Florus is a variety of the female of *dorcas*. It occurs in Oakland county, but is much less frequent than the usual form of the female. Wm. H. Edwards, in describing *florus*, says: "Upper side dark brown, a little mottled with obscure yellow on disk of primaries at end of cell and outside the black spots in median interspaces only." I find this yellow existing as a mere trace in the first median interspace to a patch of yellow outside of every black spot in the transverse row of spots on the outer third of the wings, excepting the first spot next the costa on the fore wings and the first two spots on the hind wings. The yellow at the end of the cell in my series is less frequent than the yellow outside the row of black spots. *Dorcas* males vary little, this being chiefly in the width of the black border on the upper surfaces of the wings.

I wish to express my appreciation of the deep interest which the late Dr. Fletcher took in my observations upon this species. It is with the greatest regret that I realize I am to receive no more of his instructive and enthusiastic letters. As for the full history of *dorcas*, I am trusting that the eggs will hatch, and that the larvæ may be raised to maturity.

NEW GEOMETRIDS OF THE GENUS *HYDRIOMENA*.

BY L. W. SWETT, BOSTON, MASS.

Hydriomena Barnesata, n. sp.—Expanse, 29–35 mm.; *palpi* very long, 2 mm., and beak-like, black-scaled, white-tipped, front of head gray, thorax and abdomen light gray. Fore wings ash colour, with greenish shading basally and near border of wing; hind wings smoke coloured. The fore wings have indication of a band close to body, then an ash-coloured space about 2 mm. wide from basal band, then a black band running straight from costa to inner margin, as in most of the *Hydriomenas*, a greenish space, then another black band same as first, only slightly wider and more irregular in course, with a tendency to bend outward on median vein, then a greenish space and a third line running straight across same as others, only much narrower after it leaves the costa, where it starts from a large spot. These three dark, wide bands form a mesial band as it were, then from this mesial band of three straight bands is an irregular, quite wide, pale, more or less mottled space, edged externally by an irregular, narrow black line which runs from costa, where it starts from black patch running to vein 3, where it is broken, thence to inner margin. Between this and outer margin is another black line, broad near costa, and tapering as it reaches inner margin; near apex of wing a black dash, which runs to this irregular line, as is the case in most of the

July, 1909

Hydriomenas ; beyond this line is a clear outer margin with dots at the ends of the veins at base of fringe, which is quite long and brownish, with a line running through. Hind wings brownish, showing traces of two irregular dark lines, pale between, fringe whitish, with intervenular dots. Tip of abdomen tufted, as are all the Hydriomenas. Beneath, fore wings pale ash-gray, showing faintly the lines above, the two near outer border being plainest, and the apical streak. Hind wings same colour as fore wings, with only one of the black lines showing, that being the inner one, which makes quite a dip. This species can be readily distinguished by the long palpi and straight mesial bands, which are peculiar for this group. I take pleasure in naming this geometer after Dr. Barnes, who has done so much to increase our knowledge of the western species.

Types, 3 ♂'s, two from Dr. Barnes, Huachuca Mts., Ariz., and one from Mr. Grossbeck, Arizona, and in their collections.

Hydriomena Cochiseata, n. sp.—Expanse, 31–33 mm.; *palpi* short, about 1 mm. in length, brownish, white-tipped ; wings full and rounded, more like *Mesoleuca* ; front of head whitish ; thorax and abdomen gray. Fore wings dark gray, with a reddish tinge in one specimen. Basal band smoke-coloured, then a light space ; median space made up of the usual three bands, the first basally irregular and bent outwards, particularly on median vein, thence to inner margin in two scallops ; the second band is hardly distinguishable, but is broad and irregular, as the median band has no clear space between the lines, but is suffused with smoke-colour ; the outer band is also very irregular, starting from a black patch on costa, whence it runs to inner margin, meeting middle line and fusing with it to form a Y, as in *furcata* = *sordidata* of Europe ; in some cases the mesial space is narrow and irregular, being not over 4 mm. at widest part, which is rather striking in this group ; this band is in one example white, and in the second suffused with gray ; the outer line bordering mesial space starts very irregularly near costa in a series of notches, and is quite wide till 4 mm. below costa, then it is an irregular black hair line to inner margin. From this line to outer margin both specimens are suffused with dark gray ; a second irregular line is scarcely visible near outer border, there being a reddish shading on either side. Marginal dots and moderately long brown fringe. Hind wings brown, with two characteristic pale lines. Beneath, pale gray on fore wings, with the white mesial space showing plainly and black outer line. Hind wings same colour as fore wings, and with inner line showing.

Types, 2 ♂'s, Palmerlee, Cochise Co., Arizona, from Mr. Broadwell's collection.

Hydriomena Glenwoodata, n. sp.—Expanse, 25 mm; *palpi* rather long and slender, blackish; front of head grayish; thorax and abdomen gray. Fore wings light ash-gray, with slightly greenish tinge of a more or less mottled appearance. Line at base of wing hardly discernible, first line of the mesial band bent outwards very strongly between median vein and costa, below it runs almost straight from vein to inner margin; second line fairly wide, rather irregular in course, appearing in three blotches on costa, median vein and inner margin; outer line, starts outward from costa, and then in a peculiar S-like curve, which in one specimen is rather broad to inner margin, where it forms a black patch, a characteristic marking of a good many of this group. The mesial space is pale and rather suffused with dark gray, discal spots easily distinguished, linear. Line bordering mesial space externally starts as black patch on costa, then a fine line discernible as dots on veins to inner margin. Marginal band irregular and smoke-coloured, rather broad, exterior margin clear, except for dots at end of veins at base of fringe. Apical streak appears as a spot; fringe light ash and short. Hind wings dark ash, two pale outer lines hardly visible, discal dot, unless looked for especially, is so minute as to escape detection. Beneath the fore wings are quite a dark smoke colour, with the linear discal dot showing faintly. The submarginal line shows quite plainly from costa to median vein, and is shaded lighter externally, the general course being a low curve. Hind wings lighter than fore wings, discal spot hardly visible, faint outer line showing. The long slender palpi and the peculiar double curve of the outer line of mesial band will serve to distinguish it from *autumnalis* or other forms.

