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EDITOR:

DR. J. McDUNNOUGH

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DEPARTMENT OF AGRICULTURE, OTTAWA

Editor Emeritus: REV. C. J. S. BETHUNE

December, 1921

ORILLIA:

THE ORILLIA NEWS-LETTER

1922

NOTICE: All articles for publication and correspondence relating to them should be addressed to the Editor: DR. J. McDUNNOUGH, Entomological Branch, Department of Agriculture, Ottawa.

Remittances for fees and subscriptions and all other business communications should be addressed to:—THE ENTOMOLOGICAL SOCIETY OF ONTARIO, Guelph, Canada.

EXCHANGES

Subscribers are invited to make liberal use of this column. Notices over three lines are liable to be shortened if necessary. All insertions free to subscribers.

WANTED—Cynipidae and their galls from all parts of the world. Western and Southern material particulary wanted. For cash or exchange. Wm. Beutenmuller, Box 258, Highwood, Bergn Co., New Jersey.

FOR EXCHANGE—Mounted Macro and Micro Lepidoptera from this locality. Fred Marloff, 118 Oak Road, Mt. Oliver Branch, Pittsburg, Pa.

WANTED—To purchase living material, especially ova or live females of any species of the genus Apantesis (Arctiidae). Dr. E. T. Learned, Fall River, Mass.

LEPIDOPTERA from South America, Morpho menelaus, rhetenor, hecuba, etc. Papilio agrias. Wholesale only. Ed. Allen & Co., St. Jeandu-Maroni, French Guiana, South America.

WANTED—Micro-Lepidoptera from all parts of N.A.: write first what you have; cash or exchange. Clarence T. Wood, 98 North Street, Fairport, Monroe Co., N.Y., U.S.A.

HALTICINI wanted in exchange for Coleoptera or other orders.—L: G. Gentner, 213 Bailey St., East Lansing, Mich., U.S.A.

JAPANESE and Formosan Butterflies in exchange for those from any part of the world. S. Satake, 48 Aoyama Minami-Machi, 5-Chome, Tokyo.

OMOPHRON and ELAPHRUS desired, in numbers, including the common species. Good exchange given. H. F. Wickham, Iowa City, Iowa.

WANTED—Species of Rhynchophora from Eastern North America not represented in my collection, in exchange for duplicates from Indiana and Florida. Lists of desiderata and duplicates on application. W. S. Blatchley, 1530 Park Avenue, Indianapolis, Indiana.

BRACHYNUS wanted from any part of North America. Cash or exchange. J. W. Green, 520 McCartney Street, Easton, Pa.

CLERIDAE wanted from any part of the world for cash or in exchange for any insect material from Sumarta.—J. B. Corporal, Holland, The Hague, Pieter Bothstraat 39.

LEPIDOPTERA—Will purchase or give good western species in exchange for Western Canada Noctuids. Pacific Coast species preferred. Chas. A. Hill, 1601 Sierra Bonita Ave., Los Angeles, Calif.

WANTED—5-800 Samia columbia living cocoons; communicate with Edward Sasek, 760 East 160th Street, New York, N. Y.

COLEOPTERA—Common species of this region in exchange for Coleoptera or Lepidoptera from any part of the world. Correspondence invited. Basil E. Montgomery, Poseyville, Ind.

CYNIPIDAE—Galls or the bred makers desired, to determine or for exchange. Also want to buy a copy of Das Tierreich XXIV, Cynipidae. Alfred C. Kinsey, Bloomington, Ind.

FLORIDIAN LEPIDOPTERA offered in exchange for Saturniid, Citheronid (Ceratocamid), etc. living pupae. D. M. Bates, Ft. Lauderdale, Fla.

CHANGE OF ADDRESS—Richard Tompkins de Garnett now 583 Merrimac St., Oakland, Cal.

LIVING PUPAE of P. troilus, P. turnus, H. diffinis, for exchange or for sale, 80 cents per dozen. African Butterflies for sale. Send for list. J. N. Lang, 1433 So. 59th Ave., Cicero, Ill.

WANTED—Species of Homoptera, Hemiptera and Orthoptera not represented in my collection in exchange for duplicate material of these orders from South Dakota. List of duplicates on application. H. C. Severin, South Dakota State College, Brookings, South Dakota.

LEPIDOPTERA and COLEOPTERA wanted from any part of the world for cash, or in exchange for any insects from Western Ontario. Olaf S. Wendorf, Box 294, Hanover, Ontario, Canada.

The Canadian Entomologist

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1921

EDITED BY

J. McDUNNOUGH,

Entomological Branch

DEPARTMENT OF AGRICULTURE

OTTAWA, ONTARIO.

ORILLIA, ONTARIO.

CURRAN BROS.

1922

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POPULAR AND PRACTICAL ENTOMOLOGY

THE LIFE HISTORY OF A HOBBY HORSE

BY FRANCIS J A. MORRIS,
Peterborough, Ont.

PART III.—SECOND CHILDHOOD—THE TREE'S INCLINE.

(Continued from Page 245).

At the head of Corbett's pond the spring after the water level was permanently lowered I spent several hours one Saturday observing a multitude of Plover, Snipe, and Sandpipers feeding on the rich alluvial surface. The first thing I saw on approaching was a flock of seven or eight Black-bellied Plover which I had put up in the forenoon from Duck Harbour four miles away; then two Golden Plover, the only time to my knowledge I have ever seen this bird. Both these kinds were very wild and flew rapidly out of sight up the Ganeraska in a north-westerly direction. By good luck I happened on an excellent "hide", a hollow on the slope of the bank a few yards from the water, screened from the cold north-west wind by the top of the bank and hidden from view by a fringe of willow bushes, through which I could watch the birds feeding. Most of the time my glasses were trained across a narrow arm of the Ganeraska on to a delta of black mud dotted with sand patches, little thickets of dead sticks, and shallow pools of water. The birds were very numerous, the different species moving about in small flocks that often intermingled; sometimes three or four species feeding sociably together in a single group; for the most part they seemed strangely silent, but this was probably due to the distance and the peculiar character of "field-glass" views; birds at quite a distance being brought right up to the eye, so that you felt almost as if you could lay your spare hand on the bird by a sudden pounce down behind the glasses. Moreover I was to windward, and when the breeze dropped I fancied I could hear faint twitterings. It was very interesting to see the quick nervous movements of the birds, almost as restless as Snowbirds in a blizzard, but with much less use of the wings; all showed the curious "teetering" fore and aft, that has given the Least Sandpiper its popular name, accompanied by frequent bobbing of head and neck and flirting of tail; but prettiest sight of all was their quick, clean step and dainty tread about the tiny sandbars and mud flats that made the shores of their Liliputian lakes. There were at least seven species, but I was able to identify five only with certainty: the Least Sandpiper, the Solitary, the Spotted and the Red-backed; the last of these remarkable for the large disk of jet on its belly which gives it the local name of "black-heart" among the gunners; the most exquisite of all these "limicolæ" or mud-haunters was a tiny white-throated, white-breasted and -bellied bird, with a black collar round the neck, a dusky head, and grey-brown back and wings; it looked for all the world like a dwarf Killdeer, and as a flock of Killdeer came down from the field behind me and settled on the delta, I was able to

compare the two at my leisure. The stranger was the Semi-palmated Plover and appeared surprisingly tame; three or four twice crossed the river-arm and settled on the sand just beyond my willow screen, either never suspecting my presence or utterly fearless.

In Choate's Wood itself, a little way above the pond, I heard one day the most awful racket of crows; the noise started with a few sharp caws and rising rapidly to a deafening babel, subsided more slowly into dead silence; after a few moments this performance was repeated. Stepping softly forward through the aisles of beech and maple I presently came upon scores and scores of crows filling the tops of two large trees; at first I couldn't make head or tail of the phenomenon, or rather it seemed to be all heads and tails, without a meaning, though full enough of sound and fury. But presently the mystery was explained. In one tree the crows seemed to keep pretty still, but in the other I noticed they kept hopping and jumping downwards and athwart, gradually edging nearer and nearer to a projecting limb; as soon as my eye rested on the limb the mystery was cleared up. There at the end of a branch sat a large owl, apparently wrapped in meditation and unconscious that the tide of this jabbering parliament was setting its way; soon, however, it began to show signs of nervousness, blinking and turning its neck this way and that; whenever it moved as though to fly the excitement of its persecutors broke out into sharp caws; and when it actually took wing, the whole host of crows from both trees precipitated themselves upon it with deafening cries and it was forced to settle almost immediately. Apparently no crow dared come to close quarters with it as long as it kept its perch.

The North Wood was famous for my first Scarlet Tanager and the Indigo Bunting; it was also a favorite resort of the Crested Flycatcher and the Oven-bird. The fields just northeast of here were memorable for the Bartramian Sandpiper, observed first at the end of April while at its tamest before nesting, and beautifully vocal with its call note in an astonishingly long curve of sound; beginning on a low almost guttural burr and rising energetically like the spirt of a fountain to the top of its pitch, where it passes from trill or burr to a characteristic plover wail that falls away and dies on about the note it opens with—"Pr-r-r-r-r-ee-eep-wee-ee-ee-ee." During the nesting season the birds are seldom heard even at the moment of alighting, while raising the wings over the head and folding them slowly down to the sides; this is their favorite call moment at other times, but while eggs and young are in the nest they forego even this. South of the "Rockies" lies a great stretch of pasture lands, in which the Bartramian Sandpiper has lately come to breed in great numbers, and here occasionally in early spring I have had the pleasure of flushing a small flock of Yellow-legs from marshy pools; their attitudes, movements and sounds of alarm before taking to wing, being all most interesting to note.

The Newtonville Swamp included a very rich sphagnum moss bog at its west end, where I made finds of nearly all the orchids known to me in the Rideau district as well as some new ones; it was also the scene of several of my most interesting bird discoveries. I took field glasses with me on my first trip there and while gloating over a wealth of Stemless Ladies' Slippers growing

in the shade of pines and among bushes of huckleberry, I heard at intervals what absent-mindedly I set down as the distant hoot of an owl, soft and plaintive; suddenly, I sat up and listened attentively,—an owl? at noon? on a bright June day? What a fool I was! By noting the direction of the sound I was soon able to train my glasses on to a small group of trees not very far away and to my delight discovered the singer on a high branch of white pine; from colour and shape, especially the head and neck, it appeared to be a pigeon; taken in conjunction with its call the evidence pointed conclusively to the Mourning Dove; the call has great charm, being softly plaintive, suiting the lonely swamps and pine woods where it loves to dwell. One of the prettiest sights I have ever seen was a family of four of these birds perched side by side on a pine branch overlooking a stretch of hazel and scrub oak in which I had been studying a colony of ground robins (the Chewink or Towhee).

