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THE COLEOPTERA OF CANADA.

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## XXII. THE CERAMBYCIDÆ OF ONTARIO AND QUEBEC.

The size and beauty of the Longhorns are in themselves sufficient to render them objects of interest to a beginner ; adding to this the fact of the great abundance of certain species and the destructive work of their larvæ, we can readily understand their importance to all who are in any way interested in Entomology, whether as a pleasant recreation for leisure hours or a serious pursuit for gain. Although usually easily recognized by sight, the family is, as stated by Dr. Leconte, almost impossible to define. The tarsi are apparently four-jointed, the fourth joint being very small and connate with the fifth. The antennæ are usually very long, especially in the males, filiform or serrate, often borne on large frontal tubercles. The eyes are frequently deeply emarginate. Tibial spurs are present. The larvæ are grub-like, living in burrows or chambers which they excavate for themselves in the woody tissues or in the pith of plants, the pupa resting in a cell constructed by the larva in its gallery.

The collector will obtain many species of this family by carefully beating branches (especially if partially dead) and flowers, over a sheet or an umbrella. Dead logs should be searched, on both the upper and lower surfaces, and particularly freshly-cut timber or sawed lumber. A morning spent in a wood yard will often repay one richly in rare specimens. Some are to be found commonly under bark and may be trapped by loosely fastening pieces of bark to a tree over night and examining the under side of bark in the morning. A great number fly to lights after dusk. Dead twigs and branches may be sawed or cut off, preferably during the autumn months, and kept in large boxes or in an empty room until the beetles are disclosed through the development of the larvæ contained therein. While the activity of the Canadian collectors has already resulted in the recording of a great number of species, there can be no doubt that others will reward the efforts of explorers of the more remote districts.

Although mostly of at least moderate size, and after once identified easily recognized again, their classification presents considerable trouble owing to the fact that structural characters are so unstable and consequently of less than usual value for the separation of large groups. In the main, the arrangement adopted is that presented in the Leconte and

Horn "Classification," though the tables are constructed on a different plan and on account of the limits of the fauna it has been possible to do away altogether with the use of certain characters difficult of observation.

The prothorax in the Longhorns offers two principal types: that in which the lateral edge is sharp or thin for almost or quite the whole length, more or less toothed, giving us the form called *margined*, and that where it is cylindrical or rounded on the sides, which may, however, be either spined, tuberculate or plain. Thus we have a point of departure for sub-family separation, which may be aided by taking into account, among those genera in which the thorax presents the second form, a study of the palpi. These may have the terminal joint more or less compressed or subtriangular as in the Cerambycinæ, or this joint may be cylindrical and pointed at tip as in the Lamiinæ. The front tibiæ in the latter group have an oblique sulcus or groove on the inner surface, not always very distinct, but to be seen without difficulty in the larger species like *Monohammus*; once seen it may be used with some facility elsewhere. In the Cerambycinæ this groove is wanting.

Following the Classification, we may, then, throw the characters into tabular form, separating three sub-families, thus:

Prothorax margined, antennæ not pubescent, labrum connate with the epistoma ..... PRIONINÆ.

Prothorax not margined, labrum free.

Front tibiæ not grooved; last joint of palpi not acute at tip, often subtriangular... CERAMBYCINÆ.

Front tibiæ with an oblique groove on the inner side; palpi with last joint cylindrical, pointed at tip..... LAMIINÆ.

The Canadian species of the first sub-family, the Prioninæ, are but three in number and represent as many genera. All of them are of rather large size, brown colour, and with elytra of a leathery appearance. The genera may be distinguished thus:

Sides of prothorax two- or three-toothed.

Form elongate, parallel; antennæ more slender, joints not overlapping..... *Orthosoma*.

Form stout; antennæ heavy, joints overlapping, especially in the male ..... *Prionus*.

Sides of prothorax with one tooth, antennæ slender..... *Tragosoma*.

## ORTHOSOMA, Serv.

Represented by *O. brunneum*, Forst. (Fig. 12), a large brown insect, .88 to 1.60 in. long, the elytra nearly parallel-sided, shining and rather thickly punctured. Prothorax more coarsely sculptured above than the elytra, each side with three sharp teeth. The head bears a deep, sharp impression between the eyes. The basal antennal joints are stouter in the males than in the females. I have found the larvæ in rotten pine timbers under sidewalks.

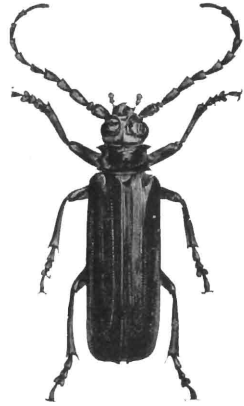


FIG. 12.

