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NOTES ON COLEOPTERA—NO. 10

BY JOHN HAMILTON, M. D., ALLEGHENY, PA.

Platynus reflexus, Lec., and variety *a*.—This species may be found in some abundance when sought for in its natural habitat: under stones in the bed of nearly dry hill-side streams and the debris along their banks, June being the time of its greatest abundance. In Dr. Leconte's synopsis of *Platynus* (Bull. Brook. Ent. Soc., II.) a variety is noted as *a*, with four elytral punctures, while *reflexus* has but three—nothing further being stated. This form occurs here, not as an individual variation, but at least as a race, perhaps a species. It is more elongate, narrower and smaller than *reflexus*, the latter being from .44 to .48 inch. in length, while the variety *a* is from .35 to .38 inch.; the head is narrower and longer behind the eyes, and a little longer than the thorax; the thorax is narrower, less rounded on the sides, more gradually narrowed to base and about as long as wide; the base of the elytra is less emarginate, and the humeral angles more obtuse; the general colour is much less piceous. These comparative differences, it will be seen, enable these forms to be separated at sight. The anterior three elytral punctures are usually placed at uniform distances, either in the third stria or on the external side of the third interval, though the third is occasionally placed on the internal side of this interval; the fourth puncture is situated in the second stria about one-fifth from apex—sometimes on inner side of the third stria. There are now before me twelve examples of *reflexus* and twenty of var. *a*. While *reflexus* is liable to turn up in any spring run during the summer, I know of only one locality for var. *a*—that from which the above examples were taken May 4th. This is in the bed of a spring run which is dry all summer except during a rain. Whether this form occurs elsewhere is unknown, and it is probable the examples seen by Dr. Leconte came from here.

Liparocephalus brevipennis, Mæk., Bull. Mosc., 1853, 192.—The examples on which this species as well as genus were founded were taken

on the coast of the Island of Chtagaluk, under sea drift. When Dr. Leconte reviewed the genus (Tr. Am. Ent. Soc., VIII., 177,) there was before him a small male example from Unalashka, also a male from the coast of Mendocino, Northern California; and on the latter a species was erected, the two forms being separated thus:—

“Head not wider than the prothorax, which is feebly narrowed behind, and not sinuate on the sides; basal angles obtuse, rounded, length 2.7 mm. [that of type 2 lin=, 1775 *inch.*]—*brevipennis.*”

“Head wider than the prothorax, which is strongly narrowed behind, with the sides subsinuate near the base; basal angles rectangular, very slightly rounded; 3.6 mm.—*cordicollis.*”

There are before me 3 ♂ and 2 ♀ examples of *brevipennis*; one of the males has the head scarcely as wide as the thorax, another subequal to and a third greatly wider; in this example the thorax is narrowed to two-thirds at base, with the angles somewhat rectangular; in the others as well as in the females it is more or less narrowed, with the basal angles varying from obtuse to strongly rounded. The females have the head and thorax subequal and the last ventral segment rounded. In both sexes the dorsum of the thorax is widely arcuate, and more or less deeply concave from the base to the middle. The characters relied upon by Dr. Leconte to establish his species seem to be inherent also in Mæklin's. These examples are from the Queen Charlotte Islands, the fauna of which, judging from the portion of it seen, or lately recorded, appears to be identical with that of the neighboring Alaskan Islands.

Dendrophagus glaber, Lec.—An example of this wide spread northern species occurred here in April of this year, and I saw another taken near the same time in Elk County, Pa.

Brontes dubius, Fab., *truncatus*, Mots., and *debilis*, Lec.—Mr. T. L. Casey (Tr. Am. Ent. Soc., XI., 99) says of *debilis*: “This is the common northern species, while *dubius* is more plentiful at the South.” This remark, which is probably a clerical error, is occasioning trouble among a certain class of collectors who have Mr. Casey's paper. The fact seems to be the reverse. While *dubius* is excessively abundant here and northward, *debilis* has not occurred, neither is it on any of the northern catalogues, with one exception, which examples from its author show to be an error. I cite Leconte in Agaz. Lake Sup., No. 61 (Hamilton and Henshaw's Cat.); Harrington, No. 34; Brodie and White, No. 12;

Hubbard and Schwarz, No. 54; Reinecke (§ *debilis*), No. 107; Dury, No. 27,—all the Canada label lists. If Mr. Casey's statement cited is not an error, the localities of its northern distribution are not on record.

B. debilis was described from Georgia, with the remark: "not rare."

B. truncatus, Mots., from Alaska and California, is very easily separated from the other species, and, though catalogued as a variety, seems to be as good a species as *debilis*. The name *truncatus* is sometimes applied to certain individuals of *dubius* in which there is an evident sinuosity at the apex of the elytra, but this is different from that in the true *truncatus*, and other secondary characters are absent.

Rhopalophora longipes, Say, and *R. Meeskei*, Casey, (Ann. w. Y. Acad. Sci. VI., 30.—*R. longipes* occurs here occasionally in June; when found it is in abundance, and twenty-eight examples are before me. There are also before me from St. Fe Canon, N. M., seven examples of what Mr. Casey describes as *R. Meeskei*, but which can scarcely be considered more than a slight geographical variation of *longipes*. Although Mr. Casey states he had before him a good series of *longipes* from Indiana, it could not have been such a miscellaneous lot as is before me or he would scarcely have written the conspectus.

"Prothorax narrow, truncate at base, not impressed dorsally.—*longipes*."

"Prothorax broader, feebly biimpressed dorsally, broadly, strongly emarginate at base; form more robust.—*Meeskei*."

The twenty-eight examples before me exhibit great instability in length, breadth and sculpture of the thorax; in some of the ♂♂ it is fully one-third longer than wide, and in others, both ♂ and ♀, subequal; in the majority of individuals of both sexes however it is evidently longer. As to sculpture, all the individuals have a wide constriction at apex occupying about one-third of the length of the thorax, and more or less evident, which is sometimes interrupted at middle by a dorsal subcarina; the transverse basal impression is narrow, and in all there is an obtuse tubercle on each side behind the middle more or less prominent. Some individuals have a carina between these tubercles extending from near the base to the apical constriction, often continued forward obtusely; on each side of this carina is a broad oblique impression which connects behind the carina with the other and the transverse basal; the tubercles mentioned are situate behind this discal impression and appear more or less elevated according to its depth; the punctuation becomes coarser as

the sculpture of the thorax becomes deeper; the lines of pubescence are too variable to be considered, and the truncation, or emargination of the base of the thorax in a large series is evanescent.

In a systematic point of view the separation of these forms into species seems inadmissible. Remove the locality labels from a mixed lot, sufficiently numerical, and how all could be replaced again with certainty is not evident.

Psenocerus supernotatus, Say, and *P. tristis*, Casey.—This last seems to be the black form of *supernotatus* mentioned (CAN. ENT., XVIII., p. 13) as found on wild gooseberry (*Ribes Cynosbati*). In comparing the only example of this form left with Mr. Casey's description (l. c. 46) it seems to apply very fairly; the elytral basal tumidity is, perhaps, a little more pronounced, but this can scarcely be considered essential, as this is quite obsolescent occasionally in examples of *supernotatus*. I once supposed this might be a species, but a study of the variableness of *supernotatus* in connection with the colour changes in *Clytanthus albofasciatus*, *Cyrtophorus verrucosus*, etc., led to a different result.

