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# HEMIPTERA OF ISRAEL

## III

R. LINNAVUORI

45 Figs. and 2 Tables

Selostus:

Israelin nivelkärsäiset. III

HELSINKI 1962

CONTENTS




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## 1. INTRODUCTION

This paper is a continuation and conclusion of the author's two previous surveys (LINNAVUORI 1960 and 1961), and it also contains a survey of the Hemiptera of the different topographical and biogeographical regions of Israel, as well as a survey of the biogeographical elements of the Hemipteran fauna of Israel.

As in the previous surveys, all the material found by myself is marked! and that revised by me (!) in the present list. In other respects the reader is referred to the first part of this survey.

## 2. TAXONOMY AND DISTRIBUTION OF THE SPECIES TREATED

### *Cixiidae*

#### *Oliarus* Stål

*O. melanochaetus* Fb. – Palestine (BODENHEIMER 1937). – Pontomediterranean. The record from Palestine uncertain, since the species is easily confused with *O. angustiformis*.

*O. angustiformis* Lv.

The female has been described by me (LINNAVUORI 1953, p. 121) previously. Here in addition the description of the male genitalia: Pygofer (fig. 1 b) asymmetrical: the right side lobe ending in a long straight spine, while the apical spine of the left side lobe is short and claw-like. Anal tube bearing long apical appendages (fig. 1 b). Stylus (fig. 1 c) rather slender. Penis (fig. 1 a) long; a bifurcate appendage directed dorsad arising from the middle of the stem; 3 apical appendages, the median one long, falcate and curved ventrad.

Dan, 1 ♂ (allotype) and 1 ♀, 11. VII. 1958,!; Jerusalem, 2 spec., 23 – 30. VII. 1949, Wahrman (!); Neve Ya'ar, 2 spec., 29. VII. 1958,!; Shimron, 1 spec., 4. VIII. 1958,!; Tanninim, 3 spec., 20. VII. 1958,!. – On *Platanus orientalis* and *Quercus ithaburensis*. – Endemic.

Externally the species much resembles *Pseudoliarus fuscofasciatus* (Mel.), even living in association with it, but differs in the black setae of the elytra, the dissimilarly shaped head, the very long ovipositor and the male genitalia.

*O. major* (Kb.) ssp. *interjectus* Lv. – Aqua Bella, 3 spec., 29. V – 25. VII. 1954, Wahrman (!), 2 spec., 14. VI. 1958,!; Haifa, 1 spec., 29. VI. 1958,!; Hartuv, 1 spec., 25. V. 1957, Yarkoni (!); Jerusalem, 1 spec., Bytinski-Salz (!), 2 spec., VIII. 1956, Werner (!), 6 spec., 15. VI. 1958,!; K. Anavim, 11 spec., Bodenheimer (!); Kreibe, 2 spec., 20. VI. 1946, Bytinski-Salz (!); Maaleh Hahamisha, 1 spec., 23. VI. 1957, Michaeli (!); Shimron, 1 spec., 4. VIII. 1958,!; Suba, 1 spec., 26. VI. 1952, Amitai (!). – On a number of deciduous trees: *Olea europaea*, *Ficus carica*, *Quercus calliprinos* and *Q. ithaburensis*. – Endemic, the nominate form Pontomediterranean.

*O. pallens* (Germ.)

*Flata pallens* GERMAR 1821, p. 101.

*Oliarus suezensis* MATSUMURA 1910, p. 7, n.syn.

*O. modestus* HAUPT 1927, p. 8, n.syn.

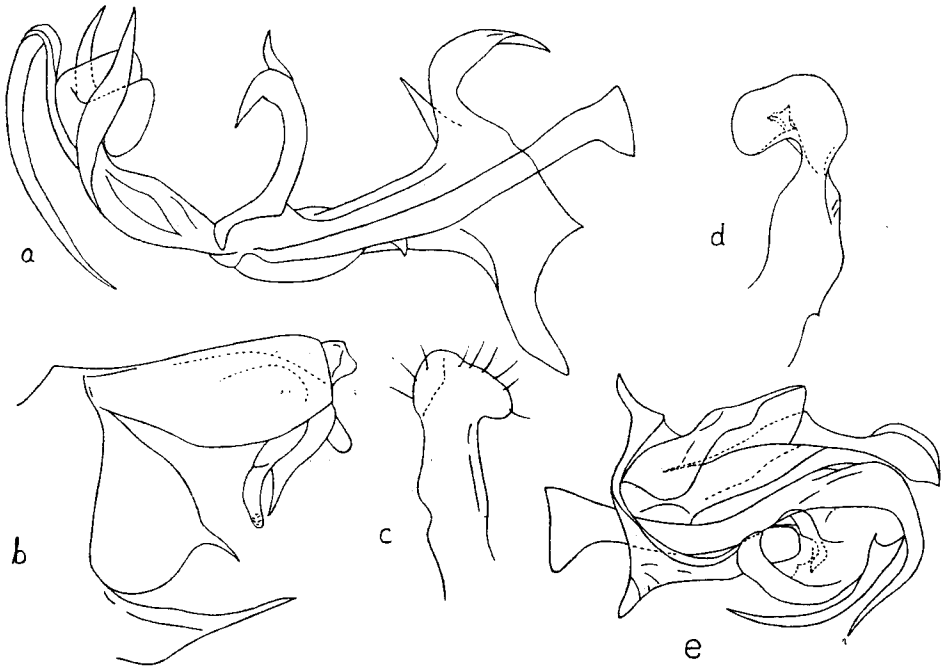



Fig. 1. *Oliarus angustiformis* Lv.: a penis, lateral aspect; b pygofer and anal tube; c stylus. – *O. lindbergi* Dlab.: d stylus; e penis, lateral aspect. – Orig.

The species has been redescribed by WAGNER (1954, p. 211 – 212). It varies considerably in colouring and size, closely resembling *O. lindbergi* Dlab. in general habitus and genitalia. It is considerably bigger, however, having the crown much longer and narrower, the median 0.86 × as long as the greatest basal width (0.5 × in *O. lindbergi*).

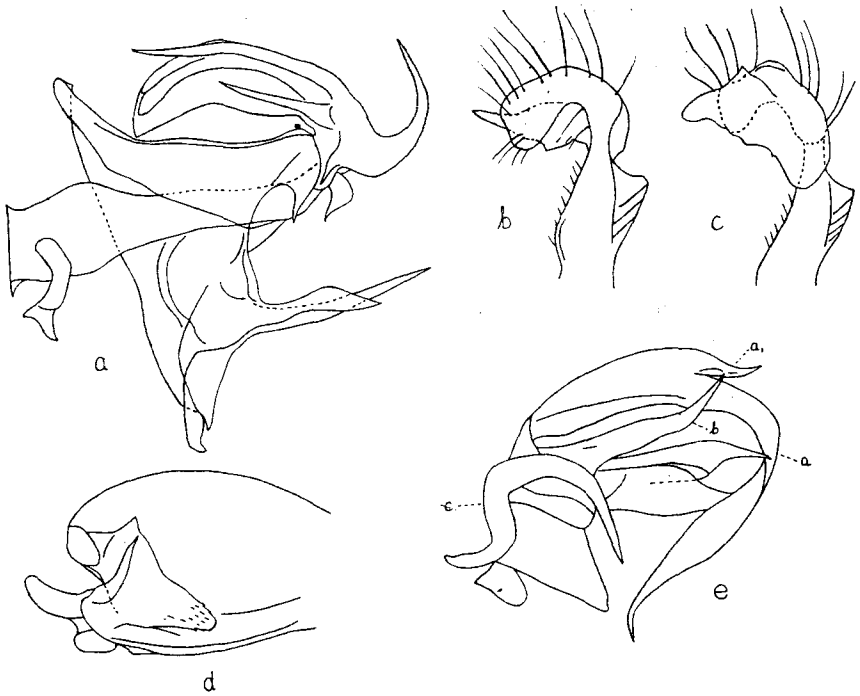
Palestine (BODENHEIMER op.cit.); Deganya, 1 spec., 23. VII. 1958,!; 'Ein Gedi, 2 spec., 18. VI. 1958,!; Hula, 5 spec., 10. VII. 1958,!; Nahariya, 1 spec., 6. VIII. 1958,!; Palestine, 24 spec., Bodenheimer (!); Tanninim, 1 spec., 20. VII. 1958,!. In addition I have found it at Piraeus, Greece, 5 spec., 10. VIII. 1958. Moreover WAGNER (op.cit.) has recorded it in numerous specimens from Egypt and DLABOLA (op.cit.) from Iran. – Common in moist biotopes, especially on *Phragmites communis*. – Pontomediterranean.

WAGNER (1939, p. 110) has regarded *O. pallens* as a synonym of *O. leporinus* (L.), since the last named species often occurs as a light-coloured form in Central and South Europe. GERMAR, however, has described his species from the Taurus Mountains in Turkey. I have not seen specimens of *O. leporinus* from the Orient, while *O. suezensis* is very common there. I must therefore regard *O. suezensis* as a very probable synonym of *O. pallens*. It seems to me unnecessary to give a special name for the light-coloured specimens of *O. leporinus* (= *pallens* auct.).

*O. lindbergi* Dlab.

The male genitalia: Stylus as in fig. 1 d. Penis (fig. 1 e) with 2 long falcate subapical spines.

Dan, 1 spec., 7. VII. 1958,!; Deganya, 2 spec., Palmoni (!); Hagoshrim, 1 spec., 8. VII. 1958,!; Hula, 2 spec., 10. VII. 1958,!; Rehovot, 1 spec., 14. VIII. 1957, Michaeli (!). – In moist biotopes like the preceding species. – Apparently Pontomediterranean, previously recorded from Cyprus, Turkey, Iraq and Iran.




. 2. *Oliarus horridus* n.sp.: a penis, lateral aspect; b and c styles; d anal tube, ventral aspect. *Pseudoliarus fuscofasciatus* (Mel.) ssp. *palestinensis* n.ssp.: e penis, lateral aspect. - Orig.

*O. horridus* n.sp.

5.7 – 6 mm. Face black, median keel and lateral margins broadly yellow-brown. Crown ck; keels, margins and pronotum yellow-brown. Scutellum blackish brown. Elytra and flying igs glass-clear; veins of the former yellowish brown, spotted with dark brown, setae long, wnish. Under surface dark brown, margins of segments light brown. Legs yellowish brown. Elongate. Crown 0.81 × as long at middle as the greatest basal width. Male genitalia: gofer with a median ventral process as in *O. suezensis*. Anal tube asymmetrical, bearing lunt ventral apical process (fig. 2 d). Styli asymmetrical as in fig. 2 b and c. Penis (fig. 2 a): ath strongly expanded bearing 2 longer ventral processes; penis with 3 long falcate append- s and 2 small claw-like processes. ♀: ovipositor short. Hind margin of the last sternite with riangular median processes.

Dorot, a male (type), 2. VII. 1955, (!); allotype, a female and 13 paratypes, Haifa, 22. VI. 8,!; 2 paratypes, Khreiba, Bytinski-Salz (!); a paratype, Wadi Karen near Goren, 6. VIII. 8,!. – On *Quercus calliprinos*.

As *O. lindbergi* but crown considerably narrower and longer.

## *Pseudoliarus* Hpt.

*P. fuscofasciatus* (Mel.) ssp. *palestinensis* n.ssp.

Externally like the nominate form but differing in the form of the penis (fig. 2 e): appendage s broader and not flagellate, appendage *b* is also thicker and appendage *c* is long and falcate l not short and claw-like as in the nominate form. In *P. fuscofasciatus aegyptiacus* W.Wgn.

appendage *a* has two spines and both appendages *b* and *c* are short and claw-like. The male genitalia of the other subspecies have been described by WAGNER (1954, p. 213 – 214).

Palestine (BODENHEIMER op.cit.); type, a male, Miqve Israel, 11. VI. 1958, Michaeli (!); allotype, a female, Kfar-Rubin, 13. VIII. 1957, Michaeli (!); 3 paratypes, Dan, 11. VII. 1958,!; 1 paratype, 'Ein Gedi, 18. VI. 1958,!; 1 paratype, Jerusalem, 26. VI. 1938, Crünberg (!); a paratype, Ramath Gan, 15. IX. 1958, Fishelson (!); a paratype, Tel Kazir, 6. VIII. 1956, Wahrman (!). – On *Platanus orientalis* and at lamp.

## *Cixius* Latr.

*C. desertorum* Fb. – Palestine (BODENHEIMER op.cit.); Deganya, 1 spec., Palmoni (!); Palestine, 1 spec., Bodenheimer (!). – Pontomediterranean.

*C. perarmatus* n.sp.

F. macr. 6 mm., f. semibrach. 4 – 4.5 mm. F. brach. as *C. desertorum*, elytra with fuscous transverse bands and long black setae. F. macr. elongate, elytra and flying wings much longer. Head, pronotum and scutellum yellowish. Elytra with only very faint traces of transverse fasciae, apical margin without black spots between veins (well developed in the brachypterous form and in *C. desertorum*). Male genitalia: Penis (fig. 3 a and b): with 3 long falcate appendages arising from the middle and with a small bifid basal ventral tooth, apical part unarmed. Other genitalia as in *C. desertorum*.

Type, a male and allotype, a female (f. semibrach.), Jerusalem, 18. IV. 1957, Wahrman (!); a male paratype (f. macr.), Jerusalem, 7. X. 1957, Wahrman (!).

Closely related to *C. desertorum*, but differing in the form of the penis.

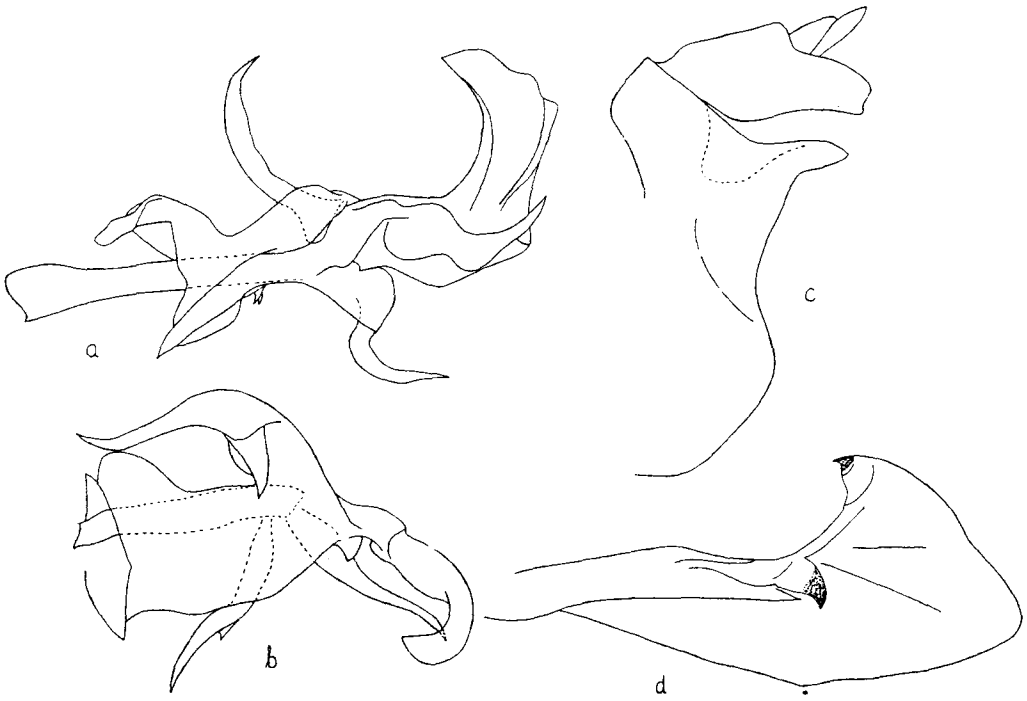



Fig. 3. *Cixius perarmatus* n.sp.: a penis, lateral aspect; b same of another specimen, ventral aspect. – *Dictyophara vittata* Pt.: c pygofer and anal tube; d stylus. – Orig.

*C. intermedius* Sc. – Jerusalem, 1 spec., 14. VI. 1958,!; Palestine, Benjamina, 1 spec., 20. IV. 1947, Bytinski-Salz (!); Dan, 1 spec., 8. VII. 1958,!; Rehovot, 1 spec., 25. X. 1956, Swirski (!). – Holomediterranean. New record for Israel.

*C. nervosus* (L) – Palestine (BODENHEIMER op.cit.). – Euro-Siberian.

### *Hyatesthes* Sign.

*H. obsoletus* Sign. – Palestine (BODENHEIMER op.cit.); Avdat, 1 spec., 8. IX. 1957, Wahrman (!); Benjamina, 1 spec., 20. IV. 1947, Bytinski-Salz (!); Eial, 1 spec., 20. IV. 1958, Michaeli (!); Jerusalem, 4 spec., 13 – 15. VI. 1958,!; Miqve Israel, 1 spec., 2. VI. 1957, Michaeli(!); Ramath Gan, 1 spec., 1. VIII. 1946, Bytinski-Salz (!). – Swept from bushes. – Holomediterranean.

*H. luteipes* Fb. – Dan, 9 spec., 11. VII. 1958,!. – On broad-leaved trees and bushes in a dense shady grove at the source of the river Jordan. – Holomediterranean. New record for Israel.

*H. luteipes* Fb. var. *scotti* Ferr. – Dan. 8 spec., 7 – 11. VII. 1958,!. – Together with the nominate form. – Holomediterranean. New record for Israel.

### *Hemitropis* Fb.

*H. seticulosus* (Leth.) – Beer Mashash, 1 spec., 23. VI. 1958,!; Beersheba, 1 spec., 1. VIII. 1958,!; Deganya, 17 spec., 23. VII. 1958,!; 'Ein Gedi, 5 spec., 16. VIII. 1957, Wahrman (!), 26 spec., 18. VI. 1958,!; Hula, 20 spec., 10. VII. 1958,!; Palestine, 2 spec., Bodenheimer (!); Tanninim, 15 spec., 20. VII. 1958,!; Tiberias, 1 spec., 21. VII. 1958,!; 7 km. S of Yeroham, 1 spec., 23. VI. 1958,!; Yotvata, 2 spec., 23. VI. 1958.! – Common on *Tamarix*. – Eremian, not previously recorded from Israel.

### *Moysella* Hv.

*M. sinaitica* Hv. – Palestine (BODENHEIMER op.cit.). – Eremian.

## *Dictyopharidae*

### *Dorysarthrus* Pt.

*D. mobilicornis* Pt. – Palestine (BODENHEIMER op.cit.); 'Ein Gedi, 6 larvae, 19. VI. 1958,!; Jericho, 3 spec., 2. IX. 1942, Bytinski-Salz (!); Timna, 1 larva, 20. VI. 1958,!. – On *Ochradenus baccatus* in deserts. – Endemic.

### *Dictyophara* Germ.

The genus *Chanithus* Klti. (typ. gen. *C. pannonicus* (Germ.)) has often been separated from *Dictyophara* Germ. (typ. gen. *D. europaea* (L.)) (e.g. FENNAH 1956, p. 183). While there is a distinct difference in the shape of the head between the genera in typical species, there are also species whose generic placement raises several difficulties. Thus, for example, in *C. avocetta* (Osh.) (placed in *Chanithus* by OSHANIN 1912, p. 115), which is certainly related to *C. striata* (Osh.), the head is shorter, somewhat resembling the *Dictyophara* type, while in *C. striata* it is of the *Chanithus* type. On the other hand, some species (e.g. *D. acuminata* Ldb. and *D. xiphias* Pt.) placed in the genus *Dictyophara* have a strongly produced head, thus resembling

the *Chanithus* type. Since I have not been able to find any genital differences between the genera either, I must regard *Chanithus* at most as a subgenus of *Dictyophara.*

*D.striata* Osh.

*Dictyophara striata* OSHANIN 1879, p. 129, 131.

*D. unicolor* Sign. v. *vittata* PUTON 1892, n.syn.

12.5 – 14 mm. Clypeus brownish, darker apically; keels whitish; frons bright green with 2 broad longitudinal red bands; apex of head with black and ivory spots. Upper surface of head greenish with fuscous tinge. Pronotum and scutellum orange or red with bright green longitudinal bands at keels. Elytra hyaline with faint greenish tinge; veins light brown or greenish brown basally, darker brown apically. Under surface greenish. Femora, and sometimes also tibiae, light brownish with blackish longitudinal stripes at least apically, keels whitish; tibiae greenish, tarsi brownish.

Frons shallowly concave in profile. Keel 1 (fig. 4 c – f) scarcely visible in profile. Crown less expanded apically. Ratio between the lengths of the head and the entire body 1: 4.1 – 5.1. Hind tibiae with 6 spines. Male genitalia: Pygofer (fig. 3 c and 5 c) with a narrow ligulate caudal prolongation in the caudo-dorsal angle. Anal tube relatively short, not extending much beyond pygofer. Styles (fig. 3 d) strongly expanded apically, bearing 2 sclerified teeth dorsally. Penis (fig. 5 a and b) rather elongate, ventral surface and sides bearing thick black spines in basal half, the number of spines variable.

Palestine (BODENHEIMER op.cit.); Avdat, 1 spec., 8. IX. 1957, Wahrman (!); Deganya, 2 spec., Palmoni (!); 'Ein Gedi, 3 spec., Bytinski-Salz (!), 7 spec., 16. VIII. 1957, Wahrman (!), 3 spec., 18. VI. 1958; Nahal Nafha, 1 spec., 18. VIII. 1957, Wahrman (!); Palestine, 2 spec.,

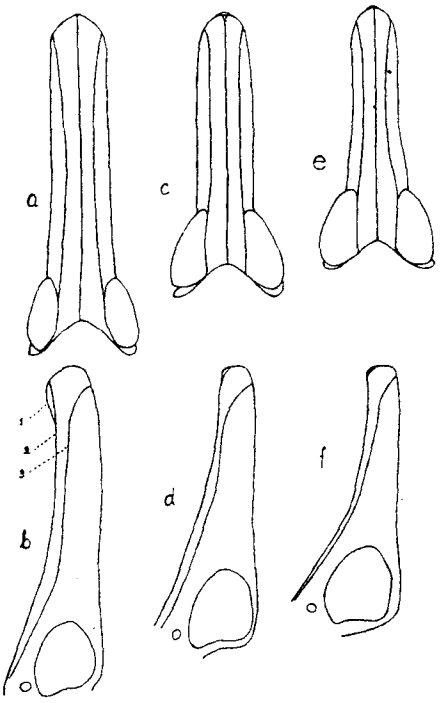



Fig. 4. *Dictyophara striata* Osh. ssp. *albostriata* n.ssp.: a head, dorsal view; b same, lateral view. – c and d same of *D. striata* Osh. (specimen from Marg, Egypt); e and f same of *D. striata* Osh., a specimen from 'Ein Gedi. – Orig. (drawn by W. Wagner).

Bodenheimer (!); Ruhama, 1 spec., 27. VIII. 1946, Bytinski-Salz (!); Wadi Nafkh, 8 spec., 18. VIII. 1957, Wahrman (!). – Moreover I have studied a specimen from Spanish Morocco, Midar (B. Tuzin, VIII. 1956, Pardo (!). – Relatively common among herbs in fresh biotopes in southern parts of Israel. Also at lamps. – Eremian with a wide distribution in North Africa and in Central Asia.

Originally described as a variety of *D. unicolor* Sign. (PUTON 1892). It is, however, a valid species. I have been able to study a male of *D. unicolor* from Ambodimanga, Madagascar. It has a much shorter head, the proportion between the head and the total length 1: 5.75; frons only very shallowly concave in profile; crown regularly tapering apically; upper surface uniformly greenish without red bands (frons, on the contrary, provided with red bands); veins of elytra green. Male genitalia: Pygofer (fig. 8 c) only broadly roundedly produced caudad. Anal tube very large, extending much beyond pygofer, strongly expanded apically; apical margin with a deep insinuation. Penis mostly membranous, without spines; 2 straight sharp-tipped appendages present (fig. 8 d). *D. unicolor* is typically *Dictyophara* shaped in general appearance.

The type of *D. striata* has apparently been destroyed, but a revision of several Central Asian specimens in the Zoological Museum in Leningrad revealed the synonymy mentioned above.

*D. striata* Osh. ssp. *albostriata* n.ssp.

Darker than the nominate form. Clypeus brownish, blackish apically, keels whitish; frons yellowish brown with 2 broad red longitudinal stripes; apex of head with black spots but without distinct ivory spots. Upper surface of head dark brown. Pronotum and scutellum dark brown, medially tinged with red; keels white. Elytra hyaline, without a greenish tinge; veins dark brown. Under surface brownish. Legs light brownish, distinctly longitudinally banded with black, keels whitish.

Frons with keel 1 distinctly visible in profile (fig. 3 a and b). Head longer, the proportion between the length of the head and the total length of the body 1: 3.6 – 3.7. Crown more strongly expanded apically. Genitalia as in the nominate form.

Type, a male, Har-Tuv, 16. VII. 1958,!; allotype, a female and a paratype, Hadera, 1. VII. 1958,!; 2 paratypes, Ashqelon, 2. VII. 1958, Swirski (!); 3 paratypes, Bat Yam, 3. VII. 1958,!. – Among bushes in coastal dunes.

(*D. insculpta* Wk.)

Externally as *D. striata*, nom. form.; with bright red and bright green markings. Male genitalia: Pygofer (fig. 5 d) only triangularly produced caudad in caudo-dorsal angles. Anal tube extending much beyond pygofer. Penis (fig. 5 e, 6 a) robust, bearing several spines at apex and basally.

Material studied: China: N. China, 3 spec. (incl. ♂ type); Syčnan, Uljan-Čžančžou, 1 spec., Potanin. – The species together with *D. sinica* and *D. inscripta* has usually been regarded as a synonym of *D. pallida*.

(*D. sinica* Wk.)

As the preceding species, but penis (fig. 44 a, b, d, p. 78) much longer and slenderer, not swollen basally and provided with spines only apically.

Material studied: China: China, 1 ♂ (type); Kashing, 1 spec., C.Y.Lin. Siam: Klong Rang Sit, some spec., 1926, W. R. S. Ladell.

(*D. inscripta* Wk.)

As the preceding species, but pygofer (♂) as in *D. iranica* and penis (fig. 44 c, e, p. 78) with basal part strongly enlarged and provided with spines, apical part sclerified forming a long, boat-shaped, apically split process.

Material studied: China: China, 3 spec. (incl. ♀ type); Amoy, 2 spec.

(*D. iranica* n.sp.)

Externally as *D. striata*, nom. form. Male genitalia: Pygofer (fig. 6 b) with a sharply tri-

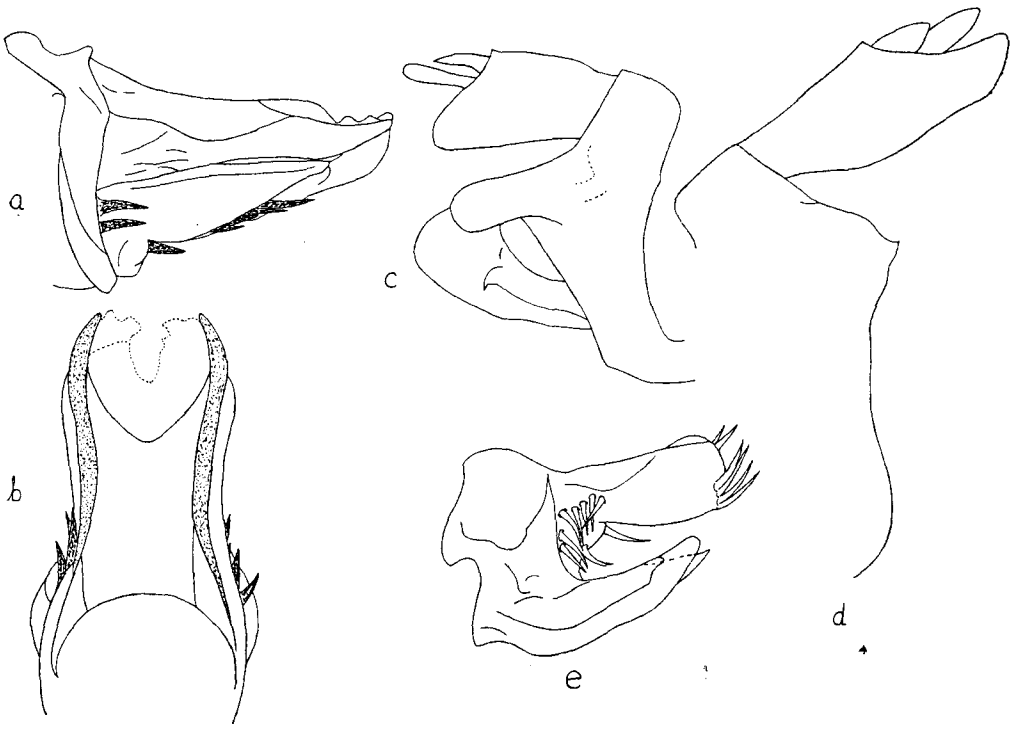



Fig. 5. *Dictyophara striata* Osh.: a penis, lateral aspect; b same, dorsal aspect; c genital segment, lateral aspect. – *D. insculpta* Wk.: d pygofer and anal tube; e penis, lateral aspect. – Orig. (c drawn by R. G. Fennah)

angular expansion in caudo-dorsal angles (broader than in *D. striata*). Anal tube extending distinctly beyond pygofer. Penis (fig. 6 c – d) stout, of equal breadth, bearing several spines at the middle of the stem.

Type, a male and 9 paratypes, Iran, Baluchistan, Iranshar, 800 m., 11 – 21. IV. 1954, Richter and Schäuffele; allotype, a female and 6 paratypes, SE Iran, Djiroft, Anbar-Abad, 21 – 30. IV. 1956, Richter. Types in my collection. Paratypes also in the Museum of Natural History, Stuttgart. Recorded as *D. pallida* by DLABOLA (op.cit.).

(*D. pallida* Don.)

Externally as the preceding species of the group. Male genitalia: Pygofer (fig. 7 a) only roundedly produced caudad, without any prolongations. Penis (fig. 7 b) short and stout, bearing some spines apically.

Material studied: India, 1 ♂ (type of *pallida*); Ceylon, Henaragoda, 2 males, 12. II. 1902, Uzel (coll. Melichar).

(*D. graminea* (F.))

Certainly belonging to the *striata* group like the foregoing species. It is unfortunately unknown to me. FENNAH (1956, p. 183) has illustrated the male genitalia of »*D. graminea*». His species is, however, *D. nakanonis* Mats. of which I have seen specimens from the Philippines, Luzon, Manila, 2 spec., 25. X. 1913, Boettcher and Los Banos, 1 spec., Baker. If FENNAH's opinion of *D. graminea* is correct, *D. nakanonis* is a synonym of it.

(*D. avocetta* Osh.)

As *D. striata*, nom. form., but head much shorter (the proportion between the length of the head and of the total length of the body 1: 5.5), crown parallel-sided in the anterior part

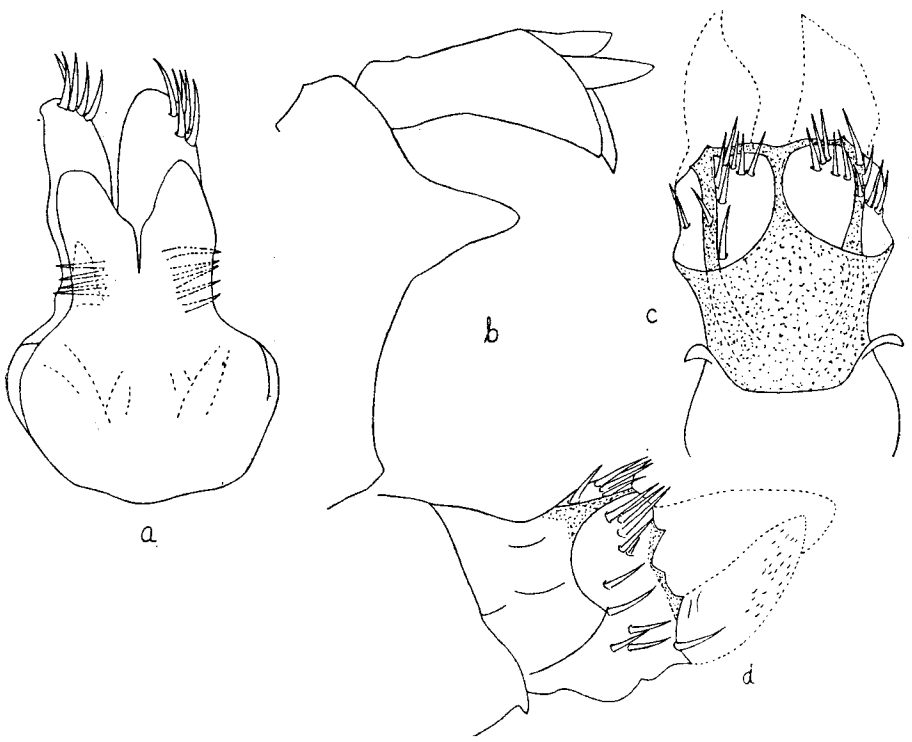



Fig. 6. *Dictyophara insculpta* Wk.: a penis, dorsal aspect. – *D. iranica* n.sp.: b anal tube and pygofer; c penis, dorsal aspect; d same, lateral aspect. – Orig.

and legs unicoloured. Male genitalia: Pygofer (fig. 7 c) nearly truncate but bearing a long flagellate process in each caudo-dorsal angle. Anal tube large, extending much beyond pygofer. Penis stout, bearing numerous spines on the ventral surface.

