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Notes on European Aphids with Descriptions of New Genera and Species (Homoptera, Aphididae)

by

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1. *Acaudinum scabiosae* nom. nov.

PH. F. GMELIN (1758) applied the name *Aphis centaureae* to the species which LINNÉ (1746) called *Aphis centaureae*, but which in 1758 he called *Aphis jaceae*. *Aphis jaceae* L., 1758 is now known as *Dactynotus (Uromelan) jaceae* (L.).

Aphis centaureae KOCH, 1854 is therefore preoccupied by *Aphis centaureae* PH. F. GMELIN, 1758, and since it differs from the latter species it requires a new name. BÖRNER (1930) made *Aphis centaureae* KOCH the *typus generis* of *Acaudinum* BÖRNER, 1930.

As new name for *Aphis centaureae* KOCH, 1854, nec PH. F. GMELIN, 1758, I propose the name *Acaudinum scabiosae* nom. nov.

2. *Acyrthosiphon auctus* (Wlk., 1849)

O. HEIE (1958) rediscovered *Acyrthosiphon auctus* Wlk. on *Honckenya peploides* and kindly sent me some specimens. I find now that the species that I described (1955) as *Acyrthosiphon silenicola* nov. spec. from *Silene maritima* from Iceland is either the same, or at most a subspecies of *Acyrthosiphon auctus* (Wlk.). The very small morphological differences that exist between the Danish and the Iceland material might be caused by the different temperatures at which the specimens developed.

3. *Acyrthosiphon ericetorum* nov. spec.

Oviparous female

Body rather broadly oval, about 1.80–2.25 mm long. Tergum colourless, smooth. Dorsal hairs very short, from 0.004 to (on VIIIth abd. tergite) 0.016 mm long, blunt. Frontal tubercles moderately developed, diverging, smooth, with 3–4 minute hairs. Antennae pale with Ist segment, the very apices of segments III–V, VIth segment near the rhinaria and the processus terminalis more or less brown; IIIrd

segment near base irregularly with one very small rhinarium; IVth segment shorter than Vth; the base of VIth segment long, about $\frac{2}{5}$ – $\frac{1}{2}$ of IIIrd segment; processus terminalis longer than IIIrd segment, but only 2 – $2\frac{3}{4}$ times base of VIth segment. Hairs on IIIrd segment numerous, but only $\frac{1}{9}$ – $\frac{1}{6}$ of basal diameter of the segment long. Rostrum reaching past the middle coxae; last segment short, about $\frac{3}{4}$ of 2nd joint of hind tarsi, rather acute, with 2–4 hairs besides the 3 apical pairs. Siphunculi in the middle just thicker than largest diameter of the middle tibiae, about $\frac{2}{9}$ length of body, gradually tapering from base to apex, hardly expanded at base, pale with the very apex pigmented to dark brown, with a small distinct flange. Cauda rather thick, blunt, pale, just more than half as long as the siphunculi, with 9–13 hairs, of which at least 3 near apex have blunt apices. Legs pale to smoky with dark apices to the tibiae; hind tibiae swollen to about 2 times the maximum width of the middle tibiae, slightly darker than the other tibiae, with a great number of pseudo-sensoria on basal $\frac{2}{3}$ part.

Colour pale green, dull.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments			
						III	IV	V	VI
1	2.01	2.36	0.47	0.26	0 & 0	0.53	0.34	0.41	0.20 + 0.59
2	2.00	2.61	0.50	0.29	0 & 1	0.60	0.39	0.46	0.26 + 0.68
3	2.11	2.56	0.49	0.30	0 & 1	0.60	0.41	0.46	0.23 + 0.66
4	1.95	2.06	0.45	0.24	0 & 0	0.48	0.31	0.37	0.19 + 0.51

Apterous male

Body slender, with on the smoky sclerotic head two dark brown spots near each lateral ocellus, and with vaguely brown, rather small pleural intersegmental sclerites on abdomen, the rest not pigmented. Antennae about $1\frac{1}{2}$ times as long as body, dark, with IIInd segment and the base of IIIrd segment over its whole length along one side with some 42–60 small, scattered rhinaria; IVth segment with 0–7 rhinaria in a row; Vth with 8–16 rhinaria in a row; processus terminalis $3\frac{1}{3}$ – $3\frac{9}{10}$ times base of VIth segment. Siphunculi rather pale to smoky with darker apex, thin, about $\frac{7}{9}$ of diameter of middle tibiae, about $\frac{1}{4}$ length of body. Cauda triangular with rounded apex, about half as long as the siphunculi, with 7–10 hairs, of which 3–4 are stunted. Legs smoky with blackish brown apices to the femora and black socks on the tibiae. Genitalia normal.

Colour dark green?

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Rhin. on segment			Ant. segments			
					III	IV	V	III	IV	V	VI
1	1.88	2.89	0.47	0.23	45 & 48	3 & 0	13 & 10	0.67	0.53	0.57	0.21 + 0.71
2	2.07	3.14	0.51	0.21	49 & 51	0 & 4	13 & 12	0.73	0.62	0.60	0.21 + 0.77
3	1.86	2.92	0.45	0.22	52 & 54	0 & 1	15 & 12	0.65	0.49	0.56	0.21 + 0.79
4	1.99	3.09	0.50	0.26	52 & 55	6 & 0	11 & 9	0.70	0.57	0.60	0.23 + 0.77

Notes. Mr. L. VERHOEVEN and I collected this species from young shoots of *Genista anglica* near Oirschot (N. Br.), 9.X.1952. Most of the plants in a rather large area had colonies of this aphid. Though I have searched the host plant rather regularly for the last ten years I have not refound this species, and viviparous morphs are not yet known.

