wing.

Variable. Like *Nesocidium laeticulum*, but possessing perfectly developed wings; in addition to this none of the examples from Molokai agree with that species, which is a native of Kauai. The shape is slightly narrower and more elongate, the colour less brilliant, and the punctures in the striae a little smaller, so that there are generally 12 or 13 in the outer or subhumeral one; this is however variable and of little importance, but the more elongate after-body enables most of the specimens before me to be distinguished from *N. laeticulum*.

I have examined the wings (Plate VII. fig. 23) in nearly all the eighteen individuals. They are constant in size, but appear to vary a little as regards the distinctness of the nervures. A variety occurs in which there is a vague but large yellow patch on each wing-case before the tip. Fourteen of the specimens I have seen were found on

Molokai, two come from Maui, and two from Kauai. Apart from the fully developed wings these two Kauai examples appear to me to be indistinguishable from *Nesocidium laeticulum*.

Hab. Molokai. On several occasions in May and June, 1893, 1894 and 1896, in May and June, 4000 ft. (Perkins).—Maui, Haleakala 5000 ft., April 10, 1894 (Perkins, one specimen, No. 369); W. Maui, 1902 (Koebele, one specimen).—Kauai, Mountains, Waimea, June 1894, one specimen, October 1895, one specimen (Perkins).

Nesocidium, gen. nov.

Alae vestigiales. Caput brevissimum. Prothorax utrinque setis duabus munitus.

This genus consists of ten species that are flightless, but have the full complement of thoracic setae. These forms are very varied and include some most aberrant Bembidiids. The metallic species however are generically distinguishable from *Bembidium molokaiense* only by the wings being vestigial. In the case of all the species except *N. laeticulum* this degradational character is pretty certainly complete and invariable; but in the case of *N. laeticulum* I believe this character loses its value, and I cannot refrain from suggesting that this species is dimorphic, and that the Kauai examples I have placed under *B. molokaiense* are sports, or reversional forms of *N. laeticulum*.

Section 1. Corpus supra metallescens. Elytra quadri-impressa.

The anterior impressions are large in all the species except *N. koebelei*. The posterior impressions differ, according to the species, in distinctness.

(1) *Nesocidium laeticulum*, sp. nov.

Nigrum, supra auratum, vel viridi-auratum, antennarum basi pedibusque rufo-testaceis, antennis extrorsum fuscescentibus; prothorace fortiter transverso; elytris versus basin subplanatis, ibidemque late bi-impressis; fortiter seriatim punctatis, dimidio apicali impunctato, perpolito. Long. $2\frac{1}{2}$—$2\frac{3}{4}$ mm.

Plate VII. figs. 20 & 24.

This pretty little insect has the thorax strongly transverse, and with very little sculpture in front of its obscure basal margin; it is very strongly transverse, the sides greatly rounded and much narrowed behind, and the hind angles are prevented from being obtuse by a sinuation that occurs close to them. The elytra are rather short and broad, with seven series of punctures on the basal part; the sutural series is continued as an impressed stria to the tip of the wing, the other series gradually become shorter, so that the outer one consists of not more than six or eight punctures just behind and outside the shoulder: the anterior impression on each is large and more or less affects three of the series of punctures and interstices; the posterior impression easily escapes notice, being merely a puncture placed on the third interstice. About fifty specimens.

I have examined the vestigial wings of 18 individuals, and find them to be unusually variable. They are never in the extremely reduced condition that is attained in many of the Anchomenides, but are always longer than the metanotum; the smallest vestige is about ·4 mm. long, the largest is about 1·2 mm. long; the majority of specimens are intermediate but there are three which do not depart very much from the smallest dimension, and there is one that nearly equals the most extreme specimen in the other direction. The individual with the vestige the largest is a specimen of a blue variety, taken at Waimea mountains, Kauai, 4000 ft., May 1894; the specimen that comes nearest to it is the only one of the species that has been found on Maui, Haleakala, 5000 ft., May 1894. Another specimen of the Kauai blue variety, the same locality and date as the other, has the vestiges only ·6 mm. long, or considerably less than the average. All the specimens are from Kauai except the one individual mentioned above as found on Haleakala. It is possible that this may prove to belong to another species, as it is in colour, sculpture and form nearer to *Bembidium molokaiense* than are any of the Kauai specimens. The vestiges appear also to be variable in shape, though it is difficult to estimate this as they are often crumpled. The vestige figured (Plate VII. fig. 24) is narrower than that of any other example. In examining this series I found two specimens with the wings fully developed, and I have therefore separated them from this genus and placed them in *Bembidium*. I shall not however be surprised if this winged form prove to be a discontinuous variation of *N. laeticulum*. If so, we have in *N. laeticulum* a species variable as regards the development of the wings in Kauai, and represented in Molokai by an extremely similar form, having the wings always well developed. The material is not however sufficient for final conclusions.

Hab. Kauai, Maui. Mountains, Waimea, 4000 ft., May 1894; Koholuamano, 4000 ft., April 1895.—Maui, Haleakala, 5000 ft., June 10, 1894; one specimen (Perkins).

(2) *Nesocidium lahainense*, sp. nov.

