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Psylloidea (Insecta: Hemiptera) of the Arabian Peninsula

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Abstract: The jumping plant-louse fauna of the Arabian Peninsula is reviewed based on published records and material from Bahrain, Kuwait, Oman, Saudi Arabia, the United Arab Emirates and Yemen, the latter being particularly rich. Fifty-two species, nine of which remain unnamed, of 19 genera are recorded. Ten species are described as new, one species is synonymised and two new combinations are proposed. Keys are provided for the identification of the adults and, where known, of the fifth instar larvae. *Diaphorina* is the most species-rich genus followed by *Acizzia,* both being widely distributed in the Old World. The Fabaceae bear the largest number of psylloids followed by Chenopodiaceae and Tamaricaceae.

قمل النبات النطاط (الحشرات: نصفية الأجنحة) في شبه الجزيرة العربية

دانيال بيركهاردت و ديفيد ميفسود

خلاصة: تم مراجعة مجموعة قمل النبات النطاط في شبه الجزيرة العربية بناءا على تسجيلات سابقة منشورة وعينات جمعت من البحرين والكويت وعمان والمملكة العربية السعودية والإمارات العربية المتحدة واليمن، إلا أن اليمن أغناها من حيث عدد أنواع هذه المجموعة. سجل ٥٢ نوعا، ٩ منها مازالت غير مسماة، تنتمي إلى ١٩ جنسا. تم وصف ١٠ أنواع جديدة، ودمج نوع واقتراح إحداث مجموعتين جديدتين. أعطيت مفاتيح تصنيفية للأطوار البالغة، وحيثما توفر لمرحلة اليرقة الخامسة. يضم الجنس *Diaphorina* اكبر عدد من الأنواع، يليه الجنس *Acizzia*، حيث ينتشر الجنسان بشكل واسع في العالم القديم. و تأوي عائلة الفوليات اكبر عدد من أنواع قمل النبات النطاط، يليها عائلتي السرمقية و الأثلية.

INTRODUCTION

The Arabian Peninsula is situated at the junction of three biogeographical realms. The northern lowlands have affinities with the Palaearctic, the south with the Afrotropical and the east with the Oriental regions, respectively. Large areas of the peninsula consist of deserts and semi-deserts which stretch, albeit interrupted in places, from Mauritania in the west to India in the east. This area, defined mostly on ecological grounds, is sometimes called the Eremic Zone. In the south-east, south and west of the peninsula are several mountain systems which, in contrast to the lowland deserts, sustain forests (BÜTTIKER 1979, LARSEN 1984).

The sternorrhynchous jumping plant-lice are well represented in eremic regions throughout the world (HODKINSON 1980, 1989; BURCKHARDT & LAUTERER 1993). Relatively little is known, however, from the Arabian Peninsula. LOGINOVA (1971, 1974) and BURCKHARDT & LAUTERER (1997) recorded four species from Yemen, and BURCKHARDT (1981, 1986) listed 24 species from

Saudi Arabia, based on records in the literature and from available material. Recently, additional collections became available from Yemen, Saudi Arabia, Oman, Kuwait, Bahrain and the United Arab Emirates which are treated here, together with information from the literature. Keys are provided for adults and fifth instar larvae, where known. The keys include a few taxa not reported from the Arabian Peninsula but whose occurrence there is likely. Finally, the biogeographical relationships are briefly discussed, and host plant information is summarised.

MATERIAL AND METHODS

The classification used here is that of WHITE & HODKINSON (1985) with modifications made by BURCKHARDT (1987, 1991) and HOLLIS (in prep.). The taxa are listed in alphabetical order. Morphological terminology mostly follows HOLLIS (1976, 1984), WHITE & HODKINSON (1982) and OSSIANNILSSON (1992). Measurements are taken from slide-mounted specimens and are given in millimetres. The following abbreviations are used in the keys and descriptions:

Adults:

AEL	length of distal portion of aedeagus
AL	antenna length (including scape and pedicel)
ALHW	ratio of antenna length to head width
FP	female proctiger length
FPC	ratio of female proctiger to circumanal ring length
FPHW	ratio of female proctiger length to head width
FPS	ratio of female proctiger to subgenital plate length
HW	head width
MP	male proctiger length
MPHW	ratio of male proctiger length to head width
PL	paramere length
TLHW	ratio of metatibia length to head width
WL	forewing length
WLHW	ratio of forewing length to head width
WLW	ratio of forewing length to width

Fifth instar larvae:

AL	antenna length (including scape and pedicel)
AWL	ratio of antenna length to forewing pad length
BBL	ratio of body length to breadth
BL	body length
CCB	ratio of caudal plate to circumanal ring breadth
CPB	caudal plate breadth
CPR	ratio of caudal plate length to breadth
WL	forewing pad length

Material was examined, or is cited, from the following collections and institutions:

AROB	Agricultural Research Organization, Bet-Dagan, Israel
BMNH	The Natural History Museum, London, U.K.

MHNG	Muséum d'histoire naturelle, Genève, Switzerland
MIZW	Museum and Institute of Zoology, Warsaw, Poland
NHMB	Naturhistorisches Museum, Basel, Switzerland
NMWC	National Museum of Wales, Cardiff, U.K.
SMNH	Swedish Museum of Natural History, Stockholm, Sweden
ZISP	Zoological Institute, St. Petersburg, Russia

SYSTEMATIC ACCOUNT

Psylloidea

Key to families of Psylloidea

Adults

1 Forewing with a pseudovein between veins Rs and M, lacking a pterostigma. Male subgenital plate with additional lobes **Carsidaridae:** ***Mesohomotoma*** (not recorded from the area)

– Forewing and male subgenital plate different 2

2 Antennal flagellar segments thick, flattened laterally and densely covered in conspicuous black setae. Male proctiger distinctly 2-segmented **Homotomidae:** ***Homotoma*** (not recorded from the area)

– Antennal flagellar segment slender, ± rounded in cross-section, not covered in long black setae. Male proctiger usually 1-segmented 3

3 Forewing with vein R+M+Cu_1 trifurcating or, rarely, bifurcating; costal break and pterostigma always absent; anal break in distance of apex of vein Cu_{1b}. Metabasitarsus without apical black spurs ..... **Triozidae**

– Character combination absent 4

4 Vein Rs of forewing touching vein M_{1+2} to form a characteristic cross (Fig. 89) **Phacopteronidae:** ***Pseudophacopteron***

– Veins Rs and M_{1+2} of forewing separated or connected by cross-vein (in *Caillardia dilatata* Loginova, 1978) **Psyllidae**

Fifth instar larvae
(Taxon not included: Phacopteronidae)

1 Dorsal surface of thorax, wing pads and abdomen with rod setae which are based on tall tubercles **Homotomidae:** ***Homotoma*** (not recorded from the area)

– Dorsal body surface without rod setae based upon tall tubercles 2

2 Antennae 10-segmented; tarsal arolium absent; additional porefields present on caudal plate **Carsidaridae:** ***Mesohomotoma*** (not recorded from the area)

– Character combination absent 3

3 Truncate marginal sectasetae present on wing pads and abdomen; if absent from wing pads then more than 4 + 4 sectasetae present on abdominal margin **Triozidae**

– Forewing pads without truncate marginal sectasetae. Caudal plate with, at most, 4 + 4 marginal sectasetae **Psyllidae**

Family **Phacopteronidae**

Pseudophacopteron sp. Figs 45-46, 89, 106

Material: Yemen: 1 ♀, Taiz, 20.X.1991; 1 ♀, Mukeiras, 11.IV.1993; both A. van Harten, MHNG.

Description: Adult: Coloration: Head bright orange with white markings. Eyes light red in colour. Antennae yellow, distal portion of segments 3-8, and entire segments 1, 2, 9 and 10 dark brown. Dorsal surface of thorax bright orange with fine yellow or white bands. Forewing transparent with brown pattern as in Fig. 89. Abdomen brown.

Structure: Head, in dorsal view, about as wide as or slightly wider than mesoscutum; vertex entirely covered in coarse surface sculpturing, lacking coronal suture but with a narrow median ridge, on either side of which is an oblique ridge forming a blunt anterior tubercle; frons forming a narrow parallel-sided sclerite with median ocellus distally; antennal insertion with small transverse tubercle near eye (Figs 45-46). Antennae 10-segmented, segment 3 slightly longer than each of segments 4-8 which are subequal and weakly widened to apex; segments 9 and 10 thicker than 3-8; terminal setae respectively 1 and 2 times as long as segment 10; segments 4-9 each with a subapical rhinarium. Clypeus short, globular. Pronotum short, bearing a small median tubercle. Meso- and metanotum flattened. Propleurites narrow, epimeron larger than episternum. Forewings as in Fig. 89; surface spinules absent apart from a few along the outer margin and in cell cu_{1b}. Legs long; metacoxa with short, pointed meracanthus; metatibia without genual spine, apex with a crown of light, weakly sclerotised setae; metabasitarsus with two sclerotised spurs. Female genitalia as in Fig. 106, male unknown.

Measurements (1 ♀): HW 0.33; AL 0.47; WL 1.08; FP 0.27; ALHW 1.41; TLHW 0.94; WLHW 3.27; WLW 2.16; FPHW 0.82; FPC 3.00; FPS 1.29.

Larva and host plant unknown.

Remarks: The two specimens available belong to an undescribed species similar to the African *Pseudophacopteron zimmermanni* (Aulmann, 1912) from which they differ in the presence of a dark band on the forewing. In the absence of more material, in particular males and larvae, the species is not formally named here.

Family **Psyllidae**

Key to subfamilies of Psyllidae

Adults

1 Metacoxae slender, without meracanthus but bearing a weakly sclerotised tubercle at trochanteral cavity **Rhinocolinae** (not recorded from the area)

– Metacoxae thick with horn-shaped meracanthus, without sclerotised tubercle at trochanteral cavity 2

2 Genae forming flattened anterior lobes, lying in the same plane as vertex and enclosing median ocellus. Antennae arising on the underside of the head **Liviinae**

– Genae rounded or forming conical anterior lobes, if flattened and enclosing median ocellus then not lying in the same plane as vertex. Antennae arising on fore margin of head, bases not concealed from above 3

3 Apical spurs of metatibia forming an open crown, if grouped then head bearing preocular sclerite 4

– Apical spurs of metatibia always grouped, head without preocular sclerite 5

4 Head without conical genal processes; occipital margin distant from forewing base. Male proctiger with large wing-like posterior processes **Aphalarinae**
– Either head bearing conical genal processes (Figs 39-44, 47-50), or occipital margin adjacent to forewing base. Male proctiger straight or weakly produced posteriorly, lacking large wing-like processes (Figs 57, 59) **Diaphorininae**
5 Head with very short, blunt genal processes. ALHW < 1.2 6
– Head with long, pointed genal processes, or ALHW > 1.2 8
6 Branches of vein M of forewing longer than stem **Pachypsylloidinae**
– Branches of vein M of forewing shorter than stem 7
7 Forewing with brown pattern consisting of an apical and a median transverse band which are fused in the middle (Fig. 95). Distal segment of aedeagus with oval apical dilatation (Fig. 107) **Euphalerinae**
– Forewing dark or reddish brown with irregular small light spots. Distal segment of aedeagus with apical dilatation forming both a dorsal and a ventral extension **Aphalaroidinae**
8 Male proctiger bearing a large posterior lobe (Fig. 15). Genal processes less than half vertex length (Fig. 10), or if longer then ALHW > 1.6 **Acizziinae**
– Male proctiger without posterior lobe. Genal processes more than half vertex length, ALHW < 1.6 9
9 Metatibia with large genual spine **Arytaininae**
– Metatibia without genual spine, at most a small tubercle **Psyllinae**

Fifth instar larvae
(Taxa not included: Pachypsylloidinae and Psyllinae)

1 Extra pore fields on caudal plate present 2
– Extra pore fields on caudal plate absent 4
2 Tarsal arolium sessile **Rhinocolinae** (not recorded from the area)
– Tarsal arolium petiolate 3
3 Abdominal margin with some sectasetae **Euphalerinae**
– Abdominal margin without sectasetae **Liviinae**
4 Tarsal arolium membranous, without unguitractor **Aphalarinae**
– Tarsal arolium with well-developed unguitractor 5
5 Antennae 9-segmented **Acizziinae**
– Antennae 3- to 8-segmented 6
6 Usually without capitate setae, at most short club-shaped setae **Diaphorininae**
– Always with long capitate setae 7
7 Antennae 3-segmented **Aphalaroidinae**
– Antennae 7-segmented **Arytaininae**

Subfamily **Acizziinae**

Key to species of *Acizzia*

Adults

1 Genal processes half vertex length or more (Fig. 12). Vein C+Sc of forewing thick (Fig. 7) 2
– Genal processes less than half vertex length (Fig. 10). Vein C+Sc of forewing slender (Fig. 5) 3

2 Forewing (Fig. 7) with distinct brown band along outer margin. Genal processes blunt apically (Fig. 14). Genitalia as in Figs 27-29 ***Acizzia virgata*** n. sp.
– Forewing (Fig. 3) without distinct brown band along outer margin. Genal processes subacute apically (Fig. 12). Genitalia as in Figs 21-23 ***Acizzia hirsuticauda*** n. sp.
3 Pterostigma of forewing sessile, wing pattern as in Fig. 8. Genitalia as in Fig. 30 ***Acizzia wittmeri***
– Pterostigma of forewing petiolate, wing pattern and genitalia different 4
4 AL > 1.0 mm 5
– AL < 1.0 mm 7
5 Forewing with well-defined brown submarginal band (Fig. 5). Male proctiger with narrow posterior lobe ***Acizzia marginata***
– Forewing with indistinct brown submarginal band (Fig. 4). Male proctiger with broad posterior lobe 6
6 Surface spinules of forewing covering the whole surface apart from stripes along the veins (Fig. 9). Genitalia as in Figs 15-17; male proctiger, in profile, with angular posterior lobes; apex of female proctiger relatively massive ***Acizzia didyma*** n. sp.
– Surface spinules of forewings restricted to base and apex of wing. Male proctiger, in profile, with broadly rounded posterior lobe; apex of female proctiger relatively slender ***Acizzia hollisi***
7 Head black, pronotum ochreous, mesonotum brown. Genual spine present. Surface spinules arranged in irregular hexagonal pattern. Genitalia as in Figs 24-26 ***Acizzia melanocephala*** n. sp.
– Head lighter, about the same colour as pro- and mesonotum. Genual spine indistinct or absent. Surface spinules of forewing irregularly spaced. Genitalia different 8
8 Forewing widest in the middle (Fig. 1). Paramere with hook in the middle of fore margin. Female subgenital plate truncate apically ***Acizzia bona***
– Forewing widest in apical fifth (Fig. 2). Paramere without hook on fore margin (Fig. 19). Female subgenital plate acute apically (Fig. 20) ***Acizzia halperini*** n. sp.

Fifth instar larvae
(Taxa not included: *Acizzia didyma* n. sp., *A. hirsuticauda* n. sp., *A. virgata* n. sp. and *A. wittmeri*)

1 Caudal plate without long dorsal capitate setae 2
– Long capitate setae present on dorsum of caudal plate 3
2 Margin of caudal plate with long rod setae (Fig. 34) ***Acizzia melanocephala*** n. sp.
– Margin of caudal plate with a few long capitate setae (Fig. 31) ***Acizzia bona***
3 Forewing pad with long dorsal capitate setae (Fig. 36) ***Acizzia halperini*** n. sp.
– Forewing pad without or with short dorsal capitate setae (Fig. 37) 4
4 Forewing pad without dorsal capitate setae. Wing pads and caudal plate ochreous dorsally, weakly sclerotised ***Acizzia hollisi***
– Forewing pad with short dorsal capitate setae. Wing pads and caudal plate brown dorsally, strongly sclerotised ***Acizzia marginata***

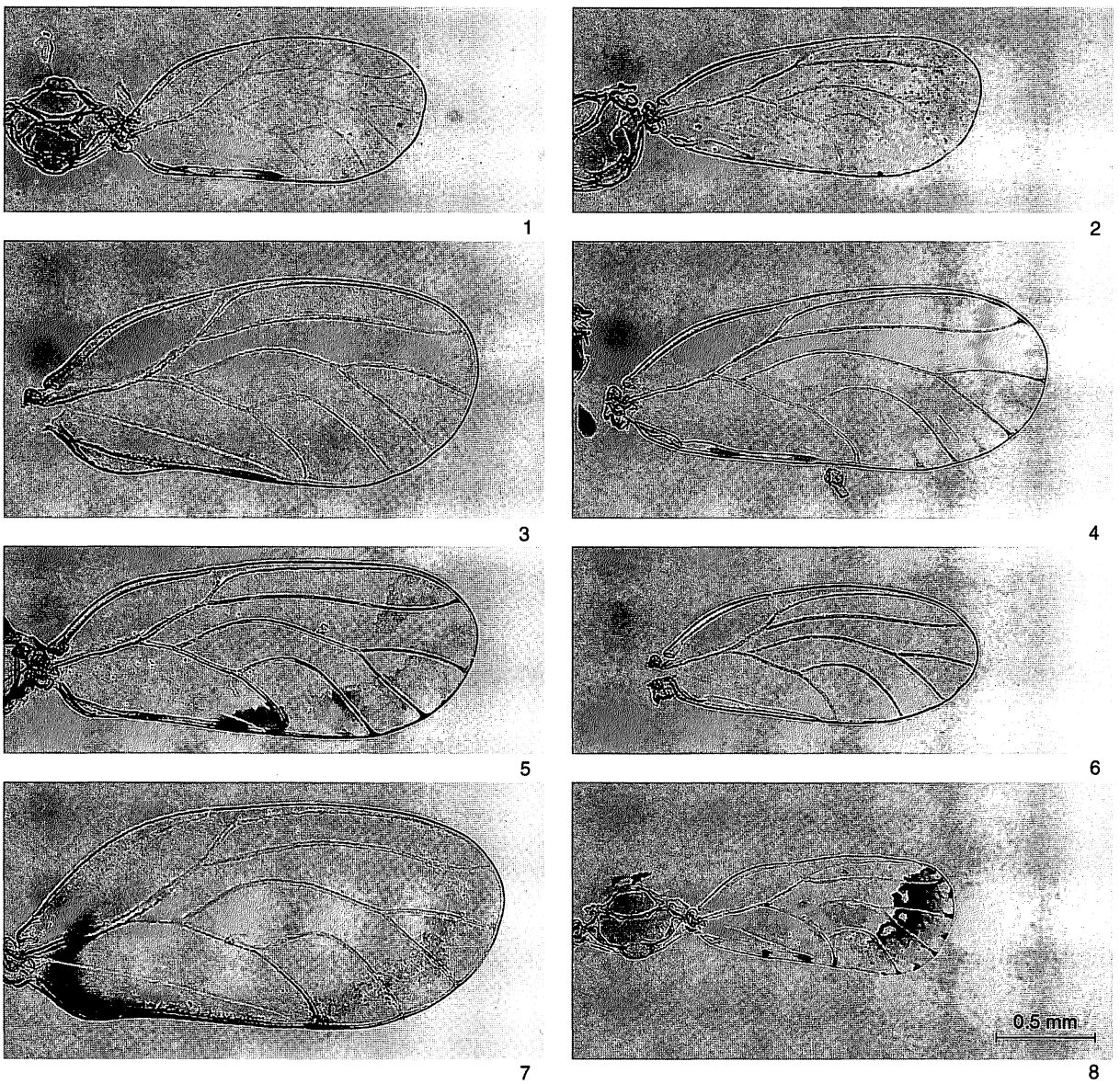
Acizzia bona Loginova, 1967 Figs 1, 31, 35

Acizzia bona Loginova, 1967. — Annalen des Naturhistorischen Museums Wien 70: 407.

Material: Saudi Arabia: 1 ♀, Wadi Mizbil, 25.II.1977, W. Büttiker, NHMB.

Reported from Sudan (LOGINOVA 1967) and Saudi Arabia (BURCKHARDT 1986).

