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The Canadian Entomologist.

VOL. XVII.

LONDON, ONT., APRIL, 1885.

No. 4

DESCRIPTION OF SOME OF THE PREPARATORY STAGES OF PARNASSIUS SMINTHEUS, DOUBL., AND OF P. CLODIUS, MEN.

BY W. H. EDWARDS, COALBURGH, W. VA.

P. SMINTHEUS.

Mr. W. L. Curtis, in 1883, sent me many eggs of this species, laid by females confined with *Sedum*. All the butterflies were of the variety *Hermodur*, H. Edw., the females being very black. I related Mr. Curtis's observations in *Papilio J.L.*, p. 158. The eggs were forwarded to Dr. H. S. Jewett, Dayton, Ohio, in default of ice here, and were placed in an ice box in that town, and so remained till late in Jan., '84. I received them 28th. Two days after, several of the eggs were found to have hatched, the day being warm, 55° Far. at noon. I gave the larvæ leaves of our wild *Sedum*, and also of some cultivated sorts that I had brought together for the purpose. Three days later the wild leaves were noticed eaten or nibbled a little, the other sorts not all. In former years, at least twice, I had had these larvæ out of egg, and they refused our *Sedum* and starved. In the present case, little holes were eaten on the upper side of leaf, half way through the fleshy part. Several larvæ died speedily, but a few did well. On 5th Feb'y, two were visibly stouter than the rest. On 6th, I happened on some larvæ feeding, this time at the edges of the leaves. On 8th, the two largest began to swell at second segment; on 10th, one of these died in the effort to moult, the time from the egg being 11 days. On 12th, the other larva passed 1st moult, at 13 days. On 15th, a third passed same moult; next day another, and I was fortunate in seeing the process. Before this moult I endeavored to make the larvæ disclose the tentacles on second segment, and did so in some cases by pressing on the dorsum of segments after 2 with flat side of a pin. Teasing with the point of the pin effected nothing. The tentacles were stubby and very short, a mere lump of brownish-yellow color, without prongs. It was rather a tentacle, than tentacles. On 18th, another passed 1st moult. By pressing on dorsum, the tentacles after first moult

were brought out, two short stubby horns, bifurcated low down, color, greenish-yellow, with a tint of brown.

On 22nd, the first larva which passed first moult was swollen for second; remained in that condition a long time, and finally passed second moult 27th. On 6th March, another was swollen for same moult. There were then but half a dozen left out of perhaps three score larvæ from the egg. Day after day they died, and by 11th every one had died. So that only one passed 2nd moult. This is but a melancholy showing, but it was much to get descriptions of three larval stages, and greatly enlarged drawings by Mrs. Peart of the first two stages. I learned something by the experience, and with another opportunity, I may perhaps reach pupa and imago. I got from Dr. Staudinger a beautifully prepared blown skin of *Parn. Apollo*, and from that could see that the larva of *Smintheus* at maturity would be closely like it. It was like it at the second stage, that is, with the first moult the larva had put on the characters of maturity very nearly.

I will give herewith the description of the stages observed, as it may be long before any thing more is known of this species, or of the preparatory stages of any of our Parnassians.

EGG.—Flattened, depressed at summit about the micropyle, the sides curved; the surface encrusted in hexagonal pattern, at each angle of every figure a minute cell; color chalk-white. Figured and described in *But. N. A.*, vol. 1. The shape is like that of a *Lycaena*.

YOUNG LARVA.—Length .08 inch; cylindrical, tapering both on dorsum and sides from 3 or 4 to last segment, each segment well rounded; much covered with long, stiff, black hairs, or bristles; on dorsum are four rows of these, each hair springing from a little tubercle; on 2, 3, 4 these are arranged in a cross row, on the middle of the segment, on 2 they are equidistant, but on 3 and 4 there is a wider space between the 2nd and 3rd tubercle than the others; also on 2 is another cross row of 4 near the front, the pair on either side mid-dorsal line nearer together than the posterior tubercles on same segment; segments 4 to 13 inclusive have these hairs disposed in two rows, one being on the front part, the other on posterior part, and more widely separated; so that on these segments there are formed two dorsal longitudinal rows, and two sub-dorsal; the hairs on anterior segments are curved and directed forwards, from 5 to 10 are nearly erect, but still turned forwards; on the last segments turned back; high on the side is a row of large, flattened tubercles from 2 to 11, and

from each spring four hairs, separated at their bases, turned forwards and downwards; on 2, 3, 4 is a demi-row, mid-lateral, of similar but smaller and flattened tubercles, each bearing three hairs; lower down, and just below spiracles, on 4 to 13, are 2 hairs to each segment, from little tubercles not in line, but placed obliquely, so that the posterior tubercle is always a little above the other; along base, over feet and from 2 to 12, are 2 fine and short hairs to each, near together, turned down; some larvæ have all the large tubercles black, others have them light gray; the hairs are all light but black at base; under side and prolegs greenish-brown, the feet black; head obovoid, long, broader than high, depressed at top, the vertices rounded; black, the surface rough, with many fine black hairs; the larva from the first is able to project its tentacles, very short, pale brown-yellow, and so far as observed not bifurcated. Duration of this stage from 11 to 15 days.

