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### XXVII.—Descriptions of Aphides

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were now in flower at this place, but I saw nothing else of any interest.

On the 28th of August I paid a visit to the north-west coast of Hoy, and found *Drosera anglica* in abundance, and *Vaccinium uliginosum* sparingly, and in the marshes above Rysay *Schœnus nigricans* and *Eleocharis multicaulis*, both of which I also found in several places in the manland.

On the 31st *Stachys ambigua* was in flower at Kirkwall. Near Piggar, and in several other places round Swanbister, *Anthemis nobilis* occurs in plenty and apparently wild in one marshy field in particular, where it covers a large extent of ground, and is now at all events perfectly naturalized.

At Swanbister there is a tract of low land called the "Fidge," which used to be overflowed by the sea at spring tides, but is now protected from this by a sea-wall built by Mr. Fortescue. Here there are a good many of the plants that are to be found in salt marshes, *Salicornia herbacea*, *Cakile maritima*, *Alsine maritima*, *Sagina maritima*, *Carex extensa*, *Eleocharis uniglumis*, *Ruppia rostellata*, *Potamogeton filiformis*, *Blysmus rufus*, and one plant of *Stenhammaria maritima*. On the rocks called "Barnory," to the south of this, *Ligusticum scoticum* and the maritime form of *Pyrethrum inodorum* were seen; both of these plants also occur in profusion in the island of Burray along with *Silene maritima*.

*Avena fatua* and *strigosa* are found in most of the turnip-fields, &c., and appear to be quite indigenous. *Festuca ovina* var. *vivipara* is also common, and *Radiola millegrana* is to be seen in most of the moors.

There are a few bushes of *Populus tremula* and *Rosa villosa* on the cliffs, on the east side of the Wauk-mill bay between Kirkwall and Swanbister.

These are all the plants which I met with that are worth noticing; but on my next trip to Orkney I hope to be able to visit the north isles, which may perhaps add some others to the list, and make a trip to Orkney of sufficient interest to attract botanists more competent than myself to examine its flora.

84 Great King Street, Edinburgh, Feb. 5th, 1850.

XXVII.—*Descriptions of Aphides.* By FRANCIS WALKER, F.L.S.

[Continued from p. 28.]

77. *Aphis Mali*, Fabricius.

*Aphis Mali*, Fabr. Ent. Syst. iv. 216; Syst. Rhyn. 298; Schrank, Faun. Boic. ii. 116; Götze, Ent. Beit. ii. 317; Stew.

El. ii. 111; Turt. ii. 706; Shaw, Gen. Zool. vi. pl. 58; Kalt. Mon. Pflanz. i. 72. 52.

*A. Pomi*, Deg. Ins. iii. 36. pl. 3. fig. 18-21; Latr. Gen. Cr. iii. 173.

*A. Oxyacanthæ*, Schrank, Faun. Boic. ii. 116. 1219.

*Oxyacanthaphis*, Amyot, Ann. Soc. Ent. Fr. 2<sup>de</sup> série, v. 478.

This species feeds on *Pyrus malus*, *P. communis*, *Cydonia vulgaris*, *Mespilus germanica*, *Sorbus aucuparia*, and *Cratægus oxyacantha*.

When very young, and in the middle of March, it has a dark green colour: the head and the limbs are still darker: the eyes are dark brown: the feelers are half the length of the body: the mouth reaches to the hind-hips: a dark stripe runs along each side of the body: the nectaries are about one-eighth of its length: the legs are rather short and stout: it dwells on the buds with the pale orange young ones of *Psylla Pyri*. When full-grown it is green, shining, oval, and convex: the limbs are brownish green: the feelers are setaceous, rather stout, brown, pale green at the base, and less than half the length of the body: the legs are pale green; the feet are brown: the front is broad and convex, and there are no tubercles at the base of the feelers; the first and the second joints of the latter are not angular; the fourth joint is much shorter than the third; the fifth is a little shorter than the fourth; the sixth is a little shorter than the fifth; the seventh is slender, and rather shorter than the third.

1st var. The body is pale yellowish green with three vivid green stripes.

2nd var. The body is grass-green, varied with yellow towards the head: the limbs are pale yellow: the feelers are one-third of the length of the body: the nectaries are one-twelfth of the length of the body.

3rd var. The body is green; the limbs excepting the tips of the feelers are paler.

