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A REVISION OF THE MELOLONTHINAE OF NEW ZEALAND

PART I: THE ADULT BEETLES

by

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PART II: FINAL INSTAR LARVAE

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Issued under the authority of the Hon. R. M. Algie,
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GENERAL INTRODUCTION

The subfamily MELOLONTHINAE of the family SCARABAEIDAE is of world-wide occurrence, and throughout its geographical range, contains pest species of considerable importance to man. Agriculturalists and horticulturalists have for many years been suffering severe losses from the depredations of these insects, and although many measures have been tried, no certain, economically possible means of control has been found which may be universally applied. In New Zealand, the major pest species is *Costelytra zealandica* (White), formerly known as *Odontria zealandica* White. This species has been causing an increasing amount of pasture damage in New Zealand, parallel with the extension of pastureland development. In 1943, a move was made by the Entomological Research Station, Department of Scientific and Industrial Research, to make the study of this pest a major project.

At the outset, it was realized that the status of the different species of the group, especially of the genus *Odontria* (now subdivided) was not certain. Consequently, a preliminary study of the species present in New Zealand was initiated to determine their distribution and to obtain further knowledge of those of economic importance. This study is not yet complete, but a basis has been laid on which further work can be conducted, and the accurate identification of most adult beetles and many larval forms will be much facilitated by the use of the results herein recorded. This work may contain errors due to the fact that type material has not always been available, and early descriptions in many cases have been inadequate. However, an endeavour has been made to point out any uncertainties that exist, and no attempt has been made to describe as new, species that stand on uncertain taxonomic ground. The time will come when a revision of the present work can be made by some entomologist with access to the material examined by the author, and also to the types that have not been available to him. Until that day arrives, it is hoped that this publication will guide those who are interested either from the academic or the economic viewpoint, in the difficult and uncertain study of the New Zealand Melolonthinae.

Geographical Distribution.

Members of the subfamily occur throughout the two main Islands of New Zealand, and have also been found on the near outlying islands, Chatham Islands to the east, and the Snares to the south. None has been found so far on the Auckland or Campbell Islands, but their occurrence on these southern dependencies is probable. All species so far found in the area are native to New Zealand, and only one genus, *Pyronota*, has any representatives outside of New Zealand. The islands north of the North Island have not been taken into account in this work.

ECOLOGICAL DISTRIBUTION

Practically all terrestrial habitat zones are productive of species of the subfamily, and these may be best classified in tabular form. It should be understood that certain species overlap, as do the ecological zones themselves. However, the following table should give a reasonably accurate picture of the broad regional occurrence of the genera and species.

ZONE A. Sand-dunes, moving or fixed. Species usually found in association with *Cassinia* spp.

Odontria cassiniae.
Odontria nitidula.
Pyronota minor.
Xylostygnus brookesi.

ZONE B. Manuka (*Leptospermum*) scrub.

Costelytra pseudobrunneum.
Odontria sylvatica.
Odontria xanthosticta.
Odontria piciceps.
Pyronota festiva.
Pyronota edwardsi.

ZONE C. Mixed scrub and forest margins, usually with *Olearia* spp., *Coprosma* spp., etc., where forest regeneration is occurring.

Costelytra brunneum.
Costelytra pseudobrunneum.
Odontria nesobia.
Odontria sylvatica.
Odontria xanthosticta.
Odontria piciceps.
Odontria striata.
Odontria autumnalis.
Odontria smithii.
Odontria obscura.
Sericospilus aenealis.
Pyronota inconstans.
Chlorochiton suturalis.
Chlorochiton longicornis.

ZONE D. Northern rain forest (Kauri forest, etc.).

Costelytra macrobrunneum.
Sericospilus minor.
Chlorochiton longicornis.

ZONE E. Southern rain forest (Beech, etc.)

Costelytra austrobrunneum.
Odontria halli.
Odontria australis.

Odontria communis.
Odontria similis.
Odontria decepta.
Odontria occiputale.

ZONE F. Sub-alpine scrub and tussock.

Odontria macrothoracica.
Odontria occiputale.
Odontria variegata.
Prodontria pinguis.
Pyronota inconstans.
Pyronota rubra.
Mycernus intermediatus.
Chlorochiton discoidea.
Chlorochiton pulcher.
Chlorochiton simmondsi.
Chlorochiton intermediata.

ZONE G. River or lake-side sands, usually under grass or tussock.

Costelytra zealandica.
Prodontria lewisii.
Prodontria modesta.
Prodontria bicolorata.
Prodontria capito.
Psilodonthia viridescens.
Mycernus elegans.
Scythrodes squalidus.

ZONE H. Pasture lands (lowlands) of all types.

Costelytra zealandica.
Odontria xanthosticta.
Odontria striata.
Odontria varicolorata.
Odontria smithii.
Odontria obscura.
Pyronota festiva.

The altitude range of the subfamily in New Zealand is from sea-level to about 5,500ft., with no one species covering the entire range. *Pyronota festiva* (Fabr.), *Pyronota inconstans* Brookes, and *Odontria striata* White, occur from sea-level to above 4,000ft., having the widest range of the group. All the species from zone A occur close to sea-level, and nearly all those in zone F normally occur only above about 3,000ft. Few species have a wide range of habitat, although some of the members of the genera *Odontria* and *Pyronota* are moderately tolerant. *Costelytra zealandica* shows probably the widest range of ecological tolerance of all members of the group, having been taken by the author in northern rain forest (once only), mixed scrub, pastures on heavy clays, pastures on light alluvial soil, fixed sand-dunes, and under "scab-weed" (*Raoulia* sp.) in Central Otago. Its range of temperature and rainfall tolerance

embraces the extremes of New Zealand conditions, apart from those of alpine areas, and the only limiting factors seem to be the complete lack of humus or growing vegetation, the presence of dense forest or scrub, or very steep slopes. *Pyronota festiva* is probably next in tolerance, but whereas *Costelytra zealandica* thrives best in light pasture-lands, *Pyronota* prefers rougher conditions, especially manuka scrub-land.

Conditions influencing the adult beetles, and which play an important part in their essential physiological behaviour, are light, wind, rainfall and temperature during flight, and probably rainfall, temperature, soil texture, soil composition, and vegetational cover during oviposition, resting periods, and mating. All members of the genera *Odontria*, *Costelytra*, *Prodontria*, *Sericospilus*, *Scythrodes*, *Xylostygnus* and possibly *Psilodonthia* are evening flyers, appearing only after dusk and resting during the day in the soil or beneath leaves, logs, stones, etc. The genus *Chlorochiton* contains species which may be found above ground during the day (*C. discoidea*, *C. simmondsi*, and possibly *C. intermediata*, *C. pulcher*, and *C. lineata*), and species leaving the soil only at the approach of evening (*C. suturalis*, *C. longicornis*, etc.). The author has taken *C. longicornis* in flight in bright sunlight at 3 p.m., but this must be considered exceptional. In the genus *Pyronota*, adults appear to enter the soil only during very adverse weather conditions or to oviposit, and it is probable that *Mycernus* species behave similarly, although information on this genus is very scanty.

Larvae vary somewhat in their responses to physical conditions, and probably respond mainly to moisture and food content of soils. Larvae of *C. zealandica* beneath "scab-weed" in Central Otago appear to be above the true soil level, living in the decaying plant matter of relatively high moisture content between the living portions of the plant and the basic rock-derived portion of the soil. In pasture-lands, the same species is usually found within the top two inches of the soil where organic matter, both living and dead, is most plentiful. Only rarely do these larvae descend to any considerable depth, even when ready to pupate. The author has found them nine inches below the surface in very dry soil during mid-summer, but these larvae were resting, and appeared to be fully fed, and had for some reason failed to pupate at the normal time. Low temperatures may drive larvae down to some depth, but they are not infrequently found within an inch of the surface, actively feeding, when the soil is frozen around them. *Pyronota* larvae have been taken actively feeding in frozen soil beneath snow at an altitude of nearly 4,500ft., where snow lies for weeks at a time. Obviously these larvae can withstand great ranges of conditions, and the factors limiting their occurrence cannot yet be definitely stated.

The outlines for the illustrations for this work have been constructed by use of a camera-lucida properly set up to avoid distortion.

PART 1. THE ADULT BEETLE

INTRODUCTION

From the systematic viewpoint, melolonthid beetles are difficult to work with, and a completely satisfactory classification of them has yet to be arrived at. Within species, characters to be used taxonomically must be very carefully studied in series of specimens wherever possible, as even some of the most obvious apparent differences are often in unstable structures, and may not be constant. The group appears to be in a state of genetic instability or flux, and closely similar, but nicely separated species, are rarely found. In some of the alpine species of *Odontria*, the author has never yet found two or more specimens apparently morphologically identical, and this lack of uniformity is present not only externally, but also in the internal male genital equipment. In consequence of this difficulty, an endeavour has been made to obtain as much material as possible for examination, and of the 97 species herein recorded, the 78 which have been examined represent all the known New Zealand genera except *Heteronyx*, which genus seems to be of doubtful occurrence, and possibly falsely recorded. The total number of specimens examined was nearly 2,500, in spite of which many species were represented by single specimens only.

The advantage of having access to the bulk of the material present in New Zealand collections, and of having been able to collect in many unusual localities, has given the author an opportunity of viewing in clearer perspective possibly than any other worker on the subfamily in this country, the true relationships of the groups of species known. As a result, certain generic regrouping has become an obvious necessity, and where such a course has been indicated, action has been taken without compunction. The most important change in this direction is the separation of the species *zealandica* White, from the genus *Odontria* White, and the erection of the new genus *Costelytra* for it. This genus now also contains the species *brunneum* (Broun) with four new species, and is probably the most compact genus of the subfamily in New Zealand. The genus *Prodontria* Broun has been expanded to embrace the genus *Lewisiella* Broun, the species *praelatella* Broun of the genus *Odontria*, and three new species. This expansion has resulted in the formation of a somewhat loose genus, but at the same time seems to be the most satisfactory means of dealing with a very difficult group of species, all having certain significant characteristics in common. The genus *Sericospilus* Sharp has also been expanded, and now embraces the genus *Eusoma* White which is doubly preoccupied, and the species *glabrata* Broun of the genus *Odontria*. The genera *Psilodontria* Broun and *Mycernus* Broun have suffered no change, but both may stand on uncertain foundations when further species are discovered, since the metasternal process which separates them systemati-

cally from *Pyronota* Boisduval is not likely to be a reliable character, especially when species such as *Pyronota splendens* n. sp. are found to occur. *Chlorochiton* Arrow has been expanded to include the genera *Costleya* Broun and *Poecilodiscus* Broun. This expansion has been largely due to the discovery of several intermediate species. Both *Scythrodes* Broun and *Xylostygnus* Broun remain unaltered.

In species separation, diagnostic characters have been used where found to be satisfactory. Simplicity has been aimed at, and useful characters have, as far as possible, been selected and given prominence above doubtful ones. No fetish has been consciously held concerning any one character, and although the male genital claspers have been used in every case where males are known, and are all herein illustrated, it will be noted that they are rarely referred to in the text, (though of necessity used in the diagnostic keys), being intended to be used merely as a final touch-stone in identification, and for comparison with members of the subfamily in other countries. Antennae have received a considerable amount of attention, and have proved of great value when used with discretion, care being necessary to determine accurately the sex of the individuals being examined. Variations within the species have been illustrated in several cases by series of figures, and these will serve to give some idea of the difficulty found in deciding where a species should begin and end.

This entire work is the result of little more than two years of examination, dissection, collection, and disappointment, but it is to be hoped that it will make easier, for research worker and amateur alike, the identification and study of the *Melolonthinae* of New Zealand.

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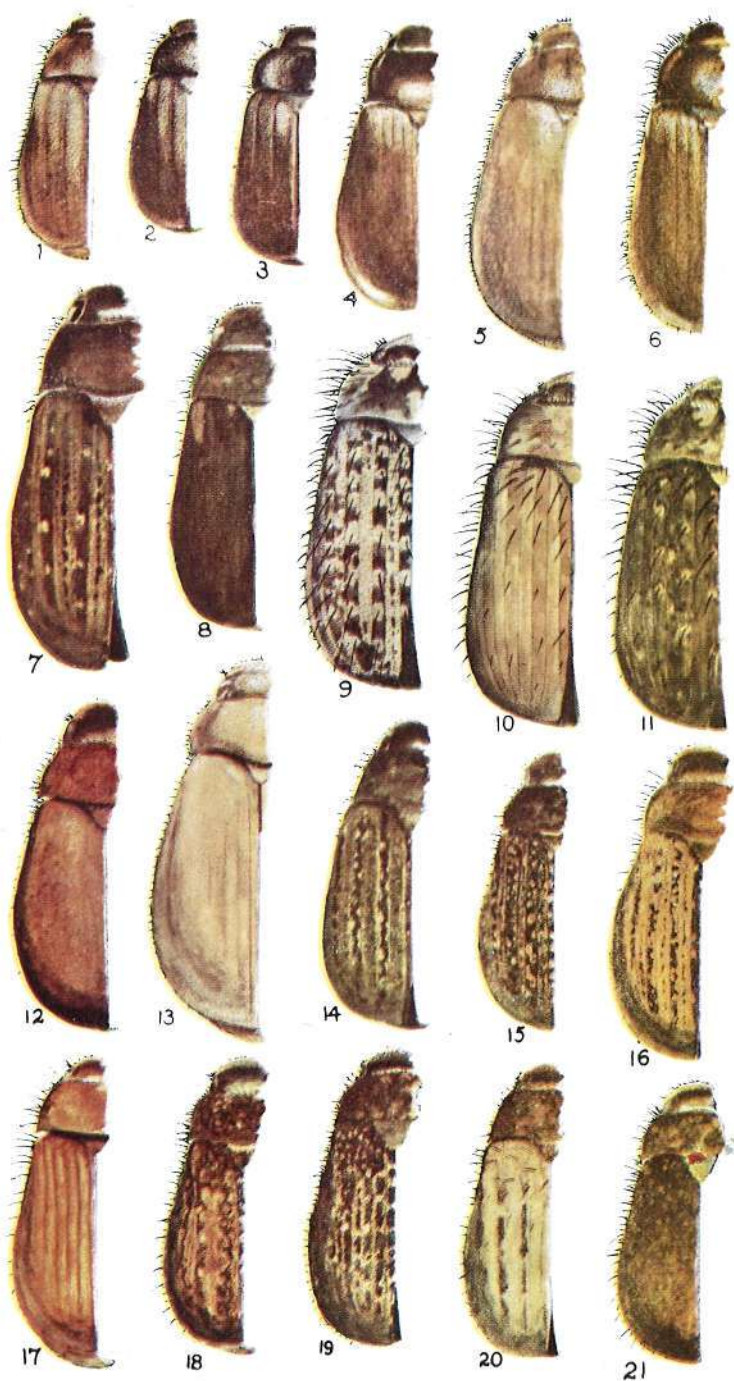


PLATE 1.

- Fig. 1. *Costelytra zealandica* (White).
 " 2. *Costelytra brunneum* (Broun).
 " 3. *Costelytra piceobrunneum* n. sp.
 " 4. *Odontia sylvatica* Broun.
 " 5. *Odontia nitidula* Broun (large specimen).
 " 6. *Odontia nesobia* Broun.
 " 7. *Odontia magnum* n. sp.
 " 8. *Odontia halli* Broun (dark form).
 " 9. *Odontia striata* White (Typical form).
 " 10. " " "
 " 11. " " "

- Fig. 12. *Odontia sandageri* Broun.
 " 13. *Odontia cassiniae* n. sp.
 " 14. *Odontia xanthosticta* White.
 " 15. *Odontia piceiceps* Broun.
 " 16. " "
 " 17. *Odontia aurantia* n. sp.
 " 18. *Odontia varicolorata* n. sp.
 " 19. " "
 " 20. " "
 " 21. *Odontia australis* n. sp.

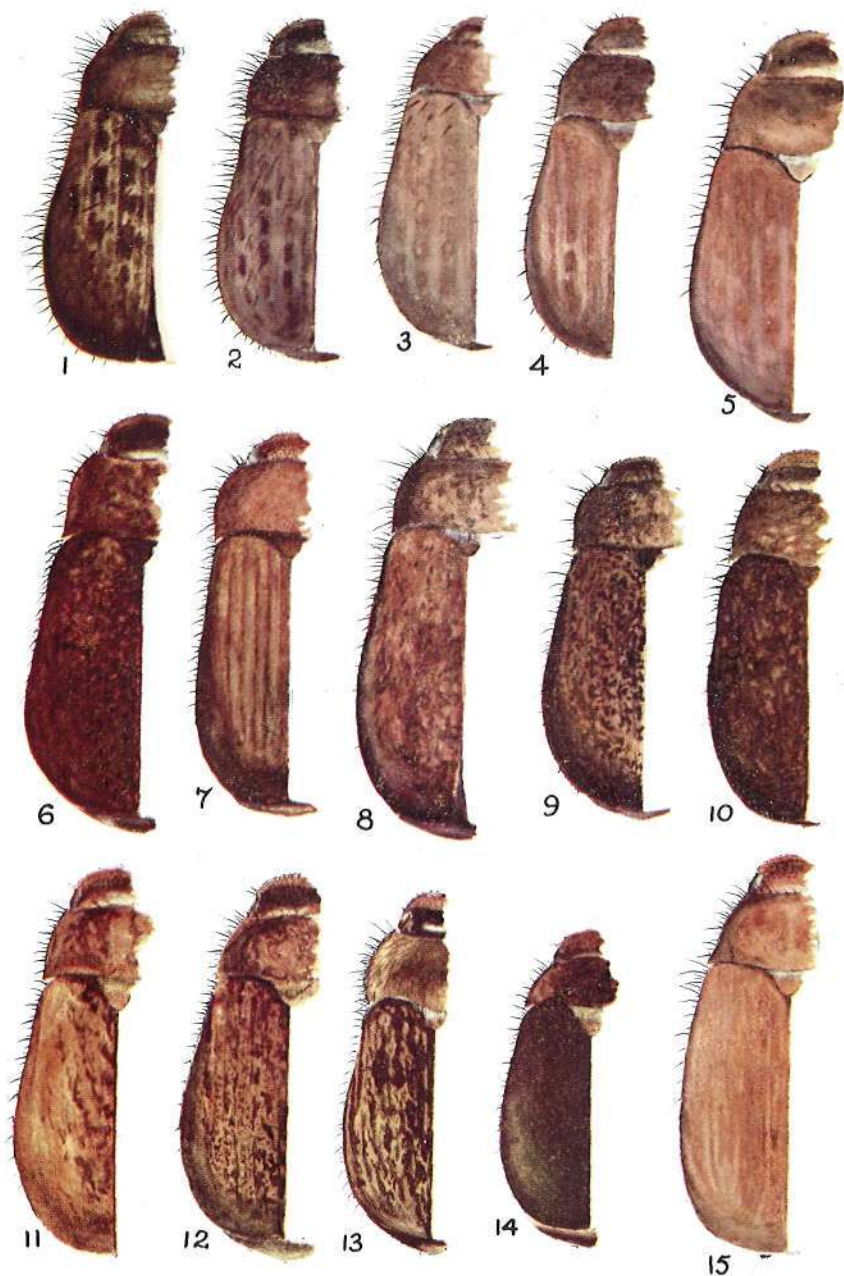


PLATE 2.

- Fig. 1. *Odontria autumnalis* n. sp.
 " 2. *Odontria obscura* Broun.
 " 3. *Odontria smithii* Broun (Ashburton)
 " (Hawkes Bay).
 " 4. *Odontria rufescens* n. sp. (large specimen).
 " 5. *Odontria marmorata* Broun.
 " 6. *Odontria macrothoracica* n. sp.
 " 7. *Odontria similis* Broun.

- Fig. 9. *Odontria communis* n. sp.
 " 10. *Odontria convexa* n. sp.
 " 11. *Odontria occiputale* Broun.
 " 12. " "
 " 13. *Odontria variegata* n. sp.
 " 14. " "
 " 15. *Odontria regalis* n. sp.

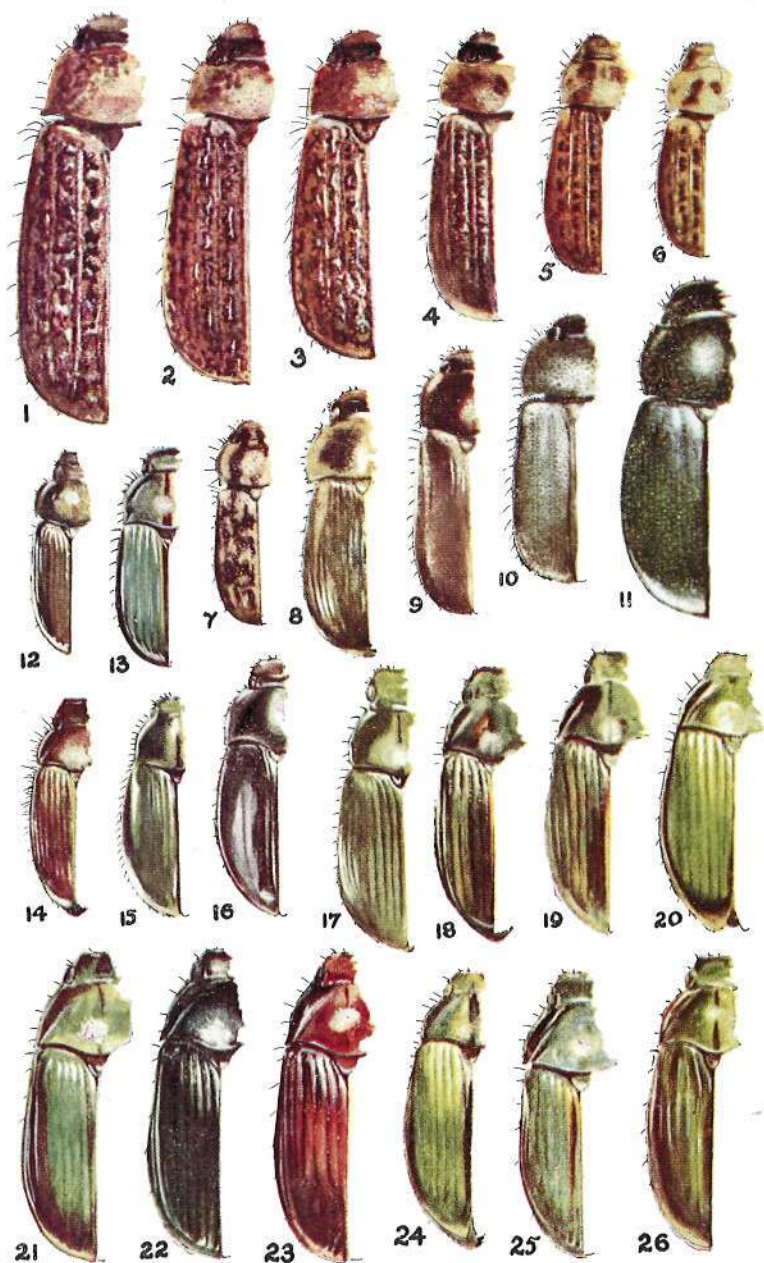


PLATE 3.

- Fig. 1. *Sericospilus advena* (Sharp).
 " 2. *Sericospilus aenealis* (Broun). (var. B).
 " 3. " " " (var. A).
 " 4. " " " (typical).
 " 5. *Sericospilus piliventris* (Broun).
 " 6. *Sericospilus brevis* n. sp.
 " 7. *Sericospilus minor* n. sp.
 " 8. *Sericospilus truncatus* n. sp.
 " 9. *Sericospilus obscura* n. sp.
 " 10. *Sericospilus glabrata* (Broun).
 " 11. *Xylostygnus brookesi* (Broun).
 (Whangarei Heads.)
 " 12. *Psilodonthia viridescens* Broun.
 " 13. *Mycernus intermediatus* n. sp.

- Fig. 14. *Pyronota setosa* n. sp.
 " 15. *Pyronota minor* n. sp.
 " 16. *Pyronota splendens* n. sp.
 " 17. *Pyronota punctata* n. sp.
 " 18. *Pyronota edwardsi* Sharp (var. A).
 " 19. " " (var. B).
 " 20. *Pyronota inconstans* Brookes (var. A).
 " 21. " " "
 " 22. " " "
 " 23. " " "
 " 24. *Pyronota festiva* (Fabricius).
 " 25. " " "
 " 26. " " "

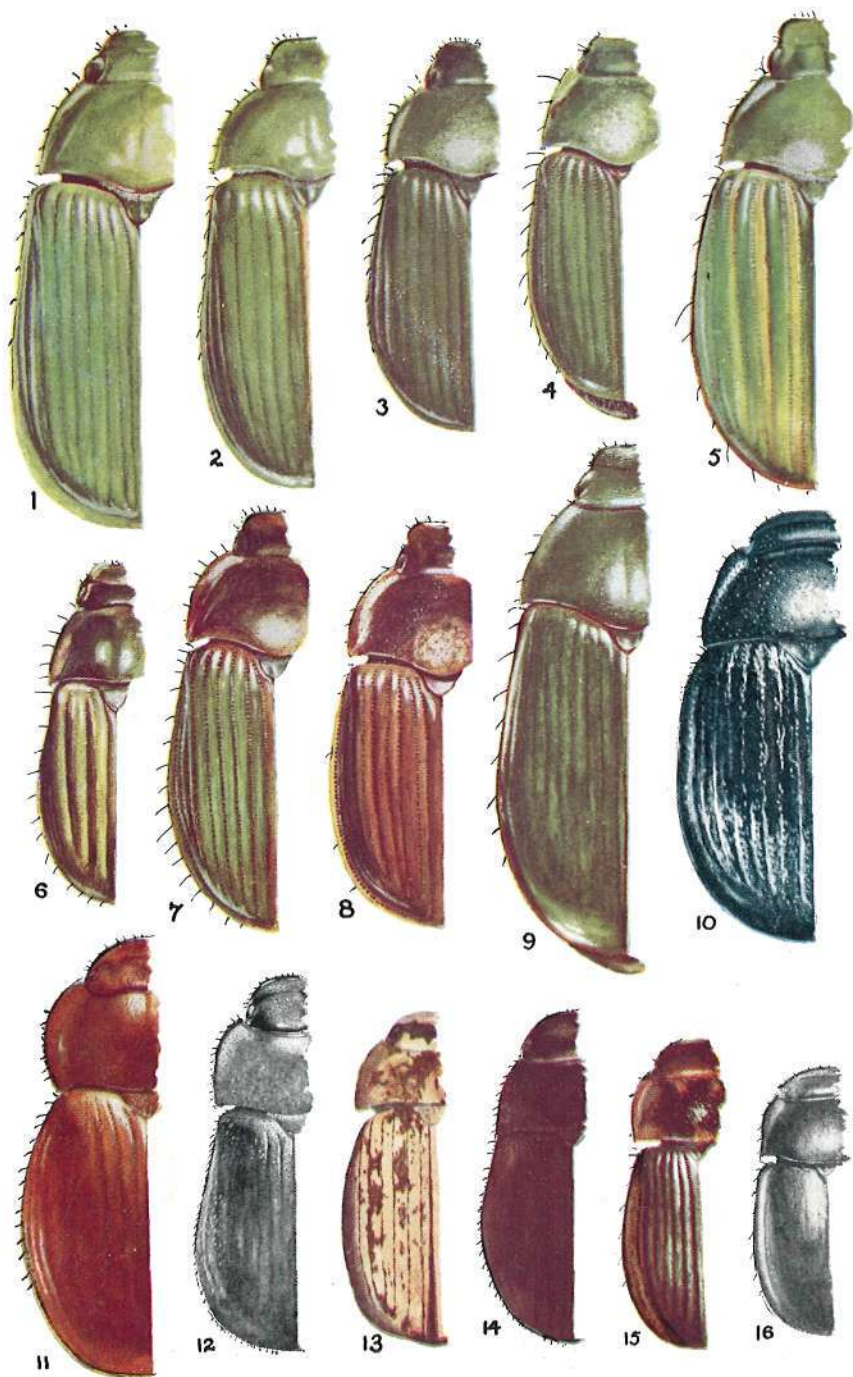


PLATE 4.

- Fig. 1. *Chlorochiton longicornis* Arrow.
 " 2. *Chlorochiton suturalis* (Fabricius).
 " 3. *Chlorochiton convexa* n. sp.
 " 4. *Chlorochiton intermedia* n. sp.
 " 5. *Chlorochiton lineata* (Arrow).
 " 6. *Chlorochiton pulcher* (Broun).
 " 7. *Chlorochiton discoidea* (Broun).
 " 8. *Chlorochiton simmondsi* (Broun).

- Fig. 9. *Chlorochiton planiclypeus* n. sp.
 " 10. *Seythrodus squalidus* Broun.
 " 11. *Prodontria lewisii* Broun.
 " 12. *Prodontria setosa* n. sp.
 " 13. *Prodontria praelatella* (Broun).
 " 14. *Prodontria pinguis* n. sp.
 " 15. *Prodontria bicolorata* n. sp.
 " 16. *Prodontria capito* (Broun).

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Key to Genera of the Sub-family *Melolonthinae*.

1. Antennae 9-jointed (Pl. 3, fig. 11, Pl. 21, figs. 19, 20) *Xylostygnus* Broun.
- Antennae 8-jointed (Pl. 5, fig. 4) 2.
2. Definite metasternal process present as a carina, spine, or tooth
(Pl. 5, fig. 2, stpr.) 3.
- Metasternal process absent 5.
3. Large beetles not less than 12 mm. in length (Pl. 4, figs. 1-9) *Chlorochiton* Arrow.
- Smaller beetles not more than 10 mm. in length 4.
4. Metasternal process in the form of a carina, not produced
anteriorly (Pl. 3, fig. 12) *Psilodonthia* Broun.
- Metasternal process anteriorly produced as a definite process
(Pl. 3, figs. 14-26) *Pyronota* Boisduval.
5. Elytral margins strongly flanged laterally (Pl. 4, fig. 10) *Scythrodes* Broun.
- Elytral margins not flanged 6.
6. Metasternum at middle much longer than mesosternum (Pl. 14,
figs. 12-15) 7.
- Metasternum at middle not longer than mesosternum (Pl. 4,
figs. 11-16) *Prodonthia* Broun.
7. Sternal surfaces without long silky hairs (Pl. 3, figs. 1-10) *Sericospilus* Sharp.
- Sternal surfaces with long silky hairs 8.
8. Alternate elytral interstices (Pl. 5, fig. 1, is) of equal width,
uniformly punctate, and not costate (Pl. 1, figs. 4-21; Pl.
2, figs. 1-15) *Odonthia* White.
- Alternate elytral interstices very narrow, non-punctate, and
raised as distinct costae (Pl. 1, figs. 1-3) *Costelytra* n.g.

COSTELYTRA n.g.

(Pl 1, figs. 1-3; Pls. 6 and 7)

In most species the colour is very dark, but *C. zealandica* (White) may be light yellow or red-brown in some localities.

HEAD rather small. CLYPEUS truncate or rounded anteriorly, strongly depressed and punctate discally with upright bristles. EYES small, not prominent. FRONS punctate, vertex smooth. ANTENNAE 8-articulate, trilamellate in both sexes, the lamellae of the female sometimes shorter than in the male.

PRONOTUM nitid, usually completely devoid of hairs except for marginal bristles which are well developed. Punctuation fine and even. SCUTELLUM punctate, shining. ELYTRA shining, not very elongate, somewhat truncate apically, broadest posteriorly. Alternate interstices much narrowed and raised as smooth non-punctate costae. Intermediate interstices densely punctate and broad, often rather rugose. Vestiture absent except for marginal bristles. Fore TIBIAE strongly tridentate in both sexes. Sternal elements clothed with very long, silky hairs.

Male GENITAL CLASPERS bilaterally asymmetrical except in *C. zealandica* (White).

GENOTYPE. *Costelytra zealandica* (White).

Key to species of *Costelytra*.

1. Scutellum non-punctate, colour usually not uniform and often very light-yellow brown; genital claspers symmetrical (Pl. 6, figs. 1, 2)—Throughout New Zealand and Chatham Islands *C. zealandica* (White) (Pl. 1, fig. 1).
- Scutellum punctate, colour uniform and dark; genital claspers asymmetrical 2.
2. Male antennal lamellae (Pl. 7, fig. 11) as long as width of clypeus at middle—North Auckland *C. macrobrunneum* n. sp.
- Male antennal lamellae much shorter than width of clypeus at middle 3.
3. Male antennal lamellae (Pl. 7, fig. 12) longer than total length of antennal segments 1-5 together; left genital clasper of male (Pl. 6, figs. 7, 7a) slightly and uniformly curved below, but somewhat sinuously curved above—Nelson, about 2,000 ft. *C. austrobrunneum* n. sp.
- Male antennal lamellae not longer than segments 1-5 together; upper outline of left male genital clasper not sinuous 4.
4. Width of hind tibia (Pl. 7, fig. 1) at neck half width at distal end; male genital claspers without prominent overlapping flanges dorsal to their articulation with basal shield (Pl. 6, figs. 3, 3a), and both of approximately equal width—Putaruru *C. piceobrunneum* n. sp. (Pl. 1, fig. 3).
- Width at neck of hind tibia greater than half width at distal end; male genital claspers with prominent overlapping flanges dorsal to basal articulation, and not of same breadth 5.
5. Genital claspers of male (Pl. 6, fig. 4) in left lateral aspect strongly curved and blunt tipped—Tairua *C. brunneum* (Broun) (Pl. 1, fig. 2).
- Genital claspers (Pl. 6, fig. 6b) not strongly curved, but slender and pointed—Whangarei *C. pseudobrunneum* n. sp.

1. COSTELYTRA ZEALANDICA (White).

Voy. Ereb. Terr., Ins., p. 10, *Rhisotrogus* (1844); Blanchard, Mus. Hist. Nat., Paris, Coleop., 1:107, *Odontria* (1850); Lacordaire, Gen. Coleop., 3:234, *Odontria* (1856); Broun, Man. N.Z. Coleop., 1:270, *Odontria* (1880).
castanea Blanchard, Mus. Hist. Nat., Paris, Coleop., 1:107, *Odontria* (1850).

(Pl. 1, fig. 1; Pls. 6 & 7)

HEAD (Pl. 7, fig. 6) small, brownish-black to light brown, with the edge of the clypeus and the eyes darker. CLYPEUS somewhat truncate, strongly reflexed at margins, raised discally

and closely rugosely punctate throughout; clypeal suture sinuate. FRONS depressed medially just above the clypeal suture; closely, but usually not rugosely punctate. VERTEX smooth. EPICRANIAL PROCESS very prominent, and angled medially. Bristles of head typical, plentiful on clypeus in accordance with the close puncturing; not markedly elongate when compared with other species. ANTENNAE rather small, testaceous; first segment clavate with a narrow stalk, not excessively long, the second segment short and lagenate, the third cylindrical, somewhat longer than the second, the fourth sub-cylindrical and about two-thirds the length of the third, the fifth very short and with a papillate anterior process. The last three segments form the club which is not densely pilose, but supplied with placoid sensillae.

PRONOTUM transverse, uniformly finely punctate, light red-brown to brown-black, usually testaceous toward the lateral margins which are dark on their reflexed edges; a dark spot is present on either side on a raised area; anterior margins only slightly reflexed and bear a row of long, slightly curved bristles; anterior angles acute and slightly reflexed; lateral margins slightly angled medially, very narrowly reflexed with the reflexion increasing slightly toward the anterior angles; posterior margin sinuate, depressed, and very narrowly marginate or slightly reflexed. SCUTELLUM (Pl. 6, fig. 8), usually reddish, hyaline and not punctate; not sharply angled posteriorly. ELYTRA moderately broad, widest at middle, usually not completely covering pygidium, colour usually testaceous, somewhat darker near the shoulders, though, when the thorax is dark-brown, the elytra are also often dark medially and antero-laterally; surface smooth, somewhat translucent, hairless except for marginal bristles, and evenly though rather coarsely punctate except on striae; striae only about a quarter the width of the interspaces anteriorly, and narrower and less distinct posteriorly; sutural striae prominent and outlined internally by a smooth dark line, posteriorly continuous with the dark elytral marginal area; the sutural striae are outlined externally by a more diffuse and dark punctured groove.

VENTRAL SURFACE light brown, the thoracic elements clothed with long silky hairs of a light golden colour.

GENITAL CLASPERS symmetrical (Pl. 6, figs. 1, 2).

Length, 8 to 15 mm., usually about 11 mm.

Breadth, 4 to 6 mm., usually about 5.5 mm.

TYPE in the White Collection, British Museum.

MATERIAL EXAMINED. About 400 specimens collected at different localities from Whangarei to Bluff and Chatham Islands at altitudes varying from sea-level to 3000ft.

REMARKS. In *C. zealandica* the sexes are almost identical, and this is the only species of the genus which is universally distributed from one end of New Zealand to the other; it occurs also on the Chatham Islands. It is a very destructive species especially in localities such as Canterbury.

The beetles, which fly from late October to late December, cause considerable damage to the foliage and flowers of numerous native and introduced herbs, shrubs and trees. The beetle is known as the "grass-grub beetle", the "brown-beetle", and, when damaging the seedlings of cruciferous crops, erroneously as the "turnip-fly".

The larvae inhabit open ground and semi-open scrub-land, etc., frequenting all soils except heavy clays; they are usually most plentiful in friable soils where there is adequate drainage. These larvae, which cause widespread damage to pastures and sometimes to the roots of cruciferous crops, strawberries, garden plants, etc., are known as "grass-grubs", "curl-grubs", or "white-grubs".

2. *COSTELYTRA BRUNNEUM* (Broun).

Man. N.Z. Coleop., 1:270, *Odontria* (1880).

(Pl. 1, fig. 2; Pls. 6 & 7)

A species similar to *C. zealandica*, and very closely allied to *C. macrobrunneum*, *austrobrunneum*, *piceobrunneum* and *pseudobrunneum* (see below). In colour *brunneum* is a uniform dark reddish-brown throughout, with a rather bronzy lustre especially on the elytra.

HEAD (Pl. 7, fig. 7) similar to that of *zealandica* except that the clypeus is more evenly rounded, the clypeal suture less acute medially, and the epicranial processes not angled exteriorly. ANTENNAE (Pl. 7, figs. 10, 10a) rather small with the third segment elongate in the male.

PRONOTUM similar in punctuation, marginal characters, and chaetotaxy to that of *zealandica*, but slightly less transverse and with the anterior angles rather more prominent (Pl. 7, fig. 7). Scutellum as in *zealandica*, but definitely, although sparsely, punctate (Pl. 6, fig. 9). ELYTRA very similar to those of *zealandica* but more coarsely punctate, and unicolorous. FORE TIBIAE with the tibial teeth rather blunter than in *zealandica* (Pl. 7, figs. 13, 14).

VENTRAL SURFACE not distinctive.

GENITAL CLASPERS (Pl. 6, fig. 4), in left lateral aspect, strongly curved and blunt-tipped.

Length, 10 mm.

Breadth, 6 mm.

TYPE in the Broun Collection, British Museum.

MATERIAL EXAMINED. Three specimens (2 males and 1 female) collected by Mr. A. D. McKinnon of the State Forest Service at Tairua in September, 1932; these specimens are in the collection of the Entomological Research Station.

REMARKS. This species is one of a very difficult group, and is to be segregated from its allies mainly by the male genital characters. It occurs at Tairua and is not well known. Adults are on the wing apparently earlier than are *zealandica*, as the specimens examined were all collected during September.

3. COSTELYTRA MACROBRUNNEUM n.sp.

(Pl. 6, figs. 5, 5a; Pl. 7, figs. 5, 11, 18).

This species, though similar to *brunneum*, is much larger and is not unicolorous; the pronotum is more transverse; the head and pronotum are more finely punctured, and there are a few fine punctures on the posterior vertex; the tibial teeth are more acute (Pl. 7, fig. 18); and the antennal club (Pl. 7, fig. 11) is relatively much longer; the genitalia also differ (Pl. 6, figs. 5, 5a).

In colour, *macrobrunneum* is dark red-brown on the head and pronotum, the clypeus and lateral areas of the pronotum being somewhat lighter as are also the elytra which are less red, especially laterally; the suture and scutellum are distinctly dark.

HEAD small as in *brunneum*. CLYPEUS strongly flexed on anterior margin, finely rugosely punctured, with the clypeal suture, though very distinct, not deeply impressed. FRONS and VERTEX finely punctured except for areas on each side of the latter. ANTENNAL CLUB of male (Pl. 7, fig. 11) tri-lamellate, the lamellae as long as middle width of clypeus.

PRONOTUM similar in shape to that of *zealandica*, except that the anterior angles project further forward and the posterior ones further back. SCUTELLUM with a few fine punctures as in *brunneum*. ELYTRA as in *brunneum* except for colour, and rather more parallel-sided in the type (a character often found to be variable); teeth of FORE TIBIAE (Pl. 7, fig. 18) acute, except the proximal one.

VENTRAL SURFACE not distinctive.

GENITALIA of male illustrated on Pl. 6, figs. 5, 5a; these should be compared with the genitalia of *brunneum* (Pl. 6, figs. 4, 4a).

Length, 15 m.m.

Breadth, 7 m.m.

HOLOTYPE male in collection of Division of Entomology, Plant Research Bureau.*

MATERIAL EXAMINED. Type male collected by the author at Dome Valley, North Auckland, 17:xi:44.

REMARKS. The type was found under soil on the edge of bush by the roadside, and a few remains of similar beetles were collected from spider webs close by.

4. COSTELYTRA AUSTROBRUNNEUM n.sp.

(Pl. 6, figs. 7, 7a, 7b; Pl. 7, figs. 3, 12, 17).

The only characters by which this species can be separated from *macrobrunneum* are as follows:—shorter antennal club combined with the relative lengths of the third, fourth and fifth antennal joints (Pl. 7, fig. 12 as compared with 11); the shorter

* The Division of Entomology, Plant Research Bureau, is now the Entomological Research Station, Nelson.

and obtuse tibial spine (Pl. 7, fig. 17 as compared with 18); a slight variation in the hind tibiae (Pl. 7, fig. 3 as compared with 5); and differences in the shape of the genitalia (Pl. 6, figs. 7, 7b as compared with 5, 5b).

