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No. 7

NOTES AND DESCRIPTIONS OF NORTH AMERICAN XYLOPHAGIDÆ AND STRATIOMYIDÆ.

BY S. W. WILLISTON, M. D., PH. D., NEW HAVEN, CONN.

Xylophagus decorus, n. sp.

♀. Length 13 mm. Black, legs yellow. Front convex, but little shining, thinly brownish dusted. Antennæ black, the tip of first joint and the second more reddish brown; elongate, the first joint rather longer than the distance from the insertion to the ocelli. Proboscis black. Dorsum of thorax shining on the sides, in the middle with two broad brownish pollinose stripes, separated by a shining linear space. Pleuræ shining black. Abdomen blackish brown, shining. Legs, including the coxæ, reddish yellow, the tips of all the tarsi black. Wings nearly hyaline, a broad brownish band, near the middle, narrowed and evanescent posteriorly, the outer cross-veins clouded and the outer part of the wing cinereous.

One specimen, Washington Territory (H. K. Morrison). The abdomen probably varies in depth of color.

Xylophagus gracilis, n. sp.

♂, ♀. Length 9-10 mm. Black, legs light yellow. Front grayish dusted. Antennæ black, the third joint toward the base on the inside, yellowish; only a little longer than the head; first joint only about three times as long as the second, considerably shorter than the distance from the insertion to the ocelli. Thorax shining, the dorsum with two broad, narrowly separated, pollinose stripes; humeri and post-alar callosities obscurely yellowish. Halteres yellow. Abdomen shining black, white pubescent, rather slender and cylindrical in the male. Legs, including the coxæ, light yellow; outer end of all the femora, and the tip of hind tibiæ, lightly brownish; tip of the tarsi blackish. Wings hyaline, variegated on the outer half with brownish, the stigma narrowly brown.

Two specimens, Washington Terr. and Mt. Hood, Oregon (H. K. Morrison).

Coenomyia cinereibarbis Bigot. Annales Soc. Ent. Fr. 1879, 194.

This species was described by Bigot from a specimen from Baltimore. As usual with this author, he does not point out differences, merely saying that this species resembles certain varieties of *C. ferruginea* in color. Now it is well known that *C. ferruginea* is very variable in coloration, so much so, in fact, that it has received twelve or thirteen specific names. The coloration hence of Mr. Bigot's specimen, from analogy, is comparatively worthless as a specific character. Nothing else is mentioned except the villosity. From this, however, I believe I recognize the species in a male specimen caught in the woods near New Haven, in June. It is of a deep brownish black, the femora of the same color. The abdomen above has the second segment wholly black (shining), the third segment with a large light yellow spot on the posterior angles, the fourth segment with a similar but smaller one, and with the posterior margin likewise yellow, the remaining segments chiefly yellow. The species will be best distinguished from *C. ferruginea* by the presence of rather long and abundant yellow pile on the dorsum of the thorax, whereas in *ferruginea* the dorsum is nearly bare.

Subula pallipes Loew.

This species has hitherto only been known from the Atlantic States, but specimens from Montana (Prof. Comstock, No. 50) and Southern California cannot be separated. The western specimens show a broader yellow hind margin to the abdominal segments, but otherwise I can distinguish no difference.

Subula parens; n. sp.

♀. Length 13 mm. Front black, light yellowish pubescent, shining about the ocelli. Antennæ black, the inner side from the base, except the upper margin, yellowish red. Face black, proboscis and tip of the palpi reddish yellow. Dorsum of thorax black, the lateral margins, interrupted just behind the suture, and extending inwards a short distance in front, and a slender spot on the suture on each side, yellow. Pleuræ and coxæ black, the former with a median vertical spot, connected above with a slender stripe reaching from the humeri to the root of the wings, and a large spot on the sides of the metanotum, yellow. Abdomen brownish

red, black at the base. Legs yellow, a broad preapical ring on the hind femora black, the ends of the hind tibiae brown, hind metatarsi a. half longer than the remaining joints together. Wings strongly tinged with yellow, the veins a little darker.

One specimen, Washington Ty. (H. K. Morrison).

Beris mexicana Bell.?

♂, ♀. Length 7-8 mm. Eyes pilose, broadly contiguous in the male, the frontal triangle small; front in female rather broad, with parallel sides. Head black, shining, with luteous pile. Antennae black, the base of the third joint yellowish; third joint thick at the base, the whole antenna not longer than the distance from its base to the ocelli. Thorax and scutellum bright shining green, with a purplish reflection, pile in the male only moderately long, luteous; scutellum with six blackish spines, and on each side sometimes with a rudimentary additional one. Abdomen black, but little shining, along the sides with yellowish pile. Legs yellow; all the tarsi, except the base or larger part of the first joint, black. Hind metatarsi in the male considerably swollen, longer than the remaining joints together. Wings strongly tinged with yellowish, the stigma large, brown.

Six specimens, Colorado (Morrison, Prof. Comstock, No. 47). Some of the specimens have the hind femora above at the tip blackish. This species is most closely allied to *B. mexicana* Bell., but differs in the abdomen being wholly black. A comparison with Mexican specimens is needed.

Sargus decorus Say. (= ? *S. xanthopus* Wied.)