## PRIONUS, Geoff.

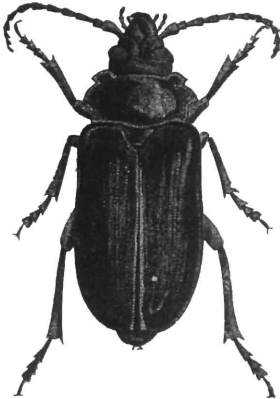


FIG. 13.

The largest Canadian Longhorn is *P. laticollis*, Drury (Fig. 13). It varies in length from .88 to 1.88 in., and is of a brownish or blackish colour, the prothorax almost or quite as broad as the base of the elytra, sides with three teeth, of which the posterior is sometimes poorly marked. The elytra are much broader at base than at apex. Antennæ twelve-jointed in both sexes, much heavier in the male. The larva (Fig. 14) is said to injure the grape, poplar, apple, and pine, by boring in the roots.

## TRAGOSOMA, Serv.

*T. Harrisii*, Lec. (now considered by some writers as identical with the European *T. depasarium*, L.), is a curious-looking beetle of elongate form and brownish colour. The antennæ are slender, the prothorax small in comparison with the elytra, very hairy and armed on each side with a single sharp tooth, in front of which the lateral margins are convergent. The elytra are shining, distinctly punctured and with numerous longitudinal raised lines. I have taken the species under pine bark. It varies in length from 1.20 to 1.40 in.

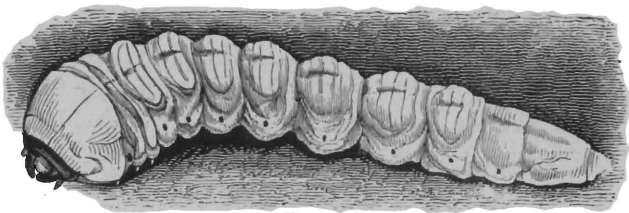


FIG. 14.

The next sub-family, the Cerambycinae, is of great extent, and in consequence more difficulty is encountered in arranging the genera. In the use of the table considerable care must be exercised by those who are unfamiliar with the structure of the Longhorns. This is especially true of the first character involved, *i. e.*, the enveloping of the base of the antennæ by the eyes. In order to obtain a proper appreciation of this structure, the antennæ should be extended forward from the head: in this position it will be seen that in those genera where the "base of the antennæ is partially enveloped by the eyes" a line passing from the anterior or inner border of the upper lobe of the eye to a corresponding point on the lower lobe will pass through the antennal socket, whereas in the other genera this line would run behind the socket. Of course none of the genera in which the eyes are entire (*i. e.*, not emarginate) will belong to the former category, though those with emarginate eyes may belong to either. Comparisons of a few specimens ought to make this clear.\* The remaining characters may be easily verified by careful examination of a few species the positions of which are already known to the student, and with these as a point of departure he should meet with no greater difficulty than is always to be expected in dealing with a group of large size, wherein colour and sculpture are inconstant and secondary sexual characters well marked. The following table is submitted for generic discrimination; a short account of the method of using may be useful to some. Suppose on taking up our insect, which we have previously ascertained to belong to this sub-family, we examine the position of the base of the antennæ with regard to the eyes, since this is the first point of departure: ascertaining the antennal bases to be partly enveloped, we find ourselves referred to the number 12 at the end of the line. We now run down along the numbers at the *beginning* of the lines until we reach 12, which shows us where to recommence our analysis, with a scrutiny of the second antennal joint. Suppose we find this joint large, we are referred to the number 36, under which (on searching out its position at the beginning of a line) we are again confronted with a query, this time as to the relative proportion of the second joint to the fourth; if these two joints are about

\*Cases will, however, arise in which this point is in doubt. In such an event the choice will rest between the Callidioides and the Cerambycoides. The former have the second antennal joint larger (as a rule) than the latter, but I can find no hard and fast distinction which will serve the beginner as a sure test. A certain number of properly named specimens serving as a guide to tribal and generic facies is almost indispensable here. It should be stated that the table is based on the characters developed in the "Classification," but is intended to apply only to the Canadian fauna.

equal, our insect belongs to *Microclytus*. The generic sequence followed in succeeding pages is the same as that employed in the table and is hence slightly different from the Henshaw Check-list.

TABLE OF GENERA OF SUB-FAMILY CERAMBYCINÆ.