Not very long afterwards, on the edge of this Newtonville Swamp, as I sat munching some bread and cheese on a hummock of moss, I heard almost over my head the ineffably sweet call of the "White-throat" Sparrow (the Peabody or Canada bird), and with my glasses was able to detect the songster in a tamarac almost at my side. When these birds first come back in the spring they linger for days about the gardens and orchards, and like the Warblers on their migration flight are very sociable; I once saw three species of sparrows all together in the top of a spruce beside my window at the School; two of the birds were the White-throat and the White-crowned Sparrow. The bird sings all the season and there is hardly any secluded swamp where it may not be heard; in the Algonquin Park their call is on every side from June until August. Yet again in this swamp while botanizing with an old college friend from Liverpool we were attacked by a large pair of hawks, and finally surprised two young ones just able to fly, in the centre of a great trodden space that can best be described as a shambles; three rabbit skulls, two pair of yellow hen's legs, a crow, and many gruesome tufts of fur and feathers being scattered about. One day in this swamp while taking some boys of the school Field Club to see the Pitcher Plants, Sundews, Orchids and Heaths, we surprised a Bittern on its nest; I do not think we should have seen the bird at all but it betrayed its presence by an angry hiss like a snake's, and presently we saw the long sharp dagger of its beak with a glittering eye behind it (the jewel in the haft) thrust up through a clump of Black Huckleberry (*Gaylussacia resinosa*). Among the boys at the school was a little Swiss from Mexico who once brought me from his home a bunch of some tropical orchids gathered from a tree; I had these set up in a greenhouse in sphagnum moss and two years later they thrust out a gorgeous display of blossoms. This boy was fairly fascinated that day in the swamp by his first sight of the insectivorous plants of the sphagnum. When the botanical collections were handed in that July, I found among my Mexican pupil's specimens a beautifully pressed pair of Pitcher-plant leaves with the long-stalked nodding flower between, and underneath, the legend—"Jug-plant!"

This Field Club had certain highly prized privileges; the boys were given extended bounds and an occasional half holiday for an outing in June. As birds' nesting was taboo and flower hunting tame to many of the robuster

spirits, these last appear to have put their heads together one spring in secret conclave.

We never know what is in the lap of the gods, and the day that followed our Field Club's Spring "revival" meeting, dawned much as other April days; it was only months later that I realized how big with history it had been. Shortly before breakfast a deputation of six boys filed into my room to know if I would add to the annual prize competition of Flowers, Foliage and Ferns, by including Insects, and admit them to the Club as bug-hunters.

After a little consideration I agreed to this, and wrote a short article on the comparative advantages of collecting Butterflies and Moths, or Beetles, which appeared in the next issue of the School magazine. I may have emphasized the ease of setting and preserving beetles as against the difficulty of catching and mounting butterflies. It was fate's irony if I did. At any rate about five pairs of partners applied for membership and three of these chose beetles for their hobby. I had already copies of Holland's two books on Butterflies and on Moths, and identification was fairly straightforward in the Lepidoptera; though I am free to admit being greatly relieved at the end of the summer to find, in a big collection of sixteen cases made by a pupil at Grosse Ile, Michigan, that nearly all the specimens had been determined and named by the collector and his sister at home during the holidays.

But Beetles were a horse of another colour altogether, and I soon found myself in a hopeless quandary over their names. Boys came to my room morning, noon, and night, with specimens to be identified, and in a few weeks, out of sheer desperation I began a collection for myself, and secured a copy of Comstock's "Manual for the Study of Insects", Le Conte and Horn's "Key to the Generic Classification of North American Coleoptera", and Knobel's Illustrated Booklet on "Beetles of New England". In a month I was in an advanced stage of the disease, and have suffered an annual outbreak of it ever since, just as regular in its recurrence as ague or a dose of Poison Ivy.

The most enthusiastic pair of Beetle collectors in the Club—apart from the President and his runningmate, a dentist in the town—were a boy from Algoma Mills near the Soo and his partner from New Orleans. One of these young bug-hunters had done some reading on the subject, and by a process of reasoning not uncommon had framed an infallible test for all possible beetle-problems; whenever the whoop of a new capture went up, Whitney McQuire could be heard shouting breathlessly, as he raced to the scene of action—"Did you count its legs?" I suppose his syllogism must have run like this: All insects are six-leggers; Beetles are six-leggers; *argal* All six-leggers are beetles. I am afraid I may have helped to clinch this Dogberry reasoning, for I ruled out two specimens of sow-bugs and a flat spider-scorpion, taken by him under bark, from his first collection of beetles on the score of an improper complement of legs. Of course, the counting of legs has its uses, but also its limitations. It obviously wouldn't have made any difference to the Scotch gardener who accused my cousin once of stealing strawberries, and received the suggestion that birds had been the thieves with a wise head-shake and the remark: "Ah! Mr. Harry, two-

legged birds"—an unhappy improvement on the proverbial mice. And I doubt whether it would have helped the railway guard in his famous dispute with Frank Buckland. We are told that Buckland was just boarding a train with a pet monkey when he was stopped by the guard and told that he must pay for his pet's journey in accordance with the company's regulations governing dogs; to enforce his protests the naturalist drew a live tortoise out of his coat pocket and said, "Well! what about this?" The man scratched his head completely non-plussed for a moment; then a happy thought spread across his face in a broad grin, as he answered, "Oh! that's all right; that's a hinsec', and they're free." The world hasn't moved far since Buckland's day and I have often been applied to for advice not strictly entomological. I remember once a hurry call over the 'phone from a drug store, when the following conversation took place: "Hello! Is that Mr. Morris?" "Yes." "Is it you that's interested in bugs?" "Yes." "Well! say, there's a big lizard down in the cellar and we'd like you to come and see it."

As most of my papers in the "Entomologist" describe in detail the symptoms of this now familiar *Colcopteritis,* I shall not say more about it here. As child, as boy and man, and in this second childhood of finding my feet in a new world, from first to last my interest has been purely an amateur's delight in the beauties of Nature. All that can fairly be asked of a hobby is to give pleasure; utility is a mere accident, and it would be waste of breath to recommend the pastime where it affords neither pleasure nor interest. I suppose it is quite illogical of me, therefore, to cherish as I do the memory of a rare occasion on which my hobby was translated into terms of dollars and cents.

One summer evening as I sat in my room I heard a rig drive hastily up to the school; in less than a minute my door was flung unceremoniously open, and in rushed a stout man with spectacles, breathless with excitement, his arms full of a mass of meadowgrass and weeds. As soon as he could speak he told me he had been calling at a farm house and while he talked at the door, his mare, a valuable race horse, had cropped some weeds on the edge of an orchard and got poisoned. She was lying in the stable frothing at the mouth and heaving. If I could tell him what the poison was he thought he could save the animal. He was a Vet. by profession and knew the common antidotes. I took the sheaf of herbage from him and looked it carefully over. There were no flowers, but I noticed some tall, rank stems with tiny buds on them and dark divided leaves that looked like a buttercup's. Hastily turning up Britton and Brown I ran through *Ranunculaceae,* and *eureka!* it was aconite. The antidote was administered and the mare recovered:—*post hoc, ergo propter hoc;* the Vet. credited me with the cure, and not long after I was shown an entry in the Bursar's ledger:

> Item: To attending School cow during sickness—$12.00
> cancelled on account of having my mare saved by a member of the school staff.

Like Lucky Hans I had swapped my horse for a cow.

A REVISION OF THE NEARCTIC SPECIES OF THE TACHINID GENUS ERNESTIA R. D. (DIPTERA)

BY DR. JOHN D. TOTHILL,
In Charge of Natural Control Investigations, Entomological Branch, Ottawa.

(Continued from Page 252).

Ernestia platycarina sp. n.

Description of male. Head at vibrissae about as thick as at base of antennae; vibrissae far above the oral margin. Palpi ranging from yellow to black. Eyes hairy. Cheeks (below the eyes) white pollinose on a black ground subshining on the lower hairy part, a row of stouter hairs or bristles at the oral margin. Distance from the oral margin to the base of the eye equal to about one-third of the eye height. Sides of the face covered with silvery pollen; bare; narrowest width slightly less than the length of the second antennal segment. Facial ridges bristly on the lowest fourth. Facial depression silvery pollinose, without any carina. Antennae reaching the lowest fourth of the face, all three segments black; third segment about one and one-half times as long as the second. Arista thickened on basal two-fifths, the penultimate segment slightly longer than broad. Width of the front at the narrowest point measuring a shade less than the length of the second antennal segment; the front silvery pollinose; frontal vitta dull, darkbrown, at the narrowest point about equal to the width of either side of the front just cephalad of the ocellar triangle. No orbital bristles, ocellars well developed and proclinate, the single row of frontal bristles descending nearly to the base of the third antennal segment.

Thorax subshining, black, covered with gray pollen; scutellum gray pollinose on a black ground that becomes distinctly rufous at the apex. Three sternopleurals; three to four dorsocentrals, these showing considerable variability; scutellum with three marginal pairs of macrochaetae and an apical cruciate pair. Legs black, the middle tibiae with two or more bristles on the front side near the middle, the hind tibiae without a comb-like row of bristles on the outer side. Wings hyaline. R_{4+5} (third vein) with a group of two to five hairs both above and below at the junction of R_{2+3}. Bend of M_{1+2} without an appendage. Tegulae white.

Abdomen subshining; silvery pollinose on a black ground. Discal and marginal macrochaetae present on the second, third and fourth abdominal segments. The hind margin of the third abdominal segment somewhat arcuate. The fifth tergum marked off—especially laterally—by a suture from the sixth, and at the lateral part being about one-fifth as long as the lateral part of the fourth segment. The sixth and seventh abdominal segments forming the somewhat prominent genital segments.

Genitalia rufous. The basal part of the outer forceps with a broad, leaf-like expansion; the basal part of the inner forceps with a short, keel-like median projection. The edge of this projection farthest from the penis is flattened, and this forms a ready means of distinguishing the species.

The horseshoe-like indenture extends about two-fifths to the base of the fifth sternite.

Described from ten males collected by Messrs. R. S. Sherman, A. M. Caudell, C. H. T. Townsend and William Palmer, from Savary Island, B. C., Bear Lake, B. C., Franconia N. H., White Mountains, Peaks of Otter, Va., and Great Falls, Va.