After First Moulting.—Length at 24 hours, .18 inch; shape as in first stage; color velvet-black, the lower part of side and under side greenish-brown; the processes on body are much as at first stage, but instead of single hairs from minute tubercles over dorsum, there are now four rows of small glossy black flattened tubercles, placed just as were the others mentioned, namely, two straight cross rows on 2, one row on 3, 4 each, in all these four in the row; in the following segments two cross rows each, two tubercles to the row, on front and rear, the former near together, or dorsal, the latter more separated and sub-dorsal; each of these tubercles bears four short hairs, separated at their bases; the upper lateral tubercles are large, rounded, flattened, running from 2 to 12, and bear from six to eight hairs; the demi-row on side of 2-4 is nearly in line with the tubercles below spiracles from 5 to 13, and this may be considered as a continuous lateral row, the lower lateral; on 2-4 there is a single tubercle to each, size of the dorsals, but the succeeding segments have two each, smaller, close together, the posterior one of the pair always a little higher than the other; the first three have five hairs each, the rest four, except on 13, where the tubercles are very small, and bear one or two hairs only; the hairs vary in length on each tubercle over the body, and in addition there are scattered hairs from the surface everywhere; on the dorsum of 2 the interior tubercles coalesce and are enlarged, and the hairs therefrom bend forward over the head; from 2 to 12 inclusive, in line with the upper lateral tubercles, on the posterior part of each segment, is a deep yellow oval or rounded spot; and on dorsum, between and in line with the sub-

dorsal tubercles, from 5 to 12, is a small and paler yellow oval spot; so that in all there are four longitudinal rows of these spots, the outer pair large, the inner small; legs black, pro-legs greenish-brown; head shaped as before, black, rough, with many scattered short hairs. Duration of this stage 15 days, in the only example which reached 2nd moult.

After Second Moulting.—Length at 24 hours, .24 inch; in all respects as at second stage, except that the spots which were then yellow are now white. Before the third was completed the larva died.

The inflated skin of *Parnassius Apollo* spoken of above will serve to show what the mature larva of *Smintheus* would be like. The *Apollo* is black, covered thickly with short stiff black hairs. Where in the larva of *Smintheus* at 1st moult, is a row of yellow spots, in *Apollo* there is a row of large red ones, extending from 2 to 11, with smaller ones on 12 and 13. Instead of a dorsal row of smaller spots as in *Smintheus*, in *Apollo* the small spots are in line with the large ones, one on the front of each segment, and between 2 and 3, 3 and 4, is a small spot in addition. It is possible that the spots of *Smintheus* may again change color (having once changed from yellow to white, at 2nd moult) but I apprehend the white spots will remain till maturity.

The larva of *Parnassius* at every stage is unlike that of a *Papilio*, the only resemblance being in the presence in both of the scent organs, and the young larva seems to me more like that of certain *Erycinidæ*, for example, *Lemonias Nais*, as figured in *But. N. A.*, V. 2. The egg is like *Lemonias* and *Lycaena*, and as is well known, the chrysalis is like that of a *Hesperid*, or some of the *Heterocera*, and very unlike the typical *Papilionidæ*. The more I see of the *Parnassians*, the more satisfied am I that their place is not with the *Papilionidæ*, but at the other end of the series, and near the *Erycinidæ*, where they should rank as a Family. I believe that the egg, larva in its stages, and the chrysalis is a better guide to the relationship of butterflies than the characters of the imago.

P. CLODIUS, Mén.

EGG.—Nearly plano-convex, the top being arched, the base flat, the edge about base rounded; at the summit a depression about the micropyle; when magnified to one inch diameter, the shape is very like that of a wooden button; color diluted coffee-brown; the upper surface covered by a crust, which is pitted with little round cells. (This egg much

resembles in shape and ornamentation that of *Chrysophanus Thoe*, where as the egg of *Smintheus* is like a *Lycaena*, as *L. Pseudargiolus*).

YOUNG LARVA.—Length at a few hours from egg, .08 inch; shape and markings of *Smintheus* at same stage; tapering on dorsum and sides from 3 or 4 to 13; the segments well rounded; color black, legs black, under side and pro-legs dark greenish-brown; on dorsum and sides black hairs, which spring from tubercles just as in *Smintheus*, the arrangement being of same description; head ob-ovoid, depressed at top, the vertices rounded; surface rough; color black; much covered with short black hairs.

The larvæ refused to eat *Sedum*, and soon died. In 1878, Mr. Mead brought from Nevada a large number of these eggs, obtained by confining the females on *Sedum*. I kept them in a cool room till last of Jan., '79, when they were placed in a warm one. A few larvæ hatched 31st Jan.

A NEW ARCTIAN.

BY HENRY EDWARDS, NEW YORK.

NEMEOPHILA SELWYNII, n. sp.