Sphænothecus suturalis, Lec., and *rubens*, Casey (l. c. 34).—The latter is a form which has been distributed as a variety of *S. suturalis*, being identical in form, size and colour, and chiefly differing by the nature of the thoracic and elytral punctuation. The few examples seen do not connect by intermediate forms, though in a large series, judging from what occurs in some other Cerambycidae, as *Leptura canadensis*, such may exist. They are easily separable, the most reliable method being to observe the difference of the elytral punctuation. Whether systematists may regard this form as varietal, racial, or truly specific, collectors hereafter can give it a name. My examples are labelled "El Paso, Tex."—Casey, Southern Arizona and California. *Suturalis* was described from the Staked Plains, now probably in Lincoln Co., N. M. My examples, Deming, N. M.—Casey, Tucson, Arizona.

Leptura serpentina, Casey (l. c. 41), greatly resembles *3-balteata*, Lec., but examples from Idaho exhibit it clearly a valid species, which is readily separable by its rufous antennæ.

Orsodachna atra, Ahrens.—This species has always been perplexing to inexperienced collectors; no other on the list presents more variety in size, sculpture and ornamentation. It varies from .13 to .30 inch in length; the sculpture of the thorax and elytra may be rough and with coarse punctures, or smooth and finely punctate; the colour varies from

entirely piceous black to entirely yellow through all modifications of these colours, the elytra may be vittate, maculate, or unicolorous. A recent study by Dr. George H. Horn gives the first intelligent account of the species as a whole. He mentions six varieties by name separated for convenience by colour characters, though others are not wanting, and there may possibly be two others entitled as validly to the same rank. It is distributed generally from the Atlantic to the Pacific and far northward. Here the species appears in April on wild plum, and later on pear and apple blossoms where the trees are near a wood or forest. Two varieties occur together at this time, neither of which seems to be as mature as the individuals taken later in the season. One of these is the pale or dusky form of *atra*, which is assumed to be the entirely black form with a rough uneven thorax, often with some small, smooth facets. This form is taken sparingly by bush beating as late as August; it is usually coarsely sculptured, and one large example has three evident costal lines on the elytra; all the spring brood of whatever colour with the uneven rough thorax are referred to this variety. The other is the typical *hepatica*, Say, "head black, thorax rufous, elytra brownish." This is as abundant as the brown form of *atra*, and can best be separated from it by the comparative evenness and smoothness of the thorax; later, by beating, an apparently maturer form is taken with the elytra piceous black and the thorax orange-red, named by Newman *ruficollis*; without care this form may be readily overlooked in collecting, from its resemblance to *Corphyra terminalis* with which it frequently occurs. No black example of this variety have been observed.

Of the var. *vittata*, Say, few examples have been seen; the thorax is rougher than in *hepatica*, but less so than in *atra*, is shorter than in either, and entirely rufous; the elytra are piceous with a narrow dorsal stripe, yellow,

The var. *armeniaceæ*, Germ., is not common; in it the thorax is entirely piceous black, as rough as in *atra* and more convex, narrower to base and apparently more elongate; the elytra are narrow, piceous, with a uniform moderately wide dorsal vitta yellow. Length, .26 in. This is a fine variety; none of the others mentioned by Dr. Horn have occurred here.

Of var. *childreni* many examples have been seen from New Mexico, Colorado and Vancouver Island; in general it is less coarsely punctured than the forms mentioned; the colour is perhaps more variable, there

being pale, piceous and vittate forms; from Vancouver I have two examples, one entirely luteous yellow, the other piceous black. An example from New Mexico differs greatly from any of the varieties mentioned by Dr. Horn. The surface of the thorax is entirely smooth, even, polished and shining; convex, sparsely and finely punctured; the elytra are also smooth and shining with a fine but sparse punctuation; the antennæ are ferruginous, and the legs variegated with pale and fuscous. General colour of the insect chocolate-brown. Length, .29 inch. Set beside the *atra* of the same size with semi-costate elytra, it is difficult to believe them to belong to the same species.

Zeugophora consanguinea, Cr.—This is a form of *varians* in which the thorax is entirely rufous. In collecting *varians*, perhaps one example in twenty will be so coloured. I do not know of its occurrence except with *varians*.

Bruchus obsoletus, Say, *B. rufimanus*, Bohm., *B. lentis*, Bohm.—The American history of these unwelcome foreigners has been presented in a very masterly and satisfactory manner by Mr. J. A. Lintner (Seventh Rep. on the Injurious and other Insects of the State of N. Y., 1891). *B. rufimanus*, it appears, is not known to be naturalized, though bred twice, or oftener from peapods or beans brought from Europe, and is the *B. granarius* of Mr. Fletcher's Report (1888). *B. lentis* occurred at Buffalo, N. Y., in a provision store where imported lentils were kept on sale, and was distributed to cabinets under the name of *B. rufimanus*, but did not acclimate. *B. obsoletus*, Say, is discussed in twenty-five pages. It was first discovered at Providence, R. I., in 1860. The beans supplied to the soldiers of the armies during the war of the Rebellion were largely infested with it. It spread slowly westward to and beyond the Mississippi and northward but is not known to have entered Canada so far, Mr. Lintner. *B. obsoletus* was prevalent here several years ago, but has entirely disappeared, none having been observed by cultivators in its old haunts for about five years. No means of extermination, nor to prevent its spread, were employed. It is certainly extinct here. That it may likewise become extinct from climatic causes, at least in the Northern States, is far from improbable. According to Mr. A. Fauvel this *Bruchus* is of Neotropical origin and native in Central and South America. This clearly accounts for its non-acclimatization in Canada, and holds out a hope of its eventual extinction here. Through favouring conditions it was spread very widely, but except in a few localities it is

now scarcely known. Some climatic condition may likely make it a thing of the past. How, whence, and when it was introduced along the Atlantic sea coast is unknown; it could scarcely have been from Europe, as it is little known there where it is a very recent importation. If the "buggy" beans fed to the soldiers in the North and South during the war of the Rebellion were raised in these respective regions, it is evident the insect must have been widely spread previously to 1860; if beans were imported in large quantity, it would shed much light, were the countries known from which they had been brought. It is quite probable the present invasion is not the first visit this insect has made to North America, but on any former occasion it could not have met with so good entertainment. Through commercial intercourse with southern countries it probably reached Louisiana during the first part of the present century, and was transported northward as far at least as the State of Indiana, where Say found it. Whether the insect described by Say was the same species, which depredates on beans is sometimes questioned, because the examples from which he made the description were obtained from the seeds of a something he terms *Astragalus*. His description is, however, so applicable in many points to the bean *Bruchus* that had he written "obtained from beans," the question would likely never have been raised. Besides it is neither food habits nor locality which constitutes a species. What Say meant by an *Astragalus* is uncertain, probably the *Wistaria frutescens*, as none of the species of the genus *Astragalus* as now constituted, which grows in that part of Indiana has seeds sufficiently large to breed the insect. Much more might be said. Suffice it to say that if the examples Say described belonged to the foreign species, that species existed there only temporarily, and long ago disappeared, as it has certainly lately done from this locality. If it is a native species, then it is almost certainly in existence in that part of Indiana, depredating as in Say's time on *Astragalus*, whatever that may be. To reject Say's name before a species of *Bruchus* shall have been found in Indiana raised from some native Siliquose plant or tree to which his description shall apply as well or better, would seem, to say the least, an arbitrary and unnecessary proceeding.

This species is now widely distributed through the warm countries of the globe: Central and South America, West India Islands, Madeira, the Canaries, the Azores, the countries of Europe, Africa and Asia bordering the Mediterranean, Persia, etc.

A NEW SPECIES OF EUDAMUS.

BY HENRY SKINNER, M. D., PHILADELPHIA, PA.

