XXXIII.—*On the Geodephagous Coleoptera of New Zealand.*

By H. W. Bates, F.L.S.

It has been stated that the insect-fauna of New Zealand is extremely poor, and that the Coleoptera at least show great affinity with those of north temperate regions. With regard to the former statement, although some weight ought to be attached to the unanimous complaint of collectors of the general scarcity of insects, it is premature to arrive at a definite conclusion so long as the islands have not been thoroughly worked. At present we know scarcely any thing of the productions of the central and western portions of the Northern Island, or of the mountainous districts of the Canterbury Province in the Southern. Although insular and, especially, oceanic faunas are known to be poor, it remains to be seen whether the large area, varied surface, and lofty mountain-ranges of New Zealand have not operated to check the process of extinction without repopulation which has impoverished other insular areas. At present the total number of species of Geodephagous Coleoptera known from the islands is 89; the British Isles have 311, and Japan 244.

The belief that the New-Zealand Coleopterous fauna is related to that of the north temperate zone is certainly ill-founded; but it was excusable so long as describers, without attempting to study the characters of the new species before them, referred them recklessly to familiar northern genera, such as (to cite cases from the present group) *Dromius*, *Cymindis*, *Calathus*, *Lebia*, *Harpalus*, &c., the species so referred having no near affinity whatever to those genera, but belonging to purely Australian or Antarctic forms. Our material, as far as it goes, shows a great specialization of the New-Zealand fauna. Thus, out of the total number of 37 New-Zealand genera of Geodephaga, no fewer than 14 are peculiar to the islands; of the remainder, 8 are Australian and 2 are Chilian: 7 genera only are common to New Zealand and the north temperate zone; and these are genera of universal distribution. There remain 6 genera, described as *Argutor*, *Feronia*, &c., which I have not yet seen, and therefore class as doubtful.

Many of the species described or enumerated in the following paper have been communicated by Messrs. Wakefield and Fereday, of Christchurch, and Mr. Lawson, of Auckland; and it is at the desire of these gentlemen and other local naturalists, who are labouring to gather together the scattered materials of the New-Zealand fauna, that I have undertaken this task.

Coleoptera Geodephaga.

Family Cicindelidæ.

Cicindela tuberculata, Fab. Syst. Entom. p. 225.

Northern and Southern Islands. Auckland; Christchurch.

Cicindela latecincta, White, Voy. Ereb. & Terr., Ins. p. 1, t. i. f. 1.

Southern Island. Canterbury.

This form is generally considered a variety of *C. tuberculata*. The differences, however, are considerable; for besides the width of the lateral white stripe, which reaches throughout the lateral rim of the elytra, it is a broader insect, with the elytral surface more uniform in colour and, particularly, the rows of punctures much less marked and with smaller green spots. It must rest with local entomologists to decide, by observing the forms *in situ*, whether they are distinct or not.

Cicindela Wakefieldi, n. sp.

C. tuberculatæ similis, at multo minor et angustior; fascia alba mediana elytrorum postice oblique prolongata. Long. 4 lin. ♂ ♀.

Very similar to *C. tuberculata* in sculpture, colours, and markings, but certainly distinct. It is always much smaller and narrower; and although the lateral white stripe of the elytra is very similar in form and direction, the median fascia is prolonged as a curved streak some distance down the disk of the elytron. There is also a structural difference in the apex of the elytra, which may better be expressed by a tabular formula:—

Cicindela tuberculata.	*Cicindela Wakefieldi.*
Elytrorum apicibus	Elytrorum apicibus
♂ conjunctim prolongatis, sutura longe spinosa,	♂ conjunctim late rotundatis, sutura breviter spinosa,
♀ conjunctim rotundatis, sutura acute spinosa.	♀ singulatim abrupte rotundatis (vel ad suturam fortiter conjunctim emarginatis), sutura breviter spinosa.

Very local, near Christchurch. Sent in some numbers by C. M. Wakefield, Esq., but first discovered by Mr. Fereday, of Christchurch.

Cicindela Douei, Chenu; Guér. Mag. de Zool. 1840, pl. xlv.

The figure represents an elongate species evidently of the *tuberculata* group, a little shorter than *C. tuberculata* (11 millims. = 5 lines). It is distinguished at once by the apical

white lunule of the elytra being represented by a subapical spot.

The locality "New Zealand" given to this species rests on the assurance of a dealer, who was told by the surgeon of a whaling-ship that it was taken there. I have seen no specimen of it.

Cicindela Parryi, White, Voy. Ereb. & Terr., Ins. p. 1, t. i. f. 2.

Port Nicholson; Christchurch.

Cicindela dunedensis, Castelnau, Trans. R. Soc. Victoria, pt. 1, vol. viii. p. 35.

Dunedin.

The author compares it to *C. Parryi*, from which it differs by being narrower. It is "light brown, the elytra covered with spots of a green copper-colour." In this respect it differs much from *C. Wakefieldi*.

Cicindela Feredayi, Bates, Entom. Monthly Mag. vol. iv. p. 53 (1867).

Mr. Wakefield has recently met with this species in numbers on the sandy bed of the Rakaia near Christchurch. It is distinct from all the members of the *tuberculata* group, in its finely granulated elytra without traces of green foveoles.

Family **Carabidæ**.

Section A. *Mesothoracic epimera reaching the middle coxæ.*

Subfamily *Migadopinæ*.

Amarotypus Edwardsii, Bates, Entom. Monthly Mag. vol. ix. p. 51 (1872).

I have only seen of this curious insect the specimens sent me by Mr. H. Edwards, who took it in New Zealand *.

Subfamily *Scaritinæ*.

Clivina rugithorax, Putzeys, Stett. Zeit. 1866, p. 37.

A large species (nearly 5 lines), closely allied to a common Australian species, *C. australasiæ*, Boh. I have not yet seen it.

* *Heterodactylus nebrioides*, Guér. (*Pristancylus castaneus*, Blanch.), from the Auckland Islands, is another member of this very interesting antarctic group of Carabidæ. *Pristancylus brevis*, Blanch., from the same locality, is doubtful.