Material studied: Iran, Enarik-Tamin, Kirmai, a male, Zarudnyi.

*D. xiphias* Pt.

A large green species, length 13 – 17 mm. Head strongly produced (fig. 9 a), the proportion between the length of the head and the total length of the body 1: 2.96 – 3.3; frons only shallowly concave in profile; lateral keels with distinct black spots; crown 5.5 – 6.6 × as long as broad. Male genitalia: Pygofer (fig. 8 a) short, bluntly produced caudad; anal tube large, extending much beyond pygofer. Styles (fig. 7 d) only moderately broadening apically. Penis (fig. 8 b) with a pair of long irregularly dentate apical appendages directed dorso-basad, ventral surface apically with spines.

Bir Rekhne, 1 spec., Bytinski-Salz (!); Hadera, 1 spec., 1. VII. 1958,!; Haifa, 4 spec., 29. VI. 1958,!; Maaleh Hahamisha, 1 spec., 23. VI. 1958, Michaeli (!); Neve Ya'ar, 4 spec., 29. VII. 1958,!; Shimron, 2 spec., 4. VIII. 1958,!. – On *Pistacia lentiscus*, *Quercus calliprinos* and *Q. ithaburensis*. – Endemic.

*D. xiphias* Pt.ssp. *compacta* n.ssp.

11 – 13 mm. As the nominate form but smaller; head much shorter (fig. 9 b – c), the proportion between the length of the head and the total length 1: 4.67; frons strongly concave in profile, without black spots; crown much shorter, only 4.2 – 4.4 × as long as broad. Male genitalia similar.

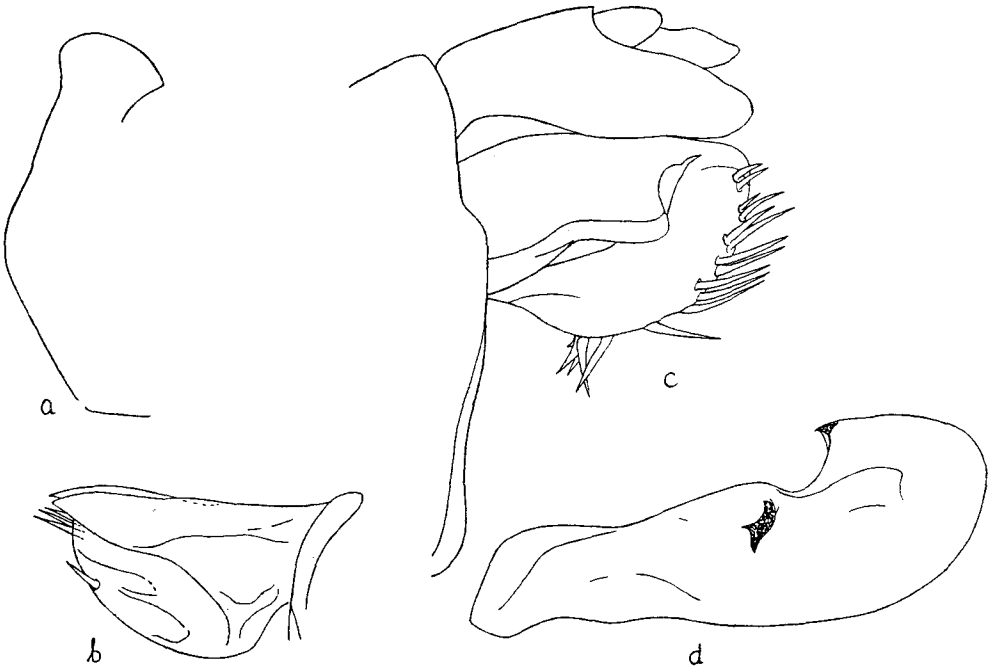



Fig. 7. *Dictyophara pallida* (Don.): a pygofer; b penis, lateral aspect. – *D. avocetta* Osh.: c anal tube, pygofer and penis, lateral aspect. – *D. xiphias* Pt.: d stylus. – Orig.

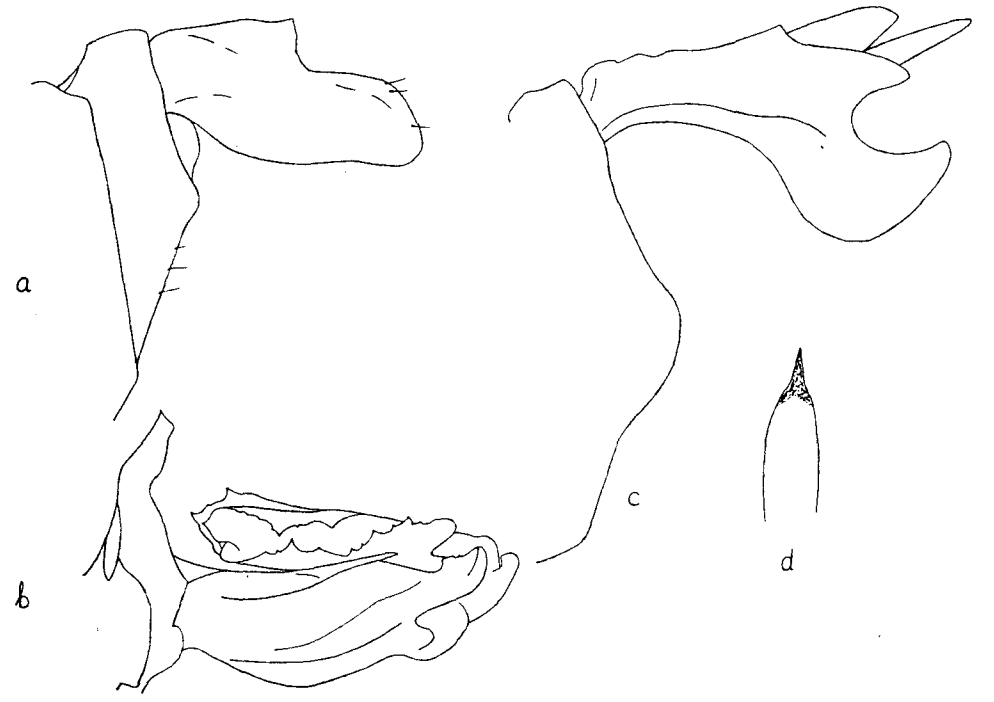



Fig. 8. *Dictyophara xiphias* Pt.: a anal tube and pygofer; b penis (without spines), lateral aspect. – *D. unicolor* Sign.: c anal tube and pygofer; d aedeagal appendage. – Orig.

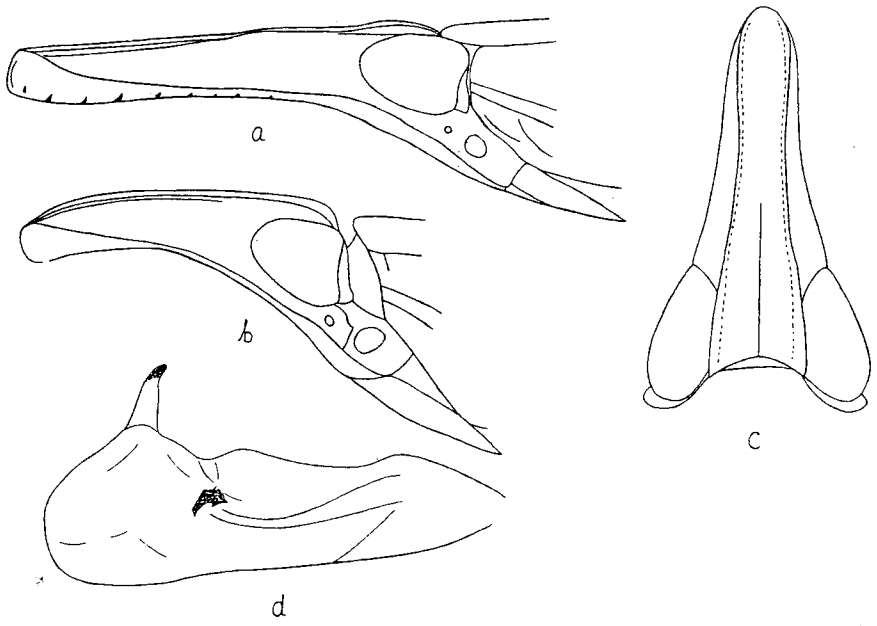



Fig. 9. *Dictyophara xiphias* Pt.: a head, lateral view. – *D. xiphias* Pt. ssp. *compacta* n.ssp. b same; c same, dorsal view. – *D. eremica* n.sp.: d stylus. – Orig.

Type, a male and allotype, a female, 'Ein Gedi, Bytinski-Salz (!). Type in my collection, allotype in the University of Tel-Aviv.

The subspecies differs much from the nominate form in general appearance and could be a valid species. Since, however, the nominate form shows a considerable variability in the length of the head (e.g. the specimens from Bir Rekhne and Hadera have a shorter head than specimens from Shimron and Neve Ya'ar), it should be necessary to study large series of specimens to clear the systematic value of the subspecies. Possibly *D. xiphias* consists of different biological races living on different food-plants.

*D. subsimilis* Lv.

For completion to the original description (Linnavuori 1953, p. 121 – 122) the following remarks: The species closely resembles *D. europaea* (L.) in general appearance, but the crown is shorter and broader, 2.1 – 2.3 × as long as basal width (nearly 3 × in *D. europaea*). *D. multireticulata* M.R. has a still broader crown and the vein net of the apical part of the elytra is much denser. *D. asiatica* Mel. has a somewhat shorter crown and a sparser vein net in the apical part of the elytra. Since the penis of the type specimen is somewhat damaged, a new figure has been prepared (fig. 10 a) showing the spiniferous membranous apical extension absent in the type specimen; the number of spines is variable.

Aqua Bella, 4 spec., 14. VI. 1958,!; Hagoshrim, 14 spec., 7 – 11. VII. 1958,!; Hula, 4 spec., 10. VII. 1958, !; Jericho, 2 spec., 27. VIII. 1947, Bytinski-Salz (!); Neot Mordekhai, 1 spec., 21. VII. 1958,!; Tel-Aviv, 1 spec., 12. VIII. 1948, Bytinski-Salz (!); Wadi Musrara, 2 spec., Carmin (!); Wadi Rubin, 2 spec., 16. VII. 1958,!; Wadi Sukreir, 1 spec., 27. VI. 1958,!. – Common among herbs in moist biotopes, especially on different shores. – Endemic.

*D. asiatica* Mel.

Elon, 1 spec., Bytinski-Salz (!); Jerusalem, 1 spec., 16. VI. 1958,!. – My specimen was taken from a botanical garden. – Syrio-Anatolian. New record for Israel.

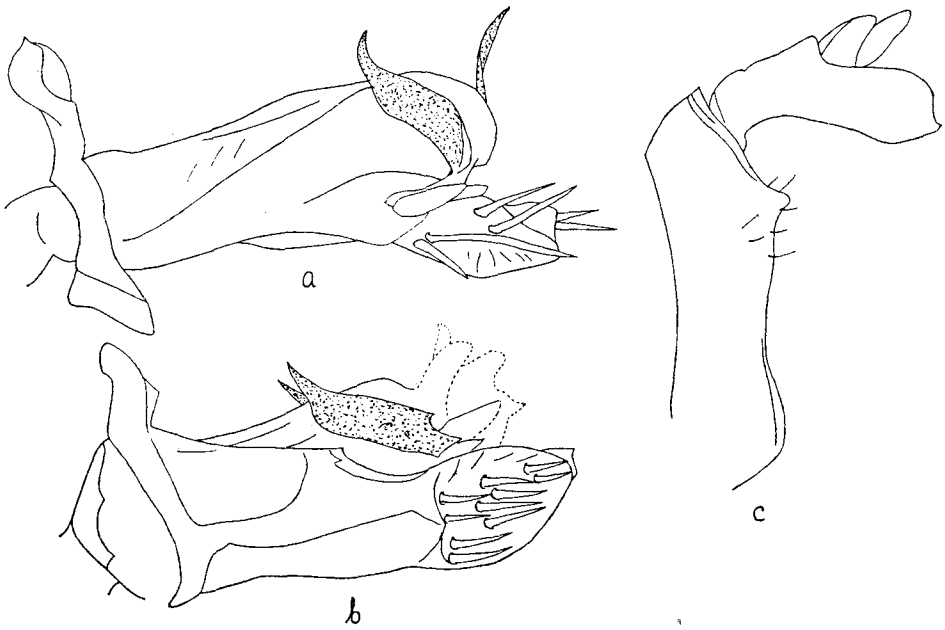



Fig. 10. *Dictyophara subsimilis* Lv.: a penis, lateral aspect. – *D. eremica* n.sp.: b same; c anal tube and pygofer. – Orig.

*D. multireticulata* M.R.

Palestine (BODENHEIMER op.cit.); Neve Ya'ar, 3 spec., 29. VII. 1958,!; Shimron, 2 spec., 4. VIII. 1958,!. – On *Quercus ithaburensis*. – Holomediterranean.

*D. eremica* n.sp.

8.2 – 9.5 mm. Pale green or yellowish. Frons with 2 orange longitudinal bands; apex of head without black spots. Legs yellow.

A small robust species. Body 2.8 × as long as broad at elytra. Head short (fig. 11 a), proportion between the length of the head and the total length of the body 1: 8.7. Frons straight in profile, with 3 parallel median keels. Crown short, 1.92 × as long as basal width, median longitudinal keel present only basally. Lateral margins of pronotum with 2 rather faint keels; disk with a sharp median keel, lateral keels obscure. Scutellum with 3 longitudinal keels basally. Elytra short, although longer than abdomen, 3.21 (♀) – 3.45 (♂) as long as broad; venation about as in *D. asiatica*. Hind tibiae with 6 black-tipped spines. Male genitalia: Pygofer (fig. 10 c) with a short triangular lobe in caudo -dorsal angle. Anal tube rather large, extending much beyond pygofer. Styles (fig. 9 d) with a long subapical dorsal process. Penis (fig. 10 b) robust, a pair of thick dorso-apical appendages present, ventral part of apex bearing several spines.

Type, a male; allotype, a female and a paratype, 'Ein Gedi, 16. VIII. 1957, Wahrman (!). Type and allotype in my collection, paratype in the Hebrew University, Jerusalem.

Easily recognized by its small size and short head. *D. obtusiceps* Leth. has a dissimilarly shaped head, and elytra scarcely longer than the abdomen with a dense vein net apically. *D. seladonica* Mel. is green in colouring and has a dense vein net in the elytra.

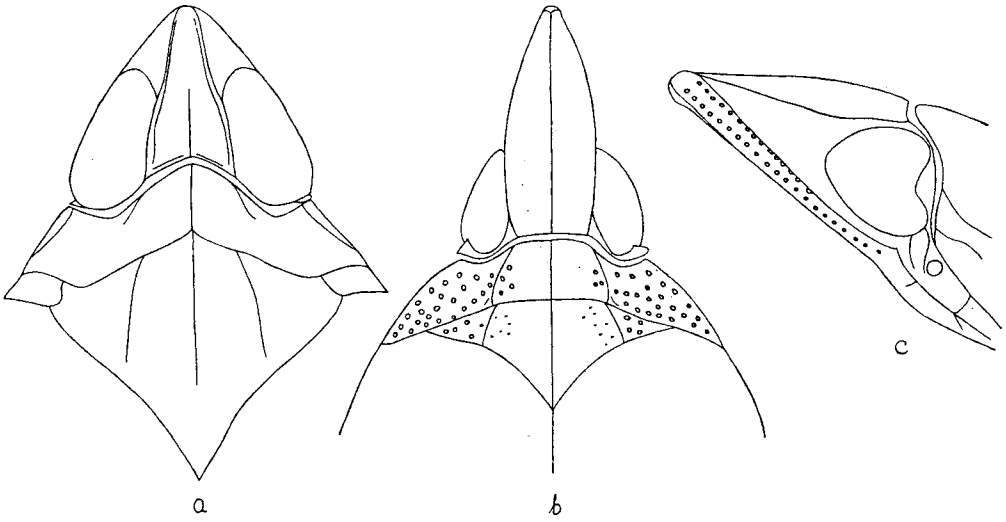



Fig. 11. *Dictyophara eremica* n.sp.: a head, pronotum and scutellum. – *Sphenocratus huldaensis* n.sp.: b same; c head, lateral view. – Orig.

## *Sphenocratus* Hv.

*S. huldaensis* n.sp.

♂. Length 6 – 6.5 mm. Dark yellowish brown. Under part of face whitish brown with a broad shining black transverse band at antennae also extending on the under surface of pronotum; upper part of face yellowish brown with darker brown round pits between lateral keels. Crown, pronotum and scutellum pale ochraceous; pronotum with numerous round dark pits laterally; scutellum minutely punctate laterally. Elytra coriaceous, lighter or darker ochraceous, sometimes with a greenish tinge, sometimes minutely spotted with dark brown. Abdomen ochraceous, rather densely spotted with dark brown. Under surface ochraceous, ± marked with fuscous; legs ochraceous, densely irrorate with dark brown.

Ovate, body 2.1 × as long as broad. Crown (fig. 11 b – c) 1.6 × as long as pronotum and scutellum together, 2.35 × as long as basal width, elongately triangular, strongly produced, lateral margins shallowly curved; disk slightly convex with a sharp median ridge. Frons straight in profile, clypeus convex; clypeus with a sharp median carina; frons with sharp and almost parallel keels. Pronotum and scutellum with distinct keels. Elytra short, extending to 3rd tergite, coriaceous, finely and densely microsculptured, venation obscure. Rostrum extending to pygofer. Under surface of pronotum with a shining rounded knob in the black transverse band on either side. Legs long, hind tibiae with 6 or 7 spines. Male genitalia: Anal tube broadly ovate. Styles as in fig. 12 b. Penis (fig. 12 a) with a pair of long slender apical processes. – ♀ unknown.

Type, Hulda, 5. VII. 1958,!; 2 paratypes, Palestine, Bodenheimer (!). – Swept from xerophilous vegetation on a sunny slope.

*S. cyprius* Ldb., *S. dimorphus* (Osh.) and *S. korolkovi* (Osh.) have a considerably shorter crown. Other species of the genus lack the transverse black band on the face.

### *Tigrahauda* Osh.

*T. recurviceps* Lv. – 12 km. S of Beersheba, 3 spec., 28. VIII. 1952, Wahrman (!), 9 spec., 20. VI. 1958,!; Nahal Nafha, 1 spec., 18. VIII. 1957, Wahrman (!). – Swept from dry *Ononis* bushes in a desert. – Endemic.

## *Issidae*

### *Ommatidiotus* Spin.

*O. longiceps* Pt. – Bat Yam, 22 spec., 3. VII. 1958,!; Hula, 1 spec., 10. VII. 1958,!; Wadi Rubin, 2 spec., 16. VII. 1958,!; Yarkon, 3 spec., 28. VI. 1958,!. – Swept from *Juncus acutus* in moist places. Common especially on coastal dunes. – Holomediterranean. New record for Israel.

The species shows a variability in the length of the head. A specimen from Cyprus in my collection has a chorter crown than the Palestinian specimens; the male genitalia are, however, similar. HORVATH (1905, p. 383) has also found the same variability. It is possible that *O. viduus* Hv. from Syria, based on a single specimen only (HORVATH op.cit., p. 381), is a synonym of *O. longiceps*.

### *Trypetimorpha* C.

*T. fenestrata* C. – Hulda, 8 spec., 25. VI. 1958,!. – On dry sunny localities. – Holomediterranean. New record for Israel.

*T. pilosa* Hv. – Bat Yam, 8 spec. (incl. 1 spec. of f.macr.), 3. VII. 1958,!; Hula, 2 spec. f.macr., 9. VII. 1958,!. – Swept from herbs on moist shores. – Pontomediterranean. New record for Israel.

### *Perissana* Metc.

*P. circularis* (Lv.) – Dahab, Sinai, 1 spec., 26. XI. 1956, Wahrman (!); Jebel Ureif, 1 spec., 4. XII. 1949, Wahrman (!); Yotvata, 1 spec., 1. V. 1954, Wahrman (!). – Endemic. A deserticolous species.

### *Hysteropterum* A.S.

(*H. grylloides* (F.))

*Cercopis grylloides* FABRICIUS 1794, p. 54.

*Issus liliimacula* O. COSTA 1840, p. 2, n.syn.

The species has often been confused with *H. bilobum* Fb. owing to the fact that MELICHAR (1906) placed the latter species incorrectly in the group of species with a narrow costal margin of the elytra. All previous records of *H. grylloides* should therefore be revised.

Robuster than *H. bilobum*, colouring more variable, e.g. frons often ± irrorate with dark brown; also crown, pronotum and scutellum often ± marked with dark brown; elytra sometimes ± dark brown excluding the light costal margin. Crown shorter and broader, 3.2 – 3.43× as broad as long at middle. Anal tube (♂) straight in lateral aspect (fig. 12 d).

My collection consists of material from the following localities: Italy: Avezzano, Fucina, 2 spec., 1947, Servadei; Firenze, 1 spec., 1946, Servadei; Laguna Veneta, Mazzorso, 2 spec., 24. VII. 1954, Servadei; Puglie, Foresta U., 1 spec., 18. VII. 1954, Servadei; Toscana, S. Vincenzo, 1 spec., 11. VII. 1941, Servadei. Dalmatia: Zenovica, 2 spec., 25. VII. 1954, Eckerlein.

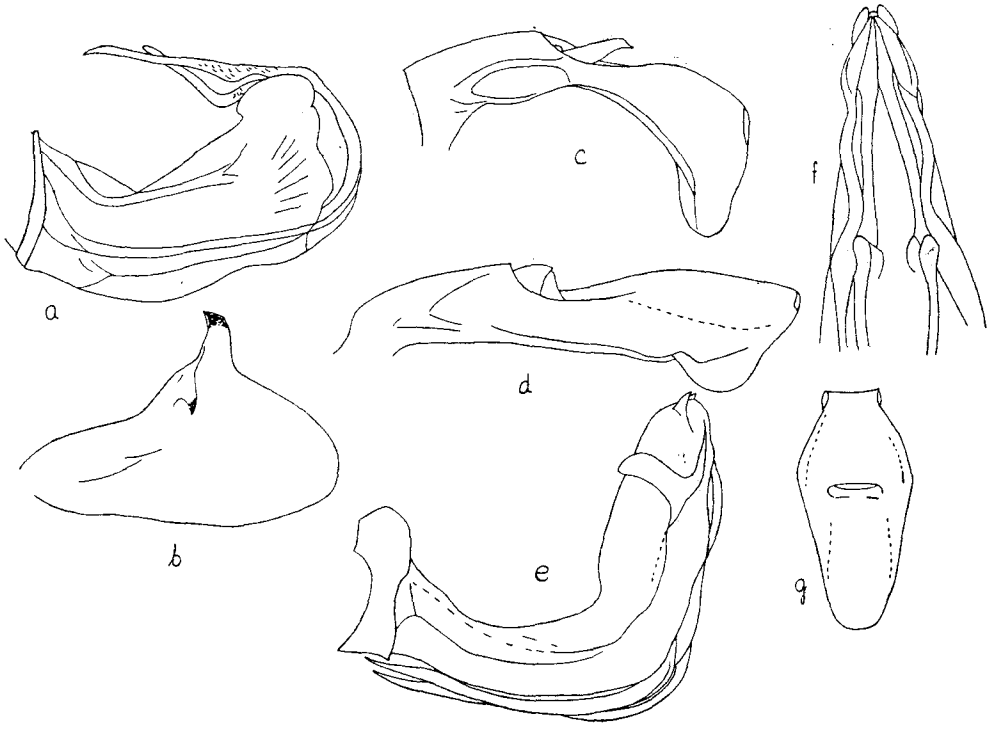



Fig. 12. *Sphenocratus huldaensis* n.sp.: a penis, lateral aspect; b stylus. – *Hysteropterum bilobum* Fb.: c anal tube (♂). – *H. grylloides* (F.): d same. – *H. paludum* Bgv. ssp. *deserticola* n.ssp.: e penis, lateral aspect; f apex of same, ventral aspect. – *H. syriacum* Mel.: g anal tube (♂), dorsal aspect. – Orig.

Spanish Morocco: Granja del Muluya, Kebdana, 5 spec., VII. 1955, Pardo; Midar (Beni Tuzin), Melilla, 1 spec., VII. 1954, Pardo; Muley Rechid, Melilla, 1 spec., Pardo. – The species seems to have a more western distribution than the following species. All previous finds from Israel must be referred to *H. bilobum*.

*H. bilobum* Fb.

Smaller and lighter, only very rarely darkened; crown narrower and longer, 3.0 – 3.25 × as broad as long. Anal tube (♂) distinctly curved ventrad in lateral aspect (fig. 12 c).

Aqua Bella, 2 spec., 14. VI. 1958,!; Bahan, 2 spec., 30. IV. 1958, Michaeli (!); Har-Tuv, 1 spec., 25. V. 1957, Yarkoni (!); Jerusalem, 2 spec., 4. V. 1958, Amitai (!), 11 spec., 13 – 17. VI. 1958,!; Palestine, 32 spec., Bodenheimer (!); Poriya, 1 spec., 28. VI. 1957, Freund (!); Sde Boger, 1 spec., 22. IV. 1955, Wahrman (!); Wadi Nafkh, 1 spec., 22. IV. 1955, Wahrman (!); Wadi Rubin, 1 spec., 27. VI. 1958,!; Yeroham, 3 spec., 20. VI. 1958,!; 17 km. S of Yeroham, 3 spec., 20. VI. 1958,!; – In addition my collection consists of the following finds: Spain: Cadiz, 9 spec., IV. 1955, Pardo; Pyr. or., Baillaurie-Tal, 2 spec., 31. V – 10. VI. 1953, E. Wagner. Italy: Sassari, Valli Mascari, 1 spec., 1948, Servadei; Sardinia, Glghero, 1 spec., 7. VII. 1941, Servadei. Greece: Skaramanga near Athens, 1 spec., 30. V. 1939, Lindberg. – Common on dry sunny localities. – Holomediterranean.

*H. paludum* Bgv. ssp. *deserticola* n.ssp.

3 – 3.5 mm. Greyish brown. Clypeus unmarked; frons ± densely irrorated with blackish, upper lateral angles black; genae with 3 black spots. Crown blackish with lateral margins and

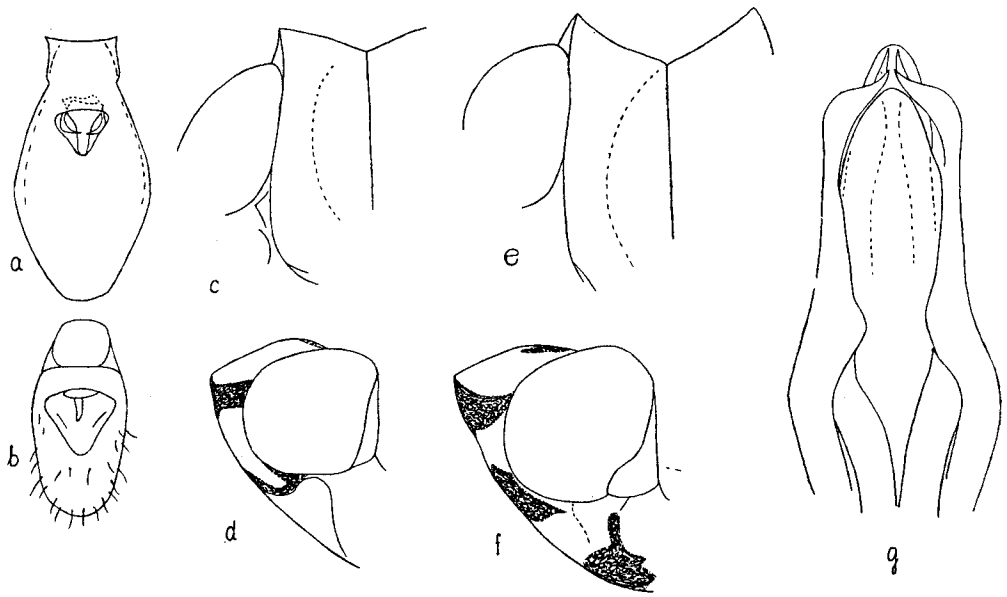



Fig. 13. *Hysteropterum paludum* Bgv. ssp. *deserticola* n.ssp.: a anal tube (♂); b same (♀); e face; f head, lateral view. – *H. paludum* Bgv.: c and d same. – *H. retamae* n.sp.: g apex of penis, ventral aspect. – Orig.

a rectangular median apical spot unmarked. Pronotum with a dense black irroration both laterally and in middle of disk; disk between the blackish areas sparsely spotted with blackish. Scutellum heavily marked with blackish brown. Elytra (♂) with claval commissure, a faint trace of transverse band across corium and apical margin irrorate with blackish brown, veins pale. Elytra (♀) densely irrorate with fuscous with a conspicuous light scutellar spot extending narrowing to corium, veins mostly dark fuscous. Under surface greyish brown with a few dark round dots. Legs greyish; femora longitudinally marked with fuscous; fore and middle tibiae with 3 blackish transverse rings.

Small and robust, body 1.4 × as long as broad. Frons almost parallel -sided, only slightly broadening downwardly, 1.2 × as long as broad, flattish; median keel strongly elevated, lateral keels obscure; upper margin distinctly angularly insinuated, upper lateral angles therefore prominent and sharp (fig. 13 e – f). Crown strongly sloping mesad, 3.33 – 4.0 × as broad as long at middle, slightly shorter medially than next to eyes. Pronotum conspicuously longer than crown. Elytra short and broad, bearing a conspicuous hump on corium; venation densely reticulate all over elytra, surface of elytra therefore uneven; costal margin basally broadly expanded mesad horizontally. Hind tibiae with 1 spine. Male genitalia: Anal tube ovate and flat (fig. 13 a). Styles as in fig. 14 a. Penis (fig. 12 e – f) nearly rectangularly bent dorsad, bearing a pair of long falcate basal appendages (whose position variable) and a pair of subapical processes directed dorsad; penis narrowing conspicuously apically. Anal tube (♀) (fig. 13 b) short, 1.43 × as long as broad.

Type, a male, Revivim, 2. VIII. 1958; allotype, a female, the same locality, 23. VI. 1958,!; a paratype, Yotvata, 22. VI. 1958,!. – A deserticolous species occurring among sparse vegetation on inland dunes and *Artemisia* steppes.

The nominate form *H. paludum* Bgv., of which I have specimens from Spanish Morocco, differs in having a slightly broader frons that is less angularly excavated in the upper margin, the upper lateral angles being therefore blunter (fig. 13 c – d); the hump on the corium is also

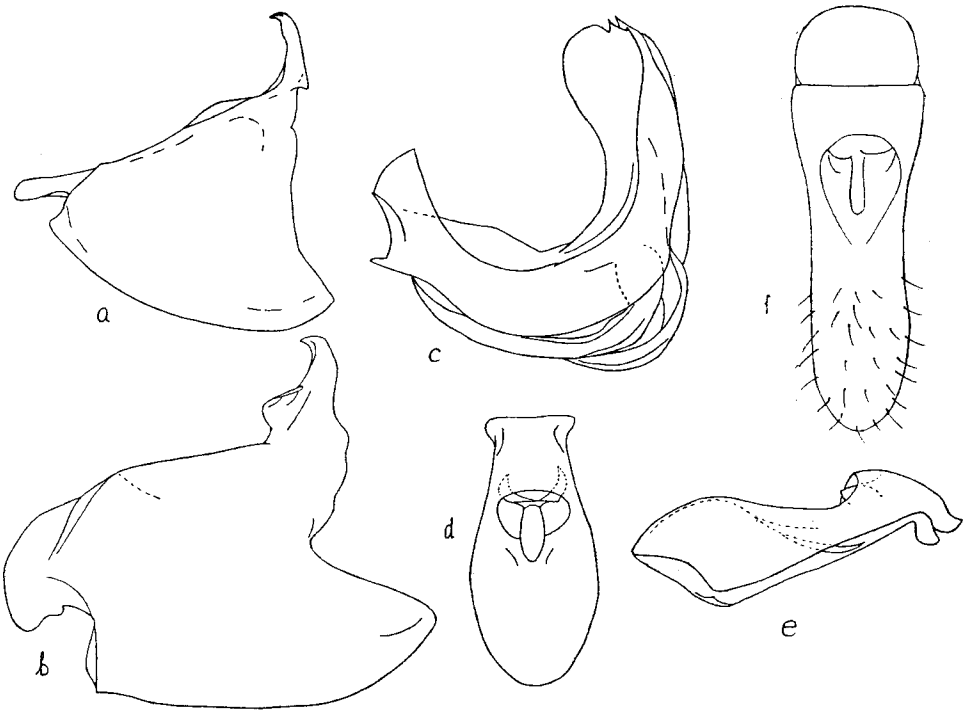



Fig. 14. *Hysteropterum paludum* Bgv. ssp. *deserticola* n.ssp.: a stylus. – *H. retamae* n.sp.: b same; c penis, lateral aspect; d anal tube (♂), dorsal aspect; e same, lateral aspect; f anal tube (♀), dorsal aspect. – Orig.

a little weaker. *H. deserticola* may be a valid species, but since there are scarcely any differences in the male genitalia, I have tentatively regarded it as a subspecies. The biology of the nominate form is unknown to me. *H. impressum* Fb. is also very closely related to *H. paludum*, but the frons broadens less downwardly and the upper margin of the head is still more weakly excavated.