Head, thorax and abdomen, dull sooty black. Palpi, collar and tip of abdomen pale dull orange. Tegulæ, sides of abdomen and upper side of the tip of antennæ sordid white. Wings dull sooty black. At base of primaries a very distinct and clearly marked short white streak, and an oblique band (also cream white) from behind the middle of the costa to near the internal angle. This band, which is excavated at its junction with the cell, gradually narrows to a point as it reaches the outer margin. The fringe is white on the apical half of the margin, black elsewhere, and there is a small orange dash at the base of the costa. Secondaries wholly sooty black, fringe white, a little below the apex. Beneath the wings have a slate-colored shade, the markings of the upper surface repeated, the costa of primaries stained with orange at the base and at the edge of the white oblique band, while that of the secondaries has two whitish triangular blotches.

Expanse of wings, 35 m.m. Length of body, 13 m.m.

From 7 examples, ♂ ♀, taken by Prof. Macoun at Nipigon, Ont.

Though the species of the genus *Nemeophila* are subject to considerable variation, I can but believe that in the form before us we have to do

with a distinct and permanent species, the whole of the examples captured agreeing exactly with each other. It differs from *N. petrosa* Walk., *N. geometrica* Gr., and *N. Geddesii* Newm., in the shape and position of the bands on primaries, while in all the specimens examined there is on the secondaries an entire absence of white marks.

I have dedicated this interesting insect to Dr. Alfred R. C. Selwyn, LL. D., F. R. S., F. R. S. C., the distinguished Director of the Geol. and N. Hist. Survey of Canada, whom I have known for many years, both in Australia and America, as a close and careful student, and who has already taken important steps which cannot fail to promote a love for Entomology throughout the Dominion, and to produce the most valuable scientific results.*

A LIST OF COLEOPTERA COLLECTED IN LOUISIANA, ON OR SOUTH OF PARALLEL 30°.

BY C. H. T. TOWNSEND, CONSTANTINE, MICH.

The following species were collected, from 29th March to 21st June, 1884, along the thirtieth parallel in two neighborhoods, New Orleans and environs, and a district on Bayou la Fourche extending from a little above Napoleonville a few miles south along the bayou. The latter is in Assumption Parish, and at the time of my visit was partially overflowed from the great crevasse of March, 1884. Though many of the species here given are well known to occur in the South Louisiana fauna, I give them all just as I collected them, with the view of noting their relative abundance or rarity, dates of occurrence, localities, etc., all of which together may contribute to make our knowledge of the fauna more complete. But it must be remembered that this is merely a record of how the species occurred to me during my stay, in which I collected only a small part of what might have been taken, could I have given my entire attention thereto. Nearly all those of the N. O. neighborhood were taken between the city and Lake Pontchartrain.

Some observations and notes on a number of the species in this list have been published in *Psyche* ("Notes on Some Coleoptera Taken in

* The exact locality and date of capture of this Arctian are thus given by Prof. Macoun: "In open grassy woods along an old road between the Hudson Bay Store and the C. P. R. track, three miles east of Red Rock Station, and one mile west of Nipigon Bridge, June 26th, 1884."

South Louisiana," *Psyche*, vol. iv., p. 219-222). For the identification of the species (except those marked with an asterisk) I am indebted to Dr. G. H. Horn, who kindly examined them for me.

CICINDELIDÆ.

Tetracha carolina (Linn.) One full grown larva dug from its hole, 10th April. Milnburg Road.*

Cicindela repanda Dej. One specimen seen (not taken) in an unpaved side street in New Orleans, first part of April. Same species seen also at the mouth of the Red River in Louisiana, 22nd June, and taken at Vicksburg, Miss., 23rd June.

" *tortuosa* Dej. One specimen taken on a low, sandy mud-flat of the Mississippi just below the mouth of the Red River in Louisiana, 22nd June. In company with *repanda*. This is the only species in the list which was not taken (or seen) on or south of parallel 30°.

CARABIDÆ.

Scarites subsriatus Hald. Of occasional occurrence under logs in moist places, N. O.

" *subterraneus* Fabr. Same with preceding, N. O.

Brachynus lateralis Dej. A number taken under old wood on the edge of a wet forest, B. la F.

" *tormentarius* Lec. In colonies, often in company with *Galerita*, under logs (old railroad ties) and pieces of wood in low, moist places, on the edge of the swamp especially. †

" *fumans* (Fab.) A number taken under logs in drier places than preceding. N. O.

Panagæus cru.igerus Say. One specimen under a log on the edge of a muddy, wet forest, 4th May. B. la F.

Galerita janus Fabr. This and the next species in same places with *Brachynus tormentarius*; often found in company with that species. ‡ Also overtaken running through passages made in a

* There are dummy roads running through the swamp from New Orleans to Milnburg, Spanish Fort and West End, three resorts on Lake Pontchartrain.

† Where no locality is given, the species will be understood to have been taken both in vicinity of New Orleans and on Bayou la Fourche.

‡ Where no date is given, unless otherwise stated, the species was more or less common during the time of my stay.

dry, rotten stump, probably by ants. Once attracted to lamp in the evening.

bicolor Drury. With preceding.

