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X.—Descriptions of Aphides

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structure with remains of vegetable fibre interspersed through it. It was found to contain nearly forty species of *Diatomaceæ*, viz.—

<i>Eunotieæ.</i>	<i>Cymbelleæ.</i>
Epithemia alpestris.	†Cymbella Ehrenbergii.
†E. gibba.	C. cuspidata.
E. ocellata.	†C. helvetica.
E. proboscidea.	†C. maculata.
E. turgida.	†Cocconema cymbiforme.
E. Zebra.	Gomphonema minutum.
†Eunotia Monodon.	G. pohliæforme.
Himantidium Arcus.	
<i>Fragilarieæ.</i>	<i>Naviculeæ.</i>
Fragilaria rhabdosoma.	Navicula attenuata.
	†N. binodis.
<i>Meloseireæ.</i>	N. dicephala.
Meloseira Italica.	†N. inflata.
M. subflexilis?	N. major.
	†N. oblonga.
<i>Surirelleæ.</i>	N. radiosa.
Campylodiscus Clypeus.	N. rhomboides.
Surirella elliptica.	N. viridis.
S. Solea.	Stauroneis lanceolata.
Synedra capitata.	Amphora ovalis.
	A. elliptica.
<i>Cocconeideæ.</i>	<i>Tabellarieæ.</i>
Cocconeis Pediculus.	Tabellaria fenestrata.

Those marked † were most abundant.

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

[Continued from p. 48.]

EIGHTEENTH GROUP.

This group may require subdivision, but it does not contain many species.

33. *Aphis Piceæ.*

Aphis Piceæ, Panz. Faun. Germ. 78. f. 22; Fabr. Rhyn. 302. 56; Zett. Faun. Lapp. i. 557. 1; Kalt. Mon. Pfl. i. 141. 111.

Lachnus grossus, Kalt. Ent. Zeitung, 1846, 175.

The viviparous winged female. This is black, smooth, and shining: the front of the head is slightly convex: there are two impressions on the crown: the feelers are red, filiform, and hardly half the length of the body; their tips are black; the fourth joint is rather more than one-third of the length of the third, which is crenulated beneath; the fifth joint is a little longer than the fourth; the sixth is not half the length of the fifth; the seventh is extremely short: the eyes are black and prominent: the mouth

is black, and nearly as long as the body: the lobes of the chest are strongly marked: the nectaries hardly rise above the surface of the abdomen: the legs are black and not hairy; they are very long, especially the hind-legs; the thighs except their tips, the fore-shanks and the middle-shanks from the base to the middle, and the hind-shanks at the base, are red; the shanks are very slightly curved: the wings are very much longer than the body, and tinged with brown, but they are colourless towards the base; the wing-ribs and the wing-brands are black; the veins are paler; the base of the fore-border of the wing is convex; the brand is linear and very long, and occupies rather less than half the length of the wing; it terminates abruptly, forming nearly a right angle from whence springs the fourth vein which is long and straight; the third vein is obsolete near its source; it is forked before one-third and forked again after two-thirds of its length; the angles formed by these forks are very acute; the tip of the upper branch of the second fork is very near the tip of the fourth vein; the first and the second veins are almost straight; they are near each other at the base, but very far apart at the tips.

Length of the body $2\frac{1}{2}$ lines; of the wings 7 lines.

This species feeds on *Abies Picea*, the silver fir, and on *A. excelsa*, the spruce fir; it occurs near London in the middle of June, and I have found it in abundance on the Alps of Switzerland.

34. *Aphis Pini*, Linn.

Aphis Pini, Linn. Syst. Nat. ii. 796. 21; Gmel. ed. Syst. Nat. i. 2207; Faun. Suec. 994; Fabr. Mant. Ins. ii. 317. 44; Sp. Ins. ii. 389. 39; Ent. Syst. iv. 219. 44; Syst. Rhyn. 300. 44; Rossi, Faun. Etrusc. 264. 1396.

A. nuda Pini, Deg. Ins. iii. 18. 1. t. 6. f. 1-14.

Lachnus Pini, Kalt. Mon. Pfl. i. 155. 8.

Pityaphis, Amyot, Ann. Soc. Ent. Fr. 2^{me} série, v. 482.