*H. retamae* n.sp.

Length 4.0 – 4.75 mm. Uniformly light ochraceous. Frons with a broad whitish transverse band between the lateral keels; upper margin ± darkened. In dark specimens elytral veins ± marbled with fuscous and apical margin with a fuscous spot in each apical cell.

Elongate, body about 2.1 × as long as broad. Frons 1.04 – 1.08 × as long as greatest width, conspicuously broadening downwardly, slightly concave; lateral and median keels sharp, the lateral keels meeting the median one in the upper margin and forming together a narrowly ovate area; upper margin straight. Crown slightly roundedly angled anteriorly, of uniform length, 1.6 – 1.7 × as broad as long, somewhat concave. Pronotum a little longer than crown, with a median keel. Elytra rather elongate, nearly twice as long as broad, venation as in *H. maculipes* Mel.; costal margin not expanded basally. Male genitalia: Anal tube (fig. 14 d– e) ovate and nearly straight. Styles as in fig. 14 b. Penis (fig. 13 g, 14 c) semicircularly curved dorsad, bearing a pair of long falcate basal appendages (whose position variable), apex blunt in ventral aspect. Anal tube (♀) long and narrow (fig. 14 f), 2.5 × as long as broad basally.

Type, a male; allotype, a female and 5 paratypes, 12 km. south of Nahal Hiyon, 20. VI. 1958,!. – On *Retama raetam* in a desert.

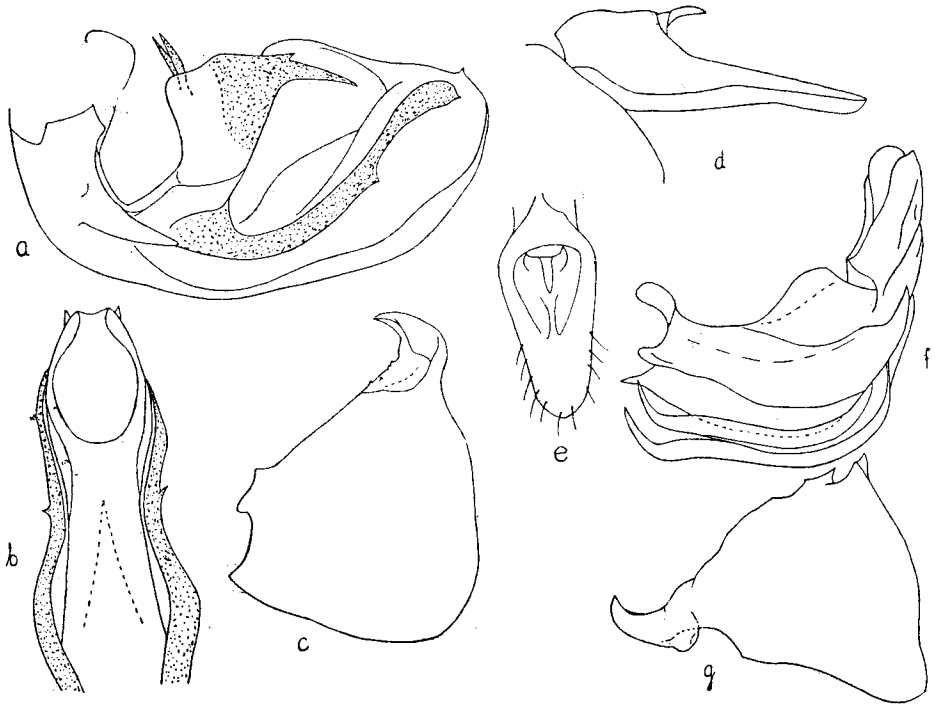



Fig. 15. *Hysteropterum armatissimum* n.sp.: a penis, lateral aspect; b apex of same, ventral aspect; c stylus; d anal tube (♂); e same (♀). – *H. syriacum* Mel.: f penis, lateral aspect; g stylus. – Orig.

Very closely related to *H. maculipes* Mel., but in the latter the lateral keels of the frons together form a broadly ovate area, the colouring is darker and the male genitalia dissimilar.

*H. maculipes* Mel. – Aqua Bella, 29 spec., 14. VI. 1958,!; Bat Shlomo, 1 spec., 29. VII. 1958,!; Beit Zeit, 1 spec., Hucklesby (!); Bethlehem, 2 spec., J. Sahlberg (!); 'Ein Gedi, 1 spec., 18. VI. 1958,!; Gesher Haziv, 1 spec., 6. VIII. 1958,!; Hadera, 1 spec., 1. VII. 1958,!; Haifa, 11 spec., 29. VI. 1958,!; Hulda, 1 spec., 15. VII. 1958,!; Jerusalem, 1 spec., 1. VIII. 1943, Wahrman (!), 32 spec., 13 – 17. VI. 1958,!; Jordan, 1 spec., A. Sahlberg (!); Neve Ya'ar, 1 spec., 29. VII. 1958,!; Palestine, 9 spec., Bodenheimer (!); Revivim, 1 spec., 2. VIII. 1958,!; Shimron, 10 spec., 4. VIII. 1958,!; Tel-Aviv, 1 spec., 24. VII. 1958,!; Wadi Fallach, 1 spec., 20. IV. 1947, Bytinski-Salz (!); Wadi Karen near Goren, 6 spec., 6. VIII. 1958,!; Yeroham, 3 spec., 20. VI. 1958,!. – A common species on various deciduous trees and shrubs, such as *Olea europaea*, *Quercus calliprinos*, *Q. ithaburensis* and *Pistacia lentiscus*. – Pontomediterranean.

(*H. armatissimum* n.sp.)

Length 4.0 – 4.5 mm. Light ochraceous. Light specimens with a row of obscure minute darker spots along lateral margins of frons and elytra with costal margin whitish basally and some veins marked with fuscous. Usually the ground colouring has a more fuscous tinge; sides of frons distinctly spotted with dark brown; crown, pronotum and scutellum darker brown with a whitish median keel; elytra with costal margin whitish basally, cells and also veins ± marked with fuscous so that in extreme cases only costal margin, a large rectangular macula from scutellar margin of clavus to corium and a smaller subapical spot on corium are unmarked and light ochraceous. Under surface ± marked with fuscous. Legs with fuscous longitudinal stripes.

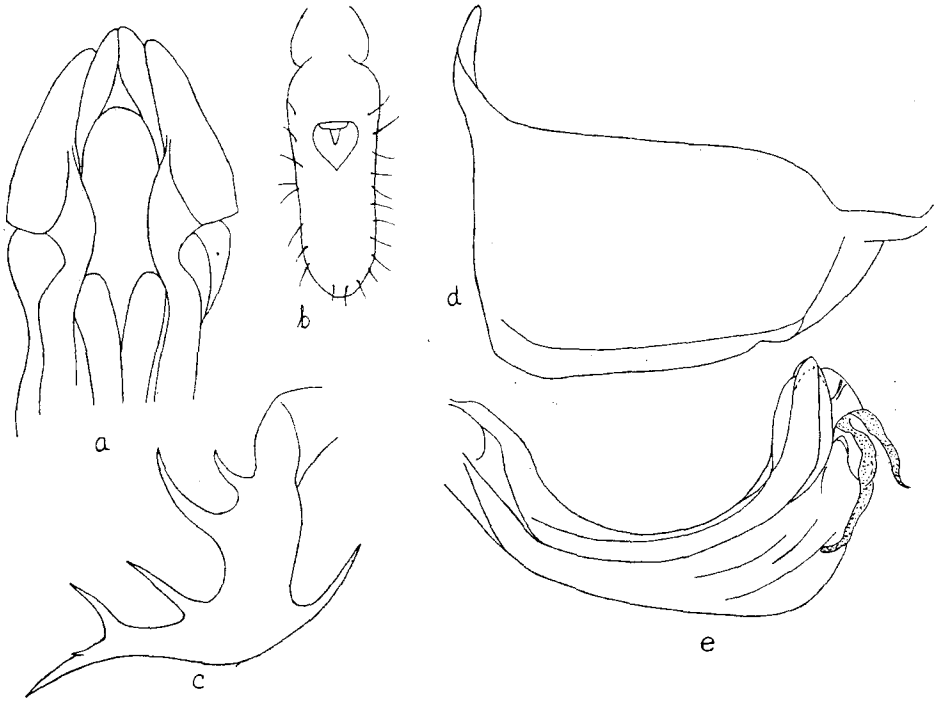



Fig. 16. *Hysteropterum syriacum* Mel.: a apex of penis, ventral aspect; b anal tube (♀). – *H. campestre* Ldb. ssp. *longispinosum* n.ssp.: c aedeagal appendage. – *Phaiophantia jordanensis* n.sp.: d stylus; e penis, lateral aspect. – Orig.

Body 1.6 – 1.7 × as long as broad. Frons about 1.26 × as long as broad, relatively parallel-sided, lateral margins shallowly curved; disk of frons only slightly convex, dull and finely rugose; median keel sharp, lateral keels faint forming a narrowly ovate area in outline; a pair of obscure lighter transverse spots present between eyes; upper margin straight. Crown shallowly rounded anteriorly, slightly shorter in the middle than next to eyes, 2.33 – 2.57 × as broad as long; anterior and basal margins sharp, median keel distinct. Pronotum a little longer than crown. Elytra rather broad, veins distinctly elevated, venation rather densely reticulate in apical half. Male genitalia: Anal tube (fig. 15 d) narrowing apically. Styles as in fig. 15 c. Penis (fig. 15 a – b) very robust, bearing dentate processes. Anal tube (♀) (fig. 15 e) small, tapering apically, 1.7 × as long as broad.

Type, a male, Italy, Puglie, Vico, 18. VII. 1955, Servadei; allotype, a female, Italy, L. Varano, 26. VII. 1955, Servadei; 2 paratypes, Italy, Lucania, Nova Siri, 26. VII. 1957, Servadei; 1 paratype, Italy, Lucania, Luganegro, 30. VII. 1957, Servadei; 1 paratype, Italy, Lucania, Rivello, 30. VII. 1957, Servadei. Types in my collection.

Described as *H. pictifrons* Mel. by SERVADEI (1956, p. 205). *H. pictifrons* has, however, a longer and narrower crown and dissimilar genitalia (LINNAVUORI 1952, p. 191). *H. assimile* Hv. has the frons with an elevated transverse keel between eyes.

*H. syriacum* Mel.

Length 4.0 – 5.5 mm. Dirty yellow-brown. Entire face densely irrorated with blackish, a pair of obscure lighter spots on upper part of frons; in pale specimens the irroration is more scanty laterally. Crown with a few irregular dark shadows or ± densely irrorated with dark

brown. Pronotum with a row of roundish dark spots in anterior margin and a few irregular dark shadows on the disk. Scutellum with scanty irregular dark shadows on the disk. Elytra with cells ± densely marked with small round dark brown spots. Under surface ± marked with dark brown. Legs, especially femora, marked with dark brown.

Body short and broad, about 1.5 × as long as broad. Frons rather parallel-sided, 1.1 – 1.2 × as long as greatest width, flattish, slightly concave below upper margin; median keel rather faint, lateral keels scarcely visible, upper margin insinuated. Crown concave, slightly shorter medially than near eyes, 2.62 – 3.0 × as broad as long at middle. Pronotum a little longer than crown. Elytra broad, venation about as in *H. bilobum*. Male genitalia: Anal tube (fig. 12 g) flat and straight, tapering apically. Styles as in fig. 15 g. Penis (fig. 15 f, 16 a) curved dorsad,with a pair of long falcate basal appendages (variable in position), apex with a triangular lamellar expansion on either side in ventral aspect. Anal tube (♀) (fig. 16 b) long and parallel-sided.

Palestine (BODENHEIMER op.cit.); Dahlia, 1 spec., Bytinski-Salz (!); Haifa-Tivon, 3 spec., 23. IV. 1953, Swirski (!); Jericho, 4 spec., J. Sahlberg (!); Jerusalem, 1 spec., Reitter (!), 1 spec., 18. IV. 1957, Ginsburg (!); Schaar-Emek, 1 spec., 2. III. 1948, Bytinski-Salz (!); Tiberias, 1 spec., Bytinski-Salz (!); Zichron-Yacov, 1 spec., 17. III. 1958, Fishelson (!), Moreover I have seen a specimen from Syria, Sanamein, J. Sahlberg. – Endemic.

*H. campestre* Ldb.ssp. *longispinosum* n.ssp.

As the nominate form but elytra with 2 oblique dark brown transverse bands and aedeagal sheath with very long spines (fig. 16 c).

Type, a male; allotype, a female and 5 paratypes, Jerusalem, 13 – 17. VI. 1958,!; 6 paratypes, Palestine, Bodenheimer (!); 2 paratypes, Wadi Rubin, 27. VI. 1958,!. – On dry sunny places among xerophilous vegetation. – Endemic, the nominate form known from Cyprus.

### *Falcidius* Stål

*F. apterus* (F.) – Palestine (BODENHEIMER op.cit.). – Holomediterranean.

## *Flatidae*

### *Phantia* Fb.

*P. subquadrata* (H.S.) – Palestine (BODENHEIMER op.cit.); Aqua Bella, 1 spec., 14. VI. 1958,!; Ashqelon, 1 spec., 2. VII. 1958, Swirski (!); Avdat, 22 spec., 8. IX. 1957, Wahrman (!); Beith Oved, 3 spec., 16. VII. 1958,!; Dan, 1 spec., 7. VII. 1958,!; Hulda, 1 spec., 25. VI. 1958,!; Jerusalem, 1 spec., 2. VII. 1958, Wahrman (!), 10 spec., 13 – 17. VI. 1958,!; Kiriath Anavim, 1 spec., 21. IX. 1930, Bodenheimer (!); Miqve Israel, 1 spec., 25. VII. 1958,!; Revivim, 2 spec. 23. VI. 1958,!; Sa'ad, 1 spec., 17. VII. 1958,!; Sejerah, 2 spec., 11. VII. 1945, Bytinski-Salz (!); Shuva, 3 spec., 14. VII. 1958,!; Wadi Beersheba, 1 spec., 1. VIII. 1958,!; Wadi Nafkh, 4 spec., 19. VIII. 1957, Wahrman (!); Wadi Rubin, 1 spec., 16. VII. 1958,!; Yeroham, 4 spec., 20. VI. 1957,

*P. indicatrix* Wk. – Hameishar, 1 spec., 20. VI. 1958,!. – Swept from *Atriplex halimus* bushes in a desert. – Eremian, previously known from Arabia and Egypt.

### *Phaiophantia* Ldb.

*P. jordanensis* n.sp.

Length 5.0 – 6.5 mm. Dull, lighter or darker yellowish brown. Elytra with somewhat darker veins, cells often with obsolete dark shadows. Legs yellowish brown.

Body much as in *P. brunnea* Ldb. Frons 1.1 × as long as greatest width, broadest at antennae, flattish, lateral margins broadly upturned, median keel sharp. Crown of uniform length,

twice as broad as long, anterior margin subacute. Pronotum 1.4 × as long as crown; median part elliptically produced anteriorly, delimited by a sharp keel on either side. Scutellum twice as long as pronotum. Elytra 1.9 × as long as broad, venation as in *P. brunnea*. Male genitalia: Anal tube (fig. 17 a) large, smoothly curved ventrad. Styles (fig. 16 d) nearly rectangular with a long curved process in upper apical angle. Penis (fig. 16 e) curved dorsad, with 2 pairs of processes subapically on the ventral surface.

Type, a male and allotype, a female, Judea, J. Sahlberg. – Type in my collection, allotype in Helsinki University.

*P. brunnea* Ldb. from the Cape Verde Islands has the frons shorter and broader, distinctly convex with median keel obscure in lower part.

### *Rhinophantia* Mel.

*R. longiceps* (Pt.) – Bir Rekhne, 1 spec., Bytinski-Salz (!); Har Nafha, 2 spec., 22. VI. 1958,!; 21 km. S of Nahal Hiyon, 3 larvae, 22. VI. 1958,!; Wadi Nafkh, 1 spec., 18. VIII. 1957, Wahrman (!). – Swept from *Artemisia herba-alba* on a sunny slope in desert conditions. – Eremian, previously known from North Africa.

### *Zarudnya* Mel.

*Z.* n.sp. Fennah in litt. – 'Ein Hosb, 1 spec., 23. VI. 1950, Goldschmidt (!); 'Ein Gedi, 5 spec., 18. VI. 1958,!; Wadi Raman, 1 spec., 13. VIII. 1956, Wahrman (!). – Swept from *Atriplex halimus* bushes. – Endemic. Recorded erroneously as *Eurima astuta* Mel. by me (LINNAVUORI 1952, p. 193).

## *Delphacidae*

### *Asiraca* Latr.

*A. clavicornis* (F.) – Jerusalem, 1 spec., 14. VI. 1958,!. – Holomediterranean, not previously recorded from Israel.

### *Delphax* Stål

*D. inermis* Rib. – Palestine, 1 spec., Bodenheimer (!). – Holomediterranean. New record for Israel.

### *Pseudaraeopus* Kk.

*P. lethierryi* M.R. – Beith Oved, 1 spec., 16. VII. 1958,!; Hulda, 1 spec., 25. VI. 1958,!, 1 spec., 15. VII. 1958,!; Nazareth, 1 spec., 5. VIII. 1958,!; Rehovot, 5 spec., 16. IV. 1958, Derech, Swirski (!). – In dry sunny localities. – Holomediterranean, previously known from the South of France and Cyprus.

*P. bolivari* (Mel.) – Palestine (BODENHEIMER op.cit.); Beer Mashash, 6 spec., 22. VI. 1958,!; 'Ein Gedi, 1 spec., 18. VI. 1958,!; Palmahim, 15 spec. and 3 larvae, 4. VII. 1958,!; Wadi Rubin, 1 spec., 16. VII. 1958,!; Wadi Sukreir, 11 spec., 27. VI. 1958,!, Swirski (!). – On grasses, e.g. *Aristida scoparia* on dunes. – Holomediterranean, known from Portugal and Israel.

## *Perkinsiella* Kk.

*Perkinsiella* KIRKALDY 1903, p. 179. Type: *P. saccharicida* Kk.
*Araeopides* RIBAUT 1948 a, p. 13. Type: *A. picta* Rib., n.syn.

*P. insiginis* (Dist.)
*Pundaluoya insignis* DISTANT 1912, p. 190.

*Araeopides picta* RIBAUT 1948 a, p. 13, n.syn. – Deganya, 2 spec., 22. VII. 1958,!; Miqve Israel, 1 spec., 30. VII. 1957, Michaeli (!); Ramath Gan, 1 spec., 1. VIII. 1946, Bytinski-Salz (!); Rehovot, 1 spec., 13. I. 1958, Michaeli (!); Sha'alvim, 1 spec., 28. VII. 1958,!. – Collected at lamps. – Intertropical.

*A. rivularis* n.sp.

Length 5 mm. Face dark brown with a broad white transverse fascia below eyes, upper part of frons with a few obscure lighter spots. Antennae dark brown, 1st joint lighter basally. Eyes dark grey. Crown, median parts of pronotum and scutellum whitish, sides of the same dark brownish. Elytra with costal margin broadly glass-clear, upper part of elytra fuscous hyaline; a conspicuous dark fuscous irregular band starting from apical margin of 2nd – 4th apical cells extending to apex of clavus; veins light greyish, spotted with dark, apices of apical veins dark brown. Under surface and legs greyish ochraceous.

Elongate, parallel-sided. Body form as in *P. picta.* Male genitalia: Pygofer (fig. 17 d)with a pair of long ventral processes directed dorsad and lying close to each other. Anal tube (fig.17 b)

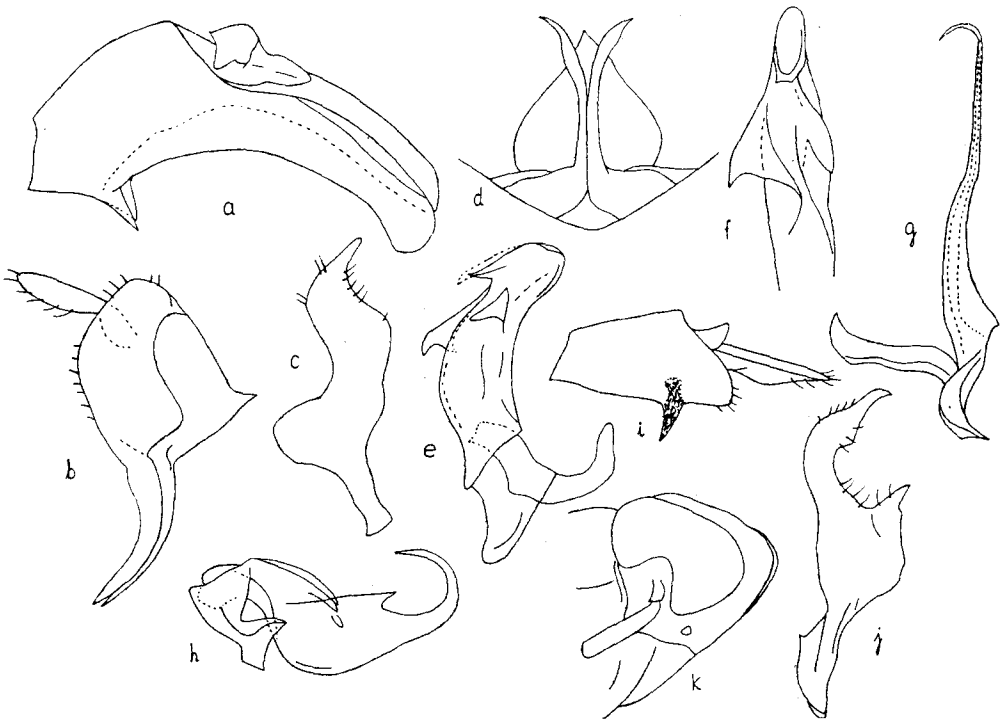



Fig. 17. *Phaiophantia jordanensis* n.sp.: a anal tube (♂). – *Perkinsiella rivularis* n.sp.: b anal tube; c stylus; d ventral processes of pygofer; e penis, lateral aspect; f apex of same, ventral aspect. – *Stenocranus pallidus* n.sp.: g penis, lateral aspect; h aedeagal sheath; i anal tube; j stylus; k head, lateral view. – Orig.

with a pair of claw-like appendages. Stylus as in fig. 17 c. Penis (fig. 17 e – f) short and stout, asymmetrical, provided with 2 subapical teeth ventrally.

Type, a male, Yarkon, 28. VI. 1958,!; allotype, a female, Ramath Gan, 19. VII. 1958,!. – Swept from *Phragmites communis* on banks of a river.

*P. picta* lacks the white transverse band of the face. Moreover the penis is long and gracile and the ventral processes of the pygofer much shorter and divering. *P. facialis* Dist. and *P. saccharicida* Kk. have also the white facial band, but differ decidedly in the male genitalia: the appendages of the anal tube are short claw-like and directed caudo-dorsad. Moreover, the styli of *P. facialis* are biramose apically and those of *P. saccharicida* much thicker bearing 3 apical teeth.

## *Alatades* Dlab.

*A. trilineus* Dlab. – Deganya, 1 spec.,(!). – Syrio-Anatolian. Previously known from Turkey.

## *Nephropsia* C.

*N. tuberipennis* M.R. – Beit Shean, 1 spec., 7. VIII. 1958,!; Dan, 2 spec., 8. VII. 1958,!; Hadera, 3 spec., 1. VII. 1958,!; Nahariya, 2 spec., 6. VII. 1958,!; Ramath Gan, 1 spec., 19. VII. 1958,!; Wadi Rubin, 1 spec., 16. VII. 1958,!; Wadi Sukreir, 8 spec., 27. VI. 1958,!. – Among herbs on moist shores. – Holomediterranean. New record for Israel.

The Palestinian specimens differ somewhat from the other specimens in my collection in the shape of the head and possibly represent a separate geographical subspecies.

## *Stenocranus* Fb.

*S. pallidus* n.sp.

Fig. 18 a, 17 k. 4.5 mm. Pale yellowish. Frons between keels irrorated with fuscous, genae with a minute black spot below eyes. Eyes brown. Elytra yellowish hyaline; veins yellowish, apices of apical veins dark brown. Lateral surface of pronotum with a conspicuous round black spot.

Body narrow, elongate. Frons 3.2 × as long as broad, long and narrow, almost parallel-sided, only slightly broadening downwards. Crown relatively weakly produced. Elytra hyaline, not microsculptured, long, rounded apically, veins without knobs. Flying wings a little shorter than elytra. Legs remarkably gracile; hind tarsi long, 1st joint 1.45 × as long as 2nd and 3rd joints together. Antennae gracile; 2nd joint long, 3.6 × as long as 1st. Male genitalia: Pygofer (fig. 18 b) without processes. Anal tube (fig. 17 i) with a pair of sharp subapical teeth directed ventrad. Stylus (fig. 17 j) with apophysis somewhat hook-shaped. Aedeagal sheath (fig. 17 h) strongly curved and sharp-tipped apically. Penis (fig. 17 g) long and gracile, simple.

Type, a male, 'Ein Gedi, 18. VI. 1958,!; allotype, a female and 1 paratype, Dan, 11. VII. 1958,!; a paratype, Hagoshrim, 11. VII. 1958,!; a paratype, Beit Shean, 8. VIII. 1958,!; 4 paratypes, Nahariya, 6. VIII. 1958,!; 75 paratypes, Neot Mordekhai, 21. VII. 1958,!; 3 paratypes, Ramath Gan, 19. VII. 1958,!. – Common on *Phragmites communis*.

The new species differs considerably from the European species of the genus. The genital structure is, however, of the type common within the genus.

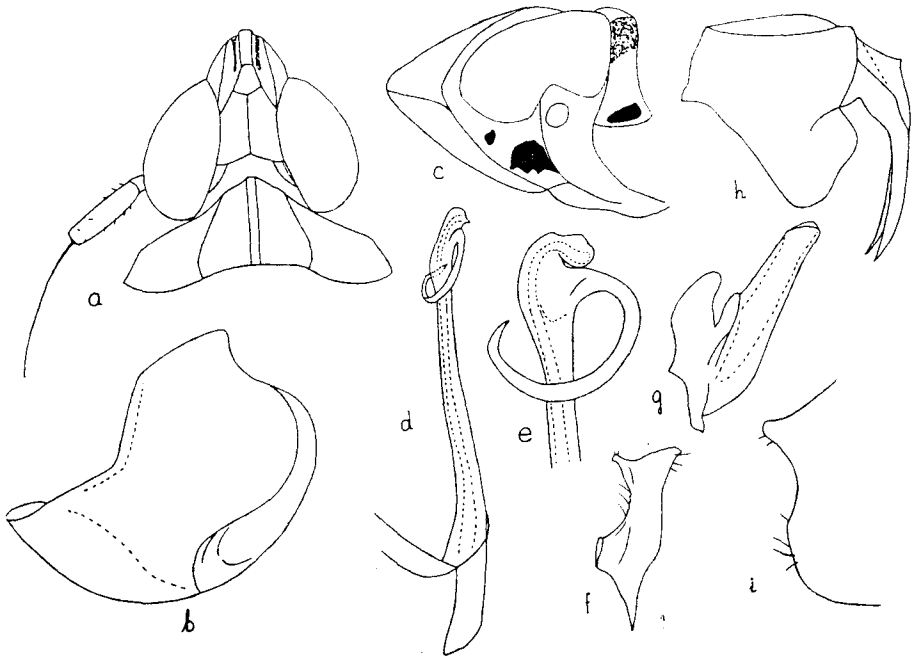



Fig. 18. *Stenocranus pallidus* n.sp.: a head and pronotum; b pygofer, lateral aspect. – *Kelisia yarkonensis* n.sp.: c head, lateral view; d penis; e apex of same. – *Calligypona segetum* (Hpt.): f stylus; g penis, lateral aspect; h anal tube. – *C. maculipennis* n.sp.: i pygofer, lateral aspect. – Orig.

## *Kelisia* Fb.

*K. brucki* Fb. – Tel-Aviv, 1 spec., 25. VI. 1958,!; Wadi Rubin, 1 spec., 16. VII. 1958,!; Yarkon, 1 spec., 5. VII. 1958,!. – Swept from *Cyperaceae* in moist localities. – Holomediterranean. New record for Israel.

*K. yarkonensis* n.sp.

Length 3.0 – 4.0 mm. Externally as *K. brucki*, but conspicuously smaller, head somewhat less produced anteriorly, genae with a large roundish spot as in *K. putoni* C. (fig. 18 c) and median keel of frons always simple. Male genitalia: Penis (fig. 18 d – e) with stem nearly straight and provided with a long, circularly curved apical process. Other genitalia as in *K. brucki*.

Type, a male; allotype, a female and 50 paratypes, Yarkon, 28. VI. 1958,!; a paratype, Ashqelon, 2. VII. 1958,!; 13 paratypes, Bat Yam, 3. VII. 1958,!; a paratype, Nabi Rubin, 4. VII. 1958,!. – Common on *Juncus acutus*, especially on coastal dunes.

The new species belongs to the *brucki*-group. *K. perrieri* Rib. is closely related to it, but has only small black spots on the genae, the elytra lack the dark longitudinal band from apex to base and the stem of the penis is S-shaped curved in lateral aspect. *K. brucki* Fb. is bigger and the apical process of the penis is shorter. *K. putoni* C. has two frontal keels in both sexes and the penis is dissimilarly shaped.

*K.* sp. – Beit Jubrin, 2 ♀♀, 17. VI. 1958,!. – Swept from herbs in a swampy place. Without males not determinable.

## *Leptodelphax* Hpt.

*L. cyclops* Hpt. – Palestine (BODENHEIMER op.cit.); Yarkon, 1 spec., 28. VI. 1958,!. – Swept from herbs on a river bank. – Syrio-Anatolian, known from Cyprus and Israel.

## *Chloriona* Fb.

*C. flaveola* Ldb. – Dan, 7 spec., 7. VII. 1958,!; Hagoshrim, 2 spec., 11. VII. 1958,!; Hula, 6 spec., 10. VII. 1958,!; Palestine, 1 spec., Bodenheimer (!); Wadi Sukreir, 6 spec., 27. VI. 1958,!; Yarkon, 3 spec., 5. VII. 1958,!. – On *Phragmites communis*. – Syrio-Anatolian, previously known from Turkey and Cyprus.

## *Eurysa* Fb.

*E. lineata* (Perr.) – Palestine (BODENHEIMER op.cit.). – Holomediterranean with a large extension into Central Europe.

## *Delphacodes* Fb.

In 1957, I published an article on the systematic position of the genus *Delphacodes* Fb. Afterwards LE QUESNE (1960, p. 186 – 187) created a new genus *Megamelodes* for the species I placed in *Delphacodes*, regarding the latter as the valid name for the genus *Calligypona* J.Sb. basing his opinion on an article by CHINA (1954, p. 165), who, after examination of the female type of *D. mulsanti* Fb. (the generotype), stated that its pronotal keels do not reach the basal margin, as they do in *Megamelodes*. My colleague Dlabola has told me, however, that on examination of the same type specimen, he could observe the pronotal keels to extend to the basal margin. China's remark was thus erroneous. Hence I still have used *Delphacodes* in the previous sense. Nevertheless LE QUESNE may be right in regarding the species I described as *D. mulsanti* (from Italy) as a new one, *D. linnavuorii* LeQ. *D. mulsanti* was originally described from the South of France, from where I have a couple of specimens of a *Delphacodes* very closely related to the Italian species. The French species, differing in the conspicuously slenderer penis from *D. linnavuorii*, might be the genuine *D. mulsanti*. To decide the nomenclature it should be necessary to revise the French species of the genus to see if the Italian species also occurs in France. Now, in the absence of sufficient material from France, I have followed Le Quesne in the nomenclature.

*D. linnavuorii* (LeQ.) – Hula, 3 spec., 8. VII. 1958,!. – Among debris of *Cyperus papyrus* in a swamp on the shore of Lake Hula. – Pontomediterranean. New record for Israel.

## *Calligypona* J.Sb.

*C. striatella* (Fn.) (= *marginata* auct. nec F.).

*Delphax striatella* FALLÉN 1826, p. 75.

*Liburnia niveopicta* HAUPT 1927, p. 12 – 13, n.syn.