4th var. The body is green: the feelers are pale green, and very much shorter than the body: the nectaries are green, and from one-fourth to one-fifth of the length of the body: the mouth is green; its tip and the eyes are black: the legs are pale green with brown feet.

5th var. The feelers are shorter than the body, and the nectaries equal one-tenth of its length.

6th var. The body is pale green: the feelers are pale brown, pale green at the base, and rather more than half the length of the body: the eyes are dark brown; the mouth is pale green with a darker tip: the nectaries are less than one-twelfth of the length of the body: the legs are pale green, and rather short; the feet and the tips of the shanks are brown.

*The viviparous winged female.* Thus as a pupa and when very young is reddish green, but afterwards acquires a rose or pale red colour: the nectaries are as long as one-eighth of the body: the rudimentary wings are pale red; they are unfolded before the middle of May, and then the insect is deep black: the hind-border of the fore-chest is dark green: the abdomen is green, and sometimes it has a row of black spots on each side: the feelers are black, dull green at the base, and much shorter than the body; the fourth joint is much shorter than the third; the fifth is shorter than the fourth; the sixth is a little shorter than the fifth; the seventh is quite as long as the third: the mouth is green; its tip and the eyes are black: the nectaries are black, and vary in length from one-sixth to one-tenth of the body: the legs are dull yellow; the feet and the tips of the thighs and of the shanks are black: the wings are colourless and nearly twice the length of the body; the wing-ribs are green; the wing-brands are pale brown; the veins are dark brown: the second fork is very short.

1st var. Black: the front and the back of the fore-chest, the fore-breast, and the abdomen are dark green: the feelers are a little shorter than the body: the mouth is pale dull yellow with a black tip: the fore-thighs, the shanks except their tips, and the four hinder thighs towards the base are yellow: the wing-ribs and the rib-veins are pale yellow; the wing-brands are pale brown; the other veins are brown.

2nd var. Green: the head, the disc of the chest, and that of the breast are black, and there is a row of black spots on each side of the abdomen: the feelers are black, and about half the length of the body: the nectaries are about one-twelfth of the length of the body: the legs are black; the shanks except their tips, and the thighs towards the base, and sometimes nearly the whole of the fore-thighs are pale yellow: the wing-ribs are sometimes pale yellow, and the colour of the wing-brands varies from pale brown to dull green.

3rd var. The fore-thighs are black with the exception of the base.

4th var. The body is grass-green: the discs of the head, of the chest and of the breast are pale reddish brown: the feelers are brown, and shorter than the body: the mouth is pale green with a brown tip: the eyes are dark brown: the nectaries are pale green, and about one-sixth of the length of the body: the legs are dull pale green; the feet and the tips of the shanks are brown: the wing-ribs and the rib-veins are dull green; the brands and the other veins are brown. On the whitethorn in the middle of May.

5th var. While a pupa it is green, with two darker green

stripes : the feelers and the legs are pale green ; the tips of the former and the feet are brown. When the wings are unfolded the insect is black : the borders and the underside of the fore-chest and the abdomen are green : the feelers and the eyes are black : the mouth is green with a black tip : the nectaries are black, and as long as one-tenth of the body : the legs are pale yellow ; the feet and the tips of the thighs and of the shanks are black : the wing-ribs are pale yellow, the brands are pale brown. On the whitethorn in the middle of June.

6th var. The body is dull green : the head and the disc of the chest are varied with black : the feelers are brown, green at the base, and shorter than the body : the wing-ribs are pale green ; the veins are brown.

7th var. While a pupa it is pale greenish yellow, with three vivid green stripes on the back : the feelers are pale yellow with brown tips and much shorter than the body : the mouth and the nectaries are pale yellow with brown tips, and the latter are nearly one-sixth of the length of the body : the legs are pale yellow ; the feet are brown. The winged Aphis is black : the abdomen is green : the feelers are rather short : the nectaries are black : the legs are pale green ; the feet and the tips of the thighs are black : the wing-veins are pale dull green.

The fourth branch vein of the wing has a more gentle curve than that of many species, and the angle whence it springs is slight ; the third as usual is obsolete at its source, and it runs nearly half its length before it sends forth its first fork, and more than three-fourths of the same before it sends forth its second ; the second vein diverges slightly from the third as it proceeds to the hind-border ; they are nearer to each other at their source than the third is to the fourth ; the third converges gradually towards the fourth from the base to the tip ; the first and second are nearer to each other at their source than are the second and third, but more remote at their tips.