Nigrum, supra subviridi-micans, antennis pedibusque fusco-rufis, illarum basi femoribusque dilutioribus; elytris quadri-impressis, fortiter punctato-striatis, parte apicali laevigata, perpolita. Long. $2\frac{3}{8}$ mm.

Very near *N. laeticulum*, but dark in colour, the striae or grooves of the elytra deeper, and the posterior pair of impressions larger. The elytra are a little narrower across the shoulders, so as to make some approach to *N. smaragdinum*.

I have examined the wings of the only two specimens that have been obtained of this species and find that they are reduced to small vestiges.

Hab. Maui. Lahaina (Koebele).

(3) *Nesocidium smaragdinum*, sp. nov.

Angustum, convexum, nigrum, supra laetissime viridi-micans, antennis pedibusque fusco-rufis; elytris angustis, humeris nullis, profunde quadri-impressis, fortiter punctato-striatis, parte apicali laevigata. Long. vix 3 mm.

At first sight similar to *N. laeticulum*, but undoubtedly distinct, by the form of the elytra, and by the four deep impressions thereon. The basal constriction or neck of the thorax is quite distinct, and the elytra at the shoulders are gently and gradually rounded off. Seven specimens.

Hab. Molokai. Mountains, 4500 ft., in June (Perkins).

(4) *Nesocidium fulgens*, sp. nov.

Angustum, convexum, piceum, supra laetissime viride, antennarum basi pedibusque flavis, antennis extrorsum obscuris; elytris angustis, humeris nullis, profunde quadri-impressis, fortissime punctato-striatis, dimidio apicali laevigato. Long. $2\frac{1}{2}$ mm.

Differs from *N. smaragdinum* by the clear yellow legs, and the more deeply grooved elytra; the head and thorax are slightly narrower, the latter has the surface slightly strigose transversely; on the other hand the elytra are not quite so narrow as in *N. smaragdinum*. Six specimens.

Hab. Maui. Haleakala, 5000 ft., May 1893 and June 1896 (Perkins).

(5) *Nesocidium koebelei*, sp. nov.

Angustum, convexum, nigrum, nitidum, supra nigro-aeneum, antennarum basi pedibusque fusco-rufis; elytris, basi haud depressa, quadri-punctatis, punctis fere aequalibus, preterea fortiter punctato-striatis, dimidio apicali laevigato. Long. $2\frac{3}{4}$ mm.

This differs from the allied species, by the less flat base of the elytra, and by the anterior impressions thereon being smaller, interrupting only the third interstice. The thorax has a distinct constriction at the base, forming a short neck; the elytra are narrow and have no shoulders. One specimen.

We are indebted to Mr Albert Koebele for the discovery of this species.

Hab. Oahu. Mountains near Honolulu, 2000—3000 ft., 1897 (Koebele).

Section 2. Corpus superne haud metallicum; elytra interdum parum perspicue quadri-impressa.

(6) *Nesocidium perkinsi*, sp. nov.

Piceum, capite rufo, antennarum basi, pedibus elytrorumque maculis quatuor flavis; elytris profunde striatis, striis in parte basali fortiter punctatis, apicem versus desinentibus. Long. 3 mm.

A very elegant and perfectly shaped insect; the elytra exactly oval, each with a large humeral and another pre-apical yellow mark, with broad, deep, perfect, striate

sculpture at the base, the interstices between the striae quite narrow, very regular. Eyes moderately large. Antennae with the basal three or four joints yellow, the rest a little darker. Thorax small, straight in front, much narrowed behind, the hind angles definite, not depressed, almost rectangular; median channel definite. The striation of the elytra is wanting on the apical portion; the third interstice is interrupted by two punctures of about equal size, not minute. Two specimens.

I have much pleasure in naming this elegant little creature after Mr Perkins. It is rare to find the precinctive Hawaiian forms possessed of perfected details as is the case with *N. perkinsi*; its form recalls the perfect outlines and sculpture of some of the larger, apterous Carabidae found in various continental regions; there is a wide gap between it and any other Hawaiian species, nevertheless I think it may be placed in *Nesocidium* satisfactorily.

Hab. Kauai. Koholuamano, 4000 ft., April 1895 (Perkins).

(7) *Nesocidium rude*, sp. nov.

Piceum, capite rufo, antennarum articulo primo pedibusque flavis, elytris testaceis, plaga magna discoidali communi picea, striato-sulcatis, sulcis indistincte punctatis. Long. $2\frac{3}{4}$—3 mm.

Plate VII. fig. 21.

Antennae rather longer and stouter than in the allied forms. Thorax small, constricted at the base, the hind angles rectangular, median channel deep, transverse anterior impression present. Elytra ovate, deeply striate, the striae broad, indistinctly punctured, becoming vague behind, but still perceptible near the tip, third interstice with two rather large punctures. The colour pallid, with a large dark patch, vague in front, but definite behind, where it comes to a point on the suture a little before the tip. Legs clear yellow. Four examples.

This is certainly allied to *N. perkinsi*, though it looks almost as clumsy as that species does elegant.

Hab. Kauai. High plateau, August 1896 (Perkins).

(8) *Nesocidium corticarium*, sp. nov.

Elongatum, convexiusculum, nitidum, fulvo-rufum, antennis palpis pedibusque testaceis; elytris elongatis, quadri-impressis, ad basin punctato-striatis. Long. $2\frac{3}{4}$ mm.

