

the character of the soil and by climate, more than by food, especially as the very few places throughout the world where they have been found all coincide, so far as I know, in having a light soil and warm dry climate. Should this prove to be the case, it will open up a wide and interesting field for speculation as to the causes which have led to their distribution to such remote corners of the globe, and to their limitation to such small and confined areas. Have they all spread from one centre of creation, or have different types been originated in separate areas of development? Which-ever it is, we are pretty sure of this, either that enormous periods of time must have elapsed since the first parent stock migrated east and west, to such extremes of the world as Jamaica and New Zealand, especially when we consider the very indifferent locomotive powers of the species, and its extreme reluctance to leave its native home, or, on the other hand, that some common power has been at work controlling and directing the development of such marvellously intelligent and skilfully artistic creatures in such remote and opposite parts of the globe.

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ART. XXXII.—*Notes on the Coleoptera of Auckland, New Zealand.*

By Captain BROWN.

[Read before the Auckland Institute, 17th May, 1875.]

It has been suggested by C. M. Wakefield, Esq., of Canterbury, that the publication of my observations on the *Coleoptera* of Auckland in the "Transactions of the New Zealand Institute" might be the means of disseminating some desirable information. I confess, however, that I accede to the request with diffidence; but, whilst regretting that no abler entomologist has relieved me of the task, I trust that my desire to do justice to the subject will secure the indulgent consideration of the members of the Institute.

I propose, in this short sketch, to confine my remarks on the beetles of this Province to an enumeration of the different families of the order represented here, the names of such characteristic species as are known, adding some few statements regarding the peculiarities of such as I am best acquainted with.

I adopt this method in the hope that it will induce gentlemen of the other Provinces to publish concise accounts of the endemic *Coleoptera* of each division of the Colony, in order that we may obtain a more accurate knowledge of this interesting order of insects.

I have often had occasion to regret that a properly classified collection of such of the New Zealand *Coleoptera* as are known to science is not avail-

able to the entomological student of Auckland. I am now, however, so far as the means at my command will permit, preparing such a collection as will materially aid in providing that desideratum. Some two years ago I forwarded a case of New Zealand *Coleoptera* to Dr. Sharp, the entomologist of Dumfriesshire, and, perhaps, I may be permitted to quote from some of his letters to me on the subject. In one he states :—" I have received your box, which contains about one hundred and sixty species, by far the greater number of which are unknown to science, and therefore undescribed." In another, dated the 18th September last, he informs me :—" I am packing up your lot of *Coleoptera*, named, so far as I have been able to accomplish it. As regards the *Curculionida*, I have failed to identify more than a few species. Mr. Wollaston has described the *Cossonides*, and as there were, amongst your lot, two specimens of a very interesting new genus of the group, he has described them under the name of *Mesoxenophasis browni*." On the arrival of that case of insects I shall deposit in the Museum duplicates of all that have been named. I afterwards forwarded two other cases of beetles to the same gentleman, containing about nine hundred specimens of upwards of one hundred species, and have no doubt the result will be equally satisfactory.

I have also corresponded with Captain Hutton, F.L.S., of the Dunedin Museum, on the subject, and he, having intimated his desire to assist me, I sent him nearly fifteen hundred specimens, on 5th January last, for distribution amongst such entomologists in England as might be willing to undertake the task of naming and describing them, stipulating that one named individual of each species should be returned to me in order that I might place duplicates of these also in the Museum. I am indebted to Mr. Wakefield for much valuable assistance, as also a collection of about a hundred of such species as occur in Canterbury or other of the Middle Island Provinces, which will enable me to institute a comparison with ours.

I may premise the details of my subject by the observation that, in comparison with the *Coleoptera* of India, and particularly Burmah, where I collected, in the year 1857, those of this country must ever appear insignificant as to size, and singularly destitute of the brilliant metallic colours so characteristic of the order ; nevertheless, our beetles are by no means to be despised, as they exhibit a variety of forms that will always prove a source of interest to the studious, and, I may add, of pleasure, even to those who display but little inclination to study the works of the Creator, as exhibited by this beautiful order of insects.