*Variations in the wing-veins.*—1st var. The second fork is wanting.

2nd var. Both forks are wanting.

3rd var. Like the last, but the second and the third veins meet, and after a short space part, and proceed to their respective destinations.

4th var. The second fork in one wing is moderately long, in the other it is very short.

*The oviparous wingless female.* It appears in the middle of the autumn, and when very young it is pale yellow or greenish yellow : the tips of the feelers, the eyes, the tip of the mouth, and the feet are dark. When a little older it is elliptical, and of a soft pale velvet-like yellow hue : the feelers are black, pale yellow

at the base, and rather more than half the length of the body; the knees and the tips of the shanks are black. When still older it acquires a green tint, especially on the abdomen: the nectaries have black tips, and they are one-sixth, one-eighth or one-twelfth of the length of the body: when full-grown the body is green and spindle-shaped, and the abdomen is lengthened towards the tip: the hind-shanks are hardly thicker or darker than the others.

1st var. Dark green with a bluish black hue.

2nd var. Buff.

3rd var. Pale orange.

4th var. Pale red.

5th var. The body is pale yellowish green, whitish green beneath: the head is brownish: the feelers are about half the length of the body: the mouth is pale yellow; its tip and the eyes are black: the nectaries are black, and about one-twelfth of the length of the body: the legs are yellow; the knees, the feet, and the tips of the shanks are black.

*The winged male.* It pairs with the oviparous female at the end of October, and is black: the front and the rear of the forechest, the fore-breast and the abdomen are dull yellow; the latter is slightly traversed by black bands: the feelers are very nearly as long as the body, and like those of the female are thick, with the exception of the last joint; the fourth joint is about half the length of the third; the fifth is very nearly as long as the fourth; the sixth is a little shorter than the fifth; the seventh is rather longer than the third: the mouth is dull yellow with a black tip: the nectaries are as long as one-sixth of the body: the legs are yellow; the feet and the tips of the thighs and of the shanks are black: the wing-ribs are pale yellow; the veins and the wing-brands are pale brown; the second fork is sometimes wanting.

1st var. The mouth is black; its base is dull yellow: the four hinder thighs are black, with the exception of the base.

2nd var. The thighs are black excepting the base.

Length of the body  $\frac{1}{2}$ - $\frac{5}{4}$  line; of the wings  $1\frac{1}{2}$ - $2\frac{1}{4}$  lines.

In the beginning of November the winged female is still occupied with bringing forth young ones, while the oviparous female is laying eggs. The leaves of the mountain ash are sometimes crowded with this *Aphis* in the autumn, and the wind carries them away with their insect-load. The apple-trees sometimes put forth new blossoms soon after the middle of June, the earlier flowers having been much injured by this *Aphis* and by *Psylla Pyri*. Mr. Spence mentions that the abundance of *Aphis mali* caused the failure of the apple crops in Worcestershire, Devonshire, and Herefordshire, in 1838.

*Ann. & Mag. N. Hist.* Ser. 2. Vol. v.

78. *Aphis Padi*, Linn.

*Aphis Padi*, Linn. Syst. Nat. ii. 734. 8; Faun. Succ. 981; Fabr. Ent. Syst. iv. 220. 50; Reaum. Ins. iii. pl. 23. fig. 9, 10; Schrank, Faun. Boic. ii. 115. 1216; Stew. El. ii. 110; Turt. ii. 708; Kalt. Mon. Pfl. i. 74. 53.

*Padifex*, Amyot, Ann. Soc. Ent. Fr. 2<sup>de</sup> série, v. 477.

