

more magnified, to show:—*a a a*, reticulating lines of large vitreous fibre imbedding *minute* sexradiates confusedly, running over and covering in part *b b*, spinous lattice-like fibre imbedding *large* sexradiates regularly; *c c*, puncta indicating microspines on large vitreous fibre; *d d*, minute sexradiates. Diagrammatic.

*Fig. 3.* The same, minute sexradiate, more magnified, showing that one end is united to the vitreous fibre: *a*, minute sexradiate; *b*, vitreous fibre.

*Fig. 4.* The same. Rosette or flesh-spicule, also more magnified. Figs. 3 and 4 are upon the scale of 1-48th to 1-6000th of an inch.

*Fig. 5.* *Farrea densa*, sp. n. Fragment magnified on scale of 1-48th to 1-1800th of an inch. From deciduous portions, upwards of an inch in diameter, in the detrital mass enveloped by the anchoring-spicules of *Euplectella cucumer* from the Seychelles.

*Fig. 6.* The same. Portion of vitreous fibre of, more magnified, to show that the summit of the spines is mucronate: *a a*, fibre; *b b b*, mucronate spines; *c c*, mould of sexradiate spicule. Scale 1-12th to 1-6000th of an inch.

*Fig. 7.* *Arabescula parasitica*, sp. n., parasitic on vitreous fibre of *Aphrocallistes Bocagei*: *a a*, fibre; *b*, portion of *Arabescula*. From the specimen dredged up on board H.M.S. 'Porcupine' in 500 fathoms, above mentioned; also from the detrital mass of *Euplectella cucumer* on the fibre of the foregoing species. Scale about 1-32nd to 1-6000th of an inch.

*Fig. 8.* The same. *Internal* view, showing that there are distinct fronds, *a a*, with projections, *b*, on the body and main branches here and there, which appear to have been based upon the fibre on which the *Arabescula* was parasitic.

*Fig. 9.* The same. Portion much less magnified, which appears to have become separated from the fibre on which it had been parasitic. Natural size about 1-18th of an inch long by 1-180th of an inch in widest part.

LV.—*Descriptions of New Genera and Species of Heteromera, chiefly from New Zealand and New Caledonia, together with a Revision of the Genus Hypaulax and a Description of an allied New Genus from Colombia.* By FREDERICK BATES.

As there is considerable activity just now displayed in the publication of papers descriptive of the coleopterous fauna of New Zealand, I have thought it might be acceptable to give descriptions of all the species of New-Zealand *Heteromera* contained in my collection that appear to be new to science.

I have therewith incorporated a revision, together with descriptions of new species, of my genus *Hypaulax* and another, allied, new genus (*Astathmetus*) from Colombia.

Of the genus *Cilibe* (peculiar to New Zealand) I have established twelve species (ten of which are new, the *phosphugoides*, White, = *elongata*, Brême) and two supposed varieties.



The *Titæna Erichsoni*, White, proving upon examination to be generically distinct from *Titæna*, has caused me to notice the species of that genus (which are peculiar to Australia), and to describe some that are new; the New-Zealand group of three species forms a new genus (*Artystona*), the characters of which are fully stated in the body of the paper. I have also thought it interesting to describe the cognate group of species found in New Caledonia which constitute my genus *Callismilax*, some of the species of which have already been described by Montrouzier as belonging to the genus *Strongylium*.

The *Opatrinus convexus*, Fairmaire, described from examples coming from Wallis Island, occurs also in New Zealand; it will form the type of a new genus, totally removed from *Opatrinus*, and must be placed not far from *Scotoderus*, Perroud\*.

The *Opatrum tuberculicostatum*, White, evidently does not belong to that genus; as M. Miedel, of Liège, is at present engaged upon a monograph of the *Opatrides*, I leave this in his hands.

I have not as yet been able to consult the work by Blanchard containing the description of his *Bolitophagus angulifer* (from New Zealand); I, however, strongly suspect it to be identical with a species I have in my collection, and which I refer to the genus *Bradymerus*, Perroud: this genus is placed by its author with the *Bolitophagides*; to me it seems more natural to place it with the true *Tenebrionides*.