It is possible that other observers will consider that these characters do not constitute a basis for specific segregation, and the author admits that there is some doubt; but when the antennal and genital characters in particular are considered, it is felt that these are sufficient for purposes of specific determination; further, the localities are widely separated.

Length, 15 m.m.

Breadth, 7 m.m.

HOLOTYPE male in collection of the Entomological Research Station.

MATERIAL EXAMINED. Type male collected by the author on Jenkins Hill, Nelson, 18:xi:43; the specimen was found alive on the surface of a small pool on a ridge in dense beech forest. A somewhat similar specimen has been seen in the collection of Mr. E. Fairburn of Whangarei; this specimen was also found at Nelson, on the Dun Mountain.

5. *COSTELYTRA PICEOBRUNNEUM* n.sp.

(Pl. 1, fig. 3; Pl. 6, figs. 3, 3a; Pl. 7, figs. 1, 9, 15).

This species is similar to *brunneum*, *macrobrunneum* and *austrobrunneum*; however it is darker in colour than any other member of the group, rather more shiny, and has distinctive hind tibiae (Pl. 7, fig. 1) and genital claspers (Pl. 6, figs. 3, 3a); further, the very dark abdominal segments are rather characteristic.

HEAD as in *brunneum*, but more rugosely punctured on the clypeus, which is definitely truncate anteriorly.

PRONOTUM of similar proportions to that of *zealandica*, but with more prominent anterior angles. SCUTELLUM punctate. ELYTRA as in *brunneum* but parallel-sided. LEGS very dark in colour with the hind tibiae very broad distally and acute-angled intero-distally in profile (Pl. 7, fig. 1.).

VENTRAL SURFACE as in *brunneum* but very dark-coloured.

GENTIALIA as figured (Pl. 6, figs. 3, 3a).

HOLOTYPE male in collection of the Cawthron Institute; Allotype female in the collection of Mr. E. S. Gourlay.

MATERIAL EXAMINED. Type male and three paratype males collected at Putaruru by Mr. Owen Jones, 17:vii:31, in the Cawthron Institute collection; Allotype female and one paratype female, Waitomo, 14:x and 18:x:42, C. E. Clarke, in the collection of Mr. E. S. Gourlay.

REMARKS. A very distinctive species. Though morphologically close to *brunneum*, *macrobrunneum* and *austrobrunneum* it is readily recognised at a glance by its deep ruby-black colour, and compact form. Apparently it is a winter-flying species.

6. COSTELYTRA PSEUDOBRUNNEUM n.sp.

(Pl. 6, figs. 6, 6a, 6b; Pl. 7, figs. 4, 8, 8a, 16).

A species intermediate between *brunneum* and *macrobrunneum*; it exactly resembles the latter in colour, and the former in other respects, except for characters mentioned in the following discussion. From *macrobrunneum* it is separated by its slightly smaller size, and short antennal club (*macrobrunneum* Pl. 7, fig. 11), and from *brunneum* by its larger size, slightly more transverse pronotum, more acute anterior pronotal angles, and somewhat shorter clypeus. Very definite features distinguishing it from both *brunneum* and *macrobrunneum* are to be found in the genital characters (Pl. 6, figs. 6, 6a, 6b), and in the form of the fore and hind tibiae (Pl. 7, figs. 16 and 4 respectively). There are certain minor characters which may or may not be variable in which *pseudobrunneum* differs from *brunneum*.

Length, 12 mm.

Breadth, 7 mm.

HOLOTYPE male and ALLOTYPE female in the collection of the Entomological Research Station.

MATERIAL EXAMINED. Holotype, allotype, 20 paratype males and 2 paratype females collected by the writer during November, 1944, at Whangarei, one male collected by the author at Dargaville, November, 1944; one male and one female paratype, Lake Ohia, November, 1945, C. W. Devonshire, in the collection of Mr. E. S. Gourlay.

REMARKS. A common species on manuka in North Auckland; the larvae occur in heavy "gum-lands".

ODONTRIA White.

Voy. Ereb. Terr., Ins., p. 10 (1884).

(Pls. 1, 2, 8-14).

The genus *Odontria* contains a number of diverse groups of species all with much in common. It is the largest genus of the *Melolonthinae* in New Zealand, and presents many systematic problems owing to the degree of intraspecific variation common in many species. The characteristics of the genus are as follows:

HEAD as in *Costelytra*, but with differences in antennal structure (Pl. 11, figs. 17-20a, 26; Pl. 12, figs. 1-3a; Pl. 13, figs. 1-4a, 7-10); in the antennal club there are three completely developed lamellae in the female, but from three to five in the male.

The PRONOTUM, SCUTELLUM and ELYTRA are usually dull, but sometimes nitid and always haired; elytral interstices of equal width and very finely punctured. METASTERNUM much longer than the mesosternum, and both densely haired. FORE TIBIAE tridentate in both sexes. MALE GENITAL CLASPERS symmetrical or asymmetrical.

GENOTYPE. *Odontria striata* White.

SECTION A.

Descriptions based on type material or on specimens of reasonably certain identity.

Key to species of *Odontria*.

1. Elytra shining, punctate, finely haired but not bristled except at margins 2.
 Elytra dull and velvety, usually with scattered discal bristles 5.
2. Antennal club of male tri-lamellate; genital claspers almost, if not quite, bilaterally symmetrical 3.
 Antennal club of male quadri-lamellate (Pl. 11, figs. 17-20a); genital claspers strongly bilaterally asymmetrical (Pl. 8, figs. 11, 12)—New Plymouth to Lake Ohia
 O. sylvatica Broun (Pl. 1, fig. 4).
3. Elytra deep reddish-brown; genital claspers much expanded medially (Pl. 8, fig. 1)—Stephens Island
 O. nesobia Broun (Pl. 1, fig. 6).
 Elytra light yellow-brown; genital claspers not much expanded medially 4.
4. Pronotum more or less infuscate; genital claspers slender (Pl. 8, figs. 2, 3)—Titahi Bay (Wellington), and Nelson
 O. nitidula (Broun) (Pl. 1, fig. 5).
 Pronotum not infuscate; genital claspers not slender (Pl. 8, fig. 4)—Broken River, Canterbury *O. subnitida* n. sp.
5. Male antennal club with five sub-equal lamellae 6.
 Male antennal club with less than five sub-equal lamellae 7.
6. Head uniformly black or dark brown; genital claspers stout throughout their length (Pl. 9, fig. 1), not slender on apical half; body not less than 17 mm. long—Central Plateau, North Island *O. magnum* n. sp. (Pl. 1, fig. 7).
 Head light brown with light suffusions; claspers slender on apical part and tapering toward apices (Pl. 9, fig. 2); body less than 15 mm. long—Nelson and Glenhope
 O. halli Broun (Pl. 1, fig. 8).
7. Male antennal club with four equal or sub-equal lamellae, sometimes with the fifth represented by a process on the fourth antennal segment 8.
 Male antennal club with fewer than four equal or sub-equal lamellae 17.
8. Colour uniform light yellow brown, the head and legs somewhat hyaline; fore tibiae (Pl. 12, fig. 8) slender with the ultimate tooth narrow, elongate and pointed—West Coast, North Auckland *O. cassiniae* n. sp. (Pl. 1, fig. 13).
 Colour, if uniform, reddish brown with head and legs not hyaline; fore-tibiae not slender, and with ultimate tooth rather short and blunt 9.
9. Bristles rarely present on discal areas of pronotum and elytra 10.
 Bristles plentiful on discal areas of pronotum and elytra 15.
10. Well developed proximal process on fourth antennal segment of male (Pl. 13, fig. 3) 11.
 Proximal process on fourth antennal segment of male missing or feebly developed 13.
11. Of uniform dull brick-red colour; genital claspers (Pl. 8, fig. 6) slender and not markedly asymmetrical—Mokohinau Isl.
 O. sandageri Broun (Pl. 1, fig. 12).
 Colour neither uniform nor brick-red; genital claspers bilaterally asymmetrical 12.
12. Fourth antennal segment of male rather slender and elongate (Pl. 12, fig. 3); genital claspers stout, broad, with a strong basal process on the left clasper (Pl. 9, fig. 3)—Kaitoke
 O. velutinum n. sp.
 Fourth antennal segment of male short and broad (Pl. 13, figs. 1, 1a, 1b); genital claspers very slender with the basal

- process rather small and delicate (Pl. 8, fig. 7)—Auckland northward *O. xanthosticta* White (Pl. 1, fig. 14).
13. Large species over 14 mm. long; genital claspers (Pl. 9, fig. 4) bilaterally symmetrical—Otaki Forks *O. aureopilosa* n. sp.
Smaller species less than 13 mm. long; genital claspers symmetrical or asymmetrical 14.
14. Pronotum broadest anterior to middle, anterior angles not acutely produced; genital claspers (Pl. 8, fig. 13) bilaterally symmetrical—Buller *O. inconspicua* n. sp.
Pronotum broadest posteriorly, anterior angles acutely produced; genital claspers (Pl. 8, figs. 8, 10) strongly bilaterally asymmetrical—North Isl. *O. piceiceps* Broun (Pl. 1, figs. 15, 16).
15. Fifth lamella of club of male (Pl. 13, fig. 4) represented by a pilose process on the fourth antennal segment more than half as long as the club itself—Christchurch to Bluff *O. striata* White (Pl. 1, figs. 9, 10, 11).
Fifth lamella represented in male by a process much less than half the length of club proper, or completely absent 16.
16. A short pilose process on fourth antennal segment of male (Pl. 13, fig. 7)—Canterbury and Nelson *O. varicolorata* n. sp. (Pl. 1, figs. 18, 19, 20).
No pilose process on fourth antennal segment of male (Pl. 13, fig. 8)—Nelson to Bluff *O. australis* n. sp. (Pl. 1, fig. 21).
17. Distinct pilose process on fifth antennal segment of male 18.
Process on fifth antennal segment of male absent or, if present, not pilose 21.
18. Pilose process on fifth antennal segment of male (Pl. 13, fig. 9) more than one third length of club—Nelson *O. autumnalis* n. sp. (Pl. 2, fig. 1).
Pilose process on fifth antennal segment of male much less than one third length of club 19.
19. Elytra almost unicolorous, light red-brown, with interstitial markings indistinct or absent; elytral bristles (Pl. 13, fig. 12) coarse, scattered over anterior surfaces, but few or none posteriorly. Genital claspers (Pl. 9, fig. 9) broadly expanded basally—Hawkes Bay, Plimmerton, Canterbury *O. smithii* Broun (Pl. 2, figs. 3, 4).
Elytra dark-brown, or if light-brown then dorsal bristles extremely long and thin, densely present over entire surface. Genital claspers not broadly expanded basally 20.
20. Elytral bristles decumbent (Pl. 13, fig. 18), interstitial markings obscure—The Wilderness, Te Anau *O. rufescens* n. sp. (Pl. 2, fig. 5).
Elytral bristles suberect (Pl. 13, fig. 14), interstitial markings obvious and regular—North Island *O. obscura* Broun (Pl. 2, fig. 2).
21. Frons distinctly depressed at junction with vertex. Genital claspers very long and slender (Pl. 10, fig. 1)—Mountain forests North Island *O. marmorata* Broun (Pl. 2, fig. 6).
Frons not distinctly depressed at vertex. Genital claspers not markedly slender 22.
22. Fore-tibial teeth poorly developed (Pl. 13, fig. 15)—Port Hills, Christchurch; Tarndale, Upper Wairau *O. aurantia* n. sp. (Pl. 1, fig. 17).
Fore-tibial teeth well developed 23.
23. Pronotum and elytra red- or golden-brown, not darker mottled 24.
Pronotum mottled or variegated 25.
24. Pronotum only very slightly narrowed anteriorly from posterior angles. Genital claspers strongly asymmetrical (Pl. 10, figs. 5, 17, 18, 19)—Mt. Arthur, Nelson *O. macrothoracica* n. sp. (Pl. 2, fig. 7).
Pronotum strongly narrowed anteriorly. Genital claspers bilat-

- erally symmetrical (Pl. 11, figs. 4, 16)—Port Hills, Christchurch *O. regalis* n. sp. (Pl. 2, fig. 15).
25. Submarginal posterior pronotal hairs long, whitish and silky, often nearly covering scutellum 26.
- Submarginal posterior pronotal hairs greyish, short, never extending over scutellum 27.
26. Submarginal posterior pronotal hairs extending to posterior margin of scutellum; discal pronotal hairs of male very long, dense and suberect—Mt. Arthur, Nelson; Ben Lomond, Queenstown; Bold Peak, Wakatipu; Homer *O. variegata* n. sp. (Pl. 2, figs. 13, 14).
- Submarginal posterior pronotal hairs never extending to posterior margin of scutellum; discal pronotal hairs short and decumbent—Travers Valley, Nelson; Rakaia Gorge; Otira Gorge; Arthurs Pass *O. occiputale* Broun (Pl. 2, figs. 11, 12).
27. Elytra transversely uniformly convex. Genital claspers bilaterally symmetrical (Pl. 10, fig. 2)—Waiho *O. convexa* n. sp. (Pl. 2, fig. 10).
- Elytra transversely somewhat flattened medially. Genital claspers bilaterally asymmetrical 28.
28. Sternal colour dark-brown mottled with light red-brown. Elytra somewhat truncate apically. Left genital clasper angularly expanded behind the apex (Pl. 10, figs. 6, 20)—Takaka Hill, Nelson *O. decepta* n. sp.
- Sternal elements usually not mottled. Elytra apically rounded. Left genital clasper basally expanded, but not angularly 29.
29. Sternal elements dark-brown in colour. Genital claspers very slender, with the basal expansion of the left member thin and not broad (Pl. 10, figs. 3, 7)—Low ranges near Nelson *O. communis* n. sp. (Pl. 2, fig. 9).
- Sternal elements reddish or testaceous. Genital claspers not slender, with the basal expansion of the left member thick and broad (Pl. 10, figs. 4, 8 to 16)—High ranges throughout the South Island *O. similis* Broun (Pl. 2, fig. 8).

SECTION A.

Descriptions based on a study of types or of material of reasonably certain identity.

1. ODONTRIA SYLVATICA Broun

Man. N.Z. Coleop., 1:268 (1880).

calvescens Brookes, Trans. N.Z. Inst., 56:445, *Odontria* (1926).

puncticollis Broun, N.Z. Inst., Bull. no. 1, pt. 4, p. 317, *Odontria* (1915).

(Pl. 1, fig. 4; Pls. 8 and 11).

COLOUR usually chestnut or reddish-brown on the elytra, with the head and pronotum somewhat darker. ELYTRA sometimes infuscate with scattered light spots; the striae marked by dark rows of punctures and sometimes with dark markings on the interstices. Legs and ventral surface somewhat testaceous, with teeth and spines darker (Pl. 1, fig. 4).

HEAD moderately large; CLYPEUS (Pl. 11, fig. 28) somewhat truncate anteriorly, rather coarsely punctate, margins strongly reflexed; clypeal suture deeply impressed, not sharply angled medially; FRONS coarsely and irregularly punctured, the upper puncturing roughly forming a depressed area giving the junc-

tion between the frons and vertex an angled appearance; VERTEX smooth; frontal and clypeal bristles short. ANTENNAE of male (Pl. 11, figs. 17 to 20) with the club quadrilamellate, the lamellae being much longer than the preceding three segments together; in the female (Pl. 11, figs. 17a to 20a) the club is trilamellate, with an internal process on the fifth segment.

PRONOTUM markedly transverse, parallel-sided posterior to middle line and slightly narrowing anteriorly; lateral margins very slightly marginate, posterior margin depressed and very slightly bisinuate; anterior angles acute, not strongly reflexed and not extending beyond bases of eyes; posterior angles broadly rounded; surface finely and closely punctate, clothed with fine decumbent brassy hairs, marginal bristles, especially on the anterior margin, relatively short. SCUTELLUM haired, closely punctate, rounded posteriorly, somewhat raised discally. ELYTRA moderately broad, evenly rounded posteriorly, the striae very slightly impressed and finely punctate, but not bearing hairs; interstices finely punctate and haired. VENTRAL SURFACE less densely haired than in most other species, the meta-sternal hairs being relatively short; coxae and sterna somewhat nacreous.

GENITAL CLASPERS strongly bilaterally asymmetrical (Pl. 8, figs. 11, 12).

Length, 11-14 mm.

Breadth, 6-8.5 mm.

TYPE in Broun Collection, British Museum, collected near Ruakaka.

MATERIAL EXAMINED. Two males and three females collected by Mr. A. M. Moore, Rotorua, February 1945; seventeen males and twenty-four females from Ruakaka, North Auckland, November 1944, five males and five females from Kaitaia, December 1944, one male from Waipapakauri, December 1944, and three males and one female from Lake Ohia, December 1944, all collected by the writer; one male and two females collected by Mr. J. M. Kelsey, Manukau Heads, April 1944. All the above specimens are in the collection of the Entomological Research Station, Nelson.

One male collected by Dr. J. T. Salmon at Mt. Maunganui, December 1937—Dominion Museum collection.

Two males and one female collected by Mr. R. Cooper, New Plymouth, January 1934, and in the collectors collection at Auckland.

REMARKS. The reduction to synonymy of *O. punctiellis* Broun and *O. calvescens* Brookes resulted from an examination of material collected at Ruakaka (within five miles of the type locality of *O. sylvatica*), at Lake Ohia (type locality for *O. calvescens*) and at Rotorua (type locality for *O. punctiellis*).

A careful examination of this material, together with specimens from Hawkes Bay, Taumarunui, Mt. Maunganui, Manukau Heads and New Plymouth, failed to disclose any reliable specific differences. Though the North Auckland material has, in all

cases, a more acute middle fore-tibial tooth (Pl. 11, figs. 21 to 24) it cannot otherwise be separated from material found at Rotorua or elsewhere, except in the case of specimens found at Manukau Heads and New Plymouth; this latter material presents a form by far the most distinctive and recognisable by the larger antennae (Pl. 11, figs. 17, 17a) and somewhat brighter colour.

The above observations are supported by Messrs. E. B. Britton and G. Arrow, of the British Museum, to whom specimens from North Auckland were submitted for verification. Mr. Britton writes as follows:—" . . . the suggested identifications . . . and *O. sylvatica* Broun are correct. I observe, however, that there are no specific differences between the original series of *O. sylvatica* and *O. puncticollis* Broun, and the latter should therefore be made a synonym. Mr. Arrow has also examined the material and agrees with this opinion." "The original series of five examples of *O. sylvatica* are all females, but the male genitalia of a paratype of *O. puncticollis* are identical with the genitalia of the male received."

2. ODONTRIA NESOBIA Broun.

N.Z. Inst., Bull. no. 1, pt. 7, p. 615 (1921).

(Pl. 1, fig. 6; pls. 8 and 11).

COLOUR castaneous or rufo-castaneous, usually uniform, although the head or clypeus may be somewhat lighter. LEGS lighter (Pl. 1, fig. 6).

HEAD larger than in the previous species; punctation coarse, and dorsal bristles almost white in colour; vertex smooth, somewhat angled at junction with frons; punctation closer and more rugose on clypeus (Pl. 11, fig. 27) than on frons; CLYPEUS slightly truncate, strongly reflexed at its anterior margin, and the clypeal suture angled medially. ANTENNAE of both sexes similar (Pl. 11, fig. 26), tri-lamellate, short clubbed and having the inner lamella of club shorter than the distal two.

PRONOTUM markedly transverse, anterior angles projecting well forward and acute; posterior angles moderately angulate, not rounded; lateral margins slightly reflexed, and faintly angled at middle, posterior margin strongly depressed and finely reflexed; discal area finely punctate, and rather sparsely clothed with prominent, decumbent, whitish hairs, and a few erect bristles. SCUTELLUM sparingly punctate and haired. ELYTRA rather elongate, broadest in posterior half; interstices of approximately equal width and indistinctly marked, except for lack of bristles or hairs along punctate striae; punctures rather coarse, each being the seat of a decumbent whitish hair as on other dorsal surfaces; a few erect bristles present toward the anterior end of discal elytral area. Ultimate tooth on FORE TIBIA slender and apically rounded (Pl. 11, fig. 25). VENTRAL SURFACE having the thoracic elements (including coxae) somewhat nacreous, and the sterna thinly covered with minute punc-

tures and long hairs. GENITAL CLASPERS much expanded medially (Pl. 8, fig. 1).

Length, 12.5 mm.

Breadth, 7.0 mm.

TYPE in Broun Collection, British Museum.

MATERIAL EXAMINED. The above description is based on one male collected by Mr. E. S. Gourlay on Stephens Island, January, 1931, and one female by the same collector in January, 1933; these specimens and one taken at the same locality by R. J. Tillyard in January, 1922, are in the Cawthron Institute collection. Also, from the same locality, five males and one female taken in 1931 and 1933, E. S. Gourlay, one male, 10th September, 1916, A. C. O'Connor, in the collection of E. S. Gourlay. Broun's type material, from Stephens Island, was collected during May, but there is no indication whether the beetles were on the wing, or whether the material was dead when collected.

REMARKS. Broun considered this species to be allied to *puncticollis* (*sylvatica*), but though this is correct in certain ways the conclusion is inclined to be misleading. The affinities of *nesobia* are much closer to *subnitida* and *nitidula* where the similarity lies in such characters as male genitalia and structure of tibiae, rather than in colour and general form.

The superficial resemblance between *nesobia* and *sylvatica* is remarkable, but the main differences between them are the primary and secondary sexual characters. The male genitalia of *nesobia* (Pl. 8, fig. 1) are bilaterally symmetrical, whereas they are not so in *sylvatica* (Pl. 8, figs. 11, 12); further, the male antennae of the former (Pl. 11, fig. 26) are tri-lamellate as are those of the female, but in the latter (Pl. 11, figs. 17-20) the male antennae are quadri-lamellate and those of the female tri-lamellate.

Differences common to both sexes are that in *nesobia* the ultimate fore-tibial tooth is slender, as in *nitidula*, etc., whereas in *sylvatica* it is blunt and broad. Again, *nesobia* has the elytral interstices not clearly outlined but has the hairs coarse and conspicuously white; the posterior pronotal angles are angulate and the thoracic sternites nacreous. In the case of *sylvatica* the elytral interstices are defined by distinct dark lines, and the dorsal hairs are fine, inconspicuous and brownish-golden; the posterior pronotal angles are rounded, while the thoracic sternites are not nacreous.

3. ODONTARIA NITIDULA Broun.

Trans. N.Z. Inst., 44:425 (1911).

(Pl. 1, fig. 5; Pl. 8).

COLOUR generally testaceous (Pl. 1, fig. 5), with the CLYPEUS light red-brown, FRONS infusate, VERTEX reddish, and anterior discal area of pronotum and anterior sutural elytral area somewhat infusate; VENTRAL SURFACE and LEGS (apart from spines and teeth) testaceous.

HEAD, ELYTRA, PRONOTUM and VENTRAL SURFACE as in *nesobia*, from which it differs in the bisinuate clypeal suture, closely punctate and haired SCUTELLUM, more sharply pointed FORE-TIBIAL TEETH, and in the slender GENITAL CLASPERS (Pl. 8, Figs. 2, 3).

Length, 11.5 mm.

Breadth, 6.5 mm.

TYPE in the Broun Collection, British Museum.

MATERIAL EXAMINED. One male from Titahi Bay (the type locality) in the O'Connor Collection, Dominion Museum; and two hundred specimens in the Entomological Research Station, collected at Tahunanui Beach, Nelson, by the author, February, 1945.

REMARKS. The form of this species occurring at Tahunanui, Nelson, in association with the host plant, *Cassinia* sp., on sand dunes, is considered by Mr. A. E. Brookes to be distinct from *nitidula* on comparison with his specimens. He gives several points of separation which do not, however, apply to the material which the author has studied. The difference apparently lies in the material of *nitidula*, as the specimen in the O'Connor collection examined by the author does not bear the negative or positive characters set out by Mr. Brookes. Whether these characters are not constant, or whether there are two closely allied species found at Titahi Bay, is yet to be determined. There are slight differences between the Tahunanui specimens and the O'Connor specimens from Titahi Bay (Pl. 8, figs. 2, 3), but they are not sufficient for specific separation on morphological considerations alone.

4. ODONTRIA SUBNITIDA n.sp.

(Pl. 8, fig. 4).

O. subnitida is closely allied to *nesobia* and *nitidula* (especially the latter). It is by no means readily segregated from them with any degree of certainty, except from *nesobia* on genital characters (Pl. 8, fig. 1 compared with fig. 4) where the difference is marked; but this contrast tends to minimise any difference that might exist between the genitalia of *subnitida* and *nitidula* (Pl. 8, figs. 2, 3 compared with fig. 4) where the only striking contrast is possibly in that the claspers and basal shield are of equal length in *nitidula*, but in *subnitida* the claspers are distinctly shorter than the basal shield.

Consideration of external features reveals that the most obvious differences, taken together, though uncertain for descriptive purposes, are that in *subnitida* the elytra and thorax are rather dull, with the elytral punctations finer and the vestiture less obvious, while the anterior thoracic angles are more strongly produced forward. From *nesobia*, however, the external distinction is more definite as *subnitida* is testaceous except for the reddish head. In segregating the three species size and locality should be taken into consideration.

Length, 11 mm.

Breadth, 6.5 mm.

HOLOTYPE male and PARATYPE male in Dominion Museum collection.

MATERIAL EXAMINED. Type material collected by Mr. E. Fairburn, at Broken River, Canterbury, March, 1935.

5. *ODONTRIA MAGNUM* n.sp.

(Pl. 1, fig. 7; Pls. 9 & 12).

This is the largest known species of the genus. It is a handsome, velvety beetle with markings somewhat similar to those of *xanthosticta* (Pl. 1, fig. 4), but morphologically is most nearly allied to *halhi*.

HEAD (Pl. 12, fig. 5) large, dark red-brown to black in colour, rather coarsely punctate over entire area except vertex; EYES very prominent and protruding; EPICRANIAL PROCESS long and slender. CLYPEUS somewhat rectangular, anterior margin moderately flexed, suture sinuate and medially angled; clypeal and frontal bristles rather fine. ANTENNAE: of male (Pl. 12, fig. 1) having club very large, quinque-lamellate, lamellae longer than width of clypeus, and the third antennal segment produced basally as a definite, pilose, dentate process; of female (Pl. 12, fig. 1a) having club tri-lamellate, and the fifth antennal segment produced as a pilose but slender pseudo-lamellate process one third of the length of the lamellae proper, and the fourth segment slightly produced basally but the third normally elongate and cylindrical.

PRONOTUM dull, dark red-brown, densely clothed with decumbent, brassy hairs and bristled at margins; strongly transverse, parallel-sided posteriorly, strongly narrowed anteriorly; margins very narrowly reflexed; anterior angles moderately produced forward, not strongly reflexed; posterior angles squared, slightly rounded. SCUTELLUM dull, deep red-brown, densely haired. Elytra rich red-brown in general colour, but with a dull sheen imparted by a dense clothing of decumbent brassy hairs; striate, the interstices dark with large circular light patches on alternate spaces; intermediate interstices finely spotted with light dots; bristles on discal areas scattered, few and not elongate, but well developed along margins. TIBIAL TEETH normal.

VENTRAL SURFACE much the same colour as the pronotum and not distinctive.

GENITAL CLASPERS (Pl. 9, fig. 1) stout throughout their length, not slender on apical half.

Length, 18.0 mm.

Breadth, 9.5 mm.

HOLOTYPE male and ALLOTYPE female in collection of Entomological Research Station, Nelson.

MATERIAL EXAMINED. The holotype was collected by Mr. A. M. Moore, State Forest Service, in a *Pinus laricio* plantation at Rotorua, February, 1945. The allotype female was

collected by Dr. D. Miller at Pokaka, February, 1922. Other specimens (paratypes) examined were four males; one collected by Mr. A. C. O'Connor at Tauroa, December, 1944, and loaned by Mr. A. E. Brookes, two males and one female collected by Mr. G. B. Rawlings at Tarawera, November, 1929, in the collection of Mr. E. S. Gourlay, and one collected by Mr. C. Martin at Apiti, August, 1922, in the Entomology Division collection.

REMARKS. *O. magnum* is a very handsome species, apparently confined to the central region of the North Island. It is very distinctive on account of its large size, the relatively large male antennal club and the large protruding eyes. It is closely allied to *halli* as shown by the male genital characters (Pl. 9, figs. 1 and 2 respectively).

6. ODONTARIA HALLI Broun.

N.Z. Inst., Bull. no. 1, pt. 6, p. 533 (1921).

(Pl. 1, fig. 8; Pls. 9 & 12).

O. halli is very similar to *magnum*, even in the male genitalia (Pl. 9, fig. 2), but is of smaller size and readily distinguished by the following characters.

The COLOUR of *halli* (Pl. 1, fig. 8—a dark form) is usually somewhat lighter than the richer red-brown *magnum*, and tends toward colder yellow-brown mottled in fine striate pattern with darker shades on the elytra.

The shape of the HEAD with its bulbous eyes and truncate clypeus is very similar in both species, but in *halli* the bristles, as on all dorsal areas, are much longer and more prominent, a difference also seen in the hairs and bristles of the antennal lamellae (Pl. 12, fig. 2). On the ANTENNAE, the basal process of the third segment of the male is elongate and more in the form of a pseudo-lamella (Pl. 12, fig. 2), while the fourth and fifth segments are both dentate in the female (fig. 2a), the fifth thus not bearing a pseudo-lamellar process as in *magnum*. Finally, the elytral striation of *halli* is more obscure than that of *magnum*.

Length, 13-14 mm.

Breadth, 7 mm.

TYPE in Broun Collection, British Museum; Glenhope, Nelson, July, 1915.

MATERIAL EXAMINED. A male collected by Mr. T. Hall (who collected the type) at Glenhope, Nelson, July, 1915 (loaned by Mr. A. E. Brookes); Broun's material comprised two males and one female. Other material studied was a pair collected by the writer on Jenkins Hill, Nelson, November, 1943, the specimens being deposited in the collection of the Entomological Research Station; one specimen, Flora Camp, Mt. Arthur, January, 1930, taken by Mr. E. S. Gourlay and in his collection.

REMARKS. *O. halli* is a rather inconspicuous and an apparently uncommon species. The pair found by the author

were in leaf mould on a ridge in dense beech forest at an altitude of approximately 3,000 feet.

7. *ODONTRIA CASSINIAE* n.sp.

(Pl. 1, fig. 13; Pls. 8 & 12).

A distinctive species, related on the one hand to *sandageri* and *xanthosticta*, and on the other to *nitidula*, *subnitida* and *nesobia*, though, of all these, *sandageri* is the species it most closely resembles.

COLOUR uniform testaceous (Pl. 1, fig. 13) with the head and legs somewhat hyaline; eyes dark-brown; an infusate spot on each side of the clypeus, close to eye margins and adjacent to the suture; margins of clypeus, pronotum, scutellum and elytra lined by very narrow reddish areas; claws, spines and articulations of limb segments similarly reddish.

HEAD spherical and rather smooth; **EYES** not markedly prominent except by virtue of their colour; **EPICRANIAL PROCESS** small and narrow; **VERTEX** smooth and not sharply marked off from the frons which is obscurely punctate and bristled; **CLYPEUS** finely and evenly punctate; clypeal suture almost straight, slightly angled medially; margin of clypeus not strongly reflexed as compared with other members of the genus; clypeal bristles fine. **ANTENNAE** in male with a quadri-lamellate, moderately large club, the fourth segment prolonged anteriorly into a pubescent pointed process; in female, antennal club smaller and tri-lamellate with the fifth segment anteriorly produced as a pubescent process half as long as the lamellae proper.

PRONOTUM not characteristic; strongly transverse, very slightly nitid, clothed with short fine decumbent golden hairs, and with margins bristled; lateral margins not reflexed, the posterior ones very narrowly so; anterior angles acute but not prominent and only very slightly reflexed, the posterior angles rounded. **SCUTELLUM** haired as pronotum and not characteristic. **ELYTRA** haired as pronotum, with marginal bristles and a few on shoulders and sides; striation obsolete. **TIBIAL TEETH** very slender (Pl. 12, fig. 8).

GENITALIA of male shown in Pl. 8, fig. 5.

Length, 13-15 mm.

Breadth, 7-8.5 mm.

TYPE. Holotype male and allotype female in collection of Division of Entomology, Plant Research Bureau.

MATERIAL EXAMINED. Holotype male and allotype female, together with nineteen male and thirteen female paratypes from Maunganui Bluff beach, two male and one female paratypes from Opononi, and two male and one female paratypes from Ahipara. All the above material was collected by the author during the first week of December, 1944.

REMARKS. This species, like *nitidula*, occurs in sand-dunes in association with *Cassinia* spp. as host plants; even in moving dunes in the Far North, adults were found plentifully in this relationship. Although obviously allied to *sandageri*,

cassiniae differs in genital characters (Pl. 8, figs. 5 and 6), and in the nature of the fore-tibial teeth (Pl. 12, figs. 8 and 9) which are blunt and short in the former species; on the other hand antennal characters are very similar in both species, and the vestiture is identical. Though *cassiniae* differs from *nitidula* in most morphological characters, it is possible that the little explored sand-dune habitat between Maunganui Bluff and Titahi Bay may produce intermediates; however, the morphological gap is a wide one, *cassiniae* being associated with *xanthosticta* and *sylvatica* through *sandageri*, while *nitidula*, *nesobia* and *subnitida* seem to stand alone.

8. ODONTRIA SANDAGERI Broun

Man. N.Z. Coleopt., 2:929 (1881).

(Pls. 1, 8, 12, 13).

In most respects this species bears a strong resemblance to *cassiniae*, the general outline, uniformity of colour and vestiture being similar. However, the following differences are clearly marked. In *sandageri* (Pl. 1, fig. 12) the colour is a uniform light brick-red with a dark head, whereas in *cassiniae* (Pl. 1, fig. 13) the colour is testaceous, the only markedly dark parts being the eyes. In the former the fore tibiae are not markedly slender, but in the latter they are very slender (Pl. 12, figs. 8 and 9). Minor differences occur in the head punctation and in the antennae, but are so slight as to be of no account. With the exception of these points mentioned above, together with differences in the male genital characters (Pl. 8, figs. 5 and 6), the description of *cassiniae* applies perfectly to *sandageri*.

Length, 12-14 mm.

Breadth, 7-9 mm.

TYPE. A male and a female in the Broun Collection, British Museum, collected by Mr. P. Sandager among fern roots on Mokohinau Island.

MATERIAL EXAMINED. A pair collected by Mr. P. Sandager on Mokohinau Island and loaned by Mr. E. S. Gourlay.

9. ODONTRIA VELUTINUM n.sp.

(Pls. 9, 12).

A large handsome species, very similar to *magnum* in certain respects, but differing strongly from it in antennal and genital characters. It appears to be less ornate than *magnum*, is smaller in size, has less prominent eyes (Pl. 12, figs. 4 and 5), and is somewhat narrower at the elytral shoulders. Antennal characters indicate relationship to *xanthosticta* and its allies, and in many respects it is very much like a larger form of this species. However, the genital characters make separation quite clear (compare Pl. 8, fig. 7 and Pl. 9, fig. 3).

HEAD (Pl. 12, fig. 4) very dark red-brown or piceous, somewhat lighter on the clypeus; frontal and clypeal areas coarsely and evenly punctate, and conspicuously bristled; VERTEX smooth;

CLYPEUS truncate, strongly reflexed; EPICRANIAL PROCESSES well developed, but rather narrow; EYES not abnormally large. ANTENNAE of male large (Pl. 12, fig. 3), quadri-lamellate, with the fourth segment produced basally, the process being about one quarter the length of the lamellae proper; female antennae (Pl. 12, fig. 3a) tri-lamellate, with the fifth segment produced into a process nearly half the length of the lamellae proper.

PRONOTUM (Pl. 12, fig. 6) not reflexed at the anterior angles, densely haired, with numerous bristles along the margins, especially laterally and posteriorly; colour deep reddish-brown with a golden sheen imparted by the hairs as in many related species (*magnum*, *xanthosticta*, etc.). SCUTELLUM flat on visible area, similar in colour and vestiture to pronotum. ELYTRA obscurely striate, the vestiture and colour similar to that of pronotum, with rather inconspicuous inter-strial spots of lighter colour as in dark forms of *xanthosticta*. Other features not characteristic.

GENITAL CLASPERS very characteristic (Pl. 9, fig. 3) on account of the peculiar dorsal process on the left clasper.

Length: male, 14.5 mm.; female, 15 mm.

Breadth: male, 8.0 mm.; female, 9 mm.

HOLOTYPE male, and ALLOTYPE female, in O'Connor Collection, Dominion Museum.

MATERIAL EXAMINED. The O'Connor types collected at Kaitoke, March, 1911.

10. ODONTRIA XANTHOSTICTA White.

Voy. Ereb. Terr., Ins., p. 10 (1844).

(Pls. 1, 8, 13).

This species (Pl. 1, fig. 14) is very similar to *piciceps* (Pl. 1, figs. 15, 16), the two being commonly confused by collectors. The most striking difference is in the male genitalia (Pl. 8, figs. 7, 8, 10), while lesser differences are apparent in the antennae (Pl. 13, figs. 1-1d; and 2-2b). No reliable character has so far been found for the separation of the females.

HEAD not characteristic; dark red-brown in colour; frontal and clypeal areas coarsely and fairly densely punctured and bristled; CLYPEUS somewhat truncated and strongly transverse. ANTENNAE of male (Pl. 13, figs. 1-1b) quadri-lamellate, with the fourth segment produced basally to form a process varying in length from one eighth to one half that of the lamellae of the club, which is itself slightly longer than the four remaining segments together.

PRONOTUM not characteristic; dark brown in colour, the numerous decumbent hairs imparting a golden sheen; scattered bristles on discal area, the margins fringed with longer ones; posterior angles rounded, anterior angles not markedly reflexed. SCUTELLUM not characteristic; colour and vestiture as on pronotum. ELYTRA dull and covered with decumbent short hairs; obviously striate; alternate interstices with dark-brown mark-

ings broken at intervals by conspicuous, light, almost circular patches, while smaller and less regular light patches occur at the edges of the interstices giving the dark markings an irregular pattern; on the lighter coloured interstices are irregular small dark areas; these markings impart to the whole elytra a warm, rich brown, mottled velvet effect with a golden sheen due to the light-reflecting properties of the hairs; a few bristles occur on the elytral shoulders and margins but not elsewhere. Tibiae and ventral surface present no noteworthy characteristics.

GENITAL CLASPERS very slender with the basal process rather small and delicate (Pl. 8, fig. 7).

Length, 12-14.5 mm.

Breadth, 5.5-6.5 mm.

TYPE in the White Collection, British Museum.

MATERIAL EXAMINED. Fifteen males and eight females as follows: eight males and seven females collected by Mr. A. E. A. Wiffen, Whangarei Heads, 1945; one male and one female collected by Mrs. W. A. Given, Whangarei, 1944; four males collected by Mr. J. M. Kelsey at Auckland, March, 1945, and one male at Onehunga, February, 1945; all the above are in the collection of the Entomological Research Station. One male, loaned by Mr. E. S. Gourlay, collected by Mr. Kerr, Whangarei Heads; additional material in the collections of Mr. E. S. Gourlay and the Cawthron Institute.

REMARKS. This species appears to fly during the autumn and winter, since records on the material examined show collection dates ranging through February, March, May and August. It appears to be coastal in habitat, and is restricted probably to the Auckland Province.

11. ODONTARIA PICICEPS Broun

Man. N.Z. Coleopt., 7:1450 (1893).

(Pls. 1, 8, 13).

The following description is probably correctly assigned to *piciceps*, although without comparison with the type it is not possible to be certain.

The similarity between *xanthosticta* and *piciceps* has been pointed out in the previous description; it is only in the males that a clear distinction can be made, and even then it may be necessary to dissect out the genitalia (Pl. 8, figs. 8, 10) in some cases. Antennal differences in the males are illustrated with their variability; in *piciceps* (Pl. 13, figs. 2, 2a) the more or less elongate process present on the fourth segment in *xanthosticta* is reduced to a smooth angulation, or is completely missing; in *xanthosticta* (Pl. 13, figs. 1, 1a, 1b) this process may be short or long, and in all cases bears at least an apical tuft of hairs, while in extreme cases it is haired as are the lamellae proper of the club; in *piciceps* the lamellae are shorter than the preceding four segments together.

Length, 10-13 mm.

Breadth, 6-7 mm.

TYPE in the Broun Collection, British Museum; Broun secured his material from the "North Island, various localities."

MATERIAL EXAMINED. From the collection of the Entomological Research Station: one male and three females collected by Dr. J. G. Myers, Kaitaia, February, 1923; one male and one female from Kaitaia, December, 1944, two females from Lake Ohia, December, 1944, one male from Whananaki, December, 1944, seven males and four females from Parahaki Hill, Whangarei, November and December, 1944, collected by the author; two males collected by Miss M. Carter, Titirangi, February, 1945.

From the Dominion Museum Collection: one male collected by Miss E. Plank, Taumarunui, December, 1931; one male collected by Miss A. Castle, Rimutaka Ranges, February, 1928; two males and one female (O'Connor Collection) from Silverstream, January and February, 1911; finally, one male collected by Mr. F. Gardner, Oio, January, 1936, and loaned by Mr. E. S. Gourlay.

REMARKS. *O. piciceps* is a variable species ranging in elytral colour from testaceous, with a few indistinct dark spots, to almost unbroken dark red-brown. It occurs practically throughout the North Island, and is particularly common on manuka in North Auckland; the author has not found it on any other host-plant.

12. ODONTRIA INCONSPICUA n.sp.

(Pls. 8, 13).