It is evident that it is nearest related to *Acyrtosiphon pisum* (HARRIS), and not to the *loti-caraganae* group of *Acyrtosiphon* from Papilionaceae. The long basal portion of the last antennal segment and the stunted hairs on the apical part of the cauda amply prove this. But it differs from *A. pisum* by its very much smaller size, the fewer hairs on VIIIth abd. tergite, and thicker siphunculi in oviparae and males.

Types. Cotypes in the author's collection.

4. *Aphis austriaca* nov. spec.

Apterous viviparous female

In general very much like small exules of *Aphis sambuci* L., but antennae shorter, with the processus terminalis subequal to IIIrd ant. segment and 2-3 times as long as base of VIth segment. Antennal hairs very short, even those on base of VIth segment blunt, those on IIIrd segment less than 0.008 mm long. Siphunculi about $\frac{1}{7}$ length of body, 2-2 $\frac{1}{2}$ times as long as the cauda, from rather pale smoky with dark apices to evenly black, often faintly swollen with a basal and apical attenuation. Cauda as in *A. sambuci*, but with only 7-12 strongly curved hairs. Legs brownish with the femora on distal halves and the tibiae apically darker.

Colour: Body light sea-green, laterally slightly darker green; head and pronotum blackish green, very faintly pruinose; cauda and siphunculi blackish, the latter often with pale bases. In larvae siphunculi pale with dark tips.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	1.72	0.96	0.23	0.12	0.25	0.13	0.12	0.10 + 0.23
2	1.83	0.87	0.25	0.13	0.21	0.12	0.12	0.10 + 0.20
3	1.92	0.92	0.21	0.13	0.23	0.14	0.12	0.10 + 0.20
4	1.77	1.00	0.25	0.12	0.21	0.14	0.14	0.10 + 0.27
5	1.65	0.91	0.20	0.10	0.22	0.13	0.13	0.09 + 0.20
6	1.72	1.00	0.23	0.12	0.27	0.15	0.13	0.10 + 0.23

Alate viviparous female

Like that of *Aphis sambuci* L., but abdomen only with marginal sclerites and a thin linear sclerite across VIIIth tergite. Antennae about $\frac{5}{9}$ length of body, with the processus terminalis about as long as IIIrd segment, about 3 times base of VIth segment; IIIrd segment

with the rhinaria along one side, Vth segment with the primary rhinarium at nearly $\frac{1}{3}$ from the apex. Siphunculi and cauda as in apterae.

Colour: Head and thorax black, abdomen sea-green with dark marginal spots, siphunculi and cauda black.

Measurements: Length of body: 1.91 mm; ant.: 1.15 mm; siph.: 0.22 mm; cau.: 0.11 mm. Ant. segments: 0.29/III; 0.17/IV; 0.15/V; (0.11 + 0.30)/VI mm. Rhinaria on IIIrd ant. segment: 17 and 20; on IVth: 4 and 4; on Vth: 0 and 0.

Notes. Colonies of this species, including one alata, were found on the roots of *Silene* sp., probably *Silene nutans*, near Patsch (near Innsbruck), Austria, 10.VI.1956. They were attended by *Lasius niger*. Several specimens were destroyed in attempts to remove them from the roots, to which they stuck very firmly by their deeply imbedded stylets. Therefore a piece of root was left in a tube to dry out and then the aphids after some days started to walk around and could be pickled.

It is evident that this species is very nearly related to *Aphis sambuci* L., which migrates from *Sambucus* to *Caryophyllaceae* and *Rumex*, but it does not agree with any of the various morphs of that species that I know. As owing to the very late spring *Aphis sambuci* had not yet started to fly from its normal winter host, I assume that the present species hibernated on its host plant. The differences from *Aphis sambuci* are given in the description.

Types. Cotypes in the author's collection.

5. *Aphis hispanica* nov. spec.

Apterous viviparous female

Body broadly oval, small, 0.95–1.30 mm long. Tergum not reticulated, membranous, with only the head, especially frontad, the stigmal plates, the siphunculi, cauda, subanal and subgenital plate brownish pigmented. Dorsal hairs sparse, and apparently no pleural hairs on abdomen present; those on IIIrd abd. tergite up to 0.013 mm long, acute; the two hairs on VIIIth abd. tergite hardly longer, to 0.017 mm. Small, conical marginal tubercles on abd. segments I and VII. Antennae of 6 segments, pale, with 1st segment and the apex brownish; processus terminalis $1\frac{1}{4}$ – $1\frac{1}{2}$ base of VIth segment, distinctly shorter than IIIrd segment. Hairs on IIIrd segment acute, up to just over half as long as basal diameter of the segment at its constricted base. Last rostral segment not very blunt, about $\frac{5}{6}$ – $\frac{9}{10}$ 2nd joint of hind tarsi, with 2 hairs besides the 3 pairs near apex. Siphunculi cylindrical to tapering, often only as long as wide, dark, without flange, with a few imbrications. Cauda rather bluntly triangular, dark with the very tip paler, 2– $3\frac{1}{2}$ times as long as the siphunculi, with 7–9 curved hairs. Legs pale with the distal halves of the hind femora darker and the apices of the tibiae blackish; first tarsal joints with 3, 3, 3 hairs.