I have received from Mr. Pascoe examples of the *Selenopalpus cyaneus*, Fab.; these appear to me to be specifically identical with the type specimens (in my possession) of *S. chalybeus*, White. The characters of this genus lie rather in the form of the hind femora and tibiæ in the male (of which

\* The description of *Scotoderus cancellatus*, Perroud, very accurately applies to examples of *Iphthimus cancellatus*, Montrouz., obtained from the collection of Doué. *Dechius*, Pascoe, is but another name for *Scotoderus*; and Perroud's, having priority, must stand. The mesocoxal cavities being widely open externally, revealing the trochantins, at once removes this genus from the position where Perroud has placed it, viz. in the vicinity of *Antimachus* (a genus of *Ulomides*); as I have previously stated (Trans. Ent. Soc. 1868, p. 265), its true position appears to me to be near to *Bius*. The *Scotoderus cancellatus* is very near to *aphodioides* (*Dechius*), Pascoe, but may at once be separated from the latter by its smaller size, more finely punctured prothorax, the more distinctly crenated striae of the elytra (especially those by the suture), with the intervals distinctly punctulate. *Scissicollis* (*Dechius*), mihi, may instantly be distinguished from both by its sparsely punctured and not at all rugose head, the very strong (and punctured) groove down the middle of its prothorax, the remainder of the surface of this part being almost impunctate.



the former are strongly incrassated and somewhat arched, and the latter much thickened and strongly and acutely produced at the apex within) than in the form of the last joint of the maxillary palpi (in the same sex), as we find in some male examples of the *Dryops* (*Ananca*?) *strigipennis*, White, a precisely similar form of palpus as in *Selenopalpus cyaneus*—i. e. the last joint strongly expanded, flattened, and with a deep semicircular excision at the outer edge.

The *Zolodinus zelandicus*, Blanch., has the very exceptional character of having the hind margins of the third and fourth ventral segments corneous\*.

The *Mimopeus amaroides*, Pascoe, judging from description, will be the same as the *Cilibe elongata*, Brême.

The genus *Rygmodus*, White, has been shown by Mr. C. O. Waterhouse (Journ. of Entom. v. p. 194) to belong to the *Hydrobiidae*.

The number of the now described New-Zéaland *Heteromera* amounts to but 40 species, distributed in 22 genera; there are doubtless many more to come.

*Cilibe opacula*, n. sp.

Somewhat broadly oval, but little convex; brownish black, the elytra usually with a tinge of dark chocolate- (or purplish) brown; subopaque. Head and prothorax finely and very closely punctured, the interstices (except on the epistoma and disk of prothorax) a little elevated and reticulate; epistoma broadly truncated in front, the angles rounded, the suture strongly marked at each side: prothorax deeply arcuately (sometimes slightly sinuously) emarginate in front; front angles prominent, subacute, slightly convergent; base more or less strongly bisinuate-emarginate; the hind angles more or less produced, acute, directed behind or sometimes a little outwardly, reposing on the shoulders of the elytra; sides gradually narrowing in a slight curve from base to apex, sometimes (♀?) subparallel from the base to a little beyond the middle, thence rapidly curvedly narrowed to the apex; usually they are very slightly sinuous in front of the hind angles; disk very moderately convex, lateral margins rather broadly expanded, a little reflexed or concave, and unequally thickened at the edges; base and apex more or less distinctly margined or thickened at each side, sometimes throughout at the apex; a more or less distinct, transverse, angulate impression at each side of

\* It is the same in the genus *Calcar* and in another, allied but undescribed, South-American genus; these somewhat militate against the value of this as a great divisional character, as laid down by Drs. Le Conte and Horn.



the middle, close to the basal margin; scutellum transversely curvilinearly triangular, closely punctured: elytra more or less sinuate-truncate (and a little wider than base of prothorax) at the base; a space, more or less open, between the base of the elytra and base of prothorax; sides very slightly rounded, more or less gradually narrowed from the middle to the apex; expanded lateral margins wide, reflexed or concave, transversely and somewhat reticulately rugose-punctate, and studded with small granules; disk closely, finely, and rather uniformly punctured, the interstices (especially at the sides) a little elevated and reticulate and studded with indistinct minute granules; a series of narrow longitudinal costæ more or less indicated, and an irregular row of rugged foveæ, just within the expanded margin, not extending to the apex: underside brownish black, shining, finely punctured; flanks of prothorax more or less strongly (especially basally) longitudinally rugose, the underside of the expanded lateral margins being transversely rugose: legs dark brown, shining; femora finely and not closely punctured; tibiæ closely submuricately punctured, the anterior obliquely truncated at the outer side at apex; hind tibiæ quite straight; tarsi and antennæ reddish brown; joint 8 of the latter subpyriform, 9 and 10 a little transverse, subturbinate, 11 large, broadly rounded at apex.