Beer Mashash, 1 spec., 22. VI. 1958,!; Beersheba, 2 spec., 1. VIII. 1958,!; Beit Shean, 1 spec., 7. VIII. 1958,!; Dan, 4 spec., 8. VII. 1958,!; Deganya, 3 spec., 23. VII. 1958,!; Hadera, 4 spec., 26. VI. 1958,!; Hula, 11 spec., 9. VII. 1958,!; Miqve Israel, 10 spec., 30. VII. 1957, Michaeli (!); Palestine, 1 spec., Bodenheimer (!); Palestine, Ben Shemen, 2 spec. (types of *niveopicta*), Bodenheimer (!); Rehovot, 1 spec., 28. VII. 1958, Michaeli (!), 1 spec., 20. VI. 1958,!;

Revadim, 3 spec., 15. VII. 1958,!; Shuva, 2 spec., 14. VII. 1958,!; Tel-Aviv, 2 spec., 26. VI. 1958,!. – A very common species in cultivated fields. – Holarctic.

*C. vibix* (Hpt.)

W. WAGNER (1954, p. 219) regarded *C. vibix* as a probable synonym of *C. furcifera* Hv. It is, however, a separate although closely related species. The male genitalia of *C. vibix* have been illustrated by me previously (LINNAVUORI 1952, p. 191), while those of *C. furcifera* have correctly been figured by FENNAH (1956, p. 116). Both species are distinguished especially in the form of the styles. My collection consists of *C. furcifera* from Japan and the Canary Islands, their male genitalia being entirely similar. BODENHEIMER (op.cit.) has recorded *C. furcifera* from Palestine. All the Palestinian specimens determined as *C. furcifera* that I have seen belong, however, to *C. vibix*. Apparently the genuine *furcifera* does not occur in the country.

Palestine (BODENHEIMER op.cit.); Beersheba, 1 spec., 1. VIII. 1958,!; Beit Jubrin, 1 spec., 17. VI. 1958,!; Dan, 4 spec., 9. VII. 1958,!; Deganya, 2 spec., 23. VII. 1958,!; 'Ein Gedi, 1 spec., 16. VIII. 1957, Wahrman (!), 1 spec., 18. VI. 1958,!; Hadera, 1 spec., 1. VII. 1958,!; Hula, 20 spec., 9 – 10. VII. 1958,!; Jerusalem, 1 spec., 3. VI. 1957, Werner (!), 2 spec., 14. VI. 1958,!; Neot Mordekhai, 1 spec., 21. VII. 1958,!; Miqve Israel, 8 spec., 13. V. 1958, Michaeli (!);Rehovot 8 spec., 16. VII. 1957, Swirski (!); Revadim, 22 spec., 15. VII. 1958,!; Revivim, 1 spec., 2. VIII. 1958,!; Tel-Aviv, 4 spec., 4. VII. 1958,!; Tel Kazir, 1 spec., 6. I. 1956, Wahrman (!); Wadi Karen near Goren, 2 spec., 6. VIII. 1958,!; Yarkon, 2 spec., 28. VI – 5. VII. 1958,!. – Common in cultivated fields and in moist localities, also at lamps. – Eremian.

*C. segetum* (Hpt.)

Closely allied to *C. furcifera* (possessing, for instance, the dark spot of the clavus). Male genitalia: Anal tube (fig. 18 h) with long falcate appendages. Stylus (fig. 18 f) relatively small, conspicuously expanded apically, apical margin only faintly insinuated. Penis (fig. 18 g) straight and simple.

Palestine (BODENHEIMER op.cit.); Dan, 1 spec., 11. VII. 1958!; Palestine, 43 spec., Bodenheimer (!). – Endemic.

*C. maculipennis* n.sp.

♂ f.macr. Length 3 mm. Face and crown brown. Pronotum whitish. Scutellum dark coffee-brown. Elytra hyaline, apex of clavus brownish, veins light brownish. Under surface brownish. Legs yellowish brown.

Small and relatively robust species. Frons narrowish; median keel sharp, distinct also in anterior margin of head. Crown distinctly broader than long. Lateral keels of pronotum not reaching basal margin. Male genitalia: Genital segment with somewhat produced caudo-dorsal angles, caudal margin somewhat insinuated in lateral aspect (fig. 18 i). Anal tube (fig. 19 a) with long parallel and somewhat reflexed appendages. Stylus (fig. 19 d) relatively large, apical portion somewhat expanded. Penis (fig. 19 b – c) short, curved, bearing a pair of subapical teeth on the ventral surface. ♀ unknown.

Type, a male, Deganya, (!).

Resembling *C. striatella* and *C. furcifera* in the dark claval stripe, but easily distinguished in the male genital characters.

*C. typhae* Ldb. – 'Ein Avdat, 1 spec., 22. VI. 1958,!; Hadera, 4 spec., 1. VII. 1958,!; Rehovot, 2 spec., 5. VI. 1958, Michaeli (!); Wadi Sukreir, 1 spec., 27. VI. 1958,!. – Swept from *Typha* and *Phragmites communis* on wet shores. – Eremian, previously known only from the Canary Islands.

*C. ornatipennis* (Hpt.), n.comb.

Originally described as *Megamelus* by HAUPT (1927, p. 9 – 10). On the base of the genital structure, however, it evidently belongs to the genus *Calligypona*, being related to the preceding species. Male genitalia: Pygofer (fig. 19 e) bluntly angulately produced caudad in lateral aspect. Anal tube (fig. 19 i) with falcate appendages. Stylus (fig. 19 f) narrow. Penis (fig. 19 g – h) short, bearing several teeth in apical area.

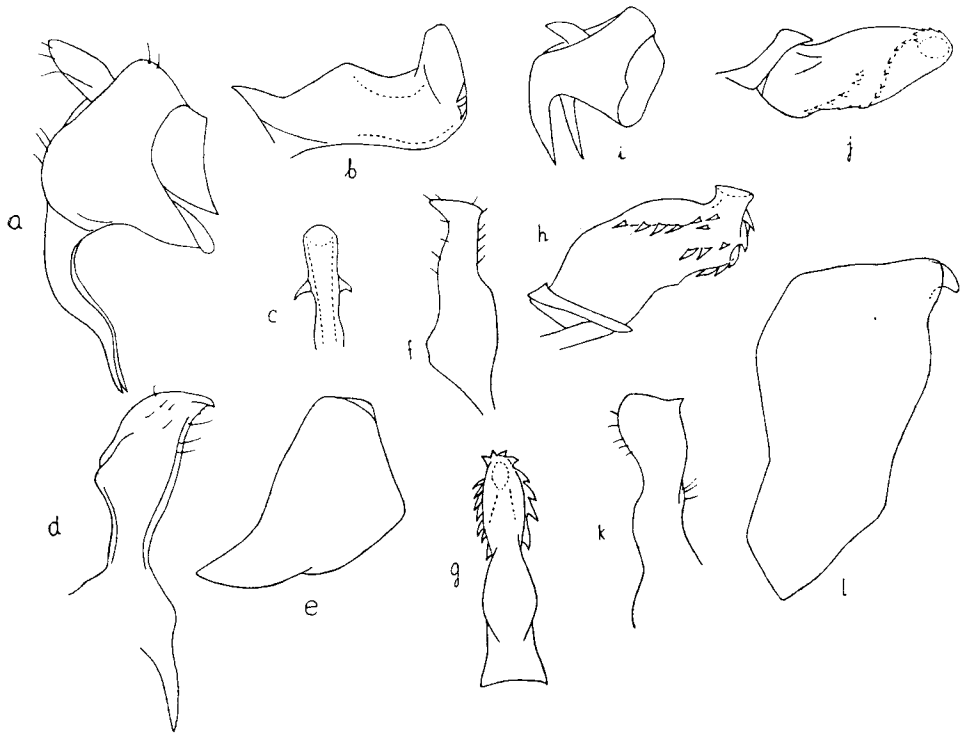



Fig. 19. *Calligypona maculipennis* n.sp.: a anal tube; b penis, latera laspect; c apex of same, ventral aspect; d stylus. – *C. ornatipennis* (Hpt.): e pygofer, lateral aspect; f stylus; g penis, ventral aspect; h same, lateral aspect; i anal tube. – *C. sp.*: j penis, lateral aspect; k stylus; l pygofer, lateral aspect. – Orig.

Palestine (BODENHEIMER op.cit.); Hula, 4 spec., 23. VI. 1952, Wahrman (!), 7 spec., 9 – 10. VII. 1958,!. – Swept among *Polygonum* sp. and other herbs in the wet muddy shore of Lake Hula. – Possibly Iranian, known from Palestine and Iran.

*C. propinqua* (Fb.) – Palestine (BODENHEIMER op.cit.); Avdat, 1 spec., 8. IX. 1957, Wahrman (!); Beersheba, 39 spec., 1. VIII. 1958,!; Beit Jubrin, 7 spec., 16. VI. 1958,!; Beit Shean, 1 spec., 7. VIII. 1958,!; Dan, 3 spec., 7 – 11. VII. 1958,!; 'Ein Gedi, 3 spec., 16. VIII. 1957, Wahrman (!), 2 spec., 18. VI. 1958,!; Gvuloth, 6 spec., 17. VII. 1958,!; Hadera, 52 spec., 26. VI. 1958,!; Jerusalem, 5 spec., 1957, Wahrman (!); Kefar Malal, 2 spec., 27. VII. 1958,!; Neot Mordekhai, 5 spec., 21. VII. 1958,!; Palestine, 7 spec., Bodenheimer (!); Ramath Gan, 1 spec., 19. VII. 1958,!; Rehovot, 7 spec., 7. VI. 1957, Michaeli (!); Revivim, 9 spec., 23. VI and 2. VIII. 1958,!; Sa'ad, 1 spec., 17. VII. 1958,!; Sha'alvim, 1 spec., 28. VII. 1958,!; Shuva, 2 spec., 14. VII. 1958,!; Shoval, 7 spec., 20. III. 1958, Rubin (!); Tel-Aviv, 3 spec., 4. VII. 1958,!; Timna, 5 spec., 21. VII. 1957, Wahrman (!); Wadi Karen near Goren, 3 spec., 6. VIII. 1958,!; Wadi Rubin, 1 spec., 27. VI. 1958,!; Yarkon, 3 spec., 28. VI. 1958,!. – A very common species, especially on cultivated fields. – Holomediterranean.

*C. obtusangula* Lv. – Dan, 3 spec., 11. VII. 1958,!; Hadera, 10 spec., 1. VII. 1958,!; Hagoshrim, 1 spec., 8. VII. 1958,!; Hula, 14 spec., 10. VII. 1958,!; Kefar Malal, 2 spec., Carmin (!). – In moist localities, e.g. on shores. – Pontomediterranean, previously known from Italy and Cyprus.

The species is closely related to *C. propinqua*. My material consists of two males (Hadera,

1. VII. 1958, and Yarkon, 28. VI. 1958,) that differ from both *propinqua* and *obtusangula* in the male genital structure (fig. 19 j – l) and whose systematic position is uncertain to me. They might possibly be parasitized specimens of either of the species or represent a new species or possibly a hybrid between *propinqua* and *obtusangula.*

### *Criomorphus* Ct.

*C. albomarginatus* Ct. – 'Ein Gedi, 1 spec., 18. VI. 1958,!. – European. New record for Israel.

## *Achilidae*

### *Akotropis* Mats.

*A. quercicola* n.sp.

Length 3.0 – 3.25 mm. Pale or whitish ochraceous; genae with a ± distinct round black spot below antennae. Elytra shining, whitish ochraceous, apex slightly embrowned. Spines of hind legs black-tipped.

A delicate small species. Frons broadening downwardly, 1.45 × as long as greatest width, concave; a distinct median carina present. Crown 0.87 × as long as basal width, tapering apically, distinctly sloping anteriorly; anterior margin of head with a very faint transverse carina laterally (often nearly absent); disk medially elevated, bearing a sharp longitudinal ridge in the middle. Pronotum 0.43 × as long as crown, lateral keels diverging caudad and extending to basal margin. Scutellum twice as long as crown and pronotum together, with 3 distinct longitudinal carinae. Elytral venation as in *A. fumata*, but M not bifurcate in the subapical area (or rarely quite a little, just at the apex), 5th apical cell triangular and costal

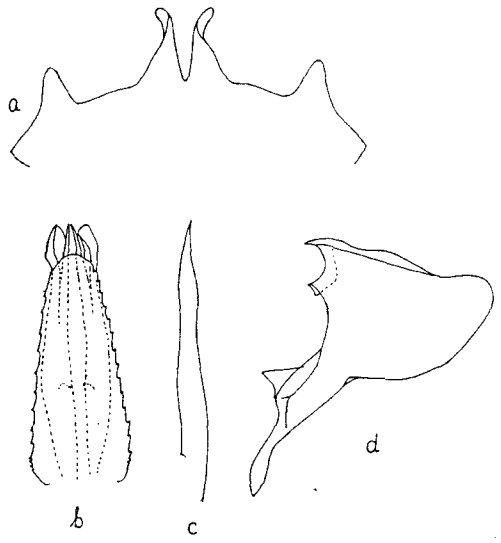



Fig. 20. *Akotropis quercicola* n.sp.: a pygofer, ventral aspect; b apical part of penis, ventral aspect; c phallic appendage; d stylus. – Orig.

margin with only 4 cells basad to the 5th apical cell. Male genitalia: Pygofer with 2 processes in the middle of the ventral margin (fig. 20 a). Stylus as in fig. 20 d. Penis (fig. 20 b) with lateral margins serrate in ventral aspect; phallic appendages thin and sharp-tipped (fig. 20 c).

Type, a male; allotype, a female and 19 paratypes, Neve Ya'ar, 29. VII. 1958,!; 3 paratypes, Wadi Karen near Goren, 6. VIII. 1958,!; 18 paratypes, Haifa, Mt. Karmel, 29. VI. 1958,!. – On *Quercus ithaburensis*.

*A. fumata* Mats. differs e.g. in colouring and in the elytral venation: M bifurcate in the subapical area, 5th apical cell not triangular and costal margin with 6 cells basad to the 5th apical cell. *A. fumata* has recently been illustrated by ISHIHARA (1954 a, p. 20 – 22). It occurs in Japan and Formosa.

## *Meenoplidae*

### *Meenoplus* Fb.

*M. albosignatus* Fb. – Haifa, 15 spec., 29. VI. 1958,!; Neve Ya'ar, 21 spec., 29. VII. 1958,!; Shimron, 7 spec., 4. VIII. 1958,!; Tivon, 3 spec., 19. V. 1954, Sternlicht (!). – On *Quercus ithaburensis*. – Pontomediterranean.

### *Anigrus* Stål

*A. vicinus* Dlab. – 'Ein Gedi, 8 spec., 18 – 19. VI. 1958,!. – Swept from *Phragmites communis* and halophytic plants on the shores of the Dead Sea. – Iranian. Previously known from Afghanistan. – The specimens agree well with the original description (DLABOLA 1959, p. 445 – 448), but are a little lighter (e.g. scutellum golden -brown) and the penis is a little more broadly bottle-shaped in the ventral aspect. Possibly they represent a geographical subspecies.

### *Nisia* Mel.

*N. atrovenosa* (Leth.) – Palestine (BODENHEIMER op.cit.); 'Ein Gedi, 1 spec., 21. VI. 1958, Guterman (!); Beit Shean, 110 spec., 7. VIII. 1958,!; Palestine, 8 spec., Bodenheimer (!).– Found in numbers settled just above water-level on stems of a *Cyperus* species on the shores of a swiftly running brook. When disturbed the specimens flew quickly sometimes descending onto the surface of the water. In some specimens a white wax secretion was observed. – Intertropical.

## *Tettigometridae*

### *Tettigometra* Latr.

*T. impressifrons* M.R. – Palestine (BODENHEIMER op.cit.). – Holomediterranean.

*T. contracta* Ldb. – Ashqelon, 3 spec., 25. III. 1960, Gothilf (!); Jerusalem, 1 spec., 15. VI. 1958,!; Haifa, 3 spec., Reitter (!). – Found with *T. costulata* and ants on the ground under leaves of *Verbascum*. – Endemic.

*T. hexaspina* Klti. – Palestine (BODENHEIMER op.cit.); Jerusalem, 1 spec., 8. VII. 1940, Bytinski-Salz (!); Palestine, 2 spec., Bodenheimer (!). – Pontomediterranean.

*T. costulata* Fb. – Palestine (BODENHEIMER op.cit.); Aqua Bella, 13 spec., 16. VI. 1958,!; Dan, 1 spec., 7. VII. 1958,!; Hadera, 1 spec., 22. III. 1948, Bytinski-Salz (!); Hagoshrim, 1 spec., 8. VII. 1958,!; Herzliya, 1 spec., 21. IV. 1946, Bytinski-Salz (!); Jerusalem, 17 spec., 13 – 17. VI.

1958,!; Nazareth, 1 spec., 5. VIII. 1958,!; Neve Ya'ar, 1 spec., 29. VII. 1958,!; Rehovot, 1 spec., 17. III. 1947, Bytinski-Salz (!); Revivim, 1 spec., 24. VI. 1958,!; Talpiot, 1 spec., 30. III. 1957, Wahrman (!); Wadi Beersheba, 3 spec., 1. VIII. 1958,!; Yeroham, 1 spec., 20. VI. 1958,!. – A common species; swept from herbs and various bushes, also found on the ground under leaves of *Verbascum* with ants. – Holomediterranean with a large extension into Asia (Iran, Turkestan, Ussuri-area).

*T. ventralis* Sign. – Palestine (BODENHEIMER op.cit.) – Probably Eremian; recorded from Italy and Algeria. Occurrence in Palestine very dubious.

*T. sulphurea* M.R. f. *mendax* Hv. – Jerusalem, 1 spec., 7. II. 1938, Grünberg (!), 2 spec., 20. VI. 1943, Bytinski-Salz (!); Palestine, 1 spec., Bodenheimer (!). – Holomediterranean, f. *mendax* known only from the Pontomediterranean area. – New record for Israel.

*T. vitellina* Fb. – Aqua Bella, 11 spec., 16. VI. 1958,!; Jerusalem, 2 spec., 24. IX. 1952, Wahrman (!), 25 spec., 13 – 17. IV. 1958,!. – Swept from vegetation on dry sunny slopes. – Caspian. New record for Israel.

*T. angulata* Ldb. – Conv. Libanon, 1 spec., U. Saalas (!); Jerusalem, 2 spec., 5. IV. 1952, Swirski (!). – Caspian.

*T. afra* Kbm. – Palestine (BODENHEIMER op.cit.). – Eremian, recorded from Spain, North Africa and Syria.

*T. obliqua* Pnz. – Palestine (BODENHEIMER op.cit.); Aqua Bella, 7 spec., 16. VI. 1958,!; Hagoshrim, 2 spec., 8. VII. 1958,!; Jerusalem, 3 spec., 14. VI. 1958,!; Kiriath Anavim, 1 spec., 3. VII. 1934, Hucklesby (!); Nazareth, 1 spec., 5. VIII. 1958,!; Wadi Karen near Goren, 4 spec., 6. VIII. 1958,!. – On *Quercus*. – Euro-Siberian.

*T. barani* Sign. – Haifa, 2 spec., Reitter (!). – Holomediterranean.

*T. tafratensis* Bgv. – Avdat, 2 spec., 8. IX. 1957, Wahrman (!). – Eremian. Previously known only from Morocco.

## *Cicadidae*

### *Adeniana* Dist.

*A. longiceps* (Pt.) – Yotvata, 1 spec.,(!). – Eremian, previously known from North Africa.
*A.* sp., probably new. – Boret, 1 ♀, Bytinski-Salz (!).

### *Cicada* L.

*C. orni* Oliv. – Palestine (BODENHEIMER op.cit.); Jerusalem, 1 spec., 30. VII. 1950, Wahrman (!). – Holomediterranean.

### *Cicadatra* Klti

The taxonomy of the genus is still imperfect. Several species have been described by previous authors, but owing to the great variability of the species the descriptions leave much to be desired. It seems to me that apart from considerable individual variability in size, colouring, etc., several species (especially the *atra* complex) also show splitting into geographical subspecies. A complete revision of the genus based on large series of specimens from different regions is therefore necessary to fix the nomenclature within the genus.

(*C. atra* (Oliv.))

Length 25.0 – 25.5 mm. Colouring usually dark with only scanty light markings. Only rarely pronotum and scutellum with conspicuous light markings (f. *pallipes* Fb.). Elytra relatively longer and narrower than in ssp. *platyptera*, 2.6 × as long as greatest width, 3rd apical cell


Fig. 21. *Cicadatra atra* (Oliv.): a pygofer, lateral aspect; b lateral process of same, dorsal aspect; c appendages 5 and 6 of penis; d appendage of anal tube. – *C. atra* (Oliv.) ssp. *appendiculata* Lv.: e appendage of anal tube; f appendages 5 and 6 of penis. – Orig.

4.14 – 4.83 × as long as broad, 4th apical cell 4.21 – 5.0 × as long as broad. Male genitalia: Pygofer (fig. 21 a – b) strongly and sharply produced caudad dorsally; lateral process relatively long but thick and not recurved dorsad apically. Appendage of anal tube (stippled in the figure) short and straight (fig. 21 d). Penis as in ssp. *platyptera*, but appendages 5 and 6 shorter (fig. 21 c) Other genitalia as in ssp. *platyptera*.

Material studied: Yugoslavia: Domanovic, 1 spec., coll. Melichar. Albania: Petrela, 2 spec., 10. VII. 1941, Tamanini. Greece: Attica, 2 spec. (f. *pallipes*), coll. Melichar. – Holomediterranean, but apparently with a more northern and western distribution than the following subspecies. Recorded as f. *tau* Fb. from Syria (Oshanin 1912, p. 95). All specimens from the Syrio-Palestinian area seen by me belong, however, to ssp. *platyptera*. F. *tau* apparently also belongs to this subspecies.

(*C. atra* (Oliv.) ssp. *appendiculata* Lv., n.comb.)

As the nominate form but lighter (as f. *pallipes*). Male genitalia: Pygofer (fig. 22 a – b) with a long and slightly curved dorsal prolongation; lateral processes remarkably long and slender, recurved dorsad apically. Appendages of anal tube (fig. 21 e) longer, digitate. Penis as in ssp. *platyptera*, but appendage 5 shorter (fig. 21 f). Other genitalia as in ssp. *platyptera*.

Material studied: Cyprus: Larnaka, 25. VI – 1. VII. 1939, Lindberg. – Known only from Cyprus. Originally described as a valid species (Linnavuori 1954 a p. 82 – 83). It seems to me best, however, to regard it as a local geographical subspecies of *C. atra*.

*C. atra* (Oliv.) ssp. *platyptera* Fb., n.comb.

*Cicadatra platyptera* Fieber 1876.

*C. livida* Schumacher 1923, p. 227, n.syn.

*C. decumana* Schumacher 1923, p. 228, n.syn.

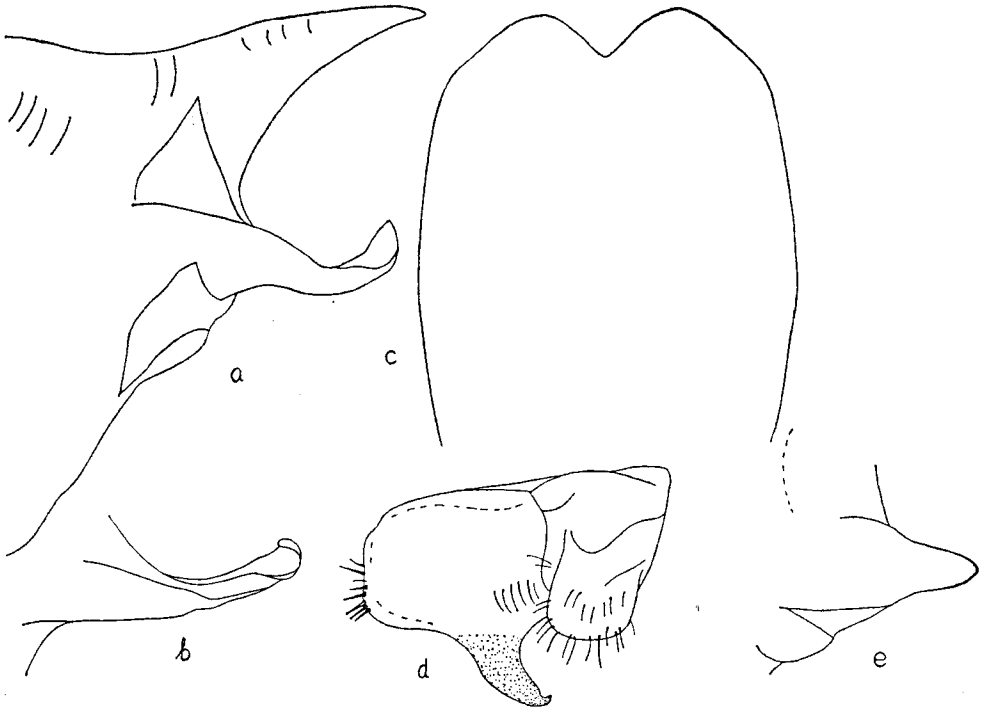



Fig. 22. *Cicadatra atra* (Oliv.) ssp. *appendiculata* Lv.: a pygofer, lateral aspect; b lateral process of same, dorsal aspect. – *C. atra* (Oliv.) ssp. *platyptera* Fb.: c valve; d appendage of anal tube; e lateral process of pygofer, dorsal aspect. – Orig.

Length 25.0 – 31.0 mm. Very variable in both size and colouring. Colouring usually as in *C. atra* f. *pallipes* (pronotum and scutellum with conspicuous light markings), but there often occur still lighter forms even uniformly yellow-brown in colouring. Elytra somewhat broader than in the nominate form, but owing to the variability there is no certain statistical difference to be found; the proportion between the length and the greatest width 2.22 – 2.70. The apical cells of the elytra are considerably shorter, although they, too, are somewhat variable in length; 3rd apical cell 3.0 – 4.14 × as long as broad, 4th cell 3.0 – 3.85 × as long as broad. Male genitalia: Pygofer (fig. 23 a) with shorter and thicker dorsal prolongation than in the other subspecies; lateral processes also considerably shorter (fig. 22 e). Appendages of anal tube (fig. 22 d) sharper-tipped than in ssp. *appendiculata*. Valve (fig. 22 c) distinctly insinuated medially in apical margin. Penis (fig. 23 b – c) with several apical appendages: appendages 3 and 4 long and weakly sclerified and therefore variable in position, appendages 1 – 2 and 5 – 7 are well sclerified.

Palestine (Bodenheimer op.cit.); Akko, 1 spec., Bytinski-Salz (!); Alunim, 1 spec., 15. VI. 1955, Bytinski-Salz (!); Beit Meir, 1 spec., 1. VIII. 1957, Wahrman (!); Beit Shean, 1 spec., 7. VIII. 1958,!; Dan, 3 spec., 5. VII. 1958,!, 4 spec., Hurvitz (!); Deganya, 1 spec., Palmoni (!); Gaton, 1 spec, Bytinski-Salz (!); Hulda, 1 spec., 15. VII. 1958,!; Jerusalem, 5 spec., 13. VI. 1943, Bytinski-Salz (!), 1 spec., 9. VI. 1952, Amitai (!), 6 spec., 10. VI. 1956, Wahrman (!), 2 spec., 13. VI. 1958,!; Kiriath Anavim, 2 spec., 28. V. 1947, Bytinski-Salz (!); Miqve Israel, 1 spec., 17. VII. 1953, Fishelson (!); Oranim, 2 spec., Bytinski-Salz (!); Ram. Hashefet, 1 spec., Bytinski-Salz (!); Suba, 2 spec., 26. VI. 1952, Swirski (!); Wadi Ruas, 1 spec., 28. VI. 1952,

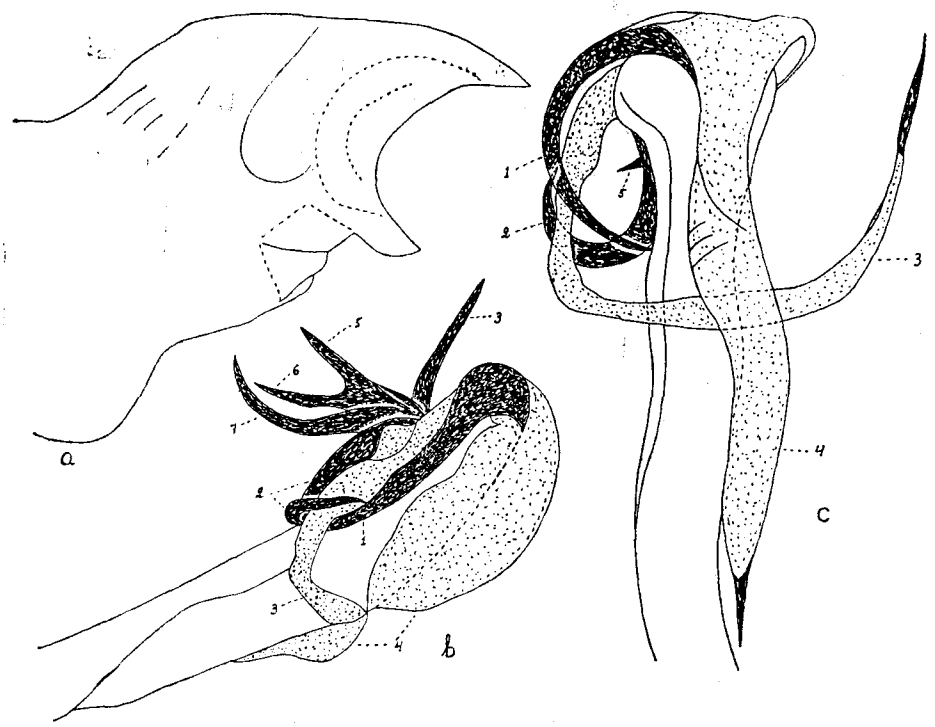



Fig. 23. *Cicadatra atra* (Oliv.) ssp. *platyptera* Fb.: a pygofer, lateral aspect; b – c penis in different aspects (appendages numbered and stippled). – Orig.

Wahrman (!). – In addition I have examined the following material: Turkey: Smyrna, 1 spec. coll. Melichar; Taurus Cilic., 1 spec., 1895, Holtz. Syria: Ain Sofar, 1 spec., VIII. 1942, Joeli. Transjordania: Jericho, 2 spec., 7. VII. 1942, Bytinski-Salz. – A common species in Israel, found sitting on different herbs and bushes in dry sunny localities. – Syrio-Anatolian. Also, originally described as a valid species.

*C. glycyrrhizae* Klti

Length 32.0 mm. Much as *C. atra platyptera* but bigger and robuster; frons much more strongly convex (both seen in profile and from above), owing to this the crown is conspicuously longer medially than in *platyptera*. Colouring yellowish green. Elytra as in *platyptera*. Male genitalia: Pygofer (fig. 24 c) with lateral processes relatively long, digitate. Penis (fig. 24 a – b) with stem and appendages 3 and 4 as in *platyptera* but the other appendages shorter. Other genitalia as in *platyptera*.

Material studied: Caucasia: Aresch, Caucasus, 1 spec., Schelkownikow (in coll. Melichar). BODENHEIMER (op.cit.) has recorded the species from Palestine. – Caspian. – Closely related to *C. atra*, since, however, there are certain morphological differences, especially in the head structure, I have regarded it as a valid species.

*C. ramanensis* n.sp.

Length 24.0 mm. Ground colouring pale greyish brown. Anteclypeus darkened; frontoclypeus with median and lower parts together with lateral arcs infumed. Crown (excluding frontal region) blackish with a pale median stripe; ocelli red; eyes brown. Pronotum with two )-shaped black longitudinal median figures in anterior median lobe and 2 minute black central spots

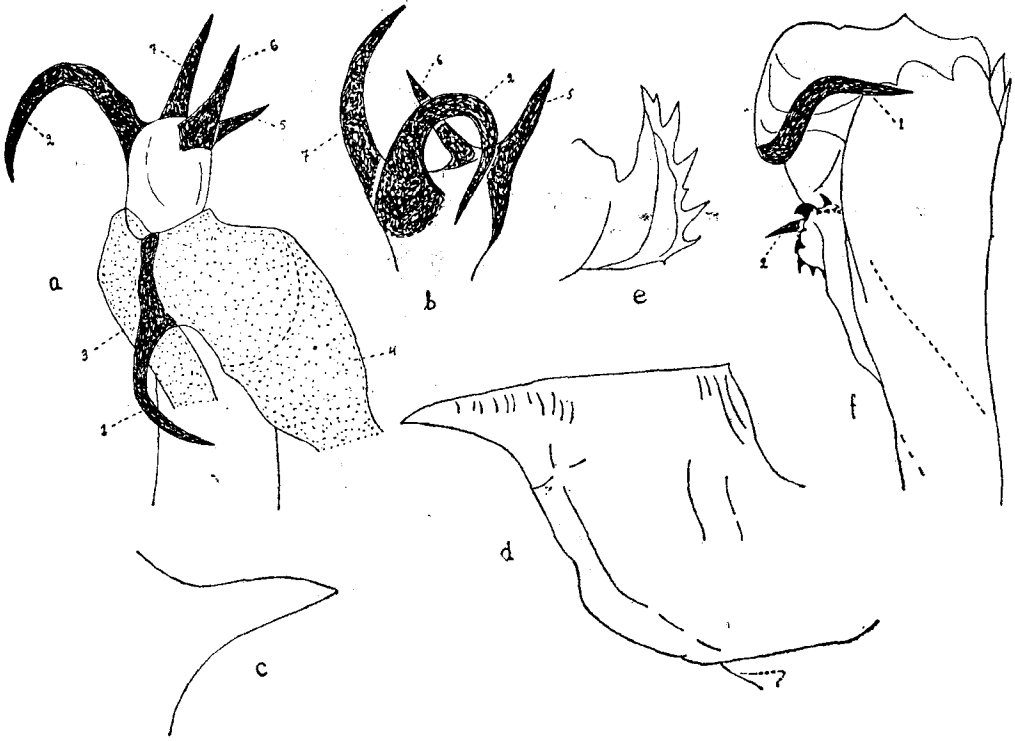



Fig. 24. *Cicadatra glycyrrhizae* Klti: a – b penis in different aspects; c lateral process of pygofer, dorsal aspect. – *C. longipennis* Schm.: d pygofer, lateral aspect; f penis; e appendage 2 of penis. – Orig.