Hab. New Eng., Colo., Wash. Ty.

Sargus viridis Say.

(*Sargus nigribarbis* Bigot, Annales Soc. Ent. France, 1879, 224.)

Hab. Eastern, Middle and Pacific States.

This species is a true *Sargus*; the eyes of the male are not contiguous, and are bare.

Macrosargus clavis, n. sp.

♂, ♀. Length 9-10 mm. Vertical triangle and the under part of the face in the male, and the upper two-thirds of the front and the face likewise in the female, bright shining green, frontal triangle and the lower part of the front (♀) moderately projecting, yellowish white, front in the

female of moderate width, parallel. Antennæ and proboscis yellow. Thorax bright shining green; humeri and a slender line reaching to the root of the wings, and the sides of the metanotum broadly, light yellow; pile of dorsum and mesopleuræ yellow. Abdomen in the male pedicellate, the second segment cylindrical, in the female moderately contracted toward the base; black, with a bronze lustre; second segment in the female, except the lateral margins, yellow; the posterior angles of the third and fourth segments narrowly yellow; in the male the second segment is obscure yellow; pile golden. Legs, including the coxæ, yellow. Wings nearly hyaline.

Two specimens, Virginia (Theo. Pergande) and North Carolina (Prof. Comstock).

Ptecticus Sackenii, n. sp.

[*Ptecticus testaceus* Osten Sacken (non Fabr.), Cat. Dipt. 45; Lynch Arribalzaga, Catalogo, etc., 125 (17).]

♀. Length 11 mm. Front narrow, shining black, the lower part and the face yellowish white. Thorax yellow, the dorsum with three broad, more brownish, stripes. Abdomen reddish yellow, the second, third and fourth segments with a black fascia, acute at each end and not reaching the lateral margin. Legs yellow, the hind tibiæ brownish, becoming black at distal end, hind metatarsi black, the following joints nearly white, last three joints of front tarsi blackish, of middle tarsi brownish, the third joint of all these tarsi less dark. Wings hyaline, with a light yellowish tinge.

A specimen from Florida (Pergande) agrees with the ones mentioned by Baron Osten Sacken in the note on page 45 in having the four last joints of the hind tarsi yellow, the terminal ones not being black, as described. Lynch says in regard to these species (l. c.): "Los ejemplares de Nueva York de que habla Osten Sacken deben pertenecer a otra; todos los míos tienen los tarsos posteriores como los describe Rondani."

Ptecticus similis, n. sp.

♂, ♀. Length 11-12 mm. Head and antennæ wholly yellow, the frontal tubercle below prominent, the small ocelliferous tubercle black. The front in the female narrow; in the male the eyes nearly contiguous above the tubercle. Thorax yellowish amber color, the humeri, postalar callosities, the sutures narrowly, and a large spot on the sides of the metanotum, light greenish, two linear stripes on the back part of the dorsum,

less distinctly so. Knob of the halteres green. Abdomen brownish yellow, the incisures and posterior angles of the segments yellow, the sides of the base greenish, across the anterior part of the segments the color broadly brown. Legs reddish yellow, the hind tibiæ and tarsi brown, two last joints of all the tarsi blackish. Wings with a faint yellowish tinge.

Three specimens, Virginia (Pergande), and Georgia. I would at first have identified this species with *Sargus trivittatus* of Say, but grass green can in no wise be applied to my specimens, the color being so faint green that it is scarcely observable to the naked eye. The third joint of the antennæ is by no means rounded, but trapezoidal in shape.

Hermetia aurata Bellardi, Saggio, etc. i., 27, tab. i., fig. 8; Loew, Centur. x., 11 (*H. chrysopila*).

A single specimen from New Mexico agrees very well with the descriptions. The first joint of the antennæ is chiefly black.

Hermetia lativentris Bellardi, op. cit., 27, tab. i. fig. 9.

A female from New Mexico. I refer to this with some doubt. The head is wholly yellow, except the ocelli; the first segment of the abdomen is not black, the second has a narrow median black stripe. Bellardi's figure shows but three posterior veins, probably an inaccuracy.

Hermetia Comstocki, n. sp.

♂, ♀. Length 15-18 mm. Head reddish yellow, with yellow pile. Antennæ only a little darker yellow, the tip of the second joint and the lamella deep black; lamella rather broad. Dorsum of thorax blackish brown or black, the sides and the middle behind brownish red; the black forms two rather broad median stripes, abbreviated behind, separated by a golden tomentose stripe; on each side there are two large indefinite black spots; on each humerus, running inwards and backwards for a short distance, a spot of golden tomentum. Pleuræ, except above and the sides of the metanotum, black, a spot above, contiguous with that on the side of the dorsum, clothed with yellow pile. Scutellum yellowish red, the base narrowly black. Abdomen brownish red, but variable, sometimes brown or blackish, the second segment on its posterior border and the remainder of the abdomen, with short thick golden pile, changeable in different reflections. Abdomen elongate, broadest on the second segment. Legs wholly reddish yellow, front coxæ in front of the same color, the tarsi a little lighter, tibiæ somewhat dilated, the hind pair very distinctly

bent beyond the middle in the male. Wings deep brown along the anterior half, broadly infuscated along the posterior border, leaving a space hyaline in the anal cell and the base of the fifth posterior cell.