This species is concolorous, with only the legs and base of the antennae paler. The eyes are rather small. The thorax is much narrowed behind, and slightly sinuate just at the hind angles, which are nearly rectangular; the median channel and the anterior impression are obsolete. The elytra are elongate ovate, with six striae, or rather series of punctures, the sutural stria is entire, the outer striae are very short, the

sixth consisting only of three or four rather indistinct punctures; the pair of impressions on the third interstice small. Five specimens.

Similar in size and shape to *Nesocidium koebelei*, but readily distinguished by the colour and the smaller eyes.

HAB. Kauai. Mountains, Waimea, 4000 ft., June 1894; Koholuamano, April 1895 (Perkins).

(9) *Nesocidium atomarium*, sp. nov.

Nigrum, antennarum articulo basali pedibusque sordide rufis; prothorace vix transverso; elytris ovatis, convexis, seriatim parce punctatis, parte apicali impunctata. Long. $2\frac{1}{2}$ mm.

Distinguished from *N. corticarium* by the shorter form, the black colour, and the convex elytra. The antennae are obscure red, with the basal joint red. Thorax not much more than half as broad as the elytra, much narrowed behind, canaliculate on the middle; the systematic setae long. Elytra very convex, greatly rounded, with similar abbreviated series of punctures, but even more reduced.

HAB. Oahu. Mountains near Honolulu (Koebele). On *Pipturus*, back of Tantalus, August 1900 (Perkins).

(10) *Nesocidium scydmaenoides*, sp. nov.

Minutum, haud latum, rufulum, nitidum; prothorace vix transverso; elytris seriebus paucis et valde abbreviatis punctorum. Long. $2\frac{1}{3}$ mm.

Smaller than *M. atomarium*, narrower, dark red, unicolorous, and distinguishable from all its congeners by the narrow head with small eyes. The thorax is narrow, very shining, extremely finely canaliculate along the middle, moderately narrowed behind, enlarged just sufficiently at the hind angle to bear the seta. Elytra narrowly oval, convex, with a sutural stria extending to the tip and outside this with three other series, extremely abbreviated so that the outer consists only of about seven or eight rather obscure punctures. One male specimen.

HAB. Oahu. Ridge north of Nuuanu Valley, 2000 ft., October 25, 1892 (Perkins).

ATELIDIUM, gen. nov.

Corpus apterum, breve, convexum. Caput brevissimum. Thorax utrinque seta unica ad angulum basalem sita. Oculi mediocres.

This extraordinary little Bembidiid is much more obese than any of the species of *Nesocidium*, and is readily distinguished by the absence of the anterior of the two thoracic setae. The striation of the elytra extends considerably nearer to the tip than it does in *Nesocidium*.

(2) *Metrocidium admirandum*, sp. nov.

Latum, convexum, nigrum, nitidum, antennarum basi pedibusque testaceis; elytris pallidis, plaga maxima communi nigricante, profunde regulariter punctato-sulcatis; prothorace fortiter transverso, polito, margine laterali abnormaliter elevata. Long. $3\frac{1}{2}$ mm.

This little insect is one of the most remarkable of the Hawaiian Carabidae. The antennae are rather dusky red at the base, becoming darker towards the extremity. Thorax strongly transverse, very polished and shining, with a slight brassy reflection, the lateral margin remarkably broad and outstanding, the median channel distinct, the sides much narrowed behind, the hind angles reflexed; a very deep small depression close to each, and some other inequalities about the base. Elytra very regularly oval, beautifully sculptured, with broad, deep, punctate striae extending nearly to the tip: the short supernumerary scutellar stria absent. Only one example has been discovered.

Hab. Kauai. High plateau, August 1896 (Perkins).

Nesomicrops, gen. nov.

Oculi subobsoleti, parvi, nigrantes. Caput angustum. Elytra integra.

This genus and *Macranillus* offer a very interesting transition to the blind condition exhibited by small Bembidiids in various parts of the world. They agree with *Anillus* in having the elytra entire, completely covering the after-body, and the affinities are doubtless with the eyeless *Anillus*, rather than with the more numerous forms allied to *Scotodipnus*. In *Nesomicrops* the small eyes are black, and imperfectly faceted; moreover under the microscope the pigment appears to be wanting here and there. The mouth parts seem to be quite ordinary, the mandibles well-developed without any process externally. The short frontal grooves are widely separated, the clypeus large, the intraorbital setae normal. The thoracic setae are largely developed. The other parts exhibit no peculiarity that is not also present in *Nesocidium*. The small forms of that genus—*N. scydmaenoides* e.g.—are doubtless the nearest allies.

(1) *Nesomicrops kauaiensis*, sp. nov.

Angustus, pallide ferrugineus, antennis, palpis pedibusque flavis; elytris subtiliter striatis, striis obsolete punctatis. Long. $2\frac{1}{2}$ mm.

Antennae moderately long and stout, red, with the base paler. Thorax nearly as long as broad, gently rounded at the sides and feebly sinuate at the hind angles, which are minutely prominent to carry the seta; the median channel is distinct, the anterior impression obsolete, the surface depressed, adjacent to the hind angles, without punctuation. Elytra long and narrow, rather dull, with feeble striae which become obsolete behind except the sutural one, the pair of impressions on the third interstice present, the anterior of the pair distinct, the posterior very small, placed just about the middle of the length. Legs pallid, feeble. Four specimens.