Colour : Unknown ; probably with grey wax.
Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	1.15	0.75	0.03	0.11	0.19	0.10	0.11	0.09 + 0.15
2	1.26	0.81	0.06	0.13	0.21	0.13	0.12	0.11 + 0.15
3	0.99	0.71	0.04	0.11	0.19	0.10	0.11	0.09 + 0.13
4	1.06	0.75	0.04	0.11	0.18	0.09	0.12	0.12 + 0.15
5	1.19	0.78	0.04	0.11	0.19	0.11	0.11	0.11 + 0.15
6	1.02	0.66	0.04	0.11	0.17	0.07	0.11	0.10 + 0.13

Notes. This species was collected from an unidentified *Euphorbia* sp. in a salt moor near Almeria, Spain, 19.VII.1955 by Professor H. FRANZ of Vienna (Spain no. 387b). It agrees with *Aphis pseudeuphorbiae* H.R.L. from Israel in the absence of dorsal sclerotisation in apterae, but its siphunculi are less than $\frac{1}{20}$ the length of the body and less than half as long as the cauda. In the latter aspect it agrees with *Aphis gerardiana* MORDV. but that species is rather heavily sclerotic in apterae. Recognition should be easy because of the short siphunculi, triangular cauda and short processus terminalis.

Types. Cotypes in the author's collection.

6. *Aphis kaltenbachi* H. R. L.

Original material of *Pergandeida ononidis* SCHOUTEDEN, 1903 appeared to be in the U.S. National Museum, Washington, D.C. This appears to be the insect which I described as *Aphis kaltenbachi*. If, as I do, *ononidis* SCHOUT. is placed in the genus *Aphis* L., it is preoccupied by *Aphis ononidis* KALTENBACH, 1846 and therefore the name *kaltenbachi* H.R.L. has to be maintained.

7. *Aphis insularis* nov. spec.

Apterous viviparous female

Body broadly oval, about 1.30–1.75 mm long. Only the head, except on vertex, dark sclerotic, the rest pale, not reticulated, with the stigmal plates faintly brownish. Dorsal hairs very sparse, blunt, on IIIrd abd. tergite nearly acute, to 0.016 mm long. Marginal tubercles present on abd. segments I to VII, the tubercles large, flattened, semi-globular to very low-conical, those on segments I and VII 0.05–0.06 mm in diameter, those on the other segments smaller; those on pronotum about as large as the compound eyes. Antennae with rather thin, imbricated flagellum, with segment I dark like the front, the rest pale to brownish, gradually darker apicad from the middle onwards, about $\frac{2}{3}$ length of body; processus terminalis $1\frac{1}{6}$ – $1\frac{1}{2}$ times as long as IIIrd segment, $2\frac{1}{3}$ – $2\frac{2}{3}$ times base of VIth segment; IIIrd segment with rarely up to 3 rhinaria, mainly on distal half. Antennal hairs blunt, those on IIIrd segment up to $\frac{2}{5}$ basal diameter of the segment.

Rostrum retractile, long, when fully extended reaching to IIInd or IIIrd abd. sternite; last segment rather long, about $1\frac{1}{2}$ times as long as 2nd joint of hind tarsi, with 2 short hairs besides the 3 pairs near apex. Siphunculi black, about $\frac{2}{15}$ – $\frac{1}{6}$ of length of body, cylindrical or tapering from base to the middle, and there about as thick as the hind tibiae, with very flat imbrications like finely dotted lines; flange just indicated. Cauda rather pointed triangular with just convex sides, rather paler than the siphunculi and about $\frac{2}{3}$ – $\frac{3}{4}$ times as long, with 8–12 curved hairs. Legs brownish with basal $\frac{2}{3}$ – $\frac{4}{5}$ of the tibiae pale, rather short; femora, except ventrally near base, and tibiae except at apex with very short blunt hairs; first tarsal joints with 3, 3, 2 short hairs.

Colour dark green with blackish head.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	1.48	0.86	0.20	0.14	0.19	0.11	0.13	0.10 + 0.23
2	1.40	0.87	0.21	0.14	0.19	0.10	0.12	0.10 + 0.25
3	1.74	0.88	0.23	0.17	0.18	0.10	0.13	0.11 + 0.26
4	1.63	0.99	0.23	0.15	0.23	0.12	0.13	0.11 + 0.28
5 ¹⁾	1.66	0.93	0.21	0.14	0.20	0.10	0.13	0.12 + 0.27
6	1.47	0.96	0.21	0.15	0.20	0.12	0.13	0.12 + 0.27
7 ²⁾	1.66	1.11	0.22	0.15	0.28	0.16	0.15	0.12 + 0.29

Notes. This aphid was found half underground on the crowns of *Plantago maritima* on the muddy coast near Oost-Terschelling in June 1947, attended by *Lasius niger*. I saw it also near Bergen op Zoom on the same host in 1941 and 1942 but lost that material. It can easily be recognized by its long rostrum, very short hairs and triangular and rather acute cauda. It rather resembles *Toxopterygia vanderghotti* (BÖRNER) in its large marginal tubercles, long rostrum and caudal shape, but the present species has a much shorter processus terminalis, a more blunt last rostral segment and no trace of the reticulation which *T. vanderghotti* (BÖRNER) generally shows, especially marginally.

