

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XIV.

JANUARY, 1903.

No. 1.

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Variation in *Haploa*.

H. W. MERRICK, New Brighton, Penna.

The plate on the opposite page is interesting, I think, chiefly from the fact that the series of *Haploas* here shown are all selected from my catch of 1902, and are thus one season's brood, taken in quite a small piece of timber. Numbers 1-32, were taken on a hill-top covered with large hard wood timber, about three miles west of my home.

Numbers 33-96 were taken under similar conditions about one mile east of my home. The *H. contigua* (Nos. 1-32) and *H. militaris* (33-96) were selected from about an equal number taken of each species, and show much more variation in the latter than the former.

While the immaculate form of *militaris* is quite common, probably 25 to 30 per ct. of the entire brood, yet I have failed

Entomological Literature.

Ricerche sull' apparato di secrezione e sul secreto della Coccinella 7-punctata L. Pel Dott. ANTONIO PORTA. Con una tavola. Anatomischer Anzeiger, Jena, Oct. 24, 1902. Pp. 177-193.—In this paper Dr. Porta presents the results of a study of the nature, physiological action and source of the yellow secretion emitted by this Coccinella, when irritated, in both larval and adult stages. They disagree so much from previous ideas as to be worth noticing here. The secretion escapes by a fissure at the apex of each femur in the adult (as previously known), and by pairs of openings at some of the intersegmental abdominal articulations of the larva; it is orange-yellow in color, astringent and disgusting in taste, has a fresh-pea odor; is soluble in distilled water, absolute alcohol and ammonia; insoluble in acetic ether, acetic acid, sulphuric ether, and chloroform; has a very sensible acid reaction; responds to Pettenkofer's test for bile acids, but not to Günzberg's or Boas' tests for hydrochloric acid, or to Gmelin's test for bile pigments; spectroscopically examined, it is described as approaching urobilin; microscopically studied, it contains numerous globules, granular and homogeneous bodies of various sizes and shapes, evidently on the way to dissolution. The weight of the secretion of one individual was determined by placing the beetle on filter paper, stimulating it, preferably by an electro-magnetic machine, and weighing the paper before and after; this precaution was necessary, as the liquid quickly evaporates. From a number of experiments the average weight of the secretion is given as .0026 gram. To obtain the secretion in solution in large quantities, a number of Coccinellæ (90-500) were placed in a definite quantity of water; the coldness of the latter, together with mechanical irritation by a forceps, caused a flow of the secretion. Hypodermic injections of such solutions always produced paralysis in frogs, tritons, guinea-pigs and rabbits, followed in some cases by death. Paralysis or death was proven, by appropriately arranged experiments, to be due to the effect of the venom on the medulla oblongata, not on the spinal cord nor on the heart, the latter in frogs continuing to pulsate after death. Relatively strong hypodermic injections into other insects produced temporary immobility but not death; living insects confined with living Coccinellæ were not affected sensibly, although there were numerous yellow stains on the box showing that the secretion had been emitted. It is hardly necessary to say that the quantities of secretion injected were greatly in excess of that produced by a single Coccinella. Coccinellæ offered to and swallowed by frogs were soon vomited.

As to the source of this secretion, and this is the most novel of his results, Dr. Porta completely disagrees with Leydig and others who asserted the secretion to be ejected blood. Finding that the mid-intestine likewise responds to Pettenkofer's test, he believes that the follicles situated in the meshes of a network of connective tissue between the muscle-

fibres of the intestinal wall, produce the secretion. These follicles have been regarded by earlier authors as furnishing digestive juices; Dr. Porta finds them in all insects which he has examined. Ordinarily, he supposes, the product of these follicles is poured into the intestinal cavity, but when the insect is irritated the intestine is contracted "and the liquid which it contains passes into the cœlomic cavity (the walls of the intestine being porous) and thence escapes by the fissure described by Lutz, which is found in the articulation of the leg at the extremity of each femur." Other arguments which are cited in support of this view are that the swiftness of the blood current, as observed in transparent insect larvæ (e. g. Ephemérids), would preserve the blood from mixing in the cœlom with this expressed intestinal content; that the bodies in the secretion considered by Leydig to be blood corpuscles are mere accompaniments like salivary corpuscles in saliva; that the elasticity of the intestinal wall would permit passage of the intestinal contents through it; that when irritation of a *Coccinella* larva is prolonged, after the yellow secretion, there follows from the same apertures, "a black or greenish liquid, which is none other than the ingested material which has already undergone the first digestive modifications;" "finally the relation between the quantity of liquid secreted and the condition of the animal is easily shown, the biliary secretion being in correlation with the alimentary substances contained in the mid-intestine, there being none when fasting is prolonged."

From the physiological point of view the asserted existence of biliary acids in this insect is particularly interesting. Dastre and Florescq stated, as recently as 1898, "To our knowledge, biliary acids have never been met with in invertebrates whose hepatic secretion has been procured" (*Archives de Physiologie*, Paris, xxx, p. 210). It may also be noted that Dr. Porta states "The isolated Malpighian tubes do not give Pettenkofer's reaction."—F. P. C.

CORRECTIONS.

ENT. NEWS, Dec., 1902, p. 303, line 3 from bottom, for *Euhagenia* read *Euhagena*.

ENT. NEWS, Dec. 1902, p. 318, line 6 from bottom, for Temple read Tempe.—T. D. A. COCKERELL.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

THE following visiting entomologists have recently been studying the collections of the American Entomological Society and the Academy of Natural Sciences of Philadelphia. Dr. Walther Horn, Berlin; Mr. Wm. Beutenmuller, New York; Mr. Rolla P. Curry, U. S. National Museum, Washington, D. C.; Mr. August Busck, U. S. Depart. Agric., and Mr. H. A. Ballou, Amherst, Mass.