Casnonia ludoviciana Sallé. Three specimens taken from the inside of my canoe while out in the flooded forest; two of these, 13th June. Probably came from foliage. B. la F.

Leptotrachelus dorsalis (Fabr.) Two specimens taken separately on the heads of a wayside herb, 15th May, B. la F. They emitted a scent peculiar to many Carabs when disturbed.

Lebia viridis Say. One, B. la F.

" *analis* Dej. One, B. la F.

Apenes sinuata (Say). One, B. la F.

Callida decora (Fabr.) Several taken on foliage of elder hunting for prey, 23rd May. One at lamp in the evening, 15th May. Two others seen on the ground in the sun, first part of May. B. la F.

Platynus decorus (Say). One under old wood. N. O.

Loxandrus rectus (Say).

Pterostichus chalcites (Say). Several taken under old wood and clods of dirt, also running; uncultivated land and plantations.

Diplochila laticollis (I.ec.) Several under old wood.

Dicaelus purpuratus Bon. Several under wood or logs. B. la F.

" *elongatus* Dej. One, same as preceding. B. la F.

Chlaenius fuscicornis Dej. Under logs and drift-wood.

" *laticollis* Say. With preceding. Also once attracted to lamp in the evening.

" *nemoralis* Say. With preceding, but occasionally in drier places and away from woods. Not many taken.

Anisodactylus dulcicollis (Laf.)

Selenophorus palliatus (Fabr.) One, B. la F.

Stenolophus ochropezus Say. One, B. la F.

" *dissimilis* Dej. Attracted to lamp in the evening. B. la F.

DYTISCIDÆ.

Cybister fimbriolatus Say. Several taken from a pool of water, 17th April, N. O. A pair (same species?) seen *in coitu* swimming on the edge of an overflowed forest on Bayou la Fourche, 23rd May.

Thermonectes basilaris (Harr.) One specimen in pail of water drawn from a cistern, 3rd May. B. la F.

GYRINIDÆ.

Dineutus emarginatus Say.

STAPHYLINIDÆ.

Staphylinus cinnamopterus Grav. One or two under old wood. B. la F.
Palaminus parvus (Lec.) One under wood, N. O.

EROTYLIDÆ.

Languria mozardi Latr. Several from plants.
 " *angustata* (Beauv.) One on foliage (of elder?), 23rd May. B. la F.

NITIDULIDÆ.

Carpophilus dimidiatus Fabr. Two, B. la F.

COCCINELLIDÆ.

**Megilla maculata* (DeG.)
 **Hippodamia convergens* Guér. B. la F.
Coccinella affinis Rand., and var. **venusta* Mels. Two specimens of the species, three of the variety, on foliage. B. la F.
 **Cycloneda sanguinea* (Linn.)

LUCANIDÆ.

**Passalus cornutus* Fabr. B. la F.

SCARABÆIDÆ.

Canthon perplexus Lec. One, B. la F.
 " *hudsoniæ* (Forst.) One, N. O.
Diplotaxis harperi Blanch. One, B. la F.
Anomala undulata Mels. One or two, B. la F.
Dyscinetus trachypygus Burm. Two, one from each neighborhood.
Ligyris gibbosus (DeG.) One specimen in a cell in the earth in a sugar-cane row, about the first of May. B. la F.
 " *rugiceps* Lec. One specimen in a cell in a cane row same as preceding, 2nd May. B. la F. *Ligyris* did no injury to young cane about Napoleonville this season that came to my knowledge.
Euphoria melancholica (Gory). Quite abundant in flowers of thistles, also in some other flowers.

BUPRESTIDÆ.

Dicerca obscura (Fab.) Several specimens taken in the heat of the day on heads of wormwood and the common ragweed, 20th to 22nd May. B. la F.

ELATERIDÆ.

Drasterius dorsalis (Say). Several under old wood. B. la F.

Monocrepidius lividus (Deg.) One taken on the head of a stalk of worm-wood, 21st May. B. la F.

LAMPYRIDÆ.

Lucidota atra (Fabr.) B. la F.

Pyropyga minuta Lec. One on foliage. B. la F.

Photuris pensylvanica (DeG.)

TELEPHORIDÆ.

**Chauliognathus marginatus* (Fabr.) Abundant on patches of a low, yellow-flowering herb; also on daisies and some other flowers. *In coitu*, 30th March to 17th April.

CERAMBYCIDÆ.

Elaphidion mucronatum (Fab.) One specimen, 21st May. B. la F.

" *incertum* Newm. Two taken on pine boarding, 5th and 9th June; and one attracted to lamp in the evening, 21st May. B. la F.

Xylotrechus colonus (Fab.) One attracted to lamp in the evening, 10th June. B. la F.

Neoclytus erythrocephalus (Fab.) One specimen taken in the heat of the day on the finely-cut foliage of the common ragweed, 18th May. B. la F.