This is a handsome large species, rather larger than *illucens*, which it resembles in shape, the abdomen being more convex. Two specimens, Arizona, from Professor Comstock (No. 46).

Euparhyphus, n. sp.?

♀. Length 6 mm. The head and thorax of this species agree throughout with Loew's description of *E. stigmatalis*, except that the scutellum is yellow, with the base narrowly black. The abdomen shows a distinct difference in that the first segment has a small lateral spot, and the second, third and fourth segments with a large green triangle on the posterior angles, extending to the front margin of the segment and touching each other behind on the fourth segment; the inner margins of these green spots are yellowish. The fifth segment is wholly greenish and yellowish to the naked eye. The abdomen shows a broad greenish yellow margin. The legs are wholly yellow, except the last three joints of the tarsi, which are black. The wings agree also, except that the veins and stigma are less dark.

One specimen, Washington Territory.

Euparhyphus ornatus, n. sp.

♀. Length 6 mm. Front and face yellow, with black markings, as follows: A spot on each side in front of the ocelli; a slender stripe from near the ocelli to the oral margin, interrupted at the antennæ; a broader stripe (broader above) beginning a little lower on each side and reaching to the oral margin. First two joints of the antennæ yellow, the third wanting. Occiput black. The lateral orbits yellow. The lateral margins of the face, and the posterior orbits below, white pollinose. Thorax black. Two very slender dorsal vittulæ, broadly separated, the humeri and a slender line reaching to the base of the wings, the postalar callosities, the margin of the scutellum and spines, a spot in front of the wings on the pleuræ, contiguous with the line above it, and a smaller spot below, yellow. Abdomen black; the third segment on each side, with a rather large semi-elliptical spot, the slender lateral margin of the remaining segments, and the broader hind margin of the last segment, yellow. Legs yellow; the hind femora and tibiæ in their middle infuscated; the last

three joints of all the tarsi blackish. Wings with the veins of the disk fuscous; third vein furcate.

One specimen, Washington Territory.

Euparhyphus bellus Loew.

Three specimens from Pennsylvania, all evidently of the same species. I identify as this, but the species is variable. The head in both females agrees with the description; the head of the male likewise agrees with the specimen spoken of in the note. In one female there are two slender yellow vittulæ in the front of the dorsum, in the other two it is wanting. The scutellum is wholly black in all, except the spines. The abdomen in all agree in having two small circular yellow spots on the disc of the third segment, a minute yellow spot on the posterior angles of the third and fourth segments, and a large semi-oval yellow spot on the fifth segment, otherwise the abdomen is wholly black. In one of the females the first discal posterior vein is but the merest rudiment. I do not doubt but that Loew's male and female specimens belonged together.

A single male specimen from Connecticut is related, but it may be different. It is somewhat larger, and differs from my male of *E. bellus* in having two larger yellow spots on the disk of the third segment, and two additional similar ones on the fourth segment.

Clitellaria lata Loew.

A male specimen from Washington is apparently this.

A female from California has the pubescence of the head and abdomen more golden colored than white, and the third antennal joint is much more thickened.

Clitellaria argentata, n. sp.

Length 8 mm. ♂. Black, with light colored pile and silvery pubescence. Eyes broadly contiguous, thickly fuscous pilose. Pile of the front and face light gray. Antennæ rather slender; first two joints, tip of the third, and style black, remainder yellowish red. Thorax, with light gray pile and nearly uniform recumbent silvery pubescence; a slender median stripe, a little broader, interrupted one, on each side, two small spots on the pleuræ, and the metanotum, glabrous; spines of the scutellum yellow. Abdomen, with short recumbent white pile, nearly uniform, with small, oval, nearly glabrous spots on the front margins of the anterior

segments. Legs with white pile, the color of the tarsi less dark. Wings, nearly hyaline, the stigma luteous.

One specimen, Arizona, (Prof. Comstock).

Cyphomyia, n. sp.

Five male specimens from Jamaica differ from the described species, except perhaps *varipes* Gerst., the description of which I do not have access to. The base of the third joint of the antennæ, and the scutellum, are red, and all the metatarsi, except the tip, light yellow. Otherwise steel-blue black. The eyes pilose.

Nemotelus unicolor, Loew.

Two specimens from Pennsylvania. In one of them the two basal joints of the antennæ are yellowish. Another from Arizona (Prof. Comstock, No. 52) I cannot distinguish.

Nemotelus crassus Loew.

Three specimens from Western Kansas agree with the description of this species, but are somewhat smaller.

Pachygaster pulchris Loew.

Two females from Montana differ but little from eastern specimens. The femora have only a blackish ring in their middle.

Odontomyia cincta Olivier. Encycl. Meth. viii., 432, 3; Macquart, Dipt. Exot. i. 2, 189; Day, Proc. Acad. Nat. Sc. 1882, p. 80 (*O. extremis*, type compared.) Atlantic and Pacific States.

Odontomyia flava Day. Proc. Acad. Nat. Sc., 1882, 76.

The type specimen in my collection is partly destroyed by Anthreni, I give as complete a description as it will permit.