The viviparous wingless female. It is stout and active, and runs fast: the body is flat, subquadrate, hairy, smooth and shining, and thickly covered with very small black dots: the head is pale red: the chest is yellow: the abdomen is green: the front of the head is convex: the feelers are yellow, hairy, and less than half the length of the body; their tips are black; the fourth joint is more than half the length of the third; the fifth is longer than the fourth; the sixth is about half the length of the fifth; the seventh is extremely short: the eyes are black and prominent: the mouth is tawny, and reaches beyond the hind-hips; its tip is brown; the first joint is linear; the second, third and fourth joints are formed like a spindle which is shorter than the first joint: the nectaries are dull red, and like tubercles on the surface of the abdomen: the legs are tawny, hairy, long, and stout; the

feet and the tips of the shanks are brown; the hips are large; the feet are rather long; the second joint and the shanks are slightly curved.

1st variety. The abdomen is yellow.

2nd variety. The abdomen is very pale buff, with three green stripes along its back.

3rd variety. The head and the fore-chest are red, and the rest of the body is white with two green stripes along the back: there is also a tawny space round the base of each nectary.

4th variety. The body is red, and mottled with white powder, and that chiefly on each side of the fore-part of the body which is pale red beneath.

5th variety. The disc of the abdomen is slightly metallic.

6th variety. The nectaries are black.

7th variety. The shanks are pale yellow towards the base; their tips and the feet are black.

8th variety. The legs are yellow; the feet, the tips of the thighs, the base and tips of the shanks, and the whole of the fore-shanks are black.

The viviparous winged female. While a pupa the body and the limbs are hairy: the body is bright red: the limbs are yellow; the tips of the feelers, the eyes, the tip of the mouth, the knees, the feet, and the tips of the shanks are black: the feelers are hardly half the length of the body. It acquires wings in the middle of June, and is then red: the disc of the chest is dark gray: the abdomen is yellow, elliptical, shining, broader than the chest, covered with little black dots, and having a whitish line bordered with darker colour along its back; it is paler beneath: the feelers are yellow, and hardly half the length of the body; their tips are brown: the mouth is yellow with a black tip: the nectaries are black, and each of them is surrounded by a red circle: the legs are yellow; the knees and the tips of the thighs are dull red; the feet and the tips of the shanks are black: the wings are colourless and longer than the body; the wing-ribs are yellow; the brands and the veins are dull red; the rib-veins begin to widen into the brands at about half the length of the wing; the brand is long and linear; the angle near its tip is less obtuse than that of *A. Abietis*, but more obtuse than that of *A. Piceæ*; the fourth vein is nearly straight; the third vein is obsolete near its source; it is forked before one-third and forked again after two-thirds of its length; the angles formed by these forks are very acute; the tip of the upper branch of the second fork is very near the tip of the fourth vein; the first and the second veins are almost straight; they are near each other at the base, but very far apart at the tips.

Length of the body 2 lines; of the wings 5 lines.

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1st var. The back of the pupa is thickly covered with black dots: the head and the fore-chest are bright red; the rest of the chest is pale red: the abdomen is green, paler beneath.

2nd var. The body is brown and covered with white powder: the disc of the head and that of the chest are black: the feelers are as long as one-fifth of the body: the mouth is pale brown with a black tip: the legs are black; the base of the thighs is yellow; the shanks also are yellow near their base which is black: the wing-ribs and the veins are brown; the wing-brands are dark brown.

On *Pinus sylvestris*, the Scotch pine, during the greater part of the year.

35. *Aphis Pinicola*.

Lachnus Pinicola, Kalt. Mon. Pflanz. i. 154. 7.

Aphis Piniphila, Ratz. Forst. Ins. iii. 219. 26. t. 11. f. 5.

The viviparous wingless female. The body is of a chocolate colour, with four rows of hoary spots; the underside is tawny and covered with a white bloom: the feelers are yellow with black tips, filiform, slender, slightly hairy, and less than half the length of the body; the fourth joint is much less than half the length of the third; the fifth is much longer than the fourth; the sixth is more than half the length of the fifth; the seventh is extremely short: the mouth is black, yellow at the base, and reaches far beyond the hind-hips; it increases slightly in breadth towards the tip: the eyes are black: the front is convex: the sides of the fore-chest are slightly notched: the nectaries are black, and hardly rise above the surface of the abdomen: the legs are yellow, long, slender, and slightly hairy; the shanks and the second joints of the feet are slightly curved; the hips, the thighs, the feet, and the shanks from the middle to the tips are black.