**Desmocerus palliatus* (Forst.) On shrubs of elder bordering ditches on plantations, 21st to 27th April. *In coitu* 22nd to 27th April. B. la F.

Bellamira scalaris (Say). Several taken on elder and the common ragweed, 20th to 22nd May. *In coitu* same dates. B. la F.

Typocerus zebratus (Fab.) One, B. la F.

Leptura abdominalis Hald. Three specimens taken in the flooded forest on a pine or cypress stump, over a mile back of the levee, 6th June. One of them flew from the stump and alighted upon the foliage of a young tree, where it was captured. B. la F.

Acanthoderes quadrigibbus (Say). Several specimens taken on an unpainted, weather-beaten fence made of big, rough-hewn pickets, also one on a flour barrel and another on pine boarding, 16th to 25th May. B. la F.

Mecas inornata Say. Taken in considerable numbers exclusively upon

the leaves of the "wild artichoke," 25th May to 7th June. *In coitu* 2nd to 6th June. B. la F.

BRUCHIDÆ.

Caryoborus arthriticus (Fab.) Four dead and dried specimens found in September among some seeds of the scrub palmetto gathered near New Orleans in the first part of April, and with them were the hollow seed-shells from which they had emerged.

CHRYSOMELIDÆ.

Lema 6-punctata (Oliv.) One taken upon the leaves of some weeds along a low levee bank, 23rd May. B. la F.

**Chlamys plicata* (Fabr.)? One larva, a case-bearer, on foliage. B. la F.

Monachus saponatus (Fab.) Several. B. la F.

Cryptocephalus leucomelas Suffr. One specimen on a weed, 17th April. Spanish Fort.

Myochrous denticollis (Say). Two, B. la F.

Colaspis brunnea Fab. One perfect and one injured imago. B. la F.

**Plagioderma scripta* (Fabr.) In abundance on sprouts of cottonwood or poplar, both larvæ and imagines, and pairs *in coitu*, on the young and tender leaves, 4th May. B. la F.

Cerotoma caminea (Fab.) Several. B. la F.

**Diabrotica 12-punctata* (Oliv.)

Galeruca integra (Lec.) One. B. la F.

Disonycha pensylvanica (Illig.) One from each neighborhood.

Lactica ocreata Say. Several, B. la F.

Systema elongata (Fab.) One, B. la F.

Chelomorpha cassidea (Fab.) One specimen taken on a wild plant, 17th April. Spanish Fort.

Coptocycla aurichalcea (Fab.) One on a leaf of elder, 28th April. B. la F.

Noda convexa Say. Several, B. la F.

TENEBRIONIDÆ.

Nyctobates pensylvanica (DeG.) Two or three under dead bark, 27th April. B. la F.

Opatrinus notus (Say). Plentiful under old wood in dry places.

Tribolium madens (Charp.) One, N. O.

Alphitobius piceus (Oliv.) Several under old wood, N. O.

Strongylium tenuicolle (Say). One, B. la F.

MELANDRYIDÆ.

Penthe obliquata (Fabr.) Three under a log, 27th April. B. la F.

MORDELLIDÆ.

Rhipiphorus pectinatus (Fabr.) One on leaves of a wayside herb, 11th May. B. la F.

MELOIDÆ.

**Epicauta vittata* (Fab.) One running on the ground, 1st May. B. la F.

CTIORHYNCHIDÆ.

Tanymecus confertus Gyll. Two, B. la F.

Eudiagogus rosenschoeldi Fahrs. Two, one taken crawling on the ground by a road-side, 11th May, B. la F.; the other from N. O.

CURCULIONIDÆ.

Listronotus tuberosus Lec. Quite a number of this species taken clinging on the under side of railroad ties lying on the ground not in use, or pieces of wood in dry places, in company with the three following, first part of April. Milnburg Road.

" *callosus* Lec. With preceding, plentiful.

" *nebulosus* Lec. With two preceding, quite numerous.

" *frontalis* Lec. A number with the three preceding.

Macrops delumbis (Gyll.) One or two with *Listronotus*.

Eudocimus mannerheimii Boh. One pair *in coitu* taken in the flooded forest on a pine or cypress stump, over a mile back of the levee, 6th June. They were lying under a chip in a crevice on the top of the newly-cut stump. B. la F.

Lixus terminalis Lec. Two taken on stems of weeds, 27th April and 25th May. B. la F.

Lissorhoptus simplex (Say). Several attracted to lamp in the evening, 14th and 23rd May. B. la F.

Conotrachelus cribricollis (Say). One, B. la F.

Chalcodermus acneus Boh. Abundant on stems of elder along ditches on plantations, also taken on some young sprouts of cottonwood or poplar. B. la F.

Baris nitida Lec. One, B. la F.

*Unknown *Rhyncophor*. Larvæ taken, 18th April, from tamarind seeds found strewn over the planks of the "levee" at New Orleans, where the Central American and Mexican steamers come in. One seed contained six or eight small, white larvæ, nearly spherical. At same time some of the larvæ were found in

other seeds, almost minute. Probably brought from some tropical American port.