Fig. 25. *Cicadatra longipennis* Schm.: a appendage of anal tube. – *C. ramanensis* n.sp.: b same; d pygofer, lateral aspect; e lateral process of same, dorsal aspect; c valve. – Orig.

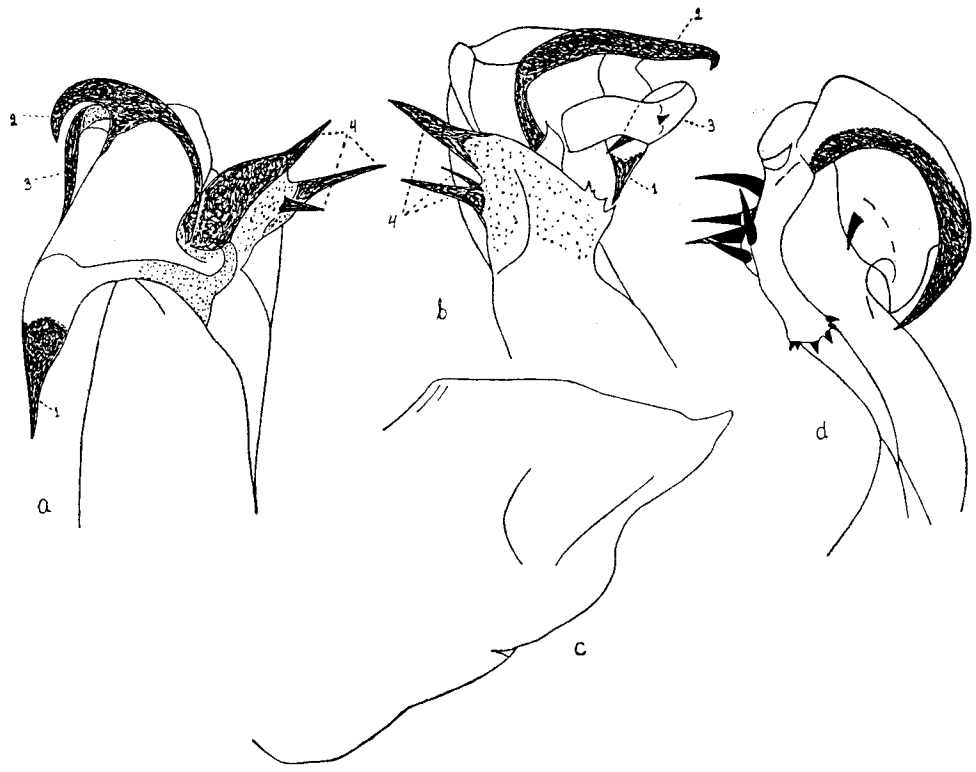



Fig. 26. *Cicadatra ramanensis* n.sp.: a – b penis in different aspects. – *C. hyalina* (F.): c pygofer, lateral aspect; d penis. – Orig.

basally; basal margin and a median longitudinal stripe lighter greyish brown. Scutellum blackish, only basal angles, a pair of narrow central longitudinal bands and apex greyish brown. Elytra vitreous, without dark markings; basal veins yellowish, apical ones brownish. Abdomen with anterior margins of segments dark brown, caudal margins broadly light brown. Under surface light greyish or yellowish brown. Femora with longitudinal dark bands.

Elongate, relatively slender and parallel-sided species. Body form as in *C. atra* (nominate form), but frontoclypeus much more strongly convex (seen both in profile and from above), hence crown conspicuously longer medially. Pronotum narrower, 2.53 × as broad basally as long. Elytra long and narrow (as about in *C. atra atra*), 2.82 × as long as broad, but apical margin broader and apical cells shorter, 3rd and 4th apical cells 4.0 × as long as broad. Entire body with a dense silvery white pubescence. Male genitalia: Pygofer (fig. 25 d) with a long dorsal prolongation slightly curved ventrad apically; lateral processes long and curved ventrad (fig. 25 e). Appendages of anal tube slender, claw-like (fig. 25 b). Valve roundish, apex slightly insinuated (fig. 25 c). Penis (fig. 26 a – b) with several short apical appendages (stippled in the figure). ♀ unknown.

Type, a male and 4 paratypes, Wadi Raman, 13. VIII. 1956, Wahrman (!). Type and paratypes in my collection, a paratype in the Hebrew University, Jerusalem.

Closely related to *C. atra*, but slenderer, frons more convex and with dissimilar male genitalia. The specimens studied do not show any variability in the colouring.

*C. lineola* (Hag.) – Aima-tufucha, Lib., 1 spec., (!). – Caspian. – Not previously recorded from Palestine.

*C. longipennis* Schum.

A dark elongate species with remarkably long and narrow elytra. Male genitalia: Pygofer (fig. 24 d) with a long sharp-tipped dorsal prolongation, no lateral processes. Appendages of anal tube (fig. 25 a) claw-like. Valve not insinuated apically. Penis (fig. 24 e – f) with appendage 1 reflexed, appendage 2 short and dentate and a semicircle formed by about 11 teeth just basad to appendage 2.

Palestine (BODENHEIMER op.cit.); Jerusalem, 1 spec. 9. VI. 1952, Amitai (!), 2 spec., 25. VI. 1957, Wahrman (!), 3 spec., 13 – 17. VI. 1958,!; Kiriath Anavim, 2 spec., 27. V. 1942, Bytinski-Salz (!). – Found on herbs and bushes on dry sunny hillsides. – Endemic.

*C. hyalina* (F.)

A small but relatively robust species. Colouring variable, sometimes even uniformly greenish. Male genitalia: Pygofer (fig. 26 c) with only a short dorsal prolongation, no lateral processes. Appendages of anal tube (fig. 27 c) short, claw-like. Valve not insinuated apically. Penis (fig. 26 d, 27 a – b) with appendage 1 stout, appendage 2 bearing 4 – 6 apical processes; a semicircle formed by about 7 teeth present basad to appendage 2.

Palestine (BODENHEIMER op.cit.); Akko, 1 spec., 10. VII. 1952, (!); 'Ein Harod, 1 spec., Bytinski-Salz (!); Beestuvia, 1 spec., 3. VI. 1945, Bytinski-Salz (!); Deganya, some spec., Palmoni (!); Kfar Giladi, 1 spec., 18. IV. 1940, (!); Kiriath Anavim, 3 spec., 27. V. 1942, Bytinski-Salz (!); Pard. Channah, 1 spec., 5. V. 1943, Bytinski-Salz (!). – Moreover I have seen a specimen from Tiflis, Caucasia, 26. VI. 1908, Satunin (in coll. Melichar). – Pontomediterranean.

*C. querula* (Pall.) – Wadi Hedhira, 4 spec., 29. IV. 1950, (!); Wadi Raman, 4 spec., 25. IV. 1950, Wahrman (!), 1 spec., 24. IV. 1952, Bytinski-Salz (!). – Holomediterranean with a wide distribution into Central Asia.

*C. flavicollis* Hv. – Wadi Menayie, 1 spec. (!). – Eremian, previously known only from Egypt.

## *Cicadetta* Klti.

*C. musiva* (Germ.) – Palestine (BODENHEIMER op.cit.); Nahal Hiyon, 4 spec., 22. VI. 1958,!; Al Maghtas, Transjordania, numerous spec., 18. VII. 1942, Bytinski-Salz (!). – Sitting on *Tamarix* bushes. – Eremian.

*C. sibilatrix* Hv. – Palestine (BODENHEIMER op.cit.); Dan, 2 spec., Hurvitz (!); Tel-Aviv, 1 spec., Bodenheimer (!). – Syrio-Anatolian.

*C. tibialis* (Pnz.) – Dan, 1 spec., Hurvitz (!). – Holomediterranean, also extending into Central Europe. New record for Israel.

BODENHEIMER (op.cit.) has also recorded *C. cantans* (F.) from Palestine. *C. cantans*, however, is a Westmediterranean species that hardly occurs in Palestine.

## *Cercopidae*

### *Cercopis* F.

*C. sanguinolenta* (Scop.) ssp. *intermedia* Kbm. – Palestine (BODENHEIMER op.cit. as *C. sanguinolenta*); Jerusalem, some spec., 5. IV. 1952, Swirski (!), 3 spec., 19. III. 1955, Wahrman (!), 1 spec., 18. IV. 1957, Ginsburg (!). – Holomediterranean.

The morphological differences between *C. sanguinolenta* and *C. intermedia* are constant. Moreover their distribution is different, *C. intermedia* being more southern in distribution. It is very probable that *C. intermedia* is a valid species. The genuine *C.sanguinolenta* does not occur in Palestine.

*C. septemmaculata* Mel.

Regarded as a variety of *C. sanguinolenta* by LALLEMAND (1949, p. 167). Much as *C. intermedia* but somewhat smaller and with ± reduced red markings: clavus without red markings

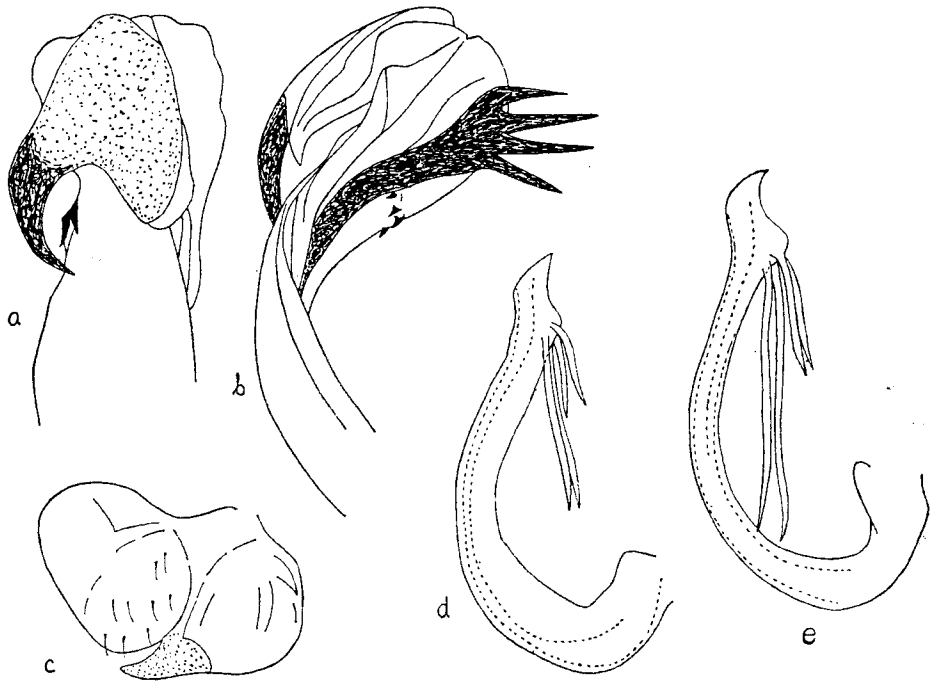



Fig. 27. *Cicadatra hyalina* (F.): a – b penis, in different aspects; c appendage of anal tube.– *Cercopis sanguinolenta* (Scop.) ssp. *intermedia* Kbm. (specimen from Jerusalem): e penis, lateral aspect. – *C. septemmaculata* Mel. (specimen from Deganya): d same. – Orig.

(only just the base reddish), the median spot on corium small and round and the transverse band on corium reduced to a roundish or elongate small dash. Also penis (fig. 27 d) provided with a thicker and shorter stem with shorter appendages. The penis of *C. intermedia* is illustrated in fig. 27 e. It seems to me that *C. septemmaculata* is a valid species.

Palestine (BODENHEIMER op.cit.); Afula, 2 spec., 25. IV. 1945, Bytinski-Salz (!); Deganya, 3 spec., Palmoni (!); 'Ein Geb, 1 spec., 23. IV. 1943, Bytinski-Salz (!). – Endemic.

*C. fasciata* Kbm. – Palestine (BODENHEIMER op.cit.); Jerusalem, some spec., Swirski (!). – Pontomediterranean. In Palestine only the varieties f. *geniculata* Hv. and f. *punctum* Ldb. are known.

## *Philaenus* Stål

*P. spumarius* (L.) – Palestine (BODENHEIMER op.cit.). – Holarctic. I have not seen any specimens from Palestine. All specimens determined as *P. spumarius* proved to belong to the following species.

*P. impictifrons* Hv. – Palestine (BODENHEIMER op.cit.); Aqua Bella, 5 spec., 14. VI. 1958,!; Hadera, 2 spec., 1. VII. 1958,!; Hagoshrim, 1 spec., 8. VII. 1958,!; Haifa, 4 spec., 29. VI. 1958,!; Jerusalem, 1 spec., 9. VII. 1939, Jolles (!), 1 spec., Bytinski-Salz (!), 1 spec., 16. IX. 1949, Wahrman (!), 2 spec., 13. VI. 1958,!; Khreiba, 3 spec., 17. IV. 1947, Bytinski-Salz (!); Kiriath Anavim, 3 spec., Bodenheimer (!). – Eremian, known from Egypt and Palestine. – Swept from *Quercus calliprinos*, *Q. ithaburensis*, *Vitis vinifera* and from different herbs and bushes.

The species varies in colouring like *P. spumarius*. It seems to me unnecessary to name these varieties, however.

### *Neophilaenus* Hpt.

*N. campestris* (Fn.) – Beit Jubrin, 2 spec., 16. VI. 1958,!; Haifa, 7 spec., 29. VI. 1958,!; Jerusalem, 22 spec., 20. VIII. 1956, Wahrman (!), 1 spec., 4. V. 1958, Amitai (!), 12 spec., 13 – 17. VI. 1958,!; Palestine, 1 spec., Bodenheimer (!); Rehovot, 2 spec., 16. VIII. 1957, Michaeli, Swirski (!). – Swept from dry sunny localities. – European. New record for Israel.

## *Cicadellidae*

### *Euscelinae*

### *Macrostelini*

### *Macrosteles* Fb.

*M. sexnotatus* (Fn.) – Palestine (BODENHEIMER op.cit.); Beit Jubrin, 1 spec., 16. VI. 1958,!; Dan, 123 spec., 7 – 11. VII. 1958,!; Hula, 23 spec., 10. VII. 1958,!; Ness Zionah, several spec., Carmin (!); Palestine, numerous spec., Bodenheimer (!). – Among herbs and grasses in moist biotopes, e.g. on the shores of fish ponds. – Euro-Siberian.

*M. quadripunctulatus* (Kbm.) – Beersheba, 2 spec., 1. VIII. 1958,!; Deganya, 2 spec., 23. VII. 1958,!; 'Ein Gedi, 10 spec., 18. VI. 1958,!; Gvuloth, 2 spec., 17. VII. 1958,!; Neot Mordekhai, 2 spec., 21. VII. 1958,!; Rehovot, 4 spec., 18. VII. 1958,!; Revivim, 1 spec., 23. VI. 1958,!; Shoval, 6 spec., 20. III. 1958, Amitai (!); Tel-Aviv, 7 spec., 26. VI – 14. VII. 1958,!; Wadi Karen near Goren, 1 spec., 6. VIII. 1958,!. – Common among herbs and grasses in dryish biotopes, e.g. on cultivated fields. – European with an eastern distribution. New record for Israel.

### *Cicadulina* Ch.

*C. bipunctella* (Mts.) – Palestine (BODENHEIMER op.cit.); Dan, 1 spec., 11. VII. 1958,!; Deganya, 11 spec., 23. VII. 1958,!; 'Ein Gedi, 9 spec., 18. VI. 1958,!; Hula, 1 spec., 9. VII. 1958,!; Kefar Malal, 1 spec., Carmin (!); Kvutsath Schiller, 1 spec., Harpaz (!); Maanit, 1 spec., 22. VIII. 1958, Harpaz (!); Nazareth, 1 spec., 5. VIII. 1958,!; Palestine, 5 spec., Bodenheimer (!); Rehovot, 2 spec., 12. IX. 1957, Swirski (!); Revadim, 2 spec., 15. VII. 1958,!; Revivim, 1 spec., 2. VIII. 1958,!; Sa'ad, 1 spec., 17. VII. 1958,!; Sha'alvim, 1 spec., 28. VII. 1958,!; Tel-Aviv, 2 spec., 4. VII. 1958,!; Wadi Karen near Goren, 9 spec. 6. VIII. 1958,!; Yotvata, 2 spec., 20. VI. 1958,!. – Common on corn; also often collected at lamps. – Intertropical, distributed through Africa to Micronesia.

### *Pteropyx* Hpt.

*P. hyalinus* Hpt.

The genus and the species has been described by HAUPT (1927, p. 27 – 28). Here some additional remarks on the male genitalia: Pygofer with side lobes unusually long and narrow, strongly setose, without appendages. Anal tube small, weakly sclerified. Plates narrowly triangular, macrosetae uniseriate. Stylus with apophysis long and serrate; preapical angle rectangular. Connective linear. Penis (fig. 29 a) symmetrical, stem short with apex enlarged; gonopore apical.

Palestine (BODENHEIMER op.cit.); Herzliya, 7 spec., 4. VII. 1958!; Wadi Rubin, 1 spec., 16. VII. 1958,!; Yotvata, 25 spec., 20. VI. 1958,!. – On *Agropyron* species in dry sandy localities. – Endemic.

## *Cicadulella* Ch.

*C. pallida* (Hpt.) – Palestine (BODENHEIMER op.cit.); Palmahim, 3 spec., 4. VII. 1958,!. – On *Agropyron* sp. on coastal dunes. – Eremian.

## *Balclutha* Kk.

*B. flavella* nom.n.

*Balclutha flava* LINNAVUORI 1952, p. 194 nec HAUPT 1927, p. 37 – 38.

Aqua Bella, 1 ♂ (holotype), 14. VI. 1958,!; Jerusalem, 1 spec., 3. XI. 1950, Wahrman (!). – Probably Caspian. Recorded from South Russia, Caucasia and Israel.

*B. rufofasciata* (Mer.)

Beit Jubrin, 1 spec., 16. VI. 1958, !. – Intertropical. New record for Israel.

*Balclutha saltuella* (Kbm.)

*Gnathodus saltuellus* KIRSCHBAUM 1868.

*G. incisus* MATSUMURA 1902, p. 357, 360, n.syn. (about the other synonymy see LINNAVUORI 1960, p. 343).

Beer Mashash, 1 spec., 22. VI. 1958,!; Beersheba, 2 spec., 19. VI. 1958,!; 'Ein Gedi, 19 spec., 18. VI. 1958,!; Gvuloth, 1 spec., 17. VII. 1958,!; Hadera, 1 spec., 26. VI. 1958,!; Palestine, 4 spec., Bodenheimer (!); Ramath Gan, 1 spec., 19. VII. 1958,!; Rehovot, 9 spec., 10. XI. 1957, Swirski (!), 5 spec., 28. VII. 1958,!; Revivim, 2 spec., 23. VI and 2. VIII. 1958,!; Timna, 2 spec., 21. IX. 1957, Wahrman (!). – Common among different herbs especially in cultivated fields, often also collected at lamps. – Cosmopolitan.

*B. nicolasi* (Leth.)

*Cicadula nicolasi* LETHIERRY 1876 a.

*Balclutha eos* HAUPT 1927, p. 38, n.syn.

Palestine (BODENHEIMER op.cit.); Beit Shean, 2 spec., 7. VIII. 1958,!; Ben-Shemen, 1 spec. (type of *B. eos*), Bodenheimer (!); Hadera, 26 spec., 1. VII. 1958,!; Hula, 1 spec., 8. VII. 1958,!. – On different *Cyperus* species in moist shores. – Holomediterranean.

*B. rosea* (Sc.)

*Gnathodus roseus* SCOTT 1876, p. 83.

*Balclutha flava* HAUPT 1927, p. 37 – 38, n.syn.

*B. rubrostriata* HAUPT 1927, p. 36 – 37, n.syn. nec MELICHAR 1903, (for the other synonymy see LINNAVUORI 1960, p. 339).

Palestine (BODENHEIMER op.cit.); Ashqelon, 1 spec., 2. VII. 1958,!; Ben-Shemen, 2 spec. (incl. type of *B. flava*), Bodenheimer (!); Dan, 5 spec., 7 – 11. VII. 1958,!; Deganya, 1 spec., 23. VII. 1958,!; 'Ein Gedi, 4 spec., 18. VI. 1958,!; Hagoshrim, 8 spec., 11. VII. 1958,!; Hula, 1 spec., 10. VII. 1958,!; Nabi Rubin, 1 spec., 4. VII. 1958,!; Nazareth, 2 spec., 4. VIII. 1958,!; Palestine, 2 spec., Bodenheimer (!); Rehovot, 2 spec., 23. IX. 1957, Swirski (!); Revadim, 2 spec., 15. VII. 1958,!; Revivim, 1 spec., 1. VIII. 1958,!; Sha'alvim, 1 spec., 28. VII. 1958,!; Shimron, 1 spec., 6. VIII. 1958,!; Shuva, 1 spec., 14. VII. 1958,!; Tel-Aviv, 1 spec., 4. XI. 1957, Rubin (!); Wadi Sukreir, 2 spec., 27. VI. 1958,!; Yarkon, 1 spec., 28. VI. 1958,!. – Among different herbs especially on cultivated fields, also collected at lamps. – Cosmopolitan.

*B. hebe* (Kk.)

*Nesosteles hebe* KIRKALDY 1906, p. 343.

*Balclutha virescens* HAUPT 1927, p. 37, n.syn. (for the other synonymy see LINNAVUORI 1960, p. 340).

Palestine (BODENHEIMER op.cit.); Beersheba, 3 spec., 1. VIII. 1958,!; Beit Shean, 7 spec., 7. VIII. 1958,!; Ben-Shemen, 2 spec. (types of *B. virescens*), Bodenheimer (!); Dan, 2 spec., 7. VII. 1958,!; Deganya, 1 spec., 23. VII. 1958,!; 'Ein Gedi, 5 spec., 18. VI. 1958,!; Hadera,

2 spec., 26. VI. 1958,!; Hulda, 1 spec., 15. VII. 1958,!; Jerusalem, 5 spec., 26. X. 1957, Wahrman (!); Kefar Malal, 1 spec., 27. VII. 1958,!; Kvutsath Schiller, 2 spec., Harpaz (!); Maanit, 1 spec., 22. VIII. 1958, Harpaz (!); Miqve Israel, 2 spec., 16. VII. 1958, Michaeli (!); Nabi Rubin, 1 spec., 4. VII. 1958,!; Nazareth, 1 spec., 4. VIII. 1958,!; Palestine, 37 spec., Bodenheimer (!); Rehovot, 13 spec., 12. X. 1957, Swirski, Michaeli (!); Revadim, 19 spec., 15. VII. 1958,!; Revivim, 1 spec., 22. VI. 1958,!; Sa'ad, 1 spec., 17. VII. 1958,!; Sde Eliahu, 1 spec., 10. X. 1957, Rubin (!); Shuva, 1 spec., 14. VII. 1958,!; Tanninim, 1 spec., 20. VII. 1958,!; Tel-Aviv, 3 spec., 26. VI. 1958,!; Tivon, 2 spec., Sternlicht (!); Wadi Karen near Goren, 2 spec., 6. VIII. 1958,!; Wadi Sukreir, 1 spec., 27. VI. 1958,!. – Very common on different herbs; also on different cultivated plants e.g. corn; also often collected at lamps. – Cosmopolitan.

### *Aconurella* Rib.

*A. prolixa* (Leth.)

*Thamnotettix prolixus* LETHIERRY 1885.

*Deltocephalus simplex* HAUPT 1927, p. 29, n.syn.

Palestine (BODENHEIMER op.cit.); Beersheba, 46 spec., 1. VIII. 1958,!; Beit Jubrin, 3 spec., 17. VI. 1958,!; Eilat, 1 spec., 20. VI. 1958,!; 'Ein Gedi, 27 spec., 18. VI. 1958,!; Gvuloth, 5 spec., 17. VII. 1958,!; Hadera, 2 spec., 1. VII. 1958,!; Hulda, 1 spec., 25. VI. 1958,!; Kefar Malal, 2 spec., 27. VII. 1958,!; Nabi Rubin, 1 spec., 4. VII. 1958,!; Rehovot, 7 spec., 31. VIII. 1957, Michaeli (!), 1 spec., 26. VI. 1958,!; Revadim, 3 spec., 15. VII. 1958,!; Revivim, 5 spec., 23. VI and 2. VIII. 1958,!; Shuva, 5 spec., 14. VII. 1958,!; Sedom, 1 spec., 15. VIII. 1957, Wahrman (!); Tel-Aviv, 1 spec., 26. VI. 1958,!; Timna, 1 spec., 21. VII. 1957, Wahrman (!); Wadi Karen near Goren, 1 spec., 6. VIII. 1958,!; Yarkon, 2 spec., 5. VII. 1958,!; Yotvata, 2 spec., 22. VI. 1958,!. – Common among different herbs e.g. on cultivated fields, especially in southern parts of the country. Also collected at lamps. – Eremian.

The type of *Deltocephalus simplex* could not be found in coll. Haupt according to a letter by Prof. H. J. Müller. The synonymy mentioned above is quite obvious, however.

## *E u s c e l i n i*

### *Euscelis* Brlé.

The taxonomy of the genus is extraordinarily difficult owing to the variability caused by the photoperiodism (MÜLLER 1954); even the male genitalia are variable for this reason. Laboratory experiments are often needed to solve the taxonomic position of certain forms. Thus MÜLLER (op.cit.) has proved that several previously described species are in fact only photoperiodic forms of *E. lineolatus* Brlé., *E. plebeius* (Fn.) and *E. ohausi* W.Wgn. Müller has kindly revised my Palestinian material and found that at least two species occur in Israel.

*E. alsius* Rib.

Müller has written the following comments in a letter: »Die erste Gruppe, die ausschliesslich israelische und zwei bulgarische Exemplare umfasst, ist eventuell eine neue Art. Herr Dr. Dlabola hat die von Herrn Hoberlandt in Bulgarien gesammelten Tiere für *Euscelis alsius* erklärt. Nach meinen bisherigen Untersuchungen habe ich vermutet, dass *alsius* eine Form von *plebeius* sei, da sie gewissen *subplebeius*-Formen sehr ähnelt. Leider habe ich selbst kein Originalmaterial von *alsius* zur Verfügung; denn es käme nun auf einen Grössenvergleich an. Das Material ähnelt in der Tat *alsius* bzw. *subplebeius*, hat aber für *subplebeius* viel zu grosse PU-Werte und auch übernormal breite Ductus-Werte (Ductus ejaculatorius) (Fig. 28), so dass man also sagen kann, dass es sich jedenfalls nicht um die *subplebeius*-Form von *E. plebeius* handelt. Wenn es sich also nachweisen lässt, dass die Original-*alsius* entsprechend grosse Werte haben, so würden diese Tiere alle zu *alsius* gehören und damit erwiesen sein, dass diese Art im Mediterrangebiet weit verbreitet ist. Leider ist Ribaut's Diagnose ausserordentlich

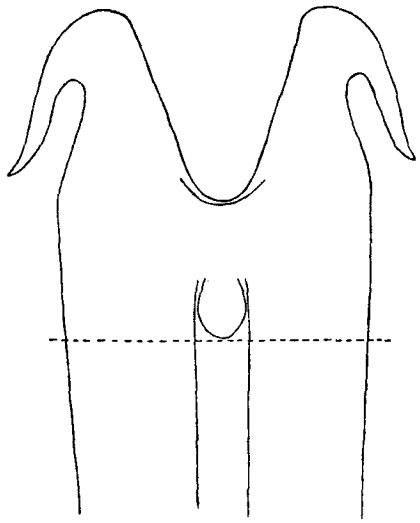


Fig. 28. *Euscelis alsius* Rib., apex of penis, ventral aspect (specimen from Sandanski, Bulgaria). – Orig. (drawn by H. J. Müller).

dürftig. Ich will versuchen, die Typen von Ribaut zu bekommen. Erst dann kann ich eine entgültige Entscheidung mitteilen.»

Aqua Bella, 1 spec., 14. VI. 1958,!; Ashqelon, 1 spec., 2. VII. 1958,!; Jerusalem, 2 spec., 2. VII. 1954, Wahrman (!), 2 spec., 3. VI. 1956, Wahrman (!), 7 spec., 13 – 17. VI. 1958,!; Palestine, 5 spec., Bodenheimer (!); Rehovot, 2 spec., 20. IV. 1958, Swirski (!). – Among herbs in dry sunny localities. – In my collection I also have the following finds: Bulgaria: Sandanski, 2 spec., 19. VII. 1956, Hoberlandt (*alsius* det. Dlabola). – Holomediterranean.

*E. plebeius* (Fn.)

The following comments by Müller: »Die zweite Gruppe umfasst alles übrige Material aus Israel, das hauptsächlich wohl von Bodenheimer gesammelt worden ist. Es handelt sich dabei in vielen Fällen um *plebeius* – Formen. Ganz sicher ist das für Stücke, die ich mit No 2, 9 und 10 ausgezeichnet habe. Etwas weniger sicher sind die Nummern 8, 11 und 12, die unter Umständen auch zu *lineolatus* gehören könnten. Die Formenvariabilität der kleinsten *E. incisus* (Kurztagform von *E. plebeius*) und der von *E. lineolatus* (Kurztagform von *E. lineolatus*) ist leider so gross, dass man bei sehr kleinen Wildfang-Exemplaren die Artzugehörigkeit nicht sicher entscheiden kann. Ich neige allerdings nach Ihrem Material sehr dazu anzunehmen, dass *lineolatus* in Palästina überhaupt nicht vorkommt, denn unter den Weibchen befindet sich nicht ein einziges Stück, das die sehr typische Rückenzeichnung von *lineolatus* aufwiese. Im Gegenteil, alle zu den entsprechenden Männchen gehörenden Weibchen sind ziemlich einwandfrei zu *plebeius* zu stellen. Es wäre sehr bedauerlich, dass weder von *plebeius* noch von *lineolatus* Sommerfänge vorhanden sind. Das einzige Exemplar, das sehr eindringlich für *lineolatus* spricht, stammt von Rehovot vom 23. XII. 1957 (No 4). Ich bin aber deshalb etwas im Zweifel, weil wir ja noch nicht wissen, ob nicht *alsius* eine Frühjahrsform entwickelt, die *E. lineolatus* ähnelt; denn gerade in Rehovot wurden einige der erwähnten *alsius* gefangen. Es spricht allerdings wieder dagegen, dass sie Ende April gefangen wurden, weil ja dann eigentlich noch diese Frühjahrsformen vorhanden sein müssten.»

Palestine, 23 spec. (including No 8, 9, 10, 11 and 12), Bodenheimer (!); Rehovot, 1 spec. (No 4), 23. XII. 1957, Michaeli (!), 3 spec. (including No 2), 13. I. 1958, Michaeli (!), 1 spec., 16. II. 1958, Michaeli (!); Tel-el Kunetza, 1 spec., 13. II. 1958, Swirski (!); Yarkon, 1 spec.,

28. VI. 1958,!. – Euro-Siberian. – As pointed out above, some of the specimens may possibly belong to *E. lineolatus*, which has a Holomediterranean distribution.

## *Euscelidius* Rib.

*E. mundus* (Hpt.), n.comb.

*Euscelis sordidus* (Zett.) f. *munda* HAUPT 1927, p. 26 – 27.

*Euscelidius orientalis* DLABOLA 1957 b, p. 283 – 284, n.syn.

Palestine (BODENHEIMER op.cit.); Beersheba, 1 spec., 19. VI. 1958,!; Beit Jubrin, 1 spec., 16. VI. 1958,!; Ben-Shemen, 2 spec. (types of *E. munda*), Bodenheimer (!); Dan, 2 spec., 7 – 8. VII. 1958,!; Hadera, 1 spec., 25. VIII. 1948, Bytinski-Salz (!); Jericho, Transjordania, 1 spec., 22. VII. 1943, Bytinski-Salz (!); Sde Eliahu, 1 spec., 10. X. 1957, Rubin (!); Tel-Aviv, 1 spec., 18. VI. 1945, Bytinski-Salz (!), 1 spec., 26. V. 1958, Rubin (!). – In dry sunny localities. – Probably Iranian. Recorded from Palestine, Iraq, Iran and Afghanistan.