Section B. *Mesothoracic epimera not reaching the middle coxæ.*

Subfamily *Broscinæ*.

Mecodema sculpturatum, Blanchard, Voy. au Pôle Sud, Zool. vol. iv. p. 34, t. ii. f. 14.

Mecodema Howittii, Casteln. Trans. R. Soc. Victoria, pt. ii. vol. viii. p. 159 (=*rectolineatum*, Putz. Stett. Zeit. 1868, p. 317).

Mecodema rectolineatum, Casteln. *l. c.* p. 160; Putz. Annali del Mus. Civ. di Genova, vol. iv. p. 4.

Mecodema impressum, Casteln. *l. c.* p. 161; Putz. *l. c.* p. 4.

Mecodema lucidum, Casteln. *l. c.* p. 160; Putz. *l. c.* p. 5.
"Dunedin."

Mecodema crenicolle, Casteln. *l. c.* p. 160; Putz. *l. c.* p. 6.
"Auckland."

Mecodema simplex, Casteln. *l. c.* p. 160; Putz. *l. c.* p. 7.
"Auckland."

Mecodema alternans, Casteln. *l. c.* p. 161.

Mecodema crenaticolle, Redtenbacher, Reise d. Novara, Coleopt. p. 11.

I have not yet seen any species of *Mecodema* from the neighbourhood of Christchurch.

Metaglymma tibiale.
Maoria tibialis, Casteln. *l. c.* p. 163.
"Molyneux River; in the mountains."

Metaglymma monilifer, Bates, Entom. Monthly Mag. vol. iv. p. 79 (1867).
Near Christchurch. Discovered by Mr. Fereday.

Metaglymma punctatum, Putz. *l. c.* p. 8.
Maoria punctata, Casteln. *l. c.* p. 164.
"Dunedin; in the mountains."

Metaglymma morio, Putz. *l. c.* p. 9.
Maoria morio, Casteln. *l. c.* p. 164.
Otago.

Metaglymma elongatum, Putz. *l. c.* p. 9.
Mecodema elongatum, Casteln. *l. c.* p. 162.

Metaglymma aberrans, Putz. Stett. Zeit. 1868, p. 320.

Metaglymma clivinoïdes.

Maoria clivinoïdes, Casteln. *l. c.* p. 164.

"Wellington."

Metaglymma dyschirioïdes.

Maoria dyschirioïdes, Casteln. *l. c.* p. 164.

"Crooked River."

Oregus æreus.

Promecoderus æreus, White, Voy. Ereb. & Terr., Ins. p. 5, t. i. f. 8.
Oregus æreus, Putz. Stett. Zeit. 1868, p. 327.

Port Nicholson (*White*).

Oregus inæqualis.

Mecodema inæqualis, Casteln. *l. c.* p. 162.

"Dunedin."

Brullea antarctica, Casteln. *l. c.* p. 166.

"Auckland."

Obs. Percosoma carenoïdes (*Broscus*), White, Voy. Ereb. & Terr. p. 4 (Tasmania), and *Promecoderus Lottini*, Brullé, Hist. Nat. Ins. iv. p. 450 (Swan River), have been erroneously given as New-Zealand insects.

Subfamily *Licininæ*.

Rembus zeelandicus, Redtenb. Reise Novara, Coleop. p. 10, t. i. f. 5.

"Auckland."

A large species (9½ lines), of which I have seen no specimens from New Zealand. The description and figure agree pretty well with a Chinese species; and there may be an error in the locality.

Dicrochile subopaca, n. sp.

D. oblongo-ovata, subdepressa, nigra, palpis et tarsis rufo-piceis; elytris alutaceis, subopacis; capite parvo; thorace quadrato, postice modice angustato. Long. 4¼–5 lin.

Shorter in form than the common Australian *D. Goryi*, and the elytra more ovate; distinguished also by the alutaceous and subopaque surface of the elytra. The head is relatively small, as in *D. Goryi*. The thorax is quadrate, moderately narrowed behind, with explanated and reflexed margins; the hind angles obtuse and rounded at the tip, the middle of the

base broadly sinuated. The elytra are elliptical-ovate, obliquely and strongly sinuate near the tip, with the suture produced; the lateral margins are somewhat explanated and reflexed, the striæ sharply impressed, the interstices scarcely convex.

Apparently abundant near Christchurch.

Dicrochile aterrima, n. sp.

D. oblonga, nigra, nitida; capite majore; thorace breviore, transverso, quadrato, postice paulo angustato, angulis posticis obtusis, apice rotundatis, margine vix reflexo; elytris oblongis, nitidis, fortiter punctulato-striatis, interstitiis alternis magis elevatis. Long. 5 lin.

Same size as *D. subopaca*, but distinguished at once by its deeper black colour and shining surface, by its larger head (owing chiefly to the much more prominent eyes), and much shorter, more transverse thorax. The palpi and tarsi are also shining black. The elytra are much less sinuate truncate, and the sutural apex less produced; the striæ are punctulate, and the interstices more convex, especially the third, fifth, and seventh.

Taken by Mr. C. M. Wakefield in some numbers at Lake Coleridge, under stones in a dry lagoon.

Dicrochile ovicollis, Motschulsky, Bull. Mosc. 1864, iv. p. 316.

By its elytra "paulo opacis," this may possibly be our *D. subopaca*; but the description of the thorax cannot possibly be intended for that species ("capite fere duplo latiore, ovali"). There is not the faintest approach to the oval form in the thorax of *D. subopaca*.

Obs. Dicrochile Fabrei and *D. anchomenoïdes*, cited by authors as described by Guérin (Ann. Soc. Ent. Fr. 1846, Bull. p. 103), must be erased from the list of this genus, as the species are merely named in the place quoted, not described.

Subfamily *Anchomeninæ*.

Calathus zeelandicus, Redtenb. Reise Novara, Col. p. 17.

Auckland.