Length  $8\frac{1}{2}$ –9 lines; width of elytra  $4\frac{1}{3}$ – $4\frac{3}{4}$  lines.

*Hab.* New Zealand.

There is a very great amount of individual variation in the species of this genus in the form of the prothorax (especially) and elytra, and in the amount and intensity of the punctuation &c. of their surface.

In one of the three examples of the present species before me (possibly a female, as similar differences exist in individuals of the other species whereof a series has been obtained), the form is more expanded or more broadly oval, the head and prothorax are broader in proportion to their length, the sides of the latter, instead of gradually narrowing in a slight curve from base to apex, are subparallel to a little beyond the middle, thence rapidly curvedly narrowed to the apex; besides the two ordinary foveæ at each side of the middle, at the basal margin, there is also a broad transverse line or depression, feebly arched, subparallel and near to the basal margin; the elytra are broader and less narrowed behind, and the base is squarely truncated; and the punctuation on the prothorax and elytra (especially on their disks) is more open.

Altogether the largest, most expanded and opaque, and least convex form in the genus.



*Cilibe nitidula*, n. sp.

Very near to the preceding, and of the same form, but smaller; the colour black; the entire upper surface much smoother, and shining; the punctuation finer and more open, the interstices less distinctly elevated and reticulate: the elytra do not present the shagreened appearance seen in the preceding; they are more, and very distinctly, convex behind the middle, and consequently more abruptly declivous behind; on the underside the punctuation and the rugosities on the flanks of the prothorax and on the abdomen are similar but stronger; the hind tibiæ are feebly but perceptibly sinuous; antennæ &c. as in *C. opacula*.

In the single example of this species before me, the head is distinctly impressed on the crown; the prothorax is gradually and slightly curvedly narrowed from base to apex; the apex is strongly arcuately (and feebly sinuously) emarginate, the front angles prominent, subacute, and directed forwards; the base is strongly bisinuate, the hind angles prominent, acute, and slightly outwardly directed; the lateral margins are expanded (but less broadly so than in the preceding) and slightly reflexed or concave, the edges irregularly thickened, and the base and apex margined at each side only. There is a large, distinct, outwardly curved impression at each side the disk, extending from near the middle to the basal margin; the scutellum is transversely curvilinearly triangular and closely punctured; the elytra are distinctly convex behind the middle, and are consequently more abruptly declivous behind than in *C. opacula*; the base is feebly sinuately truncated, and between it and the base of the prothorax (and the hind angles of the latter, which repose on the shoulders) there is a decided open space, as in *C. opacula*; the lateral margins are expanded (but less broadly so than in the preceding species) and concave, and there is the row of rugged foveæ just within this margin, as in *C. opacula*; the disks of the elytra also present traces of numerous narrow longitudinal costæ; the underside and legs are of a deep brownish black, shining; the antennæ, tarsi, and palpi are reddish brown.

Length  $7\frac{1}{2}$  lines; elytra, width  $3\frac{5}{8}$  lines.

*Hab.* New Zealand.

*Cilibe otagensis*, n. sp.

Very close to *C. opacula*, and difficult intelligibly to define in what it differs from that species; it is, however, distinctly narrower or oblong-oval, usually smaller, paler, more convex, the base of the prothorax more closely applied to the base of



the elytra, distinctly more shining, the punctuation &c. on the elytra coarser, more confluent and confused, somewhat ruggedly so at the sides; the sides of the prothorax more rounded, more incurved at the base, the median basal lobe more prominent; the base, consequently, has not that appearance of being bisinuate-emarginate as is the case in *C. opacula*.