Type, No. 24359 in the U. S. N. M., Washington, D. C. Paratypes in the National Collection at Ottawa.

Ernestia sulcocarina sp. n.

Description of male. Head at vibrissae about as thick as at base of antennae; vibrissae well above the oral margin. Palpi yellowish at tip; infuscated below. Eyes hairy. Cheeks (below the eye) white pollinose on black ground, subshining on the lower hairy part, a row of bristles at the oral margin. Distance from the oral margin to base of eye equal to about one-third the eye height. Sides of the face covered with silvery pollen; bare; narrowest width slightly less than the length of the second antennal segment. Facial ridges bristly on lowest fourth. Facial depression silvery pollinose, without a carina. Antennae reaching the lowest fourth of the face, the first and third segments black, the second black, but usually reddish at distal end; third segment about one and one-half times as long as the second. Arista thickened on basal half, the penultimate segment somewhat longer than broad. Width of front at narrowest point measuring less than the length of the second antennal segment; the front silvery pollinose; frontal vitta dull, dark-brown, at the narrowest point as wide as either side of front just cephalad of the ocellar triangle. No orbital bristles; the ocellars proclinate; the single row of frontal bristles descending nearly to the base of the third antennal segment.

Thorax subshining, black, covered with gray pollen; scutellum gray pollinose on a black ground that becomes somewhat rufous toward the apex. Sternopleurals variable, sometimes three, sometimes four; four dorsocentrals; scutellum with three marginal pairs of macrochaetae and an apical cruciate pair. Legs black; the middle tibiae with two or more bristles on the front side near the middle, the hind tibiae without a comb-like row of bristles on the outer side. Wings hyaline. R_{1+5} (third vein) with a group of two to five hairs both above and below at the junction of R_{2+3}. Bend of M_{1+2} with a minute appendage in some cases. Tegulae white.

Abdomen subshining; silvery pollinose on a black ground. Discal and marginal macrochaetae present on the second, third and fourth abdominal segments. The hind margin of the third segment arcuate. The fifth tergum marked off from the shining sixth by a somewhat faint suture, laterally it is about one-fourth as long as the neighboring part of the fourth segment. The sixth and seventh abdominal segments forming prominent genital segments.

Genitalia black. The basal part of the outer forceps with a broad, leaf-like expansion. The basal part of the inner forceps with a median keel-like projection and the edge of this projection furthest removed from the penis is sulcate.

The horseshoe-like indenture extends about three-fourths of the distance to the base of the fifth sternite.

Described from ten males taken by Messrs. C. Garrett, A. B. Baird

and J. B. Wallis at Cranbrook, B. C., Lillooet, B. C., and Husavick, Man., also one male taken by J. M. Aldrich at Anchorage, Alaska.

Type in the National Collection at Ottawa. Five paratypes, No. 24358, in the U. S. National Museum, Washington, D. C.

Ernestia bicarina sp. n.

Description of male. Head at vibrissae about as thick as at base of antennae; vibrissae far above the oral margin. Palpi yellow. Eyes hairy. Cheeks (below the eyes) white pollinose on a black ground, subshining on the lower hairy part, a row of bristles at the oral margin. Distance from the oral margin to base of eye equal to about one-third the eye height. Sides of face covered with silvery pollen; bare; narrowest width slightly less than the length of the second antennal segment. Facial ridges bristly on lower fourth. Facial depression silvery pollinose without any carina. Antennae in male reaching the lowest fourth of face, all three segments black; third segment about one and one-fourth times as long as second. Arista thickened on basal two-fifths to one-half, the penultimate segment from one and one-half times to twice as long as the first. Width of front at narrowest point measuring less than the length of the second antennal segment; the front silvery pollinose; frontal vitta dull, dark-brown, at narrowest point equal to the width of either side of front just cephalad of the ocellar triangle. No orbital bristles in male, the proclinate ocellar bristles somewhat weak; the single row of frontal bristles descending almost to the base of the third antennal segment.

Thorax subshining, black, covered with gray pollen; scutellum gray pollinose on a black ground that is very faintly tinged reddish, especially at the apex. Three sternopleural bristles and three pairs of dorsocentral macrochaetae; scutellum with three pairs of marginal macrochaetae and an apical cruciate pair. Legs black, the middle tibiae with two or more bristles on the front side near the middle, the hind tibiae without a comb-like row of bristles on the outer side. Wings hyaline; R_{4+5} (third vein) with a group of two to five hairs both above and below at the junction with R_{2+3}. Tegulae white.

Abdomen subshining; lightly silvery pollinose on a black ground. Discal and marginal macrochaetae present on the second, third and fourth abdominal segments. The hind margin of the third tergum strongly arcuate. The fifth tergum distinctly marked off by a suture from the shining sixth and being a third as long laterally as the lateral part of the fourth. The sixth and seventh abdominal segments forming somewhat distended genital segments.

Genitalia black. The basal part of the outer forceps is extended into a broad, leaf-like portion. The basal part of the inner forceps with two median keel-like projections placed side by side and resulting evidently from the splitting of what was originally one median keel-like projection.

The horseshoe-shaped indenture extends about two-fifths the distance to the base of the fifth sternite. Each prong tipped with a short spine.

Described from four males from Bear Lake, B.C., Boseman, Montana, and Tennessee Pass, Colorado, taken by Messrs. R. P. Currie and R. Parker.

Type No. 24359 in the U. S. National Museum, Washington, D.C. One paratype in the Canadian National Collection at Ottawa.

Ernestia ampelus Walk.

Head at vibrissae about as thick as at base of antennae; vibrissae well above the oral margin. Palpi yellow. Eyes hairy. Cheeks (below the eyes) white pollinose on a black ground, subshining on the lower hairy part, a row of bristles at the oral margin. Distance from the oral margin to the base of the eye equal to about one-third of the eye height. Sides of the face covered with silvery pollen; bare; narrowest width slightly less than the length of the second antennal segment. Facial ridges bristly on lowest fourth. Facial depression silvery pollinose without any carina. Antennae reaching the lowest fourth of the face, in male all segments black except the distal end of the second, which is usually reddish; in the female the first two segments reddish-yellow, the third segment black; in both sexes the third segment about one and one-fourth times as long as the second. Arista thickened on basal two-fifths to one-half, the penultimate segment about twice as long as broad. Width of front at narrowest point measuring in male about the length of, in the female about twice the length of the second antennal segment; the front silvery pollinose; frontal vitta dull, dark-brown; at narrowest point as wide or slightly wider than either side of the front just cephalad of the ocellar triangle. Orbital bristles present in female, absent in male; ocellars well developed, especially in the female; the single row of frontal bristles descending almost to the base of the third antennal segment.

Thorax subshining, black, covered with gray pollen; scutellum gray pollinose on a black ground that becomes rufous toward the apex. Three sternopleural and four dorsocentral mocrochaetae, scutellum with three pairs of marginal macrochaetae and an apical cruciate pair. Legs black, the middle tibiae with two or more bristles on the front side near the middle, the hind tibiae without a comb-like row of bristles on the outer side. Wings hyaline; R_{4+5} (third vein) with a group of two to seven hairs both above and below at the junction of R_{2+3}; bend of M_{1+2} appendiculate in some of the males, destitute of an appendage in most of the females. Tegulae white.

Abdomen subshining; silvery pollinose on a black ground; the fourth abdominal segment in the female rufous. Discal and marginal macrochaetae present on second, third and fourth abdominal segments. The hind margin of the third tergite not conspicuously arcuate even in the male. Fifth tergite in male black or rufous and marked off from the sixth by a suture only on the lateral parts, its greatest length equal to one-fifth the length of the lateral part of the fourth. The sixth and seventh abdominal segments forming in the male prominent genital segments.

Male genitalia rufous. The basal part of the outer forceps covered by a leaf-like expansion. The basal part of the inner forceps with two conspicuous projections placed side by side, seemingly derived from forms in which a keel-like projection had become split.

The horseshoe-like indenture in the male extends about two-fifths the distance to the base of the last sternite.

Redescribed from a long series of males and females in the U. S. National Museum and the National Collection at Ottawa.

This is the principal Tachinid parasite of *Hyphantria cunea* in both eastern and western Canada.

Ernestia fissicarina sp. n.

Description of male. Head at vibrissae about as thick as at base of antennae. Vibrissae well above the oral margin. Palpi yellow. Eyes hairy. Cheeks (below the eyes) white pollinose on a black ground, subshining on the lower hairy part, a row of stouter hairs or bristles at the oral margin. Distance from the oral margin to base of eye equal to about one-third the eye height. Sides of face covered with silvery pollen; bare; narrowest width equal to the length of the second antennal segment. Facial ridges bristly on the lowest fourth. Facial depression silvery pollinose without any carina. Antennae reaching to the lowest fourth of the face, the first two segments yellowish, the third black; third segment about one and one-half times as long as the second. Arista thickened on basal three-fifths, the penultimate segment about twice as long as broad. Width of front at narrowest point equal to about one-half the width of an eye and equal to almost twice the length of the second antennal segment; the front silvery pollinose; frontal vitta dull, reddish brown, at narrowest point slightly more than half the width of front at vertex, i.e; unusually broad. No orbital bristles, the proclinate ocellars well-developed; the single row of frontal bristles descending considerably past the insertion of the second antennal segment.

Thorax subshining, black, covered with gray pollen; scutellum gray pollinose on a black ground that becomes rufous toward the apex. Three sternopleural bristles and four pairs of dorsocentrals; scutellum with only two pairs of marginal macrochaetae and with an apical cruciate pair; the cruciate pair and the pair next to it are directed at right angles to the dorsum. Legs black, the middle tibiae with two or more bristles on the front side near the middle, the hind tibiae without a comb-like row of bristles on the outer side. Wings hyaline; R_{1+5} (third vein) with a group of two to five hairs both above and below at the junction of R_{2+3}; bend of M_{1+2} destitute of an appendage. Tegulae white.

Abdomen subshining; silvery pollinose on a black ground. Discal and marginal macrochaetae present on the second, third and fourth abdominal segments. The hind margin of the third abdominal segment somewhat arcuate but not strikingly so. The fifth tergum marked off rather indistinctly from the shining sixth and at the lateral part being about one-fourth the length of the lateral part of the fourth. The sixth and seventh abdominal segments forming fairly prominent genital segments.

Genitalia black. The basal part of the outer forceps covered by a leaf-like expansion. The basal part of the inner forceps with a median keel-like portion that has become split, each half of it having become reduced to a mere knob, as in the case of *Ernestia ampelus* Walker.

The horseshoe-like indenture in the male extends about half the distance to the base of the last sternite.