Eudamus coyote: Expands $2\frac{1}{8}$ inches. Primaries dark glossy brown, several shades darker than *Eudam. bathyllus*; fringes of same colour as the wings. The apices of the wings run more to a point than in other species of the genus. There are no markings on the primaries, although there are some very faint indications of markings, which are not brought out by transmitted light. Secondaries immaculate and same colour as primaries, but with well marked dirty white fringes. The secondaries are not tailed but are somewhat pointed as in *E. epigena*. Underside: Primaries lighter in colour than above with some light coloured scales along the costa which faintly indicate a spot about the middle of costal margin; directly below this in the cell is another very faint spot. There are three dark spots between the subcostal nervules, extending downward in a row and about an $\frac{1}{8}$ inch from the exterior margin, the upper spot not being in an exact line with the two lower ones; just below these, but further from the margin are three others in the spaces between the discoidal nervules. These spots are lighter coloured in the centre and the central spot of the three is not in line with the other two but nearer the body of the specimen. These spots are not very well defined and vary somewhat in the individuals. Fringes same colour as wings. Inferiors are crossed by two bands of darker colour which are about $\frac{1}{8}$ th in. in width and they extend from costal margin almost to the inner margin; the upper band is broken by having one of its spots in the cell and above this in the cell is another dark spot. The fringes are white as above and the white terminates at junction of exterior and inner margins; fringes on inner margin are very dark, almost black, as is also the point of the wing and adjacent parts. Body, head, legs, etc., dark brown; palpi distinctly gray; there is a gray white line made up of short hairs, extending around the under side of the eyes. Described from five specimens from Southern Texas in collection of author. The specimens are not in very good condition and the description is taken from the most perfect one.

NOTES ON NORTH AMERICAN TACHINIDÆ, WITH DESCRIPTIONS OF NEW GENERA AND SPECIES.—PAPER VI.*

BY C. H. TYLER TOWNSEND, LAS CRUCES, NEW MEXICO.

This paper contains descriptions entirely of Southern New Mexican forms, with the exception of two from the State of Chihuahua, Mexico.

Sarcomacronychia sarcophagoides, n. sp. ♀.

Eyes brown; frontal vitta narrow, blackish, front one-fourth width of head; sides of front, face and cheeks silvery-white; the double rows of frontal bristles nearly equal; vibrissæ distinct, short, decussate, inserted well above oral margin; antennæ and arista blackish, second antennal joint slightly rufous at ends, third one and a-half times as long as second; proboscis black, labella brown; palpi slender, brown; occiput cinereous, short black-bristly. Thorax, scutellum and abdomen cinereous, more or less faintly brassy, with three blackish vittæ, the middle one continued over scutellum and abdomen, the lateral ones more or less distinct on sides of scutellum and more broadly and irregularly continued on sides of abdomen to anal segment, the abdomen more distinctly brassy or golden, anal segment wholly rufous, deep golden pollinose at base, hind margin of third rufous; humeri and pleuræ silvery-whitish; second segment with a pair of median marginal macrochaetæ, third with a marginal row of twelve or more, anal with about four marginal. Legs black, femora silvery on outside, claws and pulvilli a little elongate, pulvilli whitish. Wings hyaline, veins more or less brownish, tegulæ white; halteres rufous, knobs yellowish.

Length of body, $7\frac{1}{2}$ mm.; of wing, 5 mm.

Described from one specimen; Las Cruces, New Mexico. June 9. This species bears a striking superficial resemblance to one of the smaller *Sarcophagidæ*.

Brachycoma chihuahuensis, n. sp. ♂.

Eyes brown; frontal vitta dark brown; front about one-third width of head, frontal bristles in a single row descending to base of third

* Paper I. was published in Proc. Ent. Soc., Wash., II.; papers II. and III. in Trans. Am. Ent. Soc., XVIII. and XIX.; paper IV. in Ent. News, III.; paper V. in CAN. ENT., XXIV.

antennal joint, no orbital bristles; sides of front, sides of face and occipital orbital margins silvery-white; facial depression and cheeks silvery-gray; cheeks pubescent, facial ridges bare save some weak depressed bristles above vibrissæ; antennæ entirely light rufous, arista brown, third antennal joint hardly twice as long as second, quite peg-shaped; proboscis fleshy, shorter than height of head, blackish, palpi pale rufous; occiput cinereous, gray-hairy. Thorax cinereous, with five black vittæ, the middle one arising at suture, the outer ones rather heavier than the inner pair; scutellum rather silvery, testaceous or tawny at apex. Abdomen shining black, anal segment rather dark rufous, whole abdomen faintly cinereous pollinose. Legs black, claws and pulvilli elongate, pulvilli fuscous. Wings grayish-hyaline, veins tawny; tegulæ white, halteres tawny.

Length of body, fully 8 mm.; of wing, 6 mm.

Described from one specimen; Chihuahua, Mexico. Mex. Cen. R. R., August 4. This specimen apparently shows a very faint rufous tinge on sides of abdomen.

Hypertrophocera parvipes, Twms. Trans. Am. Ent. Soc., XVIII. A specimen taken June 26, Las Cruces, N. M., was damaged by moisture. It shows scutellum and abdomen wholly rufous, except a heavy median black vitta on latter. It measures $6\frac{1}{2}$ mm.

EUCNEPHALIA, n. gen.

Facies of *Cnephalia*, with head (except arista) of *Gonia*. Belongs in *Phoroceratinae*. Head rather quadrilateral in profile. Front (♀) one-half width of head, narrower at vertex, face a little wider; frontal bristles in two rows, descending about to base of third antennal joint, with smaller bristles among them which are continued in broken rows on the wide sides of face and cheeks, as in *Cnephalia*; two orbital bristles (♀). Face nearly perpendicular, epistoma prominent; facial depression a little more than one-third width of face, shallow; facial ridges with bristles more than half way up, constricted considerably above oral margin where the short decussate vibrissæ are inserted; sides of face very wide, cheeks nearly two-thirds eye-height. Eyes bare. Antennæ inserted above median line of the eyes, shorter than face, second joint slightly elongate, third about three times as long as second; arista shorter than third antennal joint, thickened its whole length, bare, 3-jointed, second joint elongate. Proboscis shorter than height of head, rather stout but not fleshy,

labella present; palpi long, rather slender, thickened and curved at tip. Thorax and abdomen not quite as wide as head; scutellum with a strong sub-apical and two strong lateral pairs of macrochaetæ, and a shorter discal pair. Abdomen elongate oval, not flattened, first segment a little shortened; macrochaetæ only marginal. Legs moderately long, femora rather stout and bristly, middle and hind tibiæ spiny; claws and pulvilli of ♀ a little elongate. Wings longer than abdomen, without costal spine, third vein bristly at base; apical cell open, terminating before tip of wing; fourth vein bent at obtuse angle, with a wide, shallow wrinkle at bend appearing as a slight cloud, apical cross-vein a little concave; posterior cross vein curved or sinuate, nearer to bend of fourth. Type *E. gonoides*, n. sp.

This genus differs from *Cnephalia* in the character of the antennæ and arista, and in the facial ridges being bristly. It differs from *Frontina* in having the sides of face bristly, as in *Cnephalia* and *Gonia*.

Eucnephalia gonoides, n. sp. ♀.