BRENTHIDÆ.

Eupsalis minuta (Drury). Three ♂ specimens taken under chips, or in crevices, on a new pine or cypress stump over a mile out in the flooded forest, 6th June. B. la F.

CALANDRIDÆ.

**Rhodobaenus 13-punctatus* (Illig.) Quite plentiful on a wayside herb growing along the bayou on the grassy bank of the levee, and on the leaves and stems of the common ragweed, 11th May to 6th June. B. la F.

Sphenophorus pertinax Oliv. Under logs and pieces of wood in damp places burrowing in the mud, on which account they are generally covered with a crust of that material. Not uncommon near New Orleans (Milnburg and West End Roads); only one taken on Bayou la Fourche.

· *placidus* Say. In same places with preceding, but much less common. Only two taken, N. O.

**Calandra oryzae* Linn. In rice; and from an ear of Indian corn, every kernel of which was eaten out hollow and contained each a perfect weevil, 16th June. B. la F.

ANTHRIBIDÆ.

Aracocerus fasciculatus (Deg.) One, B. la F.

A WELL MERITED DISTINCTION.

The Entomological Society of France, at its meeting, March 11th, elected George H. Horn, M. D., Philadelphia, an honorary member, on account of his writings and scientific attainments in Entomology. This is a very great compliment, when it is considered that the Constitution of this Society—one of the most learned in Europe—limits the number of its honorary members to twelve, six native and six foreign.

DESCRIPTION OF A NEW SPECIES OF CHIONOBAS FROM
BRITISH AMERICA.

BY W. H. EDWARDS, COALBURGH, W. VA.

CHIONOBAS MACOUNII.

MALE.—Expands 2.2 to 2.4 inches.

Upper side brown-orange, color of *C. Californica* Boisd.; occasional examples are dark, a dead-leaf-brown over whole surface; hind margins edged by a blackish border, of nearly equal width throughout, and extending to apex of primaries; but sometimes this border is widest on primaries; costa of primaries dark brown; in some examples this shade scarcely if at all crosses costal nervure, in others it encroaches on the cell more or less, and occasionally covers the whole cell; but in nearly all examples under view the cell is concolored with rest of wing; the oblique discal brown band, which is a conspicuous feature in the males of the allied species, does not appear in the present one, so far as the examples show; the coloration of the upper surface resembles that of the female of *Californica*; on secondaries, the costal margin is edged with brown, and just outside the end of cell is an expansion of this, which forms a large elongated patch, convex on interior side—not at all like the sub-triangular and small patch seen in *Californica* and *Iduna*; primaries have a black ocellus, rounded or oval, with white pupil on upper discoidal interspace, and a second on second median interspace, the last one usually blind, but sometimes pupillated; generally the lower ocellus is smallest, but occasionally is equal to the upper; one example under view has two additional black spots, as large as the ocellus on secondaries, one on the interspace next above each ocellus; another has mere points on these interspaces; secondaries have a small ocellus, either blind or with white pupil, in second median interspace; fringes of both wings alternately yellow-white and brown-black.

Under side of primaries paler, frequently yellowish; costal edge gray-white, specked and streaked transversely with dark brown, next before and at apex gray prevailing; the hind margin brown; the cell more or less specked with brown, and just beyond the middle from base crossed by a narrow brown stripe.

Secondaries usually gray-white over costal margin and to middle of cell, yellowish over remainder of wing, but sometimes the entire surface is

decidedly yellow, of a pale or whitish shade; streaked finely with dark brown most densely from base to outer edge of the discal band, beyond which the streaks permit the ground color to show more distinctly than elsewhere; in the darker examples the hind margin is washed with brown which shades gradually into the lighter area; the disk crossed by a broad irregular band, edged on either side by black; the outer border of this band begins on costa just above the angle and its general course is sinuous, with a slight angular incision on the sub-costal nervure, and a rounded one on lower median interspace, the extreme curve lying just outside the nervule; the outline of basal side of the band is a double curve, being at first convex towards base of wing, and on sub-costal, then a deep sinus on median, after which to inner margin wavy; the posterior half of the band is about half the width of the other part; on both wings the ocelli are repeated, and usually the lower on primaries is pupillated; in a line with the ocellus on secondaries is a series of white points across the wing, one on each interspace, but these are often wanting.

Body blackish-brown above, thorax black beneath, gray-brown over abdomen; legs black, the tibiae and tarsi brown; palpi black; antennae reddish-brown finely ringed with red; club yellow-brown, tipped ferruginous.

VAR. A.—The entire upper side of primaries dark brown except a space beyond the disk which includes the ocelli, this being of the usual shade, and like secondaries; and it is therefore like the band in *Satyrus*, as *S. Alope*; on under side the ocellar band is yellowish, and the dark area is limited on it in a wavy dark line which projects in an angle upon upper branch of median; the cell much streaked.

FEMALE unknown.