The viviparous winged female. This much resembles the wingless female, allowing for the usual difference between these two forms: the wings are colourless, and longer than the body; the brands and the veins are brown; the rib-vein widens into the brand, which is long and linear; the angle near its tip resembles that of *A. Picea*, and is much more obtuse than that of *A. Pini*; the fourth vein springs from this angle and is nearly straight; the third vein is obsolete near its source; it is forked before one-third and again after two-thirds of its length; the angles formed by these forks are very acute; the tip of the upper branch of the second fork is very near the tip of the fourth vein; the first and the second veins are almost straight; they are near each other at the base, but very far apart at the tips.

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

On *Pinus sylvestris*, the Scotch pine: very abundant in the autumn.

36. *Aphis Pineti*.

Aphis Pineti, Fabr. Ent. Syst. iv. 219. 45 ; Syst. Rhyn. 309. 45 ; Gmel. ed. Syst. Nat. i. 2207.

A. tomentosa Pini, Deg. Ins. iii. 26. 2. t. 6. f. 19. 25 ; Zett. Ins. Lapp. i. 558. 2.

Lachnus Pineti, Kalt. Mon. Pflanz. i. 162. 12.

Pinetifex, Amyot, Ann. Soc. Ent. Fr. 2^{me} série, v. 482.

The viviparous wingless female. The body is oval, convex, dull green, shining, but thickly covered with white cottony matter ; the segments are of nearly equal size : the front is slightly convex, and beset with hairs : the mouth reaches the hind-hips ; its tip and the eyes are black : the feelers are filiform, slender, and less than half the length of the body ; their tips are black ; the fourth joint is more than half the length of the third ; the fifth is shorter than the fourth, and the sixth than the fifth ; the seventh is extremely short : the nectaries are like tubercles on the surface of the abdomen : the legs are stout, hairy, and pale green with a bluish tinge, and of moderate length ; the feet and the tips of the shanks are brown ; the shanks and the second joints of the feet are slightly curved.

1st variety. The body is dull red.

2nd variety. The body is dull reddish brown.

3rd variety. The body is dull dark red : the nectaries are black : the limbs are pale green.

The viviparous winged female. The body is grayish black : the limbs are black : the shanks are green with black tips : the wings are colourless, and very much longer than the body ; the wing-ribs and the wing-brands are dark brown ; the veins are paler ; the brand is long and linear ; the angle which it forms near its tip is less obtuse than that of *A. Pini* ; the fourth vein which springs from it is long and straight ; the third vein is obsolete near its source ; it is forked before one-third and forked again before two-thirds of its length ; the angles formed by these forks are very acute ; the tip of the upper branch of the second fork is very near the tip of the fourth vein ; the first and the second veins are almost straight ; they are near each other at the base, but very far apart at the tips.

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

1st variety. The body is black : the abdomen is dark green beneath : the feelers are green, brown at the base : the mouth is dark green : the legs are green : the wing-ribs are pale red.

The pupa has an elliptical dull brown body ; its rudimentary wings are black.

On *Pinus sylvestris*, the Scotch pine, in the autumn.

37. *Aphis Abietis*, n. s.

The viviparous wingless female. The body is oval, pale red and hairy: the feelers are pale brown, filiform, and nearly as long as one-fourth of the body; the fourth joint is less than half the length of the third; the fifth is much longer than the fourth; the sixth is as long as the fourth; the seventh is extremely short: the eyes are dark brown: the mouth is reddish brown, at least two-thirds of the length of the body, and reaches far beyond the hind-hips: the nectaries are dark, and like tubercles: the legs are dull reddish brown, hairy, and moderately long; the feet and the tips of the shanks are brown; the feet and the shanks are slightly curved, and the latter are very hairy.

The viviparous winged female. It resembles the preceding form in colour and shape, but the head and the disc of the chest are brown: the feelers are less than half the length of the body: the wings are colourless and moderately long; the veins and the brands are brown; the rib-vein begins to widen into the brand before half the length of the wing; the brand is long and narrow, and the angle which it forms at its tip is very obtuse; the first, the second and the fourth veins are nearly straight, and the two former are near each other at the base, but far apart at their tips; the third vein is indistinct and extremely slender, and obsolete at its source. While a pupa it is pale whitish red: the head is dark red: the limbs are very pale red: the feelers and the mouth have brown tips, and the former are hardly one-third of the length of the body: the eyes are black: the nectaries are dark red: the feet and the tips of the shanks are brown.