Eyes light brown; frontal vitta brownish; sides of front, face and cheeks silvery white; antennæ pale rufous, blackish on apical half more or less of third joint, arista black; proboscis blackish, palpi light rufous; occiput silvery, rather thickly clothed with yellowish gray hair. Thorax silvery pollinose, with five narrow black vittæ, the middle one obsolete in front, the inner pair obsolete a little behind suture, others reaching scutellum, eight rows of macrochaetæ on thorax; scutellum silvery pollinose, blackish at base, testaceous at tip. Abdomen black, reddish on sides of first to third segments, second to fourth segments silvery-white pollinose except the more or less narrow posterior margins; first two segments with one lateral macrochaeta and a median marginal pair; third with a marginal row of ten or twelve; anal segment with a marginal row of eight or ten; venter reddish, with median vitta and anus blackish. Legs black, femora silvery below, tibiæ with spiny macrochaetæ except front ones, claws and pulvilli only a little elongate, pulvilli yellowish fuscous. Wings grayish, tegulæ white, halteres brownish.

Length of body, $9\frac{2}{3}$ mm.; of wing, $7\frac{1}{2}$ mm.

Described from one specimen; Dona Ana County, New Mexico. Apache Canon. Oct. 18.

Rhinophora valida, n. sp. ♂.

Eyes brown; frontal vitta light rufous, front narrowed before ocelli to

about one-fifth width of head; sides of front, and face silvery-white; cheeks long and wide, compressed, silvery cinereous behind, pale rufous anteriorly, the under side of head below eyes having a singularly narrowed and elongate appearance in front view; antennæ and arista black, first two antennal joints and base of third light rufous, arista long pubescent; proboscis blackish, labella light brownish, palpi pale yellowish rufous; occiput silvery cinereous. Thorax and scutellum silvery cinereous. Abdomen black, silvery cinereous, hind margins of segments usually blackish; second segment with a median marginal pair of macrochaetæ, third with a median discal pair, anal segment armed with discal and marginal macrochaetæ and bristles. Legs blackish, front femora slightly silvery cinereous, claws and pulvilli elongate, pulvilli tawny fuscous. Wings grayish-hyaline; veins blackish, especially cross-veins; apical cross-vein sinuate, fourth vein bent at an angle with slight stump at bend, hind cross-vein very near to small cross-vein; tegulæ nearly white, halteres yellow.

Length of body, 4 mm.; of wing, nearly $3\frac{1}{2}$ mm.

Described from one specimen; Las Cruces, New Mexico. San Andreas Mts. August 21.

Rhinophora mexicana, n. sp., ♂.

Eyes light brown or dark brown; frontal vitta deep blood-rufous, front about two-ninths width of head behind, wider in front, face widening at about same angle: sides of front, sides of face and facial depression silvery-white, more or less golden on front, the sides of face with some bristles which are longest below, frontal bristles not descending below antennæ, no orbital bristles; cheeks nearly all comprised in the rufous-brown pregenal area, which is always bare; antennæ short, pale rufous or yellow, the third joint almost wholly or only at tip blackish, little longer than second; arista blackish, pubescent; proboscis brownish, about as long as height of head, palpi small, yellow; occiput cinereous, somewhat brassy or golden, black-bristly. Thorax and scutellum silvery-gray pollinose, more or less golden, with four darker vittæ interrupted at suture. Abdomen silvery-gray pollinose, more or less distinctly golden, first segment blackish at base; first segment with a lateral macrochaeta and bristles; second with a lateral marginal pair, usually a weaker lateral discal one or two, and a median marginal pair; third with several lateral discal ones and a more or less complete marginal row; anal segment with a more or less regular discal and marginal row. Legs black, femora more or less

silvery, tibiæ bristly, claws and pulvilli elongate, latter smoky tawny. Wings grayish-hyaline, transverse and fourth veins black, other veins more or less tawny; tegulæ nearly white, halteres light rufous.

♀.—A specimen which I take to be the female of this species differs in having no golden shade, except very faintly on scutum; the front is hardly one-fourth width of head, and there are no orbital bristles. Macrochaetæ hardly as thick; claws and pulvilli scarcely shorter.

Length of body, ♂, 5 to $6\frac{1}{3}$ mm.; ♀, $6\frac{1}{3}$ mm.; of wing, ♂, $4\frac{1}{2}$ to $5\frac{1}{2}$ mm.; ♀, $5\frac{1}{2}$ mm.

Described from six males and one female; Las Cruces, N. Mex. June 3.

Leucostoma neomexicana, n. sp. ♂.

Eyes brown; frontal vitta velvety black; sides of front, face and cheeks silvery-white, the sides of front shading to dark, epistoma whitish; antennæ and arista black, the third antennal joint no longer than second; proboscis about as long as height of head, blackish, labella brownish; palpi rufous yellow; occiput black, black-hairy. Thorax and scutellum dark bluish-black, shining. Abdomen shining black, last two segments thinly silvery pollinose; first segment with a lateral pair and a median marginal pair of macrochaetæ, other segments with a marginal row; whole abdomen clothed with long macrochaeta-like bristles, making the real macrochaetæ difficult to distinguish, whence the first segment might almost be said to have a marginal row. Legs black, claws and pulvilli elongate, pulvilli silvery. Wings almost hyaline, veins tawny at base; tegulæ very large, pure white; halteres blackish.

Length of body, $4\frac{1}{2}$ mm.; of wing, nearly 4 mm.

Described from one specimen; Las Cruces, New Mexico. June 29. This species has the third antennal joint no longer than the second, and is therefore distinct from the species described by v. d. Wulp and doubtfully identified by him as *L. analis*, Meig. (Biol. C.-A. Dipt. II.). His species is perhaps a *Leucostoma*, but the second species, *L. gravipes*, v. d. W., is probably a *Phyto*. *Leucostoma* should be restricted to the smaller species with unusually large tegulæ.

Phyto nigricornis, n. sp. ♂.

Eyes very dark brown; frontal vitta soft black, sides of front shining black, more or less silvery, the front about one-third width of head in middle; face and cheeks black, thinly silvery pollinose, the cheeks black hairy and with brownish pregenal area; frontal bristles rather thick and strong, no orbital bristles; vibrissæ inserted considerably above oral margin, strong, decussate; antennæ and arista black, second antennal joint brownish, third joint no longer than second; proboscis black, labella brownish, palpi light rufous; occiput black, more or less silvery or cinereous, black-hairy. Thorax shining black, very faintly, almost imperceptibly, grayish pollinose; scutellum black. Abdomen shining black, first segment faintly, others more distinctly, yet thinly, silvery or grayish pollinose; first segment with two or three lateral macrochaetæ and four median marginal ones, segments two to four with a marginal row; hypopygium more or less exserted. Legs black, rather stout, claws and pulvilli elongate; claws blackish, pulvilli smoky-whitish, black at base. Wings grayish-hyaline, slightly tawny at base, veins brownish; tegulæ whitish, shining, borders narrowly tawny; halteres rufous, knobs blackish.

♀.—Front about one-third width of head but nearly equilateral, while in the ♂ it is much wider before than at vertex; two orbital bristles. Abdomen terminated by a forceps, the whole abdomen shining black, not pollinose; the macrochaetæ weaker, and second segment with same number as first. Claws and pulvilli much shorter, yet somewhat elongate.

Length of body, ♂, 5 to 6 mm.; ♀, $4\frac{1}{2}$ mm.; of wing, ♂, 4 to 5 mm.; ♀, $3\frac{1}{2}$ mm.

Described from seven males and one female; Las Cruces, New Mexico. One male taken Sept. 20, all the others Oct. 25.

MUSCOPTERYX, n. gen.