It is quite likely that it is this species which BÖRNER in 1950 describes as *Cerosipha longirostris* from the same host from the Neusiedler Lake, and which in 1952 he transferred to *Toxopterygia* BÖRNER subgen. *Tuberculaphis* BÖRNER. However, if *longirostris* BÖRNER is transferred to *Aphis* L., as I do, it is preoccupied by *Aphis longirostris* F., 1776, a *Stomaphis* WLK., and therefore I describe it under a new name, as in any case BÖRNER's description of *Cerosipha longirostris* is not very extensive.

Types. Cotypes in the author's collection.

¹ IIIrd ant. segments with 3 & 3 rhinaria on distal half.

² One hind tibia with some pseudosensoria.

8. *Aphis paludicola* nom. nov.

Pergandeida palustris BÖRNER, 1940 belongs in the genus *Aphis* L. But as an *Aphis* it is preoccupied by *Aphis palustris* THEOB., 1929, now known as *Euschizaphis palustris* (THEOB.). I propose the name *Aphis paludicola* nom. nov. for *Pergandeida palustris* BÖRNER, 1940, transferred to *Aphis*, nec *Aphis palustris* THEOB., 1929.

9. *Calaphis arctica* H. R. L.

Only two apterae viviparae and some larvae were known, collected from *Betula nana* on Greenland. Mr. F. BACHMAIER sent me large numbers from the same host, collected in Bavaria, with the kind request to describe additional morphs found by him.

Apterous viviparous female

Body rather smaller than in Greenland specimens, only about 1.25–1.60 mm long; dorsal hairs slightly thicker and shorter, 0.045–0.070 (instead of 0.070–0.085) mm long, often darkened. IIIrd ant. segment on the middle portion with 2–7 rhinaria (9 times 2, 42 times 3, 56 times 4, 25 times 5, 6 times 6, 1 time 7), the number more or less correlated with the size of the insect; primary rhinarium on VIth ant. segment conspicuously elongated, almost twice as long or wide (as in the Greenland specimens). Hairs on IIIrd ant. segment blunt, extremely short, about 0.005 mm long, half as long as in Greenland specimens. In other respects like the types.

Alate viviparous female

Head and thorax faintly brownish, abdomen not pigmented. Marginal processi, semi-globular or slightly mammiform in shape, present on abd. segment II–IV. Dorsal hairs on abdomen sparse, rather thin, blunt and about 0.006–0.010 mm on the anterior tergites, up to 0.016 mm and subacute on VIIIth abd. tergite. Antennae slightly thinner than in apterae, with 6–8 rhinaria that are rather larger than those in apterae, but similarly placed; the part with the rhinaria slightly darker than the parts basad and apicad. Fore wings with the veins heavy, and slightly shadowed with brown, but the very short sector radii always paler and sometimes only partly visible, the stigma pale with basal and apical brown spot; veins in the hind wings pale. Other characters as in apterous viviparous female.

Colour not mentioned.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments		V	VI
						III	IV		
1	1.68	1.58	0.09	0.16	8 & 8	0.48	0.30	0.26	0.13 + 0.26
2	1.43	1.61	0.07	0.16	6 & 6	0.48	0.27	0.28	0.15 + 0.28

(1-2, Bernried, 15.V.1957.)

Oviparous female

Much like apterous viviparous female (from Bavaria), but considerably larger. From the stigmata on tergite VII obliquely downwards a long narrow brown sclerite. Hair-bearing tubercles on abdomen hardly or not pigmented, dorsal hairs as long as in the types. Rhinaria on IIIrd ant. segment, in correlation with the larger size of the body, more numerous, 4-9 (6 times 4, 13 times 5, 14 times 6, 16 times 7, 4 times 8, 2 times 9). Cauda still slightly but distinctly knobbed. Subanal plate rounded, semicircular, very hairy. Hind tibiae slightly swollen on basal half and there on inner side with some 60-100 pseudo-sensoria. Eggs small, oval, about 0.34×0.18 mm.

Colour not mentioned.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments		V	VI
						III	IV		
1	1.78	2.07	0.11	0.12	2 & 4	0.56	0.39	0.38	0.18 + 0.36
2	1.77	1.95	0.10	0.12	5 & 5	0.55	0.36	0.33	0.18 + 0.33
3	1.85	2.07	0.11	0.12	7 & 7	0.56	0.39	0.37	0.19 + 0.34
4	1.78	1.77	0.11	0.12	5 & 6	0.51	0.34	0.33	0.16 + 0.32

(1-4, Bernried, 30.X.1955.)

Apterous male

Smaller and narrower than apterae viviparae, with the same pigmentation, but the siphunculi often dark on distal half and the claspers always quite dark. Antennae much longer than body; IIIrd segment with about 7-13 rhinaria of the type as in apterae viviparae, the other segments without secondary rhinaria; also the primary rhinarium on Vth segment enlarged, hardly smaller, but wider than that on VIth segment. Claspers blunt. Otherwise like apterous viviparous female.

Colour not known.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments		V	VI
						III	IV		
1	1.55	1.99	0.10	0.09	7 & 11	0.48	0.36	0.37	0.20 + 0.40
2	1.64	2.17	0.10	0.12	9 & 13	0.60	0.39	0.40	0.20 + 0.40
3	1.53	1.90	0.10	0.11	10 & 11	0.46	0.33	0.34	0.19 + 0.39
4	1.55	2.14	0.10	0.11	9 & 10	0.55	0.37	0.44	0.21 + 0.39

(1-3, Bernried, Autumn, 1956; 4, 30.IX.1955.)