1st var. The body is tawny and covered with white powder: the disc of the head and that of the chest are dark brown: the limbs are tawny: the feelers are as long as one-third of the body: the eyes are black and prominent: the abdomen is paler beneath: the nectaries are brown: the feet and the tips of the shanks are brown: the wing-ribs, the brands and the veins are tawny.

The winged male. The body is dark brown: the feelers are brown, yellow at the base, and more than half the length of the body: the eyes are black: the mouth is yellow with a brown tip and nearly as long as the body: the legs are yellow and stout; the knees, the feet and the tips of the shanks are black: the wings are very much longer than the body.

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

Found on *Abies excelsa*, the spruce fir, with the female in the summer and autumn.

38. *Aphis costata*, Zetterstedt.

Aphis costata, Zett. Faun. Lapp. i. 559. 3; Ins. Lapp. fasc. ii. 311. 4.

Lachnus fasciatus, Burm. Handb. der Ent. ii. 93. 4; Kalt. Mon. Pflanz. i. 160. 9.

Cinara Symphiti, Curtis, Brit. Ent. 577.

Teniolachnus, Amyot, Ann. Soc. Ent. Fr. 2^{me} série, v. 481.

The viviparous wingless female. The body is black, oval, hairy, velvet-like, and prettily mottled with white: the abdomen beneath is almost white: the feelers are filiform, black, hairy, pale yellow towards the base, and nearly half the length of the body; the fourth joint is much less than half the length of the third; the fifth is much longer than the fourth; the sixth is longer than the fifth; the seventh is extremely short: the front is convex: the mouth is black, yellow towards the base, and reaches beyond the hind-hips: the legs are black, stout, and hairy; the base of the thighs and the shanks except their tips are yellow; the shanks and the second joints of the feet are slightly curved. When young it is grayish black and linear: the mouth projects some way beyond the tip of the abdomen: the feelers and the legs are white; the knees, the feet, and the tips of the shanks and of the feelers are black.

1st var. The body is brown, shining, and mottled with gray and black down: the feelers are nearly white; their tips are brown: the nectaries are black: the legs are pale yellow; the feet, the tips of the thighs and of the shanks and the base also of the latter are black.

The viviparous winged female. It acquires wings in the beginning of June, and is then dark brown and covered with white powder: the feelers are tawny, and rather less than two-thirds of the length of the body; the tips of the joints are brown: the eyes are dark red and prominent: the mouth is tawny with a brown tip and reaches the hind-hips: the legs are tawny; the feet and the tips of the shanks are brown; the thighs also are adorned with brown spots and rings: the wings are colourless, clouded with brown, and longer than the body; the wing-ribs, the wing-brands and the veins are dark brown; the rib-vein begins to widen into the brand a little after half the length of the wing; the brand is rather long, and almost spindle-shaped; the angle near the tip of its hind-border is very obtuse, the part thence to the tip is slightly curved, and not near so long as that of *A. viminalis*, but much resembles the termination of the brand in *Aphis submacula*; the fourth vein is slightly curved and rather long; the third vein is obsolete near its source; it is forked before one-third and forked again after two-thirds of its length; the angles formed by these forks are very acute; the tip of the upper branch of the second fork is very near the tip of the fourth vein; the first and the second veins are almost straight; they are near each other at the base, but very far apart at the tips.

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

The oviparous wingless female. The body is bronze-colour with a yellowish border : the limbs are yellow : the feelers are about half the length of the body ; the tips of the joints are black : the nectaries are also black : the knees are brown ; the feet and the tips of the shanks are black. The end of October is its season for laying eggs ; they are placed in a series along a leaf, and adhere together by their tips ; their colour at first is yellow, and of a deeper tint at one end than at the other.

39. *Aphis Laricis*, n. s.

The viviparous wingless female. The body is oval, convex, hairy, velvet-like, very narrow towards the head, of a chocolate colour, and thickly covered with white spots of various sizes ; the under-side is of a rust-colour, and thickly covered with white powder : the feelers are yellow, slender, filiform, black towards the tips, and hardly more than one-third of the length of the body ; the fourth joint is less than half the length of the third ; the fifth is a little longer than the fourth ; the sixth is about half the length of the fifth ; the seventh is extremely short : the eyes are black and rather prominent : the mouth is black and reaches a little beyond the hind-hips ; it is dirty white and half transparent towards the base : the nectaries are black : the front is convex : the sides of the fore-chest are slightly notched : the legs are yellow, long, stout, and hairy ; the hips, the knees, the feet, the tips of the shanks, and the hind-thighs from the middle to the tips are black ; the shanks and the second joints of the feet are slightly curved.