♂. Length 11 mm. Head black, face of usual size, with two obscure yellowish spots below, clothed with light colored pile. Dorsum of thorax black, with rather long light pile. Scutellum black, the spines of the same color, rather small and approximate. Abdomen black, with a rather narrow yellow margin and with two slender, broadly interrupted, yellow. posterior cross-bands (on the second and third segments), venter yellow. Legs yellow; femora at their base, and the distal part of the tarsi brown, the tibiæ in their middle with a brownish ring. Wing hyaline. Veins yellow, third longitudinal vein furcate, third posterior vein rudimentary.

Como, Wyo. Resembles *O. inequalis* Loew, but differs in the scutellum and abdomen.

ON THE HESSIAN FLY IN ITALY.

BY H. A. HAGEN, CAMBRIDGE, MASS.

As I have stated (p. 90, May, 1885), I had made inquiry of Dr. Anton Dohrn about the existence of the Hessian Fly around Naples, Italy. His kind answer, together with interesting notes by Dr. Paul Mayer, gives the following information.

From the two old books quoted by Sir J. Banks (p. 88), Corti is not represented in the library at Naples. Ginnani (Dr. Giuseppe Fatta writes Giannini), Part ii., cap. lx., p. 127-209, gives: "Osservazioni ed esperienze particolari intorno all'infestamento degli insetti." He speaks in this chapter on several flies which attack the grain, among them one which attacks the roots, but his statements do not allow us to decide with certainty whether some of the flies belong to Cecidomyia. Dr. P. Mayer draws my attention to another work which was entirely unknown to me; the copies published are all lithographed: "*A. Costa*.—Lezioni di Entomologia agraria precedute da un quadro generale della classi del regno animale raccolte ed autografate degli alunni M. Pilato e M. Montanari. Portici R. Scuola Superiore d' Agricoltura 1880, 4to., pg. 528, pl. 9."

"*Cecidomyia tritici*, p. 514, sp.

"Body black, sooty; wings blackish, a little paler towards the base; legs brownish. The females deposit the eggs near the joints of the plant and between the stem and the respective leaf. The larvæ, which are hatched, live gregarious near the lower joints of the plant between the leaves and the stem, in which they sometimes excavate niches by shaving the wall of the stem. The plants for this cause sooner or later grow sickly and never straighten themselves. When the larvæ have completed their development, while some give place to an agamous reproduction, others in the very place in which they find themselves are transformed into pupæ, from which after a few days are hatched perfect insects, which lay new eggs."

It follows a short description of the larva. Tearing out the plants and burning them is quoted as a remedy.

"In our province (Naples) the *Cecidomyia* is not frequent. According to facts which are reported to us, they are abundant in the neighborhood of Brindisi, as Signor Montagna has also assured us, who has sent us specimens."

Dr. A. Dohrn has made inquiries in Rome about the Hessian fly, but without success.

The passage quoted out of A. Costa's lectures is of prominent interest. It proves without any doubt that the insect is *not C. tritici*, which never lays the eggs between the stem and the leaf, and which has never the coloration of the imago as given in the description. Both facts agree perfectly well with *C. destructor*. The determination of a species of *Cecidomyia* of course can not be considered to be doubtless before specimens have been compared, the more as the short description contains some statements which if based on personal observation, are entirely new.

One of them is decidedly startling. I point to the fact that some larvæ after having completed their development, give place to an *agamous reproduction*. [Compito che hanno, queste larve, il loro sviluppo, mentre talune danno luogo alle riproduzioni agamiche altre, nel posto stesso in cui trovansi si trasformano in pupe delle quali dopo pochi giorni schinondono gl'insetti perfetti che, depongono nuove uova.]

I have purposely put the Italian text in brackets after the translation, as the end of the passage seems to state that the larvæ which have an agamous reproduction do not when full grown transform themselves into pupæ. A similar reproduction, as is well known, has been observed in several species of *Cecidomyia* by Nic. Wagner, Meinert, Leuckart and others—the so-called paedogenesis. It has never been observed till now for the Hessian fly, and the principal reason for doubt that Mr. A. Costa has really meant paedogenesis, is the fact that he has not expressed himself in a more explicit manner, though he must have been aware of the importance of his statement. I should remark that Mr. Balt. Wagner speaks indeed of two different kinds of larvæ of the Hessian fly. The fact that females of the Hessian fly lay eggs without copulation was long ago published by myself. These eggs developed so far that the segmentation of the embryo was visible. The glass tube containing the eggs having unfortunately been left in the sunlight, no further development could be observed.

Mr. A. Costa states that the larvæ sometimes make niches by *shaving* the wall of the stem. This is contrary to all other observations, which state that these niches are made simply by pressure. Asa Fitch is very explicit about these facts, but when he states that the larvæ do not enter the central cavity of the stem, he is largely at variance with the direct observations of Mr. B. Wagner and myself. I have indeed still before me

stems with the flax-seed (pupa) in the centre of the stem. The larvæ live gregariously, according to Mr. A. Costa, but I have never found more than four pupæ at one joint.

After all, it would be of prominent importance to compare the species from Naples with specimens of the true Hessian fly, which was collected there long ago by Prof. Dana.

DETERMINATION OF THE 36 COLEOPTERA DESCRIBED
BY D. ZIEGLER.

BY SAMUEL HENSHAW, BOSTON, MASS.