Notes. The most remarkable feature of this species is the low number of rhinaria in males and the enlarged primary rhinarium on Vth ant. segment in that morph. Differences in size of the primary rhinarium on the penultimate ant. segment are known between morphs

of the same species, but then generally the male agrees with the alate female in this respect.

All the material described above was collected from *Betula nana* near Bernried (Bavaria, Germany) by Mr. F. BACHMAIER, who will publish additional data on it.

10. *Ephedraphis* nov. gen.

Typus generis : *Anuraphis ephedrae* NEVSKY, 1929. Like *Aphis* L. as to position and occurrence of marginal tubercles, antennae, siphunculi, cauda, etc., but last rostral segment with the apical microsensillae not terminal, but placed laterally on a very acute beak-like processus. This occurs in all larval and adult morphs and no doubt is an adaptation to the surface of the host plants, *Ephedra* spp.

11. *Hayhurstia camphorosmae* nov. spec.

Apterous viviparous female (description from one specimen)

Body elongated oval, about 1.25–1.60 mm long. Only the head dark sclerotic, and the small stigmal plates pale brownish, the rest of the tergum membraneous. Marginal tubercles sometimes present on abd. segments II–IV, like the papilla of a hair. Dorsal hairs rather sparse, with the spinal hairs on the anterior abd. tergites duplicated, and single pleural and marginal hairs, all on rather stout bases, thick, rod-like with widened, flattened and incised, serrated or furcated apices, on IIIrd abd. tergite to about 0.025 mm long, the 6 hairs on VIIIth tergite hardly longer. Front strongly convex in the middle, with insignificant frontal tubercles. Antennae about half as long as body, lightly imbricated, with the basal segments dark, flagellum pale, darker from about the middle towards apex; processus terminalis $1\frac{1}{10}$ – $1\frac{2}{5}$ times base of VIth segment, shorter than IIIrd segment. Antennal hairs normal, rather blunt, those on IIIrd segment about 0.006 mm, about $\frac{1}{2}$ times diameter of the strongly constricted base of IIIrd segment. Eyes normal. Clypeus on basal half slightly swollen, but not conspicuously. Rostrum reaching to just past the middle coxae, last segment about $1\frac{1}{10}$ times 2nd joint of hind tarsi, with 4–6 small hairs besides the 3 pairs near apex. Siphunculi dark, imbricated, about $\frac{1}{14}$ – $\frac{1}{10}$ length of body, on distal half to 0.033 mm wide, attenuated in the middle to about 0.028 mm, towards the flange suddenly narrowing and there about 0.016 mm wide, with a well-developed, thin flange which is much narrower than the apical half of the siphunculus. Cauda darkish on basal $\frac{1}{3}$, paler on distal $\frac{2}{3}$, very long and slender, in the middle about $1\frac{1}{5}$ – $1\frac{1}{3}$ times as thick as distal half of the siphunculi; rather acute, about $1\frac{1}{2}$ – $1\frac{2}{3}$ times as long as the siphunculi, with 5–7 hairs of which 1–2 dorso-apical ones may have flattened apices. Legs dark with the tibiae lighter but not pale; first tarsal joints with 3, 2, 2 hairs.

Colour : Unknown.

Measurements. Length of body : 1.34 mm ; ant. : 0.67 mm ; siph. : 0.13 mm ; cau. : 0.21 mm. Ant. segments : 0.15/III ; 0.10/IV ; 0.11/V ; (0.09 + 0.13)/VI mm.

Oviparous female

Like the preceding morph, but dorsal hairs with pigmented sockets on faintly pigmented indistinct sclerotic plates. Siphunculi slightly shorter, hardly attenuated in the middle. Cauda shorter and thicker, with quite pale apex, with about 8–10 hairs. Hind tibiae much darker than the other tibiae, swollen to about $1\frac{1}{2}$ times the thickness of the middle tibiae, with some 25–40 scattered pseudosensoria.

Colour : Unknown.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	1.42	0.62	0.11	0.16	0.15	0.09	0.11	0.09 + 0.10
2	1.37	0.61	0.10	0.17	0.13	0.10	0.11	0.09 + 0.10
3	1.47	0.68	0.12	0.18	0.15	0.11	0.10	0.10 + 0.13
4	1.34	0.57	0.10	0.17	0.13	0.07	0.10	0.09 + 0.10
5	1.51	0.69	0.10	0.19	0.16	0.10	0.11	0.10 + 0.12
6	1.47	0.65	0.12	0.17	0.15	0.10	0.11	0.09 + 0.12

Alate male

Head and thorax blackish sclerotic, abdomen with small dark marginal sclerites. Dorsal hairs much thinner, cylindrical, blunt or with the very apices faintly thicker, on IIIrd abd. tergite about 0.022 mm ; VIIIth abd. tergite with 4 hairs of about twice that length. Antennae blackish, $\frac{2}{3}$ – $\frac{4}{5}$ length of body ; IIIrd segment with some 30–45 scattered rhinaria of very uniform size, with the porus about 0.005–0.007 mm ; IVth segment with about 12–24, Vth with about 7–14 similar rhinaria ; processus terminalis $1\frac{3}{5}$ –2 times base of last segment, $\frac{2}{3}$ –1 times IIIrd segment. Siphunculi short, only about $2\frac{1}{3}$ –3 times as long as their width in the middle, about $\frac{1}{20}$ – $\frac{1}{15}$ of length of body. Cauda slightly elongated triangular, about $1\frac{2}{5}$ – $1\frac{2}{3}$ times as long as siphunculi. Genitalia normal. Legs dark, rather slender ; first tarsal joints with 3, 3, 2 hairs. Wings with dark, heavy, faintly shadowed veins ; sector radii very little curved.