Described from a single male collected by Mr. E. P. Van Duzee at Lismo, California on April 25th.

Type in the California Academy of Science, San Francisco.

NEW SPECIES OF CANADIAN SYRPHIDAE, (DIPTERA) Pt. I.

BY C. HOWARD CURRAN,
Orillia, Ont.

Melanostoma squamulae, new species

Head and thorax wholly black pilose; squamae blackish or brown, fringed with black pile.

Length, 7.5 to 9 mm. Male. Face a little prominent below, very little concave between the antennal base and tip of tubercle which is more prominent than, and close to the oral margin. Face greenish black, scarcely pollinose on the sides. Antennae black, third joint brown, its base reddish; arista brown. Frontal triangle chiefly opaque black. Head and thorax everywhere with rather longish black pile. Thorax and scutellum deep greenish black, with a bluish reflection in some lights, on the disc somewhat opaque. Abdomen opaque black, the sides of a shining bronze color which is a little broadened on the sides of the second segment, and produced as triangular areas on the anterior half of the third and fourth segments; fifth segment greenish bronze colored. Pile on the sides of the abdomen all black, with many longer, stronger black hairs, on the disc, shorter, more or less yellowish. Legs black, knees yellow, anterior four tibiae and tarsi brownish red, all the tibiae with a row of strong hairs in front. Wings distinctly brownish or blackish, stigma and subcostal cell luteous. Squamae brown, the fringe of hairs black.

Female. Front broad, shining greenish black, the broad transverse depression appearing opaque; black pilose. Thorax chiefly yellowish white pilose, but with longer black hairs intermixed on the dorsum and on the scutellum. The shining portion of the abdomen is aeneous greenish, the shining bands all wider than in the male and the opaque on the third and fourth segments is interrupted medianly, the shining band on the fourth segment is complete; pile whitish; legs with the tibiae and tarsi more extensively reddish yellow. Squamae tinged with brownish, with brown fringe. Wings slightly clouded beyond the middle.

Holotype, ♂, *Allotype,* ♀, Victoria, B.C., April and May, in the Canadian National Collection, Ottawa.

Paratypes, 3 ♂ s, Victoria, B.C., in the National Collection and the writer's collection.

The male seems very distinct from any described species and is a very dark appearing insect. The almost wholly shining face is very distinctive in both sexes, as are the brownish or blackish wings in the male, and the clouded wing in the female, although this dense coloration may not hold good in a long series. The female resembles *M. obscurum,* etc., but the shining, less prominent face and darkened squamae at once distinguish it from other species.

Melanostoma chilosia, new species

Abdomen (♀) wholly shining; tubercle and oral margin very prominent.

Length, 6.5 mm. al. 5.5 mm. ♀. Face shining black, thinly whitish pollinose, leaving the tubercle and a stripe on the cheeks wholly shining; in profile a little produced to the prominent, rather pointed tubercle, below which it is rather moderately and shortly concave to the not quite so prominent oral tip; face produced very slightly downwards anteriorly. Front deep shining black

broad, with black pile; Pile of head, thorax and abdomen whitish, or a little yellowish on dorsum of thorax. Thorax, scutellum and abdomen shining metallic bluish black. Legs black, knees reddish, anterior four tibiae and tarsi brownish. Squamae and fringe of hairs whitish; halteres yellowish. Wings hyaline. Stigma pallidly yellowish.

Holotype, ♀, Banff, Alberta, (N. B. Sansom), in the Canadian National Collection, Ottawa.

This species is very distinct from any other species I have seen, and is very similar in every respect to *Chilosia* but lacks the facial grooves.

Melanostoma lata, new species

Large; face evenly thinly yellowish gray pollinose; otherwise very much like *M. stegnum* Say.

Length 10 mm. al. 9 mm. ♀. Face and front shining, rather greenish or bluish black, the ground color sub-obscured, except on the tubercle and except a median band on the front, by yellowish gray pollen. In profile the lower part of the face is prominent, and is produced a little downwards, the tubercle about as prominent as the oral margin. Antennae black, third joint brown, about as long as the first two together, its apex evenly rounded; arista brown, not much longer than third joint. Front broad, black pilose; head elsewhere whitish or yellowish pilose. Thorax and scutellum shining deep blue-black, with short, abundant straw-colored pile, the middle of the dorsum with stouter black pile. Abdomen opaque black, the first segment, triangular spots on the anterior half of the second, a broad crossband on the posterior half of the third and fourth segments shining aeneous greenish. Pile of abdomen, where discernible, pallidly straw-colored, but extremely short on the disc. Legs with the femora, except the ends, black, tibiae brown, their bases and ends of the femora yellow; tarsi black, hind basitarsi a little swollen, especially basally. Wings slightly yellowish, the stigma and subcostal cell light brownish.

Holotype, ♀, White Horse, Yukon Territory, July-Aug., 1920, (A. P. Hawes), in the Canadian National Collection, Ottawa.

This species bears a striking resemblance to *M. stegnum* Thoms., but is distinct in the evenly pollinose face, dark haired thorax, darker tibiae; front slightly broader; the opaque crossbands on the third and fourth abdominal segments are entire.

MICROLEPIDOPTERA FROM BRITISH COLUMBIA

BY AUGUST BUSCK,
U. S. National Museum, Washington, D. C.

OECOPHORIDAE.

Carcina quercana Fabricius.

Among a large number of Microlepidoptera determined last winter for Mr. E. H. Blackmore of Victoria, British Columbia, were several specimens of this well known European species, hitherto not recognized outside of Europe and Asia Minor.

The species is a striking form both in structure and in color with long thick light yellow antennae reaching beyond the tips of the bright yellow and purple forewings. The larva feeds, according to European records, in a slight web on the under side of *Quercus, Fagus* and *Pyrus*.

The genus *Carcina* Hubner, of which *quercana* is the type and the only known species belongs to the family *Oecophoridae* and has the following characters: Forewings 12 veins, 7 and 8 stalked; 7 to termen; 3 and 4 stalked; 2 remote from 3. Hindwings 8 veins; 6 and 7 parallel; 3 and 4 connate. Labial palpi long recurved. Antennae longer than forewings, thickened in the males; basal joint with pecten.

The obvious specific identity of the American specimen with the European has been definitely proven by an examination of the genitalia of specimens from both continents.

Fig. 1—Male genitalia of *Carcina quercana* Fabr.

Agonopteryx blackmori new species.

Labial palpi light ochreous; second joint sparsely sprinkled with black exteriorly; terminal joint with ill defined and incomplete black annulation below apex; brush on second joint short, even and divided. Face light ochreous; head slightly darker; a pink streak below the eyes; thorax light ochreous fuscous with divided reddish yellow posterior tuft.

Forewings light reddish ochreous with paler ochreous basal and costal streak, this latter and the entire apical half of the wing sparsly sprinkled with black; a single small but conspicuous black first dorsal spot; a single small whitish second dorsal spot surrounded by brown and rust-red scales which are continued in an longitudinal streak before the end of the cell; apical and terminal cilia and the extreme edge of the wing dark purple. Hindwings light whitish ochreous. Abdomen light ochreous fuscous; underside sprinkled with black dots. Legs ochreous with dusky tarsal joints; anterior tibiae touched with pink.

Alar expanse: 20 to 22 mm.

Habitat: Victoria, B.C., (E. H. Blackmore).

Type, U.S. Nat. Museum No. 23500; *Cotypes* in the National Collection, Ottawa and that of E. H. Blackmore.

This species was reared by Mr. Blackmore from leaf-rolling larvae on Broom and is named in honor of the collector, who has added considerably to our knowledge of British Columbian Microlepidoptera.

The species is nearest to and very close to the European *Agonopteryx costosa* Haworth, which is also a broom feeder. The genitalia are apparently identical, but they are very similar throughout the genus. The species is the American representative of *A. costosa* but must be retained as distinct. The forewings are much more mottled with black and the rosy color of the apical edge in *A. costosa* is replaced by dark purple in *A. blackmori*.

TORTRICIDAE

Cacoecia victoriana new species

Labial palpi light brown, whitish on the inner side. Face, head and patagia light brown. Thorax yellowish. Forewings light ochreous with dark blackish or burnt brown markings; a large, oblique, transverse, dark fascia from before the middle of costa to tornus broadens out triangularly on the middle of the wing to the end of the cell; a small triangular brown costal spot at apical fourth and the base of costal edge dark brown; the terminal veins indicated by brown scales and the terminal part of the wing faintly irrorated by transverse wavy black lines. These latter, as well as the darker scales on the veins are easily lost in flown specimens which appear dirty ochreous on the apical third of the wing. Hindwing very light ochreous, nearly white. Abdomen dark fuscous above with ochreous underside and anal tuft. Sexes nearly the same size.

Mar expanse: 18 to 20 mm.

Habitat: Victoria and Goldstream, B.C., (E. H. Blackmore).

Type, U.S.N.M. No. 23501; *Cotypes* in collection of E. H. Blackmore.

The species is close to *Cacoecia fractivittana* Clemens and very similar in coloration to the female of this species but smaller and with only slight sexual differences in color and size.

GLYPHIPTERYGIDAE

Hilarographa youngiella new species.

Labial palpi white; second joint brown exteriorly; terminal joint with a longitudinal black line on the underside. Face light silvery fuscous. Head and thorax dark purplish fuscous. Forewings dark purplish brown; five outwardly oblique, silvery white costal streaks; edged with black scales; the two first nearly meet two outwardly oblique dorsal white streaks; between these latter a third less pronounced parallel white streak; before tornus two shorter white dorsal streaks; a central longitudinal line from base of the wing and entire apical half of the wing overlaid with golden yellow, between the apical white streaks, which terminates in faint bluish metallic scales; just above tornus a perpendicular row of four small black dots. Cilia bronzy black with a white spot at apex and a white tuft below apex, giving a sinuate effect to the wing. Hindwings dark bronzy brown. Abdomen dark brown above, underside with a broad silvery transverse band on each segment.

Alar expanse: 12 mm.

Habitat: Departure Bay, B.C., (C. H. Young); Victoria, B.C., (W. Downes).

Type in Canadian National Collection, Ottawa; *Cotype*, U.S. National Museum No. 23502.

Named in honor of my friend C. H. Young, who has added very many new records of Microlepidoptera from Canada and whose exquisitely mounted specimens add charm to any collection.

This is the first record of the Glyphipterygid genus *Hilarographa* Zeller, from North America, but *regalis* Walsingham described as a *Glyphipteryx* is also referable to this genus.