- Base of antennæ not enveloped by the eyes ..... 2.  
 Base of antennæ partially enveloped by the eyes ..... 12.  
 2. Front coxæ transverse, not prominent (*Callidioides*) ..... 3.  
     Front coxæ conical, prominent (*Lepturoides*) ..... 37.  
 3. Eyes divided, apparently four in number ..... *Tetropium*.  
     Eyes not divided, often deeply emarginate ..... 4.  
 4. Brown species, second antennal joint proportionately larger, often half as long as the third and sometimes twice as long as wide.  
     Elytral costæ usually distinct ..... 5.  
     Variously coloured, often ornate species, second antennal joint proportionately smaller, often much less than half the length of the third and never much longer than wide. Elytral costæ usually indistinct ..... 6.  
 5. Eyes hairy, finely granulated ..... *Asemum*.  
     Eyes not hairy, coarsely granulated ..... *Criocephalus*.  
 6. Elytra with narrow raised white lines, prothorax with very deep median groove, thighs strongly clubbed ..... *Physocnemum*.  
     Elytra without distinct raised white lines (traces are sometimes visible in *Merium*) ..... 7.  
 7. Prothorax very short, strongly rounded on the sides. Upper surface entirely opaque, lustreless. Black, prothorax red .... *Rhopalopus*.  
     Prothorax not very short, the width not apparently much exceeding the length. Upper surface at least moderately shining ..... 8.  
 8. Thighs more slender; antennæ with the eleventh joint divided in the male. Colour above blackish, prothorax red ..... *Gonocallus*.  
     Thighs strongly clubbed, colour variable ..... 9.  
 9. Anterior coxæ contiguous ..... 10.  
     Anterior coxæ at least moderately distant ..... 11.  
 10. Palpi unequal, the labial much the shorter ..... *Phymatodes*.  
     Palpi about equal ..... *Callidium*.  
 11. Dorsal surface of prothorax with narrow median and moderate or small lateral callosities ..... *Hylotrufes*.  
     Dorsal surface of prothorax with a very broad, smooth, shining median space, which bears a few large punctures. Elytra with more or less distinct raised lines of a yellowish or whitish colour .... *Merium*.

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12. Second joint of antennæ large (*Cerauhycoides*).....36.  
 Second antennal joint small.....13.
13. Eyes coarsely granulated.....14.  
 Eyes finely granulated.....21.
14. Front coxal cavities open behind.....15.  
 Front coxal cavities closed behind; small pale species with the first  
 abdominal segment very long.....20.
15. Scutellum acute, triangular, antennæ very long, prothorax with lateral  
 spine.....*Chion*.  
 Scutellum rounded behind.....16.
16. Elytra with elliptical elevated ivory-like spots, in pairs.....*Eburia*.  
 Elytra without raised ivory-like spots.....17.
17. Femora not strongly clubbed, antennæ spinose.....18.  
 Femora strongly clubbed.....19.
18. Large species; metathoracic episterna narrower behind...*Romaleum*.  
 Moderate-sized species, episterna parallel.....*Elaphidion*.
19. Antennæ bisulcate externally.....*Tylonotus*.  
 Antennæ not sulcate nor hairy.....*Heterachthes*.  
 Antennæ not sulcate but quite hairy.....*Gracilia*.
20. Prothorax much narrower at base than at apex.....*Phyton*.  
 Prothorax dilated at middle, but about equal at base and apex..*Obrium*.
21. Elytra either very short, not covering the abdomen, or rapidly narrow-  
 ing behind and broadly dehiscent along the suture.....22.  
 Elytra normal, not abbreviated nor notably dehiscent.....23.
22. Elytra about as long as the prothorax.....*Molorchus*.  
 Elytra about twice as long as the prothorax.....*Callimoxys*.
23. Scutellum rounded or (in *Cyllene*) broadly triangular.....24.  
 Scutellum acutely triangular.....25.
24. Tibial spurs small, thighs suddenly and strongly clubbed. Form slen-  
 der and cylindrical. Black, elytra and abdomen scarlet..*Ancylocera*.  
 Tibial spurs large.....27.
25. Prothorax opaque, sides with spine or large tubercle.....26.  
 Prothorax shining, sides unarmed.....*Batyle*.
26. Elytra coarsely punctate, sutural angle produced.....*Purpuricenus*.
27. Tibiæ strongly carinated, form slender. Elytra without narrow cross-  
 bands of pubescence, punctuation sparse and coarse. Antennæ  
 as long (♀) or longer (♂) than the body.....*Stenosphenus*.