*The viviparous wingless female.* This *Aphis* feeds on *Prunus Padus*, is hatched before the middle of March, and is then dull green: the feelers are blackish green, and less than half the length of the body: the eyes are dark brown: the mouth is dull green with a darker tip, and reaches the hind-hips: there is a dull red spot on each side of the abdomen near the nectaries, which are almost black, and about one-tenth of the length of the body: the legs are blackish green. In April it becomes rather broad, oval and convex, increasing in breadth from the head till near the base of the nectaries; its colour is now pale green, or grass-green tinged with yellow; the red spot at the base of each nectary is larger than before; and it is quite filled with young ones, and even the fore-chest is occasionally occupied by these little embryos, which sometimes exceed thirty in number: the feelers are pale yellow with brown tips, and not more than one-fifth of the length of the body; the fourth joint is more than half the length of the third; the fifth is very nearly as long as the fourth; the sixth is more than half the length of the fifth; the seventh is more than twice the length of the sixth: the eyes are black: the forehead is prominent in the middle, and has a slight tubercle at the inner base of each feeler: the mouth is yellow with a brown tip, and reaches the middle-hips: the legs are yellow; the feet and the tips of the shanks are black; the four hinder shanks are slightly curved; the fore-legs are but little more than half the length of the hind-legs: the nectaries are yellow with brown tips, and about one-twentieth of the length of the body: there is a short tube at the tip of the abdomen. Before the end of April the mother of a colony gives birth to a progeny of young ones that are very unlike their parent, being much darker and of a blackish green colour, and covered with white powder which increases in quantity as they advance in age. The colour when the skin has been lately shed is sometimes pale orange or dull olive-green, with a pale green head and almost white limbs. Mr. Hardy has sent me this species from the neighbourhood of Berwick in July, but it disappears from the bird-cherry near London in the beginning of summer, when the foliage is often almost destroyed by it and by *Yponomeuta Padella*, and it does not return to that tree till the autumn.



1st var. The body is dark brownish green.

2nd var. The feelers are nearly one-fourth of the length of the body.

3rd var. The feelers are half the length of the body.

4th var. The feelers are three-fourths of the length of the body.

5th var. The nectaries are one-twelfth of the length of the body.

6th var. The fore-legs are longer than usual.

*The viviparous winged female.* The pupa is not only distinguished from the wingless insect by its structure, but also by its darker colour and by its greater activity: the feelers are brown, pale green at the base: the legs are pale green; the feet and the tips of the shanks are brown: the rudimentary wings are pale green. The wings are unfolded in May, and the insect is then pale olive-green; the limbs are still paler, and the wings are milk-white: it is afterwards black: the abdomen is brassy black above, very dark green and covered with white powder beneath: the feelers are much shorter than the body; the fourth joint is shorter than the third; the fifth is shorter than the fourth; the sixth is much shorter than the fifth; the seventh is more than twice the length of the sixth: the nectaries are as long as one-twelfth of the body: the legs are dull green; the feet, the tips of the thighs and of the shanks, and the whole of the hind-thighs are black: the wings are colourless, and very much longer than the body: the wing-ribs are almost white; the wing-brands are green; the veins are brown.

At least eight young ones may be seen in its body while it is yet a pupa: the feelers are a little shorter than the body; the fifth joint is much shorter than the fourth; the seventh is nearly thrice the length of the sixth: the fore-legs are only a little shorter than the hind-legs; the fore-shanks are slightly curved, and very much longer than those of the wingless female: the nectaries are about one-twelfth of the length of the body: the widening of the main vein into the wing-brand begins at about half the length of the wing; it is very gradual in its approach towards, and union with, the fore-border, which is rather convex towards the base of the wing: the brand is irregularly spindle-shaped, and the fourth branch-vein springs from the middle of its hind-border; the third branch-vein is, as usual, obsolete before its source from the main-vein; its first fork occurs soon after one-third of its length, and its second fork soon after five-sixths of its length.

1st var. The legs are black, with the exception of the yellow base of the fore-thighs.

2nd var. The wing-brands are pale brown.

3rd var. The second fork in the third vein of the fore-wing is wanting. The length of this second fork is often very variable in the same species, and even in opposite wings of the same Aphis.

Length of the body  $\frac{3}{4}$ -1 line; of the wings  $2\frac{1}{2}$ -3 lines.

79. *Aphis Sorbi*, Kaltentbach.

*Aphis Sorbi*, Kalt. Mon. Pflanz. i. 70. 51.

*The viviparous wingless female.* This species is hatched in the middle of March or somewhat later, and then begins to feed on the buds of the apple-trees: it is very small and of a dark green colour: the head, the limbs, and a stripe on each side of the body are still darker: the feelers are not more than half the length of the body: the eyes are dark brown: the mouth reaches the base of the hind-legs: the nectaries are about one-eighth of the length of the body: the legs are rather short and stout. When full-grown the body is nearly round, dark reddish brown, and thickly covered with white powder: the limbs are black: the front is nearly straight, but has three slight tubercles: the feelers are half the length of the body: the nectaries are about one-ninth of its length.