Hab. Kauai. High plateau, August 1896 (Perkins).

MACRANILLUS, gen. nov.

Oculi vestigiales. Caput angustum. Elytra integra.

There is a marked difference between the eyes of this genus and those of *Nesomicrops*, and this induces me to separate the two, though no other differential characters have been detected.

In *Macranillus* the eyes are not pigmented nor facetted, but are represented by two small, smooth, slightly raised areas. The frontal grooves are longer than in *Nesomicrops*, correlatively with a rather larger size of the head.

(1) *Macranillus coecus*, sp. nov.

Ferrugineus, elytris subtiliter striato-punctatis. Long. $2\frac{3}{4}$ mm.

This insect is more robustly formed than *Nesomicrops kauaiensis*, and has the elytra less pointed behind, and more definitely punctate. The antennae are stout, dark red in colour, the base paler. The thorax is slightly transverse, not greatly narrower than the elytra, otherwise formed much as in *N. kauaiensis*, the lateral margins rather stronger, the median channel fine. Elytra a little shining, the striation rather less developed than in *N. kauaiensis*, but the punctures a little more distinct. Legs red, rather stout. One specimen.

HAB. Kauai. High plateau, August 1896 (Perkins).

TACHYS Stephens.

The species of this genus are of comparatively little interest. It is doubtful whether they are really precinctive. They are most obscure, minute insects of a kind that occurs in various other parts of the world.

(1) *Tachys oahuensis*, Blackburn.

Tachys oahuensis Blackburn, Ent. Mo. Mag. xv. 1878, p. 158.

HAB. Oahu. Not uncommon on salt marshes near the sea (Blackburn).

(2) *Tachys arcanicola*, Blackburn.

Tachys arcanicola Blackburn, l. c.

HAB. Oahu. Very local, but not rare; under bark in some mountain localities, at an elevation of about 1500 ft. (Blackburn).

(3) *Tachys atomus*, Blackburn.

Tachys atomus Blackburn, l. c.

HAB. Oahu. Not rare, in moss, in mountain localities, at an elevation of about 1500 ft. (Blackburn).

(4) *Tachys mucescens*, Blackburn.

Tachys mucescens Blackburn, l. c.

HAB. Oahu. Unique; in decaying vegetable matter on the plains of Honolulu (Blackburn).

Group *LEBIIDES*.

The two forms of this group have very little claim to belong to the Hawaiian Fauna. *Plochionus pallens* appears however to be naturalised, though apparently it does not extend its range.

PLOCHIONUS Dejean.

(1) *Plochionus pallens*, Fabricius.

Carabus pallens Fabricius, Syst. Ent. (1775) p. 244.
Plochionus bonfilsii Dejean, Spec. Gén. I. p. 251.
Plochionus pallens Bates, Biol. Centr. Amer. Col. I. pt. 1, p. 198.

HAB. Mauai. Very rare (Blackburn, Perkins).

According to Bates this species is so widely distributed that its original home cannot be determined. He says that it frequents the baggage of passengers, so that it is no wonder that it is widely disseminated.

SARONYCHIUM Blackburn.

(1) *Saronychium inconspicuum* Blackburn.

Saronychium inconspicuum Blackburn, Ent. Mo. Mag. XIV. 1877, p. 142.

HAB. Oahu. In Honolulu and on Konahuanui (Blackburn, 2 specimens).

Fam. DYTISCIDAE.

COPELATUS Erichson.

(1) *Copelatus parvulus*, Boisduval.

Colymbetes parvulus Boisduval, Voy. Astrolabe, Ent. p. 50.
Copelatus parvulus Sharp, Tr. Dublin Soc. (2) II. p. 568.
Copelatus mauiensis Blackburn, Tr. Dublin Soc. (2) III. p. 120.

This small insect, of slender, parallel form, and dull, silky surface, 4 or 5 mm. in length, cannot be confounded with the larger *Rhantus pacificus*, which is of oval outline and 10 or 12 mm. in length.

C. parvulus varies in colour, being sometimes blackish, sometimes dull ferruginous. I am quite unable to distinguish *C. mauiensis* as anything different from *C. parvulus*.

HAB. Oahu.—Lanai.—Molokai.—Maui.

RHANTUS Lacordaire.

Colymbetes pacificus Boisduval, Voy. Astrolabe I. p. 50.
Rhantus pacificus Sharp, Tr. Dublin Soc. (2) II. (1882), p. 607.

When dealing with this species, l. c., I stated that it varied so much that there might be two species. I had then only two specimens, and even at present I have seen only seven or eight; perhaps the difference in the specimens may be chiefly sexual, for the male appears to be considerably larger than the female.

HAB. Kauai.—Oahu.—Lanai.—Molokai.—Maui.—Hawaii.—Probably all the islands (Blackburn).

§ 3. Bionomical notes.

The following notes are in larger part gathered from correspondence that has been carried on with Mr Perkins during the preparation of this paper. As the information they give is of considerable interest I think it well to publish them. It will be seen that notwithstanding the small variety of structure that exists in the Hawaiian Carabidae the habits are singularly varied. In other words differentiation of habits has been up to the present greater than that of structure. This is quite in conformity with the views I have briefly expressed on p. 179. The doctrine, that differentiation of function precedes, on the whole, that of structure, was expressed by Herbert Spencer many years ago. The remark made on p. 291 by Mr Perkins as to *Colpodiscus lucipetens* is an exemplification of the same idea.