“Descriptions of New North American Coleoptera,” Proc. Acad.,
1844, v. 2, p. 43-47; 1845, v. 2, p. 266-272.

| | | | | |
|----|-------------------------|-----|--------|-------------------------------|
| | Oxyporus pulcher. | 43 | W. Pa. | = O. femoralis, Grav. |
| | Diacanthus splendens. | 44 | " | Belongs to Corymbites. |
| | Scyrtes suturalis. | | Pa. | = S. orbiculatus, Fabr. |
| | Hydnocera? longicollis. | | " | |
| 5 | Spercheus tessellatus. | | " | = Belongs to Hydrobius. |
| | Hydrophilus ovalis. | 45 | " | Name = H. ovatus, G. & R. |
| | Coprobis obtusidens. | | " | = Canthon laevis, Drury. |
| | Pandarus? brunneus. | | " | Belongs to Anaedus. |
| | Cistela marginata. | 46 | " | |
| 10 | erythroptera. | | " | = C. brevis, Say. |
| | Pedilus nigricans. | | " | = Corphyra lugubris, Say. |
| | haemorrhoidalis. | | " | { = " elegans, Hentz. |
| | ruficollis. | 47 | " | |
| | marginicollis. | | " | |
| 15 | Monohammus tomentosus. | | " | = Goes tigrinus, DeGeer. |
| | Oedionychis? hispida. | | " | = Hypolampis pilosa, Illig. |
| | Philonthus ater. | 266 | Pa. | = Quediis capucinus, Grav. |
| | Tachinus puncticollis. | 267 | " | = T. fimbriatus, Grav.? |
| | Phoenops luteosignata. | | Geo. | = Melanophila notata, L. & G. |
| 20 | Agrilus quadriimpessus. | | " | = A. acutipennis, Mannerh. |
| | Limonium definitus. | 268 | Car. | |

| | | | |
|----|----------------------------------|-------|--|
| | <i>Priocera albomaculata.</i> | U. S. | = <i>Cregya vetusta</i> , Spin. |
| | ? <i>maculata.</i> | Car. | = <i>P. castanea</i> , Newm. |
| | <i>Trogoderma pallipes.</i> 269 | Pa. | |
| 25 | <i>Elodes debilis.</i> | Car. | = <i>Anchytarsus bicolor</i> , Melsh |
| | <i>fragilis.</i> | " | = <i>Cyphon ruficollis</i> , Say. |
| | <i>Euhria thoracica.</i> | Pa. | = <i>E. nervosa</i> , Melsh. |
| | <i>Cis thoracicornis.</i> 270 | Car. | Belongs to <i>Enneathron</i> . |
| | <i>Lathridius musaeorum.</i> | " | = <i>Silvanus advena</i> , Walt. |
| 30 | <i>unicolor.</i> | " | = <i>Cercyon castaneum</i> , Say. |
| | <i>Mycetophagus pini.</i> | " | |
| | <i>Monotoma opaca.</i> 271 | Pa. | = <i>M. fulvipes</i> , Melsh. |
| | <i>Psylliodes alternata.</i> | " | Belongs to <i>Longitarsus</i> . |
| | <i>Lycoperdina puncticollis.</i> | " | = <i>Phymaphora pulchella</i> , Newm. |
| 35 | <i>unicolor.</i> 272 | " | Belongs to <i>Rhanis</i> . |
| | <i>testacea.</i> | " | " <i>Mycetina</i> . |

BIOGRAPHICAL NOTICE OF REV. D. ZIEGLER.

BY DR. H. A. HAGEN, CAMBRIDGE, MASS.

As I have stated in my notice on Melsheimer, nothing is known of his friend, Rev. D. Ziegler, except the publication of a paper on Coleoptera. Again I am indebted for a large part of the notice now given to the untiring kindness of Rev. J. G. Morris, of Baltimore, for many years a friend and correspondent of Rev. D. Ziegler. Nevertheless, desiring to find out something more of this father of American Entomology, I decided to go to York, Pa., and had the pleasure of seeing his wife, Mrs. Ziegler, his son, Dr. H. A. Ziegler, and the brother of Rev. D. Ziegler.

Daniel Ziegler was born June 11th, 1804, in Reading, Berks Co., Pa. His father, and probably his grandfather, were born in America. There is nothing known by the family as to when their ancestors came to America. After he became of age he studied at the University of Pennsylvania for some time. Later he studied Theology at York, Pa., at the German Reformed Seminary, under the presidency of Dr. Mayer. He was married to Miss Eve Eyster, and had ten children, of whom two sons are living. Kraeutz-Creek Church, six miles from York, was his first

pastoral charge, which he served 37 years. During 18 years he took care of 8 churches; during 27 years of 6 churches. Later he retained only four. Afterwards he was elected to the German congregation in York, which he served about 13 years.