Host plants: *Acacia ehrenbergiana* Hayne, *A. seyal* Del. (Fabaceae)



Figs 1-8: Forewing of *Acizzia* species. 1: *A. bona.* 2: *A. halperini* n. sp. 3: *A. hirsuticauda* n. sp. 4: *A. hollisi.* 5: *A. marginata.* 6: *A. melanocephala* n. sp. 7: *A. virgata* n. sp. 8: *A. wittmeri.*

Acizzia didyma n. sp. Figs 9-10, 15-17

Holotype: ♂, Yemen, West Aden Protectorate, Jabal Jihaf, c. 7000 feet, 19.IX.1937, swept from low herbage between rocks, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH. — Paratypes: Yemen: 18 ♂♂, 24 ♀♀, same data as holotype but BMNH, NHMB; 1 ♀, same data but c. 7100 feet, 29.IX.1937, from edges of terraced fields, BMNH.

Diagnosis: Genal processes short. Male proctiger, in profile, with angular posterior lobes; male subgenital plate long. Fore margin of parameres bearing a hook.

Description: Adult: Coloration: Head whitish yellow with extended brown patches on vertex; eyes reddish. Antennal segments pale yellow with distal portions of segments 3-7 and entire segments 8-10 brown to dark brown. Dorsal face of thorax and abdomen yellow to orange with extended brown pattern, forming longitudinal stripes on mesopraescutum and mesoscutum. Head and thorax laterally and ventrally whitish to yellow with dark spots. Abdomen whitish ventrally,

genitalia reddish to brown. Forewings transparent, veins yellow, membrane whitish with indistinct light brown band along outer wing margin and slightly darker brown spots in the middle of the cells along the outer wing margin (Fig. 9). Legs brown with yellowish tibiae and tarsi.

Structure: Head (Fig. 10) with short genal processes which bear several long hairs; vertex covered in short hairs, microsculpture restricted to margins. Forewing (Fig. 9) oblong-oval, widest in the middle, vein C+Sc slender, pterostigma petiolate. Surface spinules covering all cells, leaving narrow spinule-free stripes along the veins; irregularly and densely spaced, fine; radular spinules forming indistinct patches along wing margin in cells rs, m_{1+2}, m_{3+4} and cu_{1a}. Metatibia with distinct, small genual spine. Genitalia as in Figs 15-17.

Measurements (2 ♂♂, 2 ♀♀): HW 0.61-0.66; AL 1.09-1.29; WL 1.57-1.98; MP 0.19-0.20; PL 0.25-0.26; AEL 0.20-0.22; FP 0.64-0.67; ALHW 1.79-2.02; TLHW 0.69-0.79; WLHW 2.57-3.00; WLW 2.21-2.38; MPHW 0.31-0.32; FPHW 0.97-1.02; FPC 3.94-4.27; FPS 1.42-1.46.

Larva and host plant unknown.

Remarks: *Acizzia didyma* shares with *A. bona*, *A. hollisi*, *A. marginata* and *A. melanocephala* n. sp. the short genal processes, the long male subgenital plate and the hook on the fore margin of the parameres. Based on the shape of the distal portion of the aedeagus and of the male proctiger, *A. didyma* may be most closely related to *A. hollisi*. It differs from similar species as indicated in the key.

Acizzia halperini n. sp. Figs 2, 11, 18-20, 32, 36

Acizzia sp. 2. — Burckhardt 1986: 157.

Acizzia sp. — Burckhardt & Halperin 1992: 46.

Holotype: ♂, Yemen, Yarim to Hamam Dam, 19.III.1993, A. van Harten, MHNG. — Paratypes: Saudi Arabia: 4 ♂♂, 8 ♀♀, Wadi Shaib Luha, 15.I.1977, W. Büttiker, NHMB; 1 ♀, same data but Juayfiniyan, 960 m, 26.IV.1981; 1 ♂, Riyadh, 5.V.1981, A.S. Talhouk, NHMB. — Yemen: 2 ♂♂, 6 ♀♀, 3 larvae, same data as holotype; 4 ♂♂, 5 ♀♀, 2 larvae, near Sana'a, 3.VII.1991, on *Acacia* sp., MHNG, ZISP; 1 ♂, 1 ♀, Sana'a, VII.1991, in light-trap, MHNG; 1 ♀, same locality but IV.1992, in Malaise-trap; 2 ♂♂, 5 ♀♀, Mabar to Medinat al-Shirq, 12.III.1992, on *Acacia* sp., MHNG; all A. van Harten. — Palestine: 1 ♀, En Yahav, 12.III.1989, on *Acacia raddiana*; 1 ♀, En Gedi, 25.III.1989, on *Acacia raddiana*; 1 ♀, Hazera N, 9.I.1990, on *Acacia raddiana*, *A. tortilis*; 1 ♀, Evrona, 9.I.1990, on *Acacia raddiana*, *A. tortilis*; 1 ♀, Zomet ha Arava, 10.I.1995, on *Acacia raddiana*; all J. Halperin; 1 ♀, Nahal Zofar, 11.IV.1992, B. Merz & Freidberg, MHNG.

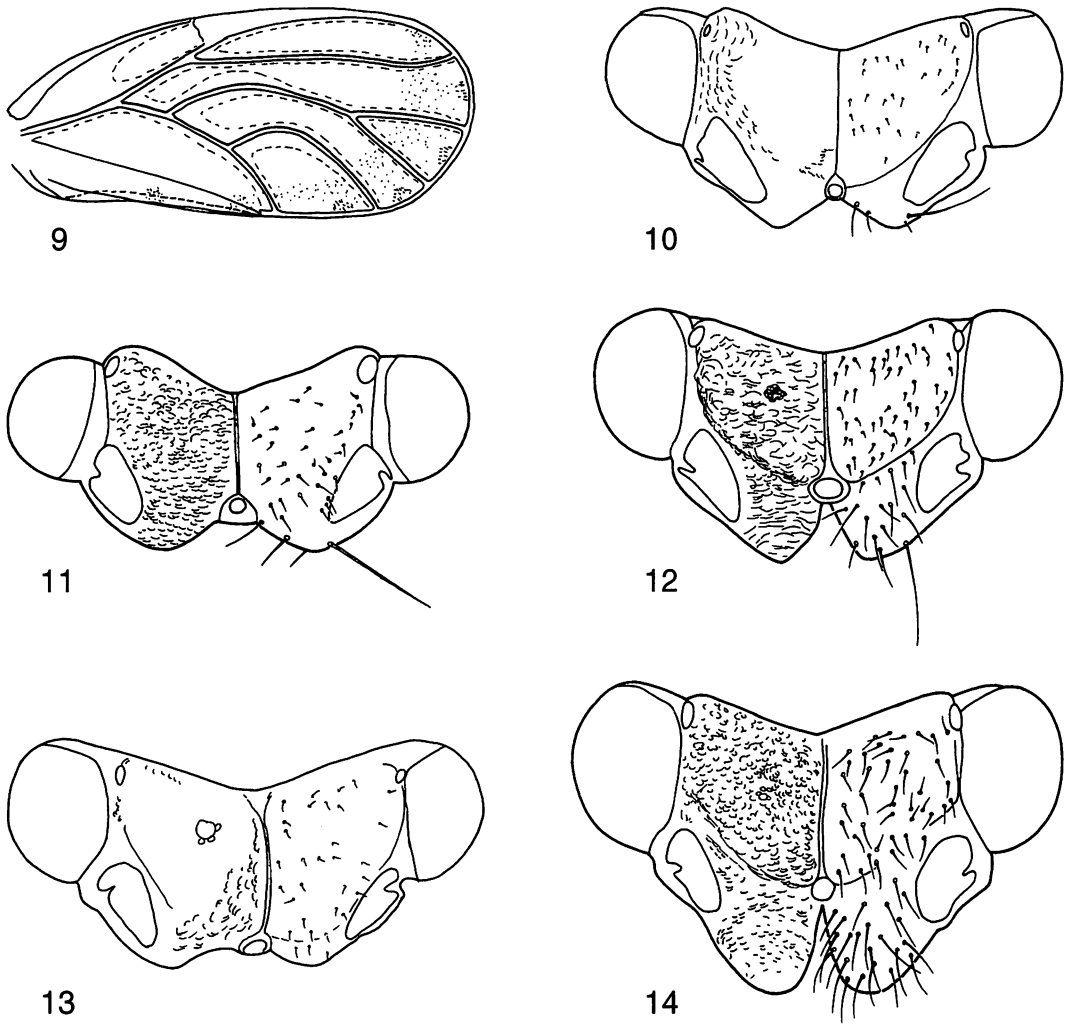
Diagnosis: Genal processes short. Antennae shorter than 1.0 mm. Forewings transparent, evenly spotted. Male subgenital plate short. Fore margin of parameres without hook.

Description: Adult: Coloration: Head yellow with light grey eyes. Antennal segments pale yellow with distal portion of segments 3-10 slightly darker. Dorsal surface of thorax bright yellow, usually with white and orange markings. Abdomen yellow to orange. Venter of body white to light yellow. Forewings transparent, evenly spotted as in Fig. 2.

Structure: Head (Fig. 11) with short genal processes which bear several long hairs; vertex covered in fine sculpture and short hairs. Forewing (Fig. 2) gradually widening to apical fifth, vein C+Sc slender, pterostigma petiolate. Surface spinules covering all cells, leaving narrow spinule-free stripes along the veins; irregularly and densely spaced, fine; radular spinules forming indistinct patches along wing margin in cells rs, m_{1+2}, m_{3+4} and cu_{1a}. Metatibia with indistinct genual spine. Genitalia as in Figs 18-20.

Measurements (1 ♂, 3 ♀♀): HW 0.54-0.58; AL 0.84-0.95; WL 1.54-1.87; MP 0.16; PL 0.22; AEL 0.20; FP 0.49-0.54; ALHW 1.47-1.74; TLHW 0.72-0.86; WLHW 2.85-3.22; WLW 2.11-2.23; MPHW 0.30; FPHW 0.84-0.93; FPC 3.27-3.38; FPS 1.36-1.48.

Fifth instar larva: Coloration (of slide-mounted specimens): Sclerotised plates light ochreous. Membranes colourless.



Figs 9-14: *Acizzia* species: Forewing (9) and head in dorsal view (10-14). 9-10: *A. didyma* n. sp. 11: *A. halperini* n. sp. 12: *A. hirsuticauda* n. sp. 13: *A. melanocephala* n. sp. 14: *A. virgata* n. sp.

Structure: Body elongate. Antenna 9-segmented with each a subapical rhinarium on segments 3, 5, 7 and 8; segment 3 with two, and segments 4 or 5 with one capitate setae which are about as long as diameter of segments. Thoracic tergites small. Legs with normal, long setae and a few long capitate setae; tarsal arolium triangular, with unguitractor and long pedicel. Surface of wing pads and caudal plate covered in spine-like microsculpture. Forewing pads (Fig. 36) elongate with several long lateral and dorsal capitate setae. Caudal plate (Fig. 32) with many dorsal and lateral capitate setae. Outer circumanal ring small, consisting of a single row of pores.

Measurements (3 larvae): AL 0.52-0.57; WL 0.51; BL 1.15-1.29; CPB 0.59-0.69; AWL 1.02-1.12; BBL 1.22-1.24; CPR 0.58-0.65; CCB 8.43-9.29.

Reported as *Acizzia* sp. 2 from Saudi Arabia (BURCKHARDT 1986) and as *Acizzia* sp. from Palestine (BURCKHARDT & HALPERIN 1992).

Host plants: *Acacia tortilis* (Forsskål) Hayne ssp. *tortilis* (Forsskål) Hayne and ssp. *raddiana* (Savi) Brenan (Fabaceae).

Remarks: Based on the structure of the male genitalia *Acizzia halperini* is related to *A. bona* from which it differs as indicated in the above key.

Acizzia hirsuticauda n. sp. Figs 3, 12, 21-23

Holotype: ♂, Yemen, Sana'a, VIII.1991, in light-trap, A. van Harten, MHNG. — Paratype: Yemen: 1 ♀, same data as holotype but VII.1991.

Diagnosis: Genal processes long. Vein C+Sc of forewing thick. Female proctiger strongly setose dorsally.

Description: Adult: Coloration: Dorsal surface of head and thorax bright orange. Abdomen light yellow. Eyes dark orange to light red. Antennal segments yellow with only last two segments dark brown. Forewing with no distinct pattern (Fig. 3). Venter of body white to light yellow.

Structure: Head (Fig. 12) with subacute conical genal processes which are about half the vertex length and bear long hairs; vertex covered in fine sculpture and short hairs. Forewing (Fig. 3) widest in the middle, vein C+Sc thick, pterostigma petiolate. Surface spinules covering all cells, leaving broad spinule-free stripes along the veins in basal portion and narrow stripes apically; irregularly and densely spaced, fine, slightly denser apically; radular spinules forming indistinct patches along wing margin in cells rs, m_{1+2}, m_{3+4} and cu_{1a}. Metatibia with distinct genual spine. Genitalia as in Figs 21-23.

Measurements (1 ♂, 1 ♀): HW 0.59-0.71; AL 1.10-1.17; WL 1.81-2.08; MP 0.17; PL 0.24; AEL 0.23; FP 0.64; ALHW 1.55-1.98; TLHW 0.68-0.76; WLHW 2.93-3.07; WLW 2.13-2.29; MPHW 0.29; FPHW 0.90; FPC 4.00; FPS 2.78.

Larva and host plant unknown.

Remarks: *Acizzia hirsuticauda* shares with *A. virgata* n. sp. the relatively long genal processes, the widened vein C+Sc of the forewing and the presence of a genual spine. It differs as indicated in the key. The species is unusual for its modified female genitalia which are similar to those of *Acizzia dodonaeae* Tuthill, 1952, from New Zealand and several undescribed species on *Dodonaea* spp. and *Amyema* spp. from Australia (MHNG data).

Acizzia hollisi Burckhardt, 1981 Figs 4, 33, 37

Acizzia hollisi Burckhardt, 1981. — Fauna of Saudi Arabia 3: 216.

Material: Oman: 1 ♀, Wadi Ghul, 2.XI.1990, M.D. Gallagher & J.C. Deeming, NMWC. — Yemen: 1 ♀, al-Mahwit, 7.VI.1991, on *Ficus* sp.; 1 ♂, 2 ♀♀, Sana'a, VII.1991, in light-trap; 6 ♂♂, 4 ♀♀, same data but IX.1992, in light-trap and Malaise-trap; 1 ♂, Taiz to ar-Rahidah, 14.III.1993, all A. van Harten, MHNG; 1 ♀ Sanhan, I.1993, on apple, M. Knapp, MHNG.

Reported from Saudi Arabia and Palestine (BURCKHARDT 1981, 1986; HALPERIN et al. 1982; HODKINSON & HOLLIS 1987).

Host plants: *Acacia tortilis* (Forsskål) Hayne ssp. *raddiana* (Savi) Brenan, perhaps also ssp. *spirocarpa* (Hochst. ex A. Rich.) Brenan (Fabaceae).

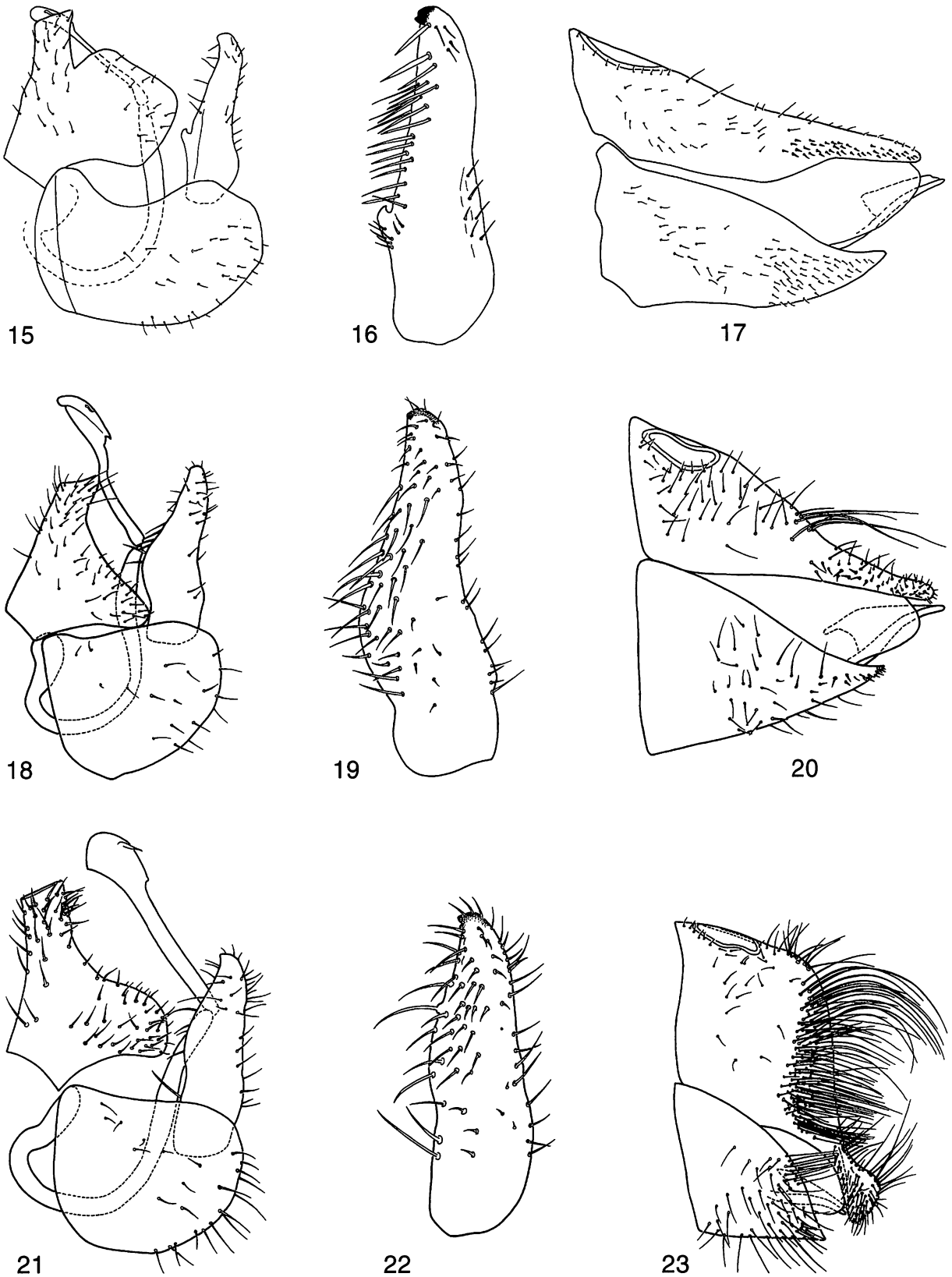
Acizzia marginata Burckhardt, 1986 Fig. 5

Acizzia marginata Burckhardt, 1986. — Fauna of Saudi Arabia 7: 151.

Material: Saudi Arabia: 1 ♂, Wadi Johan, Abha, 2150 m, 19.IV.1976, W. Wittmer & W. Büttiker, NHMB; 2 ♀♀, same data but Village Qaraah, Khamis Mountains, 2000 m, 16.IV.1976; 1 ♀, same data but 15.IV.1976; 1 ♀, same data but Wadi Harth, 28.VIII.1978, W. Büttiker. — Yemen: 1 ♂, 1 ♀, Sana'a, II.1991; 2 ♀♀, same data but VII.1991, in light trap; 2 ♂♂, 1 ♀, same data but II.1992, in light-trap; 1 ♀ same data but IV.1992, in Malaise-trap; 1 ♂, same data but XII.1992, in Malaise-trap; 11 ♂♂, 19 ♀♀, 17 larvae, al-Mahwit, 7.VI.1991, on *Acacia* sp.; 4 ♂♂, 2 ♀♀, same data but 21.IX.1991, beaten from vegetation; 1 ♀, al-Wasitah, Qa Jahran, 17.IX.1991, on *Acacia* sp.; 1 ♀, 1 larva, al-Mahwit to Khamis Bani Sa'ad, Wadi Sara'a, 17.III.1992; all A. van Harten, MHNG; 2 ♀♀, Sanhan, II.1992, on peach; 1 ♀, same data but VIII.1993, on apple; 3 ♂♂, 1 ♀, Mabar, VII.1993, on peach; all M. Knapp, MHNG.

