

474. *Tettix granulatus* = Same.  
*Tettix ornatus* = Same.  
 475. *Tettix triangularis* = *Tettix ornatus*.  
*Tettix cucullatus* = *Paratettix cucullatus*.  
 477. *Tettigidea lateralis* = *Tettigidea parvipennis*.  
*Tettigidea polymorpha* = *Tettigidea parvipennis*.  
 478. *Batrachidea cristata* = *Nomotettix cristatus*.  
 479. *Batrachidea carinata* = *Nomotettix cristatus*.

#### *Locustidae.*

434. *Ceuthophilus maculatus* = Same.  
*Ceuthophilus brevipes* = Same.  
 444. *Cyrtophyllus concavus* = *Cyrtophyllus perspicillatus*.  
*Phylloptera oblongifolia* = *Amblycorypha oblongifolia*.  
 445. *Phylloptera rotundifolia* = *Amblycorypha rotundifolia*.  
 447. *Microcentrum affiliatum* = *Microcentrum laurifolium*.  
 448. *Phaneroptera curvicauda* = *Scudderia curvicauda*.  
 449. *Conocephalus ensiger* = Same.

449. *Conocephalus robustus* = Same.  
 451. *Xiphidium fasciatum* = Same.  
*Xiphidium brevipenne* = Same.  
 452. *Orchelimum vulgare* = *Orchelimum agile*.  
*Orchelimum concinnum* = *Orchelimum herbaceum*.  
 453. *Orchelimum glaberrimum* = Same.  
*Thyreonotus pachymerus* = *Atlanticus pachymerus*.  
 454. *Thyreonotus dorsalis* = *Atlanticus dorsalis*.

#### *Gryllidae.*

425. *Tridactylus terminalis* = Same.  
 426. *Gryllotalpa borealis* = Same.  
*Gryllotalpa longipennis* = *Gryllotalpa borealis*.  
 427. *Gryllus luctuosus* = Same.  
*Gryllus abbreviatus* = Same.  
*Gryllus angustus* = *Gryllus abbreviatus*.  
 428. *Gryllus neglectus* = Same.  
*Gryllus niger* = *Gryllus pennsylvanicus*.  
 430. *Nemobius vittatus* = *Nemobius fasciatus*.  
*Nemobius fasciatus* = Same.  
 431. *Oecanthus niveus* = Same.

## LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE.—XIV.

BY HARRISON G. DYAR, WASHINGTON, D. C.

*Eois suavata* Hulst. — This species was described by Dr. Hulst from the moths bred from the larvae here described.

*Egg.* Elliptical, rounded, only slightly flattened, one end distinctly smaller, the other (micropylar) scarcely flattened, not at all truncate. Reticulations distinct, strongly raised and thick, uniform, roundly hexagonal, alike throughout except just at the micropyle where they become small and delicate; they are somewhat coarser over the rest of the large end. Delicate blue-green, only slightly shining. Size  $.8 \times .6 \times .5$  mm. Later a few red specks appeared; still later the color

became white with an irregular green mark on the side and indistinct red specks at the large end.

*Stage I.* Head flat before, round, a shallow notch on the vertex, the vertex and sides of equal width. White on face, banded around the vertex and sides with brown-black; mouth dark; width .3 mm. Body moderately slender, the legless segments well drawn out, normal. White with seven broad, black, transverse bands as wide as the intervening white spaces. Joints 2 and 3 white, the cervical shield large, concolorous; joints 4 to 10 broadly black banded cen-

trally, the bands incised and nearly interrupted by the subventral fold, that of joint to completely so. Edges of bands irregular, but not diffuse. Legs all white, the abdominal ones with dusky shields; anal plate white. Tubercles small, dark, the setae short, stiff with swollen tips. Segments finely annulate, as much as 20; incisure part of segments smaller than the central part. Six setae on cervical shield; ia and iia of thorax small, the rest normal, no subprimaries. On feeding, the white parts, except the thorax, become faintly greenish; the black bands pale a little and a darker patch appears anteriorly subdorsally between warts i and iii. Thorax in some a little tinted with salmon color. Still later the bands are pale slaty, a narrow brown addorsal streak appears and some brown flecks subdorsally and subventrally.

*Stage II.* Head white with a few black specks, the larger ones forming an arc from ocelli above apex of clypeus; rounded, not bilobed; width .5 mm. Body white, the food showing faintly green; posterior rims of joints 5 to 9 ochre yellow; a fine double blackish dorsal line, cut at the incisures, the ends bent in to form a series of dorsal paralograms, the cuts only at the ochreous incisures; a series of black subdorsal spots, a small double one anteriorly and two larger single ones medially and posteriorly on the segments, the latter joined by a slaty shade into a somewhat dumbbell-shaped spot, the marks confused and contracted at the extremities. A similar subventral row, but smaller and the anterior spot obsolete; a medio-ventral line, double, widened a little in the centers of the segments. The ends, joints 2 to 4 and 10 to 13 and feet appear simply white, peppered with black. Later the ventral ground color is pale green, the dorsal pale blue.

*Stage III.* Head round, white with a few black dots, three on each side of clypeus, a curved row of four from behind ocelli to apex of lobe and a smaller pulverulent one on the

posterior edge; width 9. to 1.0 mm. Body bluish white dorsally, pale green ventrally, the incisures of joints 5 to 10 with bright orange bands; marks black, finely streaked on the numerous (about 25) annulets, dorsal loops, subdorsal spots (the two posterior joined) and ventral spottings as before. Tubercles and setae black, obscure, the latter rudimentary; iv stigmal posterior. There are slight orange blotches in the somewhat broadly pale stigmal region. Ends with double dorsal and single lateral streaked lines.

*Stage IV.* No essential change. Head 1.4 mm., darker, the orange marks more extensive. Head rounded, bilobed, clypeus a little depressed; head erect, free from joint 2. Body pale greenish white in ground, but the markings predominant. Slender, uniform, cylindrical, the segments about 25-annulate, all the marks cut into patches by the annulets. Double dorsal, broad lateral and broad obscurely double subventral bands, broken into the loops and spots of the previous stages, but less distinctly, being more connected. Orange in the extended incisures and more or less of it also dorsally and laterally and even ventrally in spottings between the black marks. Cervical shield and plates without orange. Anal plate and legs more finely spotted. Tubercles small and with spiracles black. Setae obsolete.

Pupation in the ground. Food plant *Randia aculeata*. Larvae from Palm Beach, Florida, eggs Jan. 12, mature larva Feb. 17, though others lingered much later. Probably breeds continuously.

**OCCURRENCE OF MACHILIS VARIABILIS IN MAINE.**—It may be as well to note the occurrence of this Thysanuran in Maine. I was informed by Dr. H. S. Pratt that he had found several of them running over the rocks at Little Flying Point, Freeport, Maine, and from his account I have no doubt it is this insect. It has not before been recorded north of Salem, Mass.—*A. S. Packard.*





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