## *Carinifer* Lv.

*C. amitinus* (Mel.)

*Aconura amitina* MELICHAR 1902.

*Thamnotettix inustus* HAUPT 1927, p. 32 – 33, n.syn.

The species has recently been redescribed by DLABOLA 1960 b, p. 248.

Palestine (BODENHEIMER op.cit.); Jerusalem, 2 spec., 29. V. 1954, Wahrman (!). – Caspian. Recorded from Caucasia and Palestine.

*C. impictus* n.sp.

Length 3 – 4 mm. Uniformly pale stramineous without any dark markings, dull.

A small slender species. Crown rectangularly produced anteriorly, 1.63 × (♂) or 1.67 × (♀) as long at middle as next to eyes, 0.83 – 0.87 × as long as broad basally. Elytra as long as abdomen (♂) or extending to apex of pygofer (♀). Male genitalia: Apophysis of stylus claw-like (fig. 29 b). Penis (fig. 29 c, d) stout, stem strongly curved dorsad, provided with a pair of subapical dorsal appendages. Other genitalia and the 7th sternite of ♀ of the type common within the genus.

Type, a male; allotype, a female and 3 paratypes, Sedom, 15. VIII. 1957, Wahrman; a paratype, Jordan, 7. VIII. 1939, Bytinski-Salz; a paratype, Palestine, Bodenheimer. Type, allotype and a paratype in my collection, other paratypes in coll. Lindberg, in the Hebrew University, Jerusalem, and in the University of Tel-Aviv.

*C. oculatus* (Ldb.) (described as *Henschia* by LINDBERG 1948, p. 148 – 150) is closely related to the new species, but is conspicuously robuster, crown more bluntly produced anteriorly (1.43 × (♂) or 1.64 × (♀) as long at middle as next to eyes, 0.71 – 0.82 × as long as broad basally), usually brachypterous, ♂ with 2 large black spots on crown and colouring more greenish. Genitalia similar, but penis robuster with somewhat thicker appendages and the apex of the genital plates blunter.

## *Aconura* Leth.

The taxonomy of the genus is difficult owing to the similarity in the male genital structure. Both Palestinian species of the genus, *A. instabilis* RIB. and *A. acuticeps* RIB. are very closely related to each other and to *A. pallifrons* HV., no larger differences being found in the male genitalia between the species. After studying a larger amount of material of the species, however, I regard them at present as valid species that are best distinguished by the shape of the crown. Moreover, there is considerable biological difference between *A. instabilis* and *A. acuticeps*.

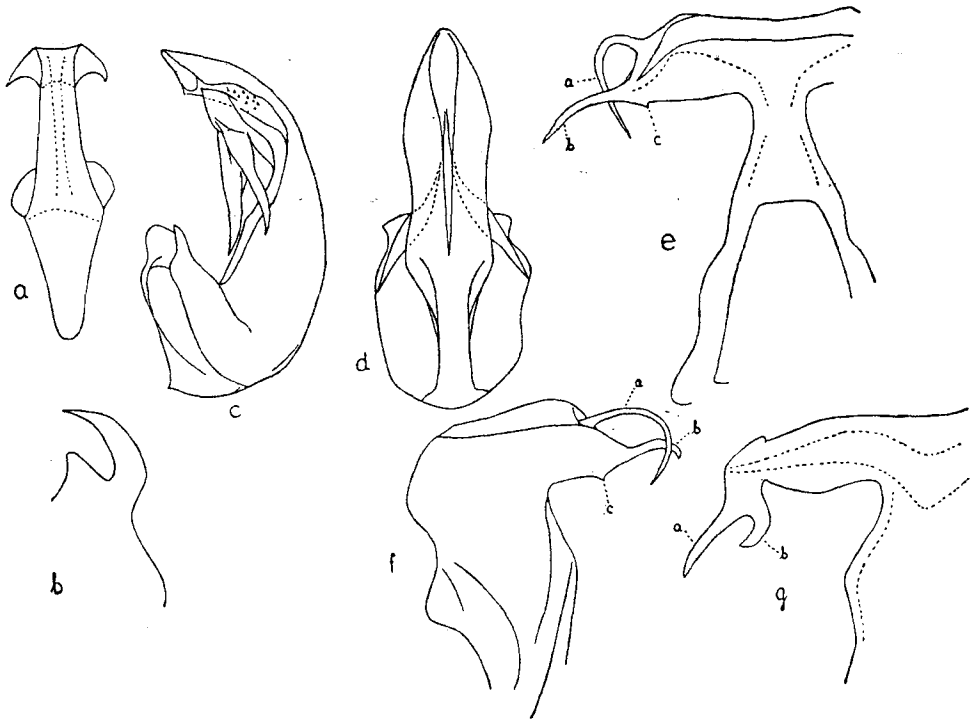



Fig. 29. *Pteropyx hyalinus* Hpt.: a penis, ventral aspect. – *Carifiner impictus* n.sp.: b stylus; c penis, lateral aspect; d same, ventral aspect. – *Handianus procerus* (H.S.) ssp. *palestinensis* n.ssp.: e penis, dorsal aspect; f same, lateral aspect. – *H. ignoscus* (Mel.) specimen from Czechoslovakia): g penis, dorsal aspect. – Orig.

*A. instabilis* Rib.

Ochraceous. Crown roundedly angled (♂) or roundedly bluntly angled (♀) and conspicuously sloping anteriorly, 1.11 × (♂) or 1.22 × (♀) as long as broad basally, 1.42 × (♂) or 1.38 × (♀) as long at middle as next to eyes. Face moderately rounded in profile.

Bat Yam, 16 spec., 3. VII. 1958,!; Dan, 2 spec., 8. VII. 1958,!; Hadera, 7 spec., 1. VII. 1958,!; Ramath Gan, 1 spec., 19. VII. 1958,!; Rehovot, 14 spec., 16 – 31. VIII. 1957, Michaeli, Swirski (!); Wadi Sukreir, 5 spec., 27. VI. 1958,!. – Common in dry sandy localities. – Ponto-mediterranean, not previously recorded from Israel.

(*A. pallifrons* Hv.)

Dirty ochraceous, elytra with a slight greenish tinge. Crown rectangularly (♂) or sharply (♀) angled anteriorly, flat, only anterior margin moderately rounded to face; crown 1.33 × (♂) or 1.4 – 1.5 × (♀) as long as broad basally, 1.55 × (♂) or 1.67 – 1.75 × (♀) as long at middle as next to eyes. Face slightly concave in profile.

Material studied: Serbia, Kutina, 4 spec., coll. Melichar.

*A. acuticeps* Rib.

Colour bright green in life. Crown sharply (♂) or very sharply (♀) produced apicad, flat, apical margin nearly subacute; crown 1.76 × (♂) or 2.0 – 2.09 × (♀) as long as broad basally, 1.87 × (♂) or 2.56 – 2.75 × (♀) as long at middle as next to eyes. Face slightly (♂) or conspicuously (♀) concave in profile.

Avdat, 1 spec., 8. IX. 1957, Wahrman (!); Beit Jubrin, 13 spec., 16. VI. 1958,!; Beit Shean, 13 spec., 7. VIII. 1958,!; Deganya, 1 spec., 23. VII. 1958,!; Gvuloth, 2 spec., 17. VII. 1958,!;

Hagoshrim, 1 spec., 11. VII. 1958,l; Hula, 1 spec., 10. VII. 1958,l; Nabi Rubin, 1 spec., 4. VII. 1958,l; Rehovot, 9 spec., 13 – 29. IX. 1957, Michaeli, Swirski (l); Yarkon, 1 spec., 28. VI. 1958,l. – Common in moist shore biotopes. – Syrio-Anatolian. Not previously recorded from Israel.

## *Pseudaconura* Lv.

*P. luxorensis* Lv. – Beer Mashash, 3 spec., 23. VI. 1958,l. – Swept from *Aristida scoparia* on dunes. – Eremian. Previously known only from Egypt.

## *Handianus* Rib.

*Handianus* RIBAUT 1942, p. 7 (type: *Jassus procerus* H.S.).

*Usuironus* ISHIHARA 1953 b, p. 197 – 200 (type: *Athysanus ogikubonis* Mats.), n.syn.

The genus *Usuironus* has been separated from *Handianus* solely on the basis of the position of the macrosetae in the genital plates (♂). The macrosetae are in disorder in *Usuironus*, while they are uniseriate in *Handianus*. In the latter genus however, there are some scattered macrosetae right at the apex of the plates and since the Siberian species *H. maculaticeps* (RT.) is distinctly intermediate between *Handianus* and *Usuironus*, I do not hesitate to regard the latter as a synonym of the former.

*H. procerus* (H.S.) ssp. *palestinensis* n.ssp.

♂. Length 6 – 6.2 mm. Dirty greenish ochraceous. Frontoclypeus with faint brownish arcs. Crown with 4 obscure small brown dots. Elytra greenish hyaline, without markings; veins green. Dorsal surface of abdomen dark, sides yellowish. Under surface yellowish green. Legs pale ochraceous, femora with a transverse fuscous stripe.

Elongate, body as in the nominate form. Male genitalia: Penis (fig. 29 e, f) with spine c very small, tooth-like, while spines *a* and *b* are similar to those in the nominate form.

Type, a male (in my collection), Beersheba, 28. IV. 1940, Bytinski-Salz; a paratype (in coll. Lindberg), Jerusalem, 30. VI. 1940, Bytinski-Salz.

(*H. ignoscus* (Mel.) ssp. *mediterraneus* n.ssp.)

♂. As the nominate form, but somewhat slenderer, length 5 – 5.25 mm., and the aedeagal spines *a* and *b* are of equal length, the latter being distinctly curvate and sharp-tipped (fig. 30 a), while in the nominate form spine *b* is much shorter and thicker and spine *a* remarkably longer (fig. 29 g).

Type, a male and 2 paratypes, Italy, Pian Perduto, Umbr. March., Mti Sibillini, VII. 1954 (in my collection).

(*H. modestus* (Mel.))

A small species closely resembling *H. ignoscus*, length 5 – 5.25 mm. Dark markings variable: crown usually with 4 black spots anteriorly, sometimes these spots are coalescent, sometimes on the contrary entirely absent; cells of elytra sometimes with dark longitudinal shadows. Male genitalia: Aedeagal appendages *a* and *b* long and slender (fig. 30 b, c).

Material studied: SSSR: Sarepta, 4 spec., in coll. Melichar.

(*H. tamerlani* Dlab.)

♂. Length 6.2 mm. Dirty yellowish ochraceous with a greenish tinge. Frontoclypeus with fuscous lateral arcs. Crown with 4 conspicuous black irregularly angular spots in anterior margin. Elytra hyaline, greenish, without dark markings; veins greenish. Dorsum of abdomen blackish, sides yellowish. Under surface yellowish. Legs ochraceous, both femora and tibiae with a longitudinal fuscous band on dorsal surface.

Elongate, resembling *H. procerus*. Elytra much longer than abdomen. Male genitalia: Penis (fig. 30 d, e) with apical branches short and thick; spine *a* remarkably short, tooth-like, spine *b* short, claw-like. Other genitalia as in *H. ignoscus*.

Material studied: Turkestan, Bekljar-bek, J. Sahlberg; in addition the following female apparently belongs to the species: Turkestan, Aschabad, Ahnger (in coll. Helsinki University).

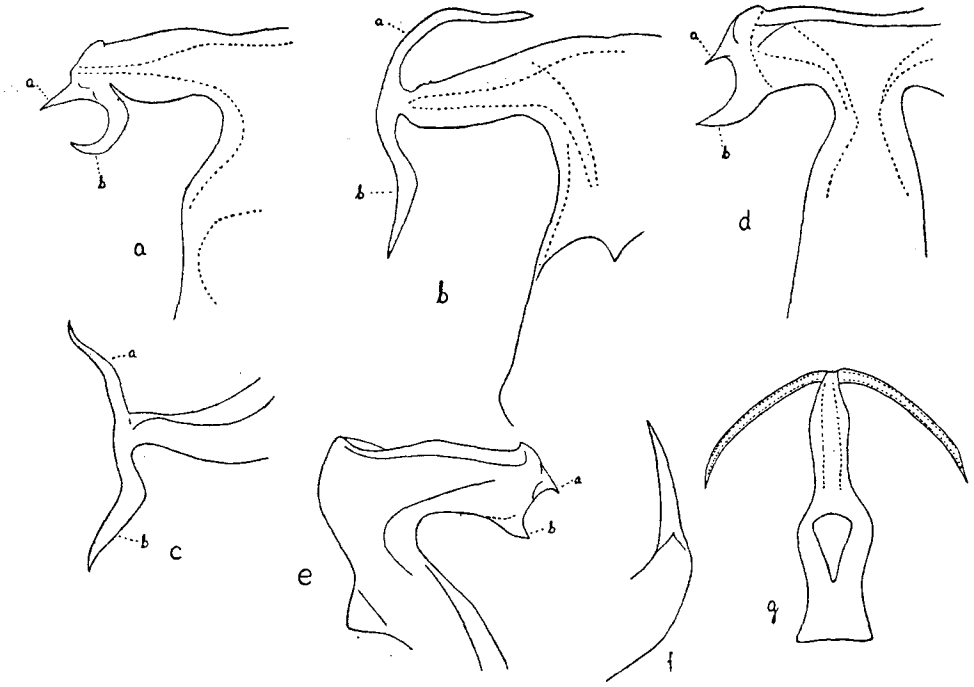



Fig. 30. *Handianus ignoscus* (Mel.) ssp. *mediterraneus* n.ssp.: a penis, dorsal aspect. – *H. modestus* (Mel.): b same, dorsal aspect; c branch of same, lateral aspect. – *H. tamerlani* Dlab: d penis, dorsal aspect; e same, lateral aspect. – *Neoaliturus pulchellus* (Hpt.): f appendage of pygofer; g penis, dorsal aspect. – Orig.

Closely related to *H. ignoscus*, but bigger, more elongate, crown somewhat shorter and penis dissimilarly shaped. – Recently described by DLABOLA (1961, p. 340 – 341).

(*H. limbifer* (Mats.), n.comb.)

*Athysanus limbifer* MATSUMURA 1902, p. 372 – 373.

*Usuironus limbifer* ISHIHARA 1954 b, p. 266 – 269.

Redescribed by ISHIHARA (op.cit.). My collection consists of the following material: Japan: Hokkaido, Humonke, Iburi, 1 spec., 28. VII. 1953, Y. Nishio; Honshu, Kiyosato, Kai, 2 spec., 29 – 31. VII. 1959, S. Miyamoto; Honshu, Masutomi, Kai, 1 spec., 23 – 24. VII. 1959, S. Miyamoto.

## *Thamnotettix* Zett.

*T. zelleri* (Kbm.) ssp. *seclusus* Lv. – Acre, 2 spec., 17. III. 1952, Swirski (!); Aqua Bella, 1 spec., 14. VI. 1958,!; Dahlia, 1 spec., 28. II. 1948, Bytinski-Salz (!); Daphne Oaks, 1 spec., 13. V. 1940, Bytinski-Salz (!); Galilea, Vall. Kison, 1 spec., J. Sahlberg (!); Haifa-Tivon, 3 spec., 23. IV. 1953, Swirski (!); Miqve Israel, some spec., 8. IV. 1952, Swirski (!); Palestine, 3 spec., Bodenheimer (!); Rehovot, 8 spec., 8. III. 1957, 16. III. 1958, Swirski (!); Sa'ad, 1 spec., 20. III. 1958, Amitai (!); Tel-Aviv, 1 spec., 15. VI. 1948, Bytinski-Salz (!). – On *Quercus calliprinos*. – Endemic; nominate form Holomediterranean.

*T. allygidioides* Lv. – Alonim, 1 spec., 17. VI. 1942, Bytinski-Salz (!); Aqua Bella, 1 spec., 14. VI. 1958,!; Galilea, 1 spec., J. Sahlberg (!); Jerusalem, 3 spec., 5. IX. 1952, Swirski (!), 7 spec., 3. VI. 1956, Werner (!); Kadouri, 1 spec., 22. V. 1958, Michaeli (!); Palestine, 4 spec., Bodenheimer (!). – On *Quercus calliprinos*. – Endemic.

## *Nephotettix* Mats.

*N. apicalis* (Motsch.) – Palestine (BODENHEIMER op.cit.); Dan, 8 spec., 11. VII. 1958,!; Hadera, 14 spec., 1. VII. 1958,!; Hula, 1 spec., 10. VII. 1958,!. – On grasses in wet biotopes – Intertropical, occurring throughout Africa and in the Oriental Region.

## *Exitianus* Ball

*E. capicola* (Stål).

*Athysanus capicola* STÅL 1855, p. 99.

*Limotettix albipennis* HAUPT 1927, p. 25 – 26, n.syn. (for other synonymy see LINNAVUORI 1960, p. 310 – 311 ).

Palestine (BODENHEIMER op.cit.); Beersheba, 12 spec., 19. VI and 1. VIII. 1958,!; Beit-Dagan, 1 spec., 19. VI. 1958, Yatom (!); Beit Jubrin, 2 spec., 16. VI. 1958,!; Beit Shean, 2 spec., 7. VIII. 1958,!; Dan, 15 spec., 9. VII. 1958,!; Deganya, 5 spec., 23. VII. 1958,!; Eilat, 1 spec., 20. VI. 1958,!; 'Ein Gedi, 14 spec., 16. VIII. 1957, Wahrman (!), 27 spec., 18. VI. 1958,!; Hadera, 7 spec., 26. VI. 1958,!; Hula, 3 spec., 10. VII. 1958,!; Jerusalem, 9 spec., 1. XII. 1954, Werner, Wahrman (!), 2 spec., 14. VI. 1958,!; Kefar Malal, 2 spec., 27. VII. 1958,!; Palestine, 1 spec., Bodenheimer (!); Revivim, 15 spec., 23. VI and 2. VIII. 1958,!; Tel Kazir, 9 spec., 6. VIII. 1956, Wahrman (!); Timna, 1 spec., 21. IX. 1957,!; Yotvata, 13 spec., 20. VI. 1958,!. – Very common among different herbs, e.g. in cultivated fields. Often also collected at lamps. – Cosmopolitan.

*E. fasciolatus* (Mel.), n.comb.

*Athysanus fasciolatus* MELICHAR 1911, p. 107.

*Athysanus vulnerans* BERGEVIN 1925, p. 42, n.syn.

Deganya, 1 spec., Palmoni (!). – Ethiopian with a large extension into the Orient. New record for Israel.

## *Paramesodes* Ish.

*Paramesodes* ISHIHARA 1953 a, p. 45 (type: *Athysanus albinervosus* Mats.).

*Coexitianus* DLABOLA 1960 b, p. 252 (type: *Athysanus albinervosus* Mats.), n.syn.

*P. lucaniae* (Dlab.) – Bat Yam, 1 spec., 3. VII. 1958,!; Palestine, 1 spec., Bodenheimer (!). – On coastal dunes. – Pontomediterranean. Previously recorded only from Italy.

## *Cicadula* Zett.

*C. flori* (J.Sb.) ssp. *danensis* n.ssp.

Length 3.8 – 4.9 mm. As the nominate form, but decidedly smaller and more gracile (length of the nominate form 4.3 – 5.6 mm.), colouring brighter yellow (greenish yellow in the nominate form), also abdomen and under surface of pronotum yellow (blackish with margins of segments yellow in the nominate form). Crown usually with 2 pairs of dark spots ± developed. Genitalia as in the nominate form.

Type, a male; allotype, a female and 9 paratypes, Dan, 7 – 11. VII. 1958,!. – Swept from luxuriant vegetation in a dusky wet grove at the source of the River Jordan. – The nominate form European.

*C. divaricata* Rib. – Hadera, 1 spec., 1. VII. 1958,!. – Swept from luxuriant vegetation on the shore of a small river. – Holomediterranean. New record for Israel.

## *Eohardya* Zachv., n.comb.

*Hardya* subgen. *Eohardya* ZACHVATKIN 1946, p. 171 – 173 (type: *H. mira* Zachv).
*Hardyopsis* RIBAUT 1948, p. 218 – 219 (type: *Hardya insularis* Ldb.), n.syn.
*E. fraudulenta* (Hv.)
*Thamnotettix fraudulentus* HORVATH 1903, n.comb.
*Hardyopsis fraudulentus* LINNAVUORI 1954, p. 181.
*Hardya insularis* LINDBERG 1948, p. 155 – 156.
*Eohardya mira* ZACHVATKIN 1946, p. 173, n.syn.

It is possible that the following species are also synonyms of *E. fraudulenta: Eohardya byzantina* ZACHVATKIN (1946, p. 173), described on the base of females and *Hardya imitata* HAUPT (1924), whose description is rather insufficient.

Jerusalem, 2 spec., 2. VII. 1954, Wahrman (!), 1 spec., 14. VI. 1958,!. – Pontomediterranean. New record for Israel.

## *Nesophrosyne* Kirk.

*N. (Orosius) filigranus* (Hpt.) – Beersheba, 1 spec., 19. VI. 1958,!; 'Ein Gedi, 2 spec., 18. VI. 1958,!; Palestine, 1 spec., Bodenheimer (!); Rehovot, 2 spec., 28. VII. 1957, Michaeli (!); Tel-Aviv, 1 spec., 26. VI. 1958,!; Tel-Kazir, 7 spec., 6. VIII. 1956, Wahrman (!). – On cultivated biotopes. – Eremian.

## *Neoaliturus* Dist.

*Aliturus* DISTANT 1908, p. 398, nom. praeoccup. (type: *A. gardineri* Dist.).
*Neoaliturus* DISTANT 1918, p. 63 (type: *Aliturus gardineri* Dist.).
*Circulifer* ZACHVATKIN 1935, p. 111 (type: *Jassus haematoceps* M.R.), n.syn.
*Distomotettix* RIBAUT 1938, p. 97 (type: *Jassus fenestratus* H.S.), n.syn.

YOUNG and FRAZIER (1954) have separated the genera mentioned above on the basis of certain minor differences in the shape of the penis and 7th sternite (♀). During my current work on the Ethiopian *Cicadellidae* I have become more and more convinced that new genera should not be separated solely on the basis of a single minor character without extreme caution. As already pointed out, in the taxonomy of the genera *Handianus* and *Usuironus* a study of a larger amount of material may prove such genera to be identical. In certain larger genera I have seen that such characters as the chaetotaxy and the aedeagal and pygophoral structure may be variable within a genus. I recognize that *Circulifer* and *Distomotettix* have a certain difference, but on the other hand am convinved that both genera are phylogenetically so near each other that splitting is unnecessary. I do not think that an excessive splitting of genera will lead to an improvement in the taxonomy. I have studied the type of *Neoaliturus gardineri* Dist., a female from the Laccadive Islands, in the British Museum. No doubt, it is identical with *Circulifer fenestratus* (H.S.), n.syn.

*N. tenellus* (Bak.) – Palestine (BODENHEIMER op.cit.); Jerusalem, 2 spec., 14. VI. 1958,!; Revivim, 1 spec., 1. VIII. 1958,!; – Swept from a cultivated *Beta* near Jerusalem. – Cosmopolitan.

*N. haematoceps* (M.R.) ssp. *opacipennis* (Leth.) – Palestine (BODENHEIMER op.cit.) Beersheba, 2 spec., 1. VIII. 1958,!; 12 km. S of Beersheba, 1 spec., 18. VI. 1958,!; Beit Dagan, 1 spec., 30. IV. 1958, Michaeli (!); Deganya, 2 spec., 23. VII. 1958,!; 'Ein Gedi, 1 spec., 16. VIII. 1957, Wahrman (!), 4 spec., 19. VI. 1958,!; Gvuloth, 2 spec., 17. VII. 1958,!; Hadera, 1 spec., 2. V.1958, Michaeli (!); Hulda, 1 spec., 15. VII. 1958,!; Ijfi East, 1 spec., 9. IV. 1955, Wahrman (!); Jerusalem, 2 spec., 29. V. 1954, Wahrman (!), 1 spec., 14. VI. 1958,!; Miqve Israel, 1 spec., 16. VI. 1957, Michaeli (!); Nazareth, 4 spec., 5. VIII. 1958,!; Ramath Gan, 2 spec., 15. IX. 1958, Fishelson (!); Rehovot, 2 spec., 18. VII. 1958,!; Revivim, 12 spec., 23. VI and 2. VIII. 1958!,

Sedom, 1 spec., 15. VIII. 1957, Wahrman (!); Tel-Aviv, 1 spec., 26. VI. 1958,!; Tel-Kazir,; 10 spec., 6. VIII. 1956, Wahrman (!); Tiberias, 1 spec., 21. VII. 1958,!; Wadi Sukreir, 1 spec., 26. VI. 1958,!; Yotvata, 5 spec., 22. VI. 1958,!. – Common, especially on different *Chenopodiaceae* (e.g. *Atriplex halimus*); also found on *Digitalis* sp. and collected at lamps. – Holomediterranean.

*N. fenestratus* (H.S.) – Palestine BODENHEIMER op.cit.); Aqua Bella, 1 spec., 14. VI. 1958,!; 'Ein Gedi, 1 spec., 18. VI. 1958,!; Hagoshrim, 1 spec. 11. VII. 1958,!; Jerusalem, 1 spec. 13. VI. 1958,!; Nabi Rubin, 1 spec., 4. VII. 1958,!; Nazareth, 1 spec., 5. VIII. 1958,!; Neot Mordekhai, 1 spec., 21. VII. 1958,!; Palestine, 1 spec., Bodenheimer (!); Rehovot, 1 spec., 5. VI. 1958, Michaeli (!)! Tel-Aviv, 1 spec., 3. VIII. 1948, Bytinski-Salz (!), 1 spec. 25. VII. 1958,!. – Among xerophilous vegetation in dry sunny localities. – Holomediterranean, with a large extension into Central Europe.

*N. guttulatus* (Kbm.) – Palestine (BODENHEIMER op.cit.); Aqua Bella, 1 spec., 14. VI. 1958,!; Hulda, 3 spec., 25. VI. 1958,!; Jerusalem, 1 spec., 14. VI. 1958,!; Palestine, 1 spec., Bodenheimer (!); Rehovot, 3 spec., 5. VI. 1958, Michaeli (!); Wadi Rubin, 2 spec., 16. VII. 1958,!; Yarkon, 1 spec., 28. VI. 1958,!. – In similar biotopes to the preceding species. – Holomediterranean.

*N. transversalis* (Pt.) – Deganya, 1 spec., Palmoni (!); Hula, 1 spec., 10. VII. 1958,!. – Swept from fresh vegetation on the shore of the Lake Hula. – Pontomediterranean. New record for Israel.

*N. pulchellus* (Hpt.) – Palestine (BODENHEIMER op.cit.); Eilat, 6 spec., 20. VI. 1958,!; 'Ein Gedi, 2 spec., 18. VI. 1958,!. – Swept from *Suaeda monoica* in a salt marsh. – Endemic.

Male genitalia as in fig. 30 f, g and 31 a. – Closely related to the Ethiopian species *C. karrooensis* (Cog.) and *C. serosus* (Mel.), but stem of penis without a pair of tooth-like processes.

*N. inscriptus* (Hpt.) – Palestine (BODENHEIMER op.cit.); Ashqelon, 3 spec., 2. VII. 1958,!. – Eremian, known from North Africa, Palestine and Cyprus. – Closely related to the Ethiopian species *C. penizia* (Cog.).

*N. macchiae* (Ldb.) – Rehovot, 1 spec., 2. VIII. 1957, Swirski (!). – Apparently Syrio-Anatolian, previously recorded from Cyprus. – The species certainly does not belong to the genus, but since I know only a female, I cannot place it more satisfactorily.

## *Concavifer* Dlab.

Also this genus is very closely related to *Circulifer* and may be only a subgenus of it.

*C. marmoratus* Dlab. – Palestine, 1 spec., Bodenheimer (!). – Iranian. Previously known only from Iran.

## *Opsius* Fb.

*O. lethierryi* W.Wgn. – Ashqelon, 13 spec., 2. VII. 1958,!; Beer Mashash, 21 spec., 22. VI. 1958,!; Deganya, 9 spec., 23. VII. 1958,!; Eilat, 1 spec., 20. VI. 1958,!; 'Ein Gedi, 2 spec., 18. VI. 1958,!; 'Ein Hamifraz, 2 spec., 20. V. 1958, Michaeli (!); Gvuloth, 2 spec., X. 1951, Fishelson (!), 1 spec., 18. VII. 1958,!; Herzliya, 2 psec., 26. VII. 1958,!; Hula, 7 spec., 10. VII. 1958,!; Na'amah, 1 spec., 20. V. 1958, Michaeli (!); Nahariya, 5 spec., 5. VIII. 1958,!; Rehovot, 1 spec., 26. III. 1958, Michaeli (!); Revivim, 2 spec., 2. VIII. 1958,!; Tanninim, 2 spec., 20. VII. 1958,!; Tel-Aviv, 3 spec., 26. VI. 1958,!; Timna, 1 spec., 21. IX. 1957, Wahrman (!); Yotvata, 34 spec., 20. VI. 1958,!. – Common on *Tamarix*. – Holomediterranean; not previously recorded from Israel.

*O. scutellaris* (Leth.)

Length 3 mm. Head, pronotum and scutellum yellowish or greyish with minute brown spots. Elytra greenish with milky areoles; cells of clavus and corium marked with dark spots

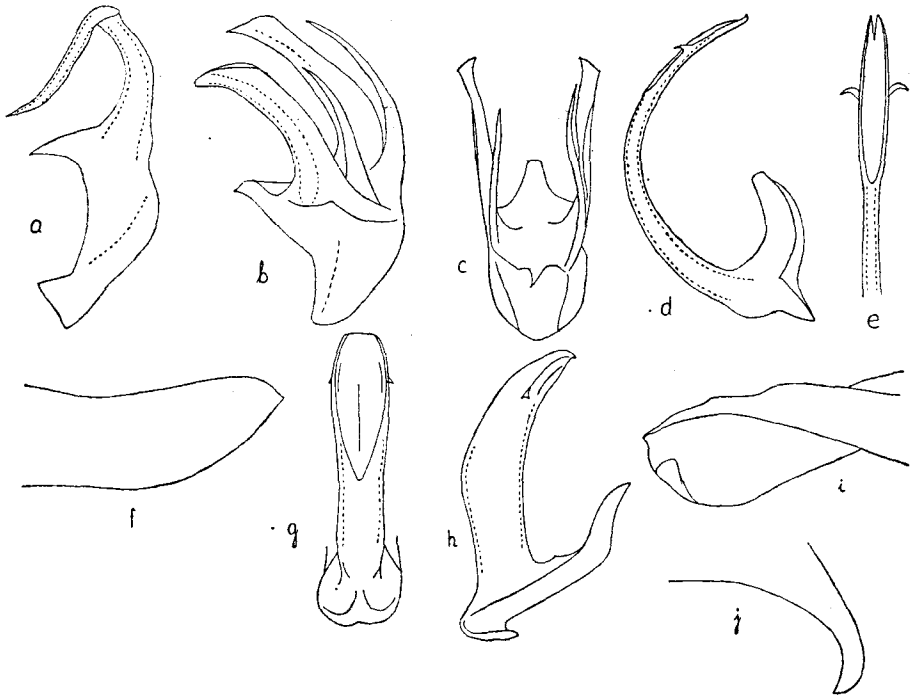



Fig. 31. *Neoaliturus pulchellus* (Hpt.): a penis, lateral aspect. – *Opsius scutellaris* (Leth.): b penis, lateral aspect; c same, ventral aspect. – *Selenocephalus deserticola* n.sp.: d penis, lateral aspect; e apex of same, ventral aspect; f side lobe of pygofer. – *S. flavicosta* n.sp.: g penis, ventral aspect; h same, lateral aspect; i side lobe of pygofer, dorsal aspect; j appendage of anal tube. – Orig.

and transverse lines, apical cells heavily marked with dark smoky. Under surface greenish. Legs pale ochraceous, spotted with dark.

Body as in *O. stactogalus* Fb., but much smaller. Male genitalia: Penis (fig. 31 b, c) with socle not produced ventrad, branches of the stem remarkably short and strongly flattened, basal appendages shorter than branches of the stem. Other genitalia as in *O. stactogalus*.

Type, a male, Revivim, 2. VIII. 1958,!; allotype, a female, Deganya, 23. VII. 1958,!. – On *Tamarix*.

Resembling *O. jucundus*, but smaller and with dissimilarly shaped penis. Closely related to *O. gorgonum* Ldb. from the Cape Verde Islands, but much smaller and with branches of penis narrower. – Eremians Previously known from North Africa.

*O. pallasi* (Leth.)

Beer Mashash, 5 spec., 22. VI. 1958,!; Deganya, 3 spec., Palmoni (!); Eilat, 4 spec., 15. I. 1957 Werner, 2 spec., 20. VI. 1958,!; Palestine, 1 spec., Bodenheimer (!); Revivim, 5 spec., 1. VIII. 1958,!. – On *Tamarix*. – Holomediterranean. New record for Israel.