1st var. The body is broader and of a greenish brown colour : the head is reddish.

2nd var. The body is brown : the head is red : the tips only of the hind-thighs are black ; the hind-shanks are black from their middle to their tips. When very young the body is pale brown, and the mouth projects beyond the abdomen like a tail.

3rd var. The body is brown, mottled with black and white.

The viviparous winged female. While a pupa it much resembles the wingless female in colour, being dark brown with a pale yellowish stripe along the middle of the abdomen ; when the wings are unfolded it is dark brown, slightly powdered with white : the feelers are black, and rather less or rather more than half the length of the body ; the base of the third joint is yellow ; the fifth joint is as long as the fourth ; the sixth is much more than half the length of the fifth : the mouth is yellow with a black tip : the base of the thighs, and the shanks except their tips are yellow ; the shanks are especially hairy : the wings are colourless, and very much longer than the body ; the wing-ribs are dull yel-

low; the wing-brands and the veins are brown; the rib-vein begins to widen into the brand at about half the length of the wing; the brand is rather long, the angle which it forms near its tip is very obtuse, and it thence slopes gradually away; the fourth vein is straight; the third vein is sometimes very indistinct or almost obsolete along its whole length; the second vein is slightly curved; the first is straight, and is near to the second at the base, but remote at the tip.

The oviparous wingless female. This appears towards the end of the autumn, and is larger than the viviparous female: the abdomen is at least thrice the breadth of the head or of the fore-chest: the body is light brown and has a very slight metallic tinge: the head and the fore-chest are somewhat darker than the rest of the body: there are three lines of black dots and two large transverse black velvet-like spots on each side of the abdomen: the feelers are yellow, black towards their tips, and less than one-third of the length of the body; the fifth joint is much longer than the fourth joint; the sixth is much less than half the length of the fifth: the mouth is black, dull yellow towards the base, and reaches the hind-hips, and is much less than half the length of the body: the legs are yellow; the thighs are darker towards their tips; the hips, the knees, and the tips of the shanks are black. The eggs as usual are large, and thickly enveloped in a glutinous matter; they are laid in November.

1st var. The body is dark brown: the tips of the joints of the feelers are black: the legs are darker and much longer than those of the viviparous female; the base only of the shanks is yellow.

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

40. *Aphis Juniperi*, Fabr.

Aphis Juniperi, Fabr. Ent. Syst. iv. 218. 40; Syst. Rhyn. 300. 40; Gmel. ed. Syst. Nat. i. 2205; Deg. Ins. iii. 56. 7. t. 4. f. 7–9; Schrank, Faun. Boic. ii. 1. 119.

Lachnus Juniperi, Kalt. Mon. Pfl. i. 153–6.

Juniperifex, Amyot, Ann. Soc. Ent. Fr. 2^{me} série, v. 481.

The viviparous wingless female. When young it is dull red, nearly linear, rather flat, and is covered with thick hairs: the head is broad: the eyes are dark brown: the limbs are dirty white: the feelers are hairy, slightly setaceous, shorter than the body; their tips are brown: the mouth has also a brown tip and is nearly as long as the body: the nectaries are hardly visible: the legs are hairy, long and stout. When full-grown it is pale red, oval, convex, plump, hairy, and thickly covered with white powder: the segments are all distinct, and of nearly equal length: there is a row of black velvet-like spots along each side of the back; they become fainter as they retreat from the head, and dis-

appear before the middle of the body : the front is convex : the feelers are black, hairy, filiform, tawny at the base, and hardly more than one-fourth of the length of the body ; the fourth joint is rather more than half the length of the third ; the fifth is much longer than the fourth ; the sixth is shorter than the fifth ; the seventh is very short : the mouth is black, tawny at the base, and reaches nearly to the hind-hips : the front is convex : the nectaries are black, and rise very little above the surface of the abdomen : the legs are black, hairy, stout, and moderately long ; the shanks and the second joints of the feet are very slightly curved.

1st var. When young it is dull green ; the feelers are tawny with brown tips : when full-grown it is dark green with a brassy tinge.