1st var. Dull green, short, and very plump: the feelers are brown, dull green at the base, and shorter than the body: the eyes are black: the mouth is dull green with a brown tip: the nectaries are black, and as long as one-tenth of the body: the legs are pale yellow, and rather long; the feet, the tips of the tarsi and of the four hinder thighs are black.

2nd var. Very dark green: the thighs are black with the exception of the base which is pale yellow: the nectaries are one-eighth of the length of the body.

3rd var. Nearly round, dull reddish green, paler beneath: the feelers are black, and nearly as long as the body: the tip of the mouth is black: the nectaries are as long as one-sixth of the body: the legs are gray, excepting the base of the fore-thighs which is dull yellow.

4th var. The feelers are hardly half the length of the body.

5th var. The young one has a large dull tawny spot at the base of each nectary.

6th var. Dark reddish brown: the limbs are black: the feelers are half the length of the body, the nectaries are one-ninth of its length.

7th var. Pale orange.

8th var. Dark orange.

9th var. Pale green.

10th var. Pale buff, darker towards the tip of the abdomen.

11th var. Pale red, short-elliptic: the feelers are white with

black tips, and as long as the body : the mouth is white ; its tip and the eyes are black : the nectaries are also black, and as long as one-fifth of the body : the legs are white ; the feet and the tips of the shanks are black.

12th var. Dull green, plump, and nearly elliptic : the feelers are white with brown tips, and longer than the body : the eyes are black : the mouth is white with a brown tip : the nectaries are black, and as long as one-fifth of the body : the legs are dull white ; the knees and the tips of the shanks are black.

13th var. Dull green, oval, mottled with red at the tip of the abdomen : the feelers are pale brown, and nearly white towards the base : the mouth is dull green with a brown tip ; the nectaries are brown, and as long as one-fifth of the body ; the feet and the tips of the thighs and of the shanks are also brown.

14th var. Dull green, oval, more or less tinged with red, and covered with a white powder, or mottled with red and green, or all red, or varied with black ; there is a row of black spots on each side of the body : the feelers are black, pale yellow towards the base, and nearly as long as the body : the mouth is pale yellow ; its tip and the eyes are black : the nectaries are pale yellow with black tips, and nearly one-fourth of the length of the body : the legs are yellow ; the feet, the knees, and the tips of the shanks are black. On the mountain-ash.

*The viviparous winged female.* While a pupa it resembles the wingless female, but it is rather narrower, and its rudimentary wings are whitish ; these organs are unfolded in May, and the insect is then black and shining : the fore-chest is red, which colour also prevails on the base and the underside of the abdomen : the feelers are shorter than the body : the mouth is pale yellow with a black tip : the nectaries are as long as one-sixth of the body : the legs are pale yellow ; the thighs except the base, the feet and the tips of the shanks, are black : the wings are colourless, and longer than the body ; the wing-ribs are pale yellow ; the veins and the wing-brands are dull yellow ; the second fork is very long.

1st var. The fore-border and the hind-border of the fore-chest are green : the abdomen is dull yellowish green ; its disc is black, and there is a row of black spots on each side : the wing-brands and the veins are brown. On the mountain-ash.

This species feeds on *Crataegus oxyacantha*, *Pyrus malus*, *Sorbus aucuparia* and *S. domestica* ; it appeared in thick clusters on this last tree near London in the summer of 1847, and gave the leaves autumnal red and yellow tints, and great numbers of humble-bees (*Bombi*) came to feed on its honey.

*The oviparous wingless female.* This appears at the end of October ; it is oval, yellow, and rather flat, and has a distinct rim

on each side of the body : the feelers are black towards the tips, and much longer than the body : the eyes and the tip of the mouth are black : the nectaries have black tips, and are nearly one-fourth of the length of the body : the legs are pale yellow ; the knees and the tips of the shanks are black.

*The winged male.* This appears in the autumn and pairs with the oviparous female at the end of October : it is deep black : the abdomen is sometimes dark red with a black line along the middle ; it has a white bloom beneath : the feelers are slender, and much longer than the body ; the fourth joint is much shorter than the third, but more than half its length ; the fifth is shorter than the fourth ; the sixth is about half the length of the fifth ; the seventh is a little longer than the fourth : the nectaries are nearly one-fifth of the length of the body : the thighs towards the base, and the shanks except their tips are dark yellow : the wings are very much longer than the body ; the wing-ribs, the rib-veins and the wing-brands are pale brown ; the second vein diverges rather more from the first than it does from the third ; the first fork of the latter vein begins a little after one-third, and the second beyond two-thirds of its length ; the fourth vein is much curved near its base, but nearly straight towards its tip : the angle whence it springs is slight.