This species has characters in common with several other forms, but is yet not definitely associated morphologically with any of them. The antennae are similar to those of *piciceps*, but the shape of the pronotum (Pl. 13, fig. 5) and the markings of the elytra resemble more those of *communis*.

HEAD brownish-black on frontal area, with light brown markings near the clypeal suture and toward the vertex; **CLYPEUS** testaceous, strongly transverse, truncate in front, and obscurely punctured; frontal area irregularly but rather densely punctured and finely bristled; **EPICRANIAL PROCESS** rather small. **ANTENNAE** of male quadri-lamellate, similar to those of *piciceps*. Female not known.

PRONOTUM (Pl. 13, fig. 5) distinctive in the even curvature of the lateral margins, in this respect resembling *Prodontria* spp.; anterior angles less acute than in any other species of *Odontria*, and not at all upturned; posterior angles rounded, and posterior margin bisinuate; margins only very slightly reflexed; lateral marginal bristles heavy; entire surface covered with decumbent hairs, and thick reddish bristles of various lengths present, especially at the sides; colour testaceous, mottled with a darker suffusion. **SCUTELLUM** not distinctive, coloured and with vestiture as discal areas of elytra and pronotum. **ELYTRA** not distinctive; striation obscure but present, the striae punctures not set in any groove or depressed area; vestiture and colour as pronotum, with darker suffused areas on outer faces of

shoulders. VENTRAL SURFACE testaceous, not distinctive.

GENITAL CLASPERS bilaterally symmetrical (Pl. 8, fig. 13).

Length, 12 mm.

Breadth, 6.5 mm.

HOLOTYPE male in O'Connor Collection, Dominion Museum.

MATERIAL EXAMINED. Holotype male collected by "G.V.H." (probably Mr. G. V. Hudson), Buller River, January, 1919. This is the only specimen known to the author.

13. ODONTARIA AUREOPILOSA n.sp.

(Pls. 9, 12).

On casual observation, this species is remarkably similar to *velutinum*. However, the male may be readily distinguished from that species (and also from *magnum*) by its smaller quadri-lamellate antennal club, and its broad-based pronotum (Pl. 12, figs. 6 and 7). The genitalia (Pl. 9, figs. 3 and 4) are also very dissimilar in these two species.

In all respects, except the following, the description of *velutinum* may be taken as suitable for *aureopilosa*. In *aureopilosa* the CLYPEUS (Pl. 12, fig. 7) is obscurely and sparsely punctate, the lateral pronotal margins are angled (or curved) anterior to middle line (at middle line in *velutinum*), the PRONOTUM is broader posteriorly, while the ANTENNAL LAMELLAE are shorter, and have a more normal fourth antennal segment in the specimen examined (compare Pl. 12, figs. 6 and 7).

HOLOTYPE male in the O'Connor Collection, Dominion Museum.

MATERIAL EXAMINED. The holotype collected at Otaki Forks (1700 ft.) April, 1909. This is the only specimen known to the author.

14. ODONTARIA STRIATA White

Voy. Ereb. Terr., Ins., p. 10 (1844).

(Pls. 2, 9, 13, 14).

monticola Broun, Trans. N.Z. Inst., 44:426 (1912).

HEAD large (Pl. 14, fig. 8) with small eyes; colour (Pl. 1, figs. 9, 10, 11) usually testaceous with a dark suffusion in a varying but symmetrical pattern; frontal area coarsely, irregularly, but not closely punctured; bristles fine and rather short; VERTEX smooth, not clearly marked off from frons; CLYPEAL SUTURE deeply impressed, shallowly sinuate, not angled medially; EPICRANIAL PROCESSES rather large, strongly keeled; CLYPEUS usually obscurely punctate, although on some specimens the punctures are very definite; the punctures and bristles are closer on the clypeus than on the frons. ANTENNAE of male (Pl. 13, fig. 4) quadri-lamellate, the lamellae longer than segments 1-3 combined; an internal process on the fourth segment ranging from two-thirds to nearly the same length as the first lamella;

female antennae (Pl. 13, fig. 4a) tri-lamellate, the fourth and fifth antennal segments each with an inner pilose process of variable length.

PRONOTUM large, usually with a sub-symmetrical pattern of brown-black on a light brown or testaceous base, the darker markings being usually confined to the discal area, with a light reddish-brown patch on each side of the middle longitudinal line just behind the anterior margin, and with longitudinal light areas just inside the lateral margins; reflexed marginal areas brown-black; entire surface covered with decumbent brassy hairs and numerous upright long bristles; lateral margins smoothly curved towards anterior angles, which are somewhat reflexed and strongly projecting forward; posterior angles rounded and right-angular; margins narrowly reflexed, and bearing long bristles; posterior marginal bristles fine and close-set. **SCUTELLUM** light brown, haired and bristled as pronotum. **ELYTRA** very variable in colour (Pl. 1, figs. 9, 10, 11); striae usually marked as fine black lines and with alternate light and dark interstices, the dark stripes so formed being broken by round light spots at the centre of each of which is a long strong bristle; the dark areas may be so broken as to give no definite striped appearance at all; in some cases dark areas are completely absent, while in others the background colour is so darkened as to almost obliterate any pattern; vestiture consists of similar elements present on the pronotum, but the discal bristles are longer and more numerous and especially prominent on the anterior areas of the elytra.

VENTRAL SURFACE (Pl. 14, fig 12) strongly haired and bristled, reddish brown in colour, the abdominal segments usually with a tortoise-shell-like mottling.

GENITALIA of male as illustrated (Pl. 9, fig. 7).

Length, 11.5-16 mm.

Breadth, 7.0-9.0 mm.

TYPE in White Collection, British Museum.

MATERIAL EXAMINED. Over fifty specimens of each sex collected between Bluff and North Canterbury by various collectors; there are occasional records from the North Island; the majority of this material is in the collection of the Entomology Division, Plant Research Bureau.

REMARKS. *O. striata* is very common throughout Canterbury, Otago and Southland; the adults may be taken on the wing throughout the year, but large flights are mostly in late summer and early autumn. The insect does considerable damage in shrubberies and gardens and occasionally to pasture.

15. *ODONTRIA VARICOLORATA* n.sp.

(Pls. 1, 9, 13).

This is a variable species bearing a superficial resemblance to several others (Pl. 1, figs. 18, 19, 20).

HEAD almost identical in all respects with that of *striata*, except for the clypeal suture being less deeply impressed and

the clypeus slightly narrower. ANTENNAE of male (Pl. 13, fig. 7) quadri-lamellate, with the fourth segment produced inwardly as a pilose process usually less than one quarter the length of the club; female antennae tri-lamellate, the fifth segment slightly inwardly produced and the fourth distally enlarged but without any definite process; in both sexes the antennae closely resemble those of *xanthostieta* but other characters make this species very distinct.

PRONOTUM small, usually dark-brown with irregular light reddish-brown spaces; differs in colour from *striata* in being dark toward the margins; densely haired and bristled as in *striata* but the bristles more slender; lateral margins very slightly angled medially and more narrowly marginate than in *striata*. SCUTELLUM dark-brown and haired. ELYTRA definitely, but not sharply, striate, showing extreme variations in colour (Pl. 1, figs. 18-20); narrower at shoulders than *striata*, and more obscurely marked; background colour testaceous or red-brown, with dark-brown mottling and spotting irregularly arranged along the interstices; striae not clearly lined; densely haired and bristled as on thorax.

VENTRAL SURFACE characterised by dark-brown or red-brown colour, otherwise not distinctive.

GENITALIA of male as illustrated (Pl. 9, fig. 5).

Length, 13 mm.

Breadth, 7 mm.

HOLOTYPE male and ALLOTYPE female in collection of Entomology Division, Plant Research Bureau.

MATERIAL EXAMINED. Holotype, allotype, and about forty paratypes, all from mid-Canterbury with one exception, a male from Nelson. All this material is in the collection of the Entomology Division, and was mostly collected in light-traps during the 1939-40 summer. Two specimens collected by Mr. G. B. Rawlings at Ashburton in the collection of Mr. E. S. Gourlay, one specimen taken by E. S. Gourlay in October, 1928, at Christchurch, and in his collection.

REMARKS. *O. varicolorata* is extremely close to *australis*, and resembles *striata* in certain respects. In its markings it is very similar to *xanthostieta* and *piciceps* but may be separated from them by the presence of long bristles on the discal areas of the pronotum and elytra. It is distinct from *striata* by virtue of its less obvious striation, usually dark-margined and smaller pronotum, and the reduced fourth antennal segment of the male.

16. ODONTRIA AUSTRALIS n.sp.

(Pls. 1, 8, 13).

This is a variable and widely distributed species (Pl. 1, fig. 21). It so closely resembles *varicolorata* that the gross characters of the latter equally apply to it; indeed the females do not appear to be externally distinct. The similarity between the two species is so close that only characters which obviously differ, and are to be found in the male, need be mentioned as

follows: ANTENNAE of male (Pl. 13, fig. 8) quadri-lamellate, with lamellae not longer than segments 1-4 together; process on fourth segment almost absent. GENITALIA (Pl. 8, fig. 9) with much shorter claspers than *varicolorata*.

Length, 12 mm.

Breadth, 6.5 mm.

HOLOTYPE (male) and ALLOTYPE (female) in collection of Entomology Division, Plant Research Bureau.

MATERIAL EXAMINED. Holotype male, two paratypes, male and female, collected by Mrs. E. M. Boyd at Greenhills, Southland, in June and December, 1944, respectively; allotype female Mt. Hopeless, April, 1933; paratype female, Takaka Hill, October, 1945, B. B. Given, in the collection of the Entomology Division; one male collected by Mr. A. Philpott at Mt. Arthur, 4,500 ft., January, 1924, in the Cawthron Institute collection; one female, Balloon Hut, February, 1931, collected by Mr. E. S. Gourlay; a male in the Dominion Museum, collected by Miss A. Castle at Ohakune, January, 1924, which, though varying greatly from any other specimens in colour, has been placed in this species on morphological considerations.

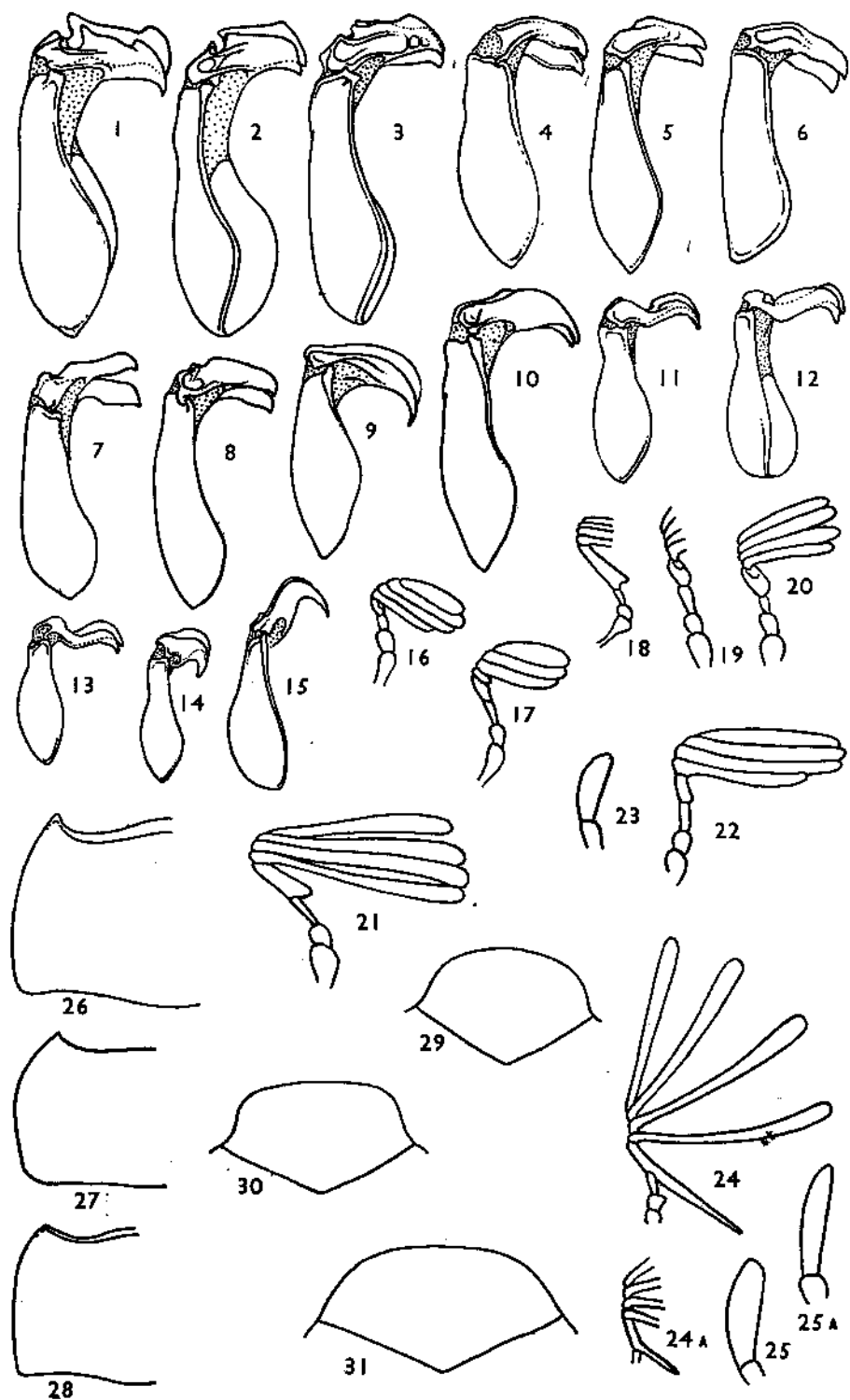
17. ODONTRIA AUTUMNALIS n.sp.

(Pls. 2, 9, 13).

This species is common near Nelson; it is most closely allied to *smithii* and is similar in appearance to *obscura* (Pl. 2, fig. 1).

HEAD a uniform deep red-brown, usually with a black suffused spot on the clypeal suture just inside the eyes, which are small; FRONS irregularly and coarsely punctate, the bristles on this area somewhat stronger than those of clypeus; junction of frons and vertex angled; VERTEX smooth; CLYPEUS rounded, slightly truncate, with a strongly reflexed anterior margin, densely and coarsely punctate with fine bristles arising from the punctures. ANTENNAE of male (Pl. 13, fig. 9) tri-lamellate, with a lamellate process on fifth segment approximately one third length of first lamella proper, and with third segment definitely longer than fourth (c.f. *smithii* (Pl. 13, fig. 10) and *obscura*); female antennae (Pl. 13, fig. 9a) with lamellate elements much reduced.

PRONOTUM not distinctive and very variable in outline; dark-brown or piceous, dull except for margins which are narrowly reflexed and shining; anterior angles prominent and acute; posterior angles rounded; entire surface densely covered with fine hairs, and with numerous rather fine sub-erect bristles; marginal bristles close, long and lash-like. SCUTELLUM not distinctive, coloured and with vestiture as pronotum. ELYTRA broad at shoulders, strongly convex; clothed with fine decumbent hairs and scattered sub-erect bristles, especially on the outer faces of the shoulders (Pl. 13, fig. 11); striation obvious by virtue of the usually strong dark-brown markings on the chestnut or fawn background (Pl. 2, fig. 1). The darker markings are most prominent on the alternate interstices as in *striata*, but usually



18. **ODONTIA SMITHII** Broun
Man. N.Z. Coleopt., 7:1450 (1893).
(Pls. 2, 9, 13).

In structure, *smithii* very closely resembles *autumnalis*, the differences being listed under the description of that species. As regards colour (Pl. 2, figs. 3, 4), *smithii* is a variable species, although material from Ashburton is very consistent. The most divergent forms appear to be found in Hawkes Bay, where the interstitial markings, almost invisible in typical specimens, are sometimes found very evident.

Usually the colour is a rich red-brown on the pronotum with the elytra considerably lighter and more yellowish, while the head is usually uniformly red-brown and the ventral surface of the thorax light red-brown, with the legs and abdomen somewhat darker. Compared with *autumnalis*, *smithii* is more convex, shorter, and broader in proportion, while the bristling is rather more conspicuous. The light colour and comparative lack of dorsal pattern separates it from all close allies, and the morphological characters (vestiture, antennae and genitalia) make diagnosis fairly simple (see description of *autumnalis*, and morphological characters of *smithii* illustrated on Pl. 13, fig. 12; Pl. 13, figs. 10, 10a; Pl. 9, fig. 9).

Length, 12.5 mm.

Breadth, 7.0 mm.

TYPE from Ashburton in the Broun Collection, British Museum.

MATERIAL EXAMINED. In the collection of the Entomology Division, Plant Research Bureau; eleven males and seven females collected by the author at Ashburton, February, 1944; approximately twenty of each sex collected at light traps at Hororata from Mr. L. J. Dumbleton, November, 1939, to January, 1940; a female from Domett and a male from Hanmer, collected during February and March, 1944, by Mr. J. Muggeridge; and a male reared from a larva collected by Miss A. Hamilton at Ashburton in September, 1944; one male and three females collected at Methven, December, 1941, collection of Mr. E. S. Gourlay, four males and six females, Ashburton, G. B. Rawlings, in the same collection; two males collected in April, 1908, and January, 1909, at Titahi Bay (Lewis Collection, Dominion Museum); and a male collected at Titahi Bay in September, 1909 (O'Connor Collection, Dominion Museum).

REMARKS. Broun asserts that this species is close in appearance to *sandageri*; this is misleading since *sandageri* is related to a very different group of species including *xanthosticta*, *piciceps*, *cassiniae*, etc. *O. smithii* is really closest in its alliance to *autumnalis* and then to *rufescens* and *obscura*.

O. smithii is fairly plentiful in North and Mid-Canterbury, attacking shrubs and trees (especially *Prunus* spp.), and occasionally cruciferous crops. Maximum flights appear to be in late summer and autumn, but, like *autumnalis*, adults may be taken occasionally during the winter and spring.

19. ODONTRIA RUFESCENS n.sp.

(Pls. 2, 9, 11, 13).

This is a species very similar to *smithii*, the resemblance between the two being sometimes extremely close even in colour, which varies in *rufescens* from light reddish to black (Pl. 2, fig. 5). However, the typical broken longitudinal dark stripes are usually more or less obvious in *rufescens*, the background is slightly more red or sometimes black, the thorax darker suffused, and the head almost black, and the body is proportionately broader. The vestiture of the discal areas of both pronotum and elytra is rather finer and more dense than in *smithii* (Pl. 13, figs. 12 and 13), and the genital claspers are quite distinctive (Pl. 9, fig. 10; Pl. 11, figs. 5, 6).

Length, 14 mm.

Breadth, 9 mm.

HOLOTYPE, male, in the O'Connor Collection, Dominion Museum. ALLOTYPE, female, collected by Dr. J. T. Salmon, the Wilderness, Te Anau, December, 1944 (Dominion Museum Collection).

MATERIAL EXAMINED. Type and paratype collected at Orepuki, November, 1909 (O'Connor Collection); three paratype males and allotype female collected by Dr. J. T. Salmon, The Wilderness, Te Anau, December, 1944 (Dominion Museum Collection); paratype male collected at Poolburn, November, 1902, numbered 5966 (Mr. E. S. Gourlay's collection).

20. ODONTRIA OBSCURA Broun

Ann. Mag. Nat. Hist., (6) 15:203 (1895).

(Pls. 2, 9, 13).

Very similar in appearance to *autumnalis*, being of much the same size and colour (Pl. 2, figs. 1 and 2). From *autumnalis*, *obscura* differs in general proportions, being broader, and proportionately shorter in the elytra. In more definite characters *obscura* may be separated from *autumnalis* by the lack of a well developed process on the fifth antennal segment, by the longer, finer and more dense vertical bristles on the discal areas of both pronotum and elytra (Pl. 13, fig. 14), and by the genitalia (Pl. 9, fig. 6). In actual fact it seems that *obscura* is most closely allied to *rufescens*, a relationship borne out by antennal and genital similarities (Pl. 9, figs. 6 and 10, 11).

Length, 12.5 mm.

Breadth, 8.0 mm.

TYPE in the Broun Collection, British Museum. Collected at Wellington by Mr. J. H. Lewis.

MATERIAL EXAMINED. A male collected at Wellington, October, 1920, and another from the same locality collected by the author, January, 1945 (both in Entomology Division collection); a male collected by Miss A. Castle on Mt. Egmont, December, 1927 (Dominion Museum Collection).

21. ODONTRIA MARMORATA Broun

Man. N.Z. Coleopt., 7:1451 (1893).

(Pls. 2, 10).

For general appearance see Pl. 2, fig. 6. HEAD red-brown or piceous; CLYPEUS testaceous or reddish with a narrow dark margin and a small black spot on each side just anterior to the clypeal suture; clypeus somewhat truncate, roughened, with shallow indefinite punctures, a few of which bear bristles; frontal area coarsely, irregularly, and rather distantly punctured, each puncture bearing a bristle. ANTENNAE in both sexes tri-lamellate; in male, lamellae longer than segments one and two together, much shorter in female; fifth segment extremely short in both sexes and almost disc-like.

PRONOTUM strongly transverse, broadest posteriorly, anterior margin evenly curved between the anterior angles; posterior margin rather flatly, but not markedly, bisinuate, and very narrowly reflexed; lateral margins rather more strongly reflexed, and very strongly bristled as also is the anterior margin; entire surface, except for the narrow smooth margins, covered with rather long, sub-erect, fine hairs, and scattered, erect, long bristles; colour reddish, mottled with dark-brown suffused markings. SCUTELLUM dark-brown, with vestiture as on elytra. ELYTRA elongate, strongly convex, not much broadened posteriorly; shoulders same width as posterior of pronotum toward which they are smoothly curved; striation almost completely absent; vestiture as on pronotum, but with the hairs rather shorter and more decumbent; coloured as pronotum.

VENTRAL SURFACE nacreous on coxal and sternal elements, the latter clothed with long erect silky hairs; coxal plates similarly clad, but with additional fine short decumbent hairs; legs not distinctive.

GENITAL CLASPERS (Pl. 10, fig. 1) very slender, sinuate and curved at apex.

Length, 15 mm.

Breadth, 8 mm.

TYPE in the Broun Collection, British Museum. Collected at the Forty-mile Bush, Napier, by Mr. H. Suter.

MATERIAL EXAMINED. A male collected by Miss Anson, Egmont, December, 1920 (Entomology Division Collection, Plant Research Bureau); a pair collected at Mt. Dennan, December, 1910 (O'Connor Collection, Dominion Museum).

REMARKS. This species is one of a group of alpine and forest forms which extends throughout the South Island and on to the ranges of the North Island. It may be distinguished from all others of the group by the very slender genital claspers of the male (Pls. 10 and 11). In other respects it is very similar in appearance to *similis*, *communis* and *convexa*. Minor differences do occur and separation by comparison is not difficult. For example, none of the species mentioned above has been taken in the North Island; also, the elytral hairs in *marmorata* are longer than in the other species, and, being less decumbent, give

the beetle a furry rather than a silky appearance; the striation is more obsolete, and the marginal bristles more numerous; in all the other closely allied species there is at least some indication of regular striation.

22. ODONTRIA CONVEXA n.sp.

(Pls. 2, 10).

Very similar to *marmorata* (Pl. 2, figs. 6 and 10) but differs from it as follows: smaller in size; HEAD more regularly, closely, and finely punctate; junction of frons and vertex more rounded; CLYPEUS broader, being only slightly narrower at its base than the outer faces of the eyes; clypeal surface not rugose but more definitely, though less closely, punctured; THORAX not so transverse; hairs on elytra somewhat shorter and finer; GENITALIA of male very distinctive (Pl. 10, fig. 2).

Locality should be noted when separating this species from *marmorata*, while the above differences are sufficient for morphological separation by comparison. However, when both species are not available for study, it is probably necessary to make use of the male genital characters for certain diagnosis; this also applies to separation from the following three species (*communis*, *similis* and *decepta*).

Length, 12.5 mm.

Breadth, 6.5 mm.

HOLOTYPE male, ALLOTYPE female, in Mr. E. S. Gourlay's collection.

MATERIAL EXAMINED. The types, the only specimens known to the author, collected by Mr. Gourlay respectively at Waiho, March, 1934, and Fox Glacier, March, 1934.

23. ODONTRIA COMMUNIS n.sp.

(Pls. 2, 10).

This species (Pl. 2, fig. 9) together with *similis* (Pl. 2, fig. 8) and *decepta* form a group that is very compact in its inter-specific affinities, and may cause the collector the greatest difficulty in separation. It is possible that they will be later linked by intermediates, but with the evidence available, it is felt that they must be separated in the meantime. Locality will probably be sufficient proof of the identity of these species, and this factor, coupled with the genital characters of the males (Pl. 10, figs. 3, 7; 8-16; and 6) are the only reliable bases for separation which the author can present.

HEAD rather small, testaceous with black suffusions on frontal area, testaceous or reddish on clypeus; a small dark spot on clypeal suture at each side a little inside the orbit; clypeal suture bisinuate, not angled medially; CLYPEUS truncate, shallowly rugose, bearing about a dozen reddish punctures from which arise fine upright bristles; FRONTAL AREA rather coarsely and irregularly punctate, and finely bristled. ANTENNAE of both sexes identical, the scape clavate; the next segment

lagenoid; the third sub-cylindrical, narrow, as long as the preceding one; the fourth somewhat spatulate; the fifth disciform; the sixth, seventh and eighth forming a small club, the lamellae of which are about as long as segments one to three together.

PRONOTUM testaceous or reddish, with diffuse dark-brown variegation (Pl. 2, fig. 9); entire surface covered with fine, rather short, decumbent, brassy hairs, and scattered sub-erect rather inconspicuous bristles especially towards the sides; not as strongly convex as in most species, strongly transverse, parallel-sided posteriorly, the sides curving smoothly inwards towards the acutely rounded anterior angles which are not very prominent; anterior margin from above appearing almost straight between the angles; posterior margin depressed on either side on the incurved portions; lateral and posterior reflexed marginal areas extremely narrow; posterior angles not broadly rounded. **SCUTELLUM** dark-brown, finely haired, and rounded in posterior outline. **ELYTRA** not strongly convex, coloured and with vestiture as pronotum (Pl. 2, fig. 9), the marginal bristles on both being very uniform, rather fine and not markedly long, while the elytral hairs are remarkably uniformly distributed and all of uniform shape and direction; striae fairly clearly defined, appearing as hairless channels most conspicuous towards the suture.

VENTRAL SURFACE nacreous on sternal and coxal elements, very finely haired, and brown in colour.

GENITALIA of male as figured (Pl. 10, figs. 3, 7).

Length, 13.5 mm.

Breadth, 7.5 mm.

HOLOTYPE male and **ALLOTYPE** female in collection of Entomology Division, Plant Research Bureau.

MATERIAL EXAMINED. Types and two paratypes collected by the author, the holotype at Whangamoa Saddle, Nelson, October, 1943, and the remainder (two of which were reared from larvae) on the Dun Mt., Nelson, during 1943-44; two paratypes from the Dun Mt., Nelson, October, 1934, and one from Aniseed Valley, Nelson, December, 1935 (in Mr. E. S. Gourlay's collection).

REMARKS. This species occurs in leaf-mould in pockets of the forest floor on the ranges in the vicinity of Nelson. The flight and breeding habits of the adult have not been observed by the author, as all beetles collected have been dug from the soil. All stages appear to be present throughout the year, and adults seem to remain in earthen pupation cells for several months in the late winter.

Altitude range appears to be from a few hundred to about 3,000 ft. It is impossible to say from present experience what is the geographical distribution of the species; local occurrences are usually confined to areas of a few square yards, and in these patches the species appears plentiful.

24. ODONTRIA SIMILIS Broun

Trans. N.Z. Inst., 44:427 (1912).

(Pls. 2, 10).

This species is very closely allied to *communis*, but it is less constant in form and occurs at higher altitudes (Pl. 2, fig. 8); *similis* also differs from *communis* in being broader and more convex; the punctuation of head, the clypeal form, the colour, striation and vestiture are variable, the antennal characters are not distinctive, the sternal elements are testaceous or reddish, while the legs are darker and the genital claspers variable (Pl. 10, figs. 4, 8-16) but always much less slender at the tips than in *communis*.

Length, 14.5 mm.

Breadth, 7.5 mm.

TYPE. In Broun Collection, British Museum, collected by Mr. H. Hamilton at Mt. Greenland, near Ross, at an elevation of 2,500 ft.

MATERIAL EXAMINED. A male collected by Mr. H. Hamilton, Mt. Greenland, March, 1910 (O'Connor Collection, Dominion Museum); a male and a female collected by Dr. J. T. Salmon, Homer, December, 1943 (Dominion Museum Collection); one male and three females collected by Mr. E. S. Gourlay, Mt. Arthur, January, 1930; a male from Arthur's Pass, January, 1923 (collection of Entomology Division, Plant Research Bureau); a male collected at Murchison, January, 1927, two females, Mt. Greenland, January, 1943, one female, Mt. Tuhua, October, 1940, four females, Mt. Arthur tableland (Balloon Hut), January, 1930, and February, 1931, all collected by E. S. Gourlay, also one specimen, Mt. Peel, 1910, A. C. O'Connor (Mr. E. S. Gourlay's collection).

REMARKS. This species is extremely variable, and the locality range very wide; so far it has been found only in the South Island. It has been considered advisable, in spite of the locality range and the variations, not to separate out locality species, since examination of variable characters shows no general tendency towards the production of unilateral divergence in form from north to south. The genital claspers of all males examined are illustrated (Pl. 10, figs. 4, 8-16), and are compared with the same structures in the two related species (*macrothoracica* and *decepta*).

O. similis may occasionally be confused with the alpine series containing *occiputale* and *variegata*, although close examination will make separation easy; distinctions between these groups is given under *occiputale*.

25. ODONTRIA DECEPTA n.sp.

(Pl. 10).

This species is intermediate in most of its characters between *similis* and *communis*. The only reliable character for its identification is the curiously expanded sub-apical portion of

the left genital clasper (Pl. 10, fig. 6); this feature appears to be quite constant (Pl. 10, fig. 20). Other useful characters are the truncate elytral apices and the dark colour of the elytra themselves as compared with *similis* and *communis*.

Length, 13.5 mm.

Breadth, 7.5 mm.

HOLOTYPE Male, in collection of Entomology Division, Plant Research Bureau.

MATERIAL EXAMINED. Type and six paratypes collected by the author and Mr. J. M. Hoy on the Takaka Hill, Nelson, 2,500 ft., October, 1945.

26. *ODONTRIA MACROTHORACICA* n.sp.

(Pls. 2, 10).

A large, elongate, stoutly built species, somewhat similar to *similis*, but differing in being of a uniform dull brick-red in dorsal coloration of pronotum and elytra, and in having a slightly darkened suture (Pl. 2, fig. 7). The striation is more definite and the vestiture somewhat finer than in *similis* or *decepta*.

HEAD large, reddish to testaceous, lightest on clypeus; punctuation and bristling as in *similis* and *decepta*; **ANTENNAE** not distinctive. **PRONOTUM** apparently large due to its exceptional breadth anterior to the middle, being broader than elytral shoulders; **ELYTRA** formed as in *similis*; **VENTRAL SURFACE** as in latter species. **GENITAL CLASPERS** (Pl. 10, figs. 5, 17, 18, 19) broad and heavily constructed, with obtuse, broad apices.

Length, 14 mm.

Breadth, 7 mm.

HOLOTYPE male, in Cawthron Institute collection.

MATERIAL EXAMINED. Type and two paratypes (male) collected by Mr. A. Philpott on Mt. Arthur; the type was secured during February, 1923.

REMARKS. This species is readily separated from *decepta*, *similis* and *communis* (Pl. 2, figs. 7, 8 and 9) by its uniform colour, large thorax, reddish head (testaceous with brown markings in the other three species), and broad, blunt genital claspers (Pl. 10, figs. 5, 17, 18, 19 as compared with figs. 6; 4, 8-16; and 3, 7).

27. *ODONTRIA OCCIPUTALE* Broun

Man. N.Z. Coleopt., 7:1451 (1893).

epomeas Lewis, Trans. N.Z. Inst., 35: 272, *Odontria* (1903). (Pls. 2, 11).

HEAD testaceous or reddish, with darker markings, especially on frons (Pl. 2, figs. 11, 12); **VERTEX** always wholly or partly light yellow-brown; **CLYPEUS** rounded or truncate, punctuation very variable and somewhat rugose; clypeal suture only slightly curved at middle; **FRONTAL PUNCTATION** variable, coarse, not extending on to vertex; bristles of clypeus and frons varying

as punctation. ANTENNAE not distinctive, similar in both sexes, club trilamellate.

PRONOTUM of the usual proportions for the genus, considerably narrowed in front, evenly curved at sides; anterior angles normal, not markedly reflexed; posterior angles rather obtusely rounded; entire pronotal surface covered with long, fine, decumbent hairs and scattered erect bristles; marginal bristles very long; colour dark red-brown on a light red-brown or testaceous base, basal colour predominating in some cases, darker suffusions almost covering the surface in others. SCUTELLUM light in colour, vestiture as on pronotum. ELYTRA coloured as pronotum, usually obscurely striate (Pl. 2, figs. 11, 12); vestiture as pronotum, except that sub-erect bristles are almost wanting but for the marginals and a few on the elytral shoulders in some specimens.

VENTRAL SURFACE yellowish-brown, not distinctive.

GENITALIA of male as illustrated (Pl. 11, figs. 2, 11-15), not constant, but serve as a point for distinction from *similis*, etc.

Length, 14.5 mm.

Breadth, 8.0 mm.

TYPE. Female, in Broun Collection, British Museum; collected by Mr. T. F. Cheeseman, Otira Gorge.

MATERIAL EXAMINED. One male and four females collected by the author, Travers Valley, Nelson, December, 1943, and two males collected by Dr. J. G. Myers, Arthur's Pass, February, 1923 (collection of Entomology Division, Plant Research Bureau); one female collected by Mr. W. Smith, Rakaia Gorge (Lewis Collection, Dominion Museum).

REMARKS. This is one of the most variable species of the genus. Lewis in his description of the synonym *epomeas* mentions that it is similar to *occiputale*, but differs in general coloration (vittae on elytral shoulders and a longitudinal pronotal stripe in *epomeas*), and in coloration and punctation of head; but all these characters are extremely variable and must be completely discounted.

The following species, *variegata*, is very close to *occiputale*, but differs somewhat in genitalia (compare Pl. 11, figs. 2; 11-15; and figs. 3; 7-10) and in the following:—HEAD without light mark on vertex, ANTENNAL CLUB longer; pronotal posterior angles more broadly rounded and lateral margins more evenly curved but rather abruptly narrowed from mid-lateral part to anterior angles; vestiture of pronotum (especially in males) much longer and less decumbent, the sub-marginal hairs being more dense over the scutellum; ELYTRA less convex, the bristles on anterior discal areas more numerous and longer.

In many respects *occiputale* is intermediate in general characters between *similis* and *variegata*, while *variegata* is intermediate between *occiputale* and *rufescens* (see Pl. 11); *similis* and *occiputale* overlap to some extent in habitat, as do also *similis* and *variegata*.

Differences segregating *occiputale* from *communis* are not very decided, apart from the characters of the genital claspers (see Pls. 10 and 11). From *similis*, however, it can be distinguished, together with the genital characters, by the lighter scutellum, the less acute pronotal angles, and the deeper and more plentiful clypeal punctures, while the clypeal bristles of *occiputale* usually number about thirty, but never more than eighteen in *similis*.

28. ODONTARIA VARIEGATA n.sp.

(Pls. 2, 11).

A species very similar to *occiputale*, but differing from it as stated above (Pl. 2, figs. 13, 14).

HEAD usually rather small, very variable in colour, ranging from uniform light reddish-brown to almost black; densely punctate and bristled on clypeus, more sparingly and irregularly so on frons. ANTENNAE not distinctive, except that the club is rather longer than in *occiputale*.

PRONOTUM variable in colour as in *occiputale*, steeply narrowed anteriorly; vestiture very long, giving a dense furry appearance in lateral aspect, but much less evident in the females, while from beneath the posterior margin arise long silky yellowish hairs which almost obscure the scutellum. ELYTRA rather flat between the broad shoulders; colour as pronotum, but usually forming more strongly contrasting spots and variegations; striation indistinct; vestiture as in *occiputale*, but with more plentiful and longer bristles on the shoulders and anterior discal areas.

VENTRAL SURFACE not distinctive.

GENTILIA of male as figured (Pl. 11, figs. 3; 7-10).

Length, 12 mm.

Breadth, 7 mm.

HOLOTYPE male, in collection of Dominion Museum. ALLOTYPE female in collection of Mr. E. S. Gourlay.

MATERIAL EXAMINED. Type male collected by Dr. J. T. Salmon, Homer, December, 1944; allotype female, three male and one female paratypes, Bold Peak, December to January, 1945, collected by and in the collection of Mr. E. S. Gourlay; two males, both collected by Mr. A. Philpott, one at Ben Lomond, November, 1912, and the other at Mt. Arthur, December, 1921, in the Cawthron Institute collection.

29. ODONTARIA AURANTIA n.sp.

(Pls. 1, 11, 13).

HEAD moderately large, very similar in shape and punctuation to *occiputale* but of a uniform light red-brown colour (Pl. 1, fig. 17); EYES dark. ANTENNAE tri-lamellate, similar to those of *variegata* but testaceous.

PRONOTUM strongly transverse, with the anterior and pos-

terior margins almost parallel, the latter somewhat sinuate; anterior angles not at all produced forward nor reflected; lateral margins not markedly angled, but tapering anteriorly and evenly rounded posteriorly; posterior angles more broadly rounded than in any other species; reflexed margins exceedingly narrow, the marginal bristles very long; vestiture obscure except for bristles present on outer discal surface toward lateral margins, and for a few hairs and bristles on posterior discal area; colour golden orange. SCUTELLUM coloured and haired as pronotum, but with dark-red margins and without bristles; very finely punctate. ELYTRA strongly convex with definite shoulders; vestiture and colour as pronotum; suture marked by a red line; striae marked by less obvious reddish lines of shallow punctures set in the shallow striae impressions. LEGS and VENTRAL SURFACE coloured as dorsum; sternal elements and coxal plates nacreous, the former with long silky yellow hairs; fore-tibial teeth poorly developed (Pl. 13, fig. 15).

GENITALIA of male as figured (Pl. 11, fig. 1).

Length, 4.5 mm.

HOLOTYPE male, in collection of Cawthron Institute.

MATERIAL EXAMINED. Type collected at Tarndale, December, 1931; two male paratypes collected by Mr. G. B. Rawlings, Port Hills, Christchurch, October, 1931 (in Mr. E. S. Gourlay's collection).

REMARKS. This is one of the most distinctive and beautiful species known. It is probably an inhabitant of tussock areas and appears to be rare. Its nearest allies are probably in the *variegata* group but none is close to it.

30. ODONTIA REGALIS n.sp.

(Pls. 2, 11).

HEAD moderately large, light reddish-brown (Pl. 2, fig. 15); eyes dark; CLYPEUS strongly transverse, truncate, broadly rounded at sides, and notched at junction with epicranial process at each side, coarsely and rather rugosely punctured and rather finely bristled; FRONS sparsely and rather coarsely punctured and bristled; clypeal suture not strongly curved. ANTENNAE similar to those of *similis* and *occiputale*, club trimellate.

PRONOTUM strongly transverse, anterior angles prominent, posterior angles acute and rounded; posterior margin deeply bisinuate; colour rich golden orange, almost testaceous towards lateral margins; vestiture of rather long, fine, curved golden hairs and fine reddish bristles; punctuation fine, marked by reddish dots. SCUTELLUM not distinctive; red-margined, otherwise coloured and invested as pronotum but without bristles. ELYTRA very long, oblong, not strongly convex; shoulders rather square; colour as pronotum; investing hairs long, shining, and silky, of a golden colour and very conspicuous; bristles few, on shoulders and toward margins.

VENTRAL SURFACE testaceous, nacreous on sternal elements, which bear fine silky hairs.

GENITALIA of male (Pl. 11, figs. 4, 16) similar to those of *occiputale* etc., but broader at the base.

Length, 15 mm.

Breadth, 8 mm.

HOLOTYPE male, in Mr. E. S. Gourlay's collection.

MATERIAL EXAMINED. Type collected by Mr. G. B. Rawlings, Port Hills, Christchurch, October, 1931.

REMARKS. Most closely allied to *occiputale* but readily distinguished by the long golden hairs on pronotum and elytra, and by the uniform colour if the latter character is a constant one. As only one specimen is known to the writer, it is not safe to consider distinctions from such a variable species as *occiputale* without allowing some latitude.

SECTION B.

The following are descriptions of species which the author considers to be either not represented amongst the material examined, or not deserving of specific status. The descriptions are copied from the original writers, with remarks by the present author where necessary.

31. ODONTARIA LONGITARSIS Broun

Subantarctic Isls. of N.Z., 1:105 (1909). (Pl. 3, fig. 14).

"Subopaque, broadly oviform, moderately convex, sparingly clothed with fine short testaceous setae; the surface more or less variegated with dull fuscous and rufo-castaneous; palpi, antennae, and tarsi red, legs infusate testaceous; ventral segments variegate, fuscous and fusco-testaceous, with somewhat elongated punctures and very scanty pubescence; the metasternum testaceous.