The genus has been considered tropical, ranging from India to Africa and best represented in Central and South America; one species is recorded from Japan. The food plant of *Hilarographa regalis* is *Pinus sabiniana* and I expect the present species also feeds on conifers.

Hilarographa Zeller, of which the Central and South American *H. swederiana* Stoll is the type, has the following characters. Labial palpi somewhat flattened, slightly tufted; terminal joint tolerably pointed, about as long as second. Forewing broadly triangular; 12 veins, all separate, 7 to termen, 3 from before the end of the cell, 2 before three-fourths of the cell, 1b furcate at base. Hindwings broader than forewings, triangular rounded, 8 veins, 6 and 7 stalked, 3 and 4 connate.

Male genitalia with 8th segment strongly modified as a covering for the genitalia proper; uncus sharply pointed; aedoeagus long, stout, straight; annulus broadly heartshaped; vinculum narrow.

The genus *Setiostoma* Zeller, type *xanthobasis* Zeller, which was described in this family and which has hitherto been placed close to *Hilarographa* Zeller (according to Meyrick actually a development from it) has no affiliation whatever with this group, but belongs to the family *Stenomidae*, (*not* equal *Xyloryctidae* Meyrick) constituting a typical genus of that family, amply differentiated generically by vein 7 of the forewing to costa, but otherwise with every characteristic of that family. Its wing form and ornamentation indicate that it is probably developed from forms similar to *Stenoma lactis* Busck and *Stenoma orion* Busck.

From the venation and oral characters alone *Setiostoma* may be mistaken for Glyphipterygid, as indeed it has been all along, though careful study of these characters also clearly shows its true relations, but the genitalia give these at once and without doubt.

The genitalia of *Setiostoma* are typical Stenomid in every respect and very different from anything in the *Glyphipterygidae*. The evidence of the genitalia is so clear cut and conclusive that there can be no doubt about the position of the genus. It is one of the very many instances, where the value of the genitalia as an aid in the systematic work becomes apparent to anyone, who will look into the subject even superficially.

YPONOMEUTIDAE

Argyresthia monochromella new species.

Labial palpi dark fuscous. Face golden fuscous. Tuft on head light

reddish yellow, not metallic. Thorax golden fuscous. Forewings unicolored shining golden yellowish fuscous with a slight greenish tint. Hindwings light fuscous with yellowish cilia. Abdomen dark fuscous with yellowish anal tuft. Legs light silvery fuscous.

Alar expanse: 13 mm.

Habitat: Victoria, B.C., (E. H. Blackmore).

Type and *Cotype*, U. S. National Museum No. 23503. *Cotypes* in collection Blackmore.

This striking species may eventually prove to be the only other described N. A. unicolorous species, *A. altissima* Chambers, which was described from Colorado, 11,000 altitude, and the unique type of which I have studied in Cambridge; but aside from the different localities, the present species appears to differ in the strongly yellow head and the more golden metallic color of the forewings and it would be unwarranted to identify it as Chambers' species from present evidence. The present species has veins 7 and 8 of the forewing stalked.

CYGNODOIDEA

Aphelosetia cygnodiella new species.

Labial palpi dark brownish fuscous. Antennae dark brown, basal joint with strong pecten. Head and thorax dark brownish fuscous. Forewing with basal fourth dark fuscous, rest of the wing strongly overlaid with white, the brown appears as irregularly scattered scales; a long blackish brown spot on the middle of the field, a smaller blackish spot at the end of the cell; cilia light fuscous with a blackish brown transverse line near base formed by overlying white black-tipped scales on terminal and apical edges of the wing. Hindwings brownish fuscous with light yellowish fuscous cilia. Abdomen blackish fuscous with small yellowish anal tuft. Legs blackish fuscous.

Alar expanse: 11 mm.

Habitat: Victoria, B.C., (W. Downes).

Type, Canadian National Collection, Ottawa. *Cotypes*, No. 23504 in U. S. Nat. Mus.

The name *Aphelosetia* Stephens must, as shown by Walsingham, be employed for *Elachista* Auctores, type *argentella* Clerk. (Treitschke in part).

The genus belongs to the superfamily *Cygnodoidea* Busck and differs from *Cygnodia* Herr-Sch. in the absence of one dorsal vein of each wing. Vein 7 bis (9) in the hindwing is present in *cygnodiella* Busck, but tends to become obsolete in most of our American species.

NEARCTIC RECORDS FOR SPECIES OF MIRIDAE KNOWN HERETOFORE ONLY FROM THE PALAEARCTIC REGION (HETEROP.)

BY HARRY H. KNIGHT,[1]

University of Minnesota, St. Paul.

During the past few months the writer has been able to obtain a considerable collection of Palaearctic Miridae, besides having opportunity to study a large number of species determined by Reuter and sent to the late Mr. O. Heidemann. The material at hand for comparing Nearctic species with those

[1]Published, with the approval of the Director, as Paper No. 264 of the Journal Series of the Minnesota Agricultural Experiment Station.

*References marked with an asterisk have not been verified in the original.

from the Palaearctic region makes it possible to add nine species to the list of forms common to both regions. Dr. Horvath (1908)[2], in the most important contribution on this subject, records twenty-seven species of Miridae as common to both Palaearctic and Nearctic regions. One of these, *Lygus viridis*, the present writer (1917b)[4] has shown to be different from *viridis* Fallen, and described the form as *Lygus alni*.

In a previous contribution the writer (1917a)[3] recorded three species new to the Nearctic region, gave definite records for two species regarded as doubtful and indicated that *Neobothynotus modestus* Wirtner was in reality *Bothynotus pilosus* (Boheman). The latter opinion has recently been shared by Dr. Bergroth (1920)[5] in a paper where *N. modestus* Wirtner is placed as a synonym of *Bothynotus pilosus* (Boheman), and the species recorded as representing a division of the subfamily Cylapinae.

Of the Palaearctic species recorded from North America a few appear very doubtful and require verification. It has been possible to trace some of the doubtful forms but others are recorded without exact records of specimens, thus it is impossible at the present time to check the determinations. Records for *Cyllecoris histrionicus* (Linn.), *Globiceps flavomaculatus* (Fabr.), and *Macrotylus herrichi* (Reut.) certainly require verification. *Orthotylus diaphanus* (Kirsch.) was recorded by Tucker (1907)[6] on the authority of a doubtful determination by Heidemann. One of these specimens (♂ June, Lawrence, Kans. E. S. Tucker) stands in the Heidemann collection with a determination label by that author which reads "probl. *Orthotylus diaphanus* Kirsch." This form is smaller and has different genital claspers from *diaphanus* Kirschbaum, as determined and figured by Reuter (1883)[7]. The Tucker specimen is most closely related to *translucens* Tucker, but smaller and evidently undescribed.

An examination of European examples of *Reuteria marqueti* Puton and comparison of the genital claspers with those of *Reuteria irrorata* (Say) demonstrates that the two species are not identical. Records for *Oncotylus punctipes* Reuter from North America as based on identifications by Van Duzee and Heidmann, and examined by the writer, refer to *Plagiognathus chrysanthemi* (Wolff). The writer has previously shown that our records for *Mecomma ambulans* (Fallén) refer to *Mecomma gilvipes* (Stal), and the records for *Orthocephalus saltator* (Hahn) may be referred to *Irbisia sp.* and perhaps in part to *Orthocephalus mutabilis* (Fallén).

The present writer is able to account for forty-eight species of *Miridae* which are common to both Nearctic and Palaearctic regions, but of this number he has not seen *Bothynotus pilosus* (Boheman) and *Apocremnus variabilis* (Fallén) Van Duzee.

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71883 Hem. Gymn. Eur., iii, p. 358, pl. 5, fig. 15.

Plagiognathus chrysanthemi (Wolff).

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(?)1788 *Cimex viridescens* Gmelin, Syst. Nat., edn. xiii, p. 2184.
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1860 *Capsus* (*Capsus*) *viridulus* Flor, Rhyn. Livl., i. p. 595.
1861 *Plagiognathus viridulus* Fieber, Eur. Hemip., p. 303.
1865 *Plagiognathus viridulus* Douglas & Scott, Brit. Hemip., p. 401.
1871 *Capsus* (*Plagiognathus*) *viridulus* Thomson, Opusc. Ent., iv, p. 448.
1875 *Plagiognathus viridulus* Reuter, Rev. Crit. Caps., [ii], p. 180; Acta Soc. Faun. Fl. Fenn., i, p. 196.
1875 *Plagiognathus viridulus* Saunders, Trans. Ent. Soc. London, 1875, p. 307.
1878 *Plagiognathus viridulus* Reuter, Hem. Gymn. Eur., i, p. 74, t. 4, figs. 5 et 6.
1878 *Lygus viridulus* Snellen v. Vollenhoven, Hem. Het. Neerl., p. 233.
1883 *Plagiognathus Chrysanthemi* Reuter, Hem. Gymn. Eur., iii, pp. 452, 511.
1886 *Plagiognathus viridulus* Puton, Cat. Hem. Palea., edn. 3, p. 61.
1887 †*Oncotylus punctipes* Provancher, Pet. Faune Ent. Can., iii, p. 149.
1888 *Plagiognathus Chrysanthemi* Reuter, Acta Soc. Sci. Fenn., xv, p. 673, No. 285.
1890 *Plagiognathus chrysanthemi* Atkinson, Cat. Capsidae, p. 171.
1892 *Plagiognathus viridulus* Saunders, Het. Brit. Isds., p. 320.
1899 *Plagiognathus Chrysanthemi* Puton, Cat. Hem. Palea., edn. 4, p. 77.
1909 *Plagiognathus chrysanthemi* Oshanin, Verz. Palae, Hem. i, p. 923.
1912 *Plagiognathus chrysanthemi* Jensen-Haarup, Danmarks Fauna, xii, p. 276.
1912 *Plagiognathus Chrysanthemi* Hueber, Jahr. ver. Nat. Wurtt., lxviii, pp. 212, 219.
1912 †*Oncotylus punctipes* Van Duzee, Can. Ent., xliv, p. 322.
1917 †*Oncotylus punctipes* Van Duzee, Cat. Hemip., p. 404.
1919 †*Oncotylus punctipes* Parshley, Can. Ent., li, p. 72.
1920 *Plagiognathus Chrysanthemi* J. Sahlberg, Bidrag Kann. Finl. Nat. Folk, lxxix No. 2, p. 166.