2nd var. The body is of a pale flesh-red colour, thickly covered with white powder : the limbs are white, with the exception of the base of the feelers and of the thighs which are yellow.

The viviparous winged female. This form acquires wings soon after the middle of May : it is then black and hairy : the fore-border and the hind-border of the fore-chest and the abdomen are dull red : the feelers are dull brown, hairy, filiform, and less than half the length of the body : the mouth is pale red with a black tip, and reaches the hind-hips : the nectaries are black, and about one-twentieth of the length of the body ; the base of each is encircled with a large black spot : the legs are black ; the base of the thighs is dull yellow : the wings are colourless, and longer than the body ; the wing-ribs are yellowish brown ; the rib-veins and the brands are dark brown ; the other veins are pale yellow ; the rib-vein widens into the brand before half the length of the wing ; the brand is long and linear, its tip is very obtuse, and the hind-border there forms almost a right angle ; the fourth vein is long and straight ; the third vein is very slender ; it is forked a little before one-third and again before two-thirds of its length ; the angles formed by these forks are very acute ; the tip of the upper branch of the second fork is very near the tip of the fourth vein ; the first and the second veins are almost straight ; they are near each other at the base, but very far apart at the tips.

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

41. *Aphis submacula*, n. s.

The viviparous winged female. The body and the limbs are black and hairy : the feelers are filiform, and rather more than half the length of the body ; the fourth joint is much less than half the length of the third ; the fifth is much longer than the fourth ; the sixth is a little shorter than the fifth ; the seventh is extremely short ; the front is convex : the nectaries hardly rise above the

surface of the abdomen : the legs are long and stout ; the base of the fore-thighs is brown ; the shanks and the first joints of the feelers are very slightly curved : the wings are brown, and of moderate size ; the rib-vein is black, and gradually widens into the brand which is long and nearly spindle-shaped, but rather broader at its tip than where it begins ; the hind-border near the tip is curved, and does not form an angle ; the branch-veins are tawny ; the fourth vein is curved and clouded at its base but afterwards straight ; the third is obsolete at its source, and forked just before one-third and again a little after two-thirds of its length ; the forks are more diverging from each other than in most species of this group ; the first and the second veins are nearly straight, and approach each other at their origin, but are far apart at their tips ; in each upper wing there is a large brown spot proceeding from the beginning of the brand into the disc of the wing, and ending at the first fork of the third vein.

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

Found in the Isle of Portland by Mr. Dale.

42. *Aphis saligna*.

Aphis saligna, Sulzer, Ins. t. 11. f. 6 ; Gmel. ed. Syst. Nat. i. 2209.

Aphis salicina ?, Zett. Ins. Lapp. i. 311. 6.

Aphis viminalis, Fonscol. Ann. Soc. Ent. Fr. x. 184. 27.

The viviparous wingless female. The body is large, oval, convex, and of a velvet-like bronze-brown colour : the head and the chest are shaded with black : the head is of moderate size : the abdomen above has two rows of black velvet-like spots on each side, and between them there are two rows of smaller black spots along the back ; these last rows are confluent on the segments towards the chest, and form a continuous transverse band : the body beneath is dull pale brown with a row of black dots on the sides of the abdominal segments : the feelers are black, filiform, hairy, yellow towards the base, and less than half the length of the body ; the fourth joint is much less than half the length of the third ; the fifth is a little longer than the fourth ; the sixth is a little shorter than the fifth ; the seventh is extremely short : the front is convex : the eyes are black and not prominent : the front is convex : the mouth is black, pale dull green towards the base, and it reaches the hind-hips : the nectaries are large, prominent, and velvet-black ; between them and a little in advance there is a large spot of the same size and colour : the legs are black, long, stout and hairy ; the thighs except the tips and the shanks towards the base are bright reddish yellow ; the shanks are straight ; the second joints of the feet are slightly curved. When very young it is linear, dull brown, and rather flat : the feelers are dull

brown, yellowish white towards the base : the mouth is pale yellow with a black tip, and full as long as the body : the nectaries are black, the thighs, except the tips, and the shanks near the base, are pale yellow : sometimes the legs are yellow with the exception of the knees and of the feet.