Taking the different classes in rotation, we have, first of all, the

#### GEODEPHAGA.

The predaceous ground-beetles are divided into two distinct groups or

families—*Cicindelidæ* and *Carabidæ*; the former generally accorded the first place, appears to be represented in this Province by only two conspicuous species, one of which, *Cicindela tuberculata*, is abundant on almost every road and pathway. I have taken three others, and although these insects frequent places exposed to bright sunshine, I found one, the smallest of all, in heaps of vegetable rubbish in the Domain, in such numbers as would warrant the belief that such is its usual haunt; it differs in colour from all the other *Cicindela* I have seen in this country.

I have five species from the Middle Island, all bearing a strong family likeness to our own in their general outline and colour.

*Carabidæ* exhibits seven moderately large species in my collection, the finest, *Feronia antartica*, is about an inch long, of bright dark bronze colour; but another fine *Carabid* is the grandest of the group in these islands. The second in size frequents the roots of potatoe crops, where it is serviceable to the agriculturalist, and may also be found under stones at Mount Eden.

In addition to these, I possess a number of small species, most of them brighter in colour than their more bulky friends; but all, I regret to add, unnamed. One active little *Carabid* of a shining whitish-colour, ornamented by dark marks on the elytra and thorax, is common during summer amongst weeds and rubbish on the sea shore. The sub-family *Scaritides*, distinguished by their elongate form, the junction of the elytra and thorax by a neck, and the palmation of the anterior tibiæ, affords two species at least for observation. I discovered them under sacks of grain and chaff. It is desirable that a collection of our predaceous beetles should be exhibited in the Museum by themselves, coupled with a notice that farmers and gardeners should abstain from injuring or destroying them, when they see them in the land they may be tilling, as they render such people important services. It may safely be assumed that the Middle Island has the advantage of us, both as regards the size and the number of the species of *Carabidæ*.

#### HYDRADEPHAGA.

*Dytiscidæ* offers but few species for observation; indeed, I only know of five, whilst *Gyrinidæ* seems to have no representatives whatever. I saw one species of Boat-beetle in a pool near Remuera, but never elsewhere.

The large *Onychohydrus hookeri*, asserted by Dr. Buller as belonging to the North Island, I have searched for in vain.

Perhaps it may not be out of place to assure such Acclimatization Societies as may be engaged with the introduction of European fish into our rivers that no danger need be apprehended from our Water-beetles. I placed several of them in a glass globe containing young fish, and the result of the experiment satisfied me that they will not attack carp. It is,

therefore, probable that they will abstain from interference with others under circumstances much more favourable to the fish.

Some specimens from the South Island are much prettier than any we possess; but nearly all the members of this class being nameless as yet, I can give little information respecting them.

## BRACHELYTRA.

*Etaphylinus oculatus*, a carrion beetle, may be accepted as the type of this section, as well as of the indigenous carrion-feeders. This class, divided into thirteen families, comprising some seven hundred species in Britain alone, furnishes my cabinet with rather less species than the number of families I have mentioned. I possess six from Canterbury, differing from ours mostly in unimportant details; but two of our species are rather more finely-coloured than those of the South Island. I found numerous individuals of one small, dull species, on the sea beach of the East Coast under *Algæ*, even to a depth of two feet below the surface. Of the *Brachelytra*, it may be confidently asserted that New Zealand will not provide much more than a fiftieth of the number of species found in Britain, and none at all equal to those which adorn the cabinet of the British collector.