Reported from Saudi Arabia, Kenya and Tanzania (BURCKHARDT 1986).

Host plants: *Acacia abyssinica* Hochst. ex Benth., *A. hockii* De Wild., *A. lahai* Steud. & Hochst. ex Benth., *Albizia gummifera* (J.F. Gmel.) C.A. Sm. (Fabaceae).



Figs 15-23: Genitalia of *Acizzia* species: Male genitalia in lateral view (15, 18, 21), inner face of paramere (16, 19, 22) and female genitalia in lateral view (17, 20, 23). **15-17:** *A. didyma* n. sp. **18-20:** *A. halperini* n. sp. **21-23:** *A. hirsuticauda* n. sp.

Acizzia melanocephala n. sp. Figs 6, 13, 24-26, 34, 38

Holotype: ♂, Oman, Dhofar, Mughsayl, near Salalah, 19.II.1989, W. Wittmer, NHMB. — Paratypes: Oman: 2 ♂♂, 9 ♀♀, 1 larva, same data as holotype, MHNG, NHMB. — Kenya: 5 ♂♂, 9 ♀♀, Malili Ranch, 18.VI.1991, on *Acacia nilotica*, D. Hongo, BMNH, NHMB; 2 ♂♂, 2 ♀♀, 6 km W of Witu, 17.X.1986, on *Acacia nilotica*, C.I.E. 18446/8a, BMNH; 2 ♂♂, 1 ♀, Mtondia, 3°35'S 39°52'E, 11.X.1986, on *Acacia nilotica*, C.I.E. A19004, BMNH; 3 ♂♂, 8 ♀♀, 2 larvae, Malindi, 18.V.1988, on growing shoots of *Acacia nilotica*, J.H. Martin, BMNH.

Diagnosis: Colour of head jet black. Genal processes short. Antennae shorter than 1.0 mm. Surface spinules of the forewings forming hexagonal pattern.

Description: Adult: Coloration: Head jet black with greyish eyes. Antennae yellowish except for last two segments being dark brown. Thorax usually brownish with pronotum lighter than rest of body. Forewing transparent without colour pattern (Fig. 6). Dorsal surface of abdomen dark brown.

Structure: Head (Fig. 13) lacking genal processes; vertex with surface sculpture only in anterior portion, setae short and scattered, one long seta on either side on ventral genal face. Forewing (Fig. 6) oval, widest in the middle, vein C+Sc slender, pterostigma petiolate. Surface spinules covering all cells, leaving narrow spinule-free stripes along the veins; fine, arranged in slightly irregular hexagonal pattern; radular spinules forming distinct triangular patches along wing margin in cells m_{1+2}, m_{3+4} and cu_{1a}. Metatibia with distinct genual spine. Genitalia as in Figs 24-26.

Measurements (1 ♂, 2 ♀♀): HW 0.49-0.53; AL 0.68-0.79; WL 1.28-1.51; MP 0.13; PL 0.16; AEL 0.14; FP 0.39-0.43; ALHW 1.39-1.55; TLHW 0.51-0.61; WLHW 2.51-2.88; WLW 2.29-2.52; MPHW 0.25; FPHW 0.80-0.83; FPC 3.00-3.14; FPS 1.56-1.69.

Fifth instar larva: Coloration (of slide-mounted specimen). Body ochreous with tips of antennae and legs brown.

Structure: Body elongate. Antenna 9-segmented each with a subapical rhinarium on segments 3, 5, 7 and 8; without capitate setae. Body surface leathery, thoracic tergites indistinct. Legs with some normal and some rod-shaped setae of moderate length; tarsal arolium triangular, with unguitractor and long pedicel. Forewing pads (Fig. 38) elongate, subrhomboidal; both forewing and hindwing pads each with a single clavate or rod-shaped seta at the tip. Caudal plate (Fig. 34) with a few lateral clavate, rod-shaped or indistinctly capitate setae. Outer circumanal ring moderately large, consisting of a single row of pores.

Measurements (2 larvae): AL 0.50; WL 0.45-0.48; BL 1.25-1.29; CPB 0.53-0.57; AWL 1.03-1.11; BBL 1.49-1.55; CPR 0.60-0.61; CCB 3.91-4.60.

Host plant: *Acacia nilotica* (L.) Willd. ex Del. (Fabaceae).

Remarks: *Acizzia melanocephala* is well characterised by head colour and shape as well as the hexagonal pattern of the surface spinules of the forewings and the genitalia.

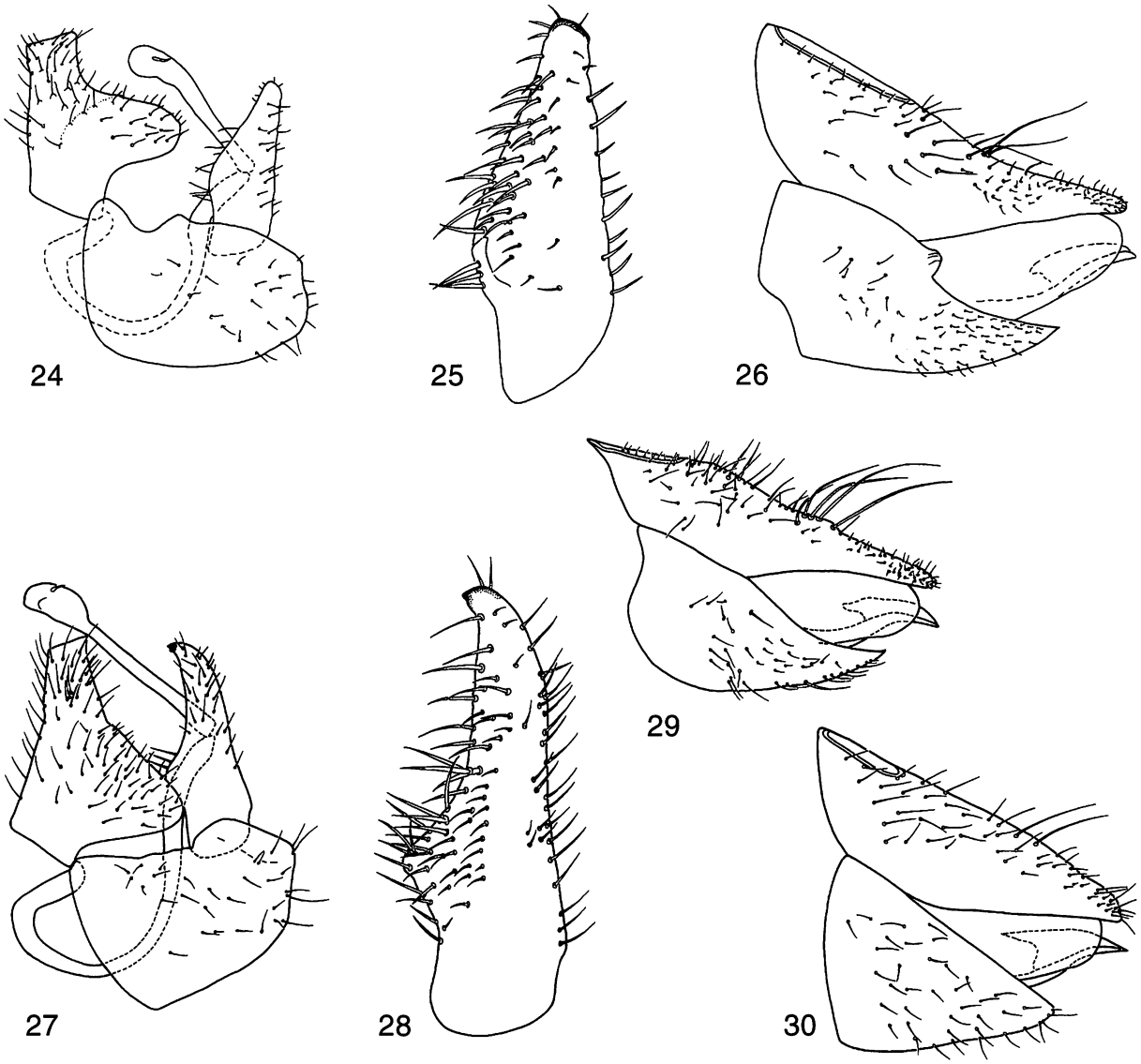
Acizzia virgata n. sp. Figs 7, 14, 27-29

Holotype: ♂, Yemen, Taiz to At Turba, 14.III.1993, A. van Harten, MHNG. — Paratypes: Yemen: 3 ♂♂, 3 ♀♀, same data as holotype, MHNG, NHMB; 1 ♀, West Aden Protectorate, Dhala, 4800 feet, 14.IX.1937, taken at moth-screen near rest-house, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH.

Diagnosis: Genal processes long. Forewing with brown band along outer wing margin, vein C+Sc thick.

Description: Adult: Coloration: Body uniformly yellow to light brown. Antennal segments pale yellow with only distal two segments dark brown. Forewings with a distinct brownish band as in Fig. 7.

Structure: Head (Fig. 14) covered in long setae, with blunt to subacute conical genal processes which are slightly more than half vertex length; vertex covered in fine sculpture. Forewing



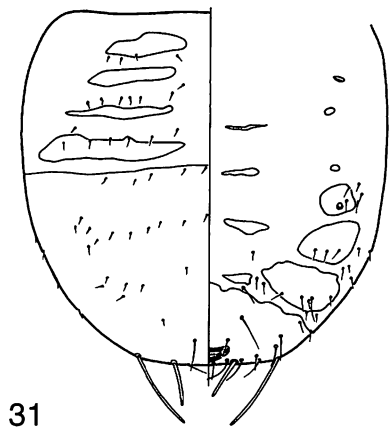
Figs 24-30: Genitalia of *Acizzia* species: Male genitalia in lateral view (24, 27), inner face of paramere (25, 28) and female genitalia in lateral view (26, 29, 30). **24-26:** *A. melanocephala* n. sp. **27-29:** *A. virgata* n. sp. **30:** *A. wittmeri.*

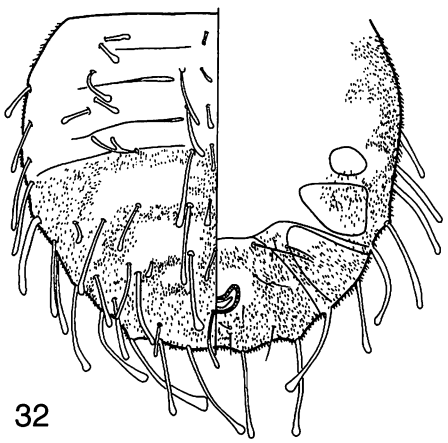
(Fig. 7) widest in the middle, vein C+Sc thick, pterostigma petiolate. Surface spinules covering all cells, leaving broad spinule-free stripes along the veins in basal portion and narrow stripes apically; fine, irregularly and densely spaced apically, much sparser basally, sometimes absent from the base of cells rs and m; radular spinules forming indistinct patches along wing margin in cells rs, m_{1+2}, m_{3+4} and cu_{1a}. Metatibia with distinct genual spine. Genitalia as in Figs 27-29.

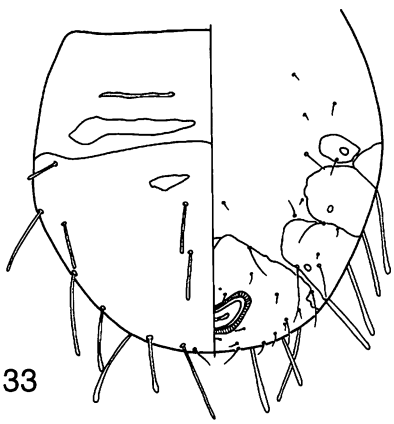
Measurements (1 ♂, 1 ♀): HW 0.72-0.79; AL 1.53-1.56; WL 2.33-2.63; MP 0.24; PL 0.30; AEL 0.30; FP 0.80; ALHW 1.97-2.13; TLHW 0.74-0.75; WLHW 3.24-3.33; WLW 1.65-2.16; MPHW 0.33; FPHW 1.01; FPC 3.33; FPS 1.86.

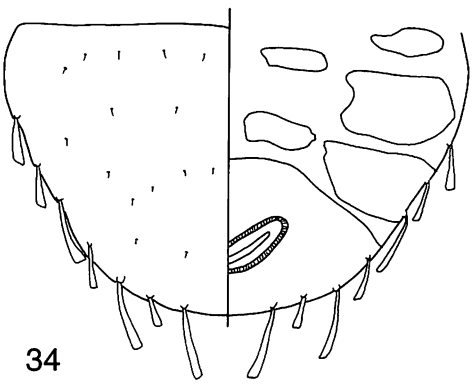
Larva and host plant unknown.

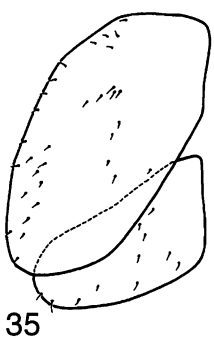
Remarks: See remarks for *A. hirsuticauda.*

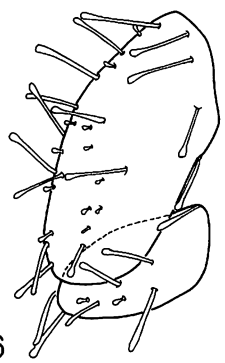


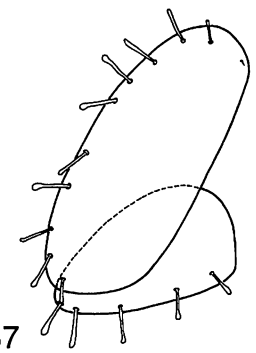


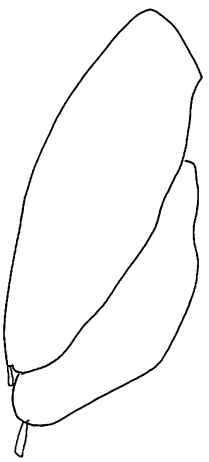












Figs 31-38: Last instar larva of *Acizzia* species: Abdomen in dorsal view on the left and in ventral view on the right (31-34) and wing buds (35-38). **31, 35:** *A. bona.* **32, 36:** *A. halperini* n. sp. **33, 37:** *A. hollisi.* **34, 38:** *A. melanocephala* n. sp.

Acizzia wittmeri Burckhardt, 1981 Figs 8, 30

Acizzia wittmeri Burckhardt, 1981. — Fauna of Saudi Arabia 3: 219.

Material: Yemen: 7 ♂♂, 4 ♀♀, Taiz to Mafraq, 15.III.1993, A. van Harten, MHNG.

Description: For the original description only males were available (BURCKHARDT 1981). Here we illustrate the previously unknown female genitalia (Fig. 30).

Reported from Saudi Arabia (BURCKHARDT 1981) and Palestine (BURCKHARDT & HALPERIN 1992).

Host plants: *Acacia tortilis* (Forsskål) Hayne ssp. *tortilis* (Forsskål) Hayne and ssp. *raddiana* (Savi) Brenan (Fabaceae).

Acizzia sp. 1

Recorded by BURCKHARDT (1981) as *Acizzia* sp., and by BURCKHARDT (1986) as *Acizzia* sp. 1.

Acizzia sp. 2

Material: Yemen: 1 ♀, near Zinjibar, 27.X.1992, A. van Harten, MHNG.

Acizzia sp. 3

Material: Yemen: 1 ♀, Sanhan, IX.1992, on apple, M. Knapp, MHNG.

Subfamily **Aphalarinae**

Key to genera and species of Aphalarinae

Adults

1	Vein C+Sc of forewing (Fig. 90) angularly bent ***Rhombaphalara insolita*** n. sp.	
–	Vein C+Sc of forewing weakly or strongly curved, but not angularly bent	2
2	Head strongly inclined downwards at an angle of about 90° to longitudinal body axis	3
–	Head only weakly inclined from longitudinal body axis ..... *Colposcenia*	5
3	Head slightly narrower than mesoscutum ***Crastina linnavuorii***	
–	Head much narrower than mesoscutum ..... *Caillardia*	4
4	Forewing with one or several cross-veins between veins Rs and M_{1+2} ***Caillardia dilatata***	
–	Forewing without cross-vein between veins Rs and M_{1+2} ***Caillardia inedita***	
5	Apices of veins along outer forewing margin same colour as surrounding membrane	6
–	Apices of veins along outer forewing margin black, contrasting with surrounding membrane	7
6	Branches of vein M of forewing strongly curved away from each other ***Colposcenia elegans***	
–	Both branches of vein M of forewing weakly curved to hind margin or straight ***Colposcenia jakowleffi***	
7	Posterior lobes of male proctiger relatively short and strongly expanded posteriorly ***Colposcenia aliena***	
–	Posterior lobes of male proctiger long, only weakly expanded posteriorly ***Colposcenia arabica***	

Fifth instar larvae

(Taxa not included: *Crastina linnavuorii*, *Colposcenia arabica* and *C. elegans*)

1	Margin of forewing pad with deep notch in the middle ..... *Colposcenia*	2
–	Margin of forewing pad not notched	3
2	Head with lanceolate setae anteriorly ***Colposcenia arabica***	
–	Head without lanceolate setae anteriorly ***Colposcenia aliena***	
3	Outer circumanal ring with one row of pores ***Caillardia inedita***	
–	Outer circumanal ring with several rows of pores	4
4	Circumanal ring close to hind margin of caudal plate; distance between posterior margins of circumanal ring and caudal plate less than length of circumanal ring in the middle ***Caillardia dilatata***	
–	Circumanal ring distant from hind margin of caudal plate; distance between posterior margins of circumanal ring and caudal plate about equal to length of circumanal ring in the middle ***Rhombaphalara insolita*** n. sp.	

Caillardia dilatata Loginova, 1978

Caillardia dilatata Loginova, 1978. — Trudy zoologicheskogo Instituta 71: 20.

Reported from Egypt and Iran (LOGINOVA 1978 b), Saudi Arabia (BURCKHARDT 1981, 1986) and Palestine (BURCKHARDT & HALPERIN 1992).

Host plants: *Hammada elegans* (Bunge) Botsch., *H. salicornica* (Moq.) Iljin, *Hammada* sp. (Chenopodiaceae). The larvae form galls on the leaves.

Caillardia inedita Loginova, 1978

Caillardia dilatata Loginova, 1978. — Trudy zoologicheskogo Instituta 71: 17.

Reported from Saudi Arabia (BURCKHARDT 1986), Kazakhstan, Turkmenistan and Uzbekistan (GEGECHKORI & LOGINOVA 1990).

Host plants: *Haloxylon aphyllum* (Minkw.) Iljin, *H. persicum* Bunge, ex Boiss. & Buhse (Chenopodiaceae).

Colposcenia aliena (Loew, 1882)

Aphalara aliena Loew, 1882. — Verhandlungen der zoologisch-botanischen Gesellschaft Wien 31: 255.

Material: Oman: 1 ♂, Wadi al-Khawdh, 23°34'N 58°07'E, 70 m, 15.II.1992, in reeds in wadi bed near water, M.D. Gallagher, NMWC; 2 ♀♀, Lansab, Lagoons, 23°33'N 58°19'E, 7.III.1996, waterside vegetation, M.D. Gallagher, NMWC. — Yemen: 1 ♂, 1 ♀, Taiz to Mafraq, 15.III.1993, A. van Harten, MHNG.

Widely distributed throughout the Mediterranean, the Middle East and Central Asia to Mongolia and China, Ethiopia and Sudan (GEGECHKORI & LOGINOVA 1990). Not previously known from the Arabian Peninsula.

Host plant: *Tamarix* spp. (Tamaricaceae).

Colposcenia arabica Loginova, 1974

Colposcenia arabica Loginova, 1974. — Entomologicheskoe obozrenie 53: 163.

Material: Yemen: 6 ♂♂, 10 ♀♀, Sana'a, 8-12.I.1991, on *Tamarix* sp.; 3 ♂♂, 7 ♀♀, same data but II.1991; 1 ♀, same data but light-trap; 1 ♂, same data but IV.1992, Malaise-trap; 99 ♂♂, 86 ♀♀, same data but VII.1991, light-trap; 4 ♂♂, 6 ♀♀, same data but IX.1991; 1 ♂, same data but light-trap and Malaise-trap; 1 ♀, Mabar to Medinat al-Shirq, 12.III.1992, on *Acacia* sp.; all A. van Harten, MHNG; 1 ♂, Rayda, 20.X.1991, on apple; 1 ♀, Sanhan, V.1992, on peach; all M. Knapp, MHNG; 1 ♀, Mabar, V.1992, light-trap, M. Mahyoub, MHNG.