## *Phlepsius* Fb.

*P. intricatus* (H.S.) – Palestine (Bodenheimer op.cit.); Hula, 1 spec., 9. VII. 1958,!; Beit Jubrin, 1 spec., 16. VI. 1958,!; Rehovot, 1 spec., 4. V. 19, 58, Michaeli (!). – In moist biotopes. – Pontomediterranean.

In the recent papers two species have been described as *P. intricatus:* RIBAUT (1952, p. 193 – 194) used this denomination for a species with a strongly curved penis and with a distinct sclerified process on the side lobe of the pygofer, while ZACHVATKIN (1945 b, p. 147 – 149) regarded as *intricatus* a species in which the penis was provided with a large basal socle and only weakly curved stem and with an unarmed pygofer. DLABOLA (1945, p. 322) has also been of this opinion. Since Ribaut's species seems to be delimited only to the West-Mediterranean zone, it seems to me most probable that the Pontomediterranean species, which has a large extension into Central Europe too, is the genuine *intricatus*. At present I think it best to call the West-Mediterranean species *P. ornatus* (Perr.), which up to now has been regarded as a synonym of *intricatus*. Of course, the nomenclature of the species can finally be fixed only after examination of the type specimens.

*P. asiaticus* Zachv. – 'Ein Gedi, 2 spec., 20. V. 1958, Guterman (!), 1 spec., 18. VI. 1958,!; Deganya, 2 spec., Palmoni (!); Palestine, 4 spec., Bodenheimer (!). – Collected at lamps. – Irano-Turanian. New record for Israel.

*P. reticulatus* Sign. – Palestine (BODENHEIMER op.cit.). – Caspian. Record from Israel doubtful.

## *Selenocephalus* Germ.

*Selenocephalus* GERMAR 1833, p. 180 (type: *Jassus obsoletus* Germ.).

*Levantotettix* LINDBERG 1953 b, p. 113 – 114 (type: *L. striatus* Ldb.), n.syn.

This large genus shows considerable variability in genital structure and the differences recorded by LINDBERG (op.cit.) do not seem to be of sufficient magnitude to warrant the recognition of *Levantotettix* as a separate genus.

*S. bytinskii* Ldb. – Benjamina, 1 spec., 12. VII. 1947, Bytinski-Salz (LINDBERG op.cit.); Ben-Shemen, 1 spec., Bodenheimer (!); Jerusalem, 2 spec., Bodenheimer (LINDBERG op.cit.), 2 spec., 27. V. 1955, Wahrman (!), 1 spec., 3. VI. 1957, Werner (!), 4 spec., 13 – 16. VI. 1958,!; Kfar Bilu, 1 spec., 3. V. 1954, Wahrman (!); Palestine, 2 spec., Bodenheimer (!); Poriya, 1 spec., 28. VI. 1957, Freund (!); Ruhama, 1 spec., Bytinski-Salz (!); Talpiot, 1 spec., 22. VI. 1957, Yarkoni (!). – Among xerophilous vegetation on dry sunny localities. – Endemic.

*S. pallidus* Kbm. – Beith Oved, 1 spec., 16. VI. 1958,!; in addition the following females apparently belong to the species: Neve Ya'ar, spec., 29. VII. 1958,!; Shimron, 1 spec., 4. VIII. 1958,!. – The specimen from Beith Oved was found on a dry sunny biotope, while the other specimens were swept from *Quercus ithaburensis*. The latter specimens agree well with ZACHVATKIN's description of *S. stenopterus* Sign. (1946, p. 162 – 164). According to LINDBERG (1960, p. 70), however, *S. stenopterus* is a synonym of *S. pallidus*. – New record for Israel.

*S. deserticola* n.sp.

Length 5.5 – 6 mm. Yellowish or whitish brown. Face with a transverse black band in upper margin, dark brown lateral arcs on frontoclypeus and antennal pits black. Crown, pronotum, scutellum and elytra usually densely marked with a dark brown filigree of stripes and irroration. Under surface and legs ± irrorate with dark brown.

A relatively small species. Frontoclypeus remarkably convex. Crown roundedly produced, 1.56 × as long medially as next to eyes, 2.71 × as broad as long, only faintly depressed behind anterior margin. Elytra a little longer than abdomen, tapering apically. Male genitalia: Side lobes of pygofer (fig. 31 f) sharply angled apically. Anal tube without appendages. Penis (fig. 31 d, e) with stem long and slender, strongly curved dorsad, apex narrowly split; a pair of subapical teeth present. Other genitalia of the form common in the genus. 7th sternite (♀) broadly V-shaped, insinuated in posterior margin.

Type, a male and allotype, a female, Revivim, 23. VI. 1958, a paratype from the same locality, 2. VIII. 1958,!; 4 paratypes, Avdat, 8. IX. 1957, Wahrman; 2 paratypes, Beer Mas-

hash, 22. VI. 1958,!. – Swept from *Artemisia* steppes in desert conditions. – Easily recognized by the small size and the male genitalia.

*S. flavicosta* n.sp.

♂ Length 6.5 mm. Greyish yellow, shining. Face with a distinct black bar below upper margin of head; a dark irrorate broad transverse band between lower margins of eyes; lora and anteclypeus medially irrorate with dark. Crown with a black band (irrorate at middle) between anterior angles of eyes. Pronotum with a slight fuscous tinge, without any irroration. Scutellum unicoloured yellowish. Elytra shining, greenish yellow; veins thin, brown; apex infumed; cells minutely irrorate with brown, irroration on clavus very scanty; costal margin broadly yellowish without any irroration. Under surface blackish brown, margins of segments light. Legs light ochraceous, with longitudinal blackish stripes.

Body parallel-sided. Crown roundedly produced, 1.3 × as long medially as next to eyes, 2.83 × as broad as long. Male genitalia : Side lobes of pygofer (fig. 31 i) rounded apically with a small triangular lobe turned upwardly. Anal tube with digitate appendages (fig. 31 j). Penis (fig. 31 g, h) with stem short and stout, digitate in lateral aspect; a pair of small subapical teeth present; gonopore large. Other genitalia of the type common within the genus.

Type, a male (in my collection) and 2 male paratypes (in coll. Lindberg and in the University of Tel-Aviv), Jerusalem, 13. VI. 1943, Bytinski-Salz.

Related to *S. kalalae* Dlab. but differing in colouring and in some details of the male genitalia.

*S. striatus* (Ldb.), n.comb.

*Levantotettix striatus* LINDBERG 1935 b, p. 113 – 114.

Palestine, some spec., Bodenheimer (LINDBERG op.cit.); Hadera, 2 spec., 1. VII. 1958,!. – Swept from *Artemisia* bushes on coastal dunes. – Endemic.

## *Paramesus* Fb.

*P. major* Hpt.

Very closely related to *P. nervosus* (Fn.), but robuster and with apex of penis strongly expanded in ventral aspect (fig. 32 a).

Palestine (BODENHEIMER op.cit.); Gvuloth, 1 spec., (!); Wahrburg, 1 spec., 5. VI. 1958, Michaeli (!). – Endemic.

## *Allygus* Fb.

*A. theryi* Hv. – Aqua Bella, 4 spec., 14. VI. 1958,!; Daphne Oaks, 2 spec., 13. V. 1940, Bytinski-Salz (!); Daphul, 1 spec., 8. V. 1950, Bytinski-Salz (!); Ramlah, 1 spec., 30. IV. 1958, Amitai (!). – On *Quercus calliprinos*. – Apparently Pontomediterranean. Recorded from North Africa, Italy and Palestine.

## *Allygidius* Rib.

*Allygidius furcatus* (Ferr.) - Palestine (BODENHEIMER op.cit.). – Holomediterranean.

## *Aglena* A.S.

*A. ornata* (H.S.) – Natanya, 1 spec., 6. V. 1941, Bytinski-Salz (!). – Holomediterranean. New record for Israel.

## *Neolimnus* Lv.

*N. aegyptiacus* (Mts.) – 'Ein Gedi, 1 spec., 16. VIII. 1957, Wahrman (!), 12 spec., 21. VI. 1958, Guterman, Swirski (!), 6 spec., 18. VI. 1958,!; 'Ein-Hamifraz, 1 spec., 30. V. 1958, Michaeli (!); Deganya, 2 spec., 22. VII. 1958,!; Revivim, 3 spec., 2. VIII. 1958,!; Sde Eliahu, 9 spec., 10. X. 1957, Rubin (!). – Swept from cultivated fields, also at lamps. — Eremian. New record for Israel.

## *Paralimnus* Mats.

*P. phragmitis* (Boh.) – Hula, 4 spec., 10. VII. 1958,!. – On *Phragmites communis.* – Euro-Siberian. New record for Israel.

*P. inexpectatus* Dlab. – Beit Shean, 1 spec., 7. VIII. 1958,!; Eilat, 1 spec., 20. VI. 1958,!; 'Ein Gedi, 6 spec., 18. VI. 1958,!; Palestine, 1 spec., Bodenheimer (!); Wadi Sukreir, 5 spec., 27. VI. 1958,!. – On *Phragmites communis.* – Irano-Turanian. – New record for Israel.

## *Rhombopsana* Metc.

*R. virens* (Hpt.) – Palestine (Bodenheimer op.cit.); Ashqelon, 1 larva, 2. VII. 1958,!; 'Ein Gedi, 1 spec., 1 larva, 18. VI. 1958,!; Rehovot, 4 spec., 10. IX – 25. X. 1957, Swirski (!); Shimron, 1 spec., 4. VIII. 1958,!. – On *Zizyphus spina-Christi.* – Eremian. Recorded also from Iran.

## *Stymphalus* Stål

*S. rubrolineatus* Stål. – Hadera, 1 spec., 1. VII. 1958,!. — Swept from *Cyperus* spp. on the shore of a small river. – Ethiopian. Not previously recorded from Israel.

## *Grammacephalus* Hpt.

*G. pugio* (Nlh.) – Palestine (Bodenheimer op.cit.); Deganya, 2 spec., Palmoni (!); 'Ein Gedi, 2 spec., 18. VI. 1958,!; Jerusalem, 2 spec., 14. VI. 1958, !;Rehovot, 1 spec., 28. VII. 1958,!. – Often at lamps. On *Pistacia palaestina.* – Ethiopian.

## *Platymetopius* Burm.

*P. undatus* (Deg.) ssp. *parvulus* n.ssp.

♀. Length 4.5 – 5 mm. As the nominate form but considerably smaller (nominate form, length 5 – 5.2 mm.). 7th sternite (♀) (fig. 32 h, i) only shallowly insinuated on either side of the median lobe, the latter provided with remarkably short lateral teeth. 7th sternite of the nominate form illustrated e.g. in Ribaut 1952, p. 232. – Possibly a valid species.

Type, Jerusalem, 14. VI. 1958,!; a paratype, Dan, 8. VII. 1958,!. – At lamps.

*P. cruentatus* Hpt. – Palestine (Bodenheimer op.cit.); Revivim, 2 spec., 2. VIII. 1958,!; Tel Kazir, 3 spec., 6. VIII. 1956, Wahrman (!). – At lamps. – Eremian. Also recorded from Iraq.

*P. obsoletus* (Sign.) – Palestine (Bodenheimer op.cit.). – Holomediterranean.

*P. retamae* n.sp.

Length 5 – 6 mm. Greyish white. Face unmarked. Crown with a row of 6 small dark spots on anterior margin and some irregular fuscous marks on disk. Pronotum densely marked with a filigree of brownish stripes. Scutellum with light brownish basal triangles and some

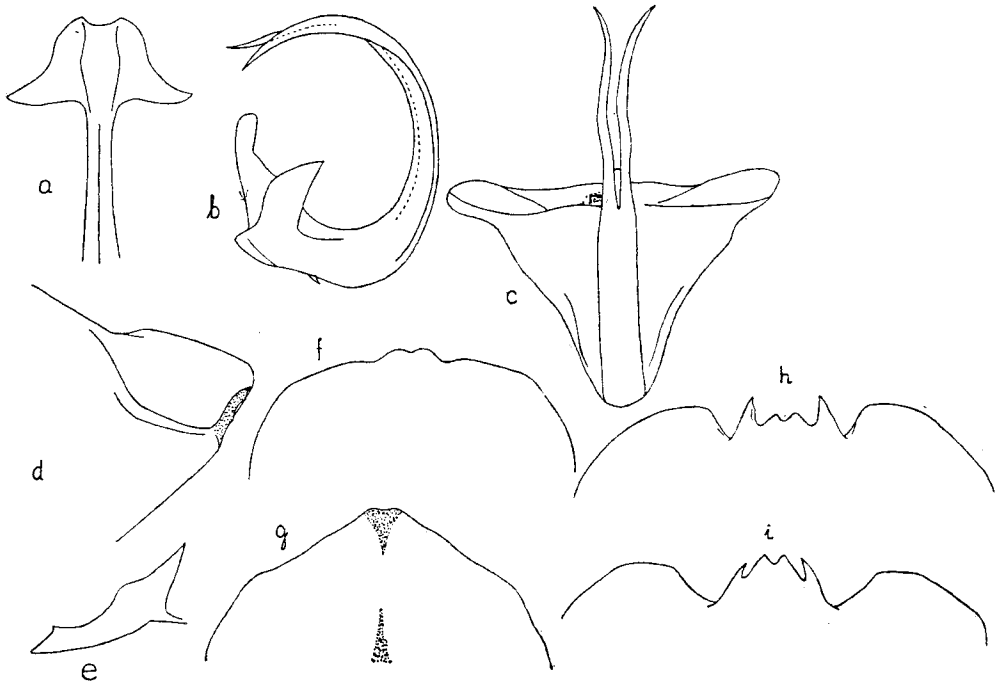



Fig. 32. *Paramesus major* Hpt.: a apex of penis, ventral aspect. – *Platymetopius retamae* n.sp.: b penis, lateral aspect; c same, ventral aspect; d side lobe of pygofer, median aspect; e appendage of pygofer; f 7th sternite (♀). – *P. quercicola* n.sp.: g same. – *P. undatus* (Deg.) ssp. *parvulus* n.ssp.: h same (specimen from Dan); i same (specimen from Jerusalem). – Orig.

minute brownish median spots. Elytra whitish; veins brownish grey, ± broadly and densely surrounded by light fuscous spots, costal margin broadly unmarked. Under surface and legs light yellowish ochraceous.

Elongate. Crown bluntly angled, 1.44 – 1.57 × as long medially as next to eyes, apex upturned. Elytra with several extra cross-veins especially in clavus. Male genitalia: Side lobes of pygofer (fig. 32 d, e) with a short, thick ventral appendage. Genital plates long and narrow; macrosetae basally fluctuate, apically scattered. Penis (fig. 32 b, c) with stem relatively short, curved dorsad; a pair of long appendages lying close to the stem and extending much beyond it. 7th sternite (♀) broadly produced caudad with a slight, apically notched median lobe (fig. 32 f).

Type, a male and allotype, a female, 21 km. south of Nahal Hiyon, 22. VI. 1958; a paratype, Jerusalem, 3. VI. 1952, Swirski and a paratype from the same locality, 9. VI. 1954, Wahrman. – On *Retama raetam.*

Close to *P. obsoletus*, but pygofer provided only with short appendages and with a conspicuously slenderer penis.

*P. quercicola* n.sp.

♀. Length 5.8 – 6 mm. Shining, whitish or yellowish white. Face pale ochraceous. Crown white; anterior margin with 4 dark brown spots, disk marked with fulvous on either side of coronal suture. Pronotum whitish, disk irrorate with red. Scutellum with yellow basal triangles. Elytra milky; veins of clavus and of the adjacent part of corium red, other veins brown; cells with brown irroration especially on corium; 3rd apical cell with a dark brown round spot; apical margin narrowly fuscous. Under surface and legs light ochraceous, tibiae with dark spots.

Crown bluntly angled, concave. Face slightly concave below upper margin. Elytra with extra cross-veins in clavus; costal margin with several reflexed dark veinlets. 7th sternite (fig. 32 g) strongly triangularly produced caudad, apex only very shallowly notched.

Type, a female and a paratype, Neve Ya'ar, 29. VII. 1958,l. – On *Quercus ithaburensis*.

*P. filigranus* (Sc.) is closely related to the new species, but is robuster, without red pigment and with the 7th sternite (♀) deeply cleft in the middle.

## *Jubrinia* n.gen.

External characters as in *Psammotettix* Hpt. Male genitalia: Pygofer sclerified dorsally, strongly setose; side lobes broadly turned mesad ventrally, provided with sclerified dorsal processes. Anal tube long, tubular, sclerified. Valve large. Genital plates much shorter than pygofer, blunt, ending in a short upturned apical lobe; macrosetae few, uniseriate. Stylus with apophysis long, apex enlarged and strongly bent laterad; preapical angle rounded, basal part broad, ventral arm short. Connective linear, not fused to penis. Penis symmetrical, divided into two branches; with two gonopores. 7th sternite (♀) with a ligulate median process.

Type: *J. distincta* Lv.

Beside the generotype the genus contains at least one Ethiopian species occurring in South Africa.

*J. distincta* n.sp.

Length 4 mm. Colouring as in *Psammotettix* species. Ground colouring pale greyish. Front-oclypeus slightly infuscate with faint greyish lateral arcs. Crown slightly infuscate with a median greyish longitudinal stripe, lateral margins bordered with whitish. Pronotum with 6 brownish longitudinal bands. Scutellum with basal triangles and a median spot faintly infuscate. Elytra greyish; veins whitish, bordered with fuscous. Under surface and legs pale brownish grey.

Elongate. Head broader than pronotum. Face flattish. Crown bluntly angled, 1.7 × as long at middle as next to eyes, 0.9 × as long at middle as broad basally, concave, frontal region

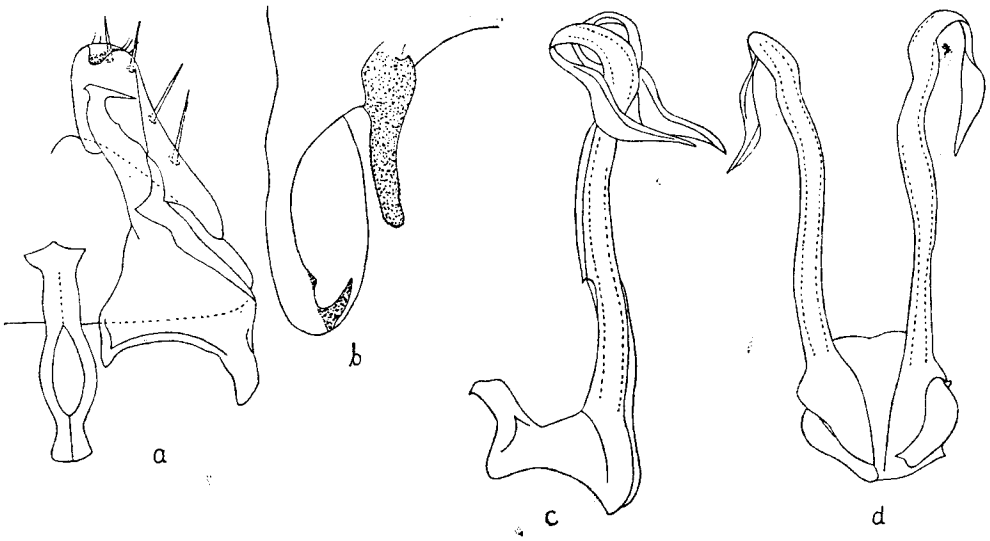



Fig. 33. *Jubrinia distincta* n.sp.: a valve, plate, stylus and connective; b side lobe of pygofer, dorsal aspect; c penis, lateral aspect; d same, ventral aspect. – Orig.

rather narrow. Elytra with 3 closed subapical cells. Male genitalia (fig. 33 a-d) as above. 7th sternite (♀) truncate with a ligulate median process.

Type, a male, Beit Jubrin, 16. VI. 1958,!; allotype, a female and a paratype, Palmahim, 4. VII. 1958,!. – Swept from grasses in dry sandy localities.

## *Psammotettix* Hpt.

*P. adriaticus* W. Wgn.ssp. *linnavuorii* W. Wgn. – Sukreir, 7 spec., 27. VI. 1958, Swirski (!). – Swept from grasses on coastal dunes. – Endemic.

*P. majusculus* Lv.

Originally described from Cyprus (LINNAVUORI 1951, p. 59). The species is rather variable in colouring. While it is often remarkably light, as stated in the original description, it may also be darker coloured with the typical *Psammotettix* pattern, then resembling *P. provincialis* Rib. Also the spoon blade of the penis is variable in shape, often ± tapering upwardly. It is somewhat longer than in *P. provincialis*, however. The best difference between *P. majusculus* and *P. provincialis* is the shape of the basal socle of the penis in ventral aspect, that in the former species being much narrower ventrally, as is seen in the original figures (LINNAVUORI op.cit.).

Aqua Bella, 3 spec., 14. VI. 1958,!; Beer Mashash, 1 spec., 23. VI. 1958,!; Beersheba, 5 spec., 1. VIII. 1958,!; Beit Dagan, 2 spec., 19. VI. 1958, Yatom (!); Beit Jubrin, 16 spec., 16. VI. 1958,!; Beit Shean, 2 spec., 7. VIII. 1958,!; Dan, 4 spec., 7. VII. 1958,!; Deganya, 6 spec., 22. VII. 1958,!; 'Ein Gedi, 2 spec., 18. VI. 1958,!; Hadera, 6 spec., 26. VI. 1958,!; Hatserim, 1 spec., 20. III. 1958, Amitai (!); Hula, 15 spec., 9 – 10. VII. 1958,!; Jericho, 1 spec., 22. VII. 1943, Bytinski-Salz (!); Jerusalem, several spec., 28. VI. 1954, Wahrman (!), 8 spec., 13 – 16. VI. 1958,!; Kefar Malal, 2 spec., 27. VII. 1958,!; Miqve Israel, 5 spec., 16. VII. 1958, Michaeli (!); Nazareth, 1 spec., 4. VIII. 1958,!; Palestine, 22 spec., Bodenheimer (!); Rehovot, 21 spec., 13 – 29. IX. 1958. Michaeli (!); Revadim, 1 spec., 15. VII. 1958,!; Revivim, 3 spec., 23. VI. 1958,!; Shoval, 1 spec., 20. III. 1958, Amitai (!); Shuva, 3 spec., 14. VII. 1958,!; Tel-Kazir, 2 spec., 6. VIII. 1956, Wahrman (!); Yarkon, 7 spec., 28. VI. 1958,!; Yotvata, 4 spec., 20. VI. 1958,!. – Very common among vegetation in different open biotopes, especially in cultivated fields. – Syrio-Anatolian. New record for Israel.

*P. pictipennis* (Kbm.) – Deganya, 2 spec., Palmoni (!). – Pontomediterranean. Not previously recorded from Israel.

## *Deltocephalus* Burm.

*D. schmidtgeni* W. Wgn. – Palestine (*Bodenheimer* op.cit. as *Thamnotettix distinctus*); Beersheba, 5 spec., 1. VIII. 1958,!; Beit Dagan, 2 spec., 19. VI. 1958, Yatom (!); Beit Jubrin, 11 spec., 16. VI. 1958,!; 'Ein Gedi, 3 spec., 18. VI. 1958,!; Hadera, 1 spec., 1. VII. 1958,!; Hulda, 2 spec., 15. VII. 1958,!; Jerusalem, 3 spec., 1. XII. 1954, Wahrman (!), 1 spec., 14. VI. 1958,!; Palestine, 1 spec., Bodenheimer (!); Rehovot, 6 spec., 6. IV. 1958, Michaeli (!); Revadim, 1 spec., 15. VII. 1958,!; Tel-Aviv, 1 spec., 26. VI. 1958,!; Tel-Kazir, 1 spec., 6. VIII. 1956, Wahrman (!). – On cultivated fields. – Holomediterranean.

*D. angustisectus* n.sp.

Length 2.75 – 3.5 mm. ♂ Light brownish yellow. Face with fuscous lateral arcs and with an undate fuscous transverse line bordering the upper margin. Anterior margin of crown with a row of 6 minute dark spots. Crown whitish, disk with 2 irregular faint fulvous longitudinal bands. Pronotum whitish, with obscure fulvous longitudinal bands. Basal triangles of scutellum pale orangish. Elytra golden yellow; veins whitish, often bordered with fuscous; cells here and there (especially in clavus and in apical part) ± filled with dark brown. Legs with minute

fuscous spots. ♀ unicoloured light brownish yellow, elytra with only a few obscure darker shadows.

Crown bluntly roundedly produced anteriorly as in *D. schmidtgeni*. Male genitalia: Penis (fig. 34 d, e) with stem relatively long and straight, apex sharp-tipped and recurved ventrad; a pair of serrate subapical processes directed dorsad. Other genitalia as in *D. schmidtgeni*. 7th sternite (♀) slightly insinuated medially, the margins of the insinuation embrowned.

Type, a male; allotype, a female and a paratype, 'Ein Gedi, 18. VI. 1958,!; 36 paratypes, Palestine, Bodenheimer (!); 9 paratypes, Rehovot, 3 – 14. VI. 1957, Swirski (!) and 8 paratypes, Wadi Rubin, 4. VII. 1958,!. Swept from vegetation in fresh biotopes.

Very closely related to *D. lobatus* Lv. from South Africa, but subapical processes of penis much narrower.

### *Doratura* J.Sb.

*D. homophyla* (Fl.) – Avdat, 7 spec., 8. IX. 1957, Wahrman (!); Beer Mashash, 2 spec., 23. VI. 1958,!; Beit Shean, 1 spec., 7. VI. 1958,!: Dan, 5 spec., 7. VII. 1958,!; Gvuloth, 6 spec., 17. VII. 1958,!; Hadera – Petah Tikvah, 1 spec., 18. VII. 1958,!; Hagoshrim, 5 spec., 8. VII. 1958,!; Kefar Malal, 1 spec., 27. VII. 1958,!; Nazareth, 1 spec., 5. VIII. 1958,!; Rehovot, 4 spec., 21. VI. 1957, Michaeli (!); Revivim, 4 spec., 2. VIII. 1958,!; Sha'ar ha Golen, 1 spec., 21. V. 1958, Michaeli (!); Yarkon, 1 spec., 28. VI. 1958,!; 7 km S of Yeroham, 3 spec., 22. VI. 1958,!. – Among xerophilous vegetation in dry sunny localities. – Euro–Siberian. New record for Israel.

### *Chiasmus* M.R.

*C. conspurcatus* (Perr.) – Beersheba, 7 spec., 1. VIII. 1958,!; Revadim, 2 spec., 18. VII. 1958,!. – On cultivated fields. – Holomediterranean. Not previously recorded from Israel.

## *Grypotini*

### *Grypotes* Fb.

*G. staurus* Iv. – Palestine (BODENHEIMER op.cit.); Aqua Bella, 1 spec., 14. VI. 1958,!; Beit Meir, 1 spec., 1. VIII. 1958,!; Haifa, 2 spec., 29. VI. 1958,!; Hulda, 1 spec., 25. VI. 1958,!; Jerusalem, 1 spec., 21. VIII. 1957, Werner (!), 7 spec., 13 – 16. VI. 1958,!; Shimron, 1 spec., 4. VIII. 1958,!; Tel-Aviv, 3 spec., 29. VI. 1958,!. – On *Pinus halepensis*. – Holomediterranean.

## *Goniagnathini*

### *Goniagnathus* Fb.

*G. brevis* (H. S.) – Avdat, 5 spec., 8. IX. 1957, Wahrman (!); Haifa, 1 spec., 11. III. 1944, Bytinski-Salz (!); Jerusalem, 1 spec., Bodenheimer (!); Kiriath Anavim, 3 spec., Bodenheimer (!); Palestine, 1 spec., Bodenheimer (!); Wadi Rubin, 1 spec., 16. VII. 1958,!. – On dry localities. Once found on *Lotus* sp. on coastal dunes. – Holomediterranean. New record for Israel.

*G. guttulinervis* (Kbm.) – Avdat, 1 spec., 8. IX. 1957, Wahrman (!); Beer Mashash, 1 spec., 23. VI. 1958,!; 12 km S of Beersheba, 1 spec., 18. VI. 1958,!; Beit Jubrin, 1 spec., 16. VI. 1958,!; Beit Shean, 1 spec., 7. VIII. 1958,!; 'Ein Gedi, 3 spec., 18. VI. 1958,!; Gvuloth, 1 spec., 17. VII. 1958,!; Jerusalem, 2 spec., 3. VIII and 11. XII. 1954, Wahrman (!); Kefar Malal, 1 spec., 27. VII. 1958,!; Miqve Israel, 1 spec., 30. VII. 1957, Michaeli (!); Palestine, 7 spec., Boden-

heimer (!); Rehovot, 5 spec., 4. VIII. 1957, Michaeli, Swirski (!); Revivim, 1 spec., 25. VI. 1958,!; Yarkon, 2 spec., 5. VII. 1958,!. – On xerophilous sunny localities. – Holomediterranean. – New record for Israel.

*G. palliatus* (Leth.) – Beer Mashash, 1 spec., 23. VI. 1958,!; Wadi es Scheich, Sinai, 3 spec., VII. 1927, Bodenheimer, Theodor (!). – On *Tamarix*. – Eremian. New record for Israel.

*G. bolivari* (Mel.) ssp. *hoberlandti* Dlab., n.comb.

Jerusalem, 1 spec., 26. VII. 1954, Wahrman (!). – The nominate form differs from *hoberlandti* Dlabola (1957 a, p. 47) only in being slightly smaller, length 3.6 – 4 mm. Hence I regard *hoberlandti* at most as a Pontomediterranean subspecies of *bolivari*. I studied 2 ♂♂ and 1 ♀ of the nominate form in coll. Melichar from Spain, Madrid. A male was selected as the lectotype.

*Fieberiellini*

## *Fieberiella* Sign.

*F. macchiae* n.sp.

♂ Length 6 mm. Face light yellow-brown; upper margin with 2 black transverse bands, the lower one broken at the middle. Entire upper surface, including elytra, dark yellow-brown, densely and minutely spotted with dark brown; apex of elytra dark brown. Under surface and legs ochraceous, tibiae spotted with dark.

Body elongate and relatively gracile. Crown conspicuously angularly produced, 1.89 × as long at middle as next to eyes, 0.85 × as long as broad basally. Male genitalia: Side lobes of pygofer (fig. 34 b) roundedly truncate, ventral apical angle with a bifurcate and serrate appendage. Appendages of anal tube (fig. 34 c) bifurcate. Penis (fig. 34 a) with stem flattened,

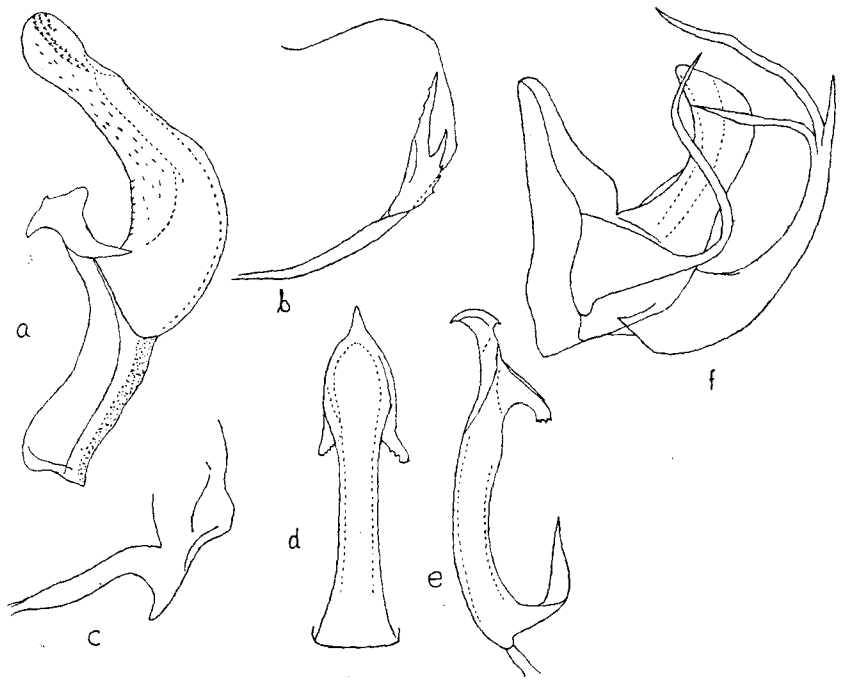



Fig. 34. *Fieberiella macchiae* n.sp.: a penis, lateral aspect; b side lobe of pygofer, median aspect; c appendage of anal tube. – *Deltocephalus angustisectus* n.sp.: d penis, ventral aspect; e same, lateral aspect. – *Stegelytra albofasciata* n.sp.: f penis, lateral aspect. – Orig.

apex minutely serrate. Other genitalia as in *F. flori* (Stål), save that the apophysis of the stylus is a little longer.

Type, a male, Wadi Karen near Goren, 6. VIII. 1958,!. – Swept from a dense macchia consisted of *Crataegus* sp., *Laurus nobilis* and *Quercus calliprinos* on a hill side.