It is doubtful if this belongs really to the genus *Calathus*. *C. rubromarginatus*, Blanch., from the Auckland Islands, is decidedly not a *Calathus*, having, according to Chaudoir, four joints of the male anterior tarsi dilated and brush-like beneath.

Platynus deplanatus.

Anchomenus deplanatus, White, Voy. Erebus and Terror, p. 3 (1846).
A. atratus, Blanch. Voy. Pôle Sud, Zool. iv. p. 21, t. 1. f. 15 (1853).

Blanchard's description is so vague that it is difficult to determine to which of the New-Zealand species of the same size (12 to 14 millims.) it applies. Judging from the figure and the expressions "ater, obscurus" and "Elytres obscures, planes," I refer to it a slender, subopaque species existing in some of the London collections, and remarkable for the very sharp furrows and ridges of all the tarsi, and for the uneven slightly rugose thorax, which is subcordate in form, but with produced and rather acute hind angles. The head and eyes are very similar in form to those of *P. scrobiculatus* of Europe. White's description of *A. deplanatus* agrees pretty well with the same insect; and I have little hesitation in adopting the name, although I have not seen his type.

Platynus Colensonis.

Anchomenus Colensonis, White, *l. c.* p. 3.

The type in the British Museum is a slender insect, with very elongate thorax, sinuate-angustate behind, and with produced hind angles; the antennæ, palpi, and legs testaceous yellow.

The size is $5\frac{3}{4}$ lines; but I refer to the same species two specimens collected by Mr. Henry Edwards, $4\frac{3}{4}$ and 5 lines in length respectively.

Platynus Edwardsii, n. sp.

P. elongatus, modice convexus, niger nitidus, palpis, antennis (articulis 1.–3. exceptis) et tarsis rufo-piceis; capite ovato, pone oculos subconstricto, supra lævi; thorace angusto, quadrato-cordato, post medium fortiter sinuato, angulis posticis productis, acutis; elytris elongato-ovatis, apice fortiter sinuatis, convexis, profunde subpunctulato-striatis, interstitio tertio tripunctato. Long 5–$5\frac{1}{2}$ lin. ♂ ♀.

Allied to *P. Colensonis*, especially in the form of the thorax, with produced acute hind angles, but legs constantly pitchy black; palpi and antennæ dull pitchy red, with the greater part of the three basal joints of the latter black. The thorax, as in *P. deplanatus* and *P. Colensonis*, has a deep central groove, and on each side a curved, shallow, impressed line proceeding from the basal fovea and nearly reaching the anterior angles. The lateral explanated margin is narrow and reflexed. All the tarsi (except the dilated joints of the male) are sharply ridged and grooved, as in *P. deplanatus*.

Anchomenus elevatus, White, *l. c.* p. 3.

A large, shining black species (6½ lines), with large ovate thorax, much larger in proportion to the elytra than in any other described species. The hind angles of the thorax are very obtuse, almost rounded; and the lateral margins are widely explanated and strongly reflexed, of the same width from the anterior to the posterior angle. The elytra are ovate, rather rounded at the shoulders, and strongly sinuate near the apex. The tarsi are grooved only on the sides.

Auckland. Sent in some numbers by Mr. Lawson.

Anchomenus Feredayi, n. sp.

A. oblongus, subgracilis, nigro-æneus nitidus, thoracis margine laterali, elytrorum margine deflexo, tibiis tarsisque obscure piceo-rufis; thorace transversim quadrato, angulis posticis distinctis sed obtusis; elytris striatis, interstitiis planis, tertio tripunctato. Long. 3½ lin. ♂ ♀.

A small "*Agonum*," having much resemblance to the British *A. micans*, but distinguished, among other characters, by the shorter thorax, scarcely more narrowed behind than in front, with distinct hind angles and pitchy and explanated lateral margins; the anterior angles are rather rounded, not prominent as in *A. tristis*, Dej. The eyes are much more prominent than in *A. micans*, and the palpi shorter and more robust. The frontal foveolæ are deep and well defined. The elytra are very obliquely and rather strongly sinuate at the apex, with the suture strongly produced; the striæ are sharp and fine, equally impressed from base to apex, and finely punctulate or crenulated; the interstices quite plane, with three large punctures on the third; the deflexed margins and extreme edge of the lateral rims rufo-piceous. The antennæ are robust from the fourth joint, black, with rufous bases to the joints. The palpi and femora shining black; the trochanters reddish testaceous; the tibiæ and tarsi pitchy red. The tarsi are finely grooved on the sides only.

Christchurch. Sent first by Mr. Fereday, and afterwards by Mr. C. M. Wakefield.

Anchomenus Lawsoni, n. sp.

A. oblongus, gracilis, nigro-piceus æneo-tinctus, nitidus; partibus oris, antennis, pedibus (femoribus exceptis), thoracis elytrorumque marginibus lateralibus piceo-rufis; capite convexo; thorace paulo transverso, subquadrato, lateribus rotundatis, postice plus quam antice angustato, angulis posticis obtusis sed distinctis;

elytris fortiter striatis, interstitiis subconvexis, tertio tripunctato. Long 4 lin. ♂ ♀.

Longer and proportionally narrower than *A. Feredayi*. Thorax conspicuously longer, the posterior narrowing more gradual, and slightly incurved before the hind angle; striæ of the elytra deeper, and interstices more convex. The antennæ, parts of the mouth, and legs also differ in being wholly dull rufous, except the femora, which are blackish. The anterior angles of the thorax are not at all advanced and are rounded off.

Auckland. Collected by Mr. Lawson.

Anchomenus submetallicus.

Colpodes submetallicus, White, *l. c.* p. 2.

According to the type in the British Museum, this is a species closely allied to the common Australian *A. marginellus* (Erichson); it differs in being less shining, and in the much shorter thorax, the sides of which narrow much more abruptly to the front angles. It is common and generally distributed in New Zealand; and I have compared a long series with an equal number of the Australian species.

The species has none of the distinguishing characters of *Colpodes*; the fourth joint of the tarsi, however, is rather more distinctly triangular and emarginate than is usual in *Anchomenus*. It is closely allied to our *A. Feredayi*, but is much larger, more brassy, and with clearer yellow margins to the thorax and elytra, besides having yellow legs.