Recorded from Yemen (LOGINOVA 1974).

Host plant: *Tamarix* sp. (Tamaricaceae).

Colposcenia elegans (Bergevin, 1932)

Aphalara elegans Bergevin, 1932. — Bulletin de la Société d'histoire naturelle de l'Afrique du Nord 23: 8.

Material: Oman: 3 ♂♂, 5 ♀♀, 4 km W of Qfifa, Wadi Dima, 22°21'N 58°22'E, 25.X.1990, on *Tamarix aphylla*, M.D. Gallagher & J.C. Deeming, BMNH, NMWC, NHMB.

Reported from Algeria, Egypt, Palestine, Yemen (LOGINOVA 1971, 1974) and Iran (BURCKHARDT & LAUTERER 1993).

Host plants: *Tamarix aphylla* (L.) Karsten, *T. articulata* Vahl (Tamaricaceae).

Colposcenia jakowleffi (Scott, 1879)

Aphalara jakowleffi Scott, 1879. — Entomologist's Monthly Magazine 15: 266.

Material: Yemen: 7 ♂♂, 8 ♀♀, 2 larvae, Sana'a, 8-12.I.1991, on *Tamarix* sp.; 1 ♂, 2 ♀♀, same data but II.1991; 1 ♀, Mabar to Medinat al-Shirq, 12.III.1992, on *Acacia* sp.; all A. van Harten.

Recorded from Yemen, Astrakhan, the Caucasus and Central Asia (LOGINOVA 1974, GEGECHKORI & LOGINOVA 1990).

Host plant: *Tamarix* sp. (Tamaricaceae).

Remarks: *Colposcenia jakowleffi* and *C. arabica* probably occur together on the same host plant. The larvae are attributed to *C. jakowleffi* on the basis of the presence of 5-6 apical metatibial spurs, rather than 7, present in the adult legs which are recognisable through the larval skin in the specimens available for examination.

Colposcenia sp.

A single female was reported from Saudi Arabia (BURCKHARDT 1986).

Crastina linnavuorii Loginova, 1974

Crastina (Eustigmatia) linnavuorii Loginova, 1974. — Entomologicheskoe obozrenie 53: 166.

Material: Yemen: 2 ♂♂, 5 ♀♀, Hamam Ali, 5.VIII.1991, on *Tamarix* sp., A. van Harten; 1 ♀, Sanhan, VI.1992, on peach, M. Knapp; all MHNG.

Recorded from Palestine and Jordan (LOGINOVA 1974), not previously known from the Arabian Peninsula.

Host plants: *Tamarix* spp. (Tamaricaceae).

Rhombaphalara insolita n. sp. Fig. 90

Rhombaphalara achaetae sensu Burckhardt, 1986, nec Klimaszewski, 1967 [misidentification].

Holotype: ♂, Saudi Arabia, Wadi Dawasir, 20.XI.1983, on *Suaeda fruticosa*, A.S. Talhouk, NHMB. — Paratypes: Saudi Arabia: 26 ♂♂, 37 ♀♀, 32 larvae, same data as holotype, MHNG, NHMB; 4 ♂♂, 3 ♀♀, 7 larvae, same data but, 7.III.1984, NHMB. — Yemen: 1 ♀, near Zinjibar, 27.X.1992; 1 ♀, Aden to Little Aden, 10-12.IV.1993; all A. van Harten, MHNG.

Diagnosis: Adult: Vertex flattened, angular, more than half as long as wide; anteriorly relatively well defined, abruptly passing into genae. Clypeus flat, adpressed to lower head surface, not visible from above. Forewings (Fig. 90) rhomboidal, coriaceous; margin of cell c+sc with small lobe in the middle. Wing-like processes of male proctiger bearing an inwardly directed hook on the lower margin. Paramere rounded apically with a distinct subapical thumb-like process along the fore margin. Distal portion of aedeagus with oval apical dilatation, sclerotised end tube relatively long and straight. Dorsal margin of female proctiger angularly convex with weakly inflated apex.

Descriptions of adult and fifth instar larva, including illustrations, by BURCKHARDT (1986).

Previously reported from Saudi Arabia as *Rhombaphalara achaetae* (BURCKHARDT 1986).

Host plant: *Suaeda fruticosa* Forsskål ex J.F. Gmelin (Chenopodiaceae).

Remarks: In the absence of material of *Rhombaphalara achaetae*, BURCKHARDT (1986) referred a series of Saudi Arabian specimens collected on *Suaeda fruticosa* to this species. Subsequently specimens of *R. achaetae* became available which showed that the material from Saudi Arabia belongs to a different species which is named here as *R. insolita*. The two species can be separated as follows: vertex flattened, relatively longer and ± clearly separated from genae in *R. insolita*; clypeus flattened, not visible in dorsal view in *R. insolita*, but large, globular and visible in dorsal view in *R. achaetae*; margin of cell c+sc of the forewing with small lobe in the middle in *R. insolita*, evenly rounded in *R. achaetae*; wing membrane coriaceous in *R. insolita*, semi-transparent in *R. achaetae*; apex of paramere more rounded in *R. insolita*; in *R. insolita* the female proctiger is inflated apically but slender in *R. achaetae*; the host plants are *Suaeda* for *R. insolita* and *Kalidium* for *R. achaetae*. The difference in the forewing shape of the Saudi Arabian specimens in comparison to the description of *R. achaetae* by KLIMASZEWSKI (1967) was already noted by BURCKHARDT (1986) who attributed it to intraspecific variation. The material from Yemen, however, suggests that this character is stable and diagnostic for *R. insolita*. *Rhombaphalara insolita* differs from *R.*

halocnemi Loginova, 1964, and *R. halostachydis* Loginova, 1970, the other two members of *Rhombaphalara*, in the absence of a dark wing pattern.

The structure of head and clypeus of *R. insolita* is more similar to that of *Caillardia* than that of its congeners; the genitalia, however, place it into *Rhombaphalara*. In the absence of a cladistic analysis of the subfamily we follow LOGINOVA (1972).

Subfamily **Aphalaroidinae**

Pachyparia dimorpha Loginova, 1967

Pachyparia dimorpha Loginova, 1967. — Annalen des Naturhistorischen Museums Wien 70: 402.

Material: Saudi Arabia: 1 ♂, 2 ♀♀, Wadi Shaib Luha, 15.I.1977, W. Büttiker, NHMB. — Yemen: 1 ♂, 2 ♀♀, al-Mahwit to Khamis Bani Sa'ad, Wadi Sara's, 17.III.1992; 1 ♀, Taiz to ar-Rahidah, 14.III.1993; all A. van Harten, MHNG.

Reported from Sudan (LOGINOVA 1967) and Saudi Arabia (BURCKHARDT 1981).

Host plants: *Acacia ehrenbergiana* Hayne, *A. nilotica* (L.) Willd. ex Del., *A. tortilis* (Forsskål) Hayne (Fabaceae).

Remarks: In the current definition the Aphalaroidinae comprise eight New World genera (BURCKHARDT 1987). However, D. Hollis (in prep.) also includes Old World taxa such as *Pachyparia*.

Subfamily **Arytaininae**

Cyamophila coluteae (Baeva, 1966) Fig. 91

Psylla coluteae Baeva, 1966. — Izvestiya otdeleniya biologicheskih nauk AN Tadzhikskoi SSR 4: 68.

Material: Oman: 1 ♂, 1 ♀, Musandam, Ebel Harim, 25°59'N 56°14'E, 2000 m, 26.IX.1990, M.D. Gallagher & M.J. Ebejer, NHMB.

Reported from the Caucasus, Tadzhikistan, Turkmenistan and Iran (GEGECHKORI & LOGINOVA 1990).

Host plants: *Colutea* spp. (Fabaceae).

Subfamily **Diaphorininae**

Key to genera and species of Diaphorininae

Adults

1 Occipital margin of head adjacent to forewing base (Fig. 98). Forewing (Fig. 97) subelliptical, widest in the middle; pterostigma large; vein R and $M+Cu_1$ of subequal length. Metacoxae with two tubercles on the outer face in addition to meracanthus. Aedeagus 2-segmented ..... *Peripsyllopsis* 2

– Occipital margin of head distant to forewing base (Figs 39-44, 47-50). Forewing (Figs 81-88, 92-94) oval, usually widest in apical third to fifth; pterostigma narrow; vein R about twice as long as $M+Cu_1$. Metacoxae without tubercles on the outer face. Aedeagus 3-segmented ..... *Diaphorina* 3

2 Head without genal processes. Apical dilatation of distal segment of aedeagus irregularly rounded. Female genitalia cuneate ***Peripsyllopsis obsoleta***

– Head with flattened genal processes (Fig. 98). Apical dilatation of distal portion of aedeagus hooked (Fig. 104). Female genitalia as in Fig. 100 ***Peripsyllopsis dodonaeae*** n. sp.

3 Genal processes < 0.8 times as long as vertex along mid-line 4

– Genal processes > 1.0 times as long as vertex along mid-line 8

4 Forewing pattern consisting of well-defined brown to dark brown spots which are also present in basal half of wing 5
– Forewing pattern indistinct or restricted to apical half of wing 6
5 Fore margin of forewings evenly rounded (Fig. 95). Paramere with apical hook directed forward (Fig. 58). Ventral margin of female subgenital plate evenly rounded ***Diaphorina enderleini***
– Fore margin of forewings almost straight with indistinct angle in distal fifth (Fig. 88). Male paramere clavate in profile (Fig. 72). Ventral margin of female subgenital plate angular (Fig. 73) ***Diaphorina luteola***
6 Fore margin of forewing strongly angular in distal fifth; pattern as in Fig. 82. Genal processes strongly asymmetrical (Fig. 47) ***Diaphorina elegans*** n. sp.
– Fore margin of forewing weakly angular or rounded in distal fifth (Fig. 86); pattern different. Genal processes ± symmetrical (Fig. 50) 7
7 Genal processes blunt apically. Forewing with light pattern as in Fig. 86 ***Diaphorina leptadeniae*** n. sp.
– Genal processes pointed apically (Fig. 50). Forewing without distinct pattern ***Diaphorina lamproptera***
8 Forewing pattern consisting of stripes or bands 9
– Forewing pattern consisting of well-defined brown spots which can be confluent along outer wing margin 10
9 Forewing with pattern as in Fig. 92; fore margin rounded ***Diaphorina dakariensis***
– Forewing with pattern as in Fig. 84; fore margin distinctly angular in apical fifth ***Diaphorina enormis***
10 Genal processes slender (Fig. 39). Forewing pattern consisting of a band of confluent brown spots along vein Rs and another along outer margin, the two areas are well separated by a white gap in the subapical region of Rs, membrane whitish (Fig. 81) ***Diaphorina citri***
– Genal processes massive (Fig. 42). Forewing not consisting of two well-separated bands of confluent spots. Membrane variable 11
11 Forewing membrane whitish, dark brown pattern relatively restricted, consisting of small spots (Fig. 85). Genitalia as in Figs 62-64 ***Diaphorina harteni*** n. sp.
– Forewing membrane yellow, brown pattern extensive, consisting of confluent patches . 12
12 Head and genal processes yellowish. Paramere elongate; ventral margin of female subgenital plate angular ***Diaphorina acokantherae***
– Head reddish brown, strongly contrasting with yellowish genal processes. Genitalia as in Figs 68-70. Paramere relatively stout; ventral margin of female subgenital plate with large hump ***Diaphorina linnavuorii***

Fifth instar larvae
(Taxa not included: *Diaphorina acokantherae, D. dakariensis, D. elegans* n. sp., *D. enderleini, D. harteni* n. sp. and *D. linnavuorii*)

1 Antenna 7- to 8-segmented ..... *Peripsyllopsis* 2
– Antenna 3-segmented ..... *Diaphorina* 3
2 Wing buds and caudal plate with many lanceolate setae. Outer circumanal ring with a single row of pores ***Peripsyllopsis dodonaeae*** n. sp.
– Wing buds and caudal plate without or, at most, with a few lanceolate setae. Outer circumanal ring with several rows of pores ***Peripsyllopsis obsoleta***

3	Margins of head, wing buds and/or caudal plate with small but distinct club-shaped setae (magnification 200 ×) (Fig. 78)	3
–	Margins of head, wing buds and caudal plate without visible club-shaped setae (magnification 200 ×)	4
4	BL > 1.8 mm	*Diaphorina enormis*
–	BL < 1.8 mm	*Diaphorina leptadeniae* n. sp.
5	Antennal flagellum dark brown to black, strongly contrasting with basal segments	*Diaphorina citri*
–	Antennal flagellum light, dark at apex only	6
6	On *Zygophyllum* species	*Diaphorina lamproptera*
–	On *Solanum* species	*Diaphorina luteola*

Diaphorina acokantherae (Pettey, 1924)

Euphalerus acokantherae Pettey, 1924. — Entomology Memoirs. Union of South Africa, Department of Agriculture 2: 24.

Material: Yemen: 12 ♂♂, 16 ♀♀, West Aden Protectorate, Jabal Harir, western face, c. 6000 feet, 4.XI.1937, on *Acokanthera schimperi* var. *deflersii*, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH, NHMB.

Recorded from South Africa (PETTEY 1924, CAPENER 1970).

Host plants: *Acokanthera oppositifolia* (Lam.) L.E. Codd, *A. schimperi* var. *deflersii* (Schweinf.) Stapf (Apocynaceae).

Diaphorina citri Kuwayama, 1908 Figs 39, 51-53, 77, 81

Diaphorina citri Kuwayama, 1908. — Transactions of the Sapporo Natural History Society 2: 160.

Material: Yemen: 5 ♂♂, Jabal Jelal, above Nakil Isla, 9600-10,000 feet, 8.III.1938, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH, NHMB.

Recorded from Saudi Arabia (Commonwealth Institute of Entomology 1974, BURCKHARDT 1981); widely distributed throughout tropical Asia, the Middle East, the Mascarene Islands, Hawaii, Brazil, Uruguay, Honduras, Guadeloupe and Florida (Commonwealth Institute of Entomology 1974, ETIENNE et al. 1998, HALBERT 1998).

Host plants: *Citrus* spp., *Murraya* spp. (Rutaceae).

Diaphorina dakariensis Boselli, 1930 Figs 40, 54, 92

Diaphorina dakariensis Boselli, 1930. — Annali del Museo Civico di Storia Naturale "Giacomo Doria" 55: 10.

Material: Yemen: 1 ♀, Taiz to Mafraq, 15.III.1993, A. van Harten, MHNG.

Reported from Senegal and India (HODKINSON 1986).

Host plant unknown.

Diaphorina elegans n. sp. Figs 47, 55-56, 82

Holotype: ♀, Yemen, Socotra, Nogeed, 16.IV.1993, on *Suaeda* sp., A. van Harten, MHNG. — Paratype: Yemen: 1 ♀, same data as holotype but Nogeed to Habido.

Diagnosis: Genal processes broadly truncate anteriorly. Forewing angular apically, with dark pattern along outer margin.

Description: Adult: Coloration: Head dirty white to light orange. Eyes dark brown. First two and last two antennal segments brown to dark brown, rest of antenna whitish. Pronotum and

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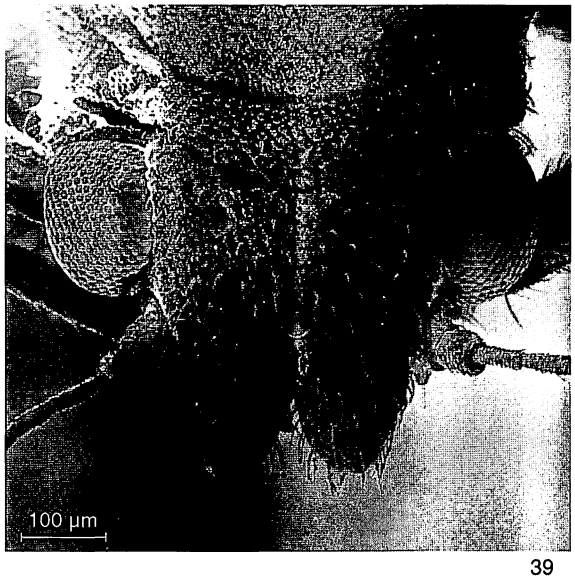
Figs 39-44: *Diaphorina* species: Head in dorsal view. **39:** *D. citri*. **40:** *D. dakariensis*. **41:** *D. harteni* n. sp. **42:** *D. linnavuorii*. **43:** *D. luteola*. **44:** *Diaphorina* sp. 2.



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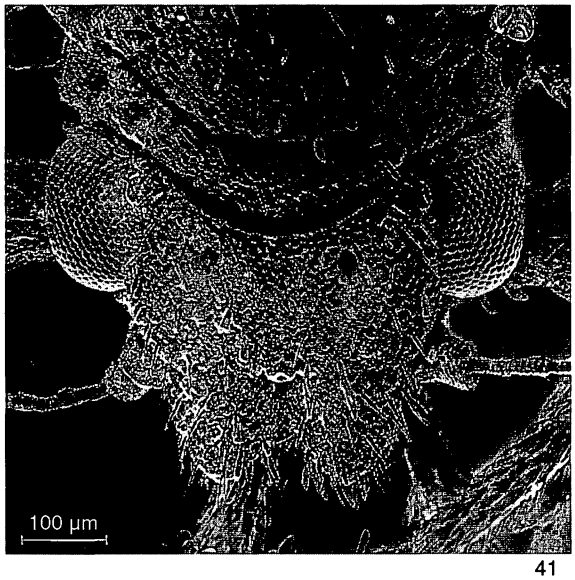

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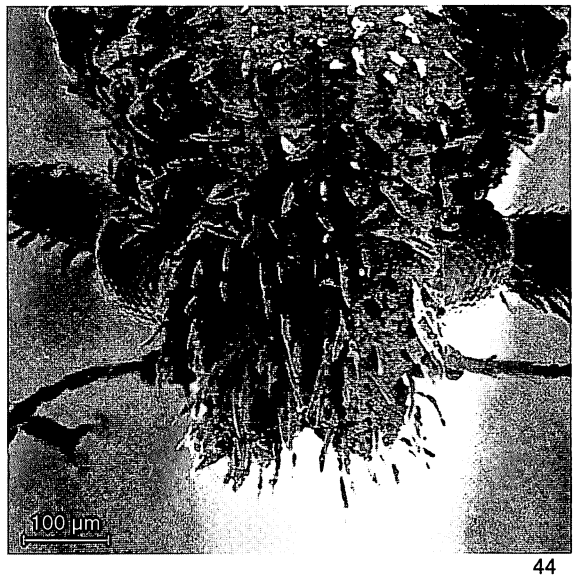

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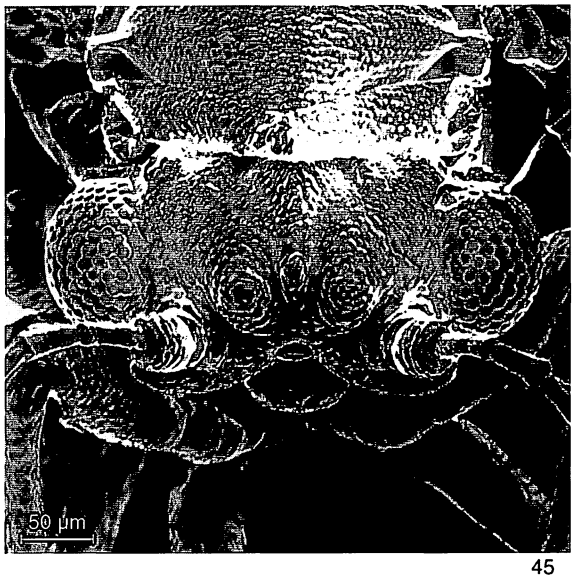