CLYPEUS distinctly margined, subtruncate in front, its punctuation rather shallow, moderately coarse, not very close, somewhat rugose; it is quite glossy, and reddish-brown. HEAD also shining, darker than the clypeus, with better-defined, larger, and more distinctly separated punctures. THORAX strongly transverse, bisinuate at base, widely incurved in front, the anterior angles not projecting beyond the back of the eyes, posterior angles rectangular but obtuse; its sides gently rounded, very finely margined, and bearing numerous rigid rufescent setae; disc opaque, fuscous, the sides broadly pale rufo-fuscous; punctuation distinct, yet rather fine. ELYTRA of exactly the same width as thorax at the base, widest behind the middle, apices individually broadly rounded; their striae well marked alongside the suture, less so beyond; the sculpture of these striae peculiar—not definite punctures, but shallow elongate impressions, each minutely margined; the interstices closely transversely rugose; the sides bear stiff reddish setae, but there are very few on the

disc, those that are visible usually arise from the few scattered pale spots. PYGIDIUM very closely and minutely sculptured. LEGS shining, elongate. Anterior TIBIAE tri-dentate externally. All the TARSI very long and slender, quite a third longer than the tibiae. ANTENNAE short, the exposed part of the basal joint not much longer than the 2nd; 3rd more slender, just longer than broad; 4th short and transverse, slightly produced inwardly. CLUB short, quadriarticulate, its 1st joint quite one-third shorter than the others.

A large species, without the common sternal villosity, and with different clothing above. The peculiar sculpture of the elytral striae is without precedent.

Male. Length, 8 lines; breadth, $4\frac{1}{2}$ lines.

The Snares.

A single specimen, sent for examination by Mr. G. V. Hudson".

Regarding this species, Mr. Hudson remarks (Subantarctic Isls. N.Z., 1:58)—"This is a large and handsome species, and so far is represented by a single specimen only. (Plate iii, fig. 14.)"

REMARKS. *O. longitarsis* is undoubtedly very different from any other described species of the genus.

32. ODONTARIA SUAVIS Broun

Man. N.Z. Coleopt., 1:266 (1880).

"Allied to *O. striata*, of similar robust form. HEAD reddish-piceous, the clypeus coarsely and rugosely, the rest rather distantly punctured. The PROTHORAX is of a pale-reddish colour, and of a rather velvety appearance, is punctulated, with short yellowish hairs proceeding from the punctures, and bearing a few long ferruginous hairs, the clothing, however, is not at all dense. SCUTELLUM large, punctate, and pilose at the base. The ELYTRA are rather convex, of the same velvety appearance and colour as the thorax, but a trifle more obscure; each has nine rather broad costae, which are very finely punctured, the intervening striae are punctulated and duller than the elevated portions; their clothing consists of short yellowish hairs.

The ABDOMEN is brownish-testaceous, the two basal segments have elongate impressions, the others punctures; it is finely pilose. The LEGS are testaceous, the TARSI almost ferruginous.

The species is quite as convex and rather narrower than *O. striata*, with the elytra less dilated posteriorly.

The ANTENNAE have the basal joint of the usual form, long, slender at base, and incrassated towards the apex; the second short; third slender, about as long as the obconical fourth joint; fifth short, a little produced inwardly; the club rather short.

I have one example only, which was given to me by Mr. J. Buchanan, F.L.S., of Wellington.

Length, $6\frac{1}{2}$; breadth, $3\frac{2}{3}$ lines.

Obs.—When compared with *O. striata* it will be seen that the thorax is far more sparingly punctured, the elytra more carinated, and the surface much more finely and sparingly pilose; the

clypeus, as in *O. striata*, is widely rounded, forming an almost uninterrupted curve from eye to eye, and its margins are raised”.

33. ODONTARIA PUNCTULATA Broun

Man. N.Z. Coleopt., 1:266 (1880).

“Robust, of a uniform very dark brown, almost black colour, above; under-side pale brown and punctulate, the breast pilose; the femora are pallid and punctate, tibiae and tarsi darker.

HEAD piceous, somewhat reddened in front, coarsely punctured, and bearing a few erect ferruginous hairs. ANTENNAE yellowish, their basal joint long, second short, third cylindric, fourth about as long as third, a little toothed, the fifth forming a leaflet about one third of the length of the club, and pubescent. The PROTHORAX is finely but distinctly and densely punctured, and sparingly clothed with testaceous hairs, some of which are much longer than others. SCUTELLUM punctate and pilose. The ELYTRA are not accurately adapted to each other behind, so that the abdomen is visible above, they are entirely covered with rather fine punctures, with traces of striae, their pubescence is scant, short, and testaceous in colour.

The insect is much less convex than the typical form, of the same velvety appearance but unspotted; the clypeus is formed as in *O. xanthosticta*, rather short, subtruncate in front, with distinct sides narrowed anteriorly, and therefore of a quite different outline to that of the preceding species.

Length, 6 lines; breadth, $3\frac{1}{3}$.

I found one example under a stone at Whangarei Heads”.

34. ODONTARIA CINNAMOMEA White

Voy. Ereb. Terr., Ins., p. 10 (1846).

“Head deep brown; clypeus yellowish, both sparingly punctured; the head behind with a smooth transverse line; thorax and elytra of an almost uniform cinnamon brown, covered with yellowish brown silky hairs; underside of legs of a pale yellow; fore-tibiae with three bluntish teeth at the end.

Length, 6 lines.

Hab. New Zealand, on bushes”.

Concerning this species Broun makes the following comments (Man. N.Z. Coleopt., 1, 267, 1880). “Allied to the preceding, somewhat depressed above. HEAD coarsely punctured, with a smooth occipital line, it is almost entirely dark brown in colour, but the clypeus is testaceous along the margins and widely rounded, though slightly truncated in front.

The THORAX and ELYTRA are almost wholly of a cinnamon-brown; the former has a dark transverse mark, and is clothed with rather long yellowish hairs; the latter are more sparingly clothed, and each has nine piceous punctulated striae and moderately broad punctulated interstices.

UNDER-SIDE sparsely pilose, LEGS infusate. The basal joint of the ANTENNAE is normal, the second joint short, third slender and elongate, the fourth produced, so that it is half the length of the fifth, which cannot be held to be distinct from the club, which is large, and may be treated as four-jointed.

Length, 6 lines; breadth, $3\frac{1}{2}$.

The above corresponds with a specimen sent to me from London by Mr. Pascoe, who, no doubt, examined the type in the National Collection".

REMARKS. Broun (1.c) spells *cinnamomea* as *cinnamonea*. As far as can be ascertained from a search of the literature, it seems that C. M. Wakefield (Trans. N.Z. Inst., 5:300; -1873) was responsible for this "lapsus" in the first instance, and later authors have either followed him or fallen into the same error. Perhaps this can be readily understood, since the beetle is described by White as cinnamon coloured; but beyond doubt, White based his name on the Latin *cinnamomum*—cinnamon. Gemminger and Harold (1868) give the correct spelling.

35. ODONTARIA FUSCA Broun

Man. N.Z. Coleopt., 7:1452 (1893).

"Elongate, rather narrow, opaque, fuscous; covered with yellowish hairs, those on the elytra rather short and depressed; the antennae with reddish basal joints (two), the club and palpi piceous, legs pale-brown; underside fuscous.

HEAD coarsely punctured, clypeus obtusely curved in front. THORAX transverse, moderately closely and finely, but quite distinctly, punctured. ELYTRA rather elongate and narrow, finely punctured, more or less evidently striate, the striae with regular, closely-placed, and rather distinct punctures.

ANTENNAE rather short, fourth joint longer than the third, fifth short, club triarticulate.

The form like *O. marmorata*, the elytral sculpture distinctive.

Length, female, $6\frac{1}{2}$; breadth, $3\frac{1}{2}$ lines.

Napier, Forty-mile Bush. One individual, from Mr. H. Suter".

36. ODONTARIA ALBONOTATA Broun

Man. N.Z. Coleopt., 5:1118 (1893).

"Subovate, widest behind, opaque, nigro-fuscous; head shining dark-castaneous, front margins reddish; legs and antennae testaceous; densely clothed with depressed, rather short, greyish-yellow hairs, and with some longer ones on the thorax and sides of the body; elytra with numerous whitish spots, not due to the pubescence but on the derm itself.

HEAD with coarse distant punctures; clypeus broadly rounded in front, with reflexed margins; labrum rather deeply concave. THORAX strongly transverse, middle of base obtusely prominent; its punctures fine and distant, concealed by the cloth-

ing. ELYTRA finely and not at all closely punctured, each with four or five striae on the dorsum, the sides apparently estriate.

UNDERSIDE finely punctate and pubescent; abdomen darker than the sternum, the latter with a few elongate hairs; EPIPLEURAE finely sculptured.

Male: ANTENNAE moderate, fifth joint inwardly prolonged, two-thirds the length of the next one, and, like the last three, pubescent. Anterior TIBIAE bidentate externally, apical protuberance porrect.

Length, $6\frac{1}{2}$; breadth, $3\frac{1}{2}$ lines.

Napier (Forty-mile Bush). Mr. H. Suter".

37. ODONTRIA OBSOLETA Broun

N.Z. Inst., Bull. 1, pt. 5, p. 390 (1917).

"Subovate, only slightly convex, opaque; of a pale greyish-chestnut hue, the head and legs more or less light castaneous; the thorax, scutellum, and base of elytra thickly covered with very long decumbent hairs of about the same colour as the derm; remainder of wing-cases with more slender suberect pubescence; the outstanding lateral setae are numerous and somewhat ferruginous.

HEAD very coarsely punctate, less closely behind; CLYPEUS with reflexed margins, subtruncate in front. THORAX nearly twice as broad as long, widest near the middle, nearly straight behind, with obtuse angles, gradually and slightly narrowed towards the subacute anterior angles; base bisinuate, apex widely but not deeply emarginate; its punctation very fine and distant. ELYTRA widest behind the posterior femora, with subtruncate apices; their striae shallow and indistinct, the punctation fine and obsolete.

ANTENNAE rather short, their 3rd and 4th joints of about equal length, the latter the thicker, 5th very short.

UNDERSIDE indistinctly sculptured, abdomen fusco-testaceous; sternum thickly clothed with elongate pubescence.

In 1667 (*O. sandageri*) the pubescence is less slender but shorter. In 2514, which is most like 1667, the clypeus is strongly rounded from one eye to the other. The present* is recognizable by its pale colour and obsolete sculpture.

Length, 14 mm.; breadth, $7\frac{1}{2}$ mm.

Scarcliff, west of Mount Algidus. My specimen is one of Mr. T. Hall's captures on the 20th October, 1913".

*i.e., the species *obsolata*.—Ed.

PRODONTRIA Broun

Ann. Mag. Nat. Hist., (7) 14:53 (1904).

Lewisiella Broun, Ann. Mag. Nat. Hist., (8), 3:398 (1909).

(Pls. 4, 14).

Broun erected this genus taking *P. lewisii* as his genotype. In 1909 he erected *Lewisiella* on characters almost identical with those used for *Prodontria* without giving any reliable characters for the separation of the two genera. The major generic character selected in both cases was the short metasternum as compared with that of the genus *Odontria*; but this feature is shared also by the genera *Xylostygnus* and *Scythrodes*, as well as by *Odontria praelatella* Broun. *Xylostygnus* is sufficiently well differentiated by its 9-articulate antennae, and *Scythrodes* by its general form and flanged elytra. However, the members of the genera *Prodontria* and *Lewisiella* cannot reasonably be separated, and the species *praelatella* is nearer to *Prodontria* than to *Odontria*, although it is intermediate between the two in certain respects. Therefore, the genus *Lewisiella* has been included in *Prodontria*, and the species *praelatella* transferred from *Odontria*. In addition, three new species have been added.

Prodontria, as now represented, contains a collection of rather diverse species, but these may be sufficiently well defined to avoid possible confusion with any other genera in New Zealand. The genus is characterised as follows:—HEAD large, the ratio of its width to its entire length, exclusive of appendages, being greater than 1 : 3.5; eyes small; CLYPEUS and FRONS punctured, the former large and broad, truncate, evenly rounded or rectangular, with the reflected margin rather narrow. ANTENNAE 8-segmented, tri- or quadri-lamellate.

PRONOTUM large, finely punctate, haired or glabrous, dull or nitid. SCUTELLUM not distinctive. ELYTRA short when compared with other New Zealand genera and sub-genera; strongly convex, dull or nitid, haired or glabrous, obviously or obscurely striate, usually finely and sparsely punctured. VENTRAL SURFACE distinctive on account of the short metasternum, and the short, rigid nature of the sternal hairs (Pl. 14, figs. 13-15).

GENOTYPE: *Prodontria lewisii* Broun.

DISTRIBUTION: From coastal (dunal) regions near Bluff and Invercargill, through central north Southland to Central Otago.

Key to species of *Prodontria*.

- | | |
|---|----|
| 1. Discal areas of pronotum and elytra dull, invested with hairs | 2. |
| 2. Discal areas of pronotum and elytra nitid, hairless or nearly so | 3. |
| 3. Vestiture dense, of a velvety texture; colour uniformly very dark—Remarkables, Queenstown <i>P. pinguis</i> n. sp. (Pl. 4, fig. 14). | |
| 4. Vestiture not dense, texture not velvety; colour light, not uniform—Coastal areas Southland | |
| <i>P. praelatella</i> (Broun) (Pl. 4, fig. 13). | |
| 3. Colour light brown, with or without darker suffusions | 4. |
| 4. Colour black or dark brown, unicolorous or almost so | 5. |

4. Colour uniform light brown—Sandhills, Molyneux River, Cromwell *P. lewisii* Broun (Pl. 4, fig. 11).
Colour light brown, with darker suffusions on pronotum and elytra—Alexandra *P. bicolorata* n. sp. (Pl. 4, fig. 15).
5. Elytra obviously striate 6.
Elytra obscurely striate—Old Man Range, Central Otago
P. capito (Broun) (Pl. 4, fig. 16).
6. Elytra rather elongate, with numerous whitish decumbent hairs—Hunter Mountains *P. setosa* n. sp. (Pl. 4, fig. 12).
Elytra short, with few hairs except at margins—Manor Burn, Central Otago *P. modesta* (Broun).

1. *PRODONTRIA LEWISII* Broun

Ann. Mag. Nat. Hist., (7) 14:54 (1904).

(Pl. 4, fig. 11; Pl. 14, fig. 3).

HEAD light reddish brown. CLYPEUS and frons rather densely and coarsely punctured, the former rounded in front and strongly reflexed on its free margins. ANTENNAE quadri-lamellate in male, tri-lamellate in female, the fifth segment very short and inwardly produced.

PRONOTUM light reddish-brown, nitidous, strongly convex, very wide, being broadest just anterior to mid-lateral line, anterior angles strongly projected forward and slightly upturned; lateral margins evenly curved; posterior angles obtuse and only slightly rounded; discal area slightly punctate and very sparsely clothed with fine hairs; marginal bristles short and distant. SCUTELLUM on same plane as elytra, or slightly depressed; punctate. ELYTRA light reddish-brown, nitidous, broad, strongly convex, rather truncate behind, shoulders somewhat elevated and with a postero-lateral depression; obviously striate, the striae marked by depressed rows of punctures almost equidistant transversely at middle of elytra, interspaces distinctly punctured or almost smooth.

VENTRAL SURFACE not distinctive.

GENITAL CLASPERS (Pl. 14, fig. 3) not differing greatly from those of other species except *P. praelatella*.

Length, 15.5 mm.

Breadth, 8.5 mm.

TYPE in Broun Collection, British Museum; collected at Cromwell by J. H. Lewis.

MATERIAL EXAMINED. One male collected by J. H. Lewis, Cromwell sandhills, 25:xii:03, Lewis Collection, Dominion Museum; several damaged specimens and fragments collected by the author at Cromwell, March, 1944, in Division of Entomology Collection.

2. *PRODONTRIA PRAELATELLA* (Broun)

Ann. Mag. Nat. Hist., (8) 3:400, *Odontria* (1909).

(Pl. 4, fig. 13; Pl. 14, figs. 1, 9, 13).

Somewhat similar to *lewisii* but differing greatly in colour (Pl. 4, figs. 11 and 13), markings, vestiture and texture of pronotum and elytra.

HEAD as in *lewisi*, but with a narrower clypeus, larger eyes and shallower puncturing (Pl. 14, fig. 9); colour testaceous with darker brown frontal area. Of the ANTENNAE, the club is missing in both specimens I have examined, but from what remains it would appear that both sexes possess a quadri-articulate club; this is borne out by Broun's description of the male.

PRONOTUM large, testaceous with dark brown irregular markings centrally, marginal lateral areas sub-hyaline; anterior angles strongly produced forward but not upturned; posterior angles acute or right-angular, rounded; lateral margins parallel in posterior half, evenly incurved anteriorly; vestiture dense in the form of short stiff decumbent glassy hairs; marginal bristles very uneven in length and thickness. SCUTELLUM testaceous, red-bordered, invested as pronotum. ELYTRA identical in shape with those of *bicolorata*, but narrower, dull coloured but with testaceous background, and marked by broken dark longitudinal bands on alternate interspaces, with the striae appearing as narrow brown black lines (Pl. 4, fig. 13); the breaks in the dark bands mark the points from which arise long, glassy bristles, apart from which the vestiture is as on pronotum.

VENTRAL SURFACE (Pl. 14, fig. 13) and legs testaceous; sternal surfaces somewhat nacreous-white.

Male GENITALIA (Pl. 14, fig. 1) extremely large for the size of the insect, the claspers scythe-shaped, evenly tapering, somewhat excised dorsally toward the base.

Length, 13 mm.

Breadth, 7.5 mm.

TYPE. Male in the Broun Collection, British Museum, collected by A. Philpott, Invercargill.

MATERIAL EXAMINED. A pair collected at Greenhills (Mokomoko), Southland, April, 1910. Cawthron Institute Collection.

REMARKS. From fragments found by the author at Greenhills, this species would appear to inhabit fixed dunal areas.

3. *PRODONTRIA PINGUIS* n.sp.

(Pl. 4, fig. 14; Pl. 14, fig. 6).

HEAD very broad and large, entirely black. CLYPEUS short, very wide, with a rather narrow reflexed margin, coarsely and densely punctured and bristled except just anterior to suture. EYES very small. FRONS with scattered punctures and bristles; junction of frons and vertex not marked in any way, the whole surface evenly rounded. ANTENNAE reddish brown, the club in male tri-lamellate.

PRONOTUM large, dull, piceous, with a slight golden sheen imparted by a dense clothing of decumbent golden hairs (Pl. 4, fig. 14); anterior angles acute, forward produced but not upturned; posterior angles approximately right-angled; lateral margins parallel posteriorly, smoothly incurved anteriorly; posterior margin only very slightly curved. SCUTELLUM as pronotum

in colour and vestiture. ELYTRA as pronotum in colour and vestiture, very strongly convex, very short, narrower than in *praelatella* and *lewisii*, being little broader than pronotum.

VENTRAL SURFACE and legs piceous, shining, with red bristles; sternal elements somewhat nacreous.

Male GENITALIA as figured (Pl. 14, fig. 6).

Length, 12.5 mm.

Breadth, 7.0 mm.

TYPE. Male collected by R. R. Foord, Remarkables, Queenstown, 15:xii:38, in the collection of Mr. E. S. Gourlay.

REMARKS. One of the most attractive and distinctive New Zealand species. As far as the author knows, only one specimen has been taken.

4. *PRODONTRIA MODESTA* (Broun)

Ann. Mag. Nat. Hist., (8) 3:399, *Lewisiella* (1909).

(Pl. 14, fig. 2).

As *modesta* is the first of the two species described by Broun when he erected *Lewisiella* it is taken as the genotype of that genus. This species is so morphologically similar to *lewisii*, the genotype of Broun's *Prodontria*, that it seems strange for Broun to have erected *Lewisiella* when it is difficult to find characters to make a reliable distinction between the two genotypic species.

HEAD black or piceous, coarsely, sometimes rugosely, punctured; punctures scattered on frons, but dense on clypeus, those of clypeus bearing erect bristles. CLYPEUS broad, evenly rounded, and strongly reflexed in front. Eyes rather small. ANTENNAE as in *lewisii*.

PRONOTUM moderately convex, transverse, coloured as head; in proportions appears to be identical with that of *lewisii* but is slightly more coarsely punctured, more obviously clothed with fine greyish white hairs, has longer lateral marginal bristles, is slightly less obtuse at the posterior angles, and rather less transverse. SCUTELLUM black, otherwise as in *lewisii*. ELYTRA piceous, regularly striate, with shallow striae; interstices sparingly and finely punctate with scattered fine hairs; strongly convex but not so much so, nor as broad, as in *lewisii*, also they are less strongly rounded laterally and have less prominent shoulders.

VENTRAL SURFACE and legs piceous; sternal elements finely punctate and sparingly haired.

Male GENITALIA as figured (Pl. 14, fig. 2).

Length, 12.0 mm.

Breadth, 6.5 mm.

TYPE. Collected by J. H. Lewis at Manor Burn, Central Otago, in Broun Collection, British Museum.

MATERIAL EXAMINED. Two males and one female collected by J. H. Lewis, presumably at Manor Burn, in Lewis Collection, Dominion Museum.

REMARKS. This species is exceedingly close to *bicolorata*, with which the female in the Lewis Collection appears to be almost identical.

5. *PRODONTRIA BICOLORATA* n.sp.

(Pl. 4, fig. 15; Pl. 14, figs. 5, 10, 14).

Intermediate in distribution, form, size and colour between *modesta* and *lewisii*. Morphologically difficult to distinguish from *modesta* except in the following features:—vestiture less conspicuous on elytra and pronotum, marginal bristles shorter, elytral shoulders more prominent, in form more strongly convex and slightly broader, pronotum more strongly transverse; COLOUR (Pl. 4, fig. 15) distinctive and apparently constant, dorsal areas of elytra and discal part of pronotum black, lateral portions light red, vertex and clypeus reddish, frons black, legs and ventral surface light reddish brown. From *lewisii*, *bicolorata* differs in its smaller size, slightly less convex and rather narrower form, and dark dorsal suffusions.

Male GENITALIA as figured (Pl. 14, fig. 5).

Length, 12.5 mm.

Breadth, 7.3 mm.

HOLOTYPE male and allotype female collected by writer at Alexandria, 18:iii:44, in Division of Entomology collection.

6. *PRODONTRIA CAPITO* (Broun)

Ann. Mag. Nat. Hist., (8) 3:400, *Lewisiella* (1909).

(Pl. 4, fig. 16; Pl. 14, figs. 4, 7, 11, 15).

Readily distinguishable from all species so far described by its very compact form, breadth at elytral shoulders, obsolete striation, nitid surface, subrectangular pronotum, smooth scutellum, and black antennae (Pl. 4, fig. 16).

HEAD (Pl. 14, fig. 11) typical of the genus, not distinctive; black, coarsely irregularly punctate with surface of the interstitial areas rugulose; punctures of frons very irregular, each bearing a fine greyish hair. CLYPEUS truncate, the anterior margin narrow and reflexed. Eyes small, somewhat depressed. ANTENNAE with no elongate segments, the fourth very short and obconic, the fifth slightly produced inwardly, club triarticulate.

PRONOTUM black, rather finely and irregularly punctate, haired as the head; large, transverse, convex laterally, anterior angles only slightly produced, posterior angles almost rectangular, lateral margins straight and subparallel for the posterior half but gently incurved anteriorly to the angles. SCUTELLUM smooth. ELYTRA about as broad as long, strongly convex, usually black (Pl. 4, fig. 16) but sometimes with irregular red-brown markings; striation obscure but present; punctation and vestiture as on pronotum, but rather more distant and more regular; shoulders not pronounced; narrow reflexed margin at junction of epi-pleurae; marginal bristles short.

VENTRAL SURFACE (Pl. 14, fig. 15) and legs black; tarsi short.

Male GENITALIA as figured (Pl. 14, fig. 4).

Length, 11.5-12.5 mm.

Breadth, 7.0-7.5 mm.

TYPE. Collected by J. H. Lewis, Old Man Range, 4000 ft., in Broun Collection, British Museum.

MATERIAL EXAMINED. One male and two females collected by J. H. Lewis, Old Man Range, Lewis Collection, Dominion Museum.

VAR. A. Almost identical with the typical form, but slightly smaller, with a punctate scutellum, and male claspers as in illustration (Pl. 14, fig. 7). Three specimens from the Remarkables, Lewis Collection.

VAR. B. A rather more compact form with obsolete vestiture and punctation; less nitid, and striae almost absent. A male from Lake Gow, December, 1920, Cawthron Institute Collection.

7. *PRODONTRIA SETOSA* n.sp.

(Pl. 4, fig. 12).

Readily distinguished by its *Odontria*-like dorsal proportions, and black nitid surface (Pl. 4, fig. 12).

HEAD dull black; CLYPEUS strongly transverse, truncate, coarsely but rather shallowly punctate, margin not strongly reflexed; FRONS irregularly punctured as clypeus. EYES small, somewhat depressed.

PRONOTUM much more strongly setose than in any other species except *praelatella* and *pinguis*; hairs rather long, greyish yellow, decumbent; lateral margins sub-parallel, incurved anteriorly and posteriorly; anterior angles rather prominent; posterior angles rounded. SCUTELLUM punctate and setose. ELYTRA more elongate than in most other species (width : length—57:70).

Length, 16 mm.

Breadth, 8 mm.

TYPE AND MATERIAL EXAMINED. Holotype male collected by W. A. Thompson, Hunter Mts., January, 1925; in E. S. Gourlay Collection.

SERICOSPILUS Sharp

Trans. ent. Soc. Lond., 1882, p. 83.

Eusoma White (*nec* Germar, 1817, *nec* Fitzinger, 1843) Zool.

"Ereb. Terr." (Ins.), 10 (1846).

(Pls. 3, 15).

In 1882 Sharp erected the genus *Sericospilus* taking *S. advena* Sharp as the genotype. Miss E. E. Walker translated the characterisation of the genus as follows: "Body elongate, not at all pubescent, shining below. Eyes convex. Antennae 8-jointed, the third joint appearing as if inserted at the middle of the inside of the fourth; the latter elongate, but the fifth joint much shorter; joints 5 to 8 elongate, with longer and dense setae,

these joints forming a slender elongate club. The anterior part of the ligula narrow; maxillary palpi elongate. Meta-sternum elongate. Claws simple”.

In 1846 White erected the genus *Eusoma*, taking *S. rossii* (White) as the genotype. The characters give nothing which separates the genus from *Odontria* and it seems fairly obvious that the genotype is closer to *Sericospilus* than to *Odontria*. In view of the preoccupation of *Eusoma* (*vide* Neave, Nomen. Zool., 2:371), together with the discovery of species of intermediate form, *Sericospilus* herein embraces *Eusoma* and includes one species previously listed under *Odontria* (*O. glabrata* (Broun)). This latter species has been very difficult to place, being the only member of the genus *Sericospilus* with a tri-lamellate club to the antennae; however, in other respects it is typical of the genus.

The following is the author's characterisation of *Sericospilus*:—Elongate-oblong, with long, thin elytra, and long slender legs. Body not strongly convex, somewhat nitid, glabrous or almost so, both ventrally and dorsally. Colour brown or testaceous with darker suffusions and markings, often iridescent.

HEAD rather broad and frontally flat; CLYPEUS strongly transverse, not anteriorly excised, rounded at sides, finely punctate; MAXILLARY PALPI with the terminal segment slender, apically truncate or rounded; fronto-clypeal suture fine and medially angled; FRONS finely punctate, shallow, strongly transverse. EYES large and convex. ANTENNAE of male quadri-lamellate except in one species (*glabrata*) in which they are tri-lamellate; first three segments not distinctive, fourth normal or produced baso-externally, remaining four forming the club; in female, antennae much smaller, tri-lamellate, without any external process on the fourth or fifth segments.

PRONOTUM transverse, strongly bisinuate anteriorly, slightly so posteriorly; anterior angles acute and rather prominent, the posterior ones obtuse and rounded; lateral margins evenly rounded; discal surface usually finely punctate. SCUTELLUM not distinctive. ELYTRA elongate, striate, striae rather irregular and coarsely punctate; alternate interspaces narrow and raised; posterior apices rounded, closely and regularly bristled marginally. METASTERNUM long; sternal process absent. LEGS very slender and long; fore-tibiae tridentate in both sexes; tibial spines long and slender.

GENOTYPE: *Sericospilus advena* Sharp.

SECTION A.

Descriptions based on type material or on specimens of reasonably certain identity.

Key to species of *Sericospilus*.

1. Male antennal club tri-lamellate—Drury, Papakura (Pl. 3, fig. 10) *S. glabrata* (Broun). 2.
- Male antennal club quadri-lamellate 2.
2. Dorsal surface unicolorous deep red brown—Whangarei (Pl. 3, fig. 9) *S. obscura* n. sp.
- Dorsal surface not unicolorous 3.

3. Pronotum more than one third length of elytra—Tuatapere, Southland (Pl. 3, fig. 8) *S. truncatus* n. sp.
- Pronotum less than one third length of elytra 4.
4. Fourth antennal segment of male strongly produced inwardly 5.
- Fourth antennal segment of male feebly produced or simple 6.
5. Large species; 13 mm.—West Coast, South Island; Nelson (Pl. 3, fig. 1) *S. advena* Sharp
- Small species; 11 mm.—Mt. Egmont *S. intermediatus* n. sp.
6. Male antennae with fourth segment nearly as long as first three combined—Martinborough (Pl. 3, fig. 5) *S. piliventris* (Broun).
- Male antennae with the fourth segment much shorter than the first three combined 7.
7. Relatively large species; 10 mm.—Nelson District and West Coast (Pl. 3, figs. 2-4) *S. aenealis* (Broun).
- Small species; under 7.5 mm. 8.
8. Third antennal segment of male shorter than fourth—Whangarei (Pl. 3, fig. 7) *S. minor* n. sp.
- Third and fourth antennal segments of male sub-equal—Whangapeka Valley, Nelson (Pl. 3, fig. 6) *S. brevis* n. sp.

1. SERICOSPILUS ADVENA Sharp

Trans. ent. Soc. Lond., 1882, p. 84.

(Pl. 3, fig. 1; Pl. 15, figs. 1-3; 24-26).

The general characters of this species have been well defined by Sharp, and a translation by Miss E. E. Walker of his description is quoted herewith together with comments by the writer:

"Suboblong, not very convex, almost parallel-sided, opaque above, moderately shining below, glabrous; the lateral margins of the body setulose, the head ferrugineous in front, nigrescent behind; prothorax irregularly punctate, fusco-ferrugineous, the sides more weakly fusco-ferrugineous, elytra ferrugineous, as if marmorate with black, these black regions, seen laterally, opalescent-shining, sterna and legs testaceous; tarsi slender and elongate".

"The colour and sculpture of the wing-cases is peculiar; they have a rather indefinite but not coarse punctuation, which is not arranged in series, and they are indistinctly costate longitudinally, the appearance of being ribbed caused apparently quite as much by the arrangement of the colours as by elevation of the surface; the colour (*vide* Pl. 3, fig. 1) is obscure yellowish, but there are numerous patches of dark colour arranged in a serial manner; these patches are of irregular outline, and those in each series tend to be connected with one another; seen in a certain light the elytra assume in consequence of these patches a brilliant appearance. The sides of the breast are rather closely punctate. I have five individuals before me, but can detect no sexual distinctions".

HEAD rather large, finely punctate over entire clypeo-frontal area; CLYPEUS narrowed anteriorly, laterally rounded, free margins strongly elevated, a few slender bristles on discal surface; FRONS smaller than clypeus, a little over half total head width, somewhat depressed antero-medially, punctate over entire area; MAXILLARY PALPI (Pl. 15, figs. 25, 25a) with ultimate segment

elongate, slightly curved, and usually rounded apically. ANTENNAE of male (Pl. 15, figs 24, 24a) with lamellae as long as the clypeal width at its base; fourth segment with an antero-proximal prolongation sometimes nearly as long as the first three segments together; lamellae somewhat curvate-spatulate, and hirsute; female antennae with a tri-lamellate club, the lamellae being about one third as long as those of the male; fifth segment slightly produced anteriorly.

PRONOTUM (Pl. 15, fig. 26) strongly transverse, not strongly convex, rather coarsely punctate; anterior angles much produced, posterior ones rounded and right-angular; lateral margins parallel posteriorly, converging anteriorly; marginal bristles long and slender. ELYTRA (Pl. 3, fig. 1) as described by Sharp above; somewhat rugose; alternate raised interstices less obvious than in most other species, but nevertheless definitely present; puncturing coarse, very irregular especially on the interstices; suture raised; surface usually slightly iridescent.

Male GENITALIA as figured (Pl. 15, figs. 1-3).

Length, 13 mm.

Breadth, 6 mm.

TYPE. Collected by R. Helms at Greymouth; in Oberthur Collection, Brittany.

MATERIAL EXAMINED. Two males and one female collected by — Brough, West Coast, Lewis Collection, Dominion Museum. One male collected by R. E. Clouston, Mt. Perry, Goul- and Downs, Nelson, February, 1919, O'Connor Collection, Dominion Museum. Four males collected by E. S. Gourlay, Balloon Hut (Mt. Arthur), Nelson, 8.1.30, one female, A. Philpott, Goul- and Downs, 7.1.22, in the Cawthron Institute Collection; three males, Balloon Hut, 8.1.30, E. S. Gourlay, one female, Mt. Ruapehu, January, 1921, A. Richardson, in the collection of E. S. Gourlay.

REMARKS. This species presents considerable variation in antennal and genital characters (Pl. 15, figs. 1-3, 24, 24a). However, since the two males collected by — Brough in the same locality show certain differences, it would be incorrect to make varieties of the other two males merely because their differences in structure coincide with differences in locality.

2. SERICOSPILUS AENEALIS (Broun)

Ann. Mag. Nat. Hist., (8) 3:397, *Eusoma* (1909).

(Pl. 3, figs. 2-4; Pl. 15, figs. 4-8, 21).

In general form this species is similar to the previous one, but is of smaller size, with considerable structural differences.

COLOUR (Pl. 3, figs. 2-4) testaceous with reddish clypeus; piceous suffusion frontally on head; red-brown rather indefinite suffusion on the discal area of pronotum, lighter laterally; elytra variegated with brown irregular markings on alternate broad interstices; suture reddish; ventral surface and legs testaceous; elytra sometimes iridescent.

HEAD very similar to that of *advena* except in size. ANTENNAE of male (Pl. 15, fig. 21) quadri-lamellate, fourth segment only slightly produced antero-proximally; female antennae reduced, tri-lamellate. PRONOTUM and ELYTRA as in *advena*, the latter rather more obviously costate and more truncate posteriorly. VENTRAL SURFACE not distinctive. Male GENITALIA as figured (Pl. 15, figs. 4-8).

Length, 10.0 mm.

Breadth, 4.8 mm.

TYPE. Male collected by J. J. Walker at Westport; probably in Broun Collection, British Museum.

MATERIAL EXAMINED. Six males and seven females collected by the author at Lake Rototoi, Nelson (October and December, 1943), and three males from Takaka Hill, Nelson (10:10:45); Entomology Division Collection.

VAR. A. (Pl. 3, fig. 3). Somewhat larger than typical form, and varying from it in the broken dorsal outline of genital claspers (Pl. 15, fig. 5).

Length, 11.0 mm.

Breadth, 5.5 mm.

MATERIAL. Four males and three females collected by the author, Upper Maitai Valley, Nelson, November, 1943 and January, 1945; Entomology Division Collection.

VAR. B. (Pl. 3, fig. 2). Rather larger than above variety, more ornate and strongly contrasting in colour, strongly iridescent, with a dull sheen, not strongly nitid; male genitalia (Pl. 15, fig. 6) very similar to those of the typical form.

Length, 12.5 mm.

Breadth, 6.0 mm.

MATERIAL. One male collected by J. Crowley, Pokaka, Waimarino, March 1922; Entomology Division Collection.

VAR. C. Appears to be identical in size and external structure with VAR. A., but differs in the male genital characters (Pl. 15, fig. 7).

MATERIAL. Two males collected by G. V. Hudson, Mt. Arthur, Nelson, January 1919; O'Connor Collection, Dominion Museum.

VAR. D. Similar to VAR. C. (Pl. 15, fig. 8).

MATERIAL. One male collected by E. Hine, Mt. Holdsworth, 2,500 ft., 17:ii:31; Dominion Museum Collection.

3. SERICOSPILUS INTERMEDIATUS n.sp.

(Pl. 15, fig. 10).

In size and general appearance this species bears a striking resemblance to one of the larger varieties of *aenealis*. However, the male antennal characters are similar to those of *advena*, while the genital claspers are very distinct from those of either species (Pl. 15, fig. 10). There are no other distinguishing characters. Certainty of identity may be arrived at only by dis-

section and examination of the genitalia, although separation from *aenealis* is simple on male antennal characters.

Length, 11.7 mm.

Breadth, 5.0 mm.

MATERIAL EXAMINED. HOLOTYPE male collected by E. A. Plank, Mt. Egmont, January 1933; Dominion Museum Collection.

4. *SERICOSPILUS TRUNCATUS* n.sp.

(Pl. 3, fig. 8; Pl. 15, figs. 9, 22, 23, 27).

The only species of the genus in which the length of the pronotum is more than one third that of the elytra.

COLOUR: Head black except for deep red-brown clypeus (Pl. 3, fig. 8); pronotum testaceous with a dark brown, irregular discal suffusion; elytra iridescent brown except for the striae which are narrowly marked by irregular testaceous lines, and for the testaceous humeral vittae; ventral surface light brown; legs reddish yellow, darker at articulations and on spines and teeth.

HEAD not distinctive; anterior clypeal margin not strongly elevated when compared with other species; punctation of head fine and distant. Antennae of male (Pl. 15, fig. 22) large, quadri-lamellate, with fourth segment not antero-proximally produced, the fifth (first lamella) shorter than the remainder of the lamellae. Labial palpi (Pl. 15, fig. 23) with ultimate segment somewhat expanded distally.

PRONOTUM (Pl. 15, fig. 27) almost transversely straight posteriorly, and broadest anterior to its middle; punctation uniform and fine. Elytra broad, truncate posteriorly, rather irregularly striate-punctate; interspaces non-punctate, the alternate ones not greatly narrowed nor elevated as costae; suture elevated.

MALE GENITALIA as figures (Pl. 15, fig. 9).

Length, 8mm.

Breadth, 4 mm.

MATERIAL EXAMINED. Holotype male collected by J. H. Lewis, Tuatapere, Southland; O'Connor collection, Dominion Museum.

REMARKS. This species is highly distinctive and there is almost sufficient justification for the erection of a new genus on its characteristics. However, it is consistent with *Sericospilus* in its peculiar colouring and iridescence, the lack of long silky hairs ventrally, the quadri-lamellate male antennae, and the alternate nature of the inter-strial elytral spaces. The male genital claspers also unite it with other members of the genus through *intermediatus*.

5. *SERICOSPILUS PILIVENTRIS* (Broun)

N.Z. Inst. Bull. no. 1, pt. vi, p. 616, *Eusoma* (1921).

(Pl. 3, fig. 5; Pl. 15, figs. 11, 18).

This species (Pl. 3, fig. 5) is almost a perfect miniature of

aenealis from which it may be readily distinguished by the following characters:—

Anterior CLYPEAL MARGIN very strongly elevated; discal clypeal area rugosely punctate; FRONS strongly punctate. ANTENNAE of male (Pl. 15, fig. 18) with the fourth segment nearly as long as the first three combined. ELYTRA obviously punctate, the alternate costate interstices being quite definite and moderately regular. Male GENITAL CLASPERS (Pl. 15, fig. 11) slender, curved and very acute apically, broadened behind the apex.

Length, 7.6 mm.

Breadth, 3.7 mm.

TYPE. Collected by Mr. A. C. O'Connor, Martinborough, near Wellington, 10th August, 1916. Probably in the Broun collection, British Museum.

MATERIAL EXAMINED. Two males collected by Mr. A. C. O'Connor, Martinborough. Cawthron Institute collection; one specimen (no details) in the collection of Mr. E. S. Gourlay.

6. SERICOSPILUS BREVIS n.sp.

(Pl. 3, fig. 6; Pl. 15, figs. 13, 19, 30).

Somewhat similar to the previous species, but smaller, relatively shorter and broader, with the fourth antennal segment of the male small.

COLOUR (Pl. 3, fig. 6) dorsally testaceous, with two small darker suffusions on the frons internal to the eyes; two medio-lateral longitudinal brown suffusions on the pronotum, and the normal inter-strial elytral markings. Ventral surface and legs testaceous.

HEAD rather coarsely, densely and rugosely punctate on clypeal and frontal areas; CLYPEUS (Pl. 15, fig. 30) not strongly transverse, discally strongly depressed, anteriorly truncate, with parallel sides and rounded anterior angles; FRONS anteriorly depressed. ANTENNAE of male (Pl. 15, fig. 19) with the quadri-lamellate club not very large, and with the third and fourth segments subequal, the latter rather broad.

PRONOTUM not strongly transverse, convex, broadest just anterior to middle; discal surface strongly punctate; posterior margin depressed. ELYTRA rather broad, laterally slightly rounded, apically not truncate; striae fairly definite, alternate interstices not strongly rugose; punctuation irregular, coarse, almost rugose, and sparse on the interstices.

Length, 7.2 mm.

Breadth, 3.5 mm.

MATERIAL EXAMINED. HOLOTYPE male, collected by Mr. E. S. Gourlay, Whangapeka Valley, Nelson, 2.12.34, paratype, Whangapeka Valley, Nelson, 18.11.34, E. S. Gourlay, Gourlay collection.

REMARKS. This species may be readily distinguished from the preceding species by the short, broad, fourth antennal segment, the lighter colouring, shorter elytra, more coarsely punctate head, and the male genital claspers (Pl. 15, fig. 13).

7. SERICOSPILUS MINOR n.sp.

(Pl. 3, fig. 7; Pl. 15, figs. 14, 20, 29).

The smallest species examined. Somewhat similar to the last, but distinguished by clypeal, elytral, antennal, and colour characters.

COLOUR (Pl. 3, fig. 7) as in *S. piliventris*, but with the dark area on the head confined to the upper lateral frontal areas and the vertex, the pronotal suffusion somewhat extended, and the dark areas on the elytra not confined by the striae.