Tropopterus sulcicollis, n. sp.

T. ellipticus, niger, nitidus; antennis, palpis et pedibus piceo-rufis; capite spatio inter sulcos laterales haud carinato; thorace quadrato, vix transverso, medio rotundato, antice plus quam postice angustato, angulis posticis productis rectis, basi utrinque fovea sulciformi; elytris convexis, striato-punctatis. Long. $3\frac{1}{4}$ lin. ♀.

Resembles the genus *Oöpterus*, but distinguished by the pubescence of the antennæ not beginning before the fourth joint, and by the labial palpi having their terminal joint obtuse-ovate, instead of acuminate. Agrees in all essential points with the Chilian genus *Tropopterus*; allied to *Colpodes*, in which the forehead has on each side two grooves with a carinate interval between them. The eighth and ninth striæ of the elytra are sunk in a broad groove near the apex; and the seventh at that part is bordered by a sharp carina. The sixth and seventh striæ are nearly obsolete.

One example, female, sent by Mr. Fereday from Christchurch.

Tropopterus seriatoporus, n. sp.

T. ovatus, elytris gibbosis; castaneo-rufus, nitidus; thorace basi grosse punctato; elytris grosse seriatim punctatis. Long. $2\frac{1}{3}$ lin. ♀.

The labial palpi are obtuse; the maxillaries taper to a point almost as in *Oöpterus*. The posterior narrowing of the thorax is strongly sinuated and the hind angles produced; the whole base is very coarsely punctured; the dorsal line and long basal foveæ are deeply impressed. The sutural rows of punctures are impressed in striæ, the rest are superficial; the form of the lateral striæ is as in *T. sulcicollis*.

Mr. H. Edwards; one example.

Cyclothorax insularis.

Olisthopus insularis, Motschulsky, Bull. Mosc. 1864, iv. p. 325.
Drimostoma striatopunctata, Casteln. *l. c.* p. 199 (?).

Differs scarcely from the common Australian *Anchomenus ambiguus*, Erichs. (*Cyclothorax* id., W. M'Leay), the only difference observable being its more æneous colouring.

Auckland and Canterbury.

Drimostoma antarctica, Casteln. *l. c.* p. 199.

M. de Chaudoir suspects this to be an *Abacetus*. I have seen at present no species of either genus from New Zealand.

Subfamily *Pterostichinæ*.

Prosopogmus impressifrons, Chaudoir, Bull. Mosc. 1865, p. 28 (separata).

A large species, about 8 lines long, which I have not seen. It is similar in form to *Pt.* (*Trichosternus*) *australasiæ*, but much flatter and of a brilliant brassy coppery hue, with flattened tarsi, having their upper surface finely reticulated.

Trichosternus antarcticus, Chaudoir, Bull. Mosc. 1865, iii. p. 73.

Megadromus viridilimbatus, Motsch. Bull. Mosc. 1865, iv. p. 251.

This fine insect was sent home in some numbers, from Christchurch, by Mr. Fereday. The colour is not always cupreous, but some specimens are black, with the green margins occasionally scarcely perceptible. It may always be distinguished from the obscure-coloured *T. rectangulus* by its larger and broader shape, more protuberant cheeks behind the eyes, and by the thorax being more dilated in front.

Trichosternus rectangulus, Chaud. Bull. Mosc. 1865, iii. p. 74.

Christchurch. Sent both by Mr. Fereday and Mr. Wakefield.

Trichosternus capito, White, *l. c.* p. 4.

Closely allied to *T. rectangulus*; but I have seen no specimens from Christchurch exactly resembling White's types in the British Museum.

Trichosternus Guerinii, Chaud. Bull. Mosc. 1865, iii. p. 75.

Platysma australasiæ, Guér. Rev. Zool. 1841, p. 121.

Northern Island?

Trichosternus planiusculus, White, *l. c.* p. 3, t. 1. f. 7.

Northern Island.

Holcaspis angustula, Chaud. Bull. Mosc. 1865, iii. p. 99.

Omaseus elongatus, Blanch. Voy. Pôle Sud, Zool. iv. p. 28, t. 2. f. 4 (specific name preoccupied).

Christchurch. One example sent by Mr. Fereday. Found also at Akaroa.

Holcaspis sylvatica, Chaud. *l. c.* p. 100.

Omaseus sylvaticus, Blanch. *l. c.* p. 29, t. 2. f. 5.

Akaroa. I have three examples from Mr. Henry Edwards, but do not know their exact locality.

Holcaspis subœnea.

Platysma subœnea, Guérin, Rev. Zool. 1841, p. 122.
Feronia (*Pterostichus*) *vagepunctata*, White, *l. c.* p. 4.

Port Nicholson; also Christchurch.

I obtained an example from M. Doué's collection named *Platysma subœnea*, which is evidently authentic, agreeing with the author's description and the types of *vagepunctata* of White.

Holcaspis œdicnema, n. sp.

H. subœneæ proxime affinis, sed maris femoribus posticis subtus medio valde dilatatis et dentatis. Subæneo-nigra, nitida; thorace magno, quadrato, postice perparum angustato, ante basin vix sinuato, angulis posticis paulo productis; elytris brevibus profunde striatis, striis punctatis et passim (præcipue postice) subinterruptis. Long. 8 lin. ♂.

Much resembling *H. subœnea*; but the elytra are much

shorter and the thorax rather longer than in that species. The thorax is very nearly as long as broad, and is somewhat regularly and slightly rounded on the sides, the greatest width being in the middle; behind it is very much less sinuate, and the hind angles are less produced than in *subœnea*; the basal fovea also is larger, and offers on its outer slope a distinct second smaller fovea; but some trace of this is visible in well-developed examples of *subœnea*. The hind legs are remarkably short, and the femora are widely dilated beneath, forming a tooth, between which and the base is lodged the elongated trochanter.

One example; in my own collection. Exact locality unknown.