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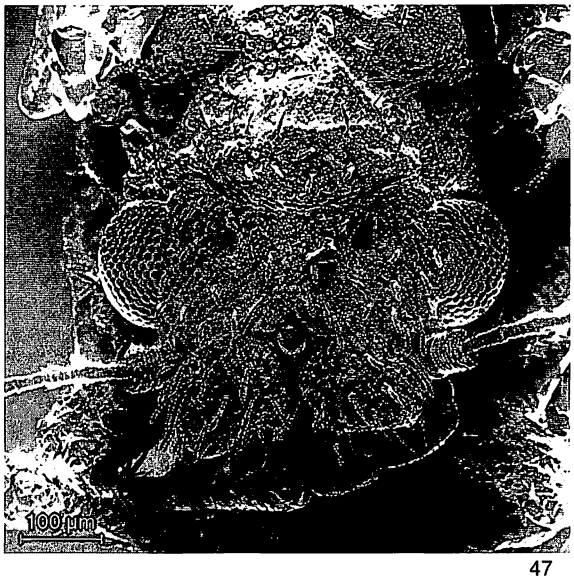

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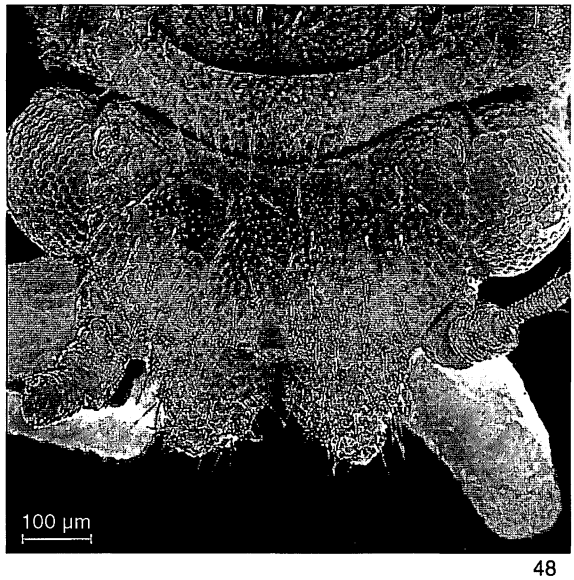

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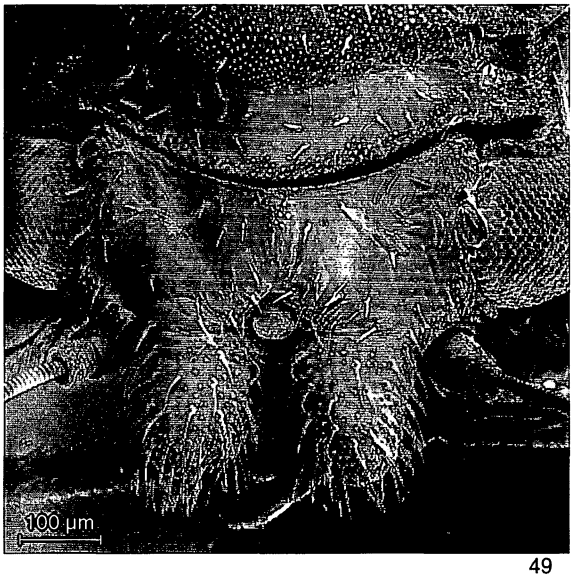

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mesothoracic scutellum with coloration as on head, rest of thorax bright orange with dorsal reddish longitudinal markings. Forewing (Fig. 82) somewhat transparent with brown spots concentrated at the posterior part; two dark spots are situated on the beginning of veins M+Cu_1 and Cu_{1a}. Femur light brown, rest of leg white. Abdomen light orange to brown.

Structure: Head (Fig. 47) coarsely sculptured and moderately densely covered in long setae; genal processes strongly asymmetrical, rounded externally, angular internally, about 0.8 times as long as vertex along mid-line. Antenna (Fig. 55) with slender segments 3, 5 and 7 which are hardly widened apically; segments 4 and 6 slightly thicker and a bit more inflated apically, segment 8 strongly widened to apex; segments 9 and 10 thick; segment 10 with one terminal seta slightly shorter and one slightly more than twice as long as segment. Forewing (Fig. 82) strongly widening to about apical fifth, fore margin strongly angular apically; setae along veins short, much shorter than distance between them; surface spinules coarse, densely covering all cells up to veins. Male unknown; female genitalia as in Fig. 56.

Measurements (1 ♀): HW 0.46; AL 0.35; WL 1.53; FP 0.44; ALHW 0.76; TLHW 0.76; WLHW 3.33; WLW 2.04; FPHW 0.96; FPC 4.00; FPS 1.26.

Larva unknown.

Host plant: The holotype was collected on *Suaeda* sp. (Chenopodiaceae) which may be the host.

Remarks: *Diaphorina elegans* is well defined by its apically angular forewing, in addition to head and genital structure. The species is therefore described, even though only one sex is represented in the available material.

Diaphorina enderleini Klimaszewski, 1964 Figs 48, 57-58, 83

Gonanoplicus guttulatus Enderlein, 1910. — Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro, dem Meru und den umgebenden Massaisteppen Deutsch-Ostafrikas, 1905-1906. Sjöstedt, Y. ed.: 143. Syntypes, many ♂♂, ♀♀ and larvae, Tanzania: Kilimandjaro, Kibonoto, 7.V.1906, steppe with fruit trees, Y. Sjöstedt, MIZW and perhaps SMNH (not examined).

Diaphorina enderleini Klimaszewski, 1964. — Annales Zoologici, Warszawa 22: 59. Replacement name for *Diaphorina guttulata* (Enderlein) nec Lethierry, 1890; Proceedings of the Royal Asiatic Society of Bengal: 165.

Diaphorina siluncula Loginova, 1978. — Trudy zoologicheskogo Instituta 61: 77. Holotype ♀, Sudan, Equatoria, Gambio (sic), 17-25.IV.1963, Linnavuori, ZISP (examined). n. syn.

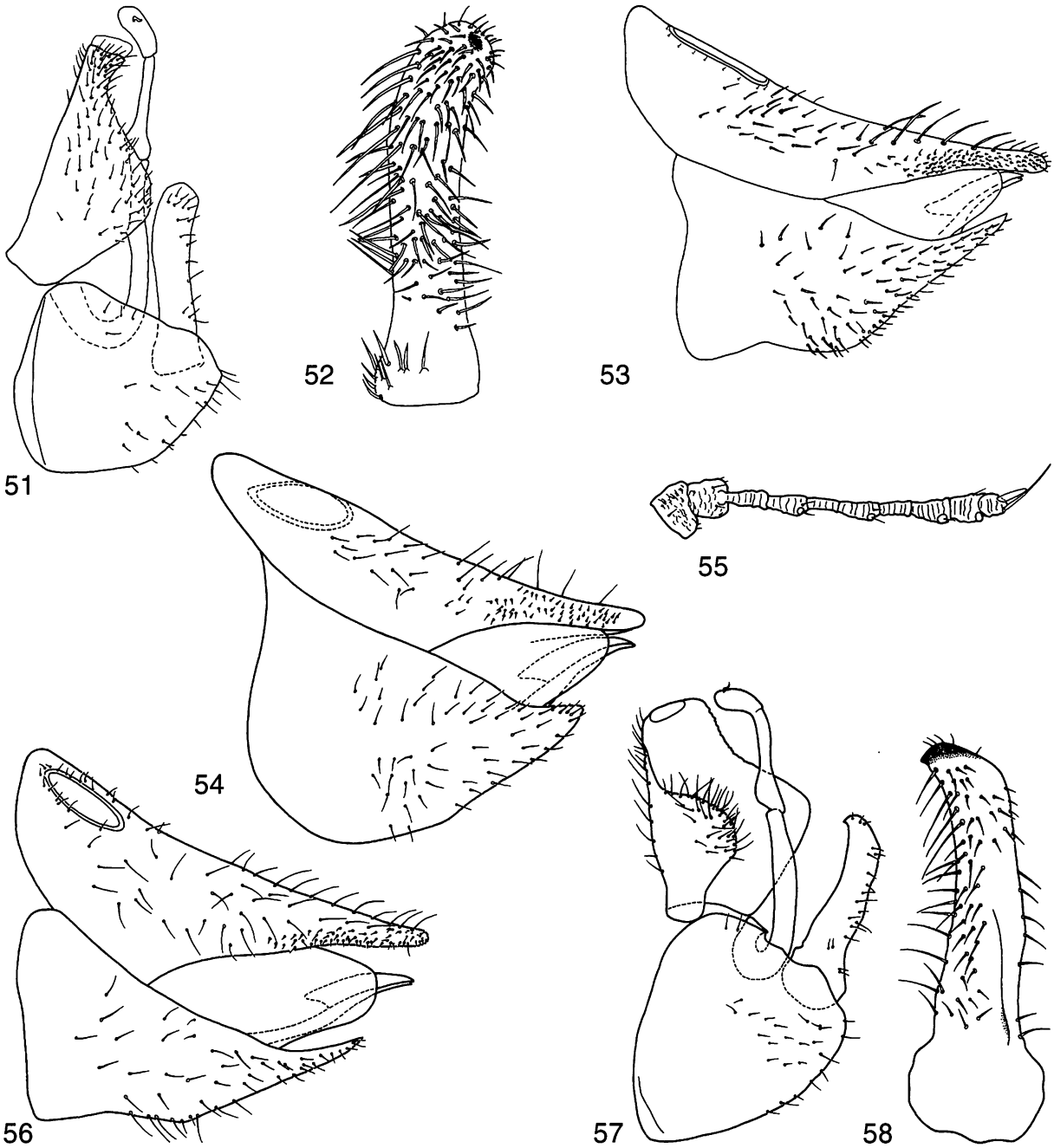
Material: Yemen: 1 ♂, Sumara Pass, 13.III.1993, A. van Harten, MHNG. — Kenya: 1 ♀, 45 km NE of Ekericho, 2200 m, III.1993, B. Merz, MHNG. — Sudan: holotype ♀, 1 ♀ paratype of *Diaphorina siluncula*, Equatoria, Yambio, 17-25.IV.1963, Linnavuori, ZISP.

Recorded from Tanzania (ENDERLEIN 1910, KLIMASZEWSKI 1964) as *Gonanoplicus guttulatus* and from Sudan (LOGINOVA 1978 a) as *Diaphorina siluncula.*

Host plant unknown.

Remarks: *Diaphorina enderleini* is well defined by its forewing shape and pattern as well as the apically hooked paramere and the concave dorsal margin of the female proctiger. ENDERLEIN's (1910) description of *Gonanoplicus guttulatus* is sufficiently precise to indicate that this is the same species as Loginova's *D. siluncula* of which we have examined types. The two are, therefore, synonymised.

Figs 45-50: *Diaphorina* and *Pseudophacopteron* species: Head in dorsal view (45, 47-50) and frontal view (46). **45-46:** *Pseudophacopteron* sp. **47:** *D. elegans* n. sp. **48:** *D. enderleini.* **49:** *D. enormis.* **50:** *Diaphorina lamproptera.*



Figs 51-58: Genitalia and antenna (55) of *Diaphorina* species: Male genitalia in lateral view (51, 57), inner face of paramere (52, 58), female genitalia in lateral view (53-54, 56). **51-53:** *D. citri.* **54:** *D. dakariensis.* **55-56:** *D. elegans* n. sp. **57-58:** *D. enderleini.*

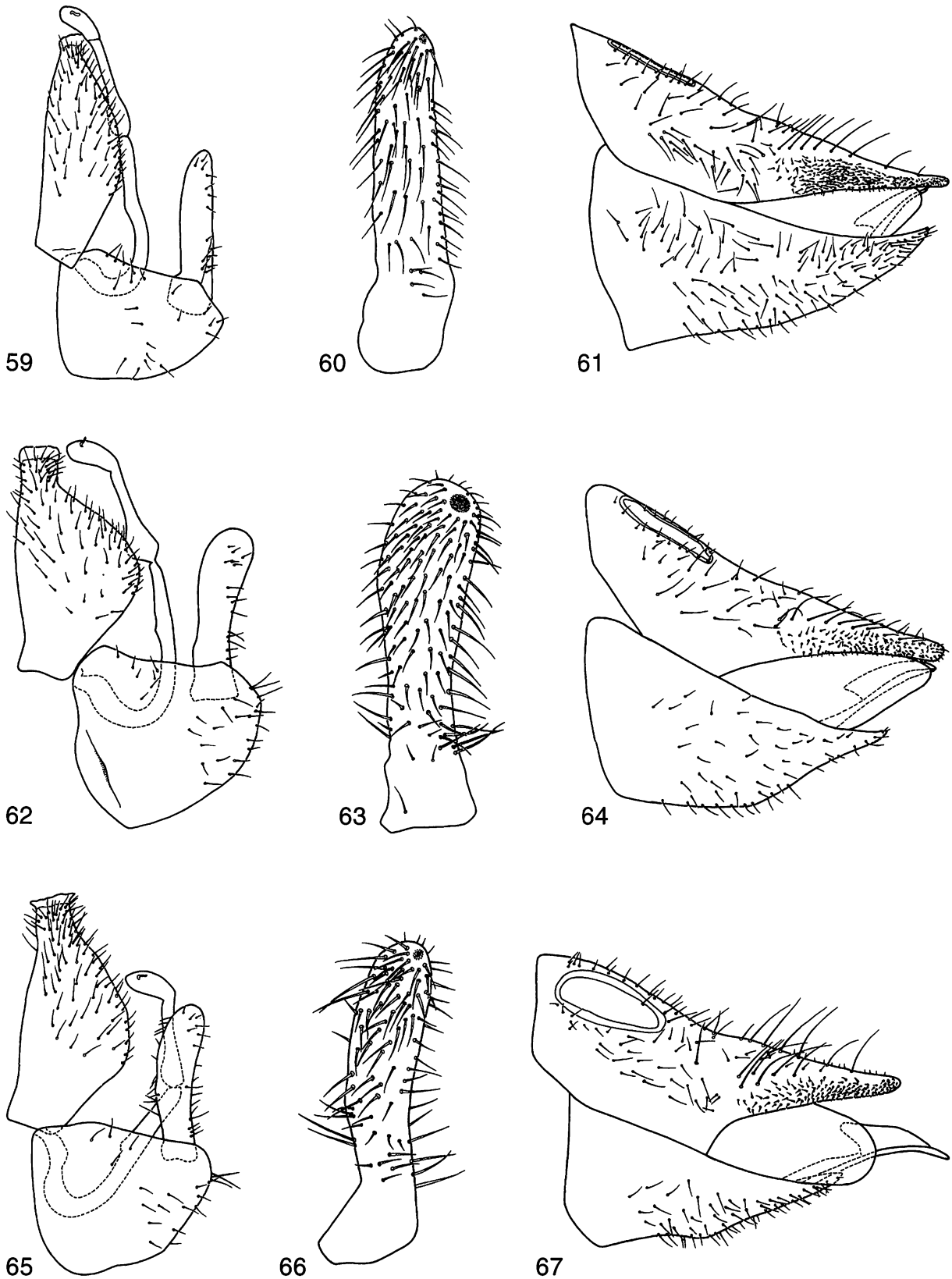
Diaphorina enormis Loginova, 1978 Figs 49, 59-61, 78, 84

Diaphorina enormis Loginova, 1978. — Trudy zoologicheskogo Instituta 61: 61.

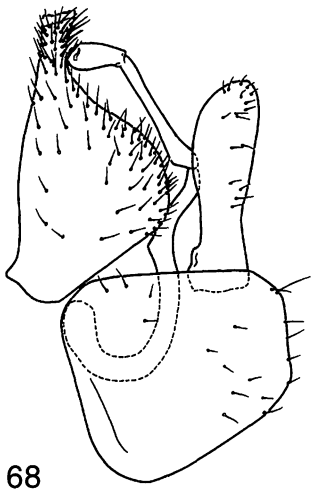
Material: Oman: 3 ♀♀, Wadi Batha, 22°08'N 59°14'E, 29.XII.1994, B. Skule, NMWC, NHMB; 2 ♀♀, Wadi Ma'Awil, inland dunes, 26.XII.1989, M.J. Ebejer, NMWC. — Yemen: 2 ♂♂, 1 larva, Zabid to Bait al-Faqih, 15.III.1993, A. van Harten, MHNG; 1 ♂, 1 ♀, same data but on peach, M. Knapp. — Sudan: 1 ♂, 1 ♀, paratypes of *Diaphorina enormis* Loginova, North Province, Abu Hamed to Abidiya, 18-20.X.1962, Linnavuori, ZISP.

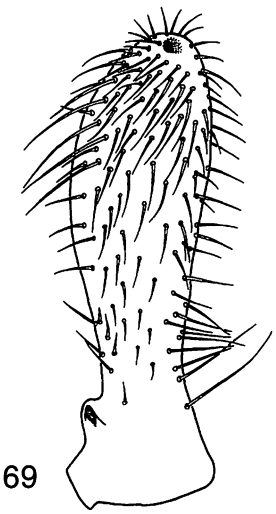
Recorded from Iran, Sudan (LOGINOVA 1978 a) and Saudi Arabia (BURCKHARDT 1981).

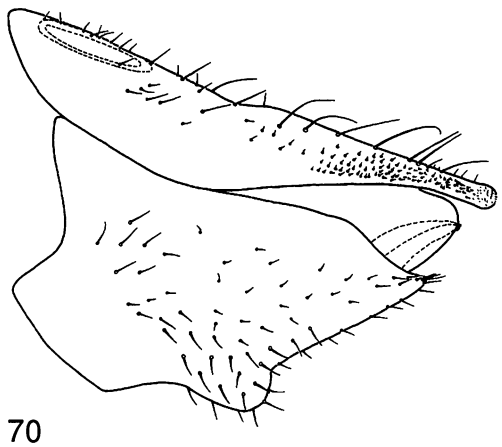
Host plant: A single specimen was collected on *Leptadenia* sp. (Asclepiadaceae) which may be its host plant (BURCKHARDT 1981).

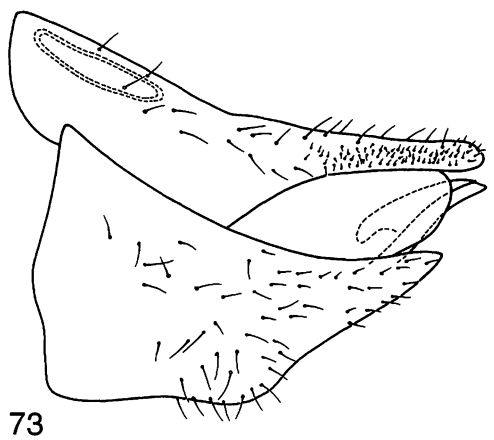


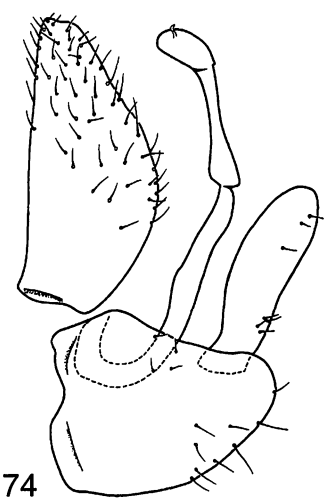
Figs 59-67: Genitalia of *Diaphorina* species: Male genitalia in lateral view (59, 62, 65), inner face of paramere (60, 63, 66), and female genitalia in lateral view (61, 64, 67). **59-61:** *D. enormis.* **62-64:** *D. harteni* n. sp. **65-67:** *D. leptadeniae* n. sp.