Colour : Unknown.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Rhin. on segment		V	Ant. segments			
					III	IV		III	IV	V	VI
1	1.21	1.01	0.06	0.11	35 & 39	17 & 23	11 & 11	0.26	0.17	0.16	0.11 + 0.20
2	1.28	0.98	0.07	0.12	35 & 37	19 & 20	8 & 9	0.26	0.17	0.16	0.11 + 0.17
3	1.25	0.98	0.08	0.12	38 & 40	19 & 20	12 & 12	0.26	0.16	0.16	0.11 + 0.19
4	1.16	0.97	0.05	0.10	39 & 43	21 & 12	10 & 11	0.24	0.15	0.16	0.11 + 0.21

Notes. A sample of this species, collected from *Camphorosma annua* at the Neusiedler Lake near Illnitz, Austria, 9.X. 1957, leg. F. KASY, consisted of one aptera vivipara, many oviparae and several males. I first took it to be *Chaitaphis tenuicauda* NEVSKY, 1929, which is very nearly related, but in that species the shape of the siphunculi is rather different, the hairs are different, the processus terminalis is longer and also the whole antenna in comparison to the body. *Chaitaphis* NEVSKY is a synonym of *Hayhurstia* DEL GUERCIO, and it does not replace, as BÖRNER (1952) thinks, *Xerophilaphis* NEVSKY. *Hayhurstia atriplicis* (L.) has also club-shaped though much shorter hairs, and although its siphunculi are slightly different as to their apices, that does not seem a sufficient reason to maintain *Chaitaphis* NEVSKY as a separate genus. *H. atriplicis* differs also in its longer processus terminalis, thicker cauda, and not distinctly swollen basal half of the clypeus.

Types. Cotypes in the author's collection.

12. *Holcaphis bromicola* nov. spec.

Oviparous female

Body elongated, about 1.40–1.90 mm long. Only the head and VIIIth abd. tergite rather dark sclerotic, the rest membraneous and colourless. Dorsal hairs blunt, on IIIrd abd. tergite about 0.010 mm long, on VIIth abd. tergite at least the spinal hairs rather acute and up to 0.025 mm long. Front with the large median tubercle just higher than the distinct frontal tubercles. Antennae pale brown with 1st segment darker, $\frac{1}{3}$ – $\frac{2}{5}$ of length of body; processus terminalis very short, 1 – $1\frac{1}{5}$ times base of VIth segment. Rostrum not nearly reaching the middle coxae; last segment about $\frac{4}{7}$ of 2nd joint of hind tarsi, with only the 3 subapical pairs of hairs. Siphunculi not at all, or rarely just visibly pigmented, mere slightly elevated pori. Cauda dark, fingertip-shaped to bluntly conical, about as long as the processus terminalis, with 6–9 hairs. Subgenital plate uniformly pigmented. Legs rather slender, brown; hind tibiae not thicker than the other tibiae, with some 6–14 quite flat, small pseudosensoria which often are grouped in small clusters; first tarsal joints with 3, 3, 2 hairs; second tarsal joints rather long, more than $\frac{1}{4}$ of the hind tibiae, sometimes in small specimens to $\frac{1}{3}$ of the hind tibiae.

Colour: Very light green, in life grey by wax-powder.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Ant. segments		V	VI
					III	IV		
1	1.45	0.60	0.004	0.10	0.15	0.09	0.07	0.09 + 0.10
2	1.71	0.62	—	0.11	0.16	0.10	0.07	0.10 + 0.11
3	1.53	0.61	—	0.11	0.15	0.09	0.07	0.10 + 0.10
4	1.51	0.57	—	0.11	0.15	0.12	0.07	0.09 + 0.10
5	1.84	0.60	—	0.12	0.13	0.09	0.07	0.10 + 0.11
6	1.64	0.55	—	0.11	0.13	0.07	0.07	0.08 + 0.10

(1–3, Leipzig, XI. 1955; 4–6, Leipzig, X. 1956.)

Apterous male

Small, about 0.05–1.10 mm long. On abdomen sometimes a short spinal bar on VIIIth tergite and hardly visible sclerotic striae pleurally on abd. segments cephalad the siphunculi, mostly only with VIIIth tergite sclerotic and pigmented. Antennae about half as long as body, rarely on one side of 5 segments; IIIrd segment on distal $\frac{3}{4}$ – $\frac{2}{3}$ part with 8–16 very small rhinaria in groups; IVth with 3–8 similar rhinaria; Vth with 0–4 rhinaria distally; processus terminalis 1 – $1\frac{1}{3}$ base of VIth segment. Siphunculi sometimes on anterior margin faintly pigmented. Cauda shortly triangular, with 5–7 hairs. Genitalia normal.

Colour: Rather like oviparous female.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Ant. segments			
					III	IV	V	VI
1	0.94	0.47	0.004	0.05	0.12	0.07	0.06	0.06 + 0.08
2	1.04	0.49	—	0.06	0.12	0.07	0.07	0.07 + 0.07
3	1.02	0.50	—	0.06	0.12	0.07	0.08	0.07 + 0.08
4	1.06	0.55	—	0.06	0.13	0.08	0.08	0.07 + 0.09

(1–2, Leipzig, XI.1955; 3–4, Leipzig, X.1956.)