Holcaspis elongella, White, *l. c.* p. 4.

Christchurch. Several examples from Mr. Fereday.

Holcaspis ovatella, Chaud. Bull. Mosc. 1865, iii. p. 103.

Distinguished by its three punctures on the third interstice of the elytra; otherwise similar to *H. elongella*.

The precise locality of this distinct species (9 lines long) is not known. I have one example obtained from a New-Zealand collection, probably from the Southern Island.

The genus *Holcaspis* resembles in general form the parallel species of *Pterostichus*, having, like them, very short metathoracic episterna and the marginal stria of the elytra duplicated towards the apex. It is distinguished by the base of the scutellum being scored by a number of short fine lines; this character, however, is seen in some European species of the *Feronia* group—*e. g. Haptoderus abaxoides*, Dej., *Tapinopterus cephalotes*, Gaut., and others.

Haptoderus maorinus, n. sp.

H. oblongus, nigro-piceus, ♂ nitidus, ♀ elytris sericeo-subopacis; palpis, pedibus, antennisque plus minusve piceo-rufis; capite foveis frontalibus vix impressis; thorace quadrato, lateribus antice paulo rotundatis, post medium leviter sinuato-angustatis, angulis posticis paulo productis rectis, fovea basali utrinque unica profunda, toto impunctato; elytris postice paulo angustatis, apice haud sinuatis, striis profundis simplicibus, interstitio tertio bipunctato. Long. $3\frac{1}{2}$–$3\frac{3}{4}$ lin. ♂ ♀.

Christchurch (*C. M. Wakefield, Esq.*).

Similar in form to *Holcaspis sylvatica*, but wanting the essential character of the group—the striated base of the scutellum. In all essential characters it agrees with the European

Haptoderi. The palpi have the terminal joints narrowed to the tip and very briefly (the maxillaries in the male not at all) truncated. The head is rather small, and shows scarcely any trace of the usual frontal foveæ; the thorax has on each side of the base a single deep, almost sulciform, fovea, and its whole surface is impunctate. The elytra have a well-developed scutellar striole between the suture and the first stria; the interstices are plane in the subopaque female and a little more convex in the shining male, but in both sexes they become narrow and convex at the apex, and the first stria is continued round the apex to the marginal stria.

Argutor erythropus, Blanch., as far as the very insufficient description goes, agrees with this species; but no mention is made of the two punctures on the third interstice.

Argutor pantomelas, Blanch. Voy. au Pôle Sud, Zool. iv. p. 27, t. ii. f. 6.

8–9 millims. Rather broad, black; elytra nearly plane; palpi clear red; thorax with two lineiform foveæ on each side.

The description almost applies to the *O.* (*Holcaspis*) *sylvaticus* of the same author; and the species probably belongs to *Holcaspis*.

Argutor erythropus, Blanch. *l. c.* p. 27, t. ii. f. 7.

Probably a *Haptoderus*.

Argutor piceus, Blanch. *l. c.* p. 28, t. ii. f. 8.

The head is described as having two large rugose foveæ, and the elytra as ovate.

Feronia (*Platysma*) *vigil*, White, *l. c.* p. 3.

Nothing can be made of the superficial description given.

Feronia (*Platysma*) *politissima*, White, *l. c.* p. 4.

Port Nicholson.

The same remark as above applies to this species.

Molopsida polita, White, *l. c.* p. 6.

Waikouaiti.

I have not succeeded in finding the type of this insufficiently described genus and species in the British Museum.

Alogus monachicus, Motsch. Bull. Mosc. 1865, iv. p. 245.

7½ lines. Similar to *Omaseus* in form, but broader and

without scutellar striole. Metathoracic episterna a little longer than broad. Thorax nearly twice the width of the head, transverse, cordate, base on each side bisulcate; sides arcuated; hind angles prominent, acute. Elytra with one puncture on the third interstice.

I have seen no species agreeing with Motschulsky's description.

Cerabilia maori, Castelnau, *l. c.* p. 202.

Dunedin.

Belongs to the *Feronia* group, according to the author; but the mentum is described as without tooth, and the palpi as pointed. The species is 4½ lines long, brown, and elytra feebly striated.

Rhabdotus reflexus, Chaud. Bull. Mosc. 1865, iii. p. 94.

Notwithstanding the almost invariable accuracy of M. de Chaudoir, I suspect an error in the locality he gives to this species. The specimens I have seen are all from Tasmania.

[To be continued.]

BIBLIOGRAPHICAL NOTICE.

The Naturalist in Nicaragua. By Thomas Belt, F.G.S. London: Murray.

This is another addition to that pleasant class of books of travel the type of which is Darwin's 'Journal of a Naturalist,' and which have acquired increased interest since the appearance of the 'Origin of Species.' Mr. Belt's special line of study appears to be mining geology, his mission in Nicaragua being the management of the gold-mines of Chontales, situated about midway between the Atlantic and Pacific sea-boards; but his observations range over other departments of geology and physical geography, and a taste for natural history, especially its philosophical side, led him to devote much of his leisure time to collecting and observing the plants and animals of the districts he visited. The result is a volume full of original observation and vigorous reasoning. Some of the reasoning, in fact, is likely to be considered too bold; but it displays the working of an original mind, well stored with accurate knowledge, and endeavouring to explain some of the knottiest problems in physical science. As a narrative of travel the book is agreeable reading, without, perhaps, having that fascination which other works of the same class, containing more exciting personal experience and dealing with regions of more intrinsic interest, are found to possess. There are not

Fig. 3. Inferior ventral bristle. × 90 diam.
Fig. 4. Developing bristle of the same form. × 210 diam.
Fig. 5. Dorsal bristle of *Malmgrenia Whiteavesii*. × 700 diam.
Fig. 6. Superior ventral bristle. × 700 diam.
Fig. 7. Inferior ventral bristle in chloride of calcium. × 700 diam.
Fig. 8. One of the longer dorsal bristles of *Eupolynoë occidentalis*. × 350 diam.
Fig. 9. One of the shorter dorsal bristles. × 350 diam.
Fig. 10. Superior ventral bristle of the same species. × 350 diam.
Fig. 11. Tip of another example. × 700 diam.
Fig. 12. Tip of one of the next series. × 350 diam.
Fig. 13. Tip of one of the inferior ventral bristles. × 350 diam.
Fig. 14. Dorsal bristle of *Polynoë gaspéensis*. × 350 diam.
Fig. 15. Tip of another, showing the blunt termination. × 350 diam.