Types, 1 ♂, July 16-23, Glenwood Springs, Colo., 1 ♀, Aug. 1-7, Glenwood Springs, Colo., 1 ♀, Colo. (Bruce). All from Dr. Barnes. One ♀, Half-Way House, Pike's Peak, Colo., 9,000 feet altitude, July 16-18, 1902, from H. H. Newcomb, in my collection.

Hydriomena Chiricahuata, n. sp.—Expanse, 25-28 mm.; *palpi* moderate, 1 mm. in length; front of head dark gray, same colour as palpi. Fore wings rather long and pointed, of a reddish ash colour in the mesial space and greenish on mesial band and outer margin (basal band, if any, does not show); first line curved outward from costa to inner margin; second line hardly visible, narrow and rather zigzag in its course; third line of mesial band bends quite sharply inward from costa almost to

mesial vein, then bends sharply outward to vein 3, then inward to vein 2, then outward to inner margin, where it ends in a large black blotch. Mesial space light ash with reddish shading, discal spot small, black and linear. The mesial band is narrower than any of the other species, not more than 3 mm. in widest portion. Outer black line of mesial space bends sharply outward from costa to vein 7, then sharply inward towards discal point, sending a black streak almost to it, from which it doubles back towards outer margin in two scallops to vein 3, whence it runs almost straight to inner margin, ending in a black spot. The usual smoke-coloured irregular band between this line and outer margin, beyond which the wing is clear, except for intervenular spots, also the usual black apical streak; fringe short and light ash-coloured. Hind wings pale ash, discal spots showing plainly. The inner characteristic line of this group showing in dots on veins which is rather unusual, the outer pale line being normal. Beneath, fore wings pale ash, and showing same markings as above, except that the extradiscal line shows quite plainly at costa as a black patch, discal points visible on fore and hind wings. Hind wings light ash, inner band showing in dots on vein as above.

Types, 2 ♂'s, Huachuca and Chiricahua Mts., Arizona, from Dr. Barnes.

This species may be known by the peculiar narrow mesial band, the course of third line, and three black patches on inner margin and by the dotted line on hind wing.

Hydriomena Edenata, n. sp.—Expanse, 30–34 mm.; *palpi* long, 2 mm., rather bushy, black scaled; front of head yellowish-ash; thorax and abdomen light ash. Antennæ minutely ringed with white. Fore wings long and narrow, ash-gray, with rust-red shadings in mesial band and outer border. Base of wing clear ash. There is no basal line as in *ruberata*, European or North American forms. At a distance out from the body the first black line of mesial band starts from the costa, diagonally across wing to inner margin, with a slight bend outwards at median vein, which is shaded with red. Next the usual wide irregular bluish band from costa to inner margin, shaded outwardly with red; the third line is almost thread-like, and runs zigzag on each vein from costa to inner margin. From this line on inner margin to the first line there extends across the entire mesial band a wide black bar, which is extremely striking. The mesial space is pale ash tinged with red, with a black linear discal spot. The extradiscal line is black and narrow, runs outward to apical dash, then inward, forming a sharp-pointed tooth, bending outward to median

vein, below which it takes a deep outward curve to vein 3, then almost straight to inner margin. Beyond this line is a reddish band, then the usual wide sinuate bluish band, shaded outwardly with red, the outer margin being clear ashen-gray, with minute dots at end of veins; fringe light ash, with black line running through it. There are three black dashes on the veins from the apex of the wing, the lower being the longest and touching the extradiscal line. Hind wings light ash, with the usual two pale lines somewhat scalloped on veins, discal dot showing plainly. Beneath, fore wings grayish, with only the extradiscal black bands and discal spots showing; the same is true of the hind wings. This species runs close to *ruberata*, Freyer, of Europe, which I have, and also examples from Maine of the same, submitted to Mr. L. B. Prout, of England, who said I had identified the species correctly. *Edenata* may be a variety of *ruberata*, but at least not one of the described ones, although I think it is a distinct species. In the Berliner Ent. Zeit., Vol. 51, 1906, p. 256, Freiherr von Hoyningen-Huene discusses the *trifasciata-ruberata* group and describes several new varieties, showing that it is a somewhat variable species.

Types, 1 ♂, Monterey Co., Colo., from Mr. Grossbeck; 5 ♂'s, Eden Vale, Monterey Co., Colo., June, from Mr. Broadwell and Mr. Grossbeck.

MOSQUITO OBSERVATIONS.

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Beyond the limits of this article it is not my intention to reply to Dr. Dyar's comments.*

A few points in his recent article may be referred to:

(a) The senior author is responsible for what appears under his name, whether he wrote it or not.

(b) It would probably have simplified matters if it had occurred to me to state definitely that, while the specimens are shipped to me in boxes, the collection has never been kept in them. This would have enabled Dr. Dyar to differentiate between these two conditions, for, as he has never seen my collection, he could necessarily know nothing about them; moreover, my method of keeping my collection, even were it as "unfortunate" as Dr. Dyar persistently insinuates, is strictly a personal matter, and lies quite outside Dr. Dyar's province.

*Mosquito Comment, CAN. ENT., March, 1909, p. 101.

July, 1909