Alate viviparous female

Head and thorax dark, VIIIth abd. tergite with a narrow dark, sclerotic bar, otherwise membraneous. Antennae about $\frac{4}{7}$ length of body; IIIrd segment with 3–5, on one antenna 6 rather large rhinaria in a row; IVth without rhinaria; processus terminalis $1\frac{1}{3}$ – $1\frac{1}{2}$ times base of VIth segment, about $\frac{4}{7}$ – $\frac{3}{5}$ of IIIrd segment. Siphunculi as in oviparae. Cauda considerably more slender, cylindrical with rounded apex. Legs dark, slender; 2nd joint of hind tarsus $\frac{2}{9}$ – $\frac{1}{4}$ of length of hind tibia. Wings with thick, faintly bordered veins; sector radii in the fore wings very little curved.

Colour. Head and thorax black, the rest as in oviparae, but darker and less powdered.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Rhin. on III	Ant. segments			
						III	IV	V	VI
1	1.66	0.94	0.004	0.13	4 & 4	0.28	0.16	0.12	0.12 + 0.15
2	1.57	0.95	—	0.12	4 & 4	0.28	0.15	0.13	0.11 + 0.16
3	1.56	0.98	—	0.11	4 & 5	0.27	0.17	0.14	0.12 + 0.16
4	1.64	0.89	—	0.11	3 & 4	0.27	0.14	0.12	0.12 + 0.15

(1–4, Leipzig, 20.VI.1957.)

Notes. Professor E. MÜHLE discovered this species on *Bromus inermis*, from which plants the described samples were taken. By the absence of other sclerotic areas than that on VIIIth abd. tergite all morphs can easily be distinguished from those of related species, which besides have pigmented and more developed siphunculi. The oviparae

of *frequens* Wlk. and *holci* H.R.L. have swollen hind tibiae with many more, slightly elevated pseudosensoria, and shorter tarsi.

Types. Cotypes in the author's collection.

13. *Neosappaphis* nov. gen.

Typus generis : *Neosappaphis franzi* nov. spec. Only apterae known. Resembling *Anuraphis* DEL GUERCIO¹ in general characters, therefore with granulated integumentum, straight front, secondary rhinaria in apterae, marginal tubercles on abd. segments I–VII and spinal tubercles irregularly on all segments from vertex to VIIIth abd. tergite, but antennae of 5 segments with even in larvae secondary rhinaria, and siphunculi quite smooth, without flange and with rounded apex. Belongs near *Dysaphis* BÖRNER and *Anuraphis* DEL GUERCIO, but differs by flangeless siphunculi. These occur in *Acaudinum* BÖRNER, but the latter has 6-segmented antennae and fewer spinal tubercles.

14. *Neosappaphis franzi* nov. spec.

Apterous viviparous female

Body oval, about 1.60–1.95 mm long. Head and pronotum brownish sclerotic, mesonotum with a thick transverse, spino-pleural bar, and large round marginal sclerites, mesonotum and abd. tergites with very narrow, much perforated, sometimes indistinct spino-pleural bars and rather small and irregular marginal sclerites, the spino-pleural bars on tergites III–V sometimes fused to an irregular, much perforated patch; all the sclerotic areas on thorax and abdomen distinctly, spinally often transversely reticulated and finely punctated. Marginal tubercles very inconspicuous, quite flat but rather large, e.g., on IIIrd abd. tergite about 0.039 mm in diameter, present on pronotum and abd. segments V–VII; spinal tubercles on vertex, thoracal nota and abd. tergites I–VII rather small, not always present and owing to their flatness inconspicuous on most tergites. Dorsal hairs rather numerous, very short and semi-blunt, on IIIrd abd. tergite nearly 0.009 mm long, on VIIIth tergite to 0.016 mm. Stigmal pori reniform, those of Ist and IIInd abd. segment near each other. Front quite straight, smooth, but head dorso-laterally with some striae. Antennae rather thick, faintly imbricated, dark like the head, with IIIrd segment basally paler, about $\frac{4}{9}$ – $\frac{1}{2}$ length of body, of 5 segments; IIIrd segment near apex with 2–3 small bunched rhinaria, IVth with 11–24 rhinaria along one side, and these rhinaria usually closely bunched, leaving basal $\frac{1}{3}$ and apical $\frac{1}{5}$ part of the segment free; processus terminalis $2\frac{3}{8}$ – $2\frac{5}{8}$ times as long as base of last segment, $\frac{5}{6}$ –1 times IIIrd segment. Hairs on antennae very short, about 0.006 mm, $\frac{1}{3}$ of the very strongly constricted base

¹ *Anuraphis* DEL GUERCIO is meant in BÖRNER's sense, not in the American sense.

of IIIrd segment. Eyes normal, large; in one specimen faint traces of lateral ocelli visible. Rostrum long, reaching well past the hind coxae; last segment about $1\frac{1}{3}$ times as long as 2nd joint of hind tarsi, with 7–9 short hairs besides the 3 pairs near apex. Siphunculi mottled dark, about cylindrical with slightly wider base, about $\frac{2}{11}$ – $\frac{1}{5}$ length of body, smooth but near base and especially on inner side slightly wrinkled, about 0.052 mm thick, without a trace of a flange and with rounded apex. Cauda basally constricted and above the constriction nearly circular, about $\frac{1}{4}$ of the siphunculi, dark, with about 20 curved hairs. Subgenital plate on anterior half with about 6–10 hairs. Legs dark with the bases of the femora paler, the thick tibiae with numerous short hairs; first tarsal joints with 3, 3, 2 hairs.