It sometimes couples also with the oviparous female of *Aphis Mali*.

Both these species very abundant in the autumn of 1846, but very scarce during that season in 1847.

Length of the body  $\frac{3}{4}$ -1 line ; of the wings  $2\frac{1}{2}$ -3 lines.

#### 80. *Aphis Euonymi*.

*Aphis Euonymi*, Fabr. Syst. Ent. 736. 14 ; Ent. Syst. iv. 214. 21 ; Syst. Rhyn. 294. 21 ; Gmelin, Syst. Nat. i. 2206 ; Schrank, Faun. Boic. ii. 1. 108 ; Turt. ii. 705 ; Sir Oswald Mosley, Gard. Chron. i. 684 ; Kaltenbach, Mon. Pflanz. i. 79. 57.

*Euonymaphis*, Amyot, Ann. Soc. Ent. Fr. 2 série, v. 478.

*The viviparous wingless female.* This appears on the spindle-tree (*Euonymus europæus*) in April : it is black, oval, convex, short, broad, very plump, and covered with a white bloom : the feelers are white, and about one-third of the length of the body ; their tips are black : the nectaries are about one-fiftieth of the length of the body : the legs are rather short, the shanks are white with black tips ; the fore-shanks are dirty white with brown tips. The young one is like its mother, but more flat and linear, less intensely black, and without bloom ; its limbs are blackish green, and at the moment of its birth its body is dark green. The front of the head is slightly convex, and not notched ; the first and the second joints of the feelers are not angular ; the

fourth joint is shorter than the third; the fifth is a little shorter than the fourth; the sixth is a little shorter than the fifth; the seventh is nearly twice the length of the sixth.

1st var. Dark bronze colour.

2nd var. Pale whitish green; limbs darker.

3rd var. Black and white, or piebald.

4th var. Dark velvet-like red: the feelers are white with black tips; the mouth also is white; its tip, the eyes and the nectaries are black: there is a large and somewhat pale spot on the disc of the body: the legs are white; the four hinder thighs, the fore-knees, the feet and the tips of the shanks are black. When very young it is pale red, and its legs excepting the feet are nearly all white.

It is infested by an *Aphidius*. The clusters of dead bodies which stick to the leaves are consumed by little *Acari*.

*The viviparous winged female.* While a pupa it has spots of white powder in a row on each side of the body: when the wings are unfolded it is stout, thick, black, shining, and has a slight metallic tinge: the feelers are more than half the length of the body; the fourth joint is shorter than the third; the fifth is shorter than the fourth; the sixth is much shorter than the fifth; the seventh is hardly twice the length of the sixth: the mouth is dull green with a black tip: the nectaries are not more than one-tenth of the length of the body: the legs are black; the shanks except their tips, the base of the thighs, and nearly the whole of the fore-thighs, are yellow: the wings are colourless, and are very much longer than the body; the wing-ribs and the rib-veins are pale yellow; the wing-brands are dull buff; the other veins are brown; the second vein diverges much more from the first than it does from the third; the first fork of the latter vein begins after one-third, and the second still more beyond two-thirds of its length; the fourth vein is more curved at its source than near its tip: the angle whence it springs is very slight.

1st var. Pale whitish green with dark limbs.

2nd var. Body black and white.

3rd var. Wings with a slight yellow tinge.

4th var. Body small, black: abdomen dark green: the seventh joint of the feelers is more than twice the length of the sixth.

Length of the body  $\frac{1}{2}$ – $\frac{5}{8}$  line; of the wings  $1\frac{3}{4}$ – $2\frac{1}{4}$  lines.

*Variations in the veins of the wings.* 1st var.—The fourth branch-vein forms an angle, and a short cross-vein passes from it to the second fork of the third branch-vein: in the opposite wing the branches of the second fork having separated reunite, and form a little elliptical areolet, and then again divide to form the fork.

2nd var. The second and the fourth branch-veins are forked near their tips.

3rd var. An additional vein connects the lower branch of the first fork with the second fork of the third vein.

4th var. There is a spurious or supernumerary vein which proceeds from the third vein a little before its first fork, and passes towards the hind-border of the wing, which however it does not attain.

5th var. The fourth vein is forked near its tip.

6th var. With an areolet like that of the second var., but larger and triangular.