## NECROPHAGA.

The Carrion, or Burying Beetles so abundant in most other countries, do not appear to have been equally partial to New Zealand. I possess two species of *Histeridæ*, one of them closely resembling those which occur in the South Island, neither of them have been described as yet, so far as I am aware. I have taken two other Carrion-feeders (besides *Staphylinus oculatus*), which I believe will exhaust the list, so far as really indigenous insects of the class is concerned. The small blue and red insect, found in considerable numbers amongst bones and decaying animal matter, is an importation from abroad named *Necrobia rufipes*.

## LAMELLICORNES.

Of the *Melolonthidæ*, the most familiar to us is the brilliant green *Pyronota festiva*, abundant for the greater portion of the year on *Leptospermum*, and unfortunately on such of our orchard trees as bear stone fruit; being exclusively vegetable feeders, they are exceedingly injurious to the trees we so desire to preserve. This insect varies in colour; I have taken several varieties, though all have a bright metallic hue. I have occasionally captured an insect, resembling *Pyronota festiva*, but four times larger which I imagine to be *Stethaspis suturalis*, most probably the finest specimen of the group we shall find. It is more common at Wellington than Auckland. *Odontria striata*, a rather handsome beetle, as well as two species belonging to *Rhysotrogus*, I have, now and then, found in the morning entangled in spiders' webs, but, not under other circumstances, and am therefore

inclined to believe they are of nocturnal habit, but it is just possible that the experience of other collectors may prove my conjecture to be erroneous. A species I possess from Canterbury, belonging to *Rhysotrogus*, I have not succeeded in finding as yet.

Of *Lucanida*, I cut one fine specimen out of a partially decayed Kowhai tree, near Stokes' Point, and subsequently two others out of rotten branches of a tree I could not identify, in a clearing on the East Coast. I suspect these are specimens of *Dendroblax earlianus*, but hesitate asserting this with confidence. I also obtained two other species out of Tupakihi, one of which has antennæ of unusual development, *Coriaria sarmentosa* seems to be the habitat of these two species, as I have frequently found them embedded in its decayed wood, in different localities, but never anywhere else, and am inclined to think that both species are new to science. I also possess a couple of specimens of *Lissotes reticulatus*, and of another species (*Cerstognathus helotoides*), which terminates the catalogue of the endemic *Lucanida* of New Zealand, so far as I am acquainted with them. *Dynastida* furnish my cabinet with three species—*Pericoptus truncatus*, *P. punctatus*, and one smaller insect unnamed—the two former are identical as to species with others from Canterbury, but are somewhat larger; the third which was given to me by Mr. Wakefield, of Christchurch, I have never found in this Province. I saw one specimen of *Pericoptus* on the wing in January last, and was greatly annoyed at being unable to capture it, owing to a severe cut on one of my feet; the larvæ I have occasionally found buried in sand on the beach under kelp and logs. Of the habits of these insects, respecting which so little is known, I can only surmise that they live principally in burrows deep in the sea shore, and only appear above it by night. When overtaken by gales of wind, being bulky, heavy insects, they succumb, and thus are found in numbers strewed along the beach, dead, and generally mutilated.

The fact of their being seen by different observers under precisely similar circumstances, I can account for in no other way, and venture to assert my belief that further investigation will bear out my view of the case; however, I intend to pursue a systematic course, in order to ascertain, if possible, something more definite regarding their peculiar habits.

#### STERNOXI.

This section exhibits thirty-eight species in my collection, only two of which are identical with others which occur in Canterbury, whilst there are three others from that Province which I have never seen in Auckland.