The viviparous winged female. In colour it resembles the wingless insect, but the feelers are quite black : the wings are colourless and very long, their length much exceeding that of the body ; the wing-ribs are dark red ; the veins and the wing-brands are dark brown ; the wing-vein begins to widen into the brand at about half the length of the wing ; the brand is long and linear, the angle at its tip is very obtuse, and its termination is much more gradual than that of most other species of this group ; the fourth vein is very slightly curved ; the third vein is almost obsolete at its source, and is forked a little after one-third and again a little before two-thirds of its length, so that the two forks are near together ; the first and the second veins are nearly straight, and, as is usual in this group, they are much nearer each other at the base than at the tips.

Length of the body $2\frac{1}{2}$ –3 lines ; of the wings 7 lines.

This species frequents willow-trees in the autumn. Mr. Wing observed it in great abundance on the shoots from the middle of September to the end of October in 1846 ; and he remarked that its honey-dew is very attractive to moths, among which *Nonagria crassicornis*, which very seldom touches sugar, was plentiful.

This fact has also been remarked in France, and is mentioned in the 'Annales de la Société Entomologique,' vol. vi.

43. *Aphis Roboris*, Linn.

Aphis Roboris, Linn. Syst. Nat. ii. 735. 22 ; Faun. Succ. 993 ; Fabr. Ent. Syst. iv. 218. 42 ; Syst. Rhyn. 300. 42 ; Schrank, Faun. Boic. ii. 1. 113. 1209 ; Gmel. ed. Syst. Nat. i. 2207 ; Fonscol. Ann. Soc. Ent. Fr. x. 183. 26.

Aphis longipes, Leon Dufour, Rech. sur les Hemipt., Mém. de l'Inst. iv. 243. t. 9. f. 116, 117.

Cinara Roboris, Curtis, Brit. Ent. xii. 576.

Lachnus Roboris, Kalt. Mon. Pfl. i. 148. 2.

Dryaphis, Amyot, Ann. Soc. Ent. Fr. 2^{me} série, v. 481.

The viviparous wingless female. This appears on the twigs and young branches of the oak in the beginning of July. When very young it is dull green or pale red, linear, narrow, and shining : the feelers are much less than half the length of the body ; their tips are darker : the mouth is a little longer than the body ; its tip and the eyes are black : the knees, the feet, and the tips of the shanks are also black. When half-grown the body is dark brown, flat, and rather narrow, and has a broad red band across

it: the feelers are dull yellow, filiform, and about half the length of the body: the eyes are rather prominent: the mouth is pale yellow with a black tip and as long as the body: the legs are black; the thighs and the shanks are yellow towards the base. When full-grown it is oval, smooth, hairy, very glossy, and of a dark brown or metallic purple tint: the head is dark red, and has two impressions between the eyes: the feelers are black, hairy, yellow towards the base, and also at the base of each joint; the fourth joint is less than half the length of the third; the fifth is a little shorter than the fourth; the sixth is hardly half the length of the fifth; the seventh is extremely short: the front is convex: the sides of the fore-chest are slightly undulated: there is a rim round the under side of the abdomen: the mouth reaches the hind-hips: the nectaries are like tubercles, and hardly rise above the surface of the abdomen: the legs are long, slender, black, and hairy; the base of the thighs is yellow, and there is a broad yellow band around each shank; the pale colour as usual prevails most in the fore-legs and least in the hind-legs, which are very long, and their shanks are much curved.

The viviparous winged female. This differs as usual in structure from the wingless insect, but much resembles it in shape and colour: the fifth joint of the feelers is as long as the fourth: the wings are rather short and narrow, and of a dark brown colour with three colourless bands; the second band descends from the rib-vein to the hind-border of the wing; the third winds round the tip of the brand; the wing-rib is broad, and at half the length of the wing it dilates into a wide brand which is nearly linear, and is rounded away at the tip, not forming an angle; the fourth vein is rather long, and is much curved at its base which springs from the rib-vein just before the curve of the latter begins; it is clouded on each side of the base, and there divides the colourless band on the wing; the third vein is obsolete at its base; it is forked a little before one-third, and forked again a little before two-thirds of its length; the second vein is slightly curved; the first is undulated and strongly marked; these two veins are near each other where they leave the rib-vein, but far apart at their tips.

The oviparous wingless female. This is larger than the viviparous female, and the fifth joint of the feelers is longer than the fourth.