Belongs in *Phytoinae*. Head more or less rounded in profile. Front of ♂ averaging about one-third width of head, gradually widening from vertex forward, face widened at same angle; frontal bristles in single row, descending on sides of face not quite to lower border of eyes, those on front stronger, vertical bristles strongest and, with next pair, directed

backward, others more or less forward, inward, decussate ; two orbital bristles in ♂. Face somewhat receding, epistoma not prominent ; facial depression about one-half width of face, shallow ; facial ridges bare except a bristle or two next vibrissæ, latter rather strong, decussate, inserted at a very slight constriction of the ridges a little above oral margin ; sides of face of moderate width, bare except for frontal bristles ; cheeks hardly one-fourth eye-height, bare except row of bristles on lower margin. Eyes thinly hairy. Antennæ short, hardly two-thirds length of face, second joint slightly elongate, third joint hardly as long as second, rounded ; arista thickened on basal third, nearly bare, apparently two-jointed, basal joint short. Proboscis short, about two-thirds height of head, fleshy, part below geniculation hardly longer than that above, labella developed ; palpi small, very slender, filiform, bristly. Thorax about as wide as head ; scutellum with an apical decussate, and two lateral pairs of macrochaetæ. Abdomen narrower than thorax, ovoid-conical, first segment not shortened ; macrochaetæ marginal and discal ; strong ; hypopygium concealed. Legs moderately long and stout, bristly ; claws and pulvilli of ♂ quite elongate. Wings longer than abdomen, with costal spine, third vein bristly at base ; apical cell closed in border very little before tip of wing, fourth vein bent at angle without stump or wrinkle, apical cross-vein a little concave ; hind cross-vein sinuate, nearer to bend of fourth vein. Type *M. chaetosula*, n. sp.

Muscopteryx chaetosula, n. sp., ♂.

Eyes dark brown, blackish ; frontal vitta brownish, silvery ; sides of front, face and cheeks silvery-white, the pregenal area extensive, brownish, silvery ; antennæ and arista blackish, first two antennal joints rufous ; proboscis dark brownish, palpi pale tawny ; occiput silvery, gray-hairy below. Thorax densely silvery-gray pollinose, with five rather indistinct cinereous vittæ, the middle one obsolete before suture, the outer ones interrupted at suture ; scutellum, humeri and pleuræ silvery. Abdomen almost entirely silvery pollinose, the hind margins of segments darker, slightly brassy in some lights ; first segment with a strong lateral macrochaeta, besides other bristles and a median marginal pair ; second with a lateral pair, a median marginal, and a weaker median discal pair ; third with a weak median discal pair, and a marginal row of very strong macrochaetæ, anal segment with more or less irregularly placed marginal

and discal ones. Legs black, femora silvery on outside, pulvilli whitish. Wings grayish-hyaline, tegulæ nearly white, halteres pale rufous.

Length of body, 6 mm.; of wing, $4\frac{1}{2}$ mm.

Described from one specimen; Chihuahua, Mexico. Mex. Cen. R.R., August 4.

Vänderwulpia sequens, n. sp. ♂.

Eyes brown; frontal vitta dark brown; sides of front, face and cheeks silvery-white, the sides of front slightly brassy next vitta; two orbital bristles; antennæ blackish, slightly rufous at end of second joint, arista blackish; proboscis black, palpi black, rufous at extreme tip; occiput silvery-white, brassy above, gray-hairy. Thorax silvery-white, with two heavy deep black vittæ reaching scutellum, portion between vittæ more or less brassy; scutellum silvery, edged with black on sides continuing on sides of thorax posteriorly. Abdomen shining black; bases of segments two to four narrowly silvery-white pollinose, faintly so on basal half, first segment faintly silvery, anteriorly on sides and beneath; first two segments with one lateral macrochaeta and a median marginal pair; third with eight marginal, and anal with about as many marginal, which are not so strong. Legs black, femora silvery beneath, especially front pair; front coxæ long, silvery; middle and hind claws and pulvilli a little elongate, anterior ones minute. Wings golden fuscous on costal portions, grayish internally, more smoky towards apex, apical and hind cross-veins smoky; fourth vein with decided wrinkle at bend, apical cell extremely short petiolate; tegulæ white; halteres black, rufous at base.

Length of body, $8\frac{1}{2}$ mm.; of wing, $6\frac{1}{2}$ mm.

Described from one specimen; Las Cruces, New Mexico. August 26. This species differs from the type species of the genus *V. atrophopodoides*, Twms., in having the apical cell not moderately long petiolate, but closed immediately before margin. The arista is long pubescent, and this genus belongs in the *Dexiidae*; although the genus *Atrophopoda*, so closely allied to it in the structure of the front feet, belongs by the character of the arista in the *Tachinidae* s. str.

INSECTS ATTRACTED BY FRAGRANCE OR BRILLANCY OF FLOWERS FOR PURPOSES OF CROSS-FERTILIZATION.

BY RICHARD E. KUNZE, M. D., NEW YORK.

Nowhere in the flora or insect fauna do we see it better illustrated than by some of our *Argygnids* and *Asclepiadaceae*. It must therefore be admitted that these Asclepiads are striking examples of entomophilous or insect-loving plants, and anyone in quest of insects will not be disappointed by diligently studying the distribution of the Milk-weed family. Lepidoptera and hymenoptera visit these plants. Some flowers attract insects for the purpose of cross-fertilization, and these are either showy, brilliant in colour, or more or less fragrant. All other flowers are either wind-fertilized or self-fertilized. Insects resort to flowers for the purpose of obtaining honey—their food, secreted by the nectaries, or to take pollen found on the stamens of flowers; the former constitutes their staple of life and the latter furnishes wax to others for utilitarian purposes. Lepidoptera take food by suction and it must be of a liquid nature. Thus it will be seen that the relation of certain insects to flowers is really of absolute necessity.

Darwin's attention was early drawn to flowers of *Asclepias*, because the mass of pollen grains was borne on a foot-stalk, which had a sticky gland at the end of it, as found in Orchids. Modern geological research has demonstrated that lepidoptera first made their appearance during the *Tertiary* period, when true flowers began to be abundant. And so it is to this day. Bright-coloured and highly perfumed flowers are always associated with myriads of insects, of which butterflies and moths contribute a large number. This is the reason why some of the larvæ Argynnid, such as *A. idalia* and *A. cybele*, are found to the best of advantage on flowering Asclepiads. When the various species of *Asclepias* are in full bloom, the Argynnid mentioned and even *A. aphrodite* may be looked for in more or less abundance.

Red Clover blossoms are resorted to by Argynnid before the advent of Milk-weed flowers, but I have never observed them there in such numbers. Another drawback to collectors, for reasons well understood, is that he must visit the locality when the owner of it is at church or taking his meal! I have seen a few *A. cybele* as early as May, on the azure flowers of *Echium vulgare*, known as Blue-weed and Viper's Bugloss, a very prickly plant introduced from Europe, found on poor, sandy soil. Papilios as well as Argynnid visit all these plants, in company with

many other insects. When Milk-weeds are past bloom these Argynnid visit *Cnicus pumilum* or low Pasture-thistle, and other species. Later on they betake themselves to the gardens, and visit the flowers of *Zinnia elegans* and *Verbenas*.

In the latitude of Long Island and Northern New Jersey the *Asclepiadaceæ* flower in the following order :—

First of all, *Asclepias cornuti*, Silk-weed or Common Milk-weed ; then comes *A. purpurascens*, or Purple Milk-weed ; next *A. tuberosa*, or Butterfly-weed ; and finally *A. incarnata*, the Flesh-colored Asclepias or Swamp Milk-weed. I have found that *A. purpurascens* and *A. incarnata* will attract more of Argynnids, Danaids, Hesperids, Macroglossids and Hymenoptera than the other plants mentioned, when two or more species are in bloom at one time. Of these, *A. tuberosa*, with its orange-colored flowers, can be farthest seen, but comparatively speaking it is not fragrant to our senses, or very faintly so. *A. purpurascens*, the most fragrant, is much visited by Argynnids and Panphilas, and after that comes *A. incarnata*. The last is the more plentiful plant, and inhabits swamps and margins of streams.