During his ministry in Kraeutx-Creek he began to collect insects and to study Entomology. His son told me that he often accompanied his father, and that he collected insects principally by beating in the umbrella, an excellent method, but very little used, as far as I know, in America. One of his churches was very near to Dr. Melsheimer's home. We owe to this circumstance probably the friendship and the zeal for entomological studies of both. To help Dr. Melsheimer in describing the new species of Coleoptera for the forthcoming Catalogue, Rev. D. Ziegler published in Proc. Acad. Sc. Philad., 1844, vol. ii., p. 43-47, his only entomological paper, containing 36 new species. His scientific correspondence, which was considerable, both American and foreign, cannot be found. His library contained some excellent works, all very much used. When 60 years old he sold, together with Dr. Melsheimer, his collection to Prof. L. Agassiz. The collection was packed up and forwarded to Cambridge by Mr. Ph. R. Uhler, from Baltimore. The contents of the collection are given in my Melsheimer paper, p. 196. Rev. J. G. Morris writes: "I remember hearing Ziegler say that he sold his specimens of Hymenoptera to a Swiss naturalist who has written upon that order, perhaps to De Saussure." This may explain the fact that the collection contained only 60 species of N. Amer. Hymenoptera and 14 from Europe. Rev. D. Ziegler died May 23, 1876, in York, Pa., 71 years, 10 months, 12 days old.

"There was nothing whatever eventful in his life, and besides his few entomological contributions, he was nothing more than a plain, plodding, honest country parson."—(J. G. Morris).

DESCRIPTION OF TWO NEW VARIETIES OF CATOCALA CEROGAMA, GUEN., WITH NOTE ON A THIRD.

BY PH. FISCHER, BUFFALO, N. Y.

C. aurella, ♀, new var.

Primaries and thorax light gray, strongly shaded with yellow; h. p. and t. p. line with t. a. line very distinct; teeth below U somewhat

rounded ; reniform indistinct ; subreniform distinct ; a broad, pale, tan-colored line (outside of white shading of t. p. line) running parallel with t. p. line.

Secondaries bright yellow ; median band black, narrow, even, not reaching inner margin, marginal band broad, black with a slight yellow tinge ; fringes dirty white ; abdomen ochre-yellow.

C. eliza, ♀, new var.

Primaries very dark, powdered with black, a large egg-shaped whitish dash near apex reaching costa ; another larger one, shaded somewhat with dark gray, extends from the elongated U to lower margin. Whitish, slightly powdered with gray at base. T. a. line edged with an unusually broad white dash reaching from costa to base of subreniform (on its inner side), from which it is divided by a narrow dark line. All these white dashes are very prominent and showy. Reniform not very distinct.

Secondaries more like the typical form, with the exception of being lighter and more yellowish at base ; fringes white, except at ends of veins.

The third specimen comes nearer the typical *cerogama*, and is a male. The primaries are strongly marked, slightly darker ; reniform distinct ; subreniform met by a heavy black dash on the side towards base, running along t. a. line to costa. There is the "slightly brown" of the var. *Bunkerii*.

Secondaries with a narrow yellow band, the black quite prominent and with a faint purple hue. Fringes white tipped with black.

The above specimens are in my collection.

WHITE ANTS DESTROYING LIVING TREES AND CHANGING THE FOLIAGE, IN CAMBRIDGE, MASS.

BY H. A. HAGEN, CAMBRIDGE, MASS.

The common white ant, *Termes flavipes*, destroys dead wood, stumps of trees and timber, just as does its nearest relative, *T. lucifugus*, in Europe. Of the latter species some cases are reported where living pines and oaks have been destroyed in the South of France. For *T. flavipes*, only one case is known, in which living grape vines in a hot house in Salem were injured. (S. H. Scudder, Proc. Boston, N. H. S., vol. 7, p. 287). Now the earth in the hot houses here in Cambridge is largely

infested by white ants, but as far as I know, no destruction of plants has been observed. I was very much interested by the information from Mr. F. W. Putnam that in a garden in Irwing street living maples were largely infested by white ants. The evidence of the truth of this information was apparent by the first glance at the trees. They were three in number, some few yards separated, more than 60 feet high, two feet diameter at base, and apparently in good condition, except that the bark was in certain places affected or split. Those places had somewhat the appearance of the well-known winter splits of the bark of trees. In removing parts of the bark, directly living white ants, workers and a few soldiers, were found, collected, and proved to belong to *T. flavipes*. Closer observation showed that small open gangs, covered outside by the loose bark, ran along the tree to a height of 30 feet or more. There were on this estate no old rotten stumps, but some of the adjacent uninhabited estates contained them, where probably the nest may be found; nevertheless the whole estate was so overrun by white ants that they had made along the fence a long track covered with the hard clay-like mud with which they usually fill the eaten parts. As the boards of the fence were thin, it was perhaps judged safer to build the canal outside instead of on the interior of the boards. The house, a framehouse, about 10 years old, the stables and the wooden sheds were entirely intact. The estate near to it seemed to be entirely free of the pest. The foliage of the infested trees looked very remarkable. Mr. Sereno Watson, the curator of the Cambridge Herbarium, was at first at loss to determine the leaves; the size, the shape and the venation would not agree with any known species. But when he saw the tree, he was directly sure that it was only the common *Acer rubrum*. Some fresh shoots near the base of the tree had unmistakably the leaves of the common red maple. All the other leaves were very small, mostly not more than two inches broad, the midian lobe often short, sometimes blunt and not longer than the side lobes; the ribs below were about yellowish and decidedly less dark than on the red maple. The owner of the estate had for ten years not observed any change in the foliage of the trees. During the last winter the upper part of one tree, some 20 feet, broke down in a gale, and proved to be not infested by white ants. Now it was considered safe to fell the whole tree. The bark was, in the place where the gangs went up along the tree, extensively bored and hollowed by the white ants. The wood itself was only two feet above the ground, filled with the common white ant holes and gangs, but no

more than one inch deep around the stump. The inner part of the tree showed the wood perfectly sound for 30 feet, except a perpendicular hole of two inches diameter in the middle of the tree, going down to the root. This hole, perhaps made by squirrels, had black ants as inhabitants. The two other trees are still standing. In consequence of those facts, I looked around in Cambridge, and have now the suspicion that perhaps the injury done to living trees may be less rare than I had supposed. If similar observations are made by entomologists, I would be thankful to have them communicated to me.