HEAD coarsely, rugosely punctate throughout clypeal and frontal areas; CLYPEUS (Pl. 15, fig. 29) rounded anteriorly and laterally, not at all truncate, very strongly depressed anterodiscally. ANTENNAE of male (Pl. 15, fig. 20) as in the preceding species, but with the third segment much shorter than the fourth.

PRONOTUM as in the preceding species. ELYTRA almost straight laterally, rounded apically. Striation very obscure, alternate interstices very narrow and irregular, intermediate broader ones wide and coarsely punctate.

Male GENITALIA as in Pl. 15, fig. 14.

Length, 7 mm.

Breadth, 3.1 mm.

MATERIAL EXAMINED. HOLOTYPE male, collected by Mr. A. Richardson, Coronation Reserve, Whangarei, 6.1.27. E. S. Gourlay collection.

8. SERICOSPILUS OBSCURA n.sp.

(Pl. 3, fig. 9; Pl. 15, figs. 15, 16).

Different from all previously described species in having the elytra dark and unicolourous or nearly so. In this respect, it resembles the following species (*glabrata*).

COLOUR (Pl. 3, fig. 9) dorsally deep red-brown, darker on the head and pronotum than on the elytra. Occasionally, yellow-brown individuals are taken. Serial inter-strial markings obscure or absent. Ventral surface and legs, yellow-brown.

HEAD very similar to that of *S. minor*, but punctation fine, and not rugose. ANTENNAE of male (Pl. 15, fig. 16) very similar to that of *S. minor*, but with the first lamella (fifth segment) slightly reduced, and the club shorter and stouter.

PRONOTUM shaped as in *advena* (Pl. 15, fig. 26) but more strongly convex, with the posterior margin depressed; surface obscurely punctate. ELYTRA moderately elongate, lateral margins curved, apices not truncate. Alternate interstices very narrow, rather irregular, slightly costate; the intermediate interstices broad, coarsely but not deeply punctate. Marginal bristles very dense and long.

Male GENITALIA as figured (Pl. 15, fig. 15).

Length, 6.6-8 mm.

Breadth, 3.5-4.2 mm.

MATERIAL EXAMINED. HOLOTYPE male and 11 paratype males, collected by the author, Parahaki, Whangarei,

November-December, 1944. Entomology Division collection.

Note.—It is possible that this species may be the *Eusoma rossii* described by White, 1880 (see sp. No. 10).

9. SERICOSPILUS GLABRATA (Broun)

Man. N.Z. Coleopt., pt, vii, p. 1452, *Odontria* (1893).

(Pl. 3, fig. 10; Pl. 15, figs. 12, 17, 28, 31).

Very similar superficially to the preceding species, but differing markedly in male antennal characters, having a tri-lamellate club.

COLOUR (Pl. 3, fig. 10) dark red-brown dorsally, darker suffused on discal areas of head and pronotum; ventral surface and legs lighter.

HEAD similar to that of *S. minor* and *S. obscura*, but with the clypeus (Pl. 15, fig. 31) slightly truncate, only very slightly curved to the epicranial processes, and not as strongly elevated at the anterior margin; punctation fine, not rugose. **ANTENNA** of male (Pl. 15, fig. 17) tri-lamellate, the club short and rather stout; fifth segment very short. **LABIAL PALPI** apically truncate.

PRONOTUM (Pl. 15, fig. 28) not strongly transverse, broadest in posterior half, smoothly curved laterally to the anterior angles. Posterior angles not broadly rounded, posterior margin broadly bisinuate and depressed. **ELYTRA** strongly convex, but with shorter and fewer marginal bristles.

Male **GENITALIA** similar to those of *S. piliventris* and *S. brevis*, but not bilaterally symmetrical (Pl. 15, fig. 12).

Length, 8.6 mm.

Breadth, 4.3 mm.

TYPE collected by T. Brown, Karaka, Drury. In the Broun collection, British Museum.

MATERIAL EXAMINED. 1 male, collected by Mr. A. Richardson, Papakura, 1937. E. S. Gourlay collection.

REMARKS. Broun (loc. cit.) remarks that this species resembles *Eusoma* in shape, but places the species in the genus *Odontria*. The general external structural characteristics, and the male genital claspers definitely identify it with the genus *Sericospilus* (including the genus *Eusoma* (White)), through such species as *piliventris*, *brevis*, and *obscura* (Pl. 15).

SECTION B.

Descriptions of species which the author considers to be either not represented by material examined, or not deserving of specific status. The following descriptions are copied from their original writers, with remarks by the present author where necessary.

10. SERICOSPILUS ROSSII (White)

Voy. Er. Terr. Is., P. 10, *Eusoma* (1884);

Broun, Man. N.Z. Coleopt., Pt. 1, p. 268, *Odontria* (1880)

The following is White's description as quoted by Broun (1880), with Broun's remarks.

"CLYPEUS yellow; HEAD in front and spot on vertex yellow, space before and to the side of the eyes deep brown; THORAX yellow, with three longitudinal lines in the middle not touching the front margin, the middle straight and narrow, the side-lines wider and somewhat waved; ELYTRA yellow, with widish deep-brown reticulations; head and thorax with irregular punctures; elytra with at least nine rows of longitudinal striae; LEGS and under-side pale-yellow.

"Length, $3\frac{1}{2}$ lines.

"New Zealand (Kaudi).

"Note.—I found a specimen of what I believe to be the male of this species at Parua, near Whangarei Harbour. It measures $3\frac{1}{2}$ lines in length by $1\frac{2}{3}$ in breadth. The PROTHORAX is transversal, but not very much so, the sides are a little angulated near the middle, a good deal narrowed in front with acute angles nearly reaching the middle of the eyes, and nearly straight behind, its apex being emarginated at each side of the middle. The ELYTRA are not much dilated, and are slightly narrowed towards the apex; the rows of punctures are tolerably regular, but the striae are not very well defined, and the dark spots are slightly raised. The CLYPEUS is almost rounded in front, its outline neither truncate nor regularly-rounded, but just intermediate between the two forms. The ANTENNAE have their third and fourth joints about equal, the club being four-jointed and pubescent. The last joint of the maxillary PALPUS is a little narrowed apically.

"The insect is of a glossy yellowish colour, with dark-brown shining marks as described by White, and the elytral suture is reddish and rugose; the LEGS are short but the TARSI are long, being obviously longer than the tibiae, particularly the posterior pair."

11. SERICOSPILUS COSTELLA (Broun)

Man. N.Z. Coleopt., Pt. 1, p. 268, *Odontria* (1880).

"Somewhat similar to *O. rossii* in form, being rather elongate and sub-depressed above. HEAD, exclusive of the clypeus, very dark-brown, with rather shallow moderately coarse distant punctures; the CLYPEUS transversal, narrowed towards the front, with an emarginated apex and raised margins, it is coarsely punctate, somewhat rugose laterally, and of an infusate testaceous colour. PROTHORAX transverse, more so than in *O. rossii*, finely margined, moderately convex, its apex very obtusely rounded in the middle, so as to appear emarginate near each side, its front angles not very acute, the sides are not angulated, their outline being more of a gradual curve; the

surface is of a brownish-testaceous colour with irregularly formed blackish spots, which, in one example, form the predominant colour, and the punctation is not close, not coarse, but all the punctures are dark in colour. SCUTELLUM testaceous, with a row of punctures near the margins. The ELYTRA are of the same width as the thorax at the base, and gradually dilated posteriorly, so that they are widest near the apex, they are about thrice the length of the thorax; the sides and apex are deflexed and finely margined, their extremity sub-truncate and usually covering the abdomen, so that the pygidium is often invisible from above; each elytron bears three distinct costae, the intervals between which are broad and inclined to be rugosely punctate, the sculpture, however, becoming less distinct behind; they are variegated with testaceous, fuscous, and piceous spots, the latter colour sometimes forming abbreviated longitudinal lines, interrupted by testaceous spaces on the costae, the suture is usually marked with fuscous and testaceous spots. The LEGS are moderately long, the posterior Tarsi are a little longer than the tibiae, yet shorter than those of *O. rossii*.

"The UNDER-SURFACE is sparingly punctured and pubescent, with a longitudinal impression on the metasternum. The PALPI have their terminal joint a little thickened towards the extremity. In the male the fourth antennal joint is rather shorter than the third, joints four to eight forming a distinct pubescent club; in the other sex the third and fourth joints are about equal, the fifth is short and slightly produced, and the last three form the club.

"Length, 4 lines; breadth, 2.

"I found one female at Tairua, and a second specimen of that sex and three or four males near Whangarei Heads. The size varies somewhat, one measuring $4\frac{1}{2}$ by $2\frac{1}{3}$ lines.

"The insect may be at once distinguished from *O. rossii*, the only species with which it is liable to be confounded by its rather dull velvety appearance, distinctly emarginate clypeus, shorter thorax, and posteriorly dilated elytra. The pygidium in both species is more or less punctate."

12. SERICOSPILUS EXIMIA (Broun)

N.Z. Inst., Bull. No. 1, Pt. V, p. 380, *Eusoma* (1917).

"Oblong, subparallel, slightly convex, moderately nitid, variegate, with a few outstanding setae along the sides; fusco-testaceous, head piceous, more rufescent in front; thorax to a large extent but very irregularly aeneo-fuscous, elytral interstices more or less fusco-violaceous.

"Head moderately finely and sparingly punctured behind, more coarsely and with reflexed margins in front. Thorax in the middle nearly twice as broad as long, apex deeply emarginate, the base bisinuate; sides finely margined, slightly wider near the middle than elsewhere, very gently rounded there and behind so that the obtuse posterior angles appear to be turned slightly inwards, more obliquely narrowed anteriorly; its surface

irregularly but not closely punctate, more finely and distantly near the middle and sides. Scutellum almost smooth. Elytra just thrice the length of thorax, not quite as wide as it is at the base, their truncate apices not wholly covering the pygidium; they are moderately finely, though not very regularly, sub-truncate-striate above; the 2nd, 4th, and 6th interstices are rather broader than the others, nearly flat, and have some coarse punctures, the suture is obtusely elevated throughout.

"Legs elongate, anterior tibiae bidentate near the extremity, tarsi much longer than tibiae.

"Underside testaceous, very thinly pubescent, femora with elongate setae. Basal segment of abdomen covered by the femora, 2-5 subequal, 5th with an angular apical depression, 6th with distinct slender setae and a transverse basal impression.

"Antennae 8-articulate, 2nd joint as thick as the basal but not half its length, 4th as long as 3rd, its base attached to the apex of the third, but being a little thicker it appears, but only just perceptibly, to project backwards; club densely pubescent, with elongate leaflets.

"Distinguished from *E. aenealis* (2806) and Sharp's *Sericospilus advena* (1987) by its distinctly more anteriorly narrowed head, more rounded sides of thorax, truncate apices of elytra, by their more regular substriate sculpture and less even surface. It may be at once separated from 1787 by the structure of the 4th antennal joint.

"Male—length, 10 mm.; breadth, $4\frac{1}{2}$ mm.

"Stewart Island. I am indebted to Mr. A. Philpott, of Invercargill, for a specimen found by him during January, 1914."

PSILODONTRIA Broun

Ann. Mag. Nat. Hist., Ser. 6, Vol. XV, p. 200, 1895.

(Pls. 3, 16, 17).

The following is Broun's description of the genus:—

"Body subdepressed, ovate oblong, nearly glabrous. Clypeus quadrate with strongly elevated borders, truncate, or only slightly rounded in front. Eyes moderately convex. Labrum emarginate. Maxillary palpi moderately elongate, terminal joint sub-cylindrical. Antennae 8-articulate, basal joint slender, but clavate at apex; second half the size of the first; third one half longer than broad; fourth shorter, obliquely articulated; fifth very transverse, club elongate, compressed, formed of three leaflets. Thorax transverse, marginated base bisinuate. Scutellum large. Elytra oblong, partially covering the pygidium. Legs long, robust; anterior tibiae bidentate, the female with an additional obtuse tooth above the middle. Tarsi longer than the tibiae; claws slender, with a membranous appendage underneath.

"Posterior coxae briefly spiniform inwardly. Intermediate coxae separated by a narrow process; this is horizontal, but on

a lower plane than the coxae themselves; it is curved towards the breast but does not extend forwards beyond the coxae.

"In sternal structure, the genus approaches *Odontria*, but the bare polished upper surface distinguishes it. From *Pyronota* it differs by the absence of the conspicuous sternal process, which fits in between the anterior coxae, by the short, curved, hind coxal spines, more robust legs, longer club, and flatter surface."

This genus is very closely allied to *Mycernus* and *Pyronota*. (See Pls. 3, 16, 17.) In male genital characters, it appears to be intermediate between the two, but in most other ways is not as close to *Pyronota* as *Mycernus* is. To separate the genera *Mycernus* and *Psilodonthia* seems difficult to justify, particularly when the range of intrageneric variation in such genera as *Odontria* and *Sericospilus* is considered. It is the author's opinion that Broun's reasons for separation of the genera are no more than specific characteristics, except possibly the form of the metasternal process. Even in this last character, variation in *Mycernus* is extreme (Pl. 16), and may almost be discounted.

It seems possible that the genus *Mycernus* will collapse with the discovery of new species in the almost untouched collecting grounds of the South Island river basins. However, in the meantime, the two genera may be allowed to retain their status, on the distinctive nature of the metasternal process.

1. *PSILODONTIA VIRIDESCENS* Broun

Ann. Mag. Nat. Hist., Ser. 6, Vol. XV, p. 201, Feb. 1895.

(Pl. 3, fig. 12; Pl. 16, figs. 1, 18; Pl. 17, fig. 4).

HEAD (Pl. 17, fig. 4) rather small, much broader at eyes than at clypeus. FRONS with a few small punctures anterolaterally and with whitish, prominent orbital bristles. VERTEX smooth. EYES somewhat protruding, but not large. CLYPEUS quadrate, suture angled rather deeply medially, straight-sided anteriorly and laterally with rounded angles, margin strongly raised, discal area irregularly, coarsely punctate, with whitish bristles. Colour of entire head (Pl. 3, fig. 12) grey-green with pink and silvery reflections in oblique light. ANTENNAE of male (Pl. 17, fig. 4) with a black trilamellate club. Lamellae curvate and compressed.

PRONOTUM (Pl. 17, fig. 4) transverse, strongly rounded laterally, with rounded, not produced angles. Posterior margin depressed. Reflexed lateral margins narrow, bearing a few long whitish bristles. Discal area smooth, with puncturing obsolete or absent. Colour as on the head. SCUTELLUM punctate, discally depressed. ELYTRA elongate, evenly rounded posteriorly, strongly and evenly striate with slightly convex interstices. Punctures of striae very fine and rather distant, with a few whitish hairs interspersed. Puncturing of interstices obsolete, but not absent. Faint, irregular transverse interstitial rugae present. Suture slightly raised. Marginal bristles white.

Elytral colour (Pl. 3, fig. 12) as for head but much more dull. VENTRAL SURFACE (Pl. 16, figs. 18 and 18a) with hairs and bristles rather long and white. Colour deep red-brown to piceous and shining. METASTERNAL PROCESS not extended anterior to mesocoxae.

Male GENITAL CLASPERS as in Pl. 16, fig. 1.

Length, 5.5-6.5 mm.

Breadth, 2.3-2.6 mm.

TYPE. In the Broun collection, British Museum.

MATERIAL EXAMINED. 2 males collected at Moa Basin, upper Rakaia. Gourlay collection. 1 male labelled "near Dunedin, 1910 G. H." (George Howes?), O'Connor collection, Dominion Museum.

REMARKS. The specimen from Dunedin is much more lustrous and smaller than the Moa Basin material. It has also more prominent elytral rugae, and in oblique light, head, pronotum, and to a less extent the elytra, have brilliant pink and green reflections.

MYCERNUS Broun

Ann. Mag. Nat. Hist., Ser. 7, Vol. 14, P. 52, July, 1904.

(Pls. 3, 16, 17.)

This genus is very closely allied to *Psilodonthia* (Broun), under which genus similarities and affinities are pointed out.

The following is Broun's original description of the genus *Mycernus* with his remarks on its affinities:—

"BODY ovate-oblong, slightly convex, not pubescent. CLYPEUS deeply emarginate medially. PALPI short; terminal joint of the maxillary truncate at apex, subsecuriform; the labial very short. ANTENNAE 8-articulate, rather short; the club composed of three leaflets, which are not longer than the preceding five joints combined. Anterior TIBIAE tridentate externally in both sexes, the upper tooth, in the male, sometimes small. Posterior COXAE with stout short prolongations, these only moderately curved. STERNAL PROCESS slender and very narrow, horizontal, its front edge vertical and hardly extending forwards beyond the intermediate coxae. PYGIDIUM exposed, broad, widely rounded.

"The type bears a remarkable superficial resemblance to *Pyronota festiva*, which, however, is well differentiated by its large, conspicuous, intercoxal process.

"*Psilodonthia* is, undoubtedly, the most nearly related genus, but its intercoxal lamina is curved forwards and downwards to the breast. Its antennae are dissimilar, and their club consists of more elongate and somewhat curvate leaflets. The clypeus is truncate or slightly rounded apically. The eyes are smaller and less convex. All the palpi are longer. Tarsi longer, their 3rd and 4th joints slender at base, whereas in

Mycernus the corresponding joints of the anterior are oblong. The appendages of the hind coxae are slender, much curvate, and acute at the extremity, quite hooklike in fact. The pygidium is only half as broad and almost quite truncate behind."

GENOTYPE: *Mycernus elegans* Broun.

1. MYCERNUS ELEGANS Broun

Ann. Mag. Nat. Hist., Ser. 7, Vol. XIV, p. 52, July, 1904.

(Pl. 16, figs. 2, 19; Pl. 17, fig. 3).

HEAD (Pl. 17, fig. 3) bright glittering green, except for clypeal margins, which are testaceous with a faint metallic sheen. EYES strongly convex and prominent. CLYPEUS rather broader than long, strongly emarginate, with the free margins strongly upturned or elevated; surface coarsely and rugosely punctate, and finely bristled. FRONS very sparsely and irregularly punctate, punctures being mainly on the supra-orbital areas. ANTENNAE of male as in Pl. 17, fig. 3, the club testaceous. In the female the club is shorter.

PRONOTUM (Pl. 17, fig. 3) slightly darker green than head, with a dark reddish median longitudinal stripe, and a median lateral suffusion of red on each side. Lateral margins converging steeply anteriorly, rather roundly angled medially, and parallel to the posterior angles. Lateral margins narrowly reflexed, with about ten very fine greyish bristles on each side. SCUTELLUM very obscurely or not at all punctate; dark ruby-red colour. ELYTRA similar in colour to pronotum, but not so shining; dark reddish sutural stripe and dark humeral streaks extending to posterior extremity, but laterally not to the margins; striae not deeply impressed, but strongly marked by small, though deep, black punctures irregular both in placement and size; interstices rather flat, and not rugose. VENTRAL SURFACE (Pl. 16, fig. 19) similar to that of *Psilodontria*, but with a more definite and elongate metasternal process, and lighter in colour. This metasternal process is very variable, as illustrated (Pl. 16, figs. 19a, 19b, 19c).

Length, 5.5-7.3 mm.

Breadth, 2.5-3.6 mm.

TYPE. In the Broun collection, British Museum.

MATERIAL EXAMINED. 1 male, 3 females from the Lewis collection, Dominion Museum. Only data on label are the identification and the number 6298. However, since the material which Broun originally described was collected by Lewis, it is reasonable to assume that these specimens are from the Manuherikia River at Ophir, which is the type locality.

REMARKS. This species is readily distinguished by the light coloured antennal club, and the deeply cleft clypeus. In the male, the colour is darker, and the scutellum more strongly punctate than in the female.

2. MYCERNUS INTERMEDIATUS n.sp.

(Pl. 3, fig. 13; Pl. 16, figs. 3, 20, 20a; Pl. 17, fig. 2).

Very similar to the preceding on casual observation, but differing as follows:—

CLYPEUS (Pl. 17, fig. 2) not emarginate in front, ANTENNAL CLUB black, PRONOTUM (Pl. 17, fig. 2) more rounded, with less prominent posterior angles, COLOUR (Pl. 3, fig. 13) deeper green, with the humeral streak extending to the margins, and the sutural stripe gold-red margined. Marginal bristles reddish, instead of greyish-white. In addition, the elongate third antennal segment (Pl. 17, fig. 2) and better developed STERNAL PROCESS (Pl. 16, figs. 20, 20a) are characteristic.

Length, 7.5 mm.

Breadth, 3.6 mm.

HOLOTYPE male and 3 paratype males collected by Mr. J. G. Myers, Otira, 5:1:23. In the Entomology Division collection.

REMARKS. This species is in many respects intermediate between the genera *Mycernus* and *Pyronota*, with some resemblance to *Psilodonthia*. The structure of the sternal process links it with *Mycernus*, yet in other characteristics it is very similar to *Pyronota festiva*.

It seems very doubtful if either *Mycernus* or *Psilodonthia* will long survive, and may both be ultimately linked with *Pyronota*.

PYRONOTA Boisduval

Faune Entomologique de L'Océanie, P. 213, 1835.

(Pls. 3, 16, 17, 18).

Boisduval proposed the generic title *Pyronota* for a group of three species, two of which had previously been described under the genus *Melolontha* (*festiva* Fabr.; and *laeta* Fabr.), the third *refulgens* (Bois), being a new species. However, he failed to define the genus, and Hope (1837), apparently without knowledge of Boisduval's work, characterised the genus *Calonota* on a single specimen which he assumed to be the *M. festiva* of Fabricius, and which he admitted to have been too much mutilated for specific description. The locality he gives as "New Holland" which is Australia, where the species *festiva* does not occur.

Lacordaire (Genera des Coleopteres, Vol 111, P. 224, 1856) uses the title *Pyronota*, and places as a synonym under it, the titles *Calonota* and *Melolontha* of Fabricius and Olivier. In Gemminger and Harold (1869), Neave (1940), and in Junk's Coleopterorum Catalogus (Information obtained per Dr. David Miller), the title *Calonota* is given preference, with *Pyronota* as a synonym. This reversal of Lacordaire's opinion, is undoubtedly due to Boisduval's lack of a generic definition. Broun

(Manual of the New Zealand Coleoptera, Vol. 1, P. 262, 1880) apparently confused the facts, and used the title *Pyronota*, but attributed it to Hope, and not to Boisdual. According to his own statement, he was following the opinions of Gemminger and Harold, and probably intended to use the title *Calonota*.

As a result of the above-mentioned unfortunate confusion, the title *Pyronota* has received general acceptance by New Zealand entomologists, and the author, considering the doubtful nature of Hope's material, is in favour of maintaining Boisdual's title, supported by the generic definition of Lacordaire (loc. cit.).

CHARACTERISTICS OF THE GENUS. Small beetles, under 9 mm. in length, shining on dorsal surface, the ventral surface clothed in white hairs.

HEAD small, **CLYPEUS** rectangular, the anterior margin straight or slightly indented, the discal surface depressed and sparingly punctate. **Frons** and **vertex** more or less smooth and glabrous. **ANTENNAE** 8-articulate, club large in the male, with three lamellae in both sexes.

PRONOTUM strongly convex, smooth, and glabrous; posterior margin not strongly depressed, bisinuate, not margined. **SCUTELLUM** smooth, not depressed. **ELYTRA** elongate, without prominent shoulders, not truncate; striae finely punctate, evenly spaced, usually with convex interstices; lateral margin slightly excavated; discal area usually completely glabrous. **FORE-TIBIA** usually bidentate, rarely tridentate in the male, always tridentate in the female. Tibial spur or spine well back towards middle or basal end of tibiae. **STERNAL PROCESS** acute in profile. Posterior coxal processes acute, rather slender.

GENOTYPE: *Pyronota festiva* (Fabricius).

SECTION A.

Descriptions based on type material or on specimens of reasonably certain identity.

Key to species of *Pyronota*.

1. Fore-tibia in the male strongly arched with the spine on the proximal half of the tibia 2.
Fore-tibia in the male not arched, and bearing the spine on its distal half 4.
2. Tibial spine of male long and slender. (The Wilderness, Te Anau) *P. rubra* n. sp.
Tibial spine of male short and thick 3.
3. Small species, usually under 6.5 mm. in length. Male genital claspers evenly curved in dorsal profile. (West Coast, North Auckland, on *Cassinia* sp.) (Pl. 3, fig. 15) *P. minor* n. sp.
Medium sized species, usually about 7.5 mm. in length. Male genital claspers angled in dorsal profile. (Throughout New Zealand.) (Pl. 3, fig. 24-26) *P. festiva* (Fabricius)
4. Elytral suture metallic-gold margined except for rare black variants. Fore-tibia of male bidentate 5.
Elytral suture not metallic margined. Fore-tibia of male tridentate 7.

5. Posterior pronotal margin deeply bisinuate, posterior angles very prominent and acute. (Otiāra.) (Pl. 3, fig. 16.) *P. splendens* n. sp.
 Posterior pronotal margin shallowly bisinuate, posterior angles not prominent 6.
6. Fore-tibia of male short and broad, with a short spine. Pronotal angles blunt. (Christchurch) (Pl. 3, fig. 14) *P. setosa* n. sp.
 Fore-tibia of male rather slender and elongate, with the spine slender. Pronotal angles rather sharp. (Throughout New Zealand) (Pl. 3, fig. 18, 19) *P. edwardsi* Sharp
7. Fore-tibia of male short, thick, with blunt rounded teeth. Posterior pronotal margin somewhat angled medially. (Homer, Mt. Dennan, Tararua Mts.) (Pl. 3, fig. 17) *P. punctata* n. sp.
 Fore-tibia of male long, with slender teeth. Posterior pronotal margin rounded medially. (Dun Mt., Travers Valley, and vicinity of Nelson) (Pl. 3, figs. 20-23) *P. inconstans* Brooke

1. PYRONOTA FESTIVA (Fabricius)

Ent. Syst., Vol 1, Pt. 2, P. 166, 1792, *Melolontha festiva* and *Melolontha laeta*; Boisduval, Faune de l'oc., P. 213, 1835; *Laeta*, Boisduval, loc. cit.; Hope, Col. Man., Vol. 1, PP. 74 and 107, 1837, *Calonota*.

(Pl. 3, figs. 24-26; Pl. 16, figs. 10, 11; Pl. 17, figs. 1, 8, 10-12).

COLOUR (Pl. 3, fig. 24) usually bright green, shining, with a dark reddish stripe running dorso-medially from the vertex, along the pronotum, to the posterior extremity of the elytral suture. Usually with a brown or red lateral stripe on each elytron, extending from the humeral area to the base of the elytron. These lateral stripes fill the interstices between the seventh and ninth elytral striae external to the sutural stria. In material collected by the author from north of Whangarei, lateral stripes were present on only 5 out of 65 specimens, whereas in material from Whangarei southwards, no specimen out of several hundred examined was devoid of lateral stripes, except those from Whangarei Heads, which were similar to the far northern material. Ventral colouring usually deep red-brown.

HEAD rather small. EYES large and protruding. CLYPEUS parallel-sided with lateral and anterior margins reflexed, indented anteriorly; discal surface finely punctured, with a few larger bristle-bearing punctures towards each side. Clypeal suture fine, not impressed. FRONS finely punctured, the vertex almost smooth. ANTENNAE of male with the third and fourth segments subequal, and the club, which is black, nearly as long as the first four segments together. In the female, the club is as long as the first two segments together, and rather broad.

PRONOTUM (Pl. 17, fig. 8) not much broader than long, sparsely, finely, and shallowly punctate, rather strongly convex. Lateral margins converging considerably anteriorly, and narrowly margined. Posterior margin plain, not depressed. Anterior angles not strongly produced, and rounded. Posterior angles right-angular or acute, and not at all rounded. Scutellum narrow, smooth, depressed anteriorly. ELYTRA trun-

cate-ovate in outline, evenly but not deeply striate, stria punctures small and shallow. Suture neither elevated nor depressed, with short bristles on each inner elytral margin posteriorly. Lateral margins slightly flanged above the epipleurae. Apart from the short, stout marginal bristles, a few elongate, fine bristles are present towards the posterior elytral extremities. FORE-TIBIAE of the male (Pl. 17, figs. 10, 10a) bidentate, somewhat arched distally, with the short tibial spine situated nearer the proximal than the distal end. In the female (Pl. 17, figs. 11, 11a) the tibia is tridentate, and not distinctly arched. First tarsal joint rather elongate. STERNAL PROCESS (Pl. 17, figs. 1, 1a) rather slender, not highly distinctive.

Length, 6.5-8 mm.

Breadth, 3.3-5 mm.

TYPE. In the Banks Collection. (?)

MATERIAL EXAMINED. Several hundred specimens collected from Kaitaia, Kaihu, Ahipara, Lake Ohia, Kaeo, Marsden Point, Whangarei Heads, Rotorua, Nelson, Lake Rotoiti (Nelson), Port Hills (Christchurch), and Greenhills (Southland). All specimens in the Entomology Division, Plant Research Bureau collection, at Nelson. Additional material in the collections of the Cawthron Institute and E. S. Gourlay.

REMARKS. This species is extremely variable in colour, and also shows some lack of constancy in clypeal shape, punctuation, pronotal shape, and length of antennal lamellae, apart from occasional extreme variations in leg-structure, etc. These extremes seem to occur on bilaterally symmetrically arranged appendages, and are present on both sides, thus excluding the possibility of pupal mutilation as the cause. They take the form of large excisions, abnormal development of antennal lamellae, etc., and may sometimes prove confusing. However, they are rare, and apparently of no consequence systematically.

Colour variants (Pl. 3, figs. 25, 26) occur extensively in some areas, and in North Auckland, red, orange, green, brown-green and even blue and purple are not uncommon as the ground colour, while sutural stripes may be black, red, metallic gold, yellow, bicolorous, or absent. These colour ranges considered in conjunction with morphological variation found in the species could readily provide material to fit the original descriptions published of the following species:—

- P. sobrina* Sharp
- P. munda* Sharp
- P. pallida* Broun
- P. lugubris* Sharp
- P. caerulea* Broun
- P. purpurata* Broun
- P. aurata* Broun
- P. regalis* Broun
- P. laeta* Broun
- P. electa* Broun

Obviously this complex is in an unstable state, and no character or group of characters has been found by the author, which gives a reliable basis for separation of separate species. The position of the tibial spine, the arching of the tibia, the antennal structure and the genital characters in male specimens are very similar in all the specimens examined, or at least fall into graded series of variation. However, since none of the types of these subordinate species (or variants) is available for study at present, the original descriptions and remarks are included in this paper (Section B).

2. PYRONOTA EDWARDSI Sharp

Ent. Mon. Mag., Vol. 13, p. 72, Aug. 1876.

(Pl. 3, figs. 18, 19; Pl. 16, figs. 7, 12-14; Pl. 17, figs. 13-20).

Very similar in form to the preceding species, and showing a similar degree of structural variation. More constant in colour than *P. festiva*, the main variant being a black form, of which the writer has seen only two specimens.

In structure of head, thorax, and elytra, the same range is found as with *P. festiva*, and in these structures the descriptions need not be repeated. Below are the main distinctive features:—

COLOUR (Pl. 3, figs. 18, 19) usually bronzy green, with the thoracic stripe when present deep blue, and lateral suffused blue areas toward the elytral margins. Ventral surface reddish to black. The general colour pattern is fairly constant over the entire series of locality forms examined, and the metallic sutural stripe is present in all except the two black specimens examined. The blue sutural areas also are absent only in the black forms. The legs vary in colour from light yellow-brown to black, largely according to locality.

FORE-TIBIA (Pl. 17, figs. 13, 13a, 14) straight, bidentate in both sexes, with the spine inserted anterior to the middle. Basal tarsal segment rather short, flattened, and distally expanded.

Male GENITAL CLASPERS (Pl. 16, fig. 12) dorsally curved and medially expanded (c.f. *P. festiva*, fig. 10).

Length, 6.5-9.5 mm.

Breadth, 3-4.8 mm.

TYPE and 13 paratypes in the Oberthur collection, Rennes, Brittany.

MATERIAL EXAMINED. 38 specimens collected by the author at Marsden Point, Whangarei, 24.11.44, 2 specimens collected by the author at Dargaville, 30.11.44, 1 male collected by the author at Hora Hora Beach, Whangarei, 27.11.44, Entomology Division collection, Nelson; 2 specimens, Pakuratahi, Napier, 12.11.44, T. Cockroft; 1, Port Chalmers, January, 1932, Mrs. A. J. Gourlay, in the collection of Mr. E. S. Gourlay.

Var. A. Similar in colour (Pl. 3, fig. 18) to the typical form, but narrowed (3.5 mm. broad and 8 mm. long), more

slender in the fore-tibia (Pl. 17, fig. 15), which is tridentate in the female, and with the apical tooth of that structure more acute. Male genital claspers slender (Pl. 16, fig. 14).

MATERIAL. Upper Maitai, Nelson, E. S. Gourlay, 20.11.32, 26 specimens, E. S. Gourlay collection; Waiau Valley, H. D. Bowron, November, 1944, 4 males, 4 females, Entomology Division collection.

Var. B. Very closely similar to the typical form in its rather broad flattish elytra and in colour (Pl. 3, fig. 19), but with tridentate female tibiae. Male fore-tibiae as in the typical form.

MATERIAL. Port Hills, Christchurch, E. S. Gourlay, December-January, 1944, 16 specimens, Entomology Division collection; Port Hills, Christchurch, January, 1944, 6 specimens, E. S. Gourlay collection.

Note. It is probable that *P. dives* Broun is a colour variant of this variety.

Var. C. Of a deep green colour dorsally, piceous ventrally. Apical segment of maxillary palpi (Pl. 17, fig. 19) elongate, and truncate. Sutural bristles of elytra extending well into anterior half of elytra; elytral striae rather strongly punctate. Anterior tibia of male (Pl. 17, fig. 17) broad medially, with the spine elongate and placed further back than in the typical form.

MATERIAL EXAMINED. 1 male from Cass, 3,400 ft., J. T. Salmon, 4.2.36, Dominion Museum collection. 1 male from Mt. Torlesse, 5,000 ft., J. T. Salmon, 11.2.36, Dominion Museum collection.

Var. D. Similar in form to *P. festiva*, but coloured as the typical form of *P. edwardsi*, with the blue areas reduced somewhat. Fore-tibia of female (Pl. 17, fig. 16) intermediate between the two species, but bidentate. Labial palpi with the apical segment short and broad.

MATERIAL EXAMINED. 2 females, Golden Downs, Nelson. Collected by the author, November, 1943, Entomology Division collection.

3. PYRONOTA INCONSTANS Brookes

Trans. N.Z. Inst., Vol. 56, p. 444, 1926.

(Pl. 3, figs. 20-23; Pl. 16, figs. 16, 17; Pl. 18, figs. 1-4).

The largest and broadest species of the genus, usually not strongly convex, and variable in colour.

COLOUR (Pl. 3, figs. 21, 22, 23) usually deep green, without a sutural stripe, but with the lateral margins of the elytra reddish or brown-green. Clypeal and pronotal margins and scutellum also often dully reddish. Ventral surface usually black, but sometimes red-brown. Legs red-brown, antennae with the club black. Colour variants in yellow, red, brown, blue, black, and various intermediate shades, occur frequently in some localities. Colours rarely arranged in longitudinal striping,

making separation from either of the previous species easy.

HEAD more obviously punctate than in the preceding species. **ANTENNAE** with the fourth segment about half as long as the third. (In both the preceding species, the fourth segment is about two thirds the length of the third.) **PRONOTUM** finely punctate, with the lateral margins evenly rounded, and the posterior angles acute. Anterior angles not produced, and rounded. **SCUTELLUM** not distinctive. **ELYTRA** broad, rounded in outline posteriorly, rather flat in transverse profile. Striae moderately deeply punctured as in the preceding two species. Interstices usually rather flat. **FORE-TIBIA** (Pl. 18, figs. 1, 1a, 2) usually tridentate in both sexes, sometimes bidentate in the male. The tibia is slender, with the spine towards the apex. Proximal tarsal joint distally expanded in the male, slender in the female.

Length, 8.5-10 mm.

Breadth, 4.5-5.5 mm.

MATERIAL EXAMINED. In the Cawthron Institute collection, Holotype male, 1 male and 1 female paratype, Aniseed Valley, Nelson, 8.12.24, A. Philpott, and the following specimens, 1, Dun Mt., Nelson, 6.12.20, A. Philpott; 1, Aniseed Valley, 28.10.24, W. Davies; 2, Aniseed Valley, 8.12.24, A. Philpott. In the Entomology Division collection, 30 specimens, Dun Mt. Tramline, Nelson, 18.11.43, B. B. Given; 28 specimens, Travers Valley, Nelson, 11.12.43, B. B. Given; 5 specimens, Lake Rotoiti, Nelson, December, 1944, Mrs. A. Fitzsimmons; and 1 male, Lake Rotoiti, 16.11.34, E. S. Gourlay. Collected by Mr. E. S. Gourlay and in his collection—2 specimens, Mt. Arthur, Nelson, December, 1928; 1, Mt. Duppa, Nelson, January, 1929; 1, Balloon Hut, Mt. Arthur Tableland, January, 1930; 1, Beeby's Knob, Lake Rotoiti, February, 1929; 5, Dun Mt., November to February, 1926 to 1935; 13, Mt. Robert, Lake Rotoiti, December, 1934.

REMARKS. Mr. A. E. Brookes, in his description, states, "Anterior tibia straight, bidentate . . ." The holotype male, which has been examined by the author, and the fore-tibia of which is illustrated in this article (Pl. 18, figs. 1, 1a) is tridentate, and in all female specimens examined, the third tooth is well developed. In the males it is rare to find the basal tooth completely absent.

Colour variation in this species occurs only in certain localities, as also appears to be the case with *P. festiva*. Material from the Dun Tramline, Nelson, varies from yellow to black on the dorsum, with blue, red, and brown not uncommon. It has been suggested that this variation is caused by ageing of the beetles, but since the author has found the same peculiarities in material of uniform age reared from the larval stage, this explanation is obviously not the correct one.

Closely allied to *P. edwardsi*.

Var. A. Smaller than the typical form, of a uniform green or olive-green above (Pl. 3, fig. 20), sometimes with a bronze or olive tinge on the pronotum. Tibial characters and ventral colour variation as in the typical form. Pronotum rather broad,

but not as strongly transverse as in typical *P. inconstans*. Maxillary palpi apically truncate (Pl. 18, fig. 4).

Length, 8 mm.

Breadth, 4.5 mm.

Note. This variety may be separated from typical *inconstans* by the male genital claspers (Pl. 16, fig. 17), and is also fairly distinct in the larval stage, a description of which is given in the second part of this work.

4. PYRONOTA MINOR n.sp.

(Pl. 3, fig. 15; Pl. 16, fig. 4; Pl. 18, figs. 5, 6).

Probably the most variable of all species of the genus, with similar colour variants to those of *P. festiva*.

COLOUR (Pl. 3, fig. 15) very variable, but usually bright green, with or without sutural and median pronotal stripes. Marginal stripes absent. Often unicolorous green or coppery grey, sometimes with a pink tinge. Ventral surface reddish to almost black. Legs and pre-lamellar antennal segments reddish, antennal club black or dark brown.

HEAD smooth above, finely punctate frontally, and coarsely, evenly punctate on the clypeus. Otherwise, as in *P. festiva*. **ANTENNAE** as in *P. festiva*.

PRONOTUM variable in outline, with the lateral margins smoothly rounded, somewhat angled, or slightly excavated near the posterior angles. Posterior angles rounded or sharply angulate. Surface very finely punctate. Elytra usually broader at the shoulders than the pronotum, otherwise as in *P. festiva*. **FORE-TIBIA** of male (Pl. 18, figs. 5, 5a) usually bidentate, slender, with the spine inserted below the middle. In the female (Pl. 18, fig. 6) the tibia is bidentate, or obscurely tridentate.

Length, 5.3-7.3 mm.

Breadth, 2.7-3.8 mm.

MATERIAL EXAMINED. HOLOTYPE male, ALLOTYPE female and 38 paratypes from Bayley's Coast, Dargaville, collected by the writer, 30.11.44, 16 paratypes from Ahipara, North Auckland, collected by the author, 5.12.44, Entomology Division collection.

REMARKS. This species is usually taken on *Cassinia* species, not on *Leptospermum* as are most members of the genus.

5. PYRONOTA SETOSA n.sp.

(Pl. 3, fig. 14; Pl. 16, figs. 8, 9, 21; Pl. 17, fig. 5; Pl. 18, fig. 7).

Bears affinities to *P. edwardsi* in both form and colour, but is much more strongly setose.

COLOUR (Pl. 3, fig. 14) coppery grey dorsally, with a thin elytral sutural stripe of metallic gold. Sternae piceous, legs and abdomen reddish brown.

HEAD smooth except for the clypeus, which is finely punctate.

tate and bristled. ANTENNAE of male with segments three and four subequal, the club not distinctive.

PRONOTUM (Pl. 17, fig. 5) smooth, evenly rounded laterally, not greatly broader posteriorly than anteriorly. Angles not prominent, the anterior ones not acute, and slightly rounded. Anterior margin almost straight. Posterior margin slightly depressed just inside the angles. Marginal bristles greyish white, elongate, and prominent. ELYTRA with the striae finely but obscurely punctate. Sutural bristles present along three-quarters of sutural length. Marginal bristles prominent, and sides of elytra above margins sparsely bristled. FORE-TIBIA of male (Pl. 18, fig. 7) bidentate, nearly straight, rather broad, with a short spine. First tarsal joint short and distally expanded. Remaining anterior tarsal joints short and broad.

VENTRAL SURFACE (Pl. 16, figs. 21, 21a) piceous, densely clothed with long white hairs. Legs reddish.

Length, 6.6 mm.

Breadth, 3.5 mm.

MATERIAL EXAMINED. HOLOTYPE male and PARATYPE male collected by Mr. G. B. Rawlings, Sumner, Christchurch, 31.10.31; PARATYPE, New Brighton, 10.11.22, W. Heighway, E. S. Gourlay collection.