From 12 males, taken by Professor John Macoun, Botanist to the Geological and Natural History Survey of Canada, at Lake Nipigon, 1884, and in honor of whom I name the species. It is remarkable for the absence of the broad sexual brown-black band on fore wing, which is so conspicuous a feature of the other members of the group. It forms the connecting link between the *Californica* group and that of *Chryxus*. The upper surface of the Var. A is very like many male *Chryxus* in the arrangement of the light and dark shades of color. In general the male *Macounii* has the coloring of female *Californica*.

HATCHING LEPIDOPTERA THROUGH ARTIFICIAL HEAT, &c

(Continued from page 49, No. 3, 1884.)

BY PH. FISCHER, BUFFALO, N. Y.

Of the lot taken to the room Dec. 3rd, 1883, imagoes appeared as follows:—

Hem. tenuis, male, Jan. 16, 1884.	H. thysbe, female, Mch. 14.....2
" " " 27 "	" " " 30.....1
Telea poly., " " 27 "	D. undulosa, male, Apr. 8.....1
Apat. lepusc., " 27 "	Sph. drupifer. " " 18.....1
Telea poly., male, Mch. 10 "	H. tenuis, male, fem. " 23.....2
" female, " 16 "	" " " 26.....1
Pupæ from Feb. 1, 1884.	Sm. myops " May 9.....1
H. tenuis hatched 1 male, Feb. 24	" female " 11.....1
" " 2 females " 26	D. choerilus, male " 11.....1
" " 1 male 27	Sm. myops " " 13.....1
" " 1 " Mch. 1	" female " 14.....1
" " 1 female " 3	C. promethea, male " 30.....1
" " 1 male " 4	S. cecropia, female " 31.....1
" " 1 " " 13	T. polyph., male " 30.....1
" " 1 " " 14	" " " 31.....1
Pupæ of different genera, Feb. 28,	C. promethea " " 31.....1
hatched as follows:	S. cecropia, female, June 1.....1
H. thysbe, male, March 13.....1	C. promethea, male " 2.....2

So far my records. From this time the remaining pupæ were taken to a room not heated, and gradually emerged here, which they would probably have done at about the same time had they never been taken to a warmed room.

On *Call. promethea* and *Samia cynthia*, artificial heat seems to have not the least effect, as they were taken to a warm room in February, the first *C. promethea* not hatching until the 30th of May. Of the *Samia cynthia*, none hatched until late in June, as did the larger number of *C. promethea*. A number of these, *promethea* and *cynthia*, male and female of each species, were taken to a small room with a view to observe the copulating of the sexes, and with a faint hope of a crossing, for which latter purpose males of one species (*promethea*) were also put together with

females of *cyntia*, and *vice-versa*, in boxes, but in no case did pairing take place, the males and females crawling over each other as if they were all of one sex. The one window of this room was kept closed, which must have been the cause of non-pairing, as there was no current of air, consequently the males, which seemingly have to depend a good deal on the draft of air, were not able to locate the female. One crippled female of *Telea polyphemus* was taken outside towards evening, in June, and placed on a shrub. It was found copulating the next morning with a fine male of the same species, the female commencing to deposit its eggs during the following night. This shows that for successful copulating insects need the fresh air.

Of *Hyperchiria io* hatching in February and March, some (male and female) were also put together in a large box covered with gauze, but with the same result; none were found to pair, although left together for a week, during which time some males and females never left the spot where they settled the first day. No female of these deposited any eggs during that time, whilst of *S. cyntia* and *C. promethea* sterile eggs deposited in June and July could be counted by the thousand.

Description of an odd variation of *Telea polyphemus*, male, hatched last summer: Wings almost transparent. Primaries almost without any shading, the usual band near outer margin removed nearer towards ocelli, which itself is narrower as in typical form, elongate, nearly perpendicular with sharply pointed ends above and below, surrounded with yellow, then black, having on margin towards base a red band slightly intermixed with pale blue; above ocelli a dirty red dash extending to costa; the lower part of the irregular band near base wanting, leaving only the upper part, which is also more perpendicular, and crescent shaped. Near base almost entirely bare.

Secondaries unicolored, the usual dark band removed close to ocelli, bordered towards outer margin with a broad bare band. Ocelli the reverse in shape from those on primaries; outer line straight and inner line convex; bordered towards outer margin with a black band extending on the outer side around ocelli, terminating in a narrow crescent-shaped black line above, encircling a narrow light blue band which is itself shaded by a darker blue, crowned by a wide white band bordered with red. A second pale but dark wide band runs almost parallel with first, only broken by ocelli, which is altogether but a little over half as large as on typical

form. Antennæ well developed. Thorax nude; abdomen slightly hairy. Coloring on under side also abnormal. Size $4\frac{1}{8}$ inches. This specimen is in my collection.

NOTE ON THE LARVA OF DARAPSA VERSICOLOR, CLEM., AS IT OCCURS IN
THE VICINITY OF BUFFALO, N. Y.