These insects vary in size from one line to an inch, the largest, *Elater zealandicus*, I cut out of a decayed Kowhai tree. I collected nineteen species in the vicinity of Auckland in the course of some three years, and as I

have a penchant for these insects, I searched for them assiduously, and at last came to the conclusion, that very few others would be found. In December last, having removed to another locality, I selected one side of a wooded ravine as the scene of future operations, and with considerable labour having rendered it passable, I spent the greater portion of seventeen days in collecting there, with a result that indicates my having formed an erroneous estimate of the productiveness of this class. Unfortunately a severe cut on the ankle, with a tomahawk, on the 29th December; whilst out collecting, forced me to abandon my researches for the rest of the season. These few days' work, however, furnished me with examples of sixteen species quite new to me, which must seem to be an extraordinary number, when taken in connection with what has been previously stated; and in addition, many individuals of another very handsome species of which I only obtained two specimens at Auckland (one at Cabbage Tree Swamp, and the second in the Domain, nearly two years afterwards, on a Ngaio tree.) I have two other species in the box referred to in connection with Dr. Sharp. Not only were the species more numerous in the locality alluded to, but the insects are far finer examples of the class than I have seen elsewhere. I can hardly form an estimate of the number likely to be produced by the South Island, or even of this Province alone, but it must be obvious, that more careful investigation will add considerably to those already obtained, and we shall find that we possess, at least, one group of insects excelling those of Britain, in beauty, and exceeding them in number.

#### MALACODERMI.

Owing to a considerable portion of my collection being in England or *en route* from thence, I am unable to give as good an account of the species which occur here, as I might otherwise have done. One, or rather, two species of *Tanychilus*, are very handsome insects. Another species which I captured quite recently, is one of the most beautiful of the New Zealand beetles; it is about four lines in length, of a fine metallic-purple colour, with four bright yellow marks on the elytra. The largest species with which I am acquainted is *Nacertes lineata*, a very different insect from those I have been describing.

#### HETEROMERA.

This section comprises a numerous variety of species, some of which are represented by innumerable individuals. As an instance of this, I may mention that, on one occasion I saw on the floor of a cellar, when removing some rubbish, some thousands congregated within the space of a few feet.

The collector is often provoked at finding the most insignificant beetles

so numerous, whilst he may often search in vain for more than one or two of the more valuable kinds. This is to be regretted, as, unless several of a kind are placed at the disposal of the more skilled European entomologists, they are unwilling to undertake the task of describing them. I have taken one specimen of a species at Auckland, which I have never met with elsewhere, and another at the Island of Motuihi; the first is a beautiful beetle. Of another species, seven lines long, somewhat cylindrical, and of a dull black colour, I have secured about a dozen specimens. Of *Cilibe* I have two species, generally found under stones and logs, whilst Canterbury affords three at least for observation, one of them being much larger than any which occur here. *Prioscelidæ* may be found in rotten wood throughout the Province; but I only know of two species; the finest is *Prioscelida tenebrionides*, which varies in colour from black to red.

I have lately captured four specimens of an insect belonging to this class, which is the most handsome I have met with; it is of a bright black colour with innumerable silvery lines in irregular patches all over its body.

Of *Mordella* I have taken six species; the most conspicuous being *Mordella antarctica*; the smallest, but most abundant, species may be found on the blossoms of Ti-tree scrub in swampy places. These are troublesome beetles to capture, but more so to mount.

I must now notice *Chærodes trachyscelides* (group *Diaperidæ*), which is found in considerable numbers on the sea-beach, amongst kelp, when embedded in the sand. When I first met with this insect, I at once thought I had discovered a new species belonging to *Pericoptus*, and went to some trouble in order to ascertain its habits, which might afford a clue to the discovery of those of *Pericoptus*. *Chærodes* burrows into the sand the moment it is disturbed by the collector. It varies in colour, from pale white to brown but I believe the difference in colour will not affect the number of species. On a subsequent occasion I discovered a nearly allied species, much smaller in size, and far less common than that already adverted to, specimens of which have been transmitted to London. *Chærodes trachyscelides* may also be found on the western shore of the Province; but I am not aware of its occurrence further South.