Colour: Unknown.

Measurements in mm.

No.	Length body	Ant.	Siph.	Cau.	Rhin. on		Ant. segments		
					III	IV	III	IV	V
1	1.95	0.88	0.35	0.09	3 & 3	12 & 14	0.26	0.16	(0.085 + 0.22)
2	1.60	0.79	0.32	0.09	2 & 2	11 & 12	0.20	0.15	(0.085 + 0.20)

Notes. Two apterae and one larva were sieved by Professor H. FRANZ, Vienna, from an *Armeria* meadow on Isla cles Norte, Spain, 26.VII.1955 (Sp. nr. 410a). Confusion of this species with other aphids is hardly possible, because the combination of a rounded cauda, smooth flangeless siphunculi and dorsal tubercles is not known from other aphids.

I know of no other aphid outside Cinarinae in which larvae have secondary rhinaria. Unfortunately only one larva is present, probably 3rd instar. Its measurements are: Length of body: 1.12 mm; siph.: 0.19 mm; cau.: 0.015 mm. Ant. segments: 0.13/I + II; 0.12/III; 0.12/IV; (0.08 + 0.14)/V mm. Rhin. on IIIrd ant. segment: 2 and 2; on IVth: 13 and 12. There is no indication for approaching ecdysis. Two embryos inside one adult would seem to have clusters of rhinaria on the penultimate ant. segment, but this cannot be seen sufficiently clearly.

Types. Cotypes in the author's collection.

15. *Periphyllus coracinus* KOCH, 1854

BÖRNER (1952) lists *Chaitophorus coracinus* KOCH, 1854 from *Acer platanoides*. Professor SACHTLEBEN most kindly lent me the relevant material from the BÖRNER collection and it appears now that this is of the species that MAMONTOVA (1955) described as *Periphyllus viridulus*. SZELEGIEWICZ (1958) recorded it from Poland under the latter name, and like MAMONTOVA from the same host.

It would seem that BÖRNER's identification was correct. KOCH's species might be *testudinaceus* FERNIE (*villosus* HTG. ?); he describes the legs as pale with dark tips to both femora and tibiae, but he figures

pale legs with only the apices of the tibiae dark which excludes *testudinaceus*, but which fits *viridulus* MAMONTOVA. The dark tips to the segments of the flagellum which KOCH describes do not fit *testudinaceus*, but they are very typical for *viridulus* and therefore I believe that *viridulus* MAMONTOVA is a synonym of *coracinus* KOCH. The first instar larvae somewhat irregularly have pleural hairs on abd. tergites I-V, which also BÖRNER (1952, p. 322) noted, without, however, drawing the obvious conclusion that it takes a foundation for his subdivision of *Periphyllus* away.

16. *Periphyllus obscurus* MAMONTOVA, 1955

BÖRNER (1930) erected *Chaitophorus* for species that as first instar larvae have pleural hairs on abd. tergites I-IV; the type was given as *Chaitophorus lyropictus* KESSLER which does not have pleural hairs on these tergites. Later it appeared that BÖRNER had misidentified his typus generis and in 1952 he writes that the genotype was *Chaitophorus granulatus* KOCH, 1854.

Unfortunately also this is wrong. *Chaitophorus granulatus* KOCH is an evenly green species, which according to KOCH (1854) lives on the petioles of the fruit. I described it as *Peryphyllus templi* in 1935, and placed that name as a synonym of *granulatus* KOCH in 1947, but BÖRNER (1952) gave it a new name and records it as *Periphyllus lambersi* BÖRNER. BÖRNER's «*granulatus*» lives on the leaves of *Acer campestre*, and his material shows an aphid with darkened siphunculi.

Chaetophorus granulatus BÖRNER nec KOCH is a synonym of *Periphyllus obscurus* MAMONTOVA, as comparison of MAMONTOVA's cotypes with material received from Dr. C. BÖRNER shows.

17. *Periphyllus singeri* (BÖRNER, 1952)

This species, described as a *Chaetophoria* BÖRNER, but with reluctance (BÖRNER, 1952, p. 322), is the species that QUEDNAU (1954) described as *Chaetophorella helfferi* nov. spec. The most characteristic character is the large number of rostral hairs, recorded by BÖRNER, but not by QUEDNAU. However, in the material that Dr. QUEDNAU kindly presented to me, the number of hairs on the last rostral segment is hardly lower than that given by BÖRNER.

18. *Schizaphis longicaudata* H. R. L., 1939

In the original description (HILLE RIS LAMBERS, 1939) of this aphid which has never been refound, the colour is incorrectly described and no definite host-plant is given. It has now been refound on *Phalaris arundinacea* near Swalmen in Limburg, Netherlands. The colour in life is sea-green with often a brighter spinal stripe. The body dorsally

has a slight powdery, waxy exsudation but laterally and ventrally the insects, particularly the adults are almost white with powder. The very long, pale cauda is most conspicuous. Colonies of this species, particularly because diseased or parasitized specimens turn reddish to brownish, may very easily be mistaken for *Hyalopterus pruni* GEOFFR., and as the host-plant is often mistaken for *Phragmites communis*, the aphid probably has rather often been observed, but mistaken for the very common Mealy Plum Aphid. The suggestion, made in the original description that *Prunus domestica* were the host-plant, can be ascribed to a similar confusion. The aphids are not visited by ants, contrary to most other Western European species of the genus.

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