The quotation marks indicate the words of Mr Perkins. They were not intended for publication, but, as I have already said, they appear to me to be of so much interest that I take the liberty of printing them. His remarks refer chiefly to species of the Anchomenides, but we may hope that he will give us further information about Pterostichides and Bembidiides on some future occasion.

Blackburnia, p. 191. "Apparently found only under stones."

Deropristus, p. 192. "Never under stones, only beneath wood or fern-trunks." Mr Blackburn is said to have found the unique specimen of *D. blaptoides* under stones.

Atrachycnemis[1], p. 193. "Like *Deropristus*, never under stones."

Pseudobroscus, p. 196. "Under stones. Certainly very rare; everything has to be exactly right as to position of rock, dampness, etc., for this insect."

Anchotefflus, p. 195. The two species are terrestrial; *A. elegans* occurs under logs; *gracilis* under stones, Mr Perkins believes.

Mauna, p. 200. This is also terrestrial, living under stones.

[1] On p. 195 I have expressed a doubt as to whether this genus is really found in the island of Hawaii. Mr Perkins has now informed me that it is not. The home of *A. koebelei* is W. Maui.

Derobroscus and *Brosconymus*, pp. 197, 198. Though these insects are most difficult to procure it is probable that they are, or have been, really abundant, and that their habits protect them against the collector. Of the four species Mr Perkins has only been able to find eight specimens during his ten years in the islands. Mr Blackburn, who worked principally in Oahu—the only island on which these forms occur—did not discover their existence. Unlike the preceding genera, all of which are terrestrial, the species of *Derobroscus* and *Brosconymus* are arboreal in habits, living for the most part concealed in holes or in the twigs, and extending apparently to any part of the tree that is suitable in its condition. This habit has not previously been recorded for Carabidae, though it is not improbable that it may be subsequently discovered to occur not infrequently in tropical forests.

Though this habit (combined with the possibility that these insects may be partially nocturnal in their activities[1]) protects the *Derobroscus* from the collector, it has failed to afford them a perfect protection from birds; of which indeed they appear to be a favourite food. "I think it fair to assume that the bird, *Oreomyza macelata*, finds plenty of the green Carabid. I shot four of these birds (two pairs), each pair widely separated—some miles at least. All of these had [in the alimentary canal] many fragments, thoraces and abdominal segments of one of these green Carabids (either *Derobroscus* or *Brosconymus*, probably *D. politus*). In no case were elytra present, and I am sure the bird tears them off before swallowing the beetle." *Derobroscus micans* apparently lives beneath tightly-fitting bark with other more commonplace Carabids. "*D. politus* and *Brosconymus* live in deep, small cavities in branches of trees or in the pith cavity of some dead branch, and they are naturally extremely difficult to find. I have reason to believe that they largely frequent high branches of tall Koa trees (judging from my extensive observations of *Oreomyza*), and that my captures from the lower branches were merely stragglers. *Oreomyza* will go over a Koa tree good for these beetles again and again: a small company (a pair or perhaps as many as eight individuals) is sure to be replaced by another such company many times a day, and they go over every crack and hole of the higher branches in the most methodical manner." It is very remarkable that these arboreal forms should be quite flightless.

Disenochus, p. 200. Some of the species are terrestrial, some arboreal. *D. anomalus* lives under stones; *D. brevipes*, *cephalotes*, *flavitarsis*, *longipes* and *fractus* are all arboreal, the first four are found only in the moss on the trees, the last in holes.

Anchonymus, p. 199. I have already recorded that this species forms a "lead" to *Derobroscus*; it lives under the bark, or in the holes, of trees.

Chalcomenus, p. 206. These winged forms are all terrestrial. "The Kauai species

[1] Although it would appear probable that Carabidae, so much sought by birds, should be active only at night, the comparatively brilliant colour of these Carabids suggests diurnal habits.

under logs only (I think); the others always under stones, and they sometimes range abroad in daylight, especially the Molokai species."

Barypristus, p. 208. "*B. rupicola* under rocks. *B. incendiarius* subarboreal; generally under bark of Koa, very low down, near the ground; or near the ground under bark. Sometimes under a detached Koa limb on the ground."

Baryneus, p. 209. This fully-winged form is "truly arboreal, and especially fond of Koa, and is found under the bark, or in hollows in branches, sometimes in the topmost twigs. Female seen ovipositing in the daytime in chinks of the bark of Koa."

Colpodiscus lucipetens, p. 210. "In West Maui, under stones on bank of stream, but in Olaa, Hawaii, generally under logs or fallen fern-stems, or decayed vegetable matter. Might become modified for this reason into two, quite credibly."

Prodiscuochus, p. 210. "Terrestrial; logs or wood, very particular as to soil, conditions of dampness, etc., like *Atrachycnemis* and others, perhaps even more so."

Mysticomenus, p. 212. Under bark, as far as Mr Perkins has observed *M. tibialis*.