Specimens examined: MAINE—♂, July 8, 1917, Bar Harbor; ♂ ♀ July 14, 1918, South West Harbor (C. W. Johnson). MASSACHUSETTS—♀ July 8, 1918, Mt. Toby (H. M. Parshley). NEW YORK—♂ July 26, 1916, Ithaca; 14 ♂ ♀ June 23, 6 ♂ ♀ June 30, 5 ♂ ♀ July 5, 16 ♂ ♀ July 7, 1920, Ithaca; 30 ♂ ♀ July 3, McLean (H. H. Knight), breeding on *Chrysanthemum leucanthemum* L. ♂ July 1, ♀ July 5, ♂ July 13, ♂ July 15, ♂ July 20, 1920, Cranberry Lake; 12 ♂ ♀ July 15, 1920 Wanakena (C. J. Drake). ♂ ♀ July 2-3, 1904 McLean. ♂ July 4, Freeville. MANITOBA—♀ "Winnipeg". NOVA SCOTIA—♀ July 19, Annapolis County; ♀ Aug. 14, 1918, Digby County; 3 ♂ ♀ July 4, ♂ July 15, 5 ♂ ♀ Aug. 20, 1916, Smith's Cove (W. H. Brittain). 2 ♂ July 12, ♀ July 31, 1913, Truro (R. Matheson). ONTARIO—♀ July 14, Norway Point, Lake of Bays (J. McDunnough). 2 ♂ 2 ♀ July 1, ♀ Aug. 18, Ottawa (G. Beaulieu). QUEBEC—♂ July 1, ♂ July 3, Montreal, (G. A. Moore). 2 ♀ July 24, Chicoutimi; ♂ July 24, Montreal; ♂ July 26, Rigaud (G. Beaulieu).

The writer obtained the first clew to the identity of this species when nymphs and adults were collected on ox-eye daisy (*Chrysanthemum leucanthemum* L.) at Ithaca, New York, 1920. On finding a Plagiognathus breeding on this European plant the writer thought immediately of *Plagiognathus chrysanthemi* Wolff, and upon returning to the laboratory, turned at once to references of this species and confirmed the identification. More recently the writer has

been able to make a comparison with European material of *chrysanthemi* Wolff and finds our specimens to be identical in all respects.

Psallus alnicola Douglas & Scott.

1865 ‖*Psallus Alni* Douglas & Scott, Brit. Hemip., p. 414. (not Fabricius).
1871 *Psallus alnicola* Douglas & Scott, Ent. Mon. Mag., viii, p. 62.
1875 *Psallus alnicola* Reuter, Bihang Kongl. Sv. Akad. Handl., iii, p. 50.
1875 *Psallus* (*Ps.*) *alnicola* Reuter, Rev. Crit. Caps., [ii] p. 167; Acta Soc. Faun. Fl. Fenn., i, p. 183.
1875 *Psallus alnicola* Saunders, Trans. Ent. Soc. London, 1875, p. 305.
1878 *Psallus alnicola* Reuter, Hem. Gymn. Eur., i, p. 126.
1880 *Psallus alnicola* Reuter, Med. Soc. Faun. Fl. Fenn., v, p. 182.
1883 *Psallus alnicola* Reuter, Hem. Gym. Eur., Suppl. I—III. p. 522.
1886 *Psallus alnicola* Puton, Cat. Hem. Palea., edn. 3, p. 60.
1890 *Psallus alnicola* Atkinson, Cat. Capsidae, p. 160.
1892 *Psallus alnicola* Saunders Het. Brit. Isds., p. 315, pl. 29, f. 8.
1909 *Psallus alnicola* Oshanin, Verz. Palae. Hem., i, p. 906.
1911 *Psallus alnicola* Hueber, Jahr. ver. Nat. Wurtt., lxvii, pp. 406, 440.
1920 *Psallus alnicola* J. Sahlberg, Bidrag Kann. Finl. Nat. Folk, lxxix, No. 2, p. 163.

Specimens examined: NEW YORK—♀ July 26, 1916, Ithaca, on *Alnus rugosa;* ♀ July 27, 1916, McLean (H. H. Knight). MINNESOTA—♂ ♀ Aug. 20, 1920, Beaver Bay (H. H. Knight).

This species was first recognized from an isolated female specimen taken at Ithaca, but in the absence of European material for comparison the writer hesitated to publish the record. Thorough collecting on the same clump of alders at Ithaca, in 1920, failed to produce additional specimens. During the month of August the writer made a collecting trip along the north shore of Lake Superior, having in mind to search for *Psallus alnicola* on alders in that region. The effort was rewarded when the species was found breeding on *Alnus rugosa* at the mouth of Beaver Creek, Beaver Bay, Minnesota, where that small stream empties into Lake Superior. A large series of nymphs and adults were taken, but all from one group of alders which grew at the waters edge. Specimens were found only on branches which received little direct sunlight, and chiefly on the tender growth at the centre of each bush. This requirement of the species indicates that it can breed only under very favorable conditions of humidity and temperature.

Nymphs of the fifth instar are chiefly red, the wing-pads, pronotal disk, antennae, and legs dusky, apices of wing-pads darker; wing-pads, pronotal disk, and dorsal surface of head thickly dotted with small fuscous points and reddish; tibial spines dark, arising from conspicuous black spots; femora dotted with red on ventral surface, a few black points apically, a pair of larger spots on anterior margin and a second pair on the posterior margin near apex.

Megalocoleus molliculus (Fallén).

1829 *Phytocoris molliculus* Fallén, Hemip. Suec., p. 82.
1835 *Capsus molliculus* Herrich-Schaeffer, Nomen. Ent., i, p. 49.
1842 *Capsus molliculus* Herrich-Schaeffer, Wanz. Ins., vi, p. 32, f. 589.
1843 *Capsus molliculus* Meyer, Verz. Schw. Rhyn., p. 78.
1848 *Capsus molliculus* F. Sahlberg, Mon. Geoc. Fenn., p. 103.
1855 *Capsus* (*Leptomerocoris*) *molliculus* Kirschbaum, Jahrb. Ver. Nat. Herz. Nassau, x, p. 240; (Sep.) Rhyn. v. Wiesb., Caps., p. 80.
1860 *Capsus* (*Capsus*) *molliculus* Flor. Rhyn. Livl., i, p. 611.
1861 *Macrocoleus molliculus* Fieber, Eur. Hemip., p. 321.
1865 *Macrocoleus molliculus* Douglas & Scott, Brit. Hemip., p. 387, pl. 12, f. 9.
1871 *Capsus* (*Oncotylus*) *molliculus* Thomson, Opusc. Ent., iv, p. 451.
1872 *Macrocoleus Hardyi* Bold, Nat. Hist. Trans. Northumberland and Durham Soc. iv, p. 358*

1875 *Macrocoleus molliculus* Reuter, Rev. Crit. Caps., [ii], p. 145 ; Acta Soc. Faun. Fl. Fenn., i, p. 161.
1875 *Macrocoleus molliculus* Saunders, Trans Ent Soc. London, 1875, p. 297.
1879 *Macrocoleus molliculus* Reuter, Hem. Gymn. Eur., ii, pp. 226, 305.
1883 *Macrocoleus molliculus* Reuter, Hem. Gymn. Eur., Suppl., I—III p. 537.
1886 *Macrocoleus molliculus* Puton, Cat. Hem. Palea., edn. 3, p. 59.
1890 *Macrocoleus molliculus* Atkinson, Cat. Capsidae, p. 152.
1892 *Megalocoleus molliculus* Saunders, Het. Brit. Isds., p. 303.
1899 *Megalocoleus molliculus* Puton, Cat. Hem. Palea., edn. 4, p. 73.
1909 *Megalocoleus molliculus* Oshanin, Verz. Palae. Hem., i, p. 878.
1910 *Megalocoleus molliculus* Hueber, Jahr. ver. Nat. Wurtt., lxvi, pp. 242, 247; (Sep.) Synop. deut. Blindw., ii, p. 282.
1912 *Megalocoleus molliculus* Jensen-Haarup, Danmarks Fauna, xii, p. 264.
1920 *Megalocoleus molliculus* J. Sahlberg, Bidrag Kann. Finl. Nat. Folk, lxxix, No. 2, p. 157.

Specimens examined: MASSACHUSETTS— ♂ July 16, 1916, ♀ July 28, 1917, Beach Bluff (H. M. Parshley). ♂ July 16, 1916, Beach Bluff (Chris. E. Olsen).

For a considerable period the writer thought this species must belong to the genus *Oncotylus* and not until European specimens of *Megalocoleus* were examined was the identity of the species revealed. Specimens have been compared with a Reuter determination of *Megalocoleus molliculus* and found to be identical. Although Reuter (1883) and Oshanin (1909) separate *Megalocoleus* and *Oncotylus* by the interposition of several genera, the present writer finds considerable difficulty in recognizing any characters which will separate them. Mr. Van Duzee has recently labelled this form as an undescribed species of *Oncotylus,* further indicating the close relationship of these genera.

According to Reuter (1875), the species occurs on *Achillea millefolia* and *Tanacetum vulgare* in Finland.

Orthotylus concolor (Kirschbaum).

1855 *Capsus concolor* Kirschbaum, Jhrb. Ver. Nat. Herz. Nassau, x, pp. 249, 315; (Sep.) Rhyn. v. Wiesb., Caps., pp. 89, 155.
1861 *Orthotylus concolor* Fieber, Eur., Hemip., p. 289.
1865 *Litosoma concolor* Douglas & Scott, Brit. Hemip., p. 340. (in part).
1877 *Orthotylus concolor* Reuter, Ent. Mon. Mag., xiv, p. 128.
1883 *Orthotylus concolor* Reuter, Hemip. Gymn. Eur., iii, pp. 366, 553.
1886 *Orthotylus concolor* Puton, Cat. Hem. Palea., edn. 3, p. 56.
1890 *Orthotylus concolor* Atkinson, Cat. Capsidae, p. 136.
1892 *Orthotylus concolor* Saunders, Het. Brit. Isds., p. 291.
1908 *Orthotylus concolor* Hueber, Jahr. ver. Nat. Wurtt., lxiv, p. 174; (Sep.) Synop. deut. Blindw., ii, p. 156.
1909 *Orthotylus concolor* Oshanin, Verz. Palae. Hem., i, p. 844.

Specimens examined: MASSACHUSETTS– 2 ♂ 3 ♀ July 15 to Aug. 6, 1918, Woods Hole (Chris E. Olsen). These specimens have been compared with European material of *concolor* Kirschbaum and found identical.