Head closely punctured, the punctures coarsest and somewhat confluent on the front, between the eyes, where there are also usually two more or less marked, foveate depressions: prothorax more or less strongly transverse; sides more or less regularly rounded, more narrowed in front than behind, always distinctly and more or less sinuously incurved before the hind angles; apex deeply arcuate-emarginate, the angles prominent, subacute, and usually directed forwards; base bisinuate, the angles more or less prominent and acute, reposing on the shoulders of the elytra, and directed backwards; disk moderately convex, very closely (save on the centre) punctured, the interstices a little elevated, and more or less reticulate, at the sides; a transverse depression subparallel and near to the base, and an angulate fovea at each side, close to the basal margin (as in ♀? of *C. opacula*); sides moderately expanded, the edges unequally (not uniformly) thickened; scutellum as in *C. opacula*: elytra oblong-oval, base sinuate-truncated; disk moderately convex, closely and more or less confluent punctured; the interstices (especially at the sides) elevated, minutely granulose, reticulately confluent, sometimes assuming the form of irregular nodules, at others of small umbilicated tubercles; the ordinary series of narrow costæ and the row of foveæ within the side-margins more or less apparent; sides rather strongly expanded, concave, transversely reticulately rugose-punctate and granulous: underside, legs, antennæ, &c. as in *C. opacula*.

Length  $7\frac{1}{4}$ – $8\frac{1}{4}$  lines; width of elytra  $3\frac{3}{5}$ –4 lines.

*Hab.* Otago, New Zealand. Four examples.

Var.? *grandis*.

Larger (length 9 lines; width of elytra  $4\frac{1}{5}$  lines); the elytra less convex, distinctly more gradually declivous behind; the punctuation &c. (on the elytra especially) coarser, the punctures larger, the interstices still more elevated and more uniformly reticulate; the apical emargination of the prothorax distinctly sinuous; the tibiæ (especially the anterior) distinctly less closely punctured, and the entire upper surface of a browner colour.

*Hab.* New Zealand. One example.



*Cilibe elongata*, Brême, and *C. phosphugoides*, White.

Examples of *C. elongata* obtained from the collections of Reiche and Doué (presumably authentic exponents of the species) do not differ from *C. phosphugoides* except in the form of the prothorax, which in the former has the sides more obliquely narrowed anteriorly, and the elytra, which are more acuminate behind. Experience has shown us that these differences possess no true specific value in this genus: *C. phosphugoides* must consequently be sunk under *C. elongata*.

This species is much smaller than any of those preceding; the form is more or less elongate-oval; prothorax shining black; the expanded lateral margins paler; the elytra are of a more or less deep purplish or chocolate-brown. Head convex between the eyes, trapezoidal in front, with the borders usually dark ferruginous, more or less strongly, closely, and sometimes rugosely punctured; epistoma convex, more or less distinctly arcuate-emarginate in front, the sutural impression more or less distinct: the form and punctuation of the prothorax is variable; it is always of a shining black, convex, a depression on the middle near the base, another smaller at each side at the basal margin; usually very finely and not closely punctured on the disk, the punctures more crowded at the sides and finely rugulose, more or less distinctly granulous on the intervals; lateral margins moderately expanded and concave, the edges finely and uniformly thickened; apex deeply emarginate, front angles more or less acute, and usually a little convergent, sometimes directed forwards; base closely applied to the base of the elytra, bisinuate, hind angles prominent, reposing on the shoulders of the elytra, acute, usually a little outwardly directed; ordinarily the sides are a little sinuously contracted posteriorly, but sometimes they are subparallel (in this latter case the base is as wide as the base of the elytra); anteriorly they are always more strongly contracted, sometimes very gradually (obliquely) from behind the middle, at others more abruptly (curvedly) from the middle or even before the middle; scutellum transversely triangular, punctured: elytra oval, more or less acuminate behind, convex, subopaque, of a dark purplish brown; frequently the base (narrowly), the suture, the expanded margins, and the scutellum are of a reddish tinge; base sinuous, and generally a little wider than base of prothorax; expanded lateral margins narrow, concave, not distinctly reaching the apex; disk with numerous more or less distinct longitudinal costæ, irregularly punctured, finely rugose (most strongly at the sides), and



studded with very distinct, shining, black granules: underside shining black, finely punctured; flanks of prothorax longitudinally wrinkled, the lateral margins transversely wrinkled; abdomen finely longitudinally rugose; epipleural fold and legs dark reddish brown, sometimes ferruginous; antennæ, palpi, and labrum (sometimes) ferruginous.