It is not an uncommon sight to behold a corymb of either of these *Asclepiadaceæ* in the possession of two or three Argynnids, several Skippers and Hymenoptera at one and the same time. All but the Swamp Milk-weed affect a gravelly or poor sandy soil, and may be found along the roadside, on railroad embankments, in fallow fields or skirting sylvan paths. To obtain the sweets from the innermost recesses of the five-lobed corolla, the lepidopterous insect almost buries its head within the flower. Those with a very long proboscis keep a weather eye open, so to speak, to warn them of approaching danger. This nectar must exert an almost intoxicating effect on the insectiferous sense, else Argynnids would not suffer one to approach them so closely while extracting honey from the nectariferous glands. The flowers of *A. cornuti* have longer pedicels than any other species, and the umbels do not present so compact a head of flowers as in the other mentioned species. This drooping of flowers may be of disadvantage to diurnals with long probosces, and is, I believe, a good reason why Argynnids prefer to explore the more upright-standing flowers of other Asclepiads. The flower of *A. cornuti*, or Milk-weed, is not brilliant, a greenish-white delicately tinted with purple, but emitting a powerful fragrance. Although the larva of *Danais archippus* feeds on the leaves of *A. cornuti*, yet the imago takes its food very seldom from this flower, when other species are conveniently near.

The flowers of *A. tuberosa* can be recognized at a long distance, and are readily singled out by Lepidoptera. Though almost devoid of perfume* it abounds in honey. This proves that both colour and fragrance of flowers draw heavily on the senses of Lepidopterous insects. Many Nymphalidæ also visit the flowers of Milk-weeds.

Even on a windy day numbers of Argynnidæ and other Nymphalidæ, Hesperidæ, etc., may be found on these Milk-weeds, but rarely in the open. Patches of or single plants must be searched for in sheltered, wooded regions of fen and forest. To illustrate, I will state that the day after that Jamesburg, N. J., 4th of July, entomological field meeting, I went up to Westchester County, N. Y., just north of the city line. I netted a few Argynnis cybele from isolated plants of *Purple Milk-weed*, found in a grass-covered lane of the forest. It was as windy, if not so noisy, a day as it had been in Jamesburg, and the flowers of the open field were devoid of insects. Emerging from the forest, I entered a bog well hedged in by tall shrubs and young trees, and suddenly came upon a patch of very tall *Asclepias purpurascens*. These grew in the midst of a clump of Black Alder, Bayberry, Tall Blueberry bushes and Blackberry briars. The flowers were from five to six feet above ground and partially hidden by shrubbery. In passing close by I started up a large number of frightened *A. cybele*, which kept me busy for some time afterward. To get at the flowers I had to cut away branches and briars, and before leaving took a dozen and a-half of fine *A. cybele*, one *A. idalia* and numbers of Hesperidæ. I could have obtained more, but it grew to be rather monotonous work and went home. This may seem rather "windy" for a day when the Zephyrs blew small guns. But anyone can do the same, if not better, by studying the physical geography of localities. It repays for all the trouble. In the Western Catskills one of my nephews takes *A. aphrodite*, *A. cybele* and *A. bellona* sometimes in numbers on a fragrant species of *Solidago* or Goldenrod.

In the autumn I examined many of the asclepiadaceous plants, where last summer I had secured most of my Argynnidæ and other diurnals visiting *Asclepias*. Those species bearing the largest number of fruit pods corresponded with the plants on which I observed the most lepidopterous insects. There were single stems of *Asclepias incarnata*, on the tops of which I counted fifty-two seed follicles, and some of its flower-heads had from six to twelve seed-pods thereon. On *Asclepias*

* The sense of smell is very acute in insects, and they are attracted to odorous flowers by a faint odour of the honey, which is imperceptible to mankind.

purpurascens I observed from one to five seed-pods on a plant stalk. But it was the exception to notice a plant of *Asclepias tuberosa* which bore any fruit at all, and perhaps only one on half a dozen flowering stems given off by a single root. The scarcity of silk pods on this species was indeed very noticeable. Plants of *Asclepias cornuti* are not very well covered with fruit. I examined a large number of plants late in October, 1891, and found only from one to four seed follicles on large plants. The flowers of this species of Milk-weed are drooping from the axils of very large leaves, and are more or less hidden by the latter.

Asclepias phytolaccoides, or Poke Milk-weed, another fragrant species with long-peduncled umbels of greenish-white and purplish colour, grows in most woods. Its nodding umbels and dependent flowers are of disadvantage to the visits of the larger diurnals. The plant is less abundant than other species referred to. It prefers dense copses and is visited more perhaps by nocturnals than diurnals. Height from 3-5 feet.

Asclepias quadrifolia, or four-leaved Milk-weed, known by its whorls of leaves, is met with in dry woods overlying limestone rock. It also has loose-flowered and long-stalked umbels, and is fragrant. Flowers, pale pink with a white crown. Height of plant 1-2 feet, our smallest species. In colour and the shape of its flower-heads, also drooping, it much resembles *A. cornuti*, our tallest of the Milk-weeds found on the roadside.

Asclepias curassavica, or Bastard Ipecac and Blood-weed, is a prominent landmark of the West Indian Islands. It is the gayest and commonest weed of Trinidad, and found also in So. Florida. Jamaican negroes call it Redhead. It has a scarlet corolla and yellow appendages; flowers borne erect on umbels; grows about three feet high. Nymphalids and Danaids, as well as Lycænids, frequent its flowers. Inasmuch as all these Milk-weeds can be classified under bee-food, they are much visited by insects.

Dr. J. E. Taylor, of Ipswich Museum, England, thinks that mostly all the white or light-yellow flowers are cross-fertilized by night flying moths. Not only can they be distinguished at a greater distance on account of their luminosity than those of more brilliant hues, but their sweet-smelling properties will be a guide to moths. A larger proportion of white flowers emit fragrance than that of any other colour. And he tries to substantiate his conclusions by the following statement: "If we could take a census of British wild flowers, we should probably find that the most numerous colours are in proportion to their luminosity, or the

ease with which they can be seen from the greatest distance. There are about twenty-five times more species of British moths than butterflies, and they are of all sizes, so that in this respect they suit all magnitudes of white flowers." Koehler and Schubler long ago made the same observation regarding colour and odour of flowers.

I think that in the case of the *Asclepiadaceæ* this holds good, because those preponderating in whitish or yellow flowers are less visited by diurnals than the red and purple-coloured species. I must mention here another curious circumstance relating to the aversion that Argynnid and diurnals exhibit toward *white* Zinnias, and Verbenas of the same colour.

In August or September of each year I look for Argynnid on these plants, when Milk-weeds are past bloom. In the season of 1890 I made numerous trips to a horticultural garden, where Zinnias, Verbenas and other plants were cultivated by the acre. There were beds of Zinnias, seventy-five feet long by twenty in width, of separate and mixed colours; five large beds, three of separate and two of mixed colours, all starting from a summer-house to the points of the asterisk, on a lawn 4-5 acres in extent, could be readily observed from the centre of this floral star. One bed contained fulvous-tinted Zinnias, another white, the next crimson. and two beds were planted with Zinnias of mixed colours, all but white. I have repeatedly watched these gorgeous flower-beds from 10 a.m. until 5 p.m., in warm, calm and clear weather, with the following result:

To the bed of *white* Zinnias only *Pieris* and a few *Colias* made their visitation, and but on a single occasion have I observed any other diurnal on these white flowers, and it was a single specimen of *Papilio turnus*. The two beds of fulvous and crimson Zinnias attracted many of the Argynnids, three of the large species, different *Pyrameis*, many *Papilios*, *L. disippus*, some *Hesperidæ* and day-flying moths. The other two beds of Zinnias, made up of mixed colours, in addition to lepidoptera mentioned, also attracted *Colias* and *Pieris* (a few) to their sulphur-coloured flowers, four species of *Papilios* and a few *Euptoieta Claudia*.