In Van Duzee's key[8] to the species of *Orthotylus, concolor* Kirsch. runs to *fraternus* Van D., but from that species it apparently can be separated by the genital claspers and character of the pubescence. In *concolor* the head and pronotum are provided with rather long, coarse black hairs, and covered between by much shorter white silky pubescence, the latter also present to some extent on scutellum and basally on hemelytra. Legs and antennae yellowish green; segment 2 becoming brownish black apically, the last two segments more nearly black. Membrane uniformly infuscated, the veins yellowish to dusky.

[8]Proc. Cal. Acad. Sci., ser. 4, vi, 1916, p. 89.

Blepharidopterus angulatus (Fallén).

1807 *Lygaeus angulatus* Fallén, Mon. Cim. Suec., p. 76.
1829 *Phytocoris angulatus* Fallén Hemip. Suec., p. 80.
1835 *Capsus angulatus* Herrich-Schaeffer, Wanz. Ins., iii, p. 75, f. 292.
1840 *Phytocoris angulata* Zetterstedt, Ins. Lapp., p. 272.
1843 *Capsus angulatus* Meyer, Verz. Schw. Rhyn., p. 89.
1845 *Polymerus (Blepharidopterus) angulatus* Kolenati, Melet. Ent., ii, p. 108.
1848 *Capsus angulatus* F. Sahlberg, Mon. Geoc. Fenn., p. 97.
1855 *Capsus (Cyllecoris) angulatus* Kirschbaum, Jahrb. ver. Nat. Herz. Nassau, x, p 203; (Sep.) Rhyn. v. Wiesb., Caps., p. 43.
1858 *Haetorhinus angulatus* Fieber, Wien. Ent. Monats., ii, p. 313, tab. 6, figs. 8 et 31.
1860 *Capsus angulatus* Flor, Rhyn. Livl., i, p. 449.
1861 *Aetorhinus angulatus* Fieber, Eur. Hemip., p. 285.
1865 *Aetorhinus angulatus* Douglas & Scott, Brit. Hemip., p. 347, pl. 11, f. 4.
1871 *Capsus (Blepharidopterus) angulatus* Thomson, Opusc. Ent. iv, p. 437.
1875 *Aetorhinus angulatus* Reuter, Rev. Crit. Caps., [iii], p. 122; Acta Soc. Faun. Fl. Fenn., i, p. 138.
1875 *Aetorhinus angulatus* Saunders, Trans. Ent. Soc. London, 1875, p. 281.
1883 *Aetorhinus angulatus* Reuter, Hem. Gymn. Eur., iii, p. 400, tab. 1, f. 12.
1886 *Aetorhinus angulatus* Puton, Cat. Hem. Palea., edn. 3, p. 55.
1890 *Aetorhinus angulatus* Atkinson, Cat. Capsidae, p. 132.
1892 *Aetorhinus angulatus* Saunders, Het. Brit. Isds., p. 279, pl. 25, f. 10.
1906 *Blepharidopterus angulatus* Kirkaldy, Trans. Am. Ent. Soc., xxxii, p. 128. (Logotype)
1907 *Aetorhinus angulatus* Hueber, Jahr, ver, Nat. Wurtt., lxiii, p. 254; (Sep.) Synop. deut. Blindw., ii, p. 120.
1909 *Aetorhinus angulatus* Oshanin, Verz. Palae. Hem. i, p. 829.
1912 *Aetorhinus angulatus* Jensen-Haarup, Danmarks Fauna, xii, p. 248, f. 151.
1920 *Aetorhinus angulatus* J. Sahlberg, Bidrag Kann. Finl. Nat. Folk, lxxix, No. 2, p. 143.

Specimens examined: NOVA SCOTIA—2 ♀ Aug. 9, 1919, Halifax, (W. H. Brittain). These specimens have been compared with European material of *angulatus* Fallen and found to be identical. Saunders (1875) records this species as common on alders in England.

Due to some lack of agreement among systematic workers as to what constitutes type fixation, there has been some difficulty in deciding upon the generic name under which *angulatus* Fallén should be known. Kolenati (1845) erected *Blepharidopterus* as a subgenus of *Polymerus* Hahn, including under it three species, *collaris* Fallén, *angulatus* Fallén, and *bimaculatus* Herrich-Schaeffer, but without indicating the type. Fieber (1858), overlooking the work of Kolenati, founded the genus *Aetorhinus* for *angulatus* Fallén (haplotype), and placed the species *collaris* Fallén (= *errans* Wolff) along with *pallidus* Herrich-Schaeffer in his new genus *Dicyphus* (type not indicated). In the same paper Fieber also placed *bimaculatus* Herrich-Schaeffer, by inference along with several other species, in his new genus *Calocoris*. In this disposal of the species it appears that Fieber did not in any way restrict future type selection for *Blepharidopterus* Kolenati (1845). Kirkaldy (1906) designated *angulatus* Fallén as the type of *Blepharidopterus* Kolenati, and this appears to be the first valid type fixation according to the generally accepted rules (Art. 30, Int. Rules Zool. Nomen.).

Globiceps dispar (Boheman).

1852 *Cyllecoris dispar* Boheman, Ofv. Kongl. Vet.-Akad, ix, p 72.
1860 *Capsus (Capsus) dispar* Flor, Rhyn. Livl., i, p. 472.
1861 *Globiceps dispar* Fieber, Eur. Hemip., p. 283.
1866 *Globiceps dispar* Douglas & Scott, Ent. Mon. Mag., ii, p. 249.
1867 *Globiceps dispar* Douglas & Scott, Ent. Mon. Mag., iv, p. 48, pl. 1, f. 4. male, fem.

1871 *Capsus* (*Globiceps*) *dispar* Thomson, Opusc. Ent., iv, p. 436.
1875 *Globiceps* (*Kelidocoris*) *dispar* Reuter, Bihang Kongl. Sv. Vet.-Akad. Handl., iii, p. 29.
1875 *Globiceps* (*K.* [*elidocoris*]) *dispar* Reuter, Rev. Crit. Caps., [ii], p. 120; Acta Soc. Faun. Fl. Fenn., i, p. 136
1875 *Globiceps dispar* Saunders, Trans. Ent. Soc. London, 1875, p. 280.
1883 *Globiceps dispar* Reuter, Hem. Gymn. Eur., iii, pp. 397, 557, pl. 3, f. 1, ♂
1890 *Globiceps dispar* Atkinson, Cat. Capsidae, p. 132.
1892 *Globiceps dispar* Saunders, Het. Brit. Isds., p. 281, pl. 26, f. 2.
1899 *Globiceps dispar* Puton, Cat. Hem. Palea., edn. 4, p. 69.
1900 *Globiceps subalpinus* Strobl, Mitth. Nat. ver. Steiermark, xxxvi (1899), p. 193.
1908 *Globiceps dispar* Hueber, Jahr. ver. nat. Wurtt., lxiv, p. 118; (Sep.) Synop. deut. Blindw., ii, p. 140.
1909 *Globiceps dispar* Oshanin, Verz. Palae. Hem., i, p. 833.
1920 *Globiceps dispar* J. Sahlberg, Bidrag Kann. Finl. Nat. Folk, lxxix, No. 2, p. 144.

Specimens examined: COLORADO—2 ♂ July 16, 1898, Little Beaver (E. D. Ball). NEW HAMPSHIRE—♀ (brachyp.) July 20, Glen House, (C. W. Johnson). ONTARIO—♀ (macr.) Aug. 7, Parry Sound (H. S. Parish).

The present material has been compared with identifications by Reuter and found to be identical. Uhler's description of *angustatus* fits the male of *dispar* in all particulars except one statement: "callosities ..... with a groove between, which is partly occupied by a blunt carina that runs back to posterior lobe." In so far as the writer can learn, *angustatus* Uhler has not been recognized since the description of the species was published.

Douglas and Scott (1867) record *dispar* as occurring at the roots of grasses in damp places.

Teratocoris paludum J. Sahlberg.

1860 †*Teratocoris antennatus* Flor, Rhyn. Livl., i, p. 433. (in part, not Boheman).
1871 *Teratocoris paludum* J. Sahlberg, Not. Sallsk. Fauna Fl. Fenn. Forh., xi, (1870) p. 291.*
1875 *Teratocoris paludum* Reuter, Rev. Crit. Caps., [ii], p. 12; Acta Soc. Faun. Fl. Fenn., p. 28.
1881 *Teratocoris paludum* J Sahlberg, Meddel. Soc. Fauna Fl. Fenn., vii, p. 46.
1890 *Teratocoris paludum* Atkinson, Cat. Capsidae, p. 38.
1909 *Teratocoris paludum* Oshanin, Verz. Palae. Hem., i, p. 777.
1920 *Teratocoris paludum* J. Sahlberg, Bidrag Kann. Finl. Nat. Folk, lxxix, No. 2, p. 135.

Specimens examined: ILLINOIS—♀ June 13, 3 ♀ June 23, Chicago (Wm. J. Gerhard), collected at light. MINNESOTA—♂ Aug. 8, 1910, Koochiching County. 10 ♂ ♀ July 6, 2 ♀ July 9, 1921, University Farm, St. Paul (H. H. Knight), collected at light. NEW YORK—♀ July 22, 1920, Conifer (H. Osborn).

The writer has identified *paludum* by description alone but all other Palæarctic species of the genus are at hand for comparison. In general it is certainly poor policy to record Palæarctic species from North America without having the necessary exotic material for comparison, but in the case of *paludum* the structures and color characters are so distinctive there seems to to be little doubt regarding the identity.

According to Reuter (1875), *Teratocoris paludum* lives on *Carex vesicaria* in Finland.

Megaloceraea recticornis Geoffroy *in* Fourcroy

1775 ‖*Cimex linearis* Fuessly, Verz. Schw. Ins., p. 519.* (not Fabricius).
1785 *Cimex recticornis* Geoffroy *in* Fourcroy, Ent. Paris., i, p. 209.
1807 *Miris longicornis* Fallen, Mon. Cim. Suec., p. 108.
1813 *Cimex linearis* Tigny, Hist. Nat. des Ins., iv, p. 287.*
1829 *Miris longicornis* Fallen, Hemip. Suec., p. 129.