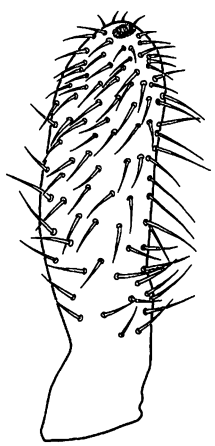


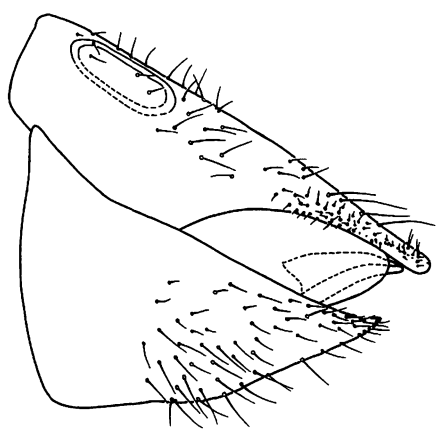




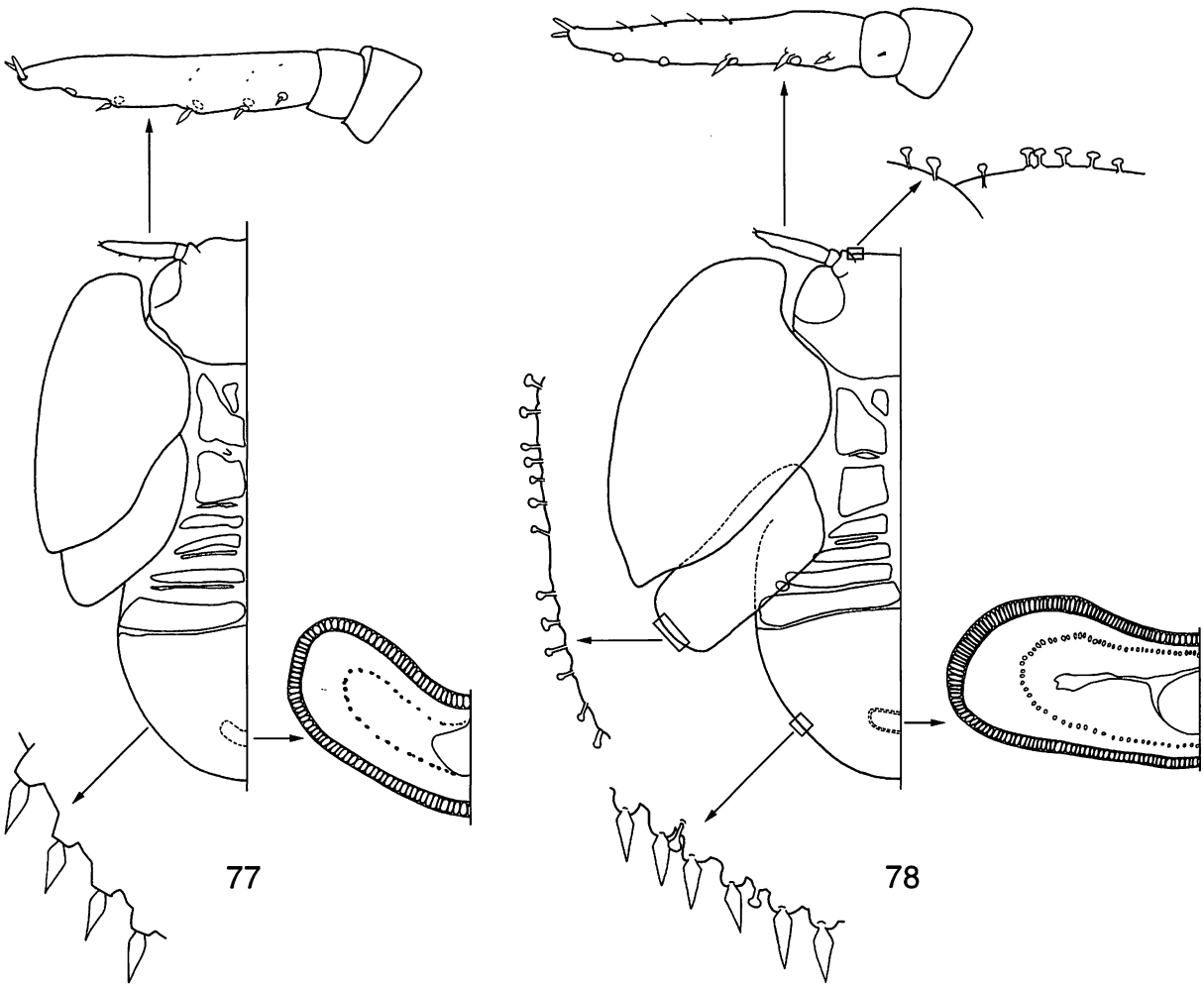








Figs 68-76: Genitalia of *Diaphorina* species: Male genitalia in lateral view (68, 71, 74), inner face of paramere (69, 72, 75), and female genitalia in lateral view (70, 73, 76). **68-70:** *D. linnavuorii*. **71-73:** *D. luteola*. **74-76:** *Diaphorina* sp. 2.



Figs 77-78: Fifth instar larva of *Diaphorina* species in dorsal view, some details enlarged. 77: *D. citri.* 78: *Diaphorina enormis.*

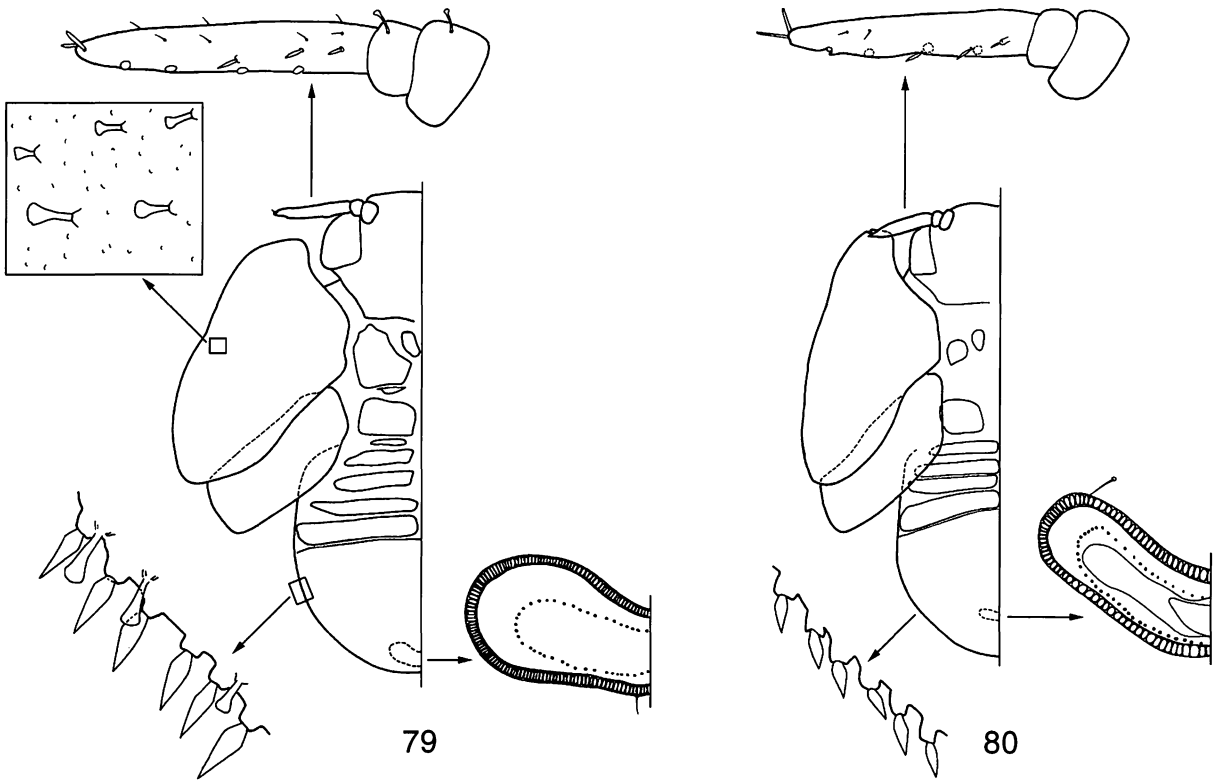
Diaphorina harteni n. sp. Figs 41, 62-64, 85

Holotype: ♂, Yemen, Mafhaq to Khamis Bani Sa'ad, 9.III.1993, A. van Harten, MHNG. — Paratypes: Yemen: 5 ♂♂, 10 ♀♀, 1 adult without abdomen, same data as holotype but MHNG, NHMB, ZISP.

Diagnosis: Genal processes long. Forewing gradually widening to apical fifth, bearing small, well-defined brown spots on membrane.

Description: Adult: Coloration: Head creamy white to brown. Eyes dark brown. Antennae yellowish except for last two segments being dark brown. Usually thorax darker than head, sometimes of a bright orange colour with longitudinal dark bands on the dorsum. Forewing transparent to translucent with small brown spots, denser at the distal part of wing (Fig. 85). Femur brown with rest of leg somewhat lighter. Abdomen yellow to light brown.

Structure: Head (Fig. 41) coarsely sculptured and moderately densely covered in long setae; genal processes symmetrical, conical, about as long as vertex along mid-line. Antennae with slender segments 3, 5 and 7 which are hardly widened apically; segments 4 and 6 slightly thicker and a bit more inflated apically, segment 8 strongly widened to apex; segments 9 and 10 thick; segment 10 with one terminal seta slightly shorter and one almost twice as long as segment. Forewing (Fig. 85) gradually widening to about apical fifth, fore margin evenly curved subapically; setae along veins



Figs 79-80: Fifth instar larva of *Diaphorina* species in dorsal view, some details enlarged. **79:** *D. leptadeniae* n. sp. **80:** *D. luteola.*

long, slightly shorter than distance between them; surface spinules coarse, densely covering all cells, leaving narrow spinule-free stripes along the bases of the veins. Genitalia as in Figs 62-64.

Measurements (1 ♂, 1 ♀): HW 0.55-0.56; AL 0.30-0.38; WL 1.78-1.85; MP 0.27; PL 0.23; AEL 0.20; FP 0.51; ALHW 0.55-0.68; TLHW 0.80; WLHW 3.24-3.30; WLW 2.31-2.51; MPHW 0.49; FPHW 0.91; FPC 3.64; FPS 1.38.

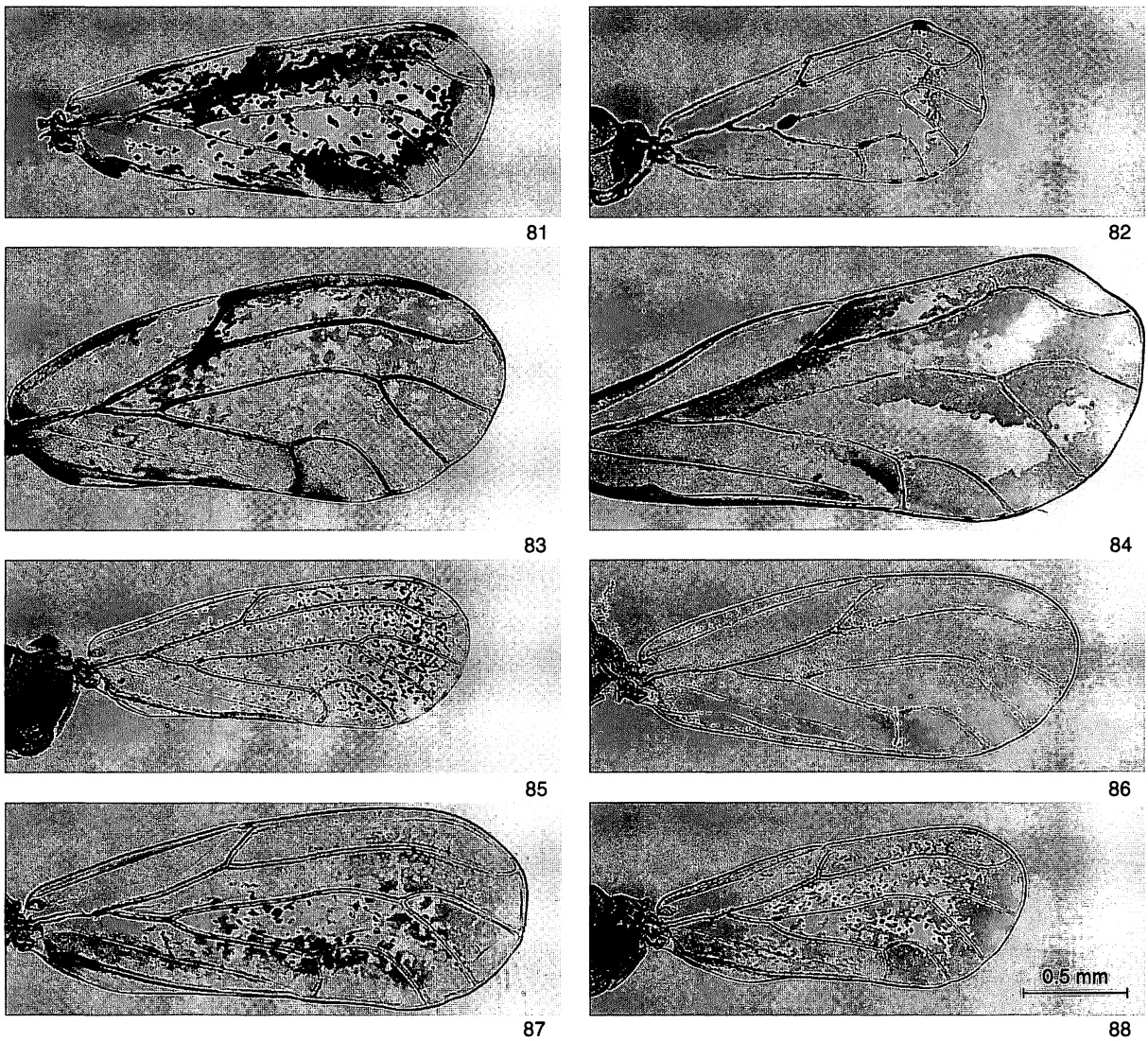
Larva and host plant unknown.

Remarks: *Diaphorina harteni* resembles *D. aegyptiaca* Puton, 1892, in the spotted forewings and the long genal processes. It differs from it in the more slender, oval-shaped forewings and details in the genitalia.

Diaphorina lamproptera Burckhardt, 1981 Figs 50, 93

Diaphorina lamproptera Burckhardt, 1981. — Fauna of Saudi Arabia 3: 215.

Material: Bahrain: some 100 ♂♂ and ♀♀, Satellite Station, 12.VI.1992, on *Zygophyllum qatarense*, N. Lavoyer, MHNG; 6 ♂♂, 1 ♀, same data but ?Chenopodiaceae; about 100 ♂♂ and ♀♀, road to the Interior, 12.VI.1992, on *Zygophyllum qatarense*, N. Lavoyer, MHNG; 1 ♀, Awali, 12.VI.1992, on *Salsola ?imbricata*, N. Lavoyer, MHNG. — Kuwait: 18 ♂♂, 22 ♀♀, 36 larvae, Messila, 0 m, 9.XII.1991, on *Zygophyllum coccineum*; 2 ♂♂, 3 ♀♀, 2 larvae, same data but 16.XII.1991; 118 ♂♂, ♀♀, larvae, same data but 5.II.1992; 19 ♂♂, 29 ♀♀, many larvae, same data but 6.II.1992; 48 ♂♂, 42 ♀♀, 1 larva, same data but 15.II.1992; 4 ♂♂, 1 ♀, 6 larvae, same data but 10.IV.1992; all N. Lavoyer, MHNG. — Saudi Arabia: 1 ♂, surroundings of Riyadh, 30-31.X.1977, W. Büttiker, NHMB; 9 ♂♂, 6 ♀♀, Haddat ash-Sham, 3.VI.1972, water trap, BMNH; 2 ♂♂, 2 ♀♀, same data but 23.V.1972. — United Arab Emirates: 4 ♂♂; 3 ♂♂, Abu Dhabi, Ruwais, 6-9.XI.1985, M.J. Ebejer, BMNH; 1 ♀, same data but 10-13.XI.1985. — Yemen: 1 ♀, al-Kowd, 1-15.I.1993, in Malaise-trap; 2 ♂♂, same data but 15-28.II.1993; 1 ♂, 1 ♀, same data but IV.1993; 9 ♂♂, 5 ♀♀, 7 larvae, Qatabah to Aden, 19.III.1993; 1 ♀, Mukeiras, 11.IV.1993; all A. van Harten, MHNG.



Figs 81-88: Forewing of *Diaphorina* species. **81:** *D. citri.* **82:** *D. elegans* n. sp. **83:** *D. enderleini.* **84:** *D. enormis.* **85:** *D. harteni* n. sp. **86:** *D. leptadeniae* n. sp. **87:** *D. linnavuorii.* **88:** *D. luteola.*

Recorded from Saudi Arabia, Egypt (BURCKHARDT 1981, 1985) and Palestine (BURCKHARDT & HALPERIN 1992).

Host plants: *Zygophyllum album* L. fil., *Z. coccineum* L., *Z. qatarense* Hadidi (Zygophyllaceae).

Diaphorina leptadeniae n. sp. Figs 65-67, 79, 86

Diaphorina bikanerensis sensu Burckhardt, 1986, nec Mathur, 1975.

Holotype: ♂, Saudi Arabia, Khreys Road, 8.V.1984, on *Leptadenia pyrotechnica*, A.S. Talhouk, NHMB. — Paratypes: Saudi Arabia: 13 ♂♂, 33 ♀♀, numerous larvae, same data as holotype, MHNG, NHMB; 14 ♂♂, 10 ♀♀, numerous larvae, Dirab, 8.V.1984, on *Leptadenia pyrotechnica*, A.S. Talhouk, NHMB.

Diagnosis: Forewing oval with brown pattern consisting of irregular patches along the apices of the veins. Male proctiger moderately produced posteriorly. Female proctiger and subgenital plate subacute apically.

Description: Adult: Coloration: Ochreous, head and thorax covered in whitish waxy secretions. Antennal segments 4 and 6 brown apically, segments 9 and 10 dark brown to black. Forewings whitish, semi-transparent with light brown pattern as in Fig. 86. Apicotarsi brown. Genitalia light brown to brown.

Structure: Head coarsely sculptured and moderately densely covered in long setae; genal processes symmetrical, conical, blunt apically, about 0.6 times as long as vertex along mid-line. Antennae with flagellar segments of about the same width, only very slightly widened apically; segment 10 with one terminal seta distinctly shorter and one about as long as segment. Forewing (Fig. 86) gradually widening to about apical fifth, fore margin evenly curved subapically; setae along veins short, shorter than distance between them; surface spinules relatively fine, densely covering all cells up to veins. Genitalia as in Figs 65-67.

Measurements (3 ♂♂, 1 ♀): HW 0.66-0.71; AL 0.52-0.57; WL 1.96-2.19; MP 0.33-0.34; PL 0.26-0.28; AEL 0.18-0.21; FP 0.61; ALHW 0.76-0.83; TLHW 0.70-0.74; WLHW 2.97-3.09; WLW 2.24-2.34; MPHW 0.50; FPHW 0.86; FPC 3.39; FPS 1.33.

Fifth instar larva (Fig. 79): described by BURCKHARDT (1986) as *D. bikanerensis.*

Recorded as *Diaphorina bikanerensis* from Saudi Arabia (BURCKHARDT 1986).

Host plant: *Leptadenia pyrotechnica* Decne. (Asclepiadaceae).

Remarks: *Diaphorina leptadeniae* resembles *D. bikanerensis* superficially in the forewing pattern and shares the same host genus. It differs from it in the slightly narrower forewing with a more restricted pattern, the shorter and more symmetrical genal processes, and the posteriorly more produced male proctiger.

Diaphorina linnavuorii Loginova, 1978 Figs 42, 68-70, 87

Diaphorina linnavuorii Loginova, 1978. — Trudy zoologicheskogo Instituta 61: 76.

Material: Yemen: 27 ♂♂, 34 ♀♀, 2 adults without abdomen, Jabal Jelal, above Nakil Isla, 9600-10,000 feet, 8.III.1938, B.M. Exp. to SW Arabia, H. Scott & E.B. Britton, BMNH, NHMB; 1 ♂, same data but Jabal Masnah, SW of Mabar, c. 8400 feet, 9.III.1938, BMNH; 1 ♀, Mabar, 28.VII.1992, in light-trap, M. Mahyoub, MHNG; 1 ♀, Sana'a, II.1993, in Malaise-trap, A. van Harten, MHNG. — Ethiopia: 1 ♂, Belleta forest, 13-14.VI.1963; 1 ♀, near Lake Langanno, 6-7.VI.1963; all Linnavuori, paratypes of *D. linnavuorii*, ZISP. — Kenya: 19 ♂♂, 27 ♀♀, Lake Naivasha, W of shore road, c. 6200 feet, on *Psiadia punctulata*, D. Hollis, BMNH, NHMB. — Tanzania: 2 ♀♀, Kilimanjaroh National Park, Momella Lodge, 21.II.1981, on *Crassocephalum* sp., Chr. Burckhardt, MHNG.