Zinnias are inodorous to our sense of smell, but the honey they contain and the fiery colours of their flowers are very attractive to lepidopterous insects. In the case of Zinnias and Verbenas, another brilliantly flowering and nidorous plant, it would seem that the gorgeousness of blossom serves the purpose of attracting diurnals for purposes of cross-fertilization. Plots of Verbenas, an acre and more in extent, I have watched with similar result. One man had more than two acres planted with only *white* Verbenas, and it was in possession of *Pieris rapæ* principally. The other contained all known colours, including a few white, and the plants were freely visited by Argynnis, *Papilios* and a number of other diurnals, as well as by *Hemaris thysbe*. The last mentioned appeared a little before twilight, about seven o'clock.

NEW NORTH AMERICAN MICROLEPIDOPTERA.

BY PROF. C. H. FERNALD, AMHERST, MASS.

Pyrausta nigralis, n. sp.

Expanse of wings, 18 mm. The entire body and wings above and beneath, black; pectus and base of the palpi, snow white. The outer line is represented by a nearly straight, snow white stripe, which starts from the outer third of the costa and extends nearly half way across the wing and a spot on the fold near the outer third of the hinder margin below a similar spot on the end of the cell. There is also a white spot in the fringe below the apex and one at the anal angle, and the costal cilia are snow white. The hind wings have a small white spot at the base, another a little beyond the cell and an oblique stripe extending up from the anal angle. All these white spots and stripes are reproduced on the under side.

Described from three examples:—One in the collection of the National Museum, collected by Boll in Texas; one in the collection of Rev. Geo. D. Hulst, and one in my own collection. The last two were taken in March at Cold Harbor, Fla.

Teras angusana, n. sp.

Expanse of wings, 17 mm. Head, palpi and thorax, pale reddish-white. Fore wings, pale red with a somewhat darker red stripe extending from the middle of the base to the apex and edged with white on each side, but more prominently on the hinder side. An inconspicuous elongate spot of a leaden blue colour rests on the middle third of the hinder margin. Fringes, concolorous. Hind wings and abdomen above, silky gray, lighter beneath. Under side of fore wings, pale grayish-red.

Described from one specimen received from Mr. James Angus, for whom I have named the species, and one taken by myself in Orono, Me., Aug. 1, 1884.

Steganoptycha lindana, n. sp.

Expanse of wings, from 18 to 20 mm. Head, palpi, thorax and hinder part of fore wings, pale gray, the latter somewhat sprinkled with brown. The outer sides of the palpi, front of the head and forward part of the patagia are more or less tinged with purplish brown. The costal half of the fore wings is dark brown with purplish reflections and darker oblique costal streaks. The darker portion of the wing sends two very dark brown triangular prolongations backward to the fold, one at the basal third and the other a little beyond the middle.

The fringes are gray and flecked with brown. The hind wings and abdomen above are silvery gray, and the under side of the hind wings is the same as above, but reticulated with darker gray on the costa and the outer border. The under side of the fore wings is somewhat darker than the hind wings and shows the markings of the upper side to some extent. Described from one specimen taken in Hamilton, Ontario, and one taken at light in Amherst, Mass., Sept. 18, 1887.

I take great pleasure in naming this beautiful insect for Miss Rose Linda Davis, who has ably assisted me in my entomological work for the last three years.

NEW FORMS OF ICHTHYURA.

BY HARRISON G. DYAR.

Ichthyura multnoma N. SP.

Ground colour of primaries dark "ecru drab" (Ridg. iii., 21, * but much darker), heavily irrorate with "clove brown" (Ridg. iii., 2.) scales which almost entirely obscure the ground colour at the basal portion of the wings as well as outside the third and fourth lines. First (basal) transverse line faintly yellowish, inwardly arcuate from internal margin to median vein, then rectangularly bent towards the base and following the median vein for about 1.5 mm., when it is again bent at right angles and proceeds straight to costa. Second line before middle of wing, consisting of a line of the ground colour bounded outwardly by a narrow clove brown line, straight across wing from internal margin to costa. Third line slightly yellowish, outwardly arcuate from internal margin to vein 2, just beyond its origin, faint across cell, consisting there of a line of the ground colour apparently running straight to costa. Fourth line starting on internal margin, near origin of third line, and running slightly obliquely, but nearly straight to the costa subapically. It is undulated across the subcostal nervules, but is not broadened at costa nor marked with white, being uniformly yellowish. Outside this line subapically, an irregularly triangular rusty brown patch, and another fainter patch on the middle of external margin. A submarginal row of clove brown spots, distinct only below vein 2, being elsewhere lost in the general dark shading of the terminal half of the wing.

Thorax dark gray; the vertex of head and central thoracic patch, deep blackish brown. Abdomen, secondaries and whole under surface,

*Ridgway's nomenclature of colours, plate iii., fig. 21,

nearly uniform seal brown (very near Ridg. iii., 1, perhaps of a colour between figs. 1 and 2). Expanse, 31 mm. Described from 2 ♂♂, Portland, Multnomah Co., Oregon, April 23.

Ichthyura albosigma Fitch., var. *specifica* n. var.,

I apply this name to the form of *I. albosigma* from the Rocky Mountains, which differs from the type by its much paler colour. Specimens taken at Manitou, Colorado, May 2.

In accordance with my custom in describing new forms, I give below a table to separate the species of the genus. Under the term "*vau* Fitch and allies," I refer to the nominal species *inversa*, Pack., *vau* Fitch, *brucei*, Hy. Edw., *bifria*, Hy. Edw., *astoriae*, Hy. Edw., *ornata*, G. & R., and *inornata*, Neum. I have not at present the necessary material to form a positive opinion as to the synonymy involved here, but I doubt if there are more than three good species, the other names referring to geographical varieties of much the same rank as the var. *specifica* above described.

The names *apicalis*, Barnst., and *incarcerata*, Bd., included in Prof. Smith's list, I have not considered here; but I hope to be able to offer a complete revision of *Ichthyura* at a subsequent time. The following table will show the relationships of the new forms described in this paper.

§1. Third transverse line running from internal margin at or near the origin of the fourth line and joining the second line at or about its middle.

Fourth line widened and white at costa.

A series of subterminal interspaceal dots.

Lines generally straight, - - *inclusa*, Hb.

Lines more or less, wavy, *vau*. Fitch and allies.

Same produced into a series of dashes.

With usual thoracic mark, - - *strigosa*, Grt.

This mark absent on thorax, *luculenta*, Hy. Ed.

No white on fourth line at costa - - *jocosa*, Hy. Ed.

§2. Third transverse line free from internal margin to costa.

General colour, dark grayish or clove brown.

Fourth line not widened on costa, *multnoma*, Dyar.

Fourth line widened and forming a white S-shaped mark, - - - - *albosigma*, Fitch.

General colour, much paler, - - var. *specifica*, Dyar.

ANNUAL MEETING OF THE ENTOMOLOGICAL CLUB OF
THE A. A. A. S. FOR 1892.