- Tibiæ not carinated, form usually stouter. Elytra in most cases with lighter coloured angulated cross-bands; antennæ usually shorter than the body in both sexes. Punctuation fine... 28.
28. Head comparatively small, front short, oblique; legs hardly clubbed. Intercostal process of first ventral rounded ..... 29.
- Head large, front long, intercostal process acute ..... 32.
29. Prothorax transversely excavated at sides near the base, prosternum perpendicular at tip ..... *Cyllene*.
- Prothorax not excavated at sides, which are rounded and constricted at base. Prosternum declivous at tip. .... 30.
30. Antennæ filiform ..... 31.
- Antennæ subserrate, compressed. Size large, colours strikingly contrasted with black and yellow bands ..... *Plagionotus*.
31. Large species, prothorax entirely black, much rounded on the sides. .... *Calloides*.
- Smaller, less robust; prothorax with central black spot, the remainder clothed with gray pubescence, sides much less rounded ..... *Arhopalus*.
32. Elytra plane; moderate sized species ..... 33.
- Elytra gibbous at base; small ant-like species ..... 35.
33. Head with a carina of variable form ..... *Xylotrechus*.
- Head not carinated ..... 34.
34. Prothorax with transverse dorsal rugæ or ridges ..... *Plagithmysus*.
- Prothorax without transverse ridges ..... *Clytanthus*.
35. Elytra with a transversely oblique ivory-like band ..... *Eudercus*.
- Elytra without ivory band ..... *Cyrtophorus*.
36. Second joint of antennæ equal to the fourth ..... *Microclytus*.
- Second joint of antennæ less than half as long as the fourth. .... *Atimia*.
37. Elytra short, not covering the wings ..... *Necydalis*.
- Elytra normal ..... 38.
38. Joints 3 to 5 of antennæ much thickened at their tips, inner angle sometimes much produced. Large insects, bright blue with an orange band across base of wing-covers ..... *Desmocerus*.
- Joints 3 to 5 of antennæ normal, usually slender and never produced inwardly at tips. Elytra usually tapering to apex, sometimes more or less dehiscent ..... 39.
39. Spurs of hind tibiæ terminal ..... 40.
- Spurs of hind tibiæ not terminal, but borne at the base of a deep excavation. Thorax tuberculate or spinose at sides ..... *Toxotus*.

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40. First joint of hind tarsi with the usual brush of hair beneath (except in certain *Acmaeops*). Prothorax, with rare exceptions, distinctly tuberculate at sides or with heavy lateral spine. Head obliquely narrowed behind eyes. . . . . 41.  
 First joint of hind tarsi without brush-like sole. Prothorax, with few exceptions, broadest at base, sides never spined and rarely tuberculate. Head suddenly constricted behind the eyes. . . . . 46.
41. Antennæ short, joints 5 to 11 wider. Prothorax with a heavy spine at sides, elytra strongly costate . . . . . *Rhagium*.  
 Antennæ long or moderate, not thickened, elytra never strongly costate. . . . . 42.
42. Eyes large or moderate. Thorax (except in *Pachyta monticola*) with sharp, strong, lateral spine . . . . . 43.  
 Eyes small, not emarginate, prothorax angulate or rounded on sides. . 45.
43. Eyes coarsely granulated, very prominent; form of body parallel. . . . . *Centrodera*.  
 Eyes finely granulated; body narrowed behind. . . . . 44.
44. Eyes feebly emarginate . . . . . *Pachyta*.  
 Eyes more strongly emarginate. . . . . *Anthophilax*.
45. Mesosternum not protuberant, body above more or less pubescent, sometimes moderately shining . . . . . *Acmaeops*.  
 Mesosternum protuberant, body above brilliant metallic green. . . . . *Gaurotes*.
46. Head constricted far behind the eyes, neck consequently very short. Form extremely slender, hardly tapering behind, prothorax with lateral tubercle . . . . . *Encyclops*.  
 Head constricted close behind the eyes. Form variable, usually much narrowed behind, prothorax rarely bulging at sides and never with distinct tubercle. . . . . 47.
47. Last ventral of male deeply excavated. . . . . 48.  
 Last ventral of male not excavated. . . . . 49.
48. Antennæ without poriferous spaces, size large, sides of elytra deeply sinuate. . . . . *Bellamira*.  
 Antennæ with impressed poriferous spaces on sixth and following joints. Size moderate, sides of elytra sinuate, form very slender. . . . . *Strangalia*.
49. Antennæ with poriferous spaces. . . . . *Typocerus*.  
 Antennæ without poriferous spaces. . . . . *Leptura*.