Length 6–6½ lines; width of elytra across the middle  $2\frac{2}{3}$ – $3\frac{1}{4}$  lines.

*Hab.* New Zealand. Six examples.

It is doubtless in error that De Brême has reported this species as from "New Guinea."

*Var. granulipennis.*

A little smaller ( $5\frac{1}{2}$  lines); head and prothorax (at the sides) less closely punctured, the punctuation nowhere rugosely confluent; prothorax gradually curvedly narrowed from the hind to the front angles, median basal lobe less prominent, the base consequently appears bisinuate emarginate; the interstices (between the punctures) not perceptibly granulose; scutellum a little shorter, less distinctly pointed behind; elytra scarcely sinuous at the base, the punctuation less varied, the punctures distinctly larger and rounder.

*Hab.* New Zealand. One example.

*Cilibe Pascoei*, n. sp.

Near to *C. elongata*; more broadly oval. Head closely punctured, somewhat reticulately so between the eyes, the interstices being also finely punctulate; epistomial suture well marked throughout: prothorax moderately convex, black, subopaque; sides subangulately rounded, more strongly (and somewhat obliquely) narrowed in front than behind, distinctly and very feebly sinuously narrowed from behind the middle to the hind angles, which are directed backwards; base bisinuate, closely applied to the base of the elytra; apex deeply subangularly emarginate, front angles produced, acute, directed forwards; disk not closely punctured, the interstices not granulose, but sparsely finely punctulate, basal impressions as in *C. elongata*; lateral expanded margins wide, a little concave, and (together with the sides of the disk) rather strongly reticulately rugose-punctate, the edges unequally (not uniformly) thickened: scutellum strongly transversely triangular, punctured: elytra convex, very dark purplish brown, the suture and narrowly at the base inclined to reddish; base subtruncate; disk finely irregularly punctured, the costæ but little evident except at the base, and, together with the suture, smoother than the intervals; indistinctly, except at the apex,



minutely granulose; intervals between the costæ irregularly impressed with much larger punctures, and feebly reticulately rugose, most distinctly so at the sides; lateral expanded margins wide, distinctly extending to the apex, concave, faintly punctured: underside shining black; legs and antennæ dark reddish brown.

Length  $6\frac{1}{4}$  lines; width of elytra across the middle  $3\frac{1}{4}$  lines.

*Hab.* Pitt's Island. A single example.

Easily separable from *C. elongata* by the relatively broader form, the subangulately rounded sides of prothorax, the peculiar punctuation of the head &c., the much broader expanded lateral margins, which in the elytra are distinctly broadly continuous to the apex.

*Cilibe humeralis*, n. sp.

Oblong or oblong-oval; black; elytra sometimes with a slight purplish-brown tinge, slightly shining, moderately convex. Head moderately punctured, the punctures not crowded, the interstices sometimes sparsely minutely punctulate: prothorax distinctly less transverse than in any preceding species, sides more or less strongly and obliquely narrowed from behind the middle, slightly sinuously narrowed behind; hind angles acute, slightly outwardly directed; disk finely punctured, the punctures more crowded at the sides, the interstices not perceptibly granulose, sparsely minutely punctulate; a transverse, slightly bowed, impressed line at each side the middle near the basal margin, and sometimes a rounded fovea at each side the median line near the middle of the thorax; lateral margins moderately expanded, a little concave, rugosely punctured, finely and somewhat uniformly thickened at the edges; apex deeply emarginate, front angles prominent, acute, directed forwards: elytra slightly emarginate at the middle of the base, obliquely and slightly arcuately truncated at each side; humeral angle very prominent, slightly rounded, reflexed, and deeply concave within the angle; disk finely rugulose, studded with small granules, rather closely and finely but irregularly punctured, the punctures largest and most crowded (and frequently, especially at the base, more or less run together, forming indistinct irregular foveæ) between the costæ; these very indistinct; expanded lateral margins rather broad at the base, gradually narrowing behind and scarcely extending to the apex, concave in their basal portion: underside shining, pitchy black; legs and epipleural fold with a reddish tinge; flanks of prothorax and sterna more or less strongly reticulately rugose and granulose; antennæ, palpi, and labrum (sometimes) ferruginous; anterior border of epistoma rufescent.