Colpocaccus tantalus, p. 214. "Under bark of Koa commonly, at bases of the leaves of *Freycinetia*, under stones in wet places and in decaying vegetable matter. Very curious, compared with most of the other Carabids. The other species of this genus are probably more or less indiscriminate in their choice."

Metromenus, p. 231. In this genus the habits also vary according to the species. "Some are found only under bark, others only at the bases of the leaves of lilies, *Freycinetia*; others purely terrestrial under stones or logs. A few species of this genus and of *Mesothriscus* are irregular in habits, like *Colpocaccus*."

Pterostichides, p. 243. The species are generally either purely arboreal or purely terrestrial. It is worthy of note that a very large proportion of Mr Perkins' specimens of certain species of *Mecyclothorax* were taken on one occasion near the summit of Haleakala. *M. pusillus*, *rusticus*, *micans* and *subconstrictus* were then procured in numbers. These are very closely allied forms, and the distinction of the species has in this case nothing to do with geographical segregation.

§ 4. List of works relating to Hawaiian Caraboidea (arranged chronologically).

It may be pointed out that in 1835 only three species were known; and that in the period of 42 years between that date and 1877 no advance whatever was made.

1. Erichson, W. F. [in] Meyens' Beiträge zur Zoologie, gesammelt auf eine Reise um die Erde. Acta Ac. Germanica, xvi. suppl. (1834), pp. 219—284.
   Anchomenus corruscus, n. sp.

2. Boisduval, J. A. Faune de l'Océanie. Voyage de l'Astrolabe, Zoologie, II. (1835).
   Colymbetes parvulus and *C. pacificus*, n. spp.

3. Blackburn, T. Characters of a new genus, and descriptions of new species, of Geodephaga from the Sandwich Islands. Ent. Mo. Mag. xiv. 1877, pp. 142—148.
   gen. n. *Saronychium*, and 16 new species of Anchomenides.

4. Sharp, D. Description of a new species probably indicating a new genus of Anchomenidae, from the Sandwich Islands. Tom. cit. pp. 179, 180.
   Blackburnia insignis.

5. Blackburn, T. Characters of new genera and descriptions of new species of Geodephaga from the Hawaiian Islands. II. Op. cit. xv. 1878, pp. 119—123, 156—158.
   Atrachycnemis, *Disenochus*, n. genn. Twenty-five new spp.

6. ——. [As above.] III. Op. cit. xvi. 1879, pp. 104—109.
   Eight n. spp. Observations on characters of Anchomenides.

7. ——. [As above] IV. Op. cit. xvi. 1880, pp. 226—229.
   Seven n. spp.

8. Karsch, F. Zur Käferfauna der Sandwich-, Marshall- und Gilberts-Inseln. Berlin. Ent. Zeitschr. xxv. 1881, pp. 1—13, pl. I.
   Describes and figures five species of Carabidae from Maui as new. These are discussed by Blackburn (cf. No. 9), who considers them all synonyms. But this must remain doubtful till the types have been examined.

9. Blackburn, T. [As above.] V. Ent. Mo. Mag. xix. 1882, pp. 62—64.
   Cyclothorax karschi, n. sp.; and observations on Karsch's paper (8) with synonymy.

10. Sharp, D. On some genera of the subfamily Anchomenini (Platynini Horn) from the Hawaiian Islands. Op. cit. xx. 1884, pp. 217—219.
    Revision of the genera: three n. genn.

11. Blackburn, T. Notes on some Hawaiian *Carabidae*. Op. cit. xxi. 1884, pp. 25, 26.
    Mauna, n. gen.

12. —— & Sharp, D. Memoirs on the *Coleoptera* of the Hawaiian Islands. Tr. Dublin Soc. (2) III. (1885), pp. 119—290, pl. IV.
    Copelatus mauiensis, n. sp. Systematic catalogue and topographical table. Figures of *Blackburnia insignis*, *Mysticomenus mysticus*, *Colpodiscus lucipetens*, *Metromenus fossipennis*, *Mecyclothorax multipunctatus*, *Metrothorax scaritoides*.

DESCRIPTION OF PLATE VI. (VOL. III.)

COLEOPTERA. *CARABIDAE.*

Fig. 1. *Deropristus puncticeps*, with right elytron expanded showing the small vestigial wing; at side a fragment showing sculpture of disc of elytron.

Fig. 2. *Baryncus sharpi*, with elytron and the fully-developed wing expanded.

Fig. 3. *Atrachycnemis sharpi*; to left fragment showing sculpture of elytron.

Fig. 4. *Anchoteflus gracilis*; to left fragment showing sculpture of elytron.

Fig. 5. *Pseudobroscus lentus*; to left fragment showing sculpture of elytron.

Fig. 6. *Disenochus aterrimus*; to right fragment showing sculpture of elytron.

Fig. 7. *Barypristus incendiarius*: the angles of prothorax are rather too prominent.

Fig. 8. *Anchonymus agonoides.*

Fig. 9. *Mauna frigida.*

Fig. 10. *Metromenus sphodriformis.*

Fig. 11. *Mecostomus perkinsi.*

Fig. 12. Elytra of *Mecyclothorax montivagus*, seen outside and inside, showing the "fault" on the margin characteristic of Pterostichides.

Fig. 13. Hind foot of *Metromenus pavidus*; outer side showing tarsal grooves × 15.