ON THE RELATIONS OF FUNGI TO GALLS AND TO LARVÆ OF CECIDOMYIA LIVING IN GALLS.

BY DR. FRIEDRICH THOMAS, OHRDRUF, NEAR GOTHA, GERMANY.

[This paper, an excellent addition to an excellent American paper by Mr. W. Trelease (*Psyche*, vol. iv., p. 195), is published in the *Jrnischia*, Vol. v., No. 1, p. 4, 1885. As it will be difficult for American students to have access to this periodical, I have translated the substance. Dr. Thomas has seen only the record of Mr. Trelease's paper in *Botan. Centralblatt*, xx., p. 356, by Dr. Ludwig.—H. A. HAGEN.]

Larvæ of *Cecidomyia* living in the spore-layers of *Uredineæ* are also found in Thuringia, Germany. In fact the discovery of the community in the same layer of two otherwise very different parasites is at first somewhat wonderful and startling. The right explanation will be a double symbiosis of a phanerogamous plant and of a fungus, and of a fungus and an entomozoon. Years ago I received from Gotha such larvæ out of the rust-fungus of *Rosa*. A similar manner of living is known in Germany for *Diplois coniophaga*, Winnertz, and for *D. cæomatis*, Winn. Their larvæ were found by F. Loew in the rust-fungus of several plants (of *Verh. Zool. Bot. Ges. Wien.*, 1874, p. 155). I am able to add two new facts. I found larvæ of *Cecidomyia* on *Vaccinium uliginosum* in the spore layers of *Thecospora Myrtilina*, Karsten (*Melampsora vaccinii*, Alb. et, Schn) on the Beerberg in the Thueringerwald. The other one was sent to me by Dr. E. Levier from Florence, Italy. The leaves of *Tanacetum balsamita*, L. (*Erba'di Santa Maria*) had in the *Puccinia Tanaceti balsamita*, D. C., many small, red larvæ of *Cecidomyia*. I am not of the opinion.

that this guard is of prominent advantage for the plant. The enormous numbers of the spores of the rust-fungus will scarcely be diminished by these larvæ to any extent, that the guard may be considered to be a practical advantage for the plant.

The second point of interest in Mr. Trelease's paper is that the larvæ open the way for the fungus in the plants. I may state as an analogous fact, that here the pustulae and pocks on the leaves of Pomaceæ, made by *Phytoptus*, are not rarely filled by fungi, especially by the carbonized ones. The last plant I received by the late Alex. Braun, in 1877, from Blankenburg, Hartz., was a leaf of *Sorbus aucuparia*, with fungus immigrated in the galls of the mites.

A NOTE ON SOME HYDROPHILIDÆ.

BY GEORGE H. HORN, M. D.

Hydrophilus, as heretofore recognized in our fauna, contains two sets of species, the one series large, the other relatively small. They also differ in the form of the maxillary palpi and should properly be considered distinct genera defined as follows:—

HYDROPHILUS.—Terminal joint of maxillary palpi much shorter than the penultimate, the second joint long, arcuate. Claws toothed.

TROPISTERNUS.—Terminal joint as long or even longer than the penultimate, the second joint moderately long and straight. Claws not toothed.

The large species belong to the first series, and but two have appeared in our lists.

In the *Biologia Cent. Am.*, vol. I, pt. 2, p. 54, Dr. Sharp mentions two others as occurring in our faunal limits, *H. insularis* Cast. and *H. ater* Fab. The former has long been known to us, but has remained without name in our cabinets. The latter, which I have never seen, is quoted rather indefinitely by Dr. Sharp, "Philadelphia, Texas."

The species known in American collections are as follows:—

H. ovatus G. & *H. (ovalis* || Zieg.) Form more broadly oval, thorax more deflexed in front. Prosternal groove open in front. Abdomen opaque, densely finely pubescent, except a narrow space at the middle of the last three ventral segments.

The claws of the anterior tarsi ♂ are very nearly equal, the last joint about one and a half times the length of the four preceding joints and not broader than these, as is the case in the next two species. The tooth of the tarsal claws is much longer than in either of the foregoing species. This species is readily recognized. It is less widely distributed than the others, but specimens are known to me from Pennsylvania, Missouri and Georgia.

H. triangularis Say. More elongate and narrower than either the preceding or next species. Prosternal groove closed in front. Ventral segments smooth and shining, except for a narrow space on each side, each segment with a conspicuous pale spot.