Length  $5\frac{1}{2}$ –6 lines; width of elytra across the middle  $2\frac{2}{3}$ –3 lines.

*Hab.* New Zealand. Four examples.

In the ♀? the form is slightly more expanded, the prothorax slightly more transverse, the sides less strongly narrowed anteriorly, and the punctuation of the elytra a little more open.

The three species last described are very near to each other; but I think there is ample justification, at present at least, in holding them distinct. The species last described is of a more oblong form (especially in the ♂?) than the others; the prothorax has not the same glossy blackness as in *elongata*; and the elytra are less opaquely roughened, more closely punctured, and much less distinctly granulose; the humeral angle is much more prominent, the lateral expanded margins broader and strongly concave within the humeral angle. From *Pascoei* it may be known by its narrower and more oblong form, finer and closer punctuation, and more narrowly expanded lateral margins.

*Cilibe thoracica*, n. sp.

In this species the prothorax is still more decidedly elongated (but is yet wider than long) than in the preceding. Form elongate-oval; entirely of a dark brownish black, subopaque. Head and prothorax (save on the middle of the disk) closely punctured, the punctures rounded, a little more crowded at the sides of the latter, the interstices distinctly punctulate; sides of prothorax gradually and but slightly curvedly narrowed from near the hind angles to the apex, distinctly incurved at the hind angles, which are more produced than in *humeralis*, and slightly convergent or directed inwardly; apex deeply emarginate, front angles subacute, slightly convergent; expanded lateral margins moderately wide, scarcely concave, the edges finely and almost uniformly thickened; a rather slight sublunate impression at each side of the middle, close to the basal margin, and another, still less distinct, rounded fovea above and in front of them: scutellum transversely triangular, punctured: base of elytra as in *C. humeralis*, the humeral angle still more produced (but not strongly concave within the angle), sides with a very distinct sinus behind the humeral angle; disk slightly roughened or rugulose, indistinctly (except at apex) granulose, moderately punctured, obscurely foveate-punctured between the costæ (when viewed obliquely); costæ very feeble; expanded lateral margins wide (and concave) at the base, gradually narrowed behind; underside &c. as in *C. humeralis*.

Length  $5\frac{1}{4}$  lines; width of elytra across the middle  $2\frac{2}{3}$  lines.

*Hab.* New Zealand. One example.



The punctuation on the head and on the sides of the prothorax is more crowded, and the interstices more closely and distinctly punctulate than in *C. humeralis*; the sides of the thorax are distinctly incurved at the hind angles; the punctuation on the elytra is less defined; and the form is elongate-oval.

*Cilibe brevipennis*, n. sp.

Smaller, and of a more briefly oval form, than any other species in the genus. Black, usually most nitid on the prothorax, the elytra frequently of an obscure purplish-brown hue; sometimes the entire upper surface is of a decided reddish-brown colour. Head and prothorax finely and closely punctured, the punctuation very dense (and frequently finely reticulately rugose) on the former and on the sides of the latter; the interstices more or less distinctly minutely punctulate: prothorax transverse, apex deeply emarginate; front angles prominent, more or less acute, usually directed forwards, sometimes slightly convergent; sides anteriorly very gradually narrowed from the middle (sometimes from behind the middle), posteriorly subparallel, or slightly incurved (in one example they are distinctly excurved at the hind angles, which are consequently somewhat outwardly directed), hind angles more or less produced, acute, directed backwards; lateral margins moderately expanded, more or less concave; three more or less distinct impressions at the base, and sometimes two indistinct foveate impressions on the middle, at each side of the median line: elytra short, moderately convex, base feebly sinuous; humeral angle not distinctly prominent as in *C. humeralis* and *thoracica*; sides subparallel or slightly rounded, not sinuous behind the humeral angle; expanded lateral margins rather broad at the base, narrowed behind, more or less distinctly extending to the apex, strongly concave at the base (especially within the humeral angle) as in *C. humeralis*; punctuation &c. almost as in *C. thoracica*, but (especially at the sides and apex) the surface is slightly more roughened, more distinctly granulose, and the punctuation a little finer and closer: underside, &c. as in *C. humeralis*.