PLATE X.

Fig. 1. Dorsal bristle of *Eupolynoë anticostiensis*. × 210 diam.
Fig. 2. One of the shorter forms. × 210 diam.
Fig. 3. Superior ventral bristle. × 210 diam.
Fig. 4. Inferior ventral bristle. × 210 diam.
Fig. 5. Dorsal bristle of *Nemidia* (?) *canadensis*. × 350 diam.
Fig. 6. Superior ventral bristle. × 350 diam.
Fig. 7. Tip of inferior ventral bristle. × 350 diam.
Fig. 8. One of the same seen from behind. × 350 diam.
Fig. 9. Dorsal bristle of *Nemidia* (?) *Lawrencii*. × 350 diam.
Fig. 10. Superior ventral bristle. × 350 diam.
Fig. 11. One of the lower ventral bristles. × 350 diam.
Fig. 12. Ventral bristle of *Polynoë gaspéensis*. × 350 diam.
Fig. 13. Tip of another, with slightly different characters. × 350 diam.
Fig. 14. Ventral bristle of *Leanira Yhleni* (?). × 350 diam.

XXXV.—*On the Geodephagous Coleoptera of New Zealand.*

By H. W. BATES, F.L.S.

[Concluded from p. 246.]

Family **Carabidæ**.

Subfamily *ANISODACTYLINÆ*.

TRIPLOSARUS, nov. gen.

Corpus breviter oblongum, subdepressum. *Caput* pone oculos haud angustatum. *Mandibulæ* edentatæ, basi latæ, apice angustatæ et curvatæ. *Labrum* medio leviter emarginatum, angulis rotundatis. *Mentum* medio dente forti, acuto; lobis extus valde rotundatis, apice intus acutis; epilobiis haud conspicuis. *Ligula* oblonga, apice libera, recte truncata; paraglossis apice æque truncatis, longitudine et latitudine ligulæ æqualibus. *Thorax* transversim quadratus. *Elytra* apice obtuse rotundata, paulo sinuata; striola

scutellaris longa, inter strias primam et secundam posita. *Tibiæ* setosæ; anticæ extus 5-spinosæ.

♂. *Tarsi* quatuor anteriores articulis secundo ad quartum dilatatis, pedum anteriorum brevissimi, intermediorum longiores cordati; articulo quarto nullomodo lobato; palmis ut in *Anisodactylo* dense breviter setosis, planis; articulo primo triangulari, subtus nudo.

This genus differs from the other *Anisodactylinæ* in the form of its head and mandibles, which resemble those of *Phorticosomus*, *Cratacanthus*, &c.; but the eyes are rather prominent; the suture separating the epistome from the forehead is very sharply impressed, and has a short deep frontal foveole near each end. The paraglossæ are lateral, and not placed behind the ligula, as in other genera of the group.

Triplosarus fulvescens, n. sp.

T. ochraceo-fulvus, subnitidus, capite thoraceque interdum æneo tinctus; thorace antice rotundato, postice modice angustato, angulis posticis obtusis, basi utrinque fovea lata, indistincte punctulata; elytris in utroque sexu sericeis; interstitiis planis, tertio postice unipunctato. Long. 4–4½ lin. ♂ ♀.

Harpalus novæ-zelandiæ, Castelnau, Trans. R. Soc. Vict. pt. ii. vol. viii. p. 194?

Castelnau's description applies to the species as far as it goes, except the size (5 lines). My specimens came from Mr. Henry Edwards (from Auckland?) and Mr. Fereday of Christchurch.

Lecanomerus latimanus, n. sp.

L. ovatus, piceo-fuscus, modice nitidus; partibus oris, antennis, pedibus, elytrorumque marginibus (postice dilatatis) fulvo-testaceis; thorace transversim quadrato, vix postice angustato, angulis posticis rotundatis, supra basi lævi haud foveato; elytris ovatis, convexis.

♂. Tarsi quatuor anteriores articulis secundo et tertio magnis, maxime dilatatis; secundo semicirculari; tertio paulo breviore, haud angustiore; primo breviter triangulari; quarto brevissimo, lato, quam tertio paulo angustiore, nullomodo lobato.

Long. 2½ lin. ♂.

The form of this curious insect is that of an *Oöpterus*, the elytra being ovate (much broader than the thorax) and convex; but the broad patelliform anterior and middle tarsi of the male, with their even, smooth brush-soles, show that it belongs to the Australian genus *Lecanomerus* (Chaud.). It agrees in all other generic characters with *L. insidiosus*; but the second tarsal joint is shorter and more semicircular, and the fourth is much broader. The elytra in the unique specimen are dark pitchy brown with fulvous lateral margins, not very well

defined, but widening much at the apex; there is no puncture on the third interstice, and there is a short scutellar striole between the first and second striæ. The margins of the ventral segments are more or less fulvous.

One example, from New Zealand. Obtained from the late Rev. Hamlet Clark's collection.

Hypharpax antarcticus.

Harpalus antarcticus, Castelnau, *l. c.* p. 193.

Christchurch (*Mr. Fereday*).

Scarcely belongs to *Hypharpax*, the hind tibiæ of the male not being arcuated; in facies and in the long fine bristles on the innerside of the tibiæ, with a row of shorter spines on the outer side, it resembles that genus. Four joints of the four anterior tarsi of the male are dilated, and smooth, brush-like, beneath.

Hypharpax australasiæ.

Harpalus australasiæ, Dej. Sp. Gén. iv. p. 386.

Hypharpax australis.

Harpalus australis, Dej. *l. c.* p. 385.