In my note book I find a brief description of the larva of *D. versicolor*, which I here give: Head small, green. Body light green, deepening strongly on sides, slightly tapering towards caudal extremity, but much towards head from 4th segment. Oblique bands whitish. Caudal horn long, stout, strongly curved backwards. Stigmata light brick red with white. The general appearance is much like *D. choerilus*, but from which it may be distinguished by its smaller head. As the season advances the larger number are a beautiful dark reddish brown, much resembling the dry leaves often found rolled up, on its chief food plant, *Cephalanthus occidentalis*, or Swamp Button-bush. The larvæ are sometimes found plentiful in certain favorable localities, especially shady swamps. It spins a light cocoon on the ground, in which the pupa hibernates. The pupa is nearly identical with *D. choerilus*. The larva is generally found in July, very few in August. When disturbed the caterpillar draws its head and first three segments into the fourth. The moth is local and usually rare.

OBITUARY.

We regret to announce the death of one of our esteemed members, Mr. Wm. Murray, of Hamilton, Ontario, who passed away after a protracted illness early in March. He was an enthusiastic and industrious collector of both Lepidoptera and Coleoptera, and paid special attention to the Sphingidæ and the Catocalas. His collection, embracing a large number of specimens, has been bequeathed to the Entomological Society of Ontario, and is now safely deposited in the rooms of the Society.

BOOK NOTICES.

Contributions to the Descriptive and Systematic Coleopterology of North America, Part II., by Thos. L. Casey, U. S. A.; 1ge. 8vo., pp. 137.

Contains very full and careful descriptions of ninety-three new species of Coleoptera, and many new genera; also systematic revisions of several genera as represented in the United States. A very useful and valuable contribution to this department of Entomology.

On the North American Asilidæ, Parts I. and II., by S. W. Williston, M. D.; 1ge. 8vo., pp. 58. From the transactions of the Amer. Ent. Soc., xi., December, 1883, and xii., Jan., 1885.

These excellent papers contain descriptions of forty-three new species, together with fresh descriptions of many of the older forms. Part I. contains a very complete table of genera, with two plates illustrating the parts of the insects used in classification. Part II. contains convenient tables of the species belonging to the following genera: Laphria, Mallophora, Promachus, Erax and Proctacanthus, in which the chief distinguishing features of the species are briefly given.

Notes on the Systematic Position of Some North American Lepidoptera, by John B. Smith; 8vo., pp. 8, with one plate containing twenty-three figures, illustrating the structure of Zygaena, Eudryas, Alypia, Stiria, Pyromorpha, Conosoma and Ctenucha.

The Standard Natural History—Article, Heterocera, by C. H. Fernald.

We are indebted to the author for a copy of this interesting popular article on Moths, covering 45 pages small quarto, illustrated with 34 figures and one plate of silk worm moths.

Elephant Pipes in the Museum of the Academy of Natural Sciences, Davenport, Iowa, by Charles E. Putnam; 8vo., pp. 40, with one figure.

General Truths in Applied Entomology, by C. V. Riley; 8vo., pp. 7. An essay read before the Georgia State Agricultural Society, relating chiefly to insecticides and the best methods of applying them.

Recent Advances in Economic Entomology, by C. V. Riley; 8vo., pp. 3.

A communication made to the Philosophical Society of Washington in reference to insecticides.

U. S. Department of Agriculture, Division of Entomology; Bulletin No. 4, 8vo., pp. 102.

This useful publication contains a report on Cranberry and Hop Insects, by John B. Smith; observations on the Rocky Mountain Locust, by Lawrence Bruner; on Insects Injurious to Cotton, Orange and Sugar Cane in Brazil, by John C. Branner; Effects of Cold upon the Scale Insects of the Orange in Florida, and extracts from correspondence containing many interesting facts relating to injurious insects.

CORRESPONDENCE.

Dear Sir: In a recent issue, among some entomological notes, Mr. J. G. Jack mentions having taken *V. antiopa* and other butterflies on choke cherry bushes that were infested with Aphides. Perhaps some observations of mine bearing on the same point might be of interest.

During Sept., 1883, I noticed that a small apple tree in our orchard that was in a circuit of about twenty sugaring trees, had become unproductive, only an occasional moth appearing, while neighboring trees would be well covered. Happening to look up into the tree one night, I discovered that it was swarming with moths, and a careful examination showed that the tree was literally covered with the apple plant-louse, *A. mali*. The moths proved to be principally *L. unipuncta* and *Arthosia bicoloraga*, but there were some *Agrotis c-nigrum* and a few *Hadenas*. As I had never noticed this habit of the moths before, I kept on the watch for it afterwards, and found that the two former species could always be found where *A. mali* occurred in any numbers. During the autumn I took several species of the Noctuidæ, and at least one butterfly (*P. cardui*) on this infested tree. I have always taken *O. bicolorago* and *ferruginoides* largely on apple trees, and I now have little doubt but the plant lice are the principal attraction that draws them to these trees. I have also seen snow-ball bushes (*Virburnum opulus*) which were covered with Aphides, well patronized by the Noctuidæ, especially *Mamestra renigera*, *L. palens*, *L. commoides* and *L. unipuncta*.

E. P. VAN DUZEE, Lancaster, N. Y.