Much as *F. florii* (Stål) but conspicuously slenderer, crown more strongly produced anteriorly and with dissimilar male genitalia.

## *Synophropsini*

### *Synophropsis* Hpt.

*S. lauri* (Hv.) – Aqua Bella, 1 spec., 14. VI. 1958,!; Ashqelon, 1 spec., 2. VII. 1958,!; Dan, 2 spec., 7 – 8. VII. 1958,!; Jerusalem, 2 spec., 15. VI. 1958,!; Rehovot, 3 spec., 11. VI – 28. VII. 1958, Michaeli, Swirski (!); Wadi Karen near Goren, 1 spec., 6. VIII. 1958,!. – On *Olea europaea*; also swept from macchia together with the preceding species. – Pontomediterranean. New record for Israel.

### *Phlogotettix* Rib.

*P. cyclops* (M.R.) – Dan, 1 spec., 7. VII. 1958,!. – Swept from luxuriant vegetation in a shady wet grove at the source of the River Jordan. – Holomediterranean with a large extension easternwards as far as Japan. New record for Israel.

## *Hecalini*

### *Hecalus* Stål

As pointed out in another connection (Linnavuori 1961 a, p. 416) the generotype of the genus *Hecalus* (*H. paykulli* Stål) is congeneric with the species of the genus *Parabolocratus* Fb., which thus is a junior synonym of *Hecalus*. The next available name for the genus *Hecalus* auct. nec Stål is *Glossocratus* Fb. (type: *G. foveolatus* Fb.).

*H. glaucescens* (Fb.), n.comb.

Dlabola (1960 b, p. 237 – 238) has recently proved both *H. arenarius* (Hv.) and *H. aegyptiacus* (Sign.) to be synonyms of *H. glaucescens*. After studying and measuring a large amount of material in my collection from the Mediterranean basin I confirm this synonymy. The species varies considerably in the shape of the head, but since no precise limits can be drawn between the different varieties, it seems to me unnecessary to split *glaucescens* into subspecies.

Palestine (Bodenheimer op.cit.); Beit Jubrin, 7 spec., 16. VI. 1958,!; 'Ein Gedi, 1 spec., Bytinski-Salz (!), 2 spec., 16. VIII. 1957, Wahrman (!); Gvuloth, 1 spec., X. 1951, Bytinski-Salz (!), 4 spec., 27. VII. 1958,!; Herzliya, 1 spec., 6. V. 1946, Bytinski-Salz (!); Jerusalem, 3 spec., 3. VIII. 1954, Wahrman (!) 3 spec., 17. VI. 1958,!; Kefar Malal, 1 spec., 27. VII. 1958,!; Palestine, 4 spec., Bodenheimer (!); Revivim, 1 spec., Bytinski – Salz (!); Wadi Karen near Goren, 2 spec., 6. VIII. 1958,!; Yarkon, 11 spec., 5. VII. 1958,!. – On grasses, e.g. *Cynodon dactylon*, both on coastal dunes and in fresher biotopes as in gardens etc. – Holomediterranean.

*H. eximius* (Kbm.), n.comb.

Easily distinguished from the preceding species by the shape of the head in which the frontoclypeus is not concave below the upper margin.

Palestine (Bodenheimer op.cit.); Ben – Shemen, 2 spec., Bodenheimer (!). – Probably Eremian.

*H. eximius* (Kbm.) f. *reticulatus* n.f.

As the nominate form, but elytra with apical and subapical area reticulate with several extra cross-veins in all apical and subapical cells, while in the nominate form the elytra are either without extra cross-veins or have only a few in the outer subapical cell.

Type, a male; allotype, a female, 3 paratypes and 7 larvae, 'Ein Gedi, 18. VI. 1958,!; 1 paratype, 'Ein Husb, 12. X. 1953, Fishelson (!); and 5 paratypes, Sedom, 15. VIII. 1957, Wahrman (!). – Swept from luxuriant vegetation (e.g. *Juncus acutus*) at a hot sulphur spring on the shore of the Dead Sea.

## *Cicadellinae*

### *Cicadella* Dum.

*C. viridis* (L.) – Palestine (BODENHEIMER op.cit.). – Euro-Siberian.

## *Stegelytrinae*

### *Stegelytra* M.R.

*S. albofasciata* n.sp.

Length 5.5 – 6 mm. Dull, pale ochraceous. Face finely spotted with dark brown. Crown, pronotum and scutellum ± marked with a brownish or reddish brown tinge. Elytra brown, with small whitish knobs; a whitish band along scutellar margin of clavus, a second transverse or T-shaped whitish band in the middle of the elytra, the stem of T pointing apically; veins concolorous or in apical part ± blood-red; commissural margin of clavus with dark fuscous spots. Under surface pale ochraceous, ± tinged with brownish. Legs pale ochraceous, minutely spotted with dark brown.

A robust, wedge-shaped species. Face convex; anterior margin of head broadly rounded to face. Crown of nearly uniform length, strongly sloping anteriorly already from base, disk with a shallow depression on either side of coronal suture. Pronotum and scutellum remarkably convex, the former densely transversely wrinkled and dull; apex of scutellum rather blunt. Elytra coriaceous, venation as in *S. putoni* M. R. Male genitalia: Penis (fig. 34 f) with stem flattened and ventrally carinate; 2 pairs of long basal appendages present, the lateral pair flagellate, the median pair triramose. Other genitalia and 7th sternite (♀) as in *S. putoni*.

Type, a male, Beit Shean, 7. VIII. 1958,!; allotype, a female and 3 paratypes and 2 larvae, Shimron, 4. VIII. 1958,!; 1 paratype, Hagoshrim, 8. VII. 1958,!; 1 paratype, Neve Ya'ar, 29. VII. 1958,!. – On *Quercus ithaburensis*.

Much as *S. putoni*, but with a dissimilarly shaped penis.

## *Aphrodinae*

### *Aphrodes* Ct.

*A. bicinctus* (Schrk.) ssp. *diminutus* Rib. – Miqve Israel, 1 spec., 4. IV. 1945, Bytinski – Salz (!). – The nominate form Holarctic, the subspecies apparently Holomediterranean. New for Israel.

*A. paralongus* Dlab. – Jerusalem, 1 spec., 26. IV. 1944, (!); Kiriath Anavim, 1 spec., 3. XI. 1943, Waterston (!). – Endemic. Previously known from Syria.

*A. albifrons* (L.)? – Hadera – Petah Tikvah, 1 ♀, 26. V. 1958,!; Rehovot, 1 ♀, 20. V. 1958, Amitai (!); Tel-Aviv, 1 ♀, 28. VI. 1958,!. – Among xerophilous vegetation. – European, New for Israel.

## *Eupelicinae*

### *Eupelix* Germ.

*E. cuspidata* (F.) – Hatserim, 1 spec., 20. III. 1958, Amitai (!); Jerusalem 1 spec., 11. XII. 1954, Wahrman (!). – European. New for Israel.

## *Paradorydiinae*

### *Chloropelix* Ldb.

*C. canariensis* Ldb. – 'Ein Gedi, 18 spec., 18. VI. 1958,!. – Among grasses in a garden. – Eremian. Previously known only from the Canary and Cape Verde Islands.

### *Paradorydium* Kk.

*P. dimorphum* n.sp.

Length ♂ 4 – 4.2 mm., ♀ 7.5 mm. Pale greenish ochraceous.

♂. Head sharply triangular, 2.45 × as long at middle as broad basally, 2.25 × as long as pronotum, lateral margins straight; disk flat, slightly upturned apically, coarsely punctate; a sharp median ridge present. Frontal surface of head slightly convex medially, flat laterally. Elytra a little longer than abdomen, apex roundish. ♀ (fig. 35 a). Head strongly and sharply

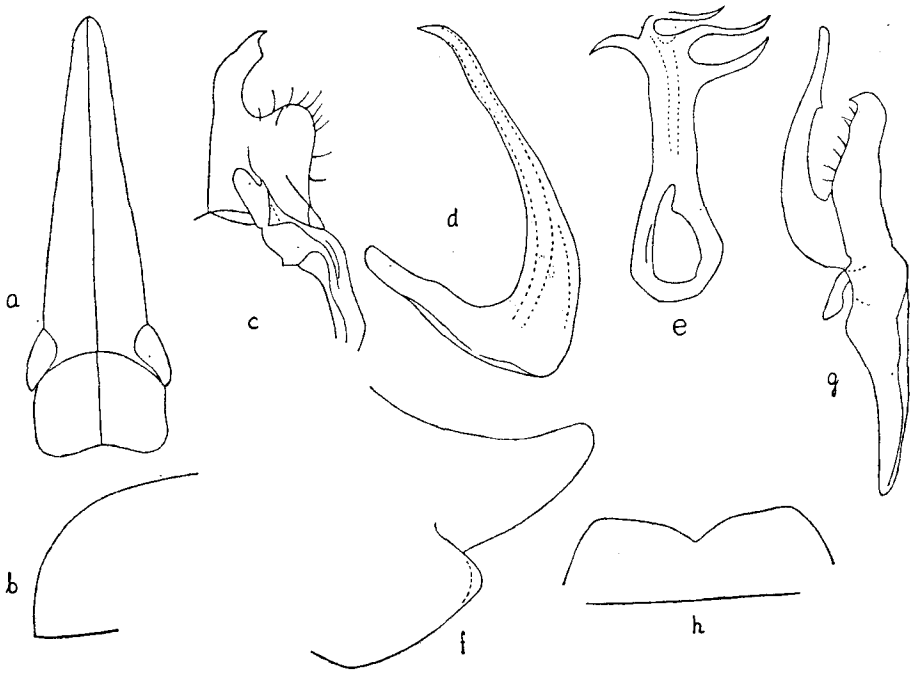



Fig. 35. *Paradorydium dimorphum* n.sp.: a head and pronotum (♀); b side lobe of pygofer; c genital plate and stylus; d penis, lateral aspect. – *Peragallia quadricornis* n.sp.: e penis, dorsal aspect. – *Platyproctus maculipennis* n.sp.: f side lobe of pygofer; g stylus; h 7th sternite (♀). – Orig.

produced, 4.1 × as long medially as broad basally, 4.4 × as long as pronotum, tapering apically, lateral margins straight; disk strongly convex with a sharp median ridge, sloping laterad, rather coarsely punctate. Frontal surface rather strongly convex. Pronotum coarsely punctate, a median ridge present. Elytra extending only to genital segment, apex roundish. Male genitalia: Side lobes of pygofer (fig. 35 b) triangular. Genital plates (fig. 35 c) with lateral margin strongly incurvate at about the middle, apex shallowly bifid. Penis (fig. 35 d) with stem slightly curved dorsad. 7th sternite (♀) deeply nothed in the middle.

Type, a male; allotype, a female and 21 paratypes, Beer Mashash, 23. VI. 1958,!. – On *Aristida scoparia* on dunes.

*P. lanceolatum* (Burm.) and *P. occidentale* Ldb. are not sexually dimorphic, the head is parallel-sided in the anterior portion, lateral margins therefore being distinctly concave. Moreover the elytra are acuminate apically. *P. breviceps* Mel. (DLABOLA 1957 b, fig. 132, plate XVI) has a shorter head with lateral margins distinctly insinuated. *P. tadschicum* Dlab. is a very small species with a much shorter head. *Semenovium ferghanae* Kusn. is sexually dimorphic, but the male has the lateral margins of the head distinctly insinuated, the elytra somewhat more rounded, apically and the apophysis of the stylus remarkably longer. In female the head is less sharply triangular with the upper surface flat. The genus *Semenovium* is very close to *Paradorydium* and may be a synonym of it. At present, however, I have too little material of the former genus and have not yet revised the numerous Ethiopian species of the latter genus, and therefore I have not would like to make any nomenclatorial change concerning the genera.

## *Ulopinae*

### *Ulopa* Fn.

*U. trivia* Germ. – Palestine (BODENHEIMER op.cit.). – Holomediterranean.

### *Megulopa* Ldb.

*M. sahlbergorum* Ldb. – Deganya, 1 spec., Palmoni (!), 1 spec., 23. VII. 1958,!; Hula, 8 spec. and 15 larvae, 10. VII. 1958,!. – Swept from grasses on moist shores. – Eremian. New record for Israel.

## *Idiocerinae*

### *Idiocerus* Lew.

*I. vicinus* Mel. – Neot Mordekhai, 1 spec., 2 larvae, 21. VII. 1958,!. – On *Salix acmophylla*. – Holomediterranean. New record for Israel.

*I. notatus* (F.) – Jerusalem, 21 spec., 17. VI. 1958,!. – On *Prunus amygdalinus*. – Holomediterranean. New record for Israel.

## *Agalliinae*

### *Agallia* Ct.

*A. laevis* Rib. – Aqua Bella, 1 spec., 14. VI. 1958,!; Dan, 2 spec., 8. VII. 1958,!; 'Ein Gedi, 2 spec., 19. VI. 1958,!; Hadera, 4 spec., 26. VI. 1958,!; Hula, 6 spec., 10. VII. 1958,!; Jerusalem, 2 spec., 3. VI. 1957, Werner (!), 5 spec., 13 – 17. VI. 1958,!; Meged, 1 spec., 23. IX. 1948, Bytinski-Salz (!); Miqve Israel, 2 spec., 30. VI. 1957, Michaeli (!); Neot Mordekhai, 2 spec.,

21. VII. 19 58,!; Palestine, 8 spec., Bodenheimer (!); Rehovot, 6 spec., 16. XII. 1957, Michaeli); Revadim, 1 spec., 25. VII. 1958,!; Sa'ad, 1 spec., 17. VII. 1958,!; Shuva, 1 spec., 14. VII. 1958,!; Tel-Aviv, 1 spec., 30. III. 1958, Rubin (!); Tel-Kazir, 1 spec., 6. VIII. 1956, Wahrman (!); Wadi Rubin, 1 spec., 16. VII. 1958,!. – On cultivated fields and in other open biotopes. – Holomediterranean. New record for Israel.

*A. hispanica* Hv. – Revivim, 1 spec., 2. VIII. 1958,!. – Swept from desert vegetation. – Apparently Eremian. Previously recorded from Spain. Redescribed by DLABOLA (1960, p. 242 – 243). My specimen agrees well with the figures in that paper; however, no illustrations has been published of the pygofer and the anal tube.

*A. minuta* Mel. – Jerusalem, 9 spec., 24. IV. 1931, Jolles (!), 1 spec., 15. V. 1955, Wahrman (!). – Pontomediterranean. New record for Israel.

## *Peragallia* Rib.

*P. sinuata* (M.R.) – Palestine (BODENHEIMER op.cit.); Bat Yam, 16 spec., 3. VII. 1958,!; Hadera, 7 spec., 1. VII. 1958,!; Hula, 1 spec., 10. VII. 1958,!; Rehovot, 1 spec., 18. VII. 1958,!; Revivim, 1 spec., 2. VIII. 1958,!. – Among xerophilous vegetation. – Holomediterranean.

*P. quadricornis* n.sp.

Length 3 mm. Pale grey. Frontoclypeus with short brown lateral arcs; anterior margin of face with dilute fuscous markings. Crown with 2 round small black spots and a brown median dash. Pronotum with 2 small round black spots near basal margin and a faint brownish median stripe. Elytra whitish; cells of clavus brownish; veins of corium brown. Under surface and legs pale ochraceous.

A small species. Elytra relatively short. Male genitalia: Pygofer and anal tube without appendages. Penis (fig. 35 e) with 4 falcate apical processes.

Type, a male; allotype, a female and a paratype, Shimron, 4. VIII. 1958,!; 3 paratypes, Nazareth, 5. VIII. 1958,!; a paratype, Sha'alvim, 28. VII. 1958,!. – From *Mentha* sp. on dry hill sides.

## *Melicharellinae*

## *Platyproctus* Ldb.

*P. agraphopteron* Bgv. – Sedom, 1 spec., 15. VIII. 1957, Wahrman (!); Timna, 4 spec., 21. VI. 1958,!. – On *Calligonum comosum* in desert conditions. – Eremian. Previously known from North Africa.

*P. maculipennis* n.sp.

Length $4.5 - 5.2$ mm. Head and pronotum pale yellow. Eyes pale yellow-brown. Scutellum brighter yellow. Elytra pale fuscous, ± densely marked with roundish white spots partly coalescent, so forming two larger whitish areas on corium; apical cells unicoloured pale fuscous veins concolorous. Under surface and legs pale ochraceous; ovipositor brownish.

Robust, wedge-shaped, about $2.46 \times$ as long as broad, rather convex. Head $1.13 \times$ as broad as pronotum. Face remarkably convex, evenly rounded in profile, ledge above antennal pits relatively small. Crown very short, strongly decliving to face right from base, distinctly shorter medially than next to eyes, anterior margin of head rounded in dorsal view; basal width of crown $4.37 \times$ as broad as eye. Pronotum short, $2.25 \times$ as broad as long, $6.67 \times$ as long as median length of head, hind margin distinctly insinuated. Length of elytra 3.75 mm. Elytra opaque, venation densely reticulate in apical and subapical area and in clavus. Male genitalia: Side lobes of pygofer (fig. 35 f) notched in the ventral margin. Genital plates (fig. 36 a) fused to each other and to valve basally, without macrosetae and hairs; only minute setae present covering the under surface. Stylus (fig. 35 g) with apophysis long and slender bearing a subapi-

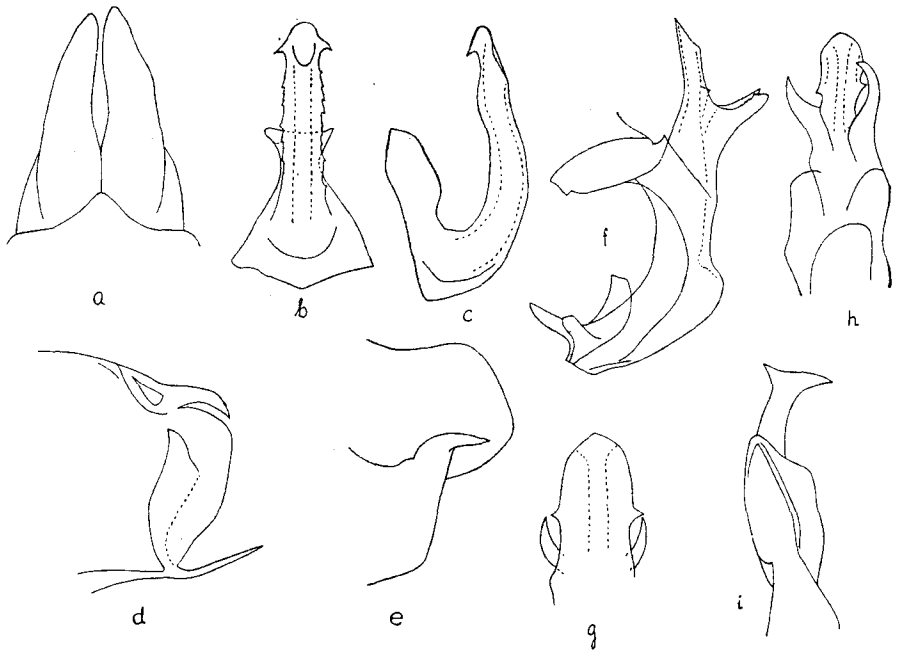



Fig. 36. *Platyproctus maculipennis* n.sp.: a genital plates; b penis, ventral aspect; c same, lateral aspect. – *Erythroneura gediensis* n.sp.: d side lobe of pygofer, median aspect. – *E. distinguenda* (Kbm.) ssp. *ecbalii* n.ssp.: e same; f penis, lateral aspect; g apex of same, dorsal aspect; h same, ventral aspect; i stylus. – Orig.

cal small tooth; preapical angle strongly produced, ending in a sharp spine directed mesad. Penis (fig. 36 b, c) with stem digitate, serrate laterally; two small apical teeth directed dorsad; gonopore subapical on the ventral surface. 7th sternite (♀) (fig. 35 h) somewhat shorter than 6th, hind margin truncate with a broadly V-shaped median notch.

Type, a male; allotype, a female and 14 paratypes, Timna, 21. VI. 1958,!; 3 paratypes, Yotvata, 21. VI. 1958,!. – On *Calligonum comosum* and *Haloxylon persicum*.

Easily recognized by the colouring and the short, wedge-shaped body.

## *Megophthalminae*

### *Megophthalmus* Ct.

*M. scabripennis* Edw. – Kiriath Anavim, 1 spec., Bodenheimer (!). – Holomediterranean. New record for Israel.

## *Macropsinae*

### *Macropsis* Lew.

*M.* n.sp. prope *notata* Proh.

As *M. notata*, but graciler and pronotum conspicously strongly produced anteriorly. Ovipositor as in *M. notata*. Certainly a new species, but since at present only a female is available, I cannot describe it in this connection.

Neot Mordekhai, 1 spec., 21. VII. 1958,!. – On *Salix acmophylla*.

*M. scutellata* (Boh.) – Palestine (BODENHEIMER op.cit.). – European.

*M.* n.sp. near *M. unicolor* Ldb.

A small, unicoloured green species without any dark markings. Jericho, Transjordania, 1 ♀, Bodenheimer (!).

### *Hephathus* Rib.

*H. orientalis* Lv., n.status.

Originally described as a variety of *H. nanus* (H.S.) (LINNAVUORI 1953, p. 122 – 123). Since, however, the differences between *orientalis* and *nanus* are constant and since the biology, too, is entirely different in the two species (*H. nanus* lives on different herbaceous plants in dryish meadows, while *H. orientalis* is monophagous on *Rubus sanguineus*), I regard them at present as separate species.

Aqua Bella, 1 spec., 14. VI. 1958,!; Bat Yam, 1 spec., 3. VII. 1958,!; Beersheba, 1 spec., 2. VIII. 1958,!; Dan, 2 spec., 11. VII. 1958,!; Jerusalem, 1 spec., 15. VI. 1958,!; Nazareth, 2 spec., 5. VIII. 1958,!; Ramath Gan, 1 spec., 19. VII. 1958,!; Rehovot, 1 spec., 18. VII. 1958,!; Tel-Aviv, Yarkon border, slaughterhouse, 1 spec., Carmin (!); Yarkon, 3 spec., 28. VI. 1958,!. – On *Rubus sanguineus*. – Endemic.

## *Iassinae*

### *Batrachomorphus* Lew.

*B. glaber* Hpt. – Palestine (BODENHEIMER op.cit.); Beit-Dagan, 6 spec., 9. VI. 1958, Yatom (!); Beit Jubrin, 1 spec., 16. VI. 1958,!; Dan, 1 spec., 7. VI. 1958,!; Deganya, 6 spec., 22. VII. 1958,!; Hagoshrim, 4 spec., 11. VII. 1958,!; Hula, 3 spec., 10. VII. 1958,!; Kefar Malal, 1 spec., Carmin (!); Miqve Israel, 1 spec., 16. VI. 1957, Michaeli (!); Nahariya, 1 spec., 6. VIII. 1958,!; Palestine, 2 spec., Bodenheimer (!); Rehovot, 4 spec., 22. IX. 1956, Swirski (!); Sde Eliahu, 2 spec., 10. X. 1957, Rubin (!); Tel-Aviv, 7 spec., 25. VII. 1958,!; Wadi Sukreir, 1 spec., 27. VI. 1958,!; Yarkon, 1 spec., 5. VII. 1958,!. – Among herbs on relatively moist, sunny biotopes. – Syrio-Anatolian.

*B. signatus* Lbd. – Jaffa, J. Sahlberg (LINDBERG 1923, p. 69); Rehovot, 2 spec., 4 larvae, 28. VII. 1958,!. – On *Acacia* in a botanical garden. – Eremian.

## *Typhlocybinae*

### *Alebrini*

### *Alebra* Fb.

*A. albostriella* (Fn.) – Palestine (BODENHEIMER op.cit.); Hadera, 12 spec., 1. VII. 1958,!; Shimron, 4 spec., 4. VIII. 1958,!. – On *Quercus ithaburensis*. – Holarctic.

### *Dikraneurini*

### *Dikraneura* Hdy.

*D. acuticeps* n.sp.

Length 3 mm. Pale greenish white. Pronotum with whitish markings as in *D. stigmatipennis* (M.R.). Elytra greenish white, apical part smoky with 2 round black spots as in *stigmatipennis*.

Slender. Crown sharply produced anteriorly (fig. 37 b), 2.0 – 2.1 × as long at middle as

next to eyes, $1.1 - 1.21 \times$ as broad basally as long. Genitalia nearly as in *stigmatipennis*. Penis stout (fig. 37 a), stem with a pair of small triangular lobes on the dorsal surface.

Type, a male and 4 paratypes, Hulda, 25. VI. 1958,!; allotype, a female and a paratype, Beit Jubrin, 16. VI. 1958,!; 2 paratypes, Beith Oved, 16. VII. 1958,!; 2 paratypes, Herzliya, 23. VII. 1958,!; 1 paratype, Nahariya, 6. VIII. 1958,!; 1 paratype, Sa'ad, 20. III. 1958, Swirski; 3 paratypes, Wadi Karen near Goren, 6. VIII. 1958,!; 1 paratype, Wadi Sukreir, 26. VI. 1958,!. – On *Verbascum herbaceum*.

Very near to *D. stigmatipennis* (M.R.), but smaller and graciler, head much longer, elytra without orange markings and penis not serrate dorsally. In *stigmatipennis* the crown is only $1.66 \times$ as long at middle as next to eyes and $1.73 \times$ as broad basally as long.

*Typhlocybini*

## *Empoasca* Walsh

*E.* (*Asymmetrasca*) *decedens* (Pli.) - Deganya, 4 spec., 23. VII. 1958,!; Jerusalem, 15 spec., 13 – 17. VI. 1958,!; Nabi Rubin, 11 spec., 4. VII. 1958,!; Neot Mordekhai, 10 spec., 21. VII. 1958,!; Ness Zionah, 4 spec., Carmin (!); Ramath Gan, 1 spec., 19. VII. 1958,!; Rehovot, 5 spec., 18. VIII. 1957, Michaeli (!); Shoval, 2 spec., 20. III. 1958, Amitai (!); Tel-Aviv, 15 spec., 27. VII. 1958,!. – Polyphagous, on egg-plant, *Salix* sp., *Vitis vinifera*, etc. Often collected at lamps. – Holomediterranean.

*E.* (s.str.) *decipiens* (Pli.) ssp. *meridiana* Zachv. – Beit Jubrin, 1 spec., 16. VI. 1958,!; 'Ein Gedi, 1 spec., 18. VI. 1958,!; Hadera, 9 spec., 26. VI. 1958,!; Jerusalem, 26 spec., 14. VI. 1958,!; Miqve Israel, 5 spec., 16. VII. 1957, Michaeli (!); Palestine, 15 spec., Bodenheimer (!); Revivim, 15 spec., 23. VI. 1958,!; Tel-Aviv, 28 spec., 26. VI. 1958,!; Wadi Musrara, 1 spec., Carmin (!); Wadi Rubin, 5 spec., 16. VII. 1958,!; Wadi Sukreir, 23 spec., 26. VI. 1958,!; Yarkon, 5 spec., 28. VI. 1958,!. – Polyphagous, on cotton, *Beta* sp., *Ricinus communis*, *Vitis vinifera*, etc. Often at lamps. – Holomediterranean, the subspecies with an eastern distribution.

*E.* (s.str.) *distinguenda* (Pli.) – Tel-Aviv, 1 spec., Carmin (!). – Ethiopian. Previously known from Central and East Africa.

*E.* (s.str.) *lybica* Bgv.

*Empoasca lybica* Bergevin 1922, p. 58 – 64.

*Chlorita signata* Haupt 1927, p. 40 – 41.

*Chlorita bodenheimeri* Haupt 1930, n.syn.

*Chlorita citrea* Haupt 1930, n.syn.

Palestine (Bodenheimer op.cit.); Acre, several spec., 16. VIII. 1935, (!); Ben-Shemen, 2 spec. (types of *signata*), Bodenheimer (!); Hagoshrim, 1 spec., 8. VII. 1958,!; Palmahim, 5 spec., 4. VII. 1958,!; Tel-Aviv, 1 spec., 11. VIII. 1957, Rubin (!), 1 spec., 26. VI. 1958,!. – Polyphagous, on potato and *Vitis vinifera*. – Ethiopian with a wide distribution in Africa. I have not seen the types of *E. citrea* and *E. bodenheimeri* that are not included in coll. Haupt. Possibly they have been destroyed. No doubt, however, they are not valid species, most probably belonging to *E. lybica*.

## *Chlorita* Fb.

*C. eremophila* n.sp.

Externally as *E. tessellata* (Leth.), but with dissimilar genitalia: Anal tube with a pair of straight falcate appendages (fig. 37 e). Penis (fig. 37 c, d) short, stem tapering apicad, apex with a wing-shaped lateral process on either side. Other genitalia as in *E. tessellata*.

Type, a male; allotype, a female and 4 paratypes, Beer Mashash, 23. VI. 1958,!; 1 paratype, Ashqelon, 2. VII. 1958,!; 4 paratypes, 12 km S of Beersheba, 18. VI. 1958,!; 19 paratypes,

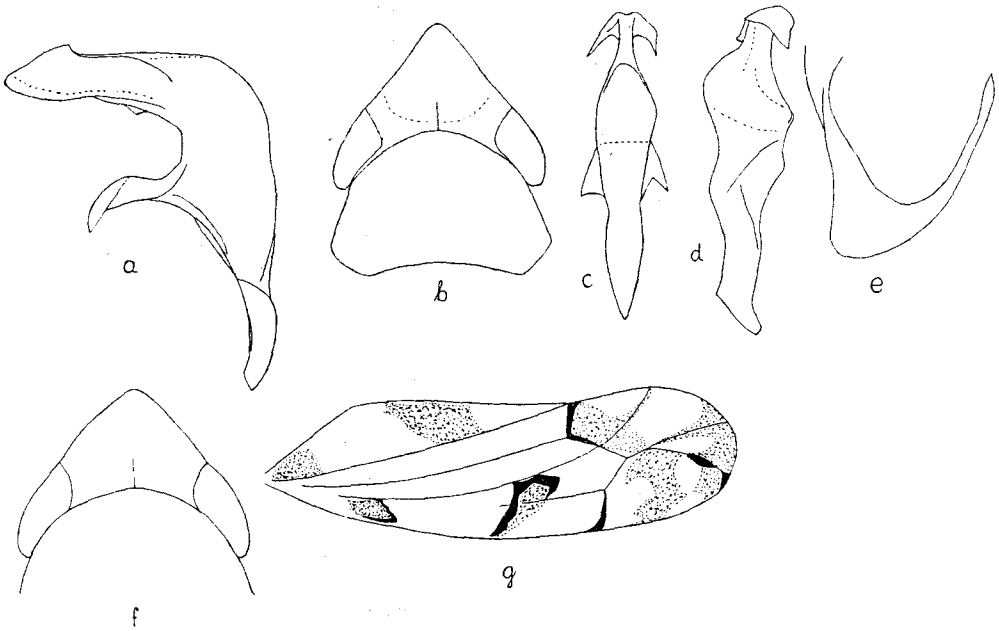



Fig. 37. *Dikraneura acuticeps* n.sp.: a penis, lateral aspect; b head and pronotum (♀). – *Chlorita eremophila* n.sp.: c penis, ventral aspect; d same, lateral aspect; e appendage of anal tube. – *Eurhadina angulata* n.sp.: f head (♀); g elytron. – Orig.

Hadera, 1. VII. 1958,!; 9 paratypes, Herzliya, 4. VII. 1958,!; 5 paratypes, Mamshit, 18. VI. 1958,!; 4 paratypes, Revivim, 2. VIII. 1958,!; 2 paratypes, Yarkon, 28. VI. 1958,!. – On *Artemisia monosperma* in desert conditions and on coastal dunes.

## *Eurhadina* Hpt.

*E. angulata* n.sp.

♀. Length 3.5 mm. White, dull. Face somewhat yellowish. Pronotum with some irregular yellowish or colourless vermiculate markings. Metanotum smoky. Elytra white with brownish markings as in fig. 37 g: 2 spots on clavus, 2 on costal margin and partly also apical cells infumed; lower cross-vein of 3rd apical cell with an elongate fuscous spot.

Crown sharply angled anteriorly (fig. 37 f), 1.67 × as long at middle as next to eyes, 0.71 × as long at middle as basal width. Venation of flying wing as in fig. 38 a.

Type, a female, Aqua Bella, 14. VI. 1958,!. – Probably on *Quercus calliprinos*.

Easily distinguished by the sharply produced head.

## *Eupteryx* Ct.

*E. cypria* (Rib.) – Aqua Bella, 102 spec., 14. VI. 1958,!; Bat Shlomo, 5 spec., 29. VII. 1958,!; Dan, 8 spec., 8. VII. 1958,!; Hagoshrim, 4 spec., 11. VII. 1958,!; Jerusalem, 8 spec., 13. VI. 1958,!; Judea, 1 spec., J. Sahlberg (!); Nabi Rubin, 6 spec., 4. VII. 1958,!; Palestine, 1 spec., Bodenheimer (!); Palmahim, 1 spec., 4. VII. 1958,!; Wadi Musrara, 4 spec., Carmin (!); Wadi Rubin, 5 