#### RHYNCOPHORA.

The *Curculionidæ*, embracing seventeen families in Britain, affords a large number of indigenous species for observation, many of them being very curious insects. The largest specimen I have taken was found near the summit of Mount Eden, amongst loose scorix, where I did not expect to find it. Two individuals of a rather smaller but finer beetle, I cut out of a tree at Stokes' Point; but I have never met with others of the same kinds. Both of these comparatively bulky beetles, however, are vastly in-

ferior to *Rhyncodes ursus* and *R. saundersi*, which belong to the Province of Canterbury; the former may justly claim pre-eminence as the typical specimen of the group. I possess a good many species of *Stephanorhynchus*, which are chiefly remarkable for their thickened thighs.

Of *Scolopterus* I have taken six species of a black or bronze colour, the smallest and most common is named *Scolopterus penicillatus*, and one of a dark red, found only on the native fuschia. *Psepholax* may generally be found in the decayed wood of Ngaio, Manuka, Kowhai.

Our present defective knowledge of this extensive class renders any detailed account impossible. In illustration of its extent I may mention that, besides the number I have sent home to be named, I have still remaining in one small bottle upwards of two thousand specimens, varying in size from the third of an inch to half a line.

The inexperienced collector will often fail to recognize many of the members of this group, owing to their resemblance to pieces of wood, bark, etc, and their habit of remaining motionless when disturbed.

I have often noticed numbers of Elm and other trees in our neighbourhood presenting a decayed or blighted appearance, generally attributed to atmospheric influences, but were the owners of such sickly-looking plants to remove portions of the wood adjacent to the decaying twigs, they would probably find that the larvæ of insects belonging to this group did the damage.

Mr. Wakefield, in his treatise of 4th September, 1872, which appears in the "Transactions of the New Zealand Institute," refers to a species of *Brentidæ* (*Lasiorrhynchus barbicornis*), which I never met with until T. F. Cheeseman, Esq., F.L.S., showed me one which he discovered near a decayed stump at the Thames. That beetle is by far the largest I have yet seen, its rostrum alone is equal to the entire length of *Prionoplus reticulatis*, hitherto considered the largest of our *Coleoptera*.

#### LONGICORNES.

The most conspicuous members of this class with which I am acquainted are *Prionoplus reticularis*, *Æmona hirta*, *Navomorpha lineata*, and *Hexathrica pulverulenta*; the three latter being handsome beetles. Another remarkably fine species, dark blue with yellow stripes of about an inch long, occurs in the vicinity of Remuera. A single specimen of another species, which I captured on a fence at Whitiangi, is nearly as long as *Prionoplus*, but more cylindrical in form; its prevailing colours being blue and yellow; and more recently I discovered another new *Longicorn*, which equals, if not excels, those already alluded to in beauty, though rather less bulky. Another *Longicorn* (*Tetrorea cilipes*) is common on Motuihi and along the East Coast. There is a curious *Longicorn*, which I suppose to be *Calliprason sin-*

*clari*, found at Tairua, of a green colour above, but with silvery pubescence underneath. The smallest insect of the kind I know, occurs amongst vegetable rubbish in the Domain; but, though small, it is a pretty beetle.

The members of the *Rylotolea* abound in most parts of the Province, may be found on almost all the native shrubs, but seem partial to such as are covered with climbers.

This group comprises a great many species, very various as to size and colour, but few exceed seven lines in length, and although they are rarely remarkable for beauty, they exhibit as fine average examples as any other family of indigenous *Coleoptera*. *Rylotoles griseus* may be accepted as a rather inferior specimen; but it is perhaps the one most generally known. I have only seen one or two specimens from the South Island, but must not, therefore, infer that it is deficient in species there; on the contrary, I am inclined to think that this group is well represented throughout the whole of these islands. I have sent home about three hundred to be identified.

#### EUPODA.

Although I have found the members composing this section exceedingly numerous, I am unable to give much information respecting them, owing to the reprehensible practice which obtains, with me as well as others, of devoting special attention to the finer or more remarkable families, to the almost entire neglect of such as have no claims to beauty.