Length  $4\frac{1}{2}$ – $5\frac{1}{2}$  lines; width of elytra  $2\frac{1}{3}$ – $2\frac{3}{4}$  lines.

*Hab.* New Zealand. Five examples.

*Cilibe granulosa*, De Brême.

Easily recognizable by its usually squalid aspect, and coarsely sculptured and closely granulose surface. The humeral angle is more or less strongly prominent; the expanded lateral margins of the elytra broad and concave; and there is at the sides a more or less distinct sinus behind the humeral angle; the costæ on the elytra are more conspicuous (especially at



the base) than in any of those preceding. In some examples we can perceive on the elytra a very minute pubescence.

Length  $5\frac{1}{4}$ – $6\frac{3}{4}$  lines ; width of elytra  $2\frac{1}{2}$ – $3\frac{1}{2}$  lines.

*Hab.* New Zealand. Six examples.

*Cilibe rugosa*, n. sp.

Near *C. granulosa*, but distinctly narrower ; the expanded lateral margins of the elytra very narrow, not concave, except slightly at the base ; the surface of the elytra distinctly punctured, reticulately rugose, not granulose, or granulose-punctate, and with three distinctly prominent costæ on each ; humeral angles not prominent, the sides not sinuous behind them ; and the anterior tibiæ have the outer apical angle strongly dentiform.

From the following (*C. tibialis*, the only other species having the outer apical angle of the anterior tibiæ dentiform) it may be known by its different form, somewhat squalid, opaque surface, the elytra distinctly rugose, costate, and pubescent ; the prothorax more deeply emarginate at apex, the front angles more prominent, the hind angles not acutely produced, &c.

Brown, slightly squalid ; head (except the epistoma) and prothorax coarsely punctured, the interstices narrow, appearing a little elevated, and a good deal broken up on the front of the head and the base of the prothorax, allowing the punctures to run confusedly together. Head trapezoidal in front ; sides of epistoma almost completely continuous with the antennary orbits, the angles slightly rounded : prothorax arcuate-emarginate in front, the angles a little produced, subacute, directed forwards ; sides regularly but moderately rounded, more narrowed anteriorly than behind, a little sinuous in front of the hind angles, these latter not acutely produced, slightly divergent ; the three impressions by the base as ordinary, the two outer strongly marked, and another rounded depression on the middle, at each side of the median line : elytra rather strongly narrowed behind, humeral angles not prominent ; sides slightly rounded from the humeral angles, not at all sinuous behind them ; the surface somewhat coarsely punctured, very distinctly reticulate-rugose, and very thinly clothed with a short, minute, rigid, pale golden pubescence, on each elytron three very distinct costæ, with a much fainter one between them ; these send out irregular, lateral, elevated branches, which cause the reticulate-rugose appearance before mentioned, the interstices being somewhat squalid ; the punctuation, costæ, &c. obsolete at the apex ; lateral expanded margins very narrow, and concave only at the base : underside brown, closely and somewhat coarsely punctured, much more distinctly pubescent (especially on the



abdomen) than on the upperside; flanks of prothorax sparsely, pronotum closely and coarsely, rugose-tuberculate: legs rather long, reddish brown; hind tibiæ a little sinuous, front tibiæ with the outer apical angle strongly dentiform; tarsi elongate; antennæ and palpi ferruginous.

Length  $5\frac{1}{3}$  lines; width of elytra  $2\frac{1}{3}$  lines.

*Hab.* New Zealand. One example.

*Cilibe tibialis*, n. sp.