### 81. *Aphis Lychnidis*, Linn.

*Aphis Lychnidis*, Linn. Syst. Nat. ii. 734. 7; Faun. Suec. 980; Fabr. Syst. Ent. 737. 1; Sp. Ins. i. 2. 384. 4; Ent. Syst. iv. 210. 2; Syst. Rhyn. 294. 2; Gmel. ed. Syst. Nat. i. 2203; Schrank, Faun. Boic. ii. 114. 1214; Berk. Syn. i. 119; Stew. El. n. 110; Turt. ii. 703; Kaltenbach, Mon. Pflanz. i. 92. 67; Reaum. Ins. iii. 281. 340.

*A. Cucubali*, Linn. Faun. Suec. 719.

*Lychnidaphis*, Amyot, Ann. Soc. Ent. Fr. 2<sup>de</sup> série, v. 478.

This species feeds from April to November on *Lychnis viscaria*, *L. diurna*, and *Cucubalus Behen*.

*The viviparous wingless female.* This is hatched in April, and is remarkable for its shining and glutinous appearance: the body is rather small, black, oval, very convex and plump, dark green beneath: the feelers are black, slender, more than half the length of the body, pale yellow towards the base which is black: the eyes are dark brown: the mouth is pale green: the nectaries are about one-twelfth of the length of the body: the legs are pale yellow; the knees, the feet, and the tips of the shanks are brown. When young it is dark green, or pale greenish red, or pale brown: the head is pale green: the limbs are almost or quite white.

*The viviparous winged female.* The pupa unfolds its wings in the middle of May: it is then black and shining: the fore-border and the hind-border of the fore-chest are dull tawny, which is also the colour of the abdomen beneath, and at the base above: the feelers are as long as the body; the fourth joint is much shorter than the third; the fifth is shorter than the fourth; the sixth is much shorter than the fifth; the seventh is nearly as long as the third: the mouth is black with a pale yellow base: the nectaries are about one-eighth of the length of the body: the legs are dull yellow; the feet and the tips of the thighs and of the shanks and the greater part of the hind-thighs are black: the wings are colourless, and much longer than the body; the

wing-ribs and the rib-veins are yellow ; the brands and the veins are brown, and the latter are very distinct.

1st var. The seventh joint of the feelers is hardly longer than the fourth.

2nd var. The mouth is dull yellow with a black tip.

3rd var. The nectaries are one-tenth of the length of the body.

4th var. The legs are black : the base of the thighs is yellow in the fore-pair, and has a slight tinge of yellow in the rest.

*The oviparous wingless female?* The head, the underside, and sometimes the chest, and even the whole body, are red : the mouth is pale yellow with a black tip. Found in the autumn.

*The winged male?* Black, and very small : the abdomen is very dark green : the feelers are a little longer than the body : the mouth is dull yellow ; its tip and the nectaries are black, and the latter are as long as one-sixth of the body : the legs are black ; the base of the fore-thighs, and the shanks, except their tips, are dark yellow : the wings are nearly twice the length of the body ; the wing-ribs are pale yellow. In the beginning of November.

Length of the body  $\frac{1}{2}$ - $\frac{3}{4}$  line ; of the wings  $1\frac{5}{8}$ - $2\frac{1}{4}$  lines.

[To be continued.]

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XXVIII.—Notes on a species of Hydra found in the Northumberland Lakes. By ALBANY HANCOCK, Esq.

[With two Plates ]

On visiting the Northumberland lakes last August for the purpose of prosecuting my inquiries respecting the freshwater Ascidian Polypes, I took a very beautiful *Hydra* abundantly in Bromley Lough. On a subsequent occasion numerous specimens of the same species were also obtained in Crag Lough. They were found associated with the various *Bryozoa* that inhabit these waters, adhering to the under side of stones that lie scattered by their margins, and in situations where there was neither mud nor vegetation. From the peculiar character of the locality, so different from that of the usual habitat of the *Hydra*, I was induced to examine the specimens with great care, and find that they do not exactly agree with any of the known forms, though they come very near to *H. fusca*, of which they may probably prove to be a variety.

On removing from the water a stone to which these *Hydra* are attached, they appear as irregular, minute, depressed globules of gelatine of a pale red flesh-colour, dispersed over the surface, sometimes in great numbers on one stone, but never crowded on each other. When placed in a bottle of water they soon become fixed to its sides, and spreading out their tentacles display them-