Recorded from Ethiopia (LOGINOVA 1978 a) and Saudi Arabia (BURCKHARDT 1986).

Host plant: A series of adult specimens was collected on *Psiadia punctulata* (DC.) Varke (Asteraceae) which may be the host plant.

Diaphorina luteola Loginova, 1978 Figs 43, 71-73, 80, 88

Diaphorina luteola Loginova, 1978. — Trudy zoologicheskogo Instituta 61: 69.

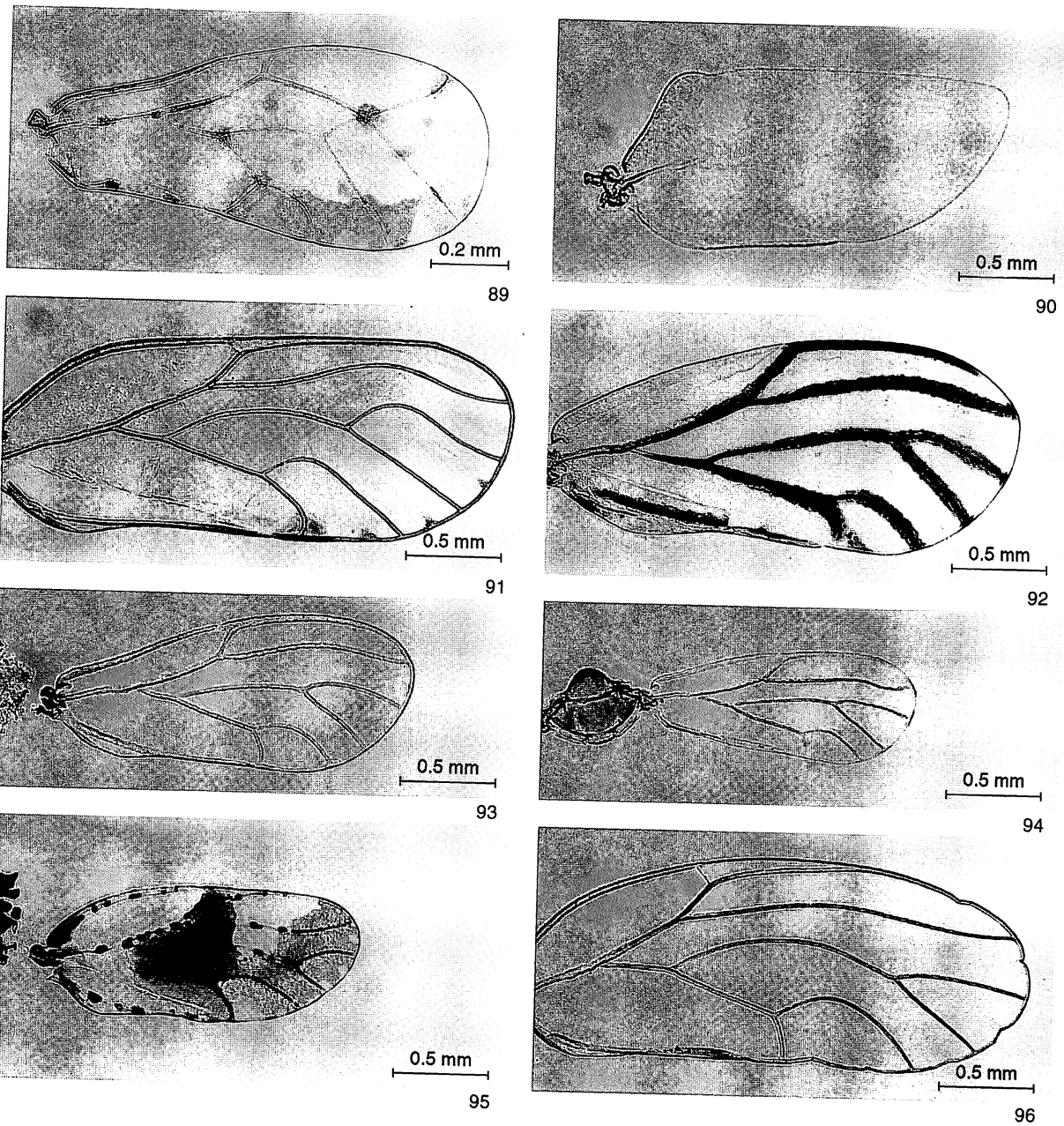
Material: Bahrain: 14 ♂♂, 19 ♀♀, Awali, 12.VI.1992, on *Salsola ?imbricata*, N. Lavoyer, MHNG. — Yemen: 16 ♂♂, 25 ♀♀, Sana'a, 18.I.1991, on *Solanum sepicula*; 1 ♀, same data but IX.1992, in light and Malaise-traps; 1 ♂, 1 ♀, Shuqra to Laudar, 21.III.1993; 5 ♂♂, 14 ♀♀, 8 larvae, al-Wasitah, Qa Jahran, 17.IX.1991, on *Solanum* sp.; all A. van Harten, MHNG; 1 ♂, Sanhan, VIII.1992, on peach, M. Knapp; 1 ♀, Mabar, VI.1992, A. Drews. — Palestine: 1 ♂, 3 ♀♀, Yahel, AV, 1.VI.1991, on *Haloxylon persicum*; 2 ♂♂, over 30 ♀♀, Timna, S, AV, 1.VI.1991, on *Hammada salicornica*; all J. Halperin, MHNG, AROB. — Sudan: 2 ♂♂, 5 ♀♀, paratypes of *Diaphorina luteola*, Kassala Province, Jabal Eléba, 10-14.XII.1992, Linnavuori, ZISP.

Recorded from Sudan and Iran (LOGINOVA 1978 a, BURCKHARDT & LAUTERER 1993).

Host plants: *Solanum sepicula* Dunn., *Solanum* sp. (Solanaceae).

Diaphorina sp. 1

Material: Yemen: 1 ♂, al-Mahwit to Khamis Bani Sa'ad, Wadi Sara'a, 17.III.1992, A. van Harten, MHNG.



Figs 89-96: Forewing of various Psylloidea species. 89: *Pseudophacopteron* sp. 90: *Rhombaphalara insolita* n. sp. 91: *Cyamophila prohaskai*. 92: *Diaphorina dakariensis*. 93: *D. lamproptera*. 94: *Diaphorina* sp. 2. 95: *Colophorina* sp. 96: *Psylla* sp.

Remarks: The single male resembles *D. linnavuorii* in forewing shape and colour but differs in the slightly shorter genal processes and the posteriorly more produced male proctiger.

***Diaphorina* sp. 2**

Figs 44, 74-76, 94

Material: Yemen: 1 ♂, 2 ♀♀, Socotra, Nogeed to Habido, 16.IV.1993, A. van Harten, MHNG.

Remarks: In head (Fig. 44) and forewing structure (Fig. 94), the specimens at hand resemble *D. chobauti* Puton, 1898. They differ in the posteriorly less produced male proctiger (Fig. 74), the slightly shorter and broader paramere (Fig. 75) and the straight dorsal margin of the female proctiger (Fig. 76). Additional material is needed for a proper identification.

Genus ***Peripsyllopsis*** Enderlein, 1926

Type species: *Arytaina ramakrishni* Crawford, 1924, by original designation and monotypy.

Remarks: Among the material from Yemen is a species, similar to *Euphyllura speciosa* Capener, 1973 from South Africa, which is described below. Despite a superficial resemblance in the lobular genal processes, these two species differ considerably in detail from the Oleaceae-feeding members of *Euphyllura*. The presence of lanceolate setae and the absence of additional anal pore fields in the larvae (see below) place them in the Diaphorininae rather than the Liviinae (as genuine *Euphyllura*) (WHITE & HODKINSON 1985). Similarly, *E. obsoleta* Mathur, 1975, whose problematical attribution to *Euphyllura* was commented on by MATHUR (1975) and BURCKHARDT (1986), belongs to the Diaphorininae.

In their present definitions, none of the genera currently included in the Diaphorininae (HODKINSON 1991) can, however, accommodate these species. To redefine existing genera or to erect new ones is undesirable without a sound phylogenetic base. Pending a revision which will provide such a base, we propose to place the three species in *Peripsyllopsis*. Based on the presence of an incomplete crown of apical spurs on the metatibia and of long thick setae on the inner face of the paramere, *P. ramakrishni* (Crawford, 1924), the type species of the monotypic Indian genus, belongs to the Diaphorininae, rather than the Arytainini as was suggested by HESLOP-HARRISON (1951).

Including *E. obsoleta*, *E. speciosa* and the new species from Yemen, *Peripsyllopsis* can be characterised as follows: forewing oval to subrhomboidal, veins R and $M+Cu_1$ subequal, pterostigma large, body size small, antenna short, about as long as head width, metabasitarsus with two black spurs, and male proctiger tubular, wide at base and narrowing to apex. The new combinations: *Peripsyllopsis speciosa* (Capener, 1973), n. comb. (from *Euphyllura*) and *Peripsyllopsis obsoleta* (Mathur, 1975), n. comb. (from *Euphyllura*) are introduced here.

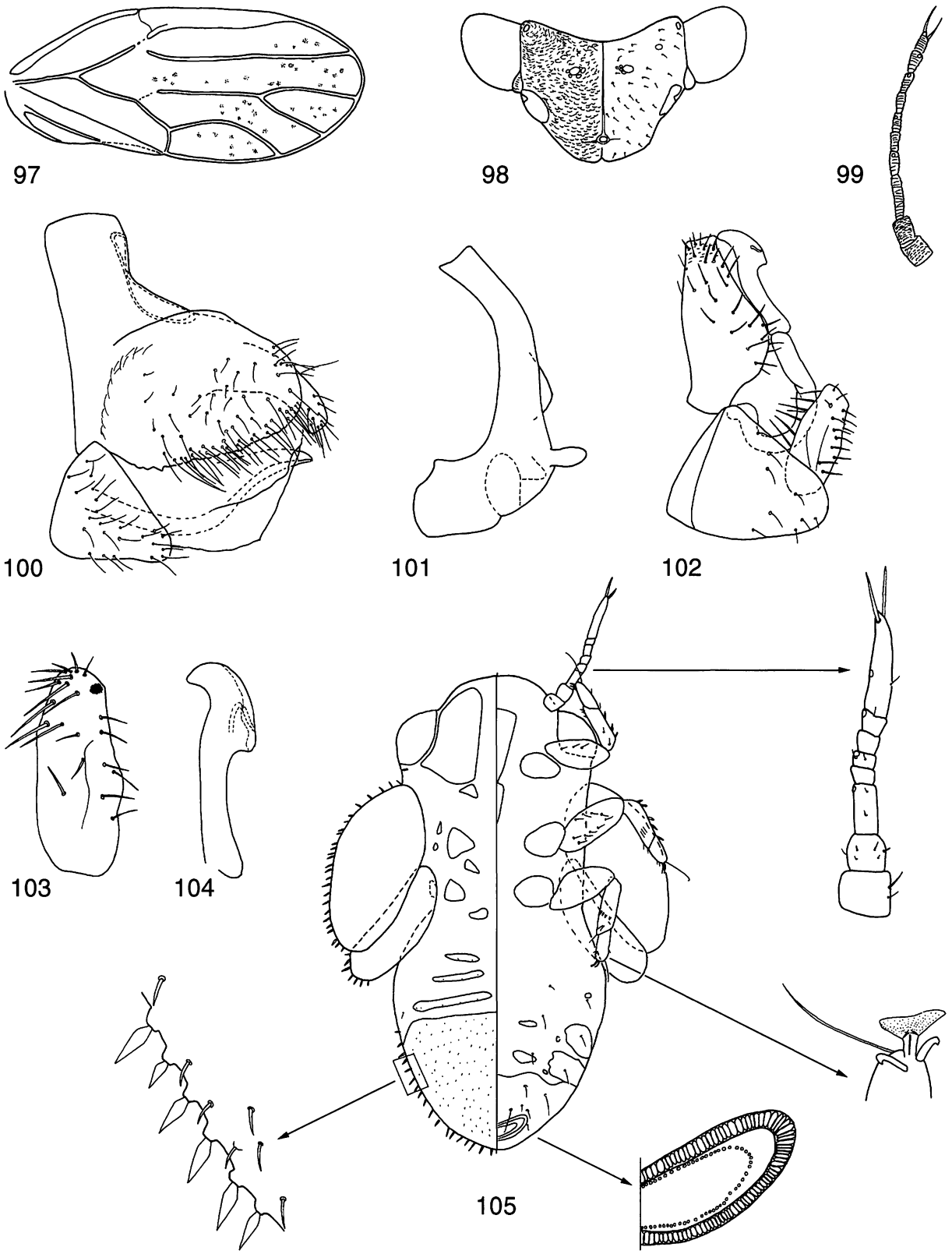
Peripsyllopsis dodonaeae n. sp. Figs 97-105

Holotype: ♂, Yemen, Sana'a, 8.XII.1991, on *Dodonaea viscosa*, A. van Harten, MHNG. — Paratypes: Yemen: 13 ♂♂, 9 ♀♀, 15 larvae, same data as holotype, MHNG, NHMB; 7 ♂♂, 1 ♀, same data but 17.I.1991, on ?*Acacia* sp.; 1 ♂, 1 ♀, same data but II.1991, A. van Harten, MHNG. — Kenya: 4 ♂♂, 3 ♀♀, Nairobi Arboretum, c. 5400 feet, 25-26.VII.1974, on *Dodonaea viscosa*, D. Hollis, BMNH; 3 ♂♂, 3 ♀♀, Lake Naivasha, soda area, 2000 m, 25.V.1988, on *Dodonaea viscosa*, J.H. Martin, BMNH. — South Africa: 2 ♂♂, 2 ♀♀, Cape Province, Hexriver Pass, SW side, 3.V.1972, on *Dodonaea viscosa*, Southern African Expedition, BMNH.

Diagnosis: Genal processes forming lobes. Forewing with straight vein C+Sc, with short branches of vein M and with light and sparse pattern. Male proctiger simple. Female proctiger with large lateral lobes.

Description: Adult: Coloration of teneral specimens: Ochreous, head and thorax with white and brown pattern. Tips of antennal segments 4 and 6 brown, segments 9 and 10 black. Forewing straw-coloured to light brown, with indistinct brown dots (Fig. 97).

Structure: Head (Fig. 98) strongly deflexed from longitudinal body axis; vertex covered in microsculpture and short hairs; genae forming flattened lobes; preocular sclerite developed. Eyes recessive, their hind margin near base of forewing. Antenna 10-segmented with rhinaria on segments 4, 6, 8 and 9; both terminal setae longer than segment 10 (Fig. 99). Clypeus small, flattened. Labium short. Pronotum short, propleurites narrow. Mesonotum flattened. Forewing (Fig. 97) oval, widest in the middle with large pterostigma; surface spinules present in all cells, forming irregular, indistinct hexagonal cells, leaving spinule-free stripes along the veins. Hindwing with ungrouped costal setae. Metacoxa (Fig. 101) narrow, with short, fusiform meracanthus and two lateral tubercles. Metatibia without genual spine. Metabasitarsus with two black spurs. Genitalia as in Figs 100, 102-104.



Figs 97-105: *Peripsyllopsis dodonaeae* n. sp. 97: Forewing. 98: Head in dorsal view. 99: Antenna. 100: Female genitalia in lateral view. 101: Metacoxa. 102: Male genitalia in lateral view. 103: Inner face of paramere. 104: Distal segment of aedeagus. 105: Fifth instar larva in dorsal view on the left and in ventral view on the right, some details enlarged.

Measurements (2 ♂♂, 2 ♀♀): HW 0.51-0.60; AL 0.39-0.43; WL 1.10-1.41; MP 0.14; PL 0.07-0.09; AEL 0.09-0.10; FP 0.34-0.39; ALHW 0.75-0.82; TLHW 0.53-0.56; WLHW 2.16-2.45; WLW 2.24-2.39; MPHW 0.27; FPHW 0.61-0.65; FPC 2.83-3.25; FPS 3.00-3.09.

Fifth instar larva: Coloration (of slide-mounted specimens): Sclerotised plates ochreous. Tips of antennae and legs brown. Membranes colourless.

Structure: Body (Fig. 105) elongate. Antenna 8-segmented with each a rhinarium on segments 3, 5, 7 and 8; with scattered short setae. Thoracic tergites small. Pro- and mesotibia with an outer row of lanceolate setae; tarsal arolium triangular, with unguitractor and short pedicel. Surface of wing pads and caudal plate densely covered in short, thick, slightly curved setae. Forewing pads elongate without humeral lobes, margin bearing lanceolate setae or indistinct sectasetae. Caudal plate with numerous marginal lanceolate setae or indistinct sectasetae. Outer circumanal ring of moderate size, consisting of a single row of pores; extra pore field absent.

Measurements (4 specimens): AL 0.30-0.41; WL 0.40-0.47; BL 0.95-1.21; CPB 0.41-0.48; AWL 0.68-0.93; BBL 1.25-1.38; CPR 0.67-0.74; CCB 3.29-3.43.

Host plant: *Dodonaea viscosa* (L.) Jacq. (Sapindaceae).

Discussion: Based on the lobed genal processes, the simple male proctiger, the short, stout parameres and the large lateral lobes on the female proctiger, *P. dodonaeae* is most closely related to *P. speciosa* from which it differs in the narrower genal lobes; the forewing with an almost straight vein C+Sc, with shorter branches of vein M and with a much lighter and sparser pattern; and details in the genitalia.

Peripsyllopsis obsoleta (Mathur, 1975), n. comb.

Euphyllura obsoleta Mathur, 1975. — Psyllidae of the Indian Subcontinent. 429 pp. ICAR, New Delhi: 238.

Reported from India (MATHUR 1975) and Saudi Arabia (BURCKHARDT 1986).

Host plant: *Salvadora oleoides* Dene (Salvadoraceae).

Subfamily **Euphalerinae**

Colophorina sp. Figs 95, 107-108

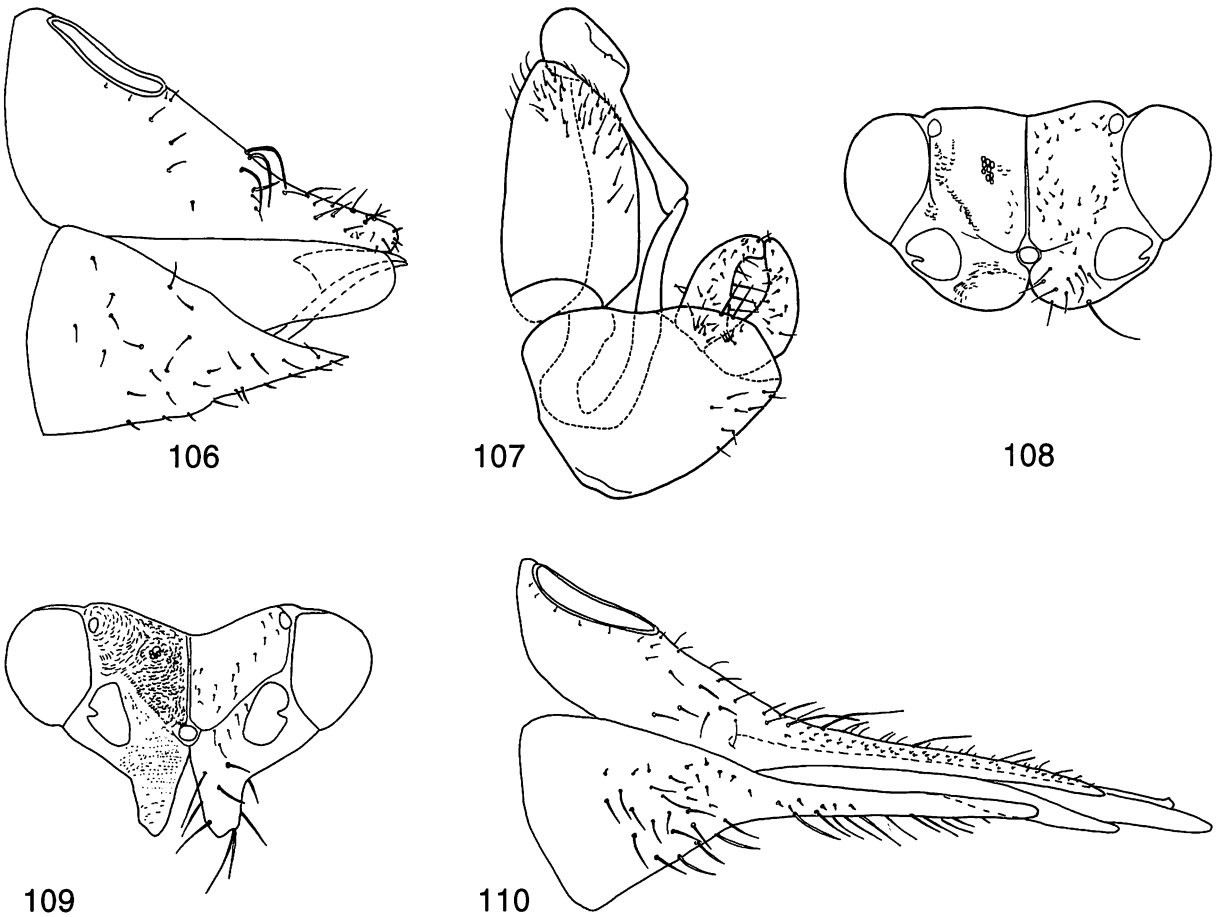
Material: Yemen: 1 ♂, Taiz to Mafraq, 15.III.1993, M. Knapp, MHNG.