ALLOTYPE female and three paratypes collected by Mr. W. Heighway, Christchurch, 23.11.26, Cawthron Institute collection.

Var. A. Differs from the typical form in being light green in colour, with the elytra rather brassy. The fourth antennal segment is shorter and the pronotum broader basally, with less strongly rounded sides.

Four males in the Lewis collection, Dominion Museum, three numbered 6117, 6118 and 6119.

6. PYRONOTA RUBRA n.sp.

(Pl. 16, fig. 15; Pl. 17, fig. 9; Pl. 18, fig. 11).

On casual examination, resembles *P. inconstans*, but tibial characters are intermediate between those of *P. edwardsi* and *P. festiva*.

COLOUR light golden-red, dorsally with greenish reflections. (The typical form may be green, but only one specimen is known to the author.) Sutural stripe absent. Ventral surface light red-brown.

HEAD not distinctive apart from the clypeus, which is rectangular, has the anterior angles not rounded, and the anterior margin straight. Punctuation of head very fine. ANTENNAE of male with segments 3 and 4 not much elongated, and of equal length. Club rather short.

PRONOTUM (Pl. 17, fig. 9) finely punctate, broadest at its posterior angles, evenly rounded laterally, anterior angles obtuse and not at all rounded, and the anterior margin straight. ELYTRA rather broad, and not strongly convex. Striae rather

weakly punctured. Sutural bristles feebly developed, except at posterior extremity. FORE-TIBIA of male (Pl. 18, figs. 11, 11a) bidentate, curved, rather slender, with the spine arising slightly below the middle of the antero-ventral area. First tarsal segment large and somewhat expanded.

Length, 9.5 mm.

Breadth, 5.3 mm.

MATERIAL EXAMINED. HOLOTYPE male, collected by Dr. J. T. Salmon, The Wilderness, Otago, December, 1943, Dominion Museum collection.

7. PYRONOTA PUNCTATA n.sp.

(Pl. 3, fig. 17; Pl. 16, figs. 5, 6; Pl. 17, fig. 6; Pl. 18, figs. 8, 9).

Not strikingly similar to any of the previously mentioned species, but typical of the genus in most respects.

COLOUR (Pl. 3, fig. 17) rather dark green, with a central longitudinal pronotal black stripe, black scutellum, and no sutural stripe. Ventral surface piceous, legs red-brown.

HEAD moderately large, coarsely punctured on the clypeus, finely punctured on the frons, and smooth on the vertex. Anterior clypeal margin almost straight, strongly elevated. EYES rather small. ANTENNAE of male with the fourth segment slightly shorter than the third.

PRONOTUM (Pl. 17, fig. 6) with the lateral margins slightly angulate medially. Anterior angles not prominent, and obtuse. Posterior angles right-angular, posterior margin somewhat angulate medially. ELYTRA rather broad, not strongly convex, somewhat truncate posteriorly. Striae strongly impressed and punctate. Sutural bristles absent except at extreme posterior end. FORE-TIBIA of male (Pl. 18, fig. 8) rather broad, tridentate, strongly bristled, with a moderately long spine. First tarsal segment not elongate, expanded distally. Male GENITAL CLASPERS (Pl. 16, fig. 5) with a dorsal depression in profile.

Length, 8 mm.

Breadth, 4 mm.

MATERIAL EXAMINED. HOLOTYPE male, collected by Dr. J. T. Salmon, Homer, 31.12.47. Dominion Museum collection.

Var. A. Somewhat lighter in colour, sometimes without a pronotal stripe. PRONOTUM angulate or smoothly curved, laterally and posteriorly. FORE-TIBIAE more slender, less strongly bristled than in the typical form. Male GENITAL CLASPERS not dorsally depressed.

MATERIAL. 3 males from Mt. Dinnan, 27.12.10. O'Connor collection, Dominion Museum.

8. PYRONOTA SPLENDENS n.sp.

(Pl. 3, fig. 16; Pl. 16, fig. 22; Pl. 17, fig. 7; Pl. 18, fig. 10).

The most distinctive species of the genus, not closely allied to any other species. Possibly merits generic status, but due to

the mutilated condition of the only specimen thoroughly examined, it is placed in the genus *Pyronota* until further specimens are found.

COLOUR (Pl. 3, fig. 16) brilliant metallic green dorsally, with violet, purple, red and gold iridescence. Sutural stripe suffused violet-gold. Scutellum ruby-red. Ventral surface deep red-brown, legs slightly lighter.

HEAD large, evenly and coarsely rugosely punctate on the clypeus, finely punctate on the frons, and smooth on the vertex. **CLYPEUS** shaped as in *Odontria*, with the anterior margin straight, and the angles broadly rounded. **EYES** small. **ANTENNAE** absent from the specimen examined.

PRONOTUM (Pl. 17, fig. 1) strongly convex both longitudinally and transversally. Anterior angles slightly produced and obtuse, the posterior ones strongly produced and acute. Lateral margins rounded, not greatly narrowed anteriorly. Discal area distantly and very finely punctate. **ELYTRA** strongly convex, rather smooth, the striae not impressed but defined by regularly spaced minute punctures. Lateral margins evenly rounded from the obscure shoulders to the acute apices. Sutural spines absent except at extreme apical areas. Suture slightly raised, especially posteriorly. **FORE-TIBIA** of female (Pl. 18, fig. 10) tridentate, broad, with the elongate antero-ventral spine medially placed. First tarsal segment elongate and slender. **FEMORA** (Pl. 16, fig. 22) very broad and heavy. **STERNAL PROCESS** (Pl. 16, figs. 22, 22a) extremely thin and acute anteriorly.

Length, 7.7 mm.

Breadth, 3.7 mm.

MATERIAL EXAMINED. **HOLOTYPE** female collected by G. V. Hudson, Otira. Lewis collection, Dominion Museum.

Note. Mr. G. V. Hudson has a specimen in his collection, which he informs the author, was collected at the same time as the one examined.

SECTION B.

Descriptions of species which the author considers to be either not represented by material examined, or not deserving of specific status. The following descriptions are copied from the original writers, with remarks by the present author where necessary.

9. *PYRONOTA DIVES* Broun

Man. N.Z. Coleopt., Pt. 5, p. 1117, 1893.

"Shining, head and thorax greenish-yellow, basal margin of the latter quite green, the dorsal vitta red; **ELYTRA** crimson-red, sometimes slightly flavescent, their suture of a metallic golden colour; apices oblique near the suture; underside blackish, tibiae rufofuscous.

"Male. Front **TIBIAE** broad, nearly straight externally, curvate inwardly, with a subapical obtuse tooth on the outside;

basal joint of tarsus rather short and broad; coxal spines rather small; ANTENNAE with rather short club, sixth joint a little produced, all these blackish.

"Female. Front tibiae with an obtuse tooth on the outside.

"Male and female. Length, $4\frac{1}{2}$; breadth, 2 lines.

"Bluff Harbour, Southland. My three specimens were given to me by Mr. A. T. Urquhart."

Note. This species is probably a variety of *P. edwardsi* Sharp.

In the above description, Broun mentions the sixth antennal segment as being slightly produced. He apparently means the fifth segment, not the sixth.

10. PYRONOTA ELECTA Broun

Man. N.Z. Coleopt., Pt. 5, p. 1116, 1893.

"Oval, shining, of a beautiful pale-red, tinged with blue behind; thoracic vitta and elytral suture almost scarlet, a greenish-yellow stripe on each side of the latter; legs infuscated; UNDERSIDE obscure-red.

"THORAX more narrowed before the middle than behind. TIBIAE stout, tridentate externally. Elytra rounded apically, not at all truncate.

"Length, $4\frac{1}{2}$; breadth, $2\frac{1}{8}$ lines.

"Parua, Whangarei Harbour. One female.

Note. See *P. festiva*.

11. PYRONOTA REGALIS Broun

Man. N.Z. Coleopt., Pt. 5, p. 1116, 1893.

"Shining, crimson-red, thoracic stripe paler and rather indistinct, suture of elytra golden-green; tibiae fusco-testaceous; UNDERSIDE castaneous.

"THORAX gradually narrowed towards the front. TIBIAE (anterior) with one broad angulation in addition to the terminal projection.

"This differs from *P. electa* in the form of the thorax, in the structure of the front tibiae, and in having longer coxal spines. Apices of elytra almost obliquely truncate.

"Length, $4\frac{1}{2}$; breadth, $2\frac{1}{8}$ lines.

"Parua. One female."

Note. See *P. festiva*.

12. PYRONOTA AURATA Broun

Man. N.Z. Coleopt., Pt. 5, p. 1117, 1893.

"Body pale golden-green, head and thorax paler than elytra, thoracic stripe indistinct, yellowish; ELYTRA with a bluish tinge behind, and along each side of the fulvescent suture, apices rather narrow, not oblique; UNDERSIDE castaneous; LEGS testaceous.

"Male: TIBIAE nearly straight, and with a single tooth on

the outside, strongly obtusely angulate below behind the middle, so as to appear widely emarginate beyond that point; basal joint of tarsi (anterior) stout but elongate. ANTENNAE pale-yellow, sixth joint small, club moderate, its three leaflets black.

"Length, 4; breadth, 2 lines.

"Parua. A single male."

Note. See *P. festiva*.

13. PYRONOTA PURPURATA Broun

Man. N.Z. Coleopt., Pt. 5, p. 1117, 1893.

"Shining, head and thorax bright-green, the stripe on the latter red; ELYTRA rounded behind, green, but with most of their surface reddish-purple, second interstices quite green, suture metallic-red; LEGS and antennae testaceous, club black.

"Male: Front TIBIAE curvate externally, unidentate near the extremity, on the inside dilated beyond the middle; basal joint of the tarsus stout and of moderate length.

"Independently of coloration, this differs from *P. festiva* by the rather shorter club, shorter first joint of the front feet, more closely punctured head with less distinct interocular suture, and by the inwardly-bent posterior tibiae. ANTENNAE with small, simple, sixth joint.

"Length, $4\frac{1}{2}$; breadth, $1\frac{3}{4}$ lines.

"Parua. One of each sex."

Note. See *P. festiva*.

14. PYRONOTA CAERULEA Broun

Man. N.Z. Coleopt., Pt. 5, p. 1117, 1893.

"Oval, shining, pale-blue; the scutellum and lateral margins of thorax greenish-yellow; suture of elytra pale-green, their sides yellowish; the legs and margins of clypeus, and the antennae, testaceous, club black; underside fuscous.

"Although a female specimen, the tibiae are straight, with only one, very obtuse, external tooth, the apical protuberance but little curved.

"Length, 4; breadth, 2 lines.

"Waitakere Range."

Note. See *P. festiva*.

15. PYRONOTA LUGUBRIS Sharp

Trans. Roy. Dub. Soc., 1886, p. 398 (Broun).

"Ovalis, supra niger, limbo flavescens, subtus flavescens abdomine plus minusve, nigricante, antennarum basi pedibusque flavis.

"Long., 8 mm.

"This species is easily recognised by the black colour of the upper surface. The outer margin of the thorax and elytra are yellow, this colour on the wing-cases becoming broader behind, and sometimes extending a little forwards from the apex along the suture. The front tibiae of the male are slender, but shaped

much as in *P. festiva*, and the basal joint of the front tarsus in this sex is longer and more slender than in the other species; the club of the antennae is elongate.

"Grey mouth. Helms."

Obs. (Broun): "This species occurs also in Otago, and I captured several specimens on Mount Egmont. None are quite so large as described, and some are entirely dark in colour."

Note. See *P. festiva*.

16. PYRONOTA PALLIDA Broun

Man. N.Z. Coleopt., Pt. 5, p. 1118, 1893.

"PALLID; thoracic stripe, suture and lateral vittae of elytra, infusate-red; body pale obscure testaceous-green, in some cases more infusate; legs and antennae pale reddish-chestnut; under-side darker than legs; club black.

"THORAX narrowed behind the middle as well as in front, the sides, therefore, slightly angulated. ELYTRA rounded behind, not oblique.

"Male: Front TIBIAE narrow, nearly straight, excised on the outside near the extremity so that there is no very distinct sub-apical tooth, the terminal process directed forwards and rather short; TARSI not elongate, basal joint of moderate length, inserted near apex. CLUB rather short. PALPI stout, their terminal joint thick, but somewhat acuminate.

"Female: Anterior tibiae tridentate, the uppermost tooth obtuse. This is perhaps the smallest species, and not at all difficult to separate from the others.

"Length, $3\frac{1}{2}$; breadth, 2 lines.

"Mount Egmont and Tuakau. Mr. Urquhart also brought a female specimen from Stratford, near Mount Egmont."

Note. See *P. festiva*.

17. PYRONOTA SOBRINA Sharp

Ent. Mon. Mag., Vol. 13, p. 73, Sept., 1876.

"Supra opalescens, subtus rufescens, thorace vitta dorsali elytrisque sutura fuscis.

"Long. corp., $6\frac{1}{2}$ -7 mm.

"Mas, tibiis anterioribus latiusculis, rectis.

"This species is of a peculiar opalescent colour; and is readily distinguished from the two species I have already named by the structure of the male tibiae and tarsi, which, in some respects, are intermediate between those of the other two species. In that sex the club of the antenna is rather long; the front tibiae are short, but rather broad: they are very little curved; the basal joint of the tarsus is rather short, and inserted at a moderate distance from the extremity.

"Three male individuals labelled 'Taranaki,' and bearing the No. 1977, were sent me by Mr. Edwards, and are the only specimens I have seen. In one of them the thoracic stripe is very indistinct, but the intra-marginal elytral stripe is pretty

distinct, though it is nearly absent in the other two. The male characters are quite similar in the three specimens."

Note. See *P. festiva*.

18. PYRONOTA MUNDA Sharp

Ent. Mon. Mag., Vol. 13, p. 73, Sept., 1876.

"Supra laete viridis, fere unicolor, elytrorum lateribus apicem plus minusve flavescentibus.

"Long. corp., 9-10 mm.

"Mas, antennarum clava elongata; tibiis tarsisque anterioribus fere ut in *M. festiva* Fabr., sed adhuc magis elongatis.

"This form is very close to *M. festiva*, but is rather more elongate, and is of a beautiful almost unicolorous green on the upper surface, and the club of the antennae in the male is distinctly longer, and the tibiae and tarsi are a little longer.

"I received this species from Mr. Edwards, but only two males and a female; and I have also an individual from another source in my collection."

CHLOROCHITON Arrow

Ann. Mag. Nat. Hist., Ser. 7, Vol. 2, p. 305, 1903.

(Pls. 4, 19, 20, 21).

The genus *Chlorochiton* was erected by Gilbert Arrow in 1903, with the genotype *Stethaspis suturalis* (Fabr.). In 1924 Arrow published a further paper, "On the *Stethaspis* group of Melolonthid Coleoptera", in which he clarified the position of the genus *Chlorochiton*, and pointed out certain weaknesses in the genus, *Costleya* (Broun), which he considered to be in a rather precarious position systematically. Arrow had access to the types described by Broun, Fabricius, and Hope, and can therefore be considered as having summarised the position as accurately as possible from the type aspect.

In the present work, the only description based on type examination (apart from newly described species), is that of *Poecilodiscus pulcher* (Broun). The type of this species (now *Chlorochiton pulcher*) is in the Hutton collection, Canterbury Museum, and was obtained on loan through the kindness of Dr. R. A. Falla.

Arrow (1924) suggested the possibility of intermediate forms being found, to connect *Chlorochiton* and *Costleya*. Not only has this evidence been found, but also, it seems logical in consideration of all the species at the disposal of the author, to unite also (through the *Costleya* group), the genera *Chlorochiton* and *Poecilodiscus*.

The genus *Chlorochiton* may be conveniently considered in two groups of species. The first, including the species *suturalis*, *prasinus*, *laevis*, *longicornis*, and *planiclypeus*, contains probably all forest-inhabiting species, which are rather smooth on the

clypeal surfaces, with the elytral striae not deeply impressed or coarsely punctate. The second group, including *pulcher*, *simmondsi*, *discoidea*, *convexa*, *lineata* and *intermediata*, contains mostly alpine or subalpine species, with darker green or more complex colouring and with coarsely punctate, deeply impressed elytral striae.

The first group is composed of species very variable in many characters, but peculiarly constant in others. The author had a series of specimens ranging in their distribution from Whangarei in the North Island to Lake Rotoiti (Nelson) in the South. The specimens were arranged in a linear series, on a North-South distribution basis. The result was marked and instantly noticeable. In the first place, the specimens with a distinct yellow suture were all from south of Ohakune (Karioi), and with one exception, those without the sutural stripe were all from Matamata and Northward. Unfortunately, the intermediate area was not represented. On further investigation, male antennal differences and male genital differences were found in complete accord with this distributional hypothesis. The one exceptional specimen from the southern area (Kaitoke, near Wellington) is probably associated with the species of the second group, and is intermediate in certain respects. It is described herein, as *C. planiclypeus*.

Variable characters which apparently cannot be taken into account from a specific viewpoint (except where differences are relatively very great) are, punctuation of clypeus, head, and pronotum, indentation of the clypeus, nature of fore-tibial teeth, shape of clypeus (whether parallel-sided or tapering), and degree of punctuation and obviousness of elytral striation. Characters which appear to show most constant and marked variation are the presence or absence of the sutural stripe, the relative length of the antennal club, the absence or presence of a strongly reflexed clypeal margin, and the outline of the genital claspers of the male. In all cases, as with most New Zealand members of the subfamily, species distribution is linked closely with geographical topography.

The author has been unable to place from material at his disposal, either *Chlorochiton laevis*, or *C. prasinus*. These may be variants of *C. longicornis* and *C. suturalis*, but are herein described as by Arrow, as separate species.

The second group (*C. pulcher*, etc.) are probably very local in habitat, and do not present the same specific problems as do the *suturalis* group.

Note. The erection of the genus *Chlorochiton*, involving the transfer of a genotype from one genus to another, has been explained fully by Arrow (1903). His explanation is as follows:—

"In consulting Hope's description of his genus *Stethaspis* I have been surprised to find that there is no correspondence with the Fabrician species named as its type, that species having been described from a specimen now in the British Museum. In order to clear up this fresh complication, I have examined

the original specimens in the Hope Collection, and found, as I was led to expect, that the true *Stethaspis* is based, not upon the New Zealand *Melolontha suturalis*, F., but upon the Australian *Xylonychus eucalypti* (Bois). Hope appears to have had specimens of both before him, but the one which he identified as the Fabrician species (and which he correctly recorded as from Australia) belongs to the second species. . . .

"There are thus two names for the Australian genus and none for that from New Zealand, for the name given by Boisduval (*Micronyx*) had been previously used in the Coleoptera."

From the above remarks, it is clear that the transfer of the genotype has been in name only, as Hope's description was based on a misidentified specimen.

The characters of the genus as now constituted are:—

COLOUR, usually basically green, sometimes with longitudinal yellowish elytral markings; rarely brown. Dorsal surface nitid, hairs and bristles almost completely absent from discal areas of pronotum and elytra. **HEAD** with eyes prominent; clypeus truncate or slightly indentate anteriorly, and punctate discally. **FRONS** punctate. **ANTENNAE** 8-segmented, club trilamellate, much larger in the male than in the female. **PRONOTUM** large, transverse, punctate, rarely bearing discal hairs. **SCUTELLUM** punctate. **ELYTRA** broad, striate, somewhat smooth or costate; a small apical spinose process present on each elytron. **VENTRAL SURFACE** more or less densely invested with greyish-white hairs. **METASTERNAL PROCESS** large and prominent, simple or bifid, acute or rounded in profile. **FORE-TIBIAE** tridentate in both sexes. Male **GENITAL CLASPERS** bilaterally symmetrical.

GENOTYPE: *Chlorochiton suturalis* (Fabr.).

Key to species of *Chlorochiton*.

1. Alternate elytral interstices raised as definite costae 2.
Interstices flat, or uniformly raised 5.
2. Colour bright green on head and pronotum. (Garvie Mts., Ohakune, Blackball) (Pl. 4, fig. 5) *C. lineata* (Arrow)
Colour of head and pronotum brown, with or without metallic green sheen 3.
3. Colour of elytra brownish and yellow, with no trace of green. (Tararua Mts.) (Pl. 4, fig. 8) *C. simmondsi* (Broun)
Colour more or less green 4.
4. Length not greater than 14 mm. Breadth : length ratio of Elytra approximately 5 : 6. (Switzers) (Pl. 4, fig. 6) *C. pulcher* (Broun)
Length greater than 17 mm. Breadth : length ratio of Elytra approximately 4 : 6. (Mt. Arthur) (Pl. 4, fig. 7) *C. discoidea* (Broun)
5. Elytral interstices of uniform colour. Humeral streaks absent 6.
Elytral interstices alternately light and dark olive-green with dark humeral streaks. (Mt. Arthur) (Pl. 4, fig. 4) *C. intermediata* n. sp.
6. Strongly convex, deep green, striae deeply impressed and punctate, mesosternal process short and blunt. (Oxford) (Pl. 4, fig. 3) *C. convexa* n. sp.
Not markedly convex, bright green, striae shallow or not impressed, with punctuation rather fine, mesosternal process very acute, and more or less elongate 7.

7. Clypeus only very slightly reflexed on anterior margin. Elytral margins red-brown. (Kaitoke) (Pl. 4, fig. 9) *C. planiclypeus* n. sp.
 Clypeus strongly reflexed on anterior margin. Elytral margins green or yellowish 8.
 8. Antennal lamellae of male not longer than segments 1 to 5 together. Suture yellow. (Ohakune to Lake Rotoiti, Nelson) (Pl. 4, fig. 2) *C. suturalis* (Fabricius)
 Antennal lamellae of male half again as long as segments 1 to 5 together. Sutural stripe absent. (North of Matamata) (Pl. 4, fig. 1) *C. longicornis* Arrow

1. CHLOROCHITON SUTURALIS (Fabricius)

Ent. Syst., Vol. 1, Pt. 2, p. 161, 1792.

Melolontha suturalis Boisduval, Voy. Astrol. ii, 189, 1835,
Micronyx chlorophyllus; l.c. Atlas, *Rutele chlorophylle*
 Hope; Col. Man., 1, 104, 1837, *Stethaspis suturalis*.
 (Pl. 4, fig. 2; Pl. 19, fig. 1; Pl. 20, figs. 1, 1a, 10; Pl. 20, fig. 2).

HEAD green, densely and usually rugosely punctate. CLYPEUS transverse, more or less oblong, sometimes tapering anteriorly; anterior and lateral margins very strongly reflexed, sometimes with lateral basal notches, and in some cases antero-medially incised. Clypeal surface with thin, erect bristles. ANTENNAE of male trilamellate (Pl. 20, fig. 10) with the lamellae not longer than segments 1 to 5 together, and in many cases (especially in specimens from the South Island) considerably shorter than the fourth. In the female, the club is much shorter, but in other respects antennal characters are similar. PRO- NOTUM (Pl. 4, fig. 2) transverse, but not strongly so. Bright green in colour, sometimes with yellowish lateral margins. Entire surface densely, sometimes rugosely, punctate, and bearing very fine, decumbent hairs in some specimens. Anterior angles acute, projecting forwards, sharp or blunt, rarely upturned. Posterior angles square, slightly rounded. Anterior margin bearing fine, erect bristles. Lateral margins bristled, narrowly reflexed or flanged; slightly converging from the posterior angles to just anterior to the middle, more strongly converging anteriorly. Posterior margin red, bisinuate or arcuate. SCUTELLUM green, margined with red; finely and not densely punctate. ELYTRA (Pl. 4, fig. 2) bright green, or olive green, with a more or less narrow yellow sutural stripe, and sometimes with lighter colour on the epipleura. Striation obvious and even, but not deeply impressed. Interstices flat. Striae finely punctate, with indefinite fine punctures or irregular transverse depressions on the interstices. The sculpture appears as though definite on an under layer, but covered with a clear varnish-like veneer. Sterna, femora, and usually tibiae, light olive-green, and glistening. The sterna densely covered with long downy white pubescence. METASTERAL PROCESS (Pl. 20, figs. 1, 1a) large, pointed, and acute in profile. Abdominal segments which are visible, of a glistening light brown colour with white, decumbent pubes-

cence, and a transverse ventral row of vertical bristles on each segment.

Length, 19-24 mm.

Breadth, 10-13 mm.

TYPE in the Banks collection, British Museum.

MATERIAL EXAMINED. 28 specimens collected at various localities from Woodville to Westport. Specimens in collections of Entomology Division, Cawthron Institute, E. S. Gourlay and Dominion Museum.

2. CHLOROCHITON PRASINUS (Broun)

Man. N.Z. Coleopt., Pt. 5, p. 1115, 1893, *Stethaspis prasinus*.

Note. As no specimens which can definitely be associated with Broun's description of this species are available to the Author, the original description is given, and also remarks made by Mr. Gilbert Arrow.

"Nitid, green, suture and side of elytra pale obscure-red, antennae ferruginous, legs greenish, knees, extremity of tibiae and the tarsal joints, as well as the claws, rufescent; underside pale-green, clothed with greyish hairs, sternal process and coxae testaceous.

"Differs from *S. suturalis* as follows:—

"CLYPEUS broadly emarginate in front, with more rounded angles. EYES more depressed. THORAX more deeply emarginate at apex, the emargination almost truncate, anterior angles more prominent, its sides rather more curved and with a wide but not deep sinuosity near the front; its surface somewhat uneven and more closely and coarsely punctured. SCUTELLUM shorter. ELYTRA more obviously punctated, their apices more rounded, and armed at the suture with (on each elytron) a distinct spiniform process. STERNAL PROCESS a little shorter and more obtuse at apex. HIND COXAE more acutely prolonged behind.

"Female length, 11; breadth, 6 lines."

Mr. G. V. Hudson was kind enough to send me a specimen from Wellington."

REMARKS by Gilbert Arrow (1924):—

"This species is of a deep but clear green colour, with the outer margins of the elytra yellow and the sutural margin and the sides of the prothorax not distinctly so; but the colours of these insects are so subject to change that little importance can be attached to them. The structural characters, though not obvious, are well marked. There is a slight excision of the front margin of the clypeus, which does not distinctly taper. The whole head and pronotum are strongly and rather evenly but not rugosely punctured, the latter with regularly rounded sides. The elytral striae are strongly and deeply punctured and the intervals convex. The uppermost tooth of the front tibia is remote from the second in the female and almost obsolete in the male, and the tarsi are shorter than usual, the hindmost in the male not longer than the tibia. The third joint of the antenna is short and the club of the male not long."

REMARKS. It seems possible that this species is merely a variant of *O. suturalis*, since no character mentioned by either Broun or Arrow is not sometimes or always present, to some extent, in that species.

3. CHLOROCHITON LAEVIS Arrow

Ann. Mag. Nat. Hist., Ser. 9, Vol. 13, No. 77, p. 550, 1924.

This species, like the last, cannot be placed by the author from material at his disposal. Consequently the following are the original description and remarks.

"Laete viridis, laevis, pronoti lateribus elytrorumque sutura anguste, antennis genubus tarsisque flavibus, corpore subtus dense griseo-hirto.

Breviter ovalis, convexus, clypeo punctato-rugoso, margine antico truncato, fortiter reflexo, fronte et pronoto crebre punctatis, hujus angulis posticis haud productis, fere quadratis; scutello minutissime punctato; elytris laevissime striatis, striis parum distincte punctatis, interstitiis planis, minutissime parum crebre punctulatis, laevibus; pedibus sat gracilibus, antennarum articulo 3° quam 4° paulo breviori: mas., antennarum clava ad stipitem longitudine fere aequali, tibia antica fortiter 3-dentata, tarsis omnibus quam tibiis longioribus: fem., tibiis anticis latis, posticis apice latis.

Long., 21 mm.; lat. max., 12 mm."

"New Zealand: Nelson, Mt. Hope (16.ii.15).

"Three specimens in the British Museum were sent to me by the late Major T. Broun. Three more captured on the same occasion have been submitted to me by Mr. A. E. Brookes.

"It is a rather short and very convex species, with very smooth and lightly striated elytra. The clypeus is not very short and narrows a little to the front margin, which is strongly reflexed and a very little excised in the middle. The pronotum is rather finely and closely but not confluent punctured and its hind angles are not produced.

"The third joint of the antenna is a little shorter than the fourth and the club is not longer than the foot-stalk.

"There is a close resemblance to *C. suturalis* F., of which the type is in the Banks Collection in the British Museum; but in that the clypeus is a little shorter, the pronotum more densely sculptured, and the elytra less smooth."

REMARKS. It seems possible that this species, like the last, is merely a variant of *C. suturalis*.

4. CHLOROCHITON LONGICORNIS Arrow

Ann. Mag. Nat. Hist., Ser. 9, Vol. 13, No. 77, p. 550, 1924; Broun, Man. N.Z. Coleopt., Vol. 1, p 261; 1880, *Stethaspis suturalis*.

(Pl. 4, fig. 1; Pl. 19, fig. 2; Pl. 20, figs. 2, 2a, 11; Pl. 21, fig. 1).

Closely similar to *C. suturalis*, but differing in having no

sutural stripe (Pl. 4, fig. 1), antennal lamellae of male much longer than segments 1 to 5 together (Pl. 20, fig. 11), slender male genital claspers (Pl. 19, fig. 2) longer third antennal segment, and less slender fore-tibial teeth (Pl. 21, fig. 1).

In all other respects the same description appears to apply equally well to either species.

TYPE. In the British Museum.

MATERIAL EXAMINED. 3 males, 2 females, collected by the author, Whangarei district, December-January, 1944-45. Entomology Division collection: 2 males and 1 female collected by Mr. E. S. Gourlay, Titirangi, March, 1931; 1 male, collected by Mr. E. S. Gourlay, Matamata, March, 1931. Gourlay collection.

REMARKS. The larvae of both *C. longicornis* and *C. suturalis* are known to the author, and show marked differences, which are illustrated in Part II of this publication.

5. CHLOROCHITON PLANICLYPEUS n.sp.

(Pl. 4, fig. 9; Pl. 19, fig. 3; Pl. 20, figs. 3, 3a; Pl. 21, fig. 3).

Darker in colour than most species (Pl. 4, fig. 9). Suture, pre-humeral areas, and epipleura, reddish-brown.

HEAD rather coarsely and uniformly punctate. CLYPEUS oblong, rounded at the angles, with the edges only very slightly reflexed. Clypeal bristles almost absent. ANTENNAE of male of the same proportions as in *C. suturalis*, but with segments 3 and 4 of nearly equal length, and both small.

PRONOTUM rather steeply narrowed anteriorly. Anterior angles rounded. Margins almost plain, but very obscurely and finely rimmed. ELYTRA not highly distinctive except in colour (vid. sup.). Punctuation of striae not deeply impressed, and rather distant. STERNAL ELEMENTS pubescent, green. FEMORA and TIBIAE green. METASTERNAL PROCESS (Pl. 20, figs. 3, 3a) rather short, rounded and blunt, quite distinct from those of *C. suturalis* and *C. longicornis*. Fore-tibia intermediate between *C. suturalis* and *C. intermediata* (Pl. 21, figs. 2, 3, 4). Male genital claspers highly characteristic (Pl. 19, fig. 3).

Length, 18.5 mm.

Breadth, 10 mm.

MATERIAL EXAMINED. HOLOTYPE male collected by Mr. C. Lindsay, Kaitoke, 23.9.34. In the Dominion Museum collection.

6. CHLOROCHITON CONVEXA, n.sp.

(Pl. 4, fig. 3; Pl. 19, fig. 4; Pl. 20, figs. 6, 6a; Pl. 21, fig. 5).

HEAD rather small, bright, almost metallic green in bright light, rather deep green in diffused light. CLYPEUS with pink iridescence, not strongly transverse, rounded at the angles, sinuous on the anterior margin which is not strongly reflexed; punctuation dense, coarse, and rugose. Punctuation of frons not

so dense as on clypeus. ANTENNAE of male with the lamellae not longer than segments 1 to 5 together. Lamellae rather broad; segment 3 very small. Club in the female shorter than the scape.

PRONOTUM with reflexed margin extremely narrow. Lateral sides smoothly rounded and incurved towards the anterior angles, which are not prominent. Colour deep green (Pl. 4, fig. 3), brightly glistening, and rather coarsely, evenly, punctate. Margins narrowly bordered with red. SCUTELLUM almost completely lacking in punctuation; coloured as pronotum. ELYTRA coloured as the pronotum, with a lighter lateral and posterior margin. Striae very deeply and coarsely punctured. Interstices uniformly convex. Lateral bristles very long. Sternal femoral and tibial surfaces, light olive-green, the legs with a slightly metallic lustre. Sternal surfaces densely covered with long greyish-white hairs. METASTERNUM very short, with its process blunt (Pl. 20, figs. 6, 6a).

Length, 15 mm.

Breadth, 9 mm.

MATERIAL EXAMINED. HOLOTYPE male collected at Oxford, Canterbury, October, 1924, Gourlay collection.

ALLOTYPE female collected at Oxford, Canterbury, October, 1924. Canterbury Museum collection.

7. CHLOROCHITON INTERMEDIATA n.sp.

(Pl. 4, fig. 4; Pl. 19, fig. 5; Pl. 20, figs. 4, 4a; Pl. 21, fig. 4).

Intermediate in many ways between *C. convexa* and *C. discoidea* but readily distinguished from either species.

HEAD similar to that of *C. convexa*, but broader, more densely punctate on the frons, and with smaller eyes. ANTENNAE of the male with the lamellae narrow, and the fourth segment elongate.

PRONOTUM shaped as in the last species, but more distantly punctured, and of a duller olive-green colour (Pl. 4, fig. 4). SCUTELLUM dull-green, with the margins red-brown; almost non-punctate. ELYTRA strongly striate, with the puncturing coarse and deeply impressed. Interstices convex, alternately light and dark olive-green. Margins flanged, rufo-testaceous to yellowish (Pl. 4, fig. 4). Sternal plates, coxae, and femora light red-brown. Abdomen deep red-brown. Tibiae light pearly green. STERNUM somewhat abbreviated, with the process rather slender (Pl. 20, figs. 4, 4a).

Length, 16 mm.

Breadth, 8.5 mm.

MATERIAL EXAMINED. HOLOTYPE male and PARATYPE male, collected by Mr. A. Philpott, Flora River, Mt. Arthur, Nelson, 4.11.27. Cawthron Institute collection.

REMARKS. In appearance, this species resembles *C. discoidea*, but differs in having the pronotum, head, elytra and tibiae green, and having the metasternal process slender. It differs

from *C. convexa*, on the other hand, in having the elytral interstices alternately light and dark, the sternal elements brown, and the antennal lamellae narrow.

8. CHLOROCHITON DISCOIDEA (Broun)

Man. N.Z. Coleopt., Vol. V, p. 1116, 1893, *Costleya discoidea*.

(Pl. 4, fig. 7; Pl. 19, fig. 6; Pl. 20, figs. 7, 7a; Pl. 21, fig. 6).

Genotype of the genus *Costleya* (Broun). Included under *Chlorochiton*, on account of the discovery of species with the characteristics of both genera.

HEAD testaceous on clypeus and base of frons, elsewhere dark brown, clypeus sometimes darker suffused; shining, with faint blue-green reflections. CLYPEUS rather weakly reflexed at margins, irregularly, rugosely punctate; suture somewhat depressed at the middle. FRONS more finely and distantly punctate. ANTENNAE as in the previous species.

PRONOTUM coloured as the frons (Pl. 4, fig. 7), testaceous at sides and on anterior margin; lateral margins evenly curved, not so narrowly reflexed as in the previous species; punctuation fine and not dense, marginal bristles long and slender; posterior margin rather deeply lobed medially. SCUTELLUM punctate, red-brown with green reflections. ELYTRA somewhat hyaline; colour (Pl. 4, fig. 7) varying from testaceous to deep olive-green, according to the angle of the lighting; air-spaces clearly visible in the interspaces, especially the alternate ones, which are raised as definite costae, punctuation coarse and very deeply impressed; margins flanged, with long marginal bristles. STERNAL ELEMENTS (Pl. 20, fig. 7) and abdomen red-brown. Legs testaceous with reddish bristles and articulations.

Length, 18 mm.

Breadth, 9 mm.

TYPE male collected by Mr. Cheeseman, Mt. Arthur, Nelson. Broun collection, British Museum.

MATERIAL EXAMINED. 6 males collected by Mr E. S. Gourlay, Mt. Arthur tableland, 4,300 ft., January, 1930. Entomology Division collection (2) and Cawthron Institute collection (4); 6 males collected by Mr. A. Philpott, Mt. Arthur, 5,000 ft., January-February, 1922, Cawthron Institute collection; 12 males, 1 female, collected by Mr. E. S. Gourlay, Mt. Arthur tableland, 4,300 ft., January, 1930, in collector's collection.

9. CHLOROCHITON PULCHER (Broun)

Ann. Mag. Nat. Hist., Ser. 6, Vol. XV, p. 205, February, 1895, *Poecilodiscus pulcher*.

(Pl. 4, fig. 6; Pl. 19, fig. 7; Pl. 20, figs. 8, 8a.)

In many respects this species is a smaller repetition of the previous one. The COLOURING of head and thorax (Pl. 4, fig. 6) is almost identical, but the contrast in colour of alternate elytral interstices is much stronger. HEAD more coarsely and rugosely

punctate on clypeus, and densely and regularly punctate on the frons.

PRONOTUM less transverse than in *discoidea*, with less diffused markings. SCUTELLUM sparsely punctate, red-brown with a green sheen, red margins. ELYTRA (Pl. 4, fig. 6) with striae marked by deeply impressed, coarse punctures. Alternate raised interspaces dark brown, the depressed intermediate one yellowish-brown. The entire surface has greenish-blue reflections, and is somewhat hyaline. Sternal elements and femora, red-brown and testaceous. Tibiae and tarsi piceous with blue-green reflections in oblique light. METASTERNAL PROCESS (Pl. 20, figs. 8, 8a) bicuspid, vertical in front.

Length, $13\frac{1}{2}$ mm.

Breadth, 7 mm.

TYPE. Male collected by Mr. J. Frances, Gow's Creek, Switzers, 4,000 ft., December, 1892. In the Hutton collection, Canterbury Museum.

10. CHLOROCHITON LINEATA (Arrow)

Ann. Mag. Nat. Hist., Ser. 9, Vol. 13, 1924; *Costleya lineata*. (Pl. 4, fig. 5; Pl. 19, fig. 8; Pl. 20, figs. 5, 5a; Pl. 21, fig. 8).

HEAD bright green, with silvery reflections in oblique light. CLYPEUS almost bilobate, although not deeply excised. Punctuation irregular, coarse and rugose on clypeus, rather more regular and finer on the frons. ANTENNAE of the male, with the third segment about half the length of the fourth. Lamellae black, narrow, not as long as segments 1 to 5 together.

PRONOTUM tapering anteriorly, distinctly and strongly margined, translucent green on disc, yellowish towards sides (Pl. 4, fig. 5). Punctuation rather irregular, and somewhat rugose. SCUTELLUM, reddish amber, with green reflections in oblique light, or mainly green. ELYTRA rather flat, bright green on alternate interstices, and light yellow-green on the intermediate ones (Pl. 4, fig. 5); striae very coarsely punctate, the punctures being black, margins somewhat thickly flanged, marginal bristles very fine. STERNAL ELEMENTS and abdomen piceous, femora testaceous or rufotestaceous. Tibiae light pearly green, tarsi red. METASTERNAL PROCESS rather slender and elongate (Pl. 20, figs. 5, 5a). FORE-TIBIA with the distal tooth straight, elongate, and apically rounded (Pl. 21, fig. 8).

Length, 19 mm.

Breadth, 10.5 mm.

TYPE MATERIAL collected at Ohakune and Blackball by Mr. T. R. Harris. British Museum Collection.

MATERIAL EXAMINED. 2 males collected by Mr. J. A. McPherson, Mt. Glasgow, Garvie Mts., January, 1934, Gourlay collection; 1 male collected by Mr. Lindsay, Blackball, West Coast, December, 1916. Canterbury Museum collection.

Note.—In the Blackball specimen, the colour is deeper green, the third antennal segment relatively shorter, and the meta-

sternal process more blunt. However, the two specimens are very similar and well separated from any other forms known.

11. *CHLOROCHITON SIMMONDSI* (Broun)

Man. N.Z. Coleopt. Vol. V, p. 1115, 1893; *Costleya simmondsi*.

(Pl. 4, fig. 8; Pl. 19, fig. 9; Pl. 20, figs. 9, 9a; Pl. 21, fig. 7).

Readily identified by the very rugged appearance, and by the brown and yellowish colour.

HEAD deep red-brown on the frons, yellow-brown on the clypeus. Epicranial processes and clypeal margin black, with green reflections. Clypeus oblong, transverse, rounded at the angles, slightly excised antero-medially; coarsely, rugosely punctate. ANTENNAE of male with segments 2 to 5 very short and thick, being of about the same total length as the scape. Club rather short. In the female the lamellae are shorter than the scape.

PRONOTUM transverse, not strongly arched, deeply bisinuate posteriorly; anterior angles prominent, and projecting well across the eyes; disc red-brown, lateral areas yellow-brown (Pl. 4, fig. 8) punctation coarse and irregular; lateral margins evenly curved and bristled, with a definite rim which is iridescent-green on its edge. SCUTELLUM very broad, almost semi-circular in outline, but somewhat variable, sparingly punctate. ELYTRA very coarsely striate-punctate and rugose, with strongly raised alternate interstices; colour red-brown on raised interstices, yellow-brown on intermediate ones (Pl. 4, fig. 8); margins flanged and yellowish-brown in colour. VENTRAL SURFACE deep red-brown or piceous. Legs reddish. Sternal elements not densely hairy as in many other species. METASTERNAL PROCESS rather short and blunt, but not bicuspid or vertical in front (Pl. 20, figs. 9, 9a).

Length, 17 mm.

Breadth, 10 mm.

TYPE. (Sex not stated) collected by Mr. H. Simmonds, Mt. Alpha, 4,500 ft. Broun collection, British Museum.