Both these species are found in New Zealand, according to Redtenbacher.

Although only the female in each case was described by Dejean, I think they belong to the genus *Hypharpax*.

Subfamily *Harpalinæ*.

Euthenarus, nov. gen.

Gen. *Tachycello* similis. *Palpi* robusti, glabri; articulo terminali fusiformi, versus apicem attenuato, apice leviter truncato. *Antennæ* robustæ; articulo undecimo multo longiore, crasso. *Mentum* parvum, emarginatione semicirculari, dente mediano prominulo acuto. *Ligula* cornea, oblonga, apice libera bisetosa; paraglossis ipsa duplo latioribus et multo longioribus, apice late rotundatis.

♂. *Tarsi* quatuor anteriores articulis quatuor valde dilatatis: primo triangulari; secundo ad quartum brevissimis et latissimis; quarto bilobo; omnibus laciniis argenteis longissimis vestitis.

The insects on which this distinct new genus is founded resemble the *Bradycelli* and small *Stenolophi* of the northern hemisphere, but are widely different in the clothing of the four dilated palms of the male. This is unlike either the squamæ arranged in pairs of the true Harpalidæ, or the even brush of short vertical hairs of the *Anisodactylinæ*, but con-

sists of a few very long linear hair-scales set obliquely on the broad palms and forming a broad fringe to the feet. The paraglossæ also differ from those of the *Harpali* in being very broad, not tapering to the apex, but broadly rounded. The frontal foveæ of the head form short striæ curving to the inner margin of the eye. The thorax is quadrate. The elytra are obtuse at the apex, with a strong sinuation; the scutellar striole is rudimentary between the first and second striæ; the third interstice has one puncture. The males have a hairy fovea in the middle of the first ventral segment, like the *Tachycelli*.

Euthenarus brevicollis, n. sp.

E. oblongus, fusco-æneus; elytris subcupreis; antennis basi, palpis apice, genibusque piceo-rufis; thorace postice paululum angustato, angulis posticis obtusis fere rotundatis, fovea utrinque lata sparsim punctulata; elytris acute striatis, interstitiis planis. Long. $2\frac{3}{4}$ lin. ♂ ♀.

Lake Coleridge; under stones in dry lagoon (*C. M. Wakefield, Esq.*).

Immature specimens have testaceous-yellow legs and pale under surface of body; but the dark brassy colour of the head and thorax and cupreous elytra remain in all the numerous individuals sent. The hind angles of the thorax are distinct in some examples and perfectly rounded off in others; the basal foveæ also vary in the amount of punctuation, which is always rather coarse.

Euthenarus puncticollis, n. sp.

E. oblongus, fusco-piceus æneo tinctus vel cupreo-æneus; antennis basi, palpis basi et apice, pedibus (femoribus interdum exceptis) rufo-piceis; thorace longiore, postice subsinuatim paulo angustato, angulis posticis fere rectis, fovea basali grosse punctata; elytris apice fortiter sinuatis, subtruncatis. Long. $2\frac{3}{4}$ lin. ♂ ♀.

Apparently distinct from *E. brevicollis*, although similar in size and coloration. It is decidedly slenderer, with longer thorax, the posterior narrowing of which is slightly incurved and the hind angles more distinct. The general colour is less metallic; and the side rims of the thorax are pale, which is sometimes the case with *E. brevicollis*. A better distinction is the more transverse and stronger sinuation of the apex of the elytra, the edges external to the sinuation being more flattened out; they are finely and sharply striated in the same manner.

Auckland. Several examples from Mr. Lawson and Mr. H. Edwards.

Subfamily *Trechinæ*.

Oöpterus rotundicollis, White, Voy. Ereb. & Terr., Ins. p. 6.
Bay of Islands.

Oöpterus lævicollis, Bates, Entom. Monthly Mag. vol. viii. 1871, p. 14.
New Zealand; precise locality unknown.

Two other species of this genus are described from the Falkland Islands.

It is very easy to confound this genus with *Tropopterus*, belonging to a quite different subfamily, the resemblance in general form between the two being very great.

Subfamily *Bembidiinæ*.

Tachys antarcticus, n. sp.

T. oblongo-ovatus, convexus, testaceo-rufus, nitidus, palpis pedibusque flavo-testaceis; capite foveis frontalibus magnis, profundis, interspatio elongato, convexo: thorace subcordato, lateribus antice valde rotundatis, post medium sinuatim angustato, angulis posticis productis acutis; supra antice convexo, postice transversim depresso, utrinque foveolato, lævi: elytris ovatis, humeris rotundatis utrinque striis 3 prope suturam, fortiter impressis, subpunctatis; interstitio tertio bipunctato. Long. $\frac{3}{4}$ lin.

In form intermediate between *T. hæmorrhoidalis*, Dj., and *T. globulus*, Dj. As convex as the latter, but much more slender, the thorax especially being narrower (much narrower than the elytra), more cordiform, and the elytra more ovate and rounded at the shoulders. The antennæ are wanting in both my specimens.

Auckland? (*H. Edwards, Esq.*).

Bembidium (*Peryphus*) *maorinum*, Bates, Entom. Monthly Mag. iv. p. 56 (1867).
Christchurch (*Mr. Fereday*).

Bembidium (*Peryphus*) *charile*, Bates, *l. c.* p. 79.
Christchurch (*Mr. Fereday*).

I have not again received either of the above species. They form a distinct section, near *Peryphus*, distinguished by the setiferous punctures of the fifth as well as the third interstice of the elytra. In form they closely resemble the European

B. eques; but the thorax is smaller and still more cordate (similar to that of the *Lopha* section). The frontal furrows are deep, and reach to the level of the hind margin of the eyes. The fovea of the hind angles of the thorax has no carina exterior to it. The anterior tarsi of the male have only the basal joint dilated, parallelogrammical, as in *Peryphus eques*.

Bembidium rotundicolle, n. sp.