Coloration: Body uniformly black except for antennae and tarsi. Antennal segments yellow, except for distal portion of segments 3-8 and entire segments 9 and 10 being black. Forewing with distinct black pattern as in Fig. 95.

Description: Adult: Coloration of teneral specimens: Ochreous, head and thorax with white and brown pattern. Tips of antennal segments 4 and 6 brown, segments 9 and 10 black. Forewing straw-coloured to light brown, with indistinct brown dots (Fig. 95).

Structure: Head (Fig. 108) with short blunt genal processes. Antenna 10-segmented with each a subapical rhinarium on segments 4, 6, 8 and 9; both terminal setae about as long as segment 10. Clypeus pyriform. Labium short. Propleurites narrow with oblique suture. Forewing (Fig. 95) subrhomboidal, with short pterostigma; surface spinules almost entirely absent from basal portion of wing, present in apical two thirds where they are mostly associated with the dark coloured areas; irregularly, densely spaced. Hindwing with ungrouped costal setae. Metacoxa with short, conical meracanthus. Metatibia without genual spine and four grouped apical spurs. Metabasitarsus with two black spurs. Male genitalia as in Fig. 107; female unknown.

Measurements (1 ♂): HW 0.65; AL 0.71; WL 1.55; MP 0.23; PL 0.13; AEL 0.23; ALHW 1.09; TLHW 0.62; WLHW 2.39; WLW 2.35; MPHW 0.35.



Figs 106-110: 110: *Pseudophacopteron* sp., female genitalia in lateral view. **107-108:** *Colophorina* sp. **107:** Male genitalia in lateral view, slightly distorted. **108:** Head in dorsal view. **109-110:** *Psylla* sp. **109:** Head in dorsal view. **110:** Female genitalia in lateral view.

Larva and host plant unknown.

Discussion: The specimen examined belongs to an undescribed species resembling the South African "*Euphalerus*" *marginalis* Capener, 1973 (see HOLLIS & MARTIN 1997 for definition and discussion of *Euphalerus*). It differs in the shorter genal processes, in the forewing pattern and the basally narrower parameres. Without additional material the species is not formally named.

Subfamily **Liviinae**

Key to species of *Euphyllura*

Adults

1 Pterostigma of forewing without cross-veins, short, about twice as long as distance between apices of pterostigma and veins Rs ***Euphyllura aethiopica***

– Pterostigma of forewing with several cross-veins, long, about three times as long as distance between apices of pterostigma and veins Rs ***Euphyllura olivina***

Larva: (No material available for *Euphyllura aethiopica*).

Euphyllura aethiopica Silvestri, 1915

Euphyllura aethiopica Silvestri, 1915. — Bollettino del Laboratorio di Zoologia Generale e Agraria della Reale Scuola Superiore d'Agricoltura, Portici 9: 241.

Reported from Ethiopia (SILVESTRI 1915) and Saudi Arabia (BURCKHARDT 1986).

Host plant: *Olea chrysophylla* Lam. (Oleaceae).

Euphyllura olivina (Costa, 1839)

Thrips olivinus Costa, 1839. — Monographia degl'insetti sull'olivo e nelle olive. 2nd ed., Napoli: 23.

Reported from Saudi Arabia (MARTIN 1972); otherwise widely distributed in the West Mediterranean (BURCKHARDT 1986).

Host plant: *Olea* spp. (Oleaceae).

Subfamily **Pachypsylloidinae**

Key to genera and species of Pachypsylloidinae

Adults

1 Forewing with brown dots. Antennae distinctly 10-segmented
Eremopsylloides loewii

– Forewing whitish, without brown dots. Antennae indistinctly 5-7-segmented
Pachypsylloides shalmoni

Larva: (No material available).

Eremopsylloides loewii (Puton, 1887)

Rhinocola loewii Puton, 1887. — Revue d'Entomologie, Caen 6: 311.

Material: Oman: 1 ♂, 1 ♀, Wahiba Sands, SE of al-Wasil, 22°26'N 58°45'E, 25.X.1990, on *Calligonum comosum*, M.D. Gallagher & J.C. Deeming, BMNH.

Reported from Algeria (BURCKHARDT 1989).

Host plant: *Calligonum comosum* L'Héritier (Polygonaceae).

Pachypsylloides shalmoni Burckhardt & Halperin, 1992

Pachypsylloides shalmoni Burckhardt & Halperin, 1992. — Israel Journal of Entomology 25-26: 47.

Material: Oman: 3 ♂♂, 4 ♀♀, Wahiba Sands, SE of Wasil, 25.X.1990, on *Calligonum comosum*, M.D. Gallagher & J.C. Deeming, NMWC, NHMB.

Reported from Palestine (BURCKHARDT & HALPERIN 1992).

Host plant: *Calligonum comosum* L'Héritier (Polygonaceae).

Subfamily **Psyllinae**

Key to genera and species of Psyllinae

Adults

1 Forewing widest in apical third, with a brown band along the outer margin
Cacopsylla (Thamnopsylla) talhouki

– Forewing (Fig. 96) widest in the middle, without pattern ***Psylla*** sp.

Larva: (No material available).

Cacopsylla (Thamnopsylla) talhouki Burckhardt, 1986

Cacopsylla (Thamnopsylla) talhouki Burckhardt, 1986. — Fauna of Saudi Arabia 7: 154.

Material: Yemen: 1 ♀, West Aden Protectorate, Jabal Jihaf, c. 7000 feet, 19.IX.1937, swept from low herbage between rocks, B.M. Expedition to SW Arabia, H. Scott & E.B. Britton, BMNH.

Described from Saudi Arabia (BURCKHARDT 1986).

Host plant unknown.

Psylla sp. Figs 96, 109-110

Material: Yemen: 1 ♀, al-Mahwit, 7.VI.1991, on *Ficus* sp., A. van Harten, MHNG.

Description: Adult: Coloration of slide-mounted specimen: Ochreous, pronotum brown, mesonotum with longitudinal brown stripes. Antennae ochreous with apices of segments 4-7 and entire segments 8-10 dark brown. Forewing transparent, with brown veins (Fig. 96). Abdominal tergites light brown.

Structure: Head (Fig. 109) bearing slender genal processes which are about as long as vertex along mid-line; vertex covered in microsculpture and short hairs; genae with long hairs. Antenna 10-segmented with each a subapical rhinarium on segments 4, 6, 8 and 9; segment 3 longest; one terminal seta about as long as, the other one about two thirds as long as segment 10. Clypeus small, pyriform. Labium short. Propleurites narrow with oblique suture; suture with only one dorsal branch developed. Forewing (Fig. 96) oval, widest in the middle with relatively short pterostigma; surface spinules present in all cells, sparsely spaced, leaving broad spinule-free stripes along the veins, reduced at bases of some cells. Hindwing with ungrouped costal setae. Metacoxa with large, horn-shaped meracanthus. Metatibia without genual spine, with grouped apical spurs as 1 + 4 + 1. Metabasitarsus with two black spurs. Female genitalia as in Fig. 110. Male unknown.

Measurements (1 ♀): HW 0.78; AL 1.18; WL 2.58; FP 1.04; ALHW 1.51; TLHW 0.85; WLHW 3.31; WLW 2.46; FPHW 1.33; FPC 4.16; FPS 1.32.

Larva and host plant unknown.

Discussion: The specimen examined is similar to *Psylla loranthi* Capener, 1973, from South Africa but differs in the more oval forewing and the longer processes of the female genitalia. The insect from Yemen resembles a series of psyllids from Kenya (BMNH) with which it may be conspecific, but differs in the slightly smaller body dimensions and the shorter genal processes. Pending more material the species is not formally described here.

Family **Triozidae**

Key to genera and species of Triozidae

Adults

1	Forewing broadly rounded apically; vein R+M+Cu_1 bifurcating into R and M+Cu_1	***Pauropsylla trichaeta***
–	Forewing narrowly rounded or angular apically; vein R+M+Cu_1 of forewing trifurcating into R, M and Cu_1	2
2	Genal processes less than half as long as vertex along mid-line	***Bactericera petiolata***
–	Genal processes more than half as long as vertex along mid-line	3
3	Metatibia with 1 + 3 apical spurs	***Trioza erytreae***
–	Metatibia with 1 + 2 apical spurs	4
4	Forewing narrowly rounded apically	***Trioza buxtoni***
–	Forewing angular apically	5

5 Distal portion of aedeagus with two subapical ventral sac-like processes. Female subgenital plate pointed apically *Trioza chenopodii*
– Distal portion of aedeagus with one apical ventral beak-like process. Female subgenital plate truncate apically *Trioza lienhardi*

Larvae

1 Wing pads without marginal sectasetae *Trioza buxtoni*
– Wing pads with marginal sectasetae 2
2 Antennal flagellum 1-segmented *Bactericera petiolata*
– Antennal flagellum subdivided 3
3 Claws well developed *Trioza chenopodii*
– Claws absent 4
4 Marginal sectasetae broad and convex apically *Trioza lienhardi*
– Marginal sectasetae conical 5
5 Marginal sectasetae on forewing pad dense, distance between them less than diameter of a sectaseta *Trioza erytreae*
– Marginal sectasetae on forewing pad sparse, distance between them more than diameter of a sectaseta *Pauropsylla trichaeta*

Bactericera petiolata (Loginova, 1960)

Paratrioza petiolata Loginova, 1960. — Trudy Vsesoyuznogo Entomologicheskogo Obshchestva 47: 88.

Material: Yemen: 1 ♀, Sana'a, I.1993, in Malaise-trap; 1 ♂, same data but II.1993; 1 ♀, Shuqra to Laudar, 21.III.1993; 1 ♀, Mukeiras, 11.IV.1993; all A. van Harten, MHNG.

Reported from the Caucasus, Central Asia, Mongolia, Japan and Yemen (BURCKHARDT & LAUTERER 1997).

Host plant: *Lycium depressum* Stocks (Solanaceae).

Pauropsylla willcocksi Dçbsky, 1918

Pauropsylla willcocksi Dçbsky, 1918. — Mémoires de la Société entomologique d'Égypte 1: 14.

Reported from Saudi Arabia (MARTIN 1972), the Cape Verde Islands, Senegal, Egypt and Sudan (HOLLIS 1984, BURCKHARDT 1986).

Host plants: The larvae form pit-galls on the leaves of *Ficus sycomorus* L., *F. gnaphalocarpa* A. Rich and *F. pseudo-sycomorus* Decaisne (Moraceae).

Trioza buxtoni Laing, 1924

Trioza buxtoni Laing, 1924. — Bulletin of entomological Research 14: 247.

Reported from Palestine (HALPERIN et al. 1982) and Saudi Arabia (BURCKHARDT 1986).

Host plants: The larvae form pit-galls on the leaves of *Ficus carica* L., *F. exasperata* Vahl., and *F. pseudo-sycomorus* Decaisne (Moraceae).

Trioza chenopodii Reuter, 1876

Trioza chenopodii Reuter, 1876. — Memoranda Societatis pro Fauna et Flora Fennica 1: 76.

Material: Kuwait: 51 ♂♂, 47 ♀♀, 11 larvae, Wafra Farms, near Saudi Arabian border, 30.IV.1992, N. Lavoyer, MHNG. — Oman: 1 ♀, edge of Ghubra Bowl, Wakan (mountain village), 5.XI.1992, on wheat, M.D. Gallagher & J.C. Deeming, NMWC. — Yemen: 4 ♂♂, 5 ♀♀, Sana'a, 12.I.1991, on *Chenopodium* sp.; 1 ♀, same data but II.1991; 8 ♂♂, 5 ♀♀, same data but 13.V.1991, on *Rumex pulcher*; 5 ♀♀, same data but XII.1992, in Malaise-trap; 1 ♀, same data but II.1993, in Malaise-trap; 1 ♀, same data but 30.XI.1993; all A. van Harten, MHNG; 1 ♀, Sanhan, IX.1993, on peach, M. Knapp, MHNG.

Widely distributed throughout the Palaearctic, introduced into the New World (OSSIANNILSSON 1992, BURCKHARDT 1994 a, WHEELER & HOEBECKE 1997). Not previously reported from the Arabian Peninsula.

Host plants: Oligophagous on Chenopodiaceae.

Trioza erytreae (del Guercio, 1918)

Aleurodes erytreae del Guercio, 1918. — Agricultura Coloniale 1918: 167.

Material: Yemen: 1 ♂, Hamam Ali, 6.II.1992, on *Citrus* sp.; 14 ♂♂, 9 ♀♀, Sana'a, 9.V.1992, on *Citrus* sp.; 1 ♂, 3 ♀♀, Sumara Pass, 13.III.1993; all A. van Harten, MHNG; 13 ♂♂, 8 ♀♀, 10 larvae, Taiz, 16-18.II.1993, on *Citrus* sp.; 1 ♀, Taiz to ar-Rahidah, 14.III.1993; all M. Knapp, MHNG.

Previously recorded from Saudi Arabia (BECCARI 1971, MARTIN 1972, BURCKHARDT 1981); widely distributed throughout Africa (Commonwealth Institute of Entomology 1967, HOLLIS 1984, BURCKHARDT 1986).

Host plants: An important pest species on cultivated *Citrus* spp., *Clausena anisata* (Willd.) Oliv., *Fagara capensis* Thunbg., *Vepris undulata* (Thunbg.) Verdoorn & C.A. Smith (Rutaceae). The larvae form pit-galls on the leaves (HOLLIS 1984, BURCKHARDT 1994 b).

Trioza lienhardi Burckhardt, 1981

Trioza lienhardi Burckhardt, 1981. — Fauna of Saudi Arabia 3: 225.

Reported from Saudi Arabia and Tunisia (BURCKHARDT 1981).

Host plant: *Lycium* sp. (Solanaceae).

DISCUSSION

Biogeography: Of the 52 species listed here, 24 are reported the first time from the Arabian Peninsula, 10 are described as new and 9 are not identified due to insufficient material. This indicates that the present knowledge of the Arabian psylloid fauna is still very incomplete. The number of existing species is certainly much higher but it is difficult to estimate how much, as information from neighbouring countries is also incomplete.

The number of species with Afrotropical affinities is high and some Palaearctic genera are absent from the material (e.g. *Craspedolepta*, *Acaerus*). This suggests similar biogeographical patterns as those in butterflies (LARSEN 1984). However, the scarcity of the material at hand as well as the absence of detailed phylogenetic hypotheses render biogeographic conclusions weak.

Host plants: Known host plants are summarised in the appendix. They belong to 14 families of dicotyledons. In terms of psylloid diversity, the Fabaceae (7 species) is the richest family followed by Chenopodiaceae and Tamaricaceae (5 species each). Here, also, the information is too sparse to derive general patterns.

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APPENDIX

The host plants of Arabian Psylloidea are listed in alphabetical order of families, genera and species. Doubtful records are marked with "?".

Host plants	Psylloid species
Family **Apocynaceae**	
Acokanthera oppositifolia	*Diaphorina acokantherae*
Acokanthera schimperi var. *deflersii*	*Diaphorina acokantherae*
Family **Asclepiadaceae**	
Leptadenia pyrotechnica	*Diaphorina leptadeniae* n. sp.
Leptadenia sp.	?*Diaphorina enormis*
Family **Asteraceae**	
Psiadia punctulata	?*Diaphorina linnavuorii*
Family **Chenopodiaceae**	
Haloxylon aphyllum	*Caillardia inedita*
Haloxylon persicum	*Caillardia inedita*
Hammada elegans	*Caillardia dilatata*
Hammada salicornica	*Caillardia dilatata*
Hammada sp.	*Caillardia dilatata*
Suaeda fruticosa	*Rhombaphalara insolita* n. sp.
Suaeda sp.	?*Diaphorina elegans* n. sp.
Oligophagous on various genera	*Trioza chenopodii*
Family **Fabaceae**	
Acacia abyssinica	*Acizzia marginata*
Acacia ehrenbergiana	*Acizzia bona, Pachyparia dimorpha*
Acacia hockii	*Acizzia marginata*
Acacia lahai	*Acizzia marginata*
Acacia nilotica	*Acizzia melanocephala* n. sp., *Pachyparia dimorpha*
Acacia seyal	*Acizzia bona*
Acacia tortilis	*Pachyparia dimorpha*
Acacia tortilis ssp. *raddiana*	*Acizzia halperini* n. sp., *A. hollisi, A. wittmeri*
Acacia tortilis ssp. *spirocarpa*	?*Acizzia hollisi*
Acacia tortilis ssp. *tortilis*	*Acizzia halperini* n. sp., *A. hollisi, A. wittmeri*
Acacia sp.	*Acizzia halperini* n. sp.
Albizia gummifera	*Acizzia marginata*
Colutea spp.	*Cyamophila coluteae*
Family **Moraceae**	
Ficus carica	*Trioza buxtoni*
Ficus exasperata	*Trioza buxtoni*
Ficus gnaphalocarpa	*Pauropsylla willcocksi*
Ficus pseudo-sycomorus	*Pauropsylla willcocksi, Trioza buxtoni*
Ficus sycomorus	*Pauropsylla willcocksi*
Family **Polygonaceae**	
Calligonum comosum	*Eremopsylloides loewii, Pachypsylloides shalmoni*
Family **Oleaceae**	
Olea chrysophylla	*Euphyllura aethiopica*
Olea spp.	*Euphyllura olivina*
Family **Rutaceae**	
Citrus spp.	*Diaphorina citri, Trioza erytreae*
Clausena anisata	*Trioza erytreae*
Fagara capensis	*Trioza erytreae*
Murraya spp.	*Diaphorina citri*
Vepris undulata	*Trioza erytreae*
Family **Salvadoraceae**	
Salvadora oleoides	*Peripsyllopsis obsoleta*

Host plants	Psylloid species
Family **Sapindaceae**	
Dodonaea viscosa	*Peripsyllopsis dodonaeae* n. sp.
Family **Solanaceae**	
Lycium depressum	*Bactericera petiolata*
Lycium sp.	*Trioza lienhardi*
Solanum sepicula	*Diaphorina luteola*
Solanum sp.	*Diaphorina luteola*
Family **Tamaricaceae**	
Tamarix aphylla	*Colposcenia elegans*
Tamarix articulata	*Colposcenia elegans*
Tamarix sp.	*Colposcenia arabica, C. jakowleffi*
Tamarix spp.	*Colposcenia aliena, Crastina linnavuorii*
Family **Zygophyllaceae**	
Zygophyllum album	*Diaphorina lamproptera*
Zygophyllum coccineum	*Diaphorina lamproptera*
Zygophyllum qatarense	*Diaphorina lamproptera*