MATERIAL EXAMINED. 17 males, 1 female collected in the Tararua Mts. 20.12.20. Entomology Division collection; 1 specimen (no details), Cawthron Institute collection; 6 specimens, Mt. Holdsworth, 8.1.40, C. E. Clarke, in the collection of Mr. E. S. Gourlay.

SCYTHRODES Broun

Man. N.Z. Coleopt., Pt. IV, p. 955, 1881.

(Pls. 4, 21).

Broun's description of the genus, based on the genotype and sole member of the genus, *S. squalidus*, is as follows:—

"BODY broadly oviform, moderately convex, nude. HEAD short, the forehead limited by a rather deep but fine, slightly

sinuous line, its front edge truncate and a little carinated; eyes not convex; labrum deeply emarginate. PALPI short. ANTENNAE short, 8-jointed; basal articulation largest, one-half of it visible above, cylindric; second shorter than the next two, not so stout as the first; third and fourth obconical and about equal in length; fourth broader than third; fifth strongly transverse; club tri-articulate, its leaflets rather short, the terminal joint broadly concave on its outer face. METASTERNUM short. PARAPLEURAE horizontal, broad, narrowed posteriorly yet not linear at the apices. ABDOMEN with five distinctly separated segments of equal length. LEGS as in *Odontria*."

SCYTHRODES SQUALIDUS Broun

Man. N.Z. Coleopt., Pt. IV., p. 955, 1881.

(Pl. 4, fig. 10; Pl. 21, figs. 9-11).

HEAD (Pl. 21, fig. 10) black, very broad and large, with very small eyes. FRONS with a few rather coarse punctures, and irregular indentations. CLYPEUS strongly transverse, truncate, with a few coarse punctures, and slightly reflexed margins. Suture finely impressed, almost straight. Clypeal surface sometimes with a few short red bristles. ANTENNAE of male (Pl. 21, fig. 11) tri-lamellate, with the club short and broad. Antennae of female similar, but slightly shorter in the club.

PRONOTUM (Pl. 4, fig. 10) black, irregularly punctate; lateral margins reflexed, not strongly tapering, evenly curved or shallowly sinuate; anterior angles acutely rounded, produced beyond the middle of the eyes, posterior angles obtuse, rounded, not prominent; posterior margin almost straight, anterior margin with a smooth, convex border; marginal bristles red, short, and not numerous. SCUTELLUM black, triangular, depressed, sharply obtusely angled posteriorly, punctate or non-punctate. ELYTRA (Pl. 4, fig. 10) usually black, but sometimes piceous, broadly ovate, striate, more or less broadly flanged laterally, somewhat keeled at the suture; sculpture variable; in most specimens, consisting of strong transverse rugae and coarse indefinite puncturing, in other specimens puncturing is most in evidence, with indefinite rugae; in two specimens examined from Mt. Minor, the alternate interstices are slightly raised and rather smooth, with distant punctures, the intermediate ones being depressed, rugose, and punctate. In specimens from Lake Gow, the interstices are not strongly sculptured, and the lateral flanges are considerably reduced. The elytra have few scattered discal bristles, and short marginal bristles. VENTRAL SURFACE black or piceous and shining, with few hairs or bristles. The metasternum is much reduced, as in the genus *Prodontria*.

Length, 14.5 to 19.5 mm.

Breadth, 9 to 11.5 mm.

TYPE in the Broun Collection, British Museum.

MATERIAL EXAMINED. 4 males, 4 females, locality, date and collector not known, Entomology Division collection; 1 male,

2 females, Lake Gow, Dec., 1920, 1 male, 1 female, Mt. Minor, 23.12.19, Cawthron Institute collection.

REMARKS. It is possible that some workers may consider it advisable to split this genus into several species. However, as material from any one locality seems to show considerable variation, the author considers this unwise. Differences in sculpture and degree of flanging of the elytra, seem relatively distinctive for material from different localities but separations on such characters are liable to prove worthless as more material becomes available.

XYLOSTYGNUS Broun

Man. N.Z. Coleopt., Vol. IV., p. 956, 1881.

(Pl. 3, fig. 11; Pl. 21).

The following is Broun's description of the genus:—

"BODY sub-ovate, convex, bearing excessively minute setae. HEAD short, the forehead marked off by a medially-angulated linear impression; clypeus sub-truncate in front, with slightly raised edges; labrum somewhat deflexed, semi-circularly excised; eyes not prominent. PALPI short. ANTENNAE hispid, short, 9-jointed; club tri-articulate. THORAX transverse, its sides finely margined, base widely sinuated towards the sides, apex broadly emarginated, anterior angles acutely projecting. METASTERNUM short. EPIPLEURAE moderate. ABDOMEN with six segments, the four basal equal, fifth very short, the apical exposed behind. LEGS stout; anterior tibiae expanded, not very evidently tridentate, the others with a spinose median elevation; tarsi rather short, their claws simple.

"The 9-jointed antennae, nearly bald surface, differently-formed tibiae, much shorter palpi, and more distinctly separated front coxae distinguish this genus from *Odontria*".

Of the above distinctions from the genus *Odontria* by far the most satisfactory, is the 9-jointed antenna. Other characters of the genus are the ventral brush-like hair tufts on the tarsal segments (anterior and middle tarsi), short metasternum, nitid ventral surface without dense silky hairs, and the uniformly-punctate, non-striate elytra. The metasternum is intermediate between that of *Prodontria* or *Scythrodes*, and *Odontria*.

GENOTYPE : *Xylostygnus piceus* Broun.

1. XYLOSTYGNUS PICEUS Broun

Man. N.Z. Coleopt., Vol. IV., p. 956, 1881.

(Pl. 21, figs. 15, 16a, 17, 20).

HEAD black, rather broad, dully shining EYES small, and depressed. CLYPEUS not set at an angle with frons, but separated from it by a finely impressed, medially upcurved suture. Clypeus broadly emarginate in front, steeply narrowed from the eyes forward, reflexed, and uniformly, coarsely, but not rugosely, punctate. FRONS evenly rounded, rather more distantly punc-

tate than clypeus. ANTENNAE (Pl. 21, fig. 20) of both sexes black and short.

PRONOTUM black, nitid, evenly punctate, the punctures being perfectly circular, partly inlaid with greyish material, from which protrudes a minute glassy spicule in each case (punctures on head and elytra of similar structure, but somewhat smaller). In profile the pronotum is strongly arched, very narrowly marginate, lateral margins depressed, broadly sinuate; anterior angles acute, rather prominent, posterior angles obtuse, not produced. SCUTELLUM piceous, depressed, triangular, punctate anterior to level of anterior elytral margins, non-punctate posteriorly. ELYTRA non-striate, uniformly but not densely punctate. Punctures bearing longer spicules than head and thorax, and inclined to face posteriorly. Elytra strongly convex in transverse profile, curved under at sides above epipleura. VENTRAL SURFACE black and shining, punctate on sternal elements, with few bristles. FORE-TIBIAE with the third tooth obsolete or absent.

Length, 7.5 to 10 mm.

Breadth, 4 to 5.5 mm.

TYPE in the Broun Collection, British Museum. Collected by Mr. Sandager at Tiritiri.

MATERIAL EXAMINED. Four specimens collected by Mr. Sandager, Mokohinau Id. Lewis collection, Dominion Museum.

REMARKS. This species is very close morphologically to the following (*brookesi*), but differs from it in having the posterior pronotal angles less prominent, (Pl. 21, figs. 17, 18) duller, darker surface, lack of any iridescence, more strongly arched pronotum (Pl. 21, fig. 16), finer punctation, deeply depressed scutellum, and smaller size.

2. XYLOSTYGNUS BROOKESI Broun

N.Z. Inst., Bull. No. 1, Pt. VI., p. 534, 1921.

(Pl. 3, fig. 11; Pl. 21, figs. 12-14, 16b., 18, 19).

HEAD formed as in *X. piceus*, but usually of a deep reddish-brown colour, more brightly shining, rather iridescent, and with more strongly reflexed clypeal margins. PRONOTUM more strongly transverse than in *X. piceus*, less strongly arched, with the posterior angles slightly turned outward (Pl. 21, figs. 16, 17, 18). SCUTELLUM not depressed, and with punctation frequently extending to below level of anterior elytral margins. ELYTRA as in *piceus*, but with the suture more strongly differentiated by a smooth area, particularly anteriorly.

Length, 9 - 10.5 mm.

Breadth, 5 - 6 mm.

TYPE in the Broun collection, British Museum. Collected by Mr. A. E. Brookes at Takapuna, Auckland.

MATERIAL EXAMINED. In the Entomology Division

collection, 2 specimens (male and female), Milford Beach, Auckland, 22.11.29, E. Fairburn, identified by Mr. A. E. Brookes and presented by him, 18 specimens, Hora Hora Beach, Whangarei, 27.11.47, collected by the writer; 1 male, Whangarei Heads, October, 1923, C. E. Clarke, 1 male, Whangarei Heads, April, 1929, E. Fairburn, 1 female, Milford, Auckland, November, 1929, E. Fairburn, in the collection of E. S. Gourlay.

Note.—The specimen from Whangarei Heads (Pl. 3, fig. 11) from the Gourlay Collection, in certain respects resembles *X. piceus*. It is black in colour, but slightly iridescent; its punctuation is fine, but the shape of the pronotum, position of the scutellum and size are as for *brookesi*. The elytra are less convex than in typical material of either species.

HETERONYX Guerin-Meneville

Lacord. Hist. des Ins. Coleopt., Tom. iii., p. 231.

This genus has never been recorded from New Zealand, except for the single species described by Sharp as *H. pumilus*. It seems doubtful if the record is a correct one, but since the author has not seen the type, or any material fitting its description, the genus must be included in this list. The following account is taken from Broun (1880, p. 264).

"MENTUM quadrate, obliquely truncated, its ligular part very short, feebly hollowed. External lobe of the JAWS robust, armed with five or six teeth. Last joint of the PALPI sub-cylindrical or fusiform. LABRUM short, thickened, slightly arched, and widely emarginated. CLYPEUS separated from the forehead by a not very obvious furrow, strongly transversal, half-circular, more to less margined, and sometimes sinuated. ANTENNAE eight or nine jointed, the last three joints forming a short stout club. Prothorax transversal, rounded laterally, bisinuated at the base. ELYTRA oblong, partially covering the pygidium. Anterior TIBIAE short, wide, strongly tridentate, the upper tooth very small, the four posterior bicarinated and spinose; TARSI long and slender, their claws sometimes very distinctly, sometimes scarcely, bifid at the end, or simple. PYGIDIUM curvilinearly triangular, transversal.

"*H. pumilus* Sharp: Entom.; Mon. Mag., January, 1877, p. 192. Angustulus, subcylindricus, rufo-testaceous, subopacus, parce subtiliter punctatus, elytris stria suturali minus distincta.

"Long. $4\frac{1}{2}$ mm.; lat. 2 mm.

"LABRUM quite visible from above, very transverse; sides of the CLYPEUS explanate or turned upwards, the labrum filling the space between them; anterior part of HEAD with rather rough tubercular sculpture, hinder part more sparingly and indistinctly punctured; ANTENNAE small, eight-jointed. THORAX broad and short, nearly as broad as the elytra, the hind angles entirely rounded; the surface sparingly and obsoletely punctured, the sides with long cilia. SCUTELLUM large, indistinctly punc-

tured; ELYTRA elongate and narrow, finely and not closely punctured, the sides ciliate, the suture with an indistinct stria. The front part of the LABRUM is broad and very short, and its anterior edge emarginate. The tarsal CLAWS are simple.

"I am indebted to Mr. Pascoe for the only individual I have seen of this species. There are a great number of allied species in Australia, but the genus has not before been indicated as represented in New Zealand. I have in my collection a New South Wales species (I believe undescribed) which is extremely closely allied to *H. pumilus*, but is a good deal broader."

KEY TO PLATE 5.

aa	anterior pronotal angle.
abds	abdominal segments.
ant	antenna.
bp	basal shield.
cd	basal articulation of genital claspers.
clb	antennal club.
clp	clypeus.
clps	clypeal suture.
ex	coxa.
expi	coxal plate.
expr	coxal process.
e	eye.
epcp	epicranial process.
epm	epimeron.
eps	episternum.
es	elytral suture.
esh	elytral shoulder or humeral area.
evm	evertible membrane.
evma	attachment of evertible membrane.
evp	external ventral plate.
fe	femur.
fr	frons.
is	elytral interstices.
isg	inner genital sac.
ivp	inner ventral plate.
ll	genital clasper.
lb	labium.
lbplp	labial palp.
lbr	labrum.
lm	antennal lamella.
lvp	lateral ventral plate.
ma	epipleuron and marginal elytral area.
mdb	mandible.
mgb	marginal bristles.
mx	maxilla.
mxplp	maxillary palp.
pa	posterior pronotal angle.
pl	pleuron.
pn	pronotum.
pres	presternum.
pyg	pygidium.
sc	scape.
scel	scutellum.
st.1 - 3	pro-, meso-, and meta-sterna respectively.
sstr	sutural striae.
stpr	sternal process.
str	elytral striae.
tb	tibia.
tbc	tibial comb.
tbs	tibial spine or spur.
tbt	tibial teeth.
tn	tibial neck.
tr	trochanter.
ts	tarsus.
v	vertex.

PLATE 5.

- Fig. 1. A Melolonthid (generalised); entire dorsal view.
 " 2. " " " ; entire ventral view.
 " 3. Dorsal "view of Melolonthid head.
 " 4. Diagram of a Melolonthid antenna.
 " 5. Diagram of male genital apparatus and posterior abdominal segments.

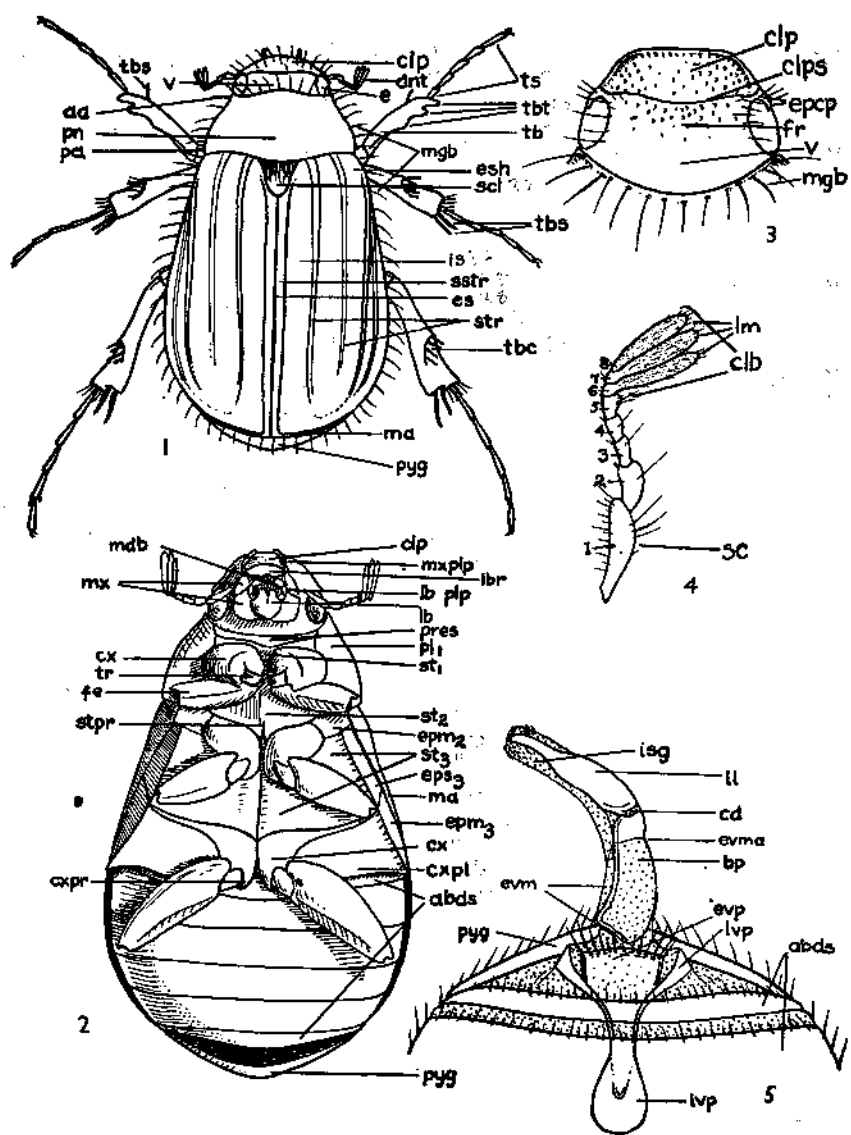
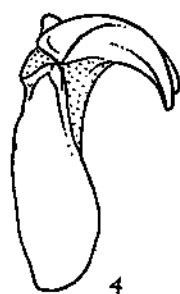
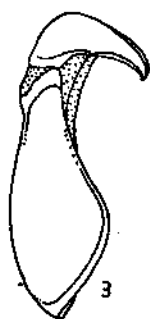
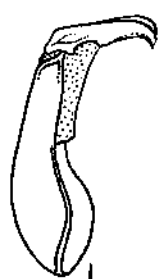
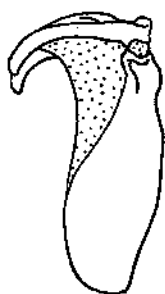


PLATE 6.

- Fig. 1. *Costelytra zealandica* (White). Typical; male genitalia, lateral.
- " 2. " " " Chatham Isl.; male genitalia, lateral.
- " 3, 3a. *Costelytra piceobrunneum* n. sp. Male genitalia, lateral and dorsal.
- " 4, 4a, 4b. *Costelytra brunneum* (Broun). Male genitalia, left lateral, dorsal, right lateral.
- " 5, 5a. *Costelytra macrobrunneum* n. sp. Male genitalia, right lateral, left lateral.
- " 6, 6a, 6b. *Costelytra pseudobrunneum* n. sp. Male genitalia, dorsal, right lateral, left lateral.
- " 7, 7a, 7b. *Costelytra austrobrunneum* n. sp. Male genitalia, left lateral, dorsal, right lateral.
- " 8. *Costelytra zealandica* (White). Scutellum.
- " 9. *Costelytra brunneum* (Broun). Scutellum.



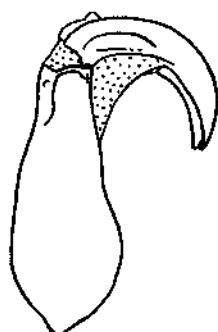
4A



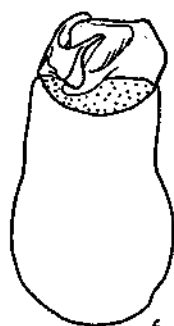
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5



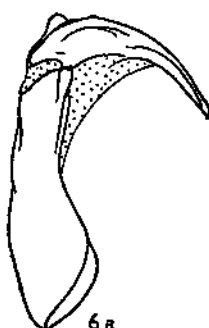
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6A



6B



7



7A



7B



8



9

PLATE 7.

- | | | |
|------------|---|----------------------------|
| Fig. 1. | <i>Costelytra piceobrunneum</i> n. sp. | Hind tibia. |
| " 2. | <i>Costelytra brunneum</i> (Broun). | Hind tibia. |
| " 3. | <i>Costelytra austrobrunneum</i> n. sp. | Hind tibia. |
| " 4. | <i>Costelytra pseudobrunneum</i> n. sp. | Hind tibia. |
| " 5. | <i>Costelytra macrobrunneum</i> n. sp. | Hind tibia. |
| " 6. | <i>Costelytra zealandica</i> (White). | Head and pronotum. |
| " 7. | <i>Costelytra brunneum</i> (Broun). | Head and pronotum. |
| " 8, 8a. | <i>Costelytra pseudobrunneum</i> n. sp. | Antennae, male and female. |
| " 9. | <i>Costelytra piceobrunneum</i> n. sp. | Antennae, male. |
| " 10, 10a. | <i>Costelytra brunneum</i> (Broun). | Antennae, male and female. |
| " 11. | <i>Costelytra macrobrunneum</i> n. sp. | Antennae, male. |
| " 12. | <i>Costelytra austrobrunneum</i> n. sp. | Antennae, male. |
| " 13. | <i>Costelytra zealandica</i> (White). | Fore tibia. |
| " 14. | <i>Costelytra brunneum</i> (Broun). | Fore tibia. |
| " 15. | <i>Costelytra piceobrunneum</i> n. sp. | Fore tibia. |
| " 16. | <i>Costelytra pseudobrunneum</i> n. sp. | Fore tibia (variant). |
| " 17. | <i>Costelytra austrobrunneum</i> n. sp. | Fore tibia. |
| " 18. | <i>Costelytra macrobrunneum</i> n. sp. | Fore tibia. |

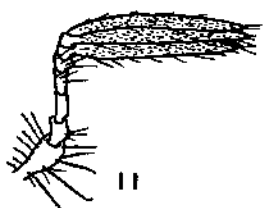
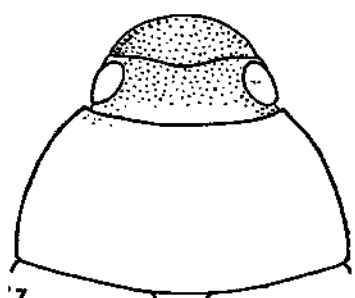
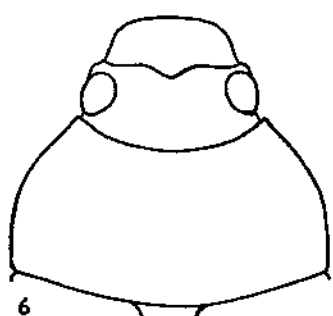


PLATE 8.

Fig. 1.	<i>Odontria nesobia</i> Broun.	Male genitalia, lateral.
" 2.	<i>Odontria nitidula</i> Broun. (typical).	" " "
" 3.	<i>Odontria nitidula</i> Broun. (Nelson).	" " "
" 4.	<i>Odontria subnitida</i> n. sp.	" " "
" 5.	<i>Odontria cassiniae</i> n. sp.	" " "
" 6.	<i>Odontria sandageri</i> Broun.	" " "
" 7.	<i>Odontria xanthosticta</i> White.	" " "
" 8.	<i>Odontria piciceps</i> Broun.	" " "
" 9.	<i>Odontria australis</i> n. sp.	" " "
" 10.	<i>Odontria piciceps</i> Broun. (variant).	" " "
" 11, 11a, 11b.	<i>Odontria sylvatica</i> Broun.	Male genitalia, left lateral, right lateral, ventral.
" 12.	<i>Odontria sylvatica</i> Broun. (Manukau).	Male genitalia, lateral.
" 13.	<i>Odontria inconspicua</i> n. sp.	Male genitalia, lateral.

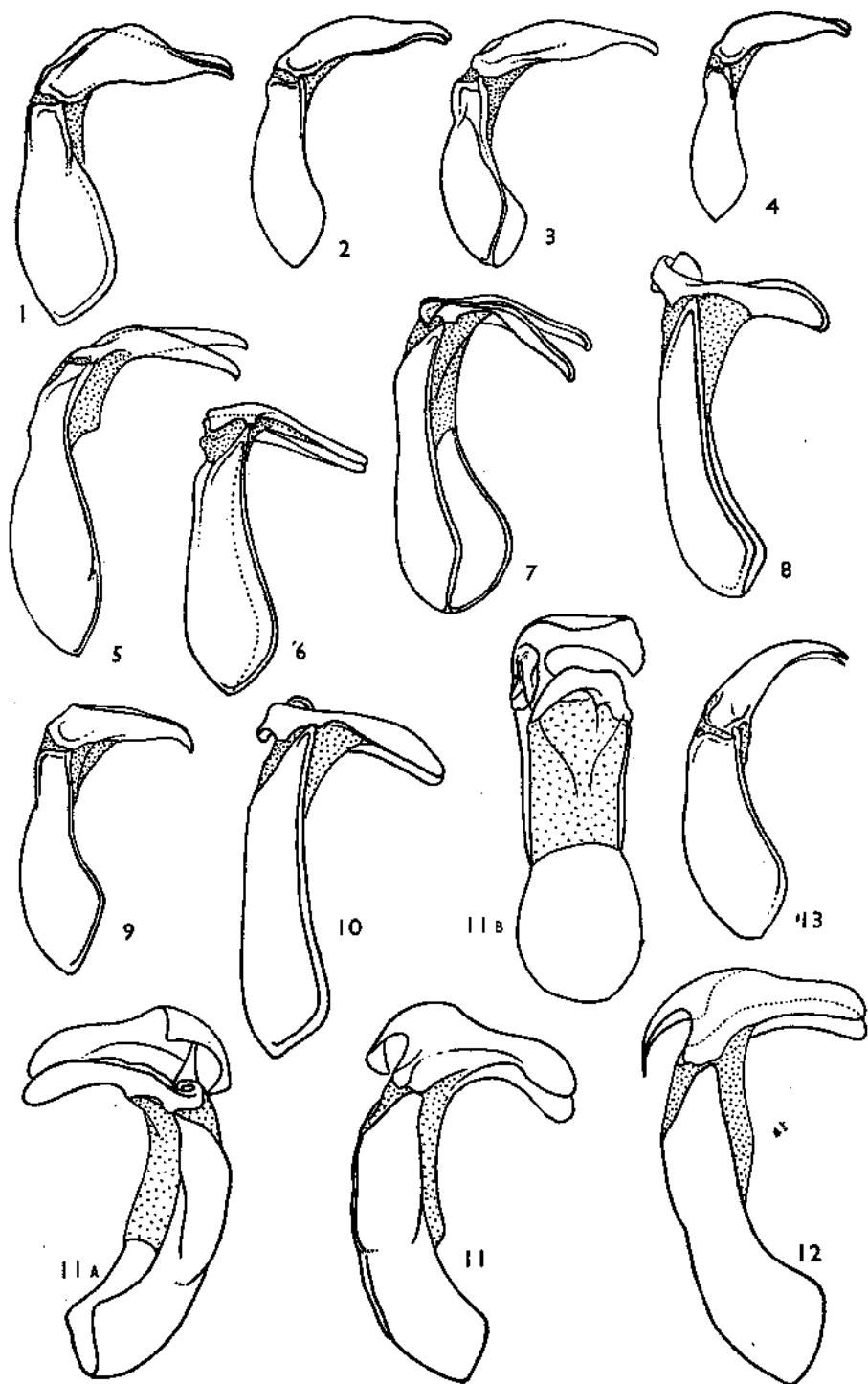


PLATE 9.

Fig.		Male genitalia, lateral.
1.	<i>Odontria magnum</i> n. sp.	
" 2.	<i>Odontria halli</i> Broun.	" " "
" 3.	<i>Odontria velutinum</i> n. sp.	" " "
" 4.	<i>Odontria aureopilosa</i> n. sp.	" " "
" 5.	<i>Odontria varicolorata</i> n. sp.	" " "
" 6.	<i>Odontria obscura</i> Broun.	" " "
" 7.	<i>Odontria striata</i> White.	" " "
" 8.	<i>Odontria autumnalis</i> n. sp.	" " "
" 9.	<i>Odontria smithii</i> Broun.	" " "
" 10.	<i>Odontria rufescens</i> n. sp. (Wallacetown).	" " "
" 11.	<i>Odontria rufescens</i> n. sp. (Wilderness, Te Anau).	" " "

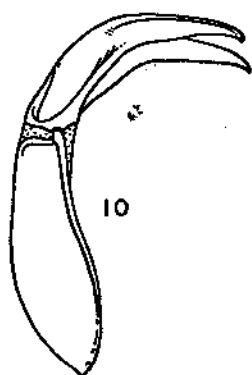
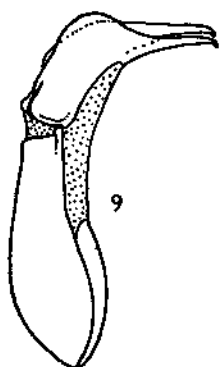
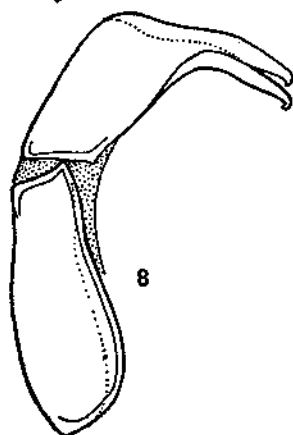
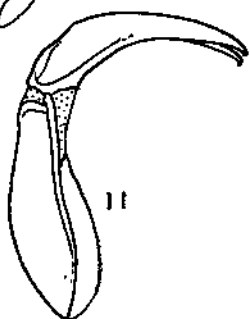
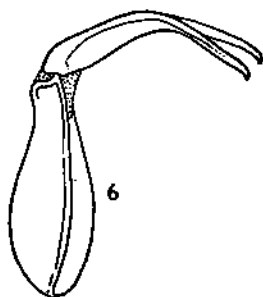
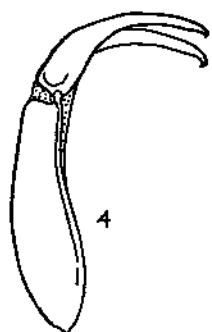
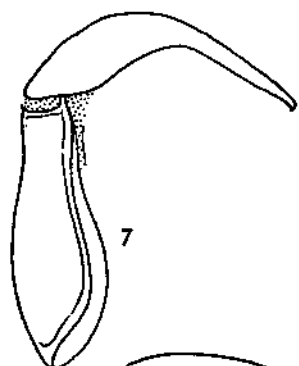
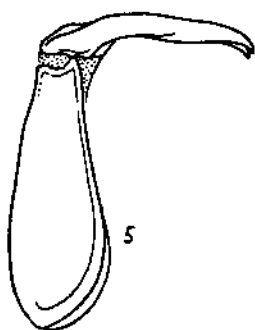
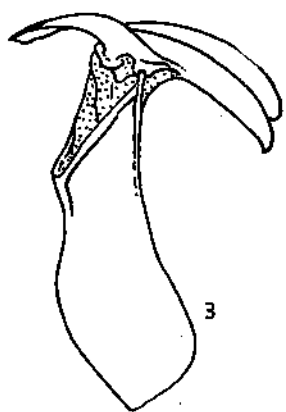
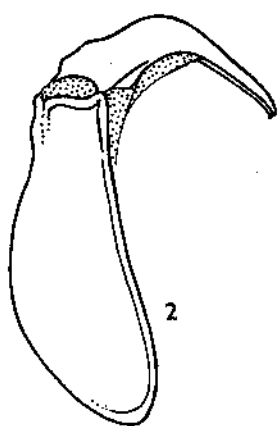
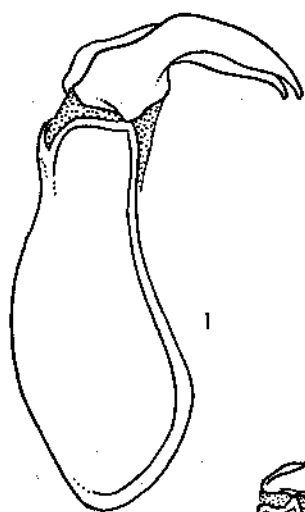


PLATE 10.

Fig. 1.	<i>Odontria marmorata</i> Broun.	Male genitalia, lateral.
" 2.	<i>Odontria convexa</i> n. sp.	" " "
" 3.	<i>Odontria communis</i> n. sp.	" " "
" 4.	<i>Odontria similis</i> Broun.	" " "
" 5.	<i>Odontria macrothoracica</i> n. sp.	" " "
" 6.	<i>Odontria decepta</i> n. sp.	" " "
" 7.	<i>Odontria communis</i> n. sp. (Nelson).	Male genital claspers.
" 8.	<i>Odontria similis</i> Broun (Homer).	" " "
" 9.	" " " (Arthurs Pass)	" " "
" 10.	" " " (Mt. Arthur)	" " "
" 11.	" " " (Mt. Greenland)	" " "
" 12.	" " " (Arthurs Pass)	" " "
" 13.	" " " (Arthurs Pass)	" " "
" 14.	" " " (Murchison)	" " "
" 15.	" " " (Mt. Arthur)	" " "
" 16.	" " " (Mt. Arthur)	" " "
" 17.	<i>Odontria macrothoracica</i> n. sp. (Mt. Arthur).	Male genital claspers.
" 18.	" " " " "	" " "
" 19.	" " " " "	" " "
" 20.	<i>Odontria decepta</i> n. sp. (Takaka Hill).	" " "

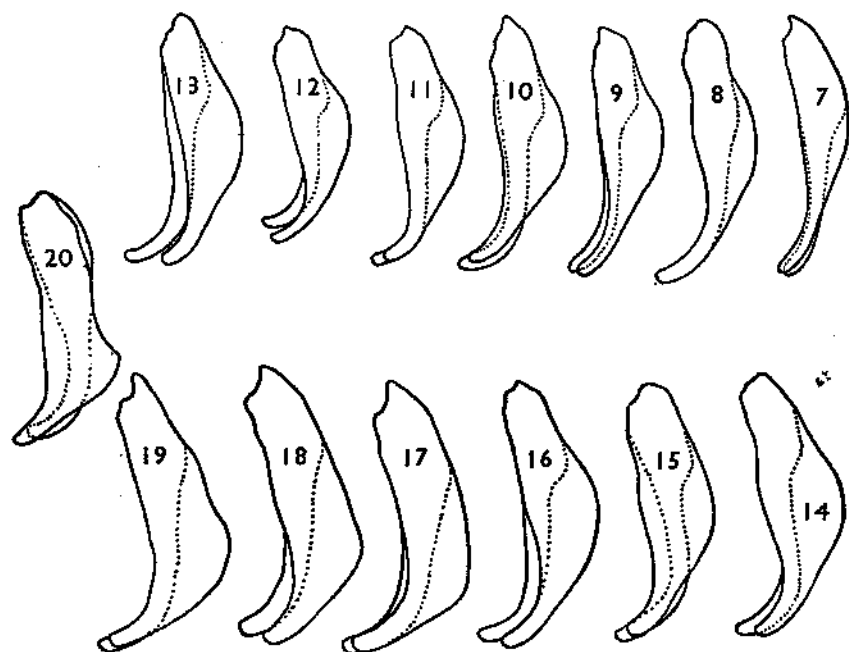
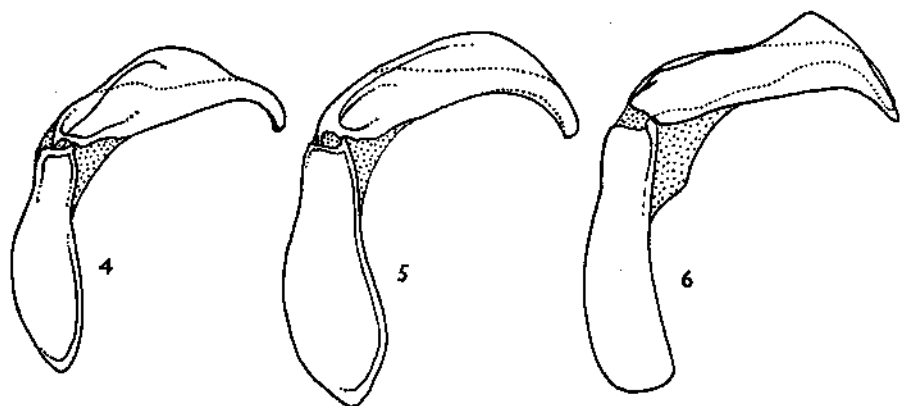
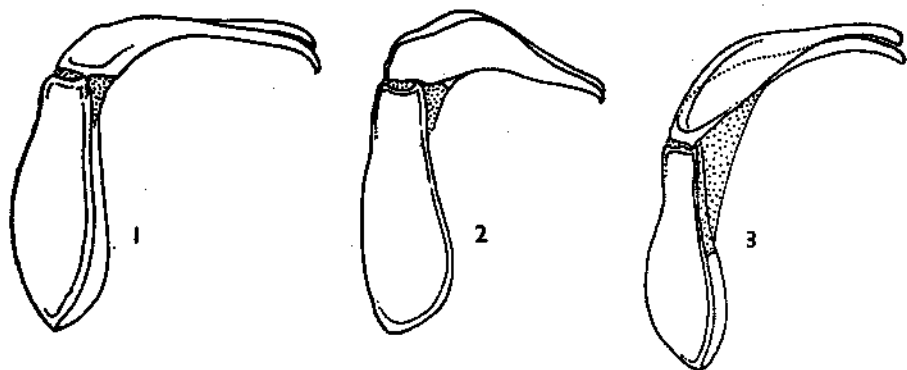


PLATE 11.

Fig. 1.	<i>Odontria aurantia</i> n. sp.	Male genitalia, lateral.
" 2.	<i>Odontria occiputale</i> Broun.	" " "
" 3.	<i>Odontria variegata</i> n. sp.	" " "
" 4.	<i>Odontria regalis</i> n. sp.	" " "
" 5.	<i>Odontria rufescens</i> n. sp. (Wilderness).	Male genital claspers.
" 6.	" " " (Wallacetown).	" " "
" 7.	<i>Odontria variegata</i> n. sp. (Homer).	" " "
" 8.	" " " (Ben Lomond).	" " "
" 9.	" " " (Bold Peak).	" " "
" 10.	" " " (Mt. Arthur).	" " "
" 11.	<i>Odontria occiputale</i> Broun (Travers Valley)	" " "
" 12.	" " " " " "	" " "
" 13.	" " " " " "	" " "
" 14.	" " " (Arthurs Pass)	" " "
" 15.	" " " " " "	" " "
" 16.	<i>Odontria regalis</i> n. sp.	" " "
" 17, 17a.	<i>Odontria sylvatica</i> Broun (Manukau).	Antennae, male, female
" 18, 18a.	" " " (Lake Ohia).	" " "
" 19, 19a.	" " " (Ruakaka).	" " "
" 20, 20a.	" " " (Rotorua).	" " "
" 21.	" " " (Manukau).	Fore tibia.
" 22.	" " " (Lake Ohia).	" "
" 23.	" " " (Ruakaka).	" "
" 24.	" " " (Rotorua).	" "
" 25.	<i>Odontria nesobia</i> Broun.	" "
" 26.	" " "	Antenna, male.
" 27.	" " "	Glypeus.
" 28.	<i>Odontria sylvatica</i> Broun.	"

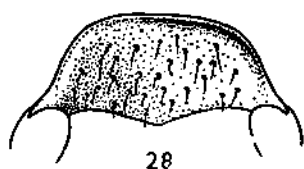
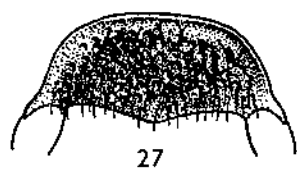
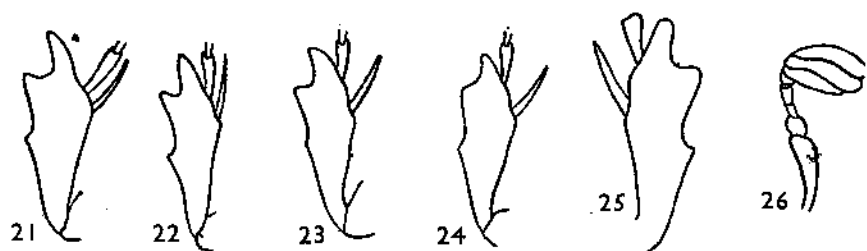
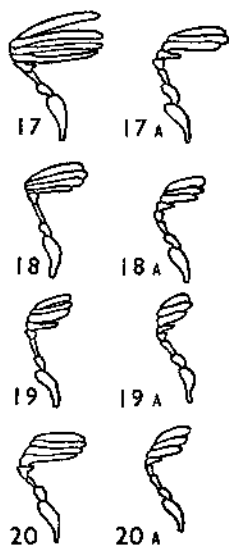
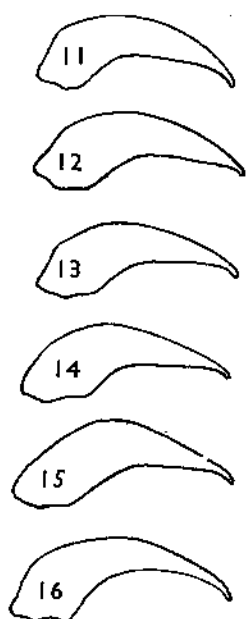
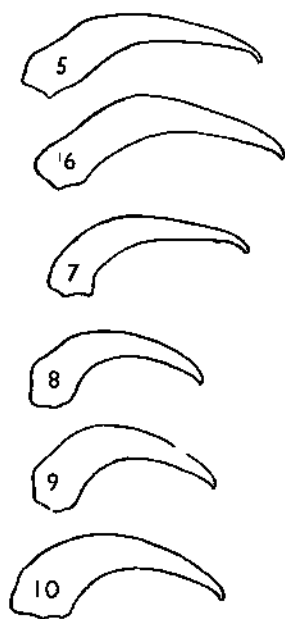
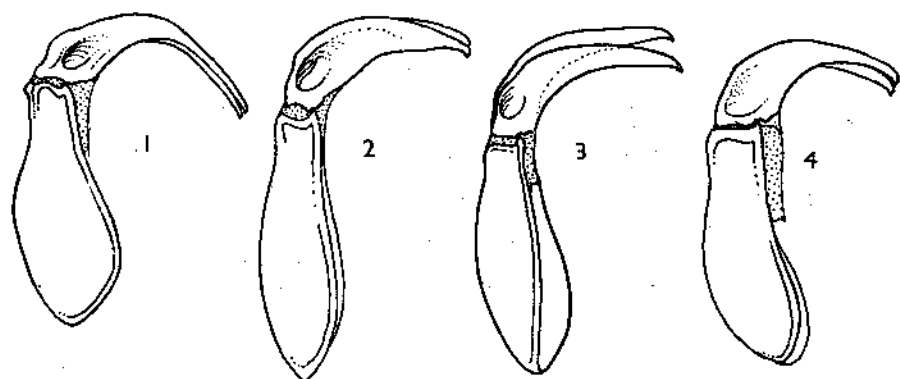


PLATE 12.