Oblong or (rarely) oblong-oval, convex, entirely dark brown, slightly shining, anterior border of the head more or less rufescent; epistoma broadly emarginate in front, the sides distinct from the antennary orbits, the angles broadly rounded: head and prothorax rather coarsely and closely punctured, the interstices on the middle of the former, and on the sides of the latter, appearing a little elevated and somewhat reticulate: prothorax strongly transverse, rather broadly and feebly, and usually a little sinuously, emarginate at apex; front angles not at all prominent, convergent; sides more or less rounded (ordinarily they are well rounded), more or less strongly incurved anteriorly from the middle, less strongly and a little sinuously posteriorly; hind angles acutely produced, divergent; lateral margins not distinctly expanded, the edges very finely and almost uniformly thickened; the three impressions by the basal border always obscure, sometimes obsolete: elytra oblong, or oblong-oval, the punctuation finer than on the prothorax and with a disposition to run together between the costæ; costæ more or less distinct; the intervals, or interstices, more or less distinctly reticulate-rugose at the base, sides, and apex; lateral margins narrowly expanded, usually not distinctly extending to the apex, strongly reflexed at the base, rather coarsely transversely rugose-punctate: flanks (save the lateral margins) of prothorax and sides of abdomen longitudinally wrinkled; flanks of meso- and metasterna coarsely punctured; abdomen finely punctured; underside shining black; epipleural fold and legs reddish brown, or piceous; antennæ elongate, and, together with the palpi, ferruginous; outer apical angle of the anterior tibiæ strongly dentiform.

Length  $6-7\frac{1}{2}$  lines; width of elytra  $2\frac{4}{5}-3\frac{3}{4}$  lines.

*Hab.* New Zealand. Seven examples.

The apical emargination of the prothorax is distinctly more feeble in this species than in any of the others, and the front angles least prominent; it is also the most convex, and, ordinarily, the most oblong, form.



*Cilibe impressifrons*, n. sp.

Oblong- or elongate-oval; ordinarily black, the elytra sometimes dark brown, the entire insect sometimes reddish brown; most nitid on the prothorax; rather convex: head rather long, rather finely and closely punctured; a distinct, transverse, slightly bowed impression across the front between the eyes: epistoma broadly truncated in front, the suture rather strongly marked and angulate at the sides; prothorax very finely and, on the middle, remotely punctured; a strong angulate impression at each side close to the basal margin, and sometimes an obscure transverse impression between them; apex moderately emarginate; anterior angles subacute, directed forwards; sides more or less regularly rounded, more contracted anteriorly than posteriorly, occasionally a little sinuous before the front angles; hind angles more or less (sometimes almost imperceptibly) outwardly produced, acute; lateral margins very slightly expanded, a little concave, the edges moderately and almost uniformly thickened: elytra oblong-oval, feebly sinuous at the base; shoulders more or less distinctly rounded; punctuation, &c. almost as in *C. tibialis*, but the interstices, especially at the sides, are more distinctly rugulose; expanded lateral margins narrow, almost obsolete (or strongly narrowed) at the base, scarcely perceptibly continued to the apex, a little concave, the edges sometimes slightly reflexed at the base: markings on the underside similar, but much feebler, to those in *C. tibialis*; legs, antennæ, and epipleural fold reddish piceous; anterior tibiæ acute (but not at all dentiform) at the outer apical angle.

Length  $6\frac{1}{2}$ –8 lines; width of elytra  $2\frac{4}{5}$ – $3\frac{3}{5}$  lines.

*Hab.* New Zealand. Five examples.

The oblong or elongate-oval form, the transverse impression between the eyes, the almost smooth prothorax in contrast with the somewhat coarsely sculptured elytra, the scarcely expanded sides of the prothorax, and the lateral expanded margins of the elytra obsolete at the base, will serve to distinguish this species.

[To be continued.]

## LVI.—On the Great Northern Falcons.

By ALFRED NEWTON, M.A., F.R.S., &c.

To the Editors of the Annals and Magazine of Natural History.

GENTLEMEN,

The much-debated matter of the Great Northern Falcons has so confessedly received its chief elucidation from papers





Bates, F. 1873. "LV.—Descriptions of new genera and species of Heteromera, chiefly from New Zealand and New Caledonia, together with a revision of the genus Hypaulax and a description of an allied new genus from Colombia." *The Annals and magazine of natural history; zoology, botany, and geology* 12, 472–485. <https://doi.org/10.1080/00222937308680805>.

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