Fig. 14. Tarsus of *Metromenus aequalis* × 17, *a* upper, *b* lower face.

Fig. 15. *Baryncus sharpi*, posterior tarsus, × $\frac{13}{2}$, *a* upper, *b* lower face.

Fig. 16. *Colpodiscus lucipetens*, posterior tarsus, × 10, *a* upper, *b* lower face.

Fig. 17. *Metromenus mutabilis*, posterior tarsus, × 15, *a* upper, *b* lower face.

Fig. 18. *M. fraudator*, vestigial wing, × 6.

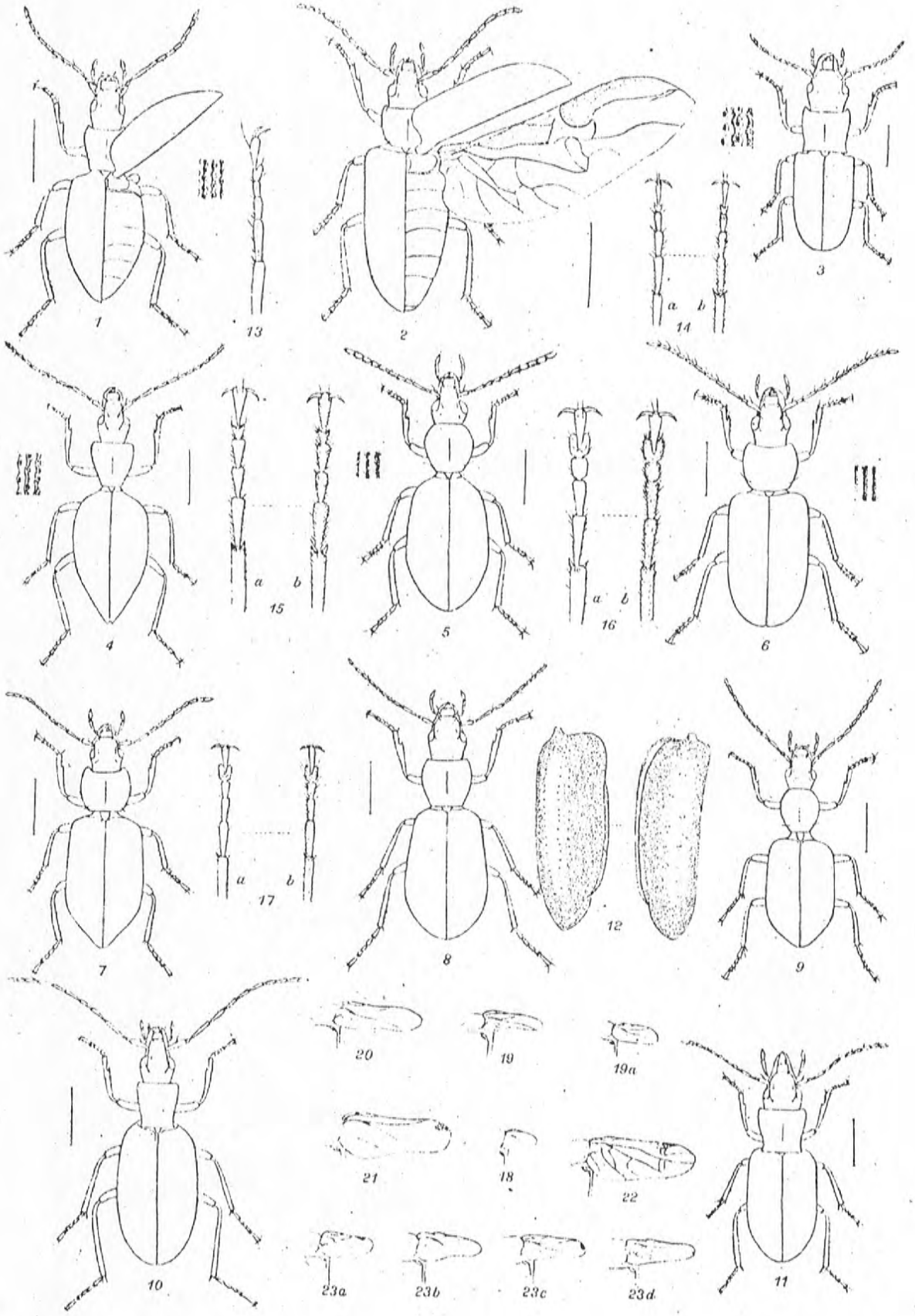
Fig. 19. *M. sphodriformis* from Haleakala, vestigial wing, × 6; 19*a*, same of specimen from Molokai.

Fig. 20. *Apteromesus maculatus*, vestigial wing, × 6 (this is a little too broad).

Fig. 21. *Barypristus incendiarius*, vestigial wing × 3.

Fig. 22. *Chalcomenus costatus*, wing × 3.

Fig. 23. *Barypristus rupicola*, vestigial wings × 3, showing the variation *a*, *b*, *c*, *d*.



M.A.Sharp del et lith.