Fig. 1, 1a.	<i>Odontria magnum</i> n. sp.	Antennae, male, female.
" 2, 2a.	<i>Odontria halli</i> Broun.	" " "
" 3, 3a.	<i>Odontria velutinum</i> n. sp.	" " "
" 4.	" "	Head.
" 5.	<i>Odontria magnum</i> n. sp.	"
" 6.	<i>Odontria velutinum</i> n. sp.	Head and pronotum.
" 7.	<i>Odontria aureopilosa</i> n. sp.	" " "
" 8.	<i>Odontria cassiniae</i> n. sp.	Fore tibia.
" 9.	<i>Odontria sandageri</i> Broun.	" "

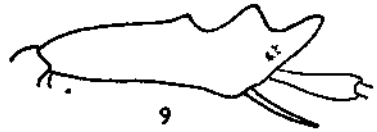
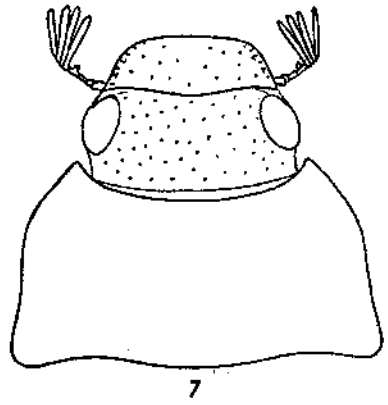
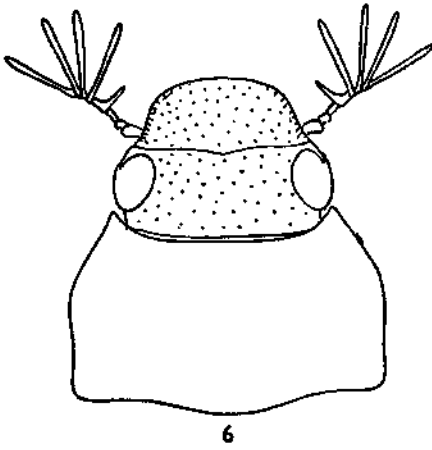
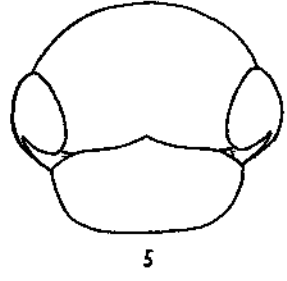
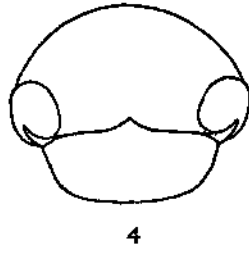
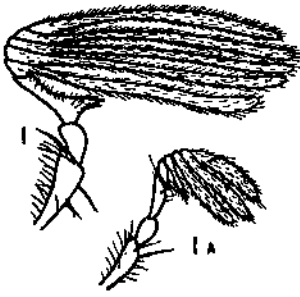


PLATE 13.

Fig. 1, 1a, 1b.	<i>Odontria xanthosticta</i> White.	Male antennae (showing variations).
" 1c, 1d.	" " "	Female antennae (showing variations).
" 2, 2a.	<i>Odontria piciceps</i> Broun.	Male antennae (showing variations).
" 2b.	" " "	Female antennae.
" 3, 3a.	<i>Odontria sandageri</i> Broun.	Antennae, male, female.
" 4, 4a.	<i>Odontria striata</i> White.	" " "
" 5.	<i>Odontria inconspicua</i> n. sp.	Pronotum.
" 6.	<i>Odontria piciceps</i> Broun.	"
" 7.	<i>Odontria varicolorata</i> n. sp.	Antenna, male.
" 8.	<i>Odontria australis</i> n. sp.	"
" 9, 9a.	<i>Odontria autumnalis</i> n. sp.	Antennae, male, female.
" 10, 10a.	<i>Odontria smithii</i> Broun.	" " "
" 11.	<i>Odontria autumnalis</i> n. sp.	Elytra, anterodorsal profile.
" 12.	<i>Odontria smithii</i> Broun.	" " "
" 13.	<i>Odontria rufescens</i> n. sp.	" " "
" 14.	<i>Odontria obscura</i> Broun.	" " "
" 15.	<i>Odontria aurantia</i> n. sp.	Fore tibia " "

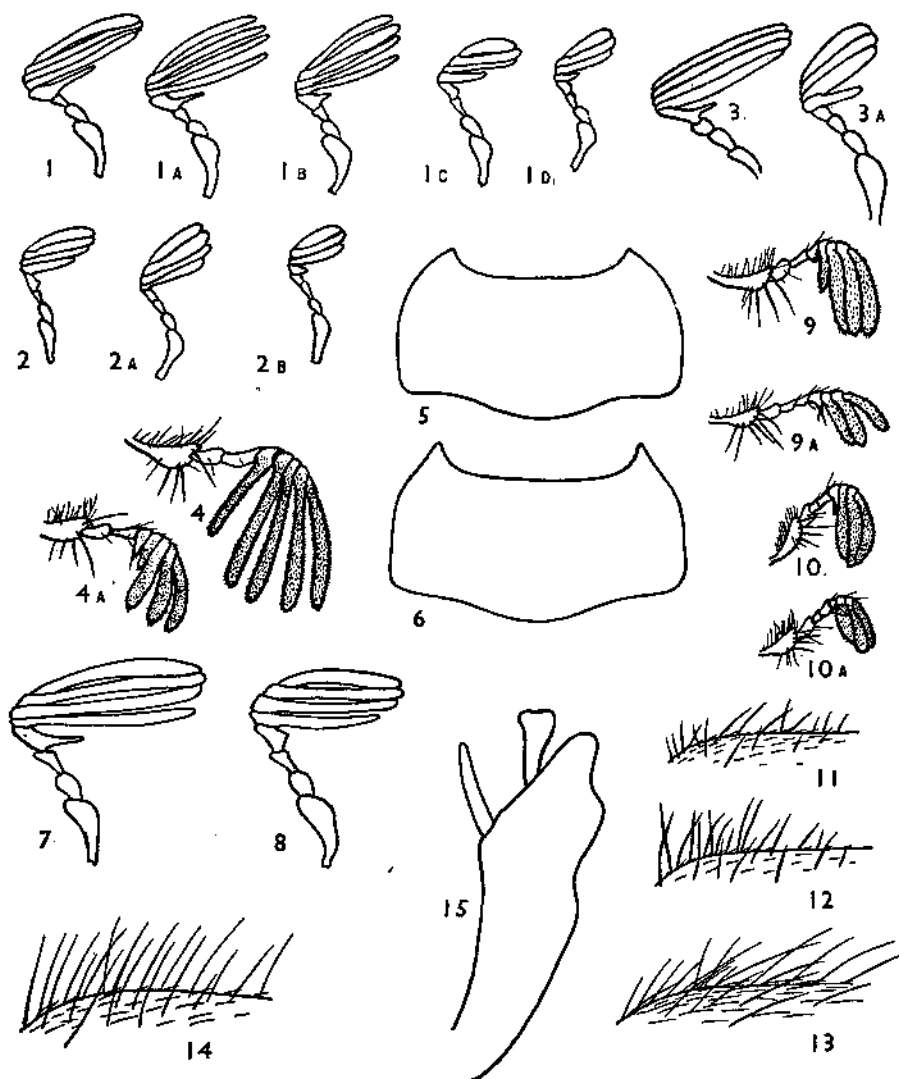


PLATE 14.

Fig. 1.	<i>Prodontria praelatella</i> (Broun).	Male genitalia, lateral.		
" 2.	<i>Prodontria modesta</i> (Broun).	"	"	"
" 3.	<i>Prodontria lewisii</i> Broun.	"	"	"
" 4.	<i>Prodontria capito</i> (Broun).	"	"	"
" 5.	<i>Prodontria bicolorata</i> n. sp.	"	"	"
" 6.	<i>Prodontria pinguis</i> n. sp.	"	"	"
" 7.	<i>Prodontria capito</i> (Broun), <i>var. A.</i>	"	"	"
" 8.	<i>Odontria striata</i> White.	Head, dorsal.		
" 9.	<i>Prodontria praelatella</i> (Broun).	"	"	
" 10.	<i>Prodontria bicolorata</i> n. sp.	"	"	
" 11.	<i>Prodontria capito</i> (Broun).	"	"	
" 12.	<i>Odontria striata</i> White.	Thorax, ventral.		
" 13.	<i>Prodontria praelatella</i> (Broun).	"	"	
" 14.	<i>Prodontria bicolorata</i> n. sp.	"	"	
" 15.	<i>Prodontria capito</i> (Broun).	"	"	

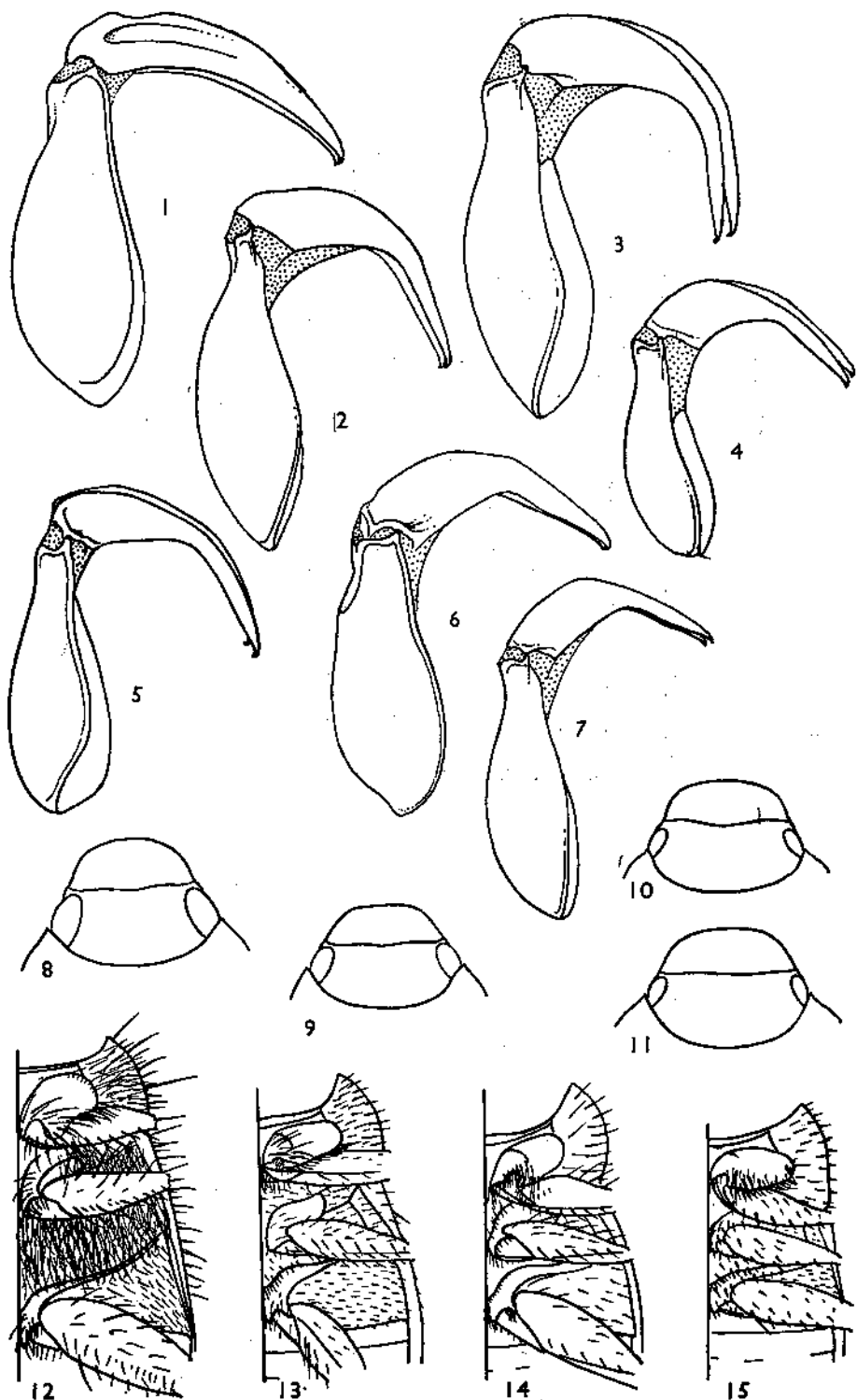


PLATE 15.

- Fig. 1. *Sericospilus advena* Sharp (West Coast). Male genitalia, lateral.
 " 2. " " (Goulard Downs). " "
 " 3. " " (Mt. Arthur). " "
 " 4. " *aenealis* (Broun). Male genitalia, lateral.
 " 5. " " (Var. A.) " "
 " 6. " " (Var. B.) " "
 " 7. " " (Var. C.) " "
 " 8. " " (Var. D.) " "
 " 9. " *truncatus* n. sp. Male genitalia, lateral.
 " 10. " *intermediatus* n. sp. " "
 " 11. " *piliventris* (Broun) " "
 " 12. " *glabrata* (Broun) " "
 " 13. " *brevis* n. sp. " "
 " 14. " *minor* n. sp. " "
 " 15. " *obscura* n. sp. " "
 " 16. " " Male antenna.
 " 17. " *glabrata* (Broun) " "
 " 18. " *piliventris* (Broun) " "
 " 19. " *brevis* n. sp. " "
 " 20. " *minor* n. sp. " "
 " 21. " *aenealis* (Broun) " "
 " 22. " *truncatus* n. sp. " "
 " 23. " " Maxillary palpus, apical segment.
 " 24, 24a. " *advena* Sharp. Male antennae (variants).
 " 25, 25a. " " Maxillary palpi, apical segments (variants).
 " 26. " " Pronotal outline.
 " 27. " *truncatus* n. sp. " "
 " 28. " *glabrata* (Broun) " "
 " 29. " *minor* n. sp. Clypeus.
 " 30. " *brevis* n. sp. "
 " 31. " *glabrata* (Broun) "

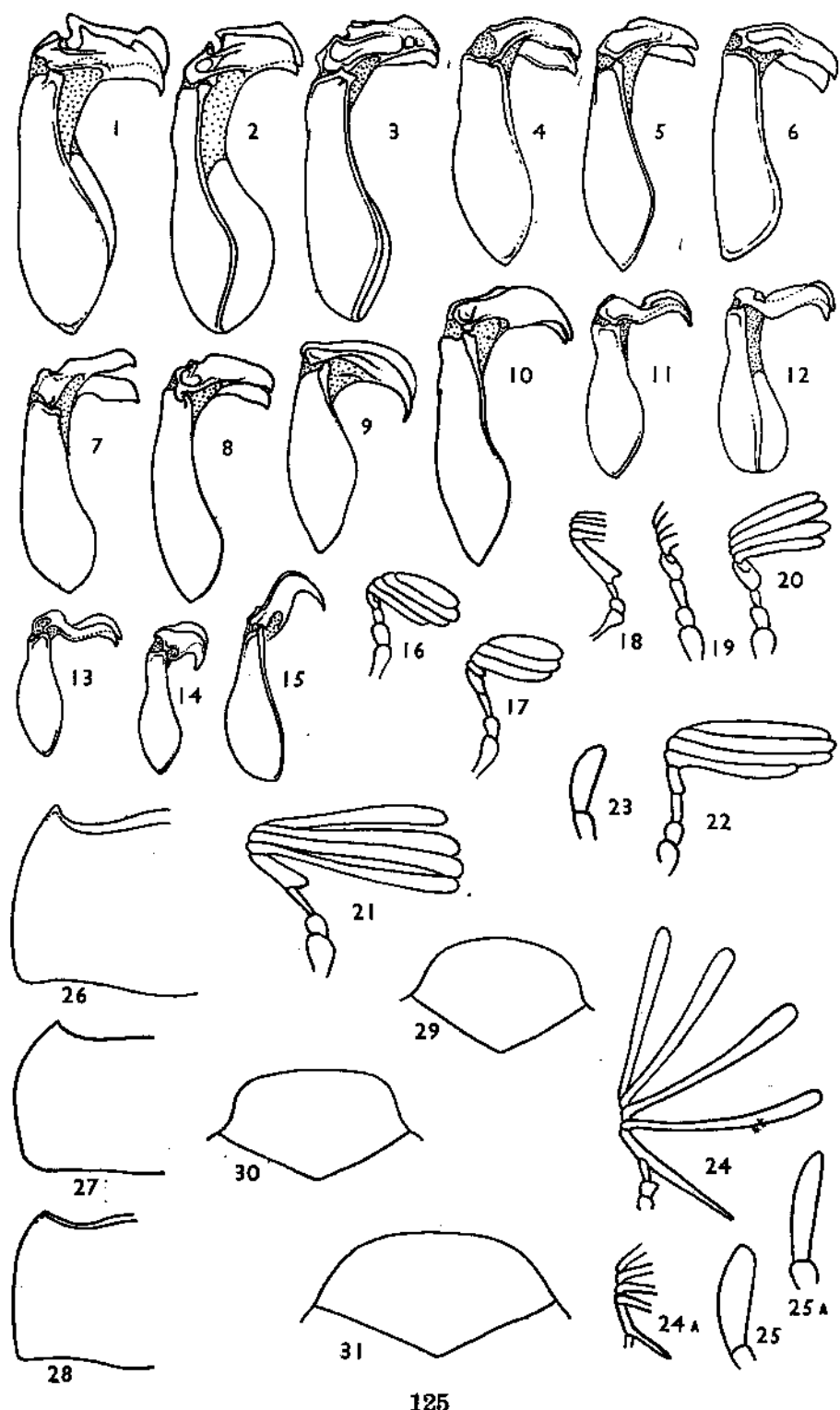


PLATE 16.

Fig. 1.	<i>Psilodonthia viridescens</i> Broun.	Male genitalia, lateral.
" 2.	<i>Mycernus elegans</i> Broun.	" " "
" 3.	" <i>intermediatus</i> n. sp.	" " "
" 4.	<i>Pyronota minor</i> n. sp.	" " "
" 5.	" <i>punctata</i> n. sp.	" " "
" 6.	" " (Var. A.)	" " "
" 7.	" <i>edwardsi</i> Sharp (Var. C.)	" " "
" 8.	" <i>setosa</i> n.sp.	" " "
" 9.	" " (Var. A.)	" " "
" 10.	" <i>festiva</i> (Fabricius)	" " "
" 11.	" " (variant)	" " "
" 12.	" <i>edwardsi</i> Sharp.	" " "
" 13.	" " (Var. B.)	" " "
" 14.	" " (Var. A.)	" " "
" 15.	" <i>rubra</i> n. sp.	" " "
" 16.	" <i>inconstans</i> Brookes.	" " "
" 17.	" " (Var. A.)	" " "
" 18.	<i>Psilodonthia viridescens</i> Broun. Metasternum.	
" 18a.	" " Metasternal process, profile.	
" 19.	<i>Mycernus elegans</i> Broun. Metasternum.	
" 19a., b. & c.	" " Metasternal processes, profiles showing variation.	
" 20.	<i>Mycernus intermediatus</i> n. sp. Metasternum.	
" 20a.	" " Metasternal process, profile,	
" 21.	<i>Pyronota setosa</i> n. sp. Metasternum.	
" 21a.	" " Metasterna process, profile.	
" 22.	" <i>splendens</i> n. sp Metasternum.	
" 22a.	" " Metasternal process, profile.	

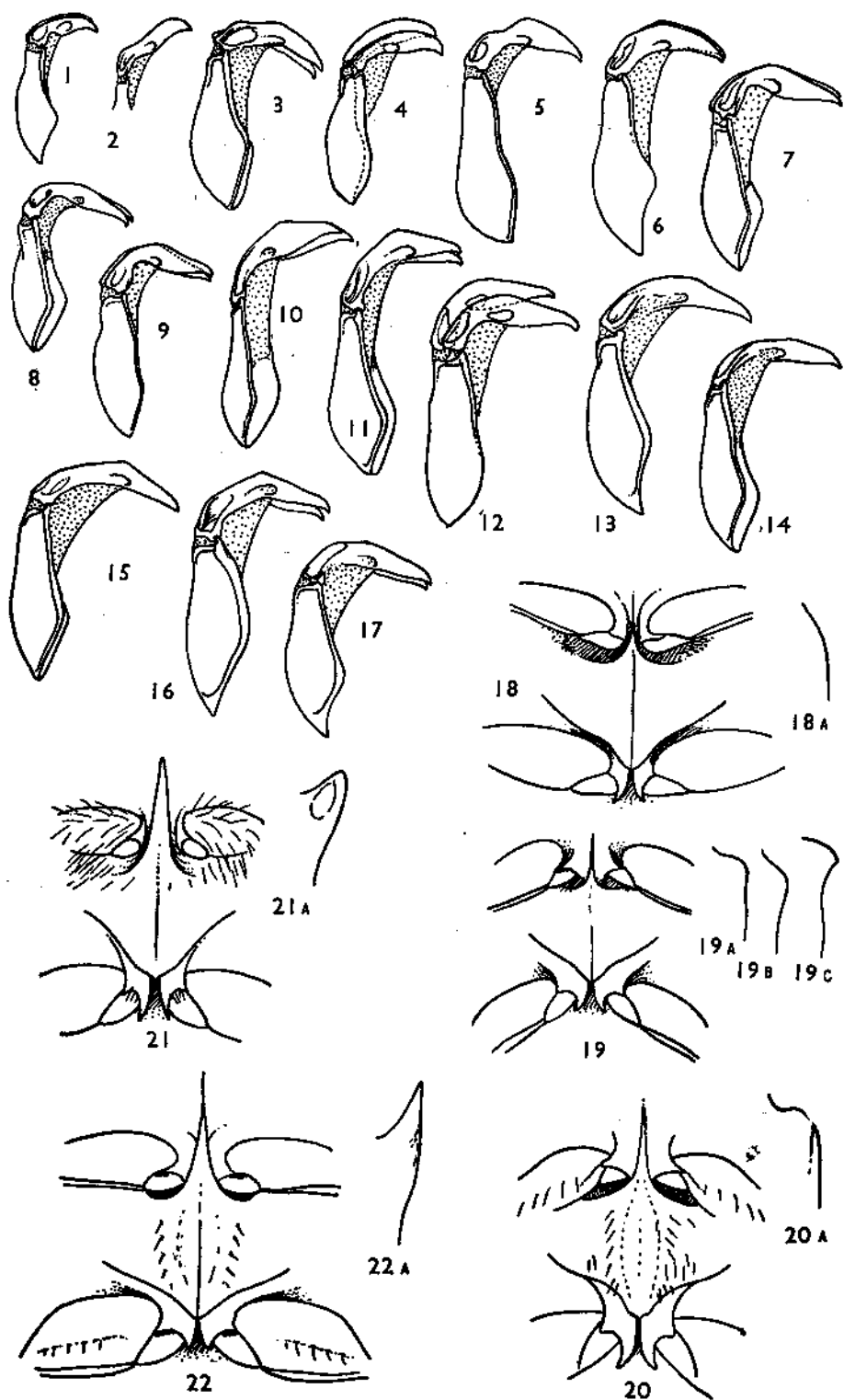


PLATE 17.

Fig. 1.	<i>Pyronota festiva</i> (Fabricius).	Metasternum.
" 1a.	" " "	Metasternal process, profile.
" 2.	<i>Mycernus intermediatus</i> n. sp.	Head and pronotum.
" 3.	" <i>elegans</i> Broun.	" " "
" 4.	<i>Psilodonthia viridescens</i> Broun.	" " "
" 5.	<i>Pyronota setosa</i> n. sp.	Pronotal outline.
" 6.	" <i>punctata</i> n. sp.	" "
" 7.	" <i>splendens</i> n. sp.	" "
" 8.	" <i>festiva</i> (Fabricius).	" "
" 9.	" <i>rubra</i> n. sp.	" "
" 10.	" <i>festiva</i> (Fabricius).	Male Fore-tibia, anterior aspect.
" 10a.	" " "	" " " dorsal "
" 11.	" " "	Female Fore-tibia, anterior aspect.
" 11a.	" " "	" " " dorsal "
" 12.	" " "	Maxillary palpus, apical segment.
" 13.	" <i>edwardsi</i> Sharp.	Male Fore-tibia, anterior aspect.
" 13a.	" " "	" " " dorsal "
" 14.	" " "	Female, apex of fore-tibia, dorsal aspect.
" 15.	" " "	(Var. A.) Male Fore-tibia, dorsal aspect.
" 16.	" " "	(Var. D.) " " " " "
" 17.	" " "	(Var. C.) " " " " "
" 18.	" " "	(Vars. A. & B.) Maxillary palpus, apex.
" 19.	" " "	(Var. C.) " " " "
" 20.	" " "	(Var. D.) " " " "

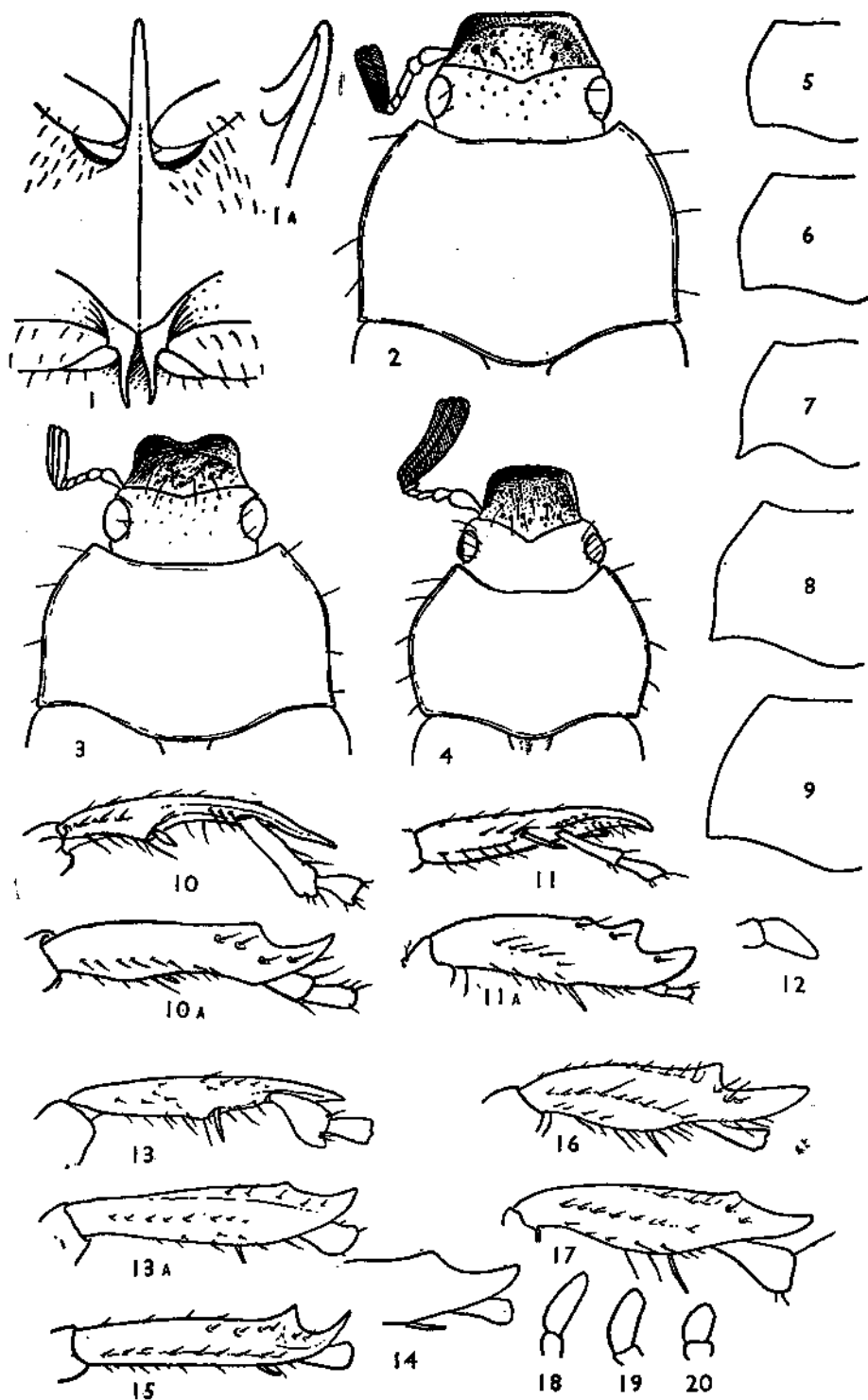


PLATE 18.

Fig. 1.	Pyronota inconstans	Brookes	Male fore-tibia, dorsal.
" 1a.	"	"	" " " anterior aspect.
" 2.	"	"	Female " " dorsal aspect.
" 3.	"	"	Maxillary palpus, apex.
" 4.	"	"	(Var. A.) " " "
" 5.	"	minor n.sp.	Male fore-tibia, anterior aspect.
" 5a.	"	"	" " dorsal "
" 6.	"	"	Female fore-tibia, dorsal aspect.
" 7.	"	setosa n. sp.	Male " " "
" 8.	"	punctata n. sp.	" " " "
" 9.	"	"	(Var. A.) Male fore-tibia dorsal aspect.
" 10.	"	splendens n. sp.	Female " " "
" 11.	"	rubra n. sp.	Male fore-tibia, anterior aspect.
" 11a.	"	"	" " dorsal "

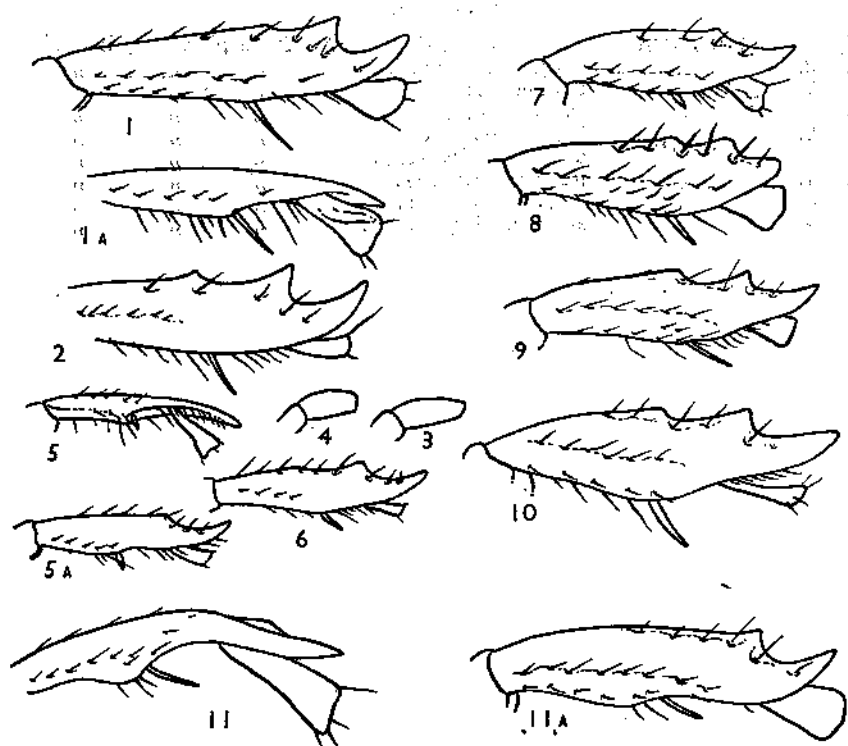


PLATE 19.

Fig.	1.	Chlorochiton	suturalis (Fabricius).	Male genitalia, lateral.
"	2.	"	longicornis Arrow.	" " "
"	3.	"	planiclypeus n. sp.	" " "
"	4.	"	convexa n. sp.	" " "
"	5.	"	intermediata n. sp.	" " "
"	6.	"	discoidea (Broun).	" " "
"	7.	"	pulcher (Broun).	" " "
"	8.	"	lineata (Arrow).	" " "
"	9.	"	simmondsi (Broun).	" " "

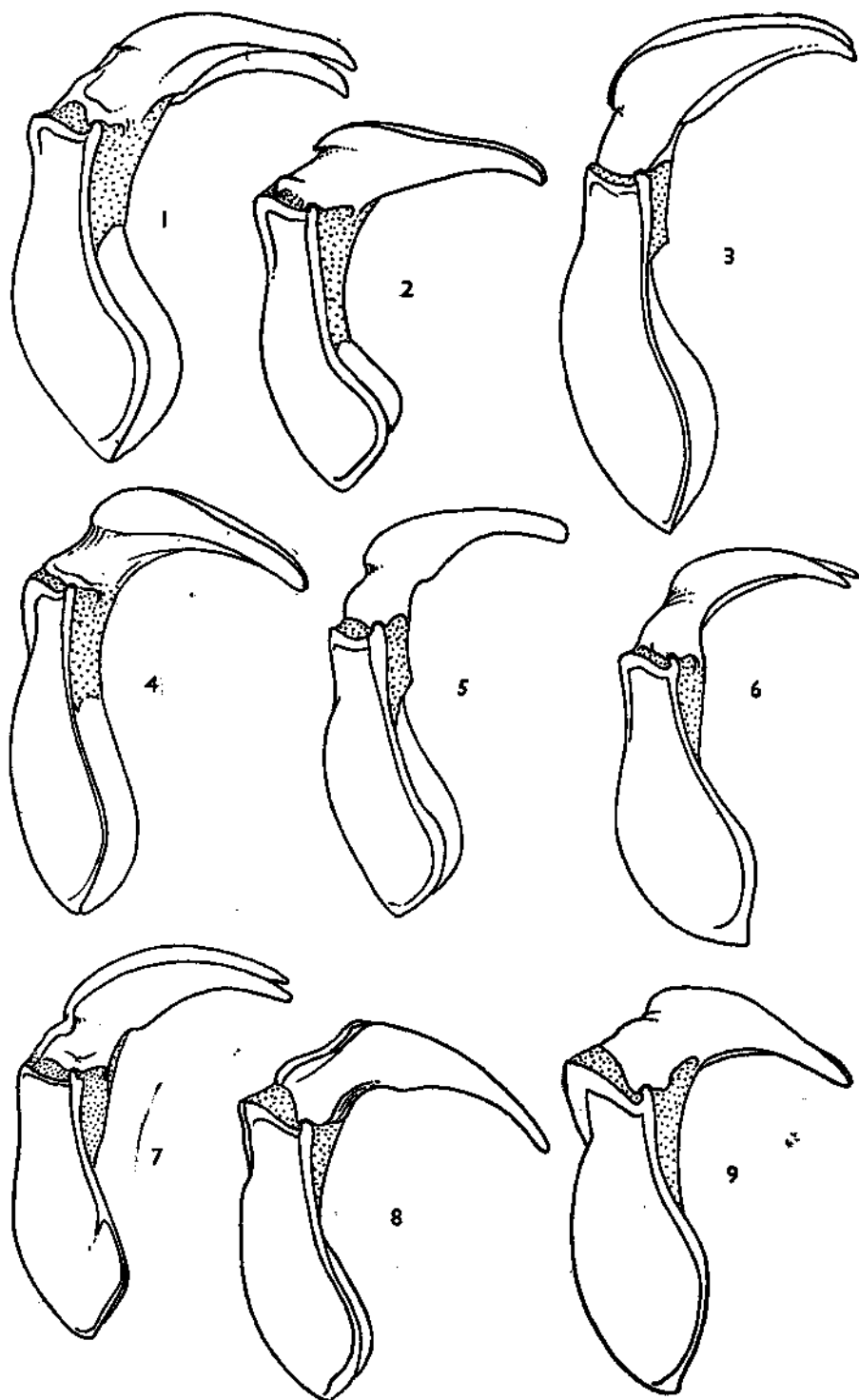


PLATE 20.

Fig. 1.	Chlorochiton suturalis (Fabricius)	Metasternum.
" 1a.	" "	Metasternal process, profile.
" 2.	" longicornis Arrow.	Metasternum.
" 2a.	" "	Metasternal process, profile.
" 3.	" planiclypeus n. sp.	Metasternum.
" 3a.	" "	Metasternal process, profile.
" 4.	" intermediata n. sp.	Metasternum.
" 4a.	" "	Metasternal process, profile.
" 5.	" lineata (Arrow).	Metasternum.
" 5a.	" "	Metasternal process, profile.
" 6.	" convexa n. sp.	Metasternum.
" 6a.	" "	Metasternal process, profile.
" 7.	" discoidea (Broun).	Metasternum.
" 7a.	" "	Metasternal process, profile.
" 8.	" pulcher (Broun).	Metasternum.
" 8a.	" "	Metasternal process, profile.
" 9.	" simmondsi (Broun)	Metasternum.
" 9a.	" "	Metasternal process, profile.
" 10.	" suturalis (Fabricius)	Male antenna.
" 11.	" longicornis Arrow.	" "

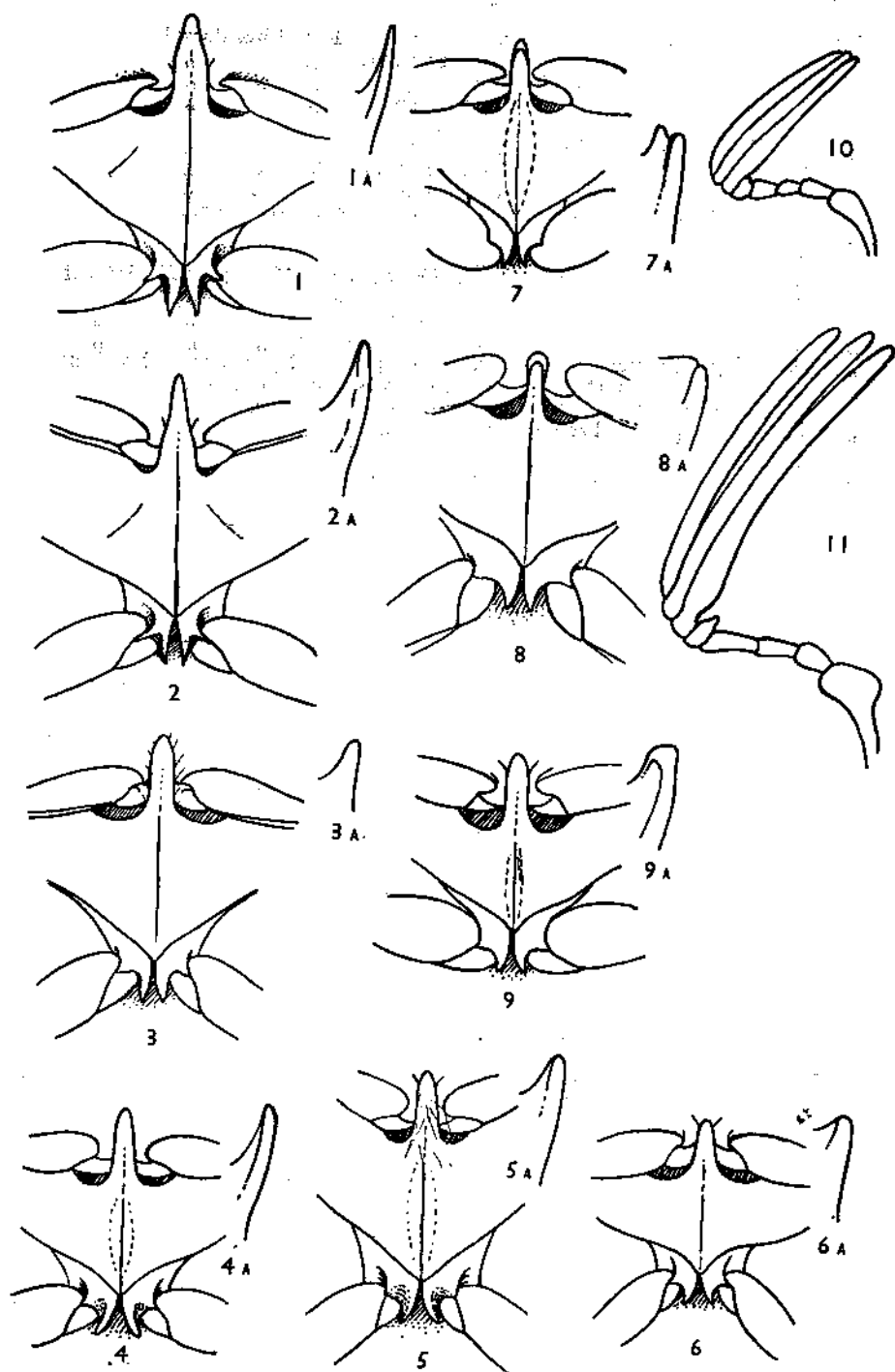


PLATE 21.

Fig. 1.	<i>Chlorochiton longicornis</i> Arrow.	Fore-tibia dorsal.
" 2.	" <i>suturalis</i> (Fabricius).	" " "
" 3.	" <i>planiclypeus</i> n. sp.	" " "
" 4.	" <i>intermediata</i> n. sp.	" " "
" 5.	" <i>convexa</i> n. sp.	" " "
" 6.	" <i>discoidea</i> (Broun)	" " "
" 7.	" <i>simmondsi</i> (Broun).	" " "
" 8.	" <i>lineata</i> (Arrow).	" " "
" 9.	<i>Scythrodes squalidus</i> Broun.	Male genitalia, lateral.
" 10.	" " "	Head.
" 11.	" " "	Antenna.
" 12.	<i>Xylostygnus brookesi</i> Broun (Whangarei)	Male genitalia, lateral
" 13.	" " " (Auckland)	" " "
" 14.	" " " (W'garei Hds.)	" " "
" 15.	" <i>piceus</i> Broun. (Mokohinau Is.)	" " "
" 16.	<i>Xylostygnus piceus</i> Broun (a), and <i>Xylostygnus brookesi</i> Broun (b), transverse curvature of pronotum.	
" 17.	<i>Xylostygnus piceus</i> Broun.	Pronotal outline.
" 18.	" <i>brookesi</i> Broun.	" "
" 19.	" " "	Antenna. "
" 20.	" <i>piceus</i> Broun.	" "