1835 *Miris longicornis* Herrich-Schaeffer, Nomen. Ent., i, p. 47.
1835 *Miris longicornis* Herrich-Schaeffer, Wanz. Ins., iii, p. 43, f. 258.
1843 *Miris longicornis* Meyer, Verz. Schw. Rhyn., p. 37.
1852 *Miris longicornis* Costa, Cim. Regn. Neap. Cent., ii, p. 32.*
1852 *Miris megatoma* Mulsant et Rey, Opusc. ent., p. 126.
1855 *Miris longicornis* Kirschbaum, Jahrb. ver. Nat. Herz. Nassau, x, p. 192; (Sep.) Rhyn. v. Wiesb. Caps., p. 32.
1858 *Megaloceraea longicornis* Fieber, Wien. Ent. Monats., ii, p. 301. (Haplotype).
1860 *Miris longicornis* Flor, Rhyn. Livl., i, p. 434.
1861 *Megaloceraea longicornis* Fieber, Eur. Hemip., p. 243.
1865 *Miris longicornis* Douglas & Scott, Brit. Hemip., p. 289.
1869 *Megaloceraea longicornis* Puton, Cat. Hemip., p. 21.
1871 *Miris* (*Megaloceraea*) *longicornis* Thomson, Opusc. Ent., iv, p. 415.
1875 *Megaloceraea* (*M.* [*egaloceraea*]) *longicornis* Reuter, Rev. Crit. Caps., [iii], p. 6; Acta Soc. Faun. Fl. Fenn., i, p. 22.
1875 *Megaloceraea longicornis* Saunders, Trans. Ent. Soc. London, 1875, p. 260.
1888 *Megaloceraea recticornis* Reuter, Acta Soc. Sci. Fenn., xv, p. 611, No. 207.
1890 *Megaloceraea recticornis* Atkinson, Cat. Capsidae, p. 36.
1890 *Megaloceraea linearis* Bergroth, Ann. Soc. Ent. Fr., for 1890, Bul. p. LXVI.
1892 *Megaloceraea longicornis* Saunders, Het. Brit. Isds., p. 223, pl. 20, f. 6.
1896 *Megaloceraea recticornis* Hueber, Jahrb. ver. Nat. Wurtt., 1, p. 56; (Sep.) Synop. deut. Blindw., i, p. 52.
1899 *Megaloceraea linearis* Puton, Cat. Hem. Palea., edn. 4, p. 57.
1906 *Nostostira* (*Megaloceraea*) *longicornis* Kirkaldy, Trans. Am. Ent. Soc., xxxii, p. 144.
1909 *Megaloceraea linearis* Oshanin, Verz. Palae. Hem., i, p. 772.

Specimens examined: WISCONSIN—2 ♀ June 27, 1914, Madison, (S. B. Fracker), on "foxtail". Probably on *Setaria viridis*, a plant which has been introduced from Europe. These specimens have been compared with European material determined by Reuter and found to be identical.

Adelphocoris lineolatus (Goeze).

1778 *Cimex lineolatus* Goeze, Ent. Beytr., ii, p. 267.
1785 *Cimex albinus* Geoffroy *in* Fourcroy, Ent. Paris, i, p. 208.
1800 *Miris laevigatus* Wolff, Icones Cim., i, p. 36, tab. iv, f. 36. (not Linnaeus).
1804 *Miris laevigatus* Panzer, Faun. Germ., fasc. xciii, f. 21. (not Linnaeus).
1807 *Lygaeus chenopodii* Fallen, Mon. Cim. Suec., p. 74.
1829 *Phytocoris Chenopodii* Fallén, Hemip. Suec., p. 77.
1833 *Phytocoris binotatus* Hahn, Wanz. Ins., i, p. 202, f. 103.
1835 *Capsus chenopodii* Herrich-Schaeffer, Nomen. Ent., i, p. 50.
1835 *Phytocoris bipunctatus* Burmeister, Handb. Ent., ii, p. 270.
1840 *Phytocoris binotatus* Blanchard, Hist. Nat. Ins., p. 137, pl. 5, f. 7.
1843 (?) *Capsus brevicollis* Meyer, Verz. Schw. Rhyn., p. 47, t. I, f. 4.
1843 *Capsus chenopodii* Meyer, Verz. Schw. Rhyn., p. 51 .
1845 *Phytocoris Chenopodii* Kolenati, Melet. Ent., ii, p. 113.
1848 *Capsus Chenopodii* F. Sahlberg, Mon. Geoc. Fenn., p. 100.
1852 *Phytocoris bipunctatus* Costa, Cim. Regn. Neap. Cent., iii, p. 260.*
1855 *Capsus* (*Deraeocoris*) *Chenopodii* Kirschbaum, Jahrb. ver. Nat. Herz. Nassau, x, p. 217; (Sep.) Rhyn. v. Wiesb., Caps., p. 57.
1860 *Capsus* (*Capsus*) *Chenopodii* Flor, Rhyn. Livl., i, p. 501.
1861 *Calocoris chenopodii* Fieber, Eur. Hemip., p. 255.
1865 *Deraeocoris Chenopodii* Douglas & Scott, Brit. Hemip., p. 325.
1871 *Capsus Chenopodii* Thomson, Opusc. Ent., iv, p. 420.
1875 *Calocoris Chenopodii* Reuter, Bihang Kongl. Sv. Vet.-Akad. Handl., iii,p. 13.
1875 *Calocoris Chenopodii* Reuter, Rev. Crit. Caps., [ii], p. 38; Acta Soc. Faun. Fl. Fenn., i, p. 54.
1875 *Calocoris chenopodii* Saunders, Trans. Ent. Soc. London, 1875, p. 270.
1878 *Lygus Chenopodii* Snellen v. Vollenhoven, Hem. Het. Neerl., p. 189, pl. 13, f. 7.
1879 *Calocoris chenopodii* Distant, Sec. Yark. Miss., Rhyn., p. 10.
1880 *Calocoris chenopodii* var. *implagiatus* Westhoff, Jahresb. Westfal. Prov.-Versamml. Kunst., ix, p. 74.*
1886 *Calocoris Chenopodii* Puton, Cat. Hem. Palea., edn. 3, p. 48.

1887 *Calocoris Chenopodii* Reuter, *in* Imp. Soc. Nat. Sci., xxxix,-Turkestan zool. Investig., ii, pt. v, Hemip. pt. I, p. 6.
1888 *Calocoris lineolatus* Reuter, Acta Soc. Sci. Fenn., xv, p. 632, No. 234.
1890 *Calocoris lineolatus* Atkinson, Cat. Capsidae, p. 73.
1891 *Calocoris lineolatus* var. *bisbipunctatus* Reuter, Ofv. F. Vet.-Soc. Forh., xxxiii, p. 189
1892 *Calocoris chenopodii* Saunders, Het. Brit. Isds., p. 243.
1896 *Adelphocoris lineolatus* Reuter, Hemip. Gymn. Eur., v, p. 222 et 379.
1899 *Adelphocoris lineolatus* Puton, Hem. Palea., edn. 4, p. 60.
1899 *Adelphocoris lineolatus* Hueber, Jahrb. ver. Nat. Wurtt., lv, p. 358.
1904 *Calocoris lineolatus* Distant, Fauna Brit. Ind., ii, p. 451, f. 291.
1906 *Adelphocoris lineolatus* Reuter, Ann. Mus. zool. St. Pet., x, p. 10 et 20.
1909 *Adelphocoris lineolatus* Oshanin, Verz. Palae. Hem. i, p. 681.
1912 *Adelphocoris lineolatus* Jensen-Haarup, Danmarks Fauna, xii, p. 214.
1920 *Adelphocoris lineolatus* J. Sahlberg, Bidrag Kann. Finl. Nat. Folk, lxxix, No. 2, p. 116.

Specimens examined: CAPE BRETON ISLAND—3 ♂ 2 ♀ August 1917, Cheticamp, (F. Johansen). The writer has compared the present material with Reuter determinations of *lineolatus* Goeze, finds that the specimens are structurally identical but pertain to variety *binotatus* Hahn.

Stenodema virens (Linnaeus).

1767 *Cimex virens* Linnaeus, Syst. Nat., edn. 12, i, p. 730.*
1908 *Stenodema virens* Horvath, Ann. Mus. Natl. Hung., vi, p. 5.
1917 *Stenodema virens* Van Duzee, Cat. Hemip., p. 304.

This species was first recorded from America by Horvath (1908) but without definite locality. Van Duzee (1917) was unable to add anything regarding the distribution. Since receiving European specimens of *virens* for comparison, the writer has gone over the available material in the genus *Stenodema* and desires to record the following observations. Both the typical *virens* and the variety *testaceum* are represented.

Specimens examined: ALASKA—♀, "Alaska". COLORADO—♀ June 24, ♀ July 10, 1900, Fort Collins. ♀ July 13, 1901, Palmer Lake. ♂ Sept 19, Buena Vista. ♂ Sept. 20, Gunnison. 2 ♂ July 27, Arapahoe Peak, alt. 9,856 ft. (A. C. Burrill). 2 ♀, "Colorado" (Popenoe). MONTANA—♀ June 20, 1906, Bozeman. 2 ♂ 10 ♀ July 18, Park County; ♂ July 31, Missoula (A. A. Nichol). NEVADA—♀ July, Ormsby County (C. F. Baker). OREGON—♀ September, Corvallis. ♂ ♀ Aug. 17, 1920, Portland, (A. A. Nichol). WYOMING—♂ 6 ♀ July 20-25, 1920, Yellowstone Park (A. A. Nichol).

The writer is quite convinced that *Miris instabilis* Uhler (1875) should be referred to *virens* Linnaeus rather than to *Stenodema vicinum* (Provancher). This view is supported by the fact that the original description and figure given by Uhler, fit *virens* Linnaeus more closely than is true of *vicinum* Provancher. To this it may be added that no specimens of *Stenodema vicinum* (Provancher) have been seen which came from Colorado, while *virens* is apparently rather common.

Orthocephalus mutabilis (Fallén)—At Ithaca, New York, during the last week of June and the first week of July, 1920, the writer took several more specimens of this species, finding them on ox-eye daisy (*Chrysanthemum leucanthemum*) in company with *Plagiognathus chrysanthemi* Wolff. *Mutabilis* was found most abundant on the Cornell University campus and farm land belonging to the College of Agriculture. Mr. J. L. Frank took one specimen July 4, at Owego, New York.

Mailed Saturday, March 25th, 1922.

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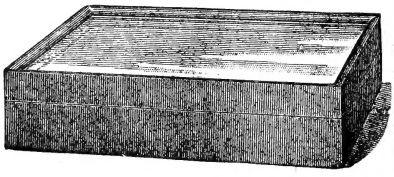

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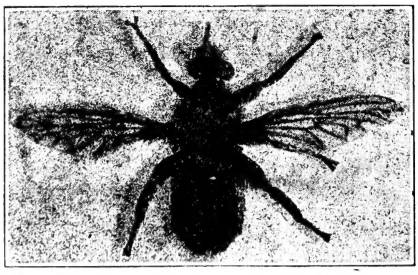

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