The Annual Meeting of the Entomological Club of the A. A. A. S. will be held during the meeting of the A. A. A. S. at Rochester, New York, August 17th to 20th, 1892, at such times as will least conflict with other features of interest to members. The meeting of the Association of Economic Entomologists, which will be held at the same time and place, will add to the attractions for all interested in the science, and it is hoped that members will make it a point to be present and assist in making the Rochester meeting a successful reunion of all the working entomologists of America. It is urged, also, that every member prepare a paper or papers for presentation before the Club, furnishing the Secretary with the titles in advance, so that a preliminary programme may be drawn up. As most of the members of the Club are also members of the Association of Economic Entomologists, it is suggested that subjects relating to applied entomology be presented before the latter society, reserving for the Club matters of a more purely scientific interest. Systematic, biologic or anatomical studies, together with collecting notes, are especially desired and appropriate.

C. L. MARLATT,

Sec. Entomological Club

WASHINGTON, D. C., June 15th, 1892.

of the A. A. A. S.

OBITUARY.

DR. CARL AUGUST DOHRN.

Entomologists generally will regret to hear of the death of Dr. C. A. Dohrn, which happened on the fourth of May, in his eighty-sixth year, at his home in Stettin, Germany. Dr. Dohrn was born in 1806, and his youth was passed amid the stirring political events with which this century opened on the continent. He visited the University of Berlin in his sixteenth year with the intention of studying the law, but soon devoted himself to literature and music. His translations of dramas from the Spanish attracted attention, and, as a man of letters and musician, he enjoyed the protection of the late King of Prussia, Frederick William IV. Dr. Dohrn was thrown into the society of many eminent persons, and became the friend of Mendelssohn and Alexander van

Humboldt. His taste for natural history was shown early in life, and he finally devoted himself to the study of the Coleoptera, of which he has left a collection containing many varieties. Dr. Dohrn's literary and descriptiōnal articles upon entomology appeared in the Stettiner Entomologische Zeitung, the organ of the Entomological Society of Stettin, over which he presided for more than a quarter of a century. He was a friend of Zeller, and drew the latter from his pedagogic labours in Meseritz to the scientific circle in Stettin, where he closed his career. It was a custom of Dr. Dohrn to give a New Year's greeting in verse to the readers of the Zeitung. These effusions were both genial and humorous, but, as might be expected, invited criticism, and drew from Lederer, on occasion, a bitter remark. Dr. Dohrn's life in his native city was devoted to many interests, and he was made a member of the legislative body. His son, the well-known professor, is the Director of the Marine Zoological Station in Naples, whom I visited so many years since in Jena. Dr. Dohrn was a man of good presence and engaging manners, and has left behind him many friends in many circles. To the general notice, which his death will thus occasion, I may add my little tribute to his worth. Not so long since he sent me greetings through a traveller, and I was glad to hear of him as still hale and hearty. Everything passes in this world, but one is apt to remember gratefully such personal kindness as Dr. Dohrn extended to me.

Bremen, May 6th, 1892.

AUG. R. GROTE.

CORRESPONDENCE.

A CORRECTION.

Dear Sir: In my article on "Insect Monstrosities," in the June number, occur some clerical errors that require immediate correction. In line six of the text, *dele* "and Henshaw, Scudder, and Hagen (Psyche)," and read instead, Scudder (Psyche, VI., pp. 89-93) and Hagen (Memoirs of the Museum of Comp. Zool., II., pp. 5-22). I made a mistake in copying my MSS. for the printer, and made it worse trying to correct it by mail.

H. F. WICKHAM.

GASTROPACHA ALUCENSIS.

Dear Sir: With regard to the omission of this species from "Mr. Grote's lists," I would state that I was informed that the entire edition of

the Chicago Academy Transactions, in which the description appeared, was destroyed in the Great Fire, and that Dr. Packard in consequence regarded his paper as unpublished. The species *Leucophæa Neumoegeni*, Hy. Ed., belongs to my genus *Argyrauges*, Can. Ent., XIV., 215, and is in my opinion sufficiently structurally distinct from *Hemileuca Maia* and allies, a genus in which the common pattern and antennal colour and structure show that the forms have become but recently separated and hardened into species, as seems to be the case with *Datana*, and, perhaps, *Clisiocampa* and *Platysamia*.
A. R. GROTE.

Dear Sir : I wish on behalf of the Entomological Society of Ontario, to make public acknowledgment of the eminent services rendered to it, and the lasting benefit conferred on the Canadian members of it especially, by Professor C. H. Fernald, who has reviewed the Society's entire collection of Pyralidæ and Crambidæ, at a great expenditure of labour and valuable time to himself, and with no hope of reward, except the consciousness of having performed an enduring work for the advancement of our science. I forwarded to the Professor, at his own suggestion, the Society's drawers containing these insects, and a box of duplicates, that he might see just how they stood in regard to nomenclature. In due time they were returned, preceded by a communication indicating that they had received the closest scrutiny, pointing out errors, and conveying information which enabled me to bring the collection into harmony with his recent revision of these families, as published in Prof. J. B. Smith's "List of Lepidoptera of Boreal America." The most important of the errors corrected, which may have spread from this to other collections, are two : What was under the name *Crambus prefectellus*, Zink., proved to be *C. Leachellus*, Zink., and what was under the name of *C. sericinellus*, Zell., he pronounced to be but rubbed specimens of *C. albellus*, Clem.

The Professor kindly sent to me an example of *C. innotatellus*, Walk., of which *sericinellus* is a synonym, that I might see what it was like ; it was a species that I had not seen before, and may not properly belong as yet to our list, and the same is possibly true of *prefectellus*.

We have now a collection in these families which may be pronounced a correct standard for comparison and identification as far as it goes, and the guarantee for its reliability is the work done upon it by Professor Fernald. All our members are cordially invited to make use of it.

J. ALSTON MOFFAT, Curator.

NOTES.

We have much pleasure in recording that on the 20th of April last the Degree of "Doctor Philosophiæ Materialis" was conferred (*honoris causa*) upon Baron Charles Robert Osten Sacken, by the University of Heidelberg. This recognition of an Entomologist who has done such eminent service in North America will, we are sure, be very gratifying to our readers.

Mr. C. H. Tyler Townsend, of the Agricultural College, Las Cruces, New Mexico, has gone on a field trip by wagon to the Grand Canon of the Colorado, in Arizona, and expects to be away till the middle of August.

The Royal Society of Canada held its Annual Meeting in Ottawa on the 31st of May and two following days. The sessions were well attended, and many papers of much value and interest were read. A committee was appointed to investigate the condition and prospects of the marine fisheries of the Dominion. The Rev. Dr. Bethune, President of the Entomological Society of Ontario, was elected a Fellow.

BOOK NOTICE.

THE BRITISH NOCTUÆ AND THEIR VARIETIES, by G. W. Tutt, F. E. S.: Vol. II., London, Swan, Sonnenschein & Co.: 1892.

The second volume of Mr. Tutt's work is equally carefully compiled with the first, already noticed in these pages. It deals with Guenée's "family" *Noctuida*, a group in which the varieties of the species are numerous—not always easy to seize or characterize. By relying apparently on the incorrect statements of Butler, Mr. Tutt refers our North American *Agr. turris* and *texana* as varieties of *Agrotis saucia*. The first, as shown by Smith, is probably the *Agr. ochrogaster* of Guenée, whose description was unidentified by me; the second is undoubtedly a distinct species, differing structurally somewhat also, from *saucia*. This volume of Mr. Tutt's is a most useful compilation, showing great industry and the marks of a careful research into the literature of the subject. I can heartily commend it to the attention of specialists.

AUG. R. GROTE.

Mailed July 4th.