The male has the claws of the anterior tarsi very unequal, the anterior or outer being much larger and stronger, the last tarsal joint oblong, wider and a little longer than the preceding joints together, and much longer than wide.

This species occurs from the Middle States to Oregon, southward into Mexico.

H. insularis Cast. Larger than the preceding species and less slender. Prosternal groove closed. Abdomen smooth, the sides narrowly opaque, the yellow spots very indistinct or absent.

The male has the anterior claws very unequal, the last joint of the front tarsi as long as the preceding four, broadly triangularly dilated, slightly broader than long.

When once the form of these two species is fixed in the eye, there is no difficulty in distinguishing them independently of the male characters, which are very obvious.

This species is known to me from Texas and Arizona. It extends to Guatemala, and occurs also in the Antilles.

Tropisternus apicipalpis Chevr. This species should be added to our lists. It is much larger than our other species and more narrowed posteriorly. The terminal joint of the maxillary palpi is a little shorter than the preceding, thereby approaching *Hydrophilus*. The last ventral segment has a strong spiniform crest. It is more nearly related in our fauna to *glaber* and *mixtus*, and differs from both not only in its larger size and by being more narrowed posteriorly, but also by the middle and hind femora being very dissimilarly punctate.

Occurs in Arizona, the peninsula of California, and in Mexico.

Berosus Salvini Sharp, Biol. loc. cit. p. 79. This species also occurs in our fauna. It belongs to the same series as *punctatissimus* and resembles it, but is rather more elongate, the sculpture smoother and the apical spines of the elytra more prolonged.

Occurs in Texas and Mexico.

BOOK NOTICES.

Report of the Dominion Entomologist for 1884.—Department of Agriculture, Ottawa.

A long felt want has at last been supplied in the appointment of a Dominion Entomologist, and a well qualified expert selected for the work, Mr. James Fletcher, whose preliminary report is before us. His appointment was made so late in the season that he has been unable to do more than furnish a brief report, in which reference is made to the organization of the department under his charge and the measures taken to interest all those engaged in agriculture and horticulture in the work. Following this is a report on the quality of the Paris green found in the market, with results of the analysis of six samples; also reports on insects injuring grain crops, hay and clover, peas, root crops, fruits and forest trees; altogether a useful review of the chief injuries caused by insects to these several crops during 1884. We sincerely congratulate Mr. Fletcher on the good work thus far done, and earnestly hope that he may be able to carry to a successful issue the plans laid out for the present year.

Eighth Report of Observations on Injurious Insects and Common Farm Pests, with Methods of Prevention and Remedy, by Eleanor A. Ormerod, Dunster Lodge, near Isleworth, England; 8 vo., pp. 122, with 39 cuts. Published by Simpkin, Marshall & Co., Stationers, Hall Court, London, England.

We are much indebted to the talented authoress for a copy of this valuable report, which is in no respect behind its predecessors. In the preface reference is made to the relations of birds to insects, wherein the sparrow is condemned very strongly. Its habit of driving away other and more useful birds, together with its grain-feeding propensities, are fully recognized in England as well as in this country, and fairly entitle it to be regarded as an enemy rather than a friend. More extended reference is made to this subject in a chapter headed "Birds, Depredations of Spar-

rows." The insects which have proved injurious to the following fruits, vegetables, trees, etc., during the past year, together with the best methods of preventing their ravages, are also treated of in the following order: Apple, beans, cabbage, carrots, corn and grass, gooseberry, hop, mangold, oak, onions, parsley, pine, potatoes, raspberry, turnip and willow. The report also contains chapters on marsh snails and the ox bot-fly. Miss Ormerod has succeeded in awakening much interest in England on the subject of injurious insects, and by her careful observations and experiments has conferred lasting benefits on the agricultural community.

CORRESPONDENCE.

Dear Sir: On page 113 of the present volume I stated erroneously that in neither of Mr. Scudder's lists of food-plants was willow attributed to *P. Turnus*. In "Butterflies," p. 309, willow is given. It is however an exceptional food-plant.

W. H. EDWARDS.

COELOPA FRIGIDA, FALLEN.

Dear Sir: The occurrence of this fly (which is common along the shores of northern Europe) in N. America, was known long ago. It is always found where *Fucus vesiculosus* abounds. Nevertheless its previous stages seem to be still unknown, and it is the intention of this note to draw attention to this fact and to invite readers to fill this gap. Mr. J. H. Sears, of Salem, Mass., collected the flies in tide pools at Marblehead, Mass., Nov. 30, 1884. In 1877 I received a large number raised in the cellar of the chemical laboratory of Harvard College, Nov. 6. There had been stored a large quantity of fresh sea weeds for chemical examination. I think it is to be supposed that the larva lives not only in the dry dead sea-weed, but probably also in the living. The species would then be an addition to our known marine insects. After Zetterstedt, this species is identical with Doumerc's *Psallidomyia fucicola*, but I cannot consult this paper. Schiner, vol. ii., p. 319, says, *Metamorphosis ignota*. I would be glad to be informed about the previous stages of this species, or—if they are published—to know the author. What is known about the previous stages of the Diptera has not yet been collected, and is so scattered in different papers that it is very difficult to find if the metamorphosis of a given species is known and published.

H. A. HAGEN, Cambridge, Mass.