They are most abundant on Ti-tree blossoms, but may be found on most of our native shrubs. All the species are small, and generally rather sombre, varying in colour from black to red and brown. I have sent about a thousand to England to be named; but none have been returned to me as yet. I suspect the number of genera and species will prove to be small, when compared with the number of individuals. They are difficult to set out, a fact which may have something to do with the neglect we have displayed towards them.

#### PSEUDOTRIMERA.

This is the last class to be noticed. *Coccinella tasmanii* is the most common representative species, and may be readily identified by its colour, which is a bright black, ornamented with sixteen yellow spots. Another species, besides four yellow or rather orange marks on the elytra, has a broad orange band around the margins. The other species are insignificant as to size, but have more claim to beauty. One single specimen, which I found at Whitianga, is of a yellow colour with dark spots, somewhat resembling the British *Coccinella 22-punctata*. I am unable to state whether *Chilomenes hamata*, *C. maculata*, and *Epilachna reticulata* occur in this Province, as I have no descriptions of them. The beetle which must be considered the type of the class is one which I discovered at Tairua. It is

one-third of an inch in length, of a reddish colour, relieved by bright narrow stripes. I have sent some home to be named, together with a considerable number of the smaller species, and hope to be permitted on some future occasion to furnish more reliable information respecting them, if not anticipated by other gentlemen more competent to deal with the subject; but, as the principal aim in writing this paper has been to induce gentlemen more conversant with this branch of natural science to contribute to our knowledge, it is most probable that I will not find it necessary to trouble the members of the Institute with further remarks.

I now deposit in the Museum specimens of the undermentioned beetles:—

No. 1, <i>Cicindella tuberculata</i>	No. 19, <i>Elater olivascens</i>
2, ,, <i>latecincta</i>	20, ,, <i>lineicollis</i>
3, ,, <i>wakefieldi</i>	21, <i>Nacerrdes lineatus</i>
4, ,, <i>feredayi</i>	22, <i>Tanychilus metallicus</i>
5, <i>Feronia antarctica</i>	23, <i>Stephanorhynchus</i> , n. sp.
6, ,, n. sp.	24, <i>Scolopterus bidens</i>
7, <i>Colymbetes rufimanus</i>	25, ,, <i>pencillatus</i>
8, <i>Staphylinus oculatus</i>	26, <i>Navomorpha lineataum</i>
9, <i>Histeridæ</i> (species ?)	27, ,, <i>acutipennis</i>
10, <i>Necrobia rufipes</i>	28, <i>Tetroreo cilipes</i>
11, <i>Lissotes reticulatus</i>	29, <i>Calliprason sinclairi</i>
12, <i>Cerathognathus helotoides</i>	30, <i>Hexatricha pulverulenta</i>
13, <i>Lucanidæ</i> (species ?)	31, <i>Rylotoles griseus</i>
14, <i>Odontria striata</i>	32, <i>Prioscelida tenebrionides</i>
15, <i>Rhisotrogus zealandicus</i>	33, <i>Cilibe phosphugoides</i>
16, <i>Stethaspis suturalis</i>	34, <i>Chærodes trachyscelides</i>
17, <i>Pyronota festiva</i>	35, <i>Mordella antarctica</i>
18, <i>Elater zealandicus</i>	36, <i>Coccinella tasmanii</i>

ART. XXXIII.—Remarks on the Pselaphidæ (Coleoptera) of New Zealand.

By Captain Brown.

[Read before the Auckland Institute, 16th August, 1875.]

ON referring to Captain Hutton's Catalogue of the New Zealand Insecta, as published in the "Transactions of the New Zealand Institute," under date the 11th November, 1873, it will be observed that no mention is made of this group of the *Pseudotrimeræ*, most probably because of its having been unknown to our entomologists at the time.

As the omission of an entire group of Beetles from our only available list, seems to me a matter of importance, I will endeavour to remedy the