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

This species is the prey of a parasitic Hymenopterous insect; it is most abundant in the autumn, and feeds then in large clusters on the shoots of the oak; it seems to prefer the branches that grow from the old stumps of that tree, and is attended by *Formica fuliginosa* and by *F. rufa*, especially by the latter species. The wings when just unfolded are of a milk-white colour, and

rather opaque: the young ones are sometimes near thirty in number, and like the mother *Aphis* are covered with a glutinous matter, which by the application of Canada balsam assumes a fine rich red hue: the insects infested by parasitic grubs do not so much abound with this coloured matter, but contain a white fluid, which also occurs, but in a smaller quantity, in those that are free from the internal devourers: these grubs are 1 line or more in length, white, slightly curved, and being inclosed in Canada balsam and thereby rendered transparent, they appear to be filled with the brown oak sap received through the medium of their prey.

44. *Aphis agilis*.

Lachnus agilis, Kalt. Mon. Pflanz. i. 161. 11.

The viviparous wingless female. The body is spindle-shaped, grass-green, long and narrow, with three rows of black spots along the back: the front, the feelers, and the shanks are bristly: the front of the head is slightly notched: the feelers are filiform, pale green with brown tips, and much less than half the length of the body; the fourth joint is rather more than half the length of the third; the fifth is as long as the fourth; the sixth is very much shorter than the fifth; the seventh is extremely short, and almost obsolete: the eyes are dark brown: the mouth is pale green with a brown tip, and reaches to the hind-hips: the sides of the fore-chest are straight: the nectaries do not rise above the surface of the body: the legs are dull green, stout, long and bristly; the hind-legs are very much longer than the fore-legs; the knees and the feet are brown; the joints of the feet are unusually long, and the second joint is curved; the hind-shanks are very bristly. It runs very fast.

1st variety. The body linear.

2nd variety. The feelers only one-third of the length of the body.

3rd variety. The fore-part of the body is tinged with yellow, and there are four rows of black dots along the abdomen: the feelers are about half the length of the body.

The viviparous winged female. This insect acquires wings in the beginning of June: it is green, slightly covered with white powder, and in shape resembles the wingless female: the disc of the chest and that of the breast are pale reddish brown: the feelers are brown, pale yellow at the base, and a little more or less than half the length of the body: the eyes are dark brown: the mouth is pale yellow; its tip is brown: the legs are long and pale yellow; the knees, the feet, and the tips of the shanks are brown: the wings are transparent, narrow, and a little longer than the body; the wing-ribs are pale green; the wing-branches and the veins are pale brown; the rib-vein widens into

the brand just after the middle of the fore-border of the wing; this brand is long and linear, thinned away at either end, terminating rather abruptly at the tip, and forming a very obtuse angle on the hind-border whence springs the fourth vein; the first and second branch-veins are indistinct and near together at the base, but widely apart at their tips; the latter is slightly waved; the third is obsolete till its fork which it sends forth at one-third of its length, and it has no second fork; the fourth vein is nearly straight.

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

1st var. The feelers are dull green; the tips of the joints are brown: the eyes are black: the mouth is pale green with a brown tip: the legs are pale green with dark brown tips: the wing-brands are pale green. While the pupa is young, its colour is yellowish green with a green abdomen; when it grows older it has four rows of black spots along the abdomen, and its rudimentary wings are pale yellow.

This species feeds on *Pinus sylvestris*, the Scotch pine, from the spring to the autumn.

The species of this group differ much from each other in shape, and as I have not yet noticed all the forms in which they appear, I shall probably mention them again in a future part of these descriptions. Some of the species are solitary, others herd together; *Aphis saligna*, *Pinicola*, *Laricis*, and *Roboris*, occur in thick clusters during the autumn, and the three last species are then attended by large swarms of *Scatopse picea*, among which *S. flavicollis* is sometimes found: these flies feed on the honeydew, an appropriate occasion for their pairing which accordingly occurs at this time of the year.

[To be continued.]

XI.—On the Insects of Jamaica. By PHILIP HENRY GOSSE.

[Continued from vol. i. p. 352.]

106. *Clytus angulatus*. Taken at Savanna le mer, early in June.

107. *Eriphus terminalis*. Common on the Hampstead Road in June.

108. *Eriphus* (?) *humeralis*. Very numerous in the same locality and season as the preceding.

109. *Ptychodes trilineatus*. Some half-dozen specimens of this handsome beetle were procured on the Hampstead Road and in the Cotta Wood at Content during the last week in June.