B. nilotico similis, cupreo-æneum, nitidum; antennis basi pedibusque piceo-rufis; elytris utrinque versus apicem, ipsoque apice flavo-testaceis; thorace fortiter rotundato, basi angusta, marginibus angustis, postice nullomodo explanatis, angulis posticis vix conspicuis, fovea parva juxta angulum lævi; elytris punctato-striatis, extus et apice minus impressis, interstitiis paulo convexis, tertio bipunctato. Long. $1\frac{3}{4}$–2 lin. ♂.

♂. Tarsi antici articulis duobus dilatatis, apice obliquis et fortiter intus productis.

Differs from the section to which *B. niloticum* belongs by the very narrow margins to the thorax, not explanated behind, and with obtuse hind angles; the sides of the thorax are very strongly rounded, but the base is much narrower than the apex; the apical angles are not at all conspicuous.

Lake Coleridge; under stones in a dry lagoon (*C. M. Wakefield, Esq.*).

Subfamily *Actenonychinæ*.

Actenonyx bembidioïdes, White, *l. c.* p. 2 (1846).

Sphallax peryphoïdes, Bates, Ent. Monthly Mag. iv. p. 56 (1867).

Christchurch (*R. W. Fereday, Esq.*).

White's description omits all the essential characters of this curious Carabid, and is so vague that there are no means of identifying it without reference to the type. I have seen a specimen so named in the British Museum, which quite agrees with *Sphallax peryphoïdes*. The extraordinary form of the ligula, and other characters, necessitate the formation of a new subfamily for the insect, which will range near the *Odacanthinæ*.

Subfamily *Scopodinæ*.

Scopodes fossulatus.

Dromius (!) *fossulatus*, Blanch. Voy. Pôle Sud, iv. p. 9, t. iii. f. 16.
Periblepusa elaphroïdes, Redtenb. Reise Novara, Col. p. 21, t. i. f. 9.

Blanchard's description accords exceedingly well with a species apparently common at Auckland, with the exception

that no mention is made of the prominent eyes; this omission, however, is supplied to some extent by his figure.

Auckland. Both from Mr. H. Edwards and Mr. Lawson.

A well-preserved specimen, rather larger than usual, agrees exactly with Redtenbacher's description.

Scopodes elaphroïdes.

Helæotrechus elaphroïdes, White, *l. c.* p. 5, t. i. f. 5.

Larger than the preceding (2½ lines), and differing besides in being "deep black," *S. fossulatus* being silky æneous; the legs are "yellow, with middle of femora and the tips with a brownish band."

Scopodes aterrimus, n. sp.

S. magis elongatus, gracilior, toto insecto sericeo-niger; thorace angustiore, ab angulo anteriore usque basin recte angustato, supra subtiliter strigoso sed nitido; elytris striis latis paulo undulatis, impunctatis, foveis tribus magnis prope suturam alterisque irregularibus versus apicem. Long. 2–2¼ lin.

Distinguished from *S. fossulatus* and from all the Australian species known to me (nine in number) by the form of the thorax—rather narrow, with slightly prominent antero-lateral angles, and without trace of posterior angle, the lateral margin being rounded off to the base; the surface is rather faintly transversely strigose and shining.

Two examples from Mr. H. Edwards (Auckland), and one from Christchurch (Mr. Fereday).

Subfamily *Coptoderinæ.*

Agonochila binotata.

Lebia binotata, White, *l. c.* p. 2.
Gomelina binotata, Blanch. Voy. Pôle Sud, iv. p. 12 (1853).
Agonochila binotata, Chaud. Bull. Mosc. (1848).
Coptodera (Agonochila) antipodum, Bates, Ent. Monthly Mag. iv. (1867), p. 78.
Sarothrocrepis binotata, Redtenb. Reise Novara, Coleop. p. 7.

Christchurch.

Subfamily *Calleidinæ.*

Demetrida lineella, White, Zool. Ereb. & Terr., Ins. p. 2, t. i. f. 3.

Port Nicholson.

Demetrida nasuta, White, *l. c.* p. 2.

Auckland (*H. Edwards, Esq.*).

Demetrida picea.

Demetrida picea, Chaud. Bull. Mosc. 1848, i. p. 77; Ann. Soc. Ent. Belg. tome xv. p. 195 (1872).
Cymindis australis, Hombr. & Jacq. Voy. Pôle Sud, Zool. t. i. f. 7 (1842?).
Cymindis Dieffenbachii, White, Dieffenb. New Zeal. vol. ii. p. 273 (1843); Blanch. Voy. Pôle Sud, Zool. iv. (1853).

Christchurch (*Mr. Fereday*).

Chaudoir's name must remain for this species, according to the rule that the first unoccupied name accompanied by a description takes the priority. The figure in the 'Voyage au Pôle Sud' was published eleven years before the description, and was erroneously lettered *C. australis*, not being the *C. australis* of Dejean. Blanchard himself corrected this error in 1853; but long before that date Chaudoir's excellent description had appeared. White's name was simply given (without description) to the above-mentioned figure, in place of the erroneous *C. australis*.

Species of doubtful position.

Pedalopia novæ zelandiæ, Castelnau, *l. c.* p. 154.

XXXVI.—*Remarks on Mr. H. J. Carter's Letter to Prof. King on the Structure of the so-called* Eozoon canadense. By William B. Carpenter, M.D., LL.D., F.R.S., Corresponding Member of the Institute of France.

The well-merited reputation which Mr. Carter has gained by his researches on *Sponges* and *Foraminifera* will doubtless give to his decided expression of opinion *against* the Foraminiferal character of the (so-called) *Eozoon canadense* a very considerable weight with those naturalists who regard the question as still *sub judice*.

Had Mr. Carter (whose additions to our knowledge of the minute structure of certain types of Foraminifera are estimated by no one more highly than by myself) pronounced this opinion after a careful study of what has been written *in favour* of the Foraminiferal character of *Eozoon*, and after an examination of the *pièces justificatives* therein referred to, I should have respected it, however different from my own, as that of an able investigator who has the fullest right both to form and to publish his judgment, and should not have troubled the scientific public with any further discussion of the question at issue.