E. Wilson, Lith. Cambridge

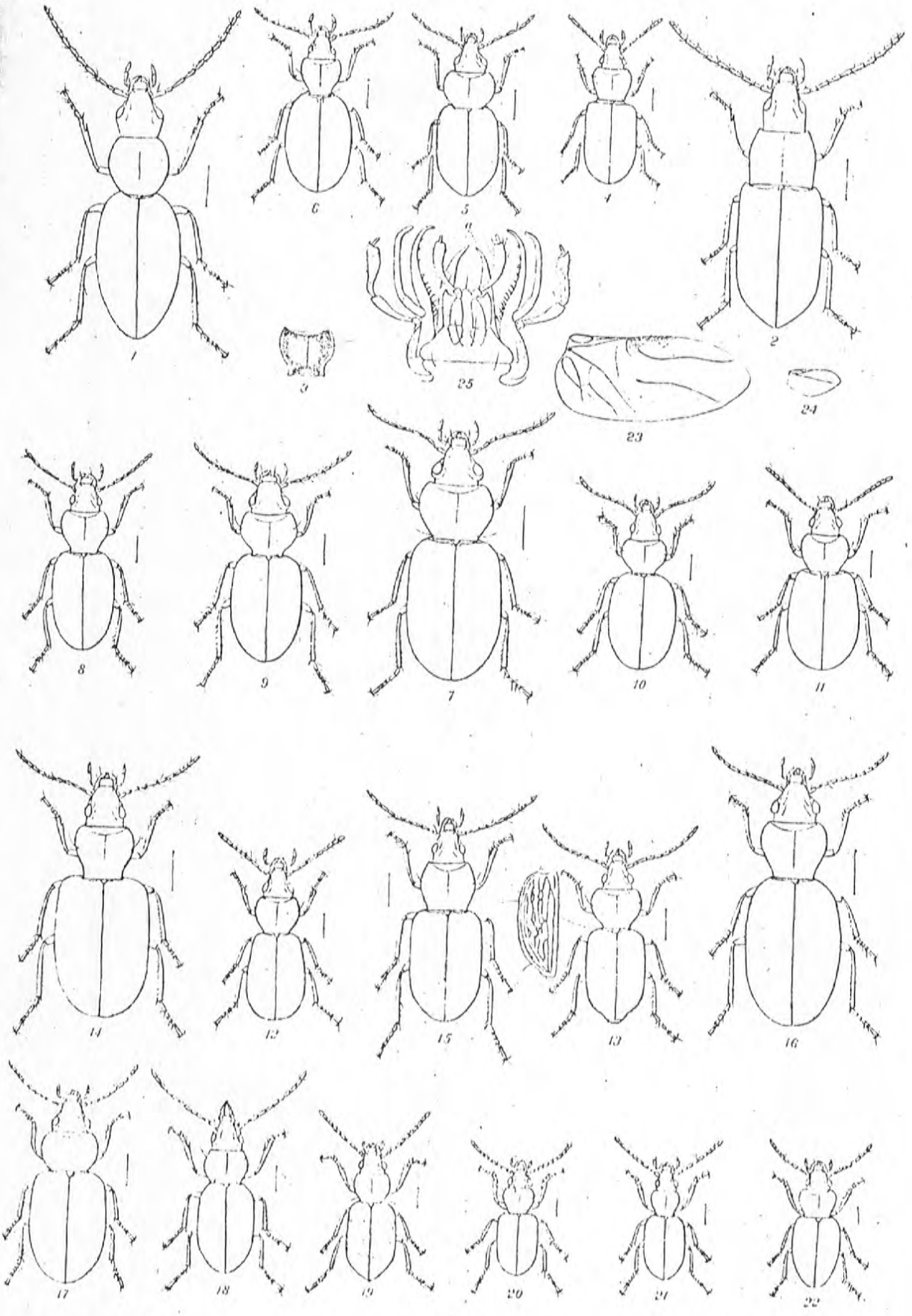
Sharp. Carabidae.

DESCRIPTION OF PLATE VII. (VOL. III.)

COLEOPTERA. *CARABIDAE.*

Fig. 1. *Derobroscus micans.*
Fig. 2. *Mesothriscus abax.*
Fig. 3. *Mecyclothorax palustris*, prothorax.
Fig. 4. *M. pusillus.*
Fig. 5. *M. bradycellinus.*
Fig. 6. *M. ovipennis.*
Fig. 7. *M. amaroides.*
Fig. 8. *Thriscothorax perstriatus.*
Fig. 9. *T. constrictus.*
Fig. 10. *T. insolitus.*
Fig. 11. *T. paradoxus.*
Fig. 12. *T. apicalis.*
Fig. 13. *T. perkinsi.*
Fig. 14. *T. ducalis.*
Fig. 15. *T. platysminus.*
Fig. 16. *Metrothorax molops.*
Fig. 17. *M. rotundicollis.*
Fig. 18. *Gnatholymnaeum blackburni* (cf. fig. 25).
Fig. 19. *Bembidium advena.*
Fig. 20. *Nesocidium laeticulum* (cf. fig. 24).
Fig. 21. *N. rude.*
Fig. 22. *Atelidium munroi.*
Fig. 23. Wing of *Bembidium molokaiense.*
Fig. 24. Vestigial wing of *Nesocidium laeticulum.*
Fig. 25. Trophi of *Gnatholymnaeum blackburni*, seen from below: *a*, the tusk-like mandibles.

All the figures on this plate (except the separated portions) are magnified on the same scale, viz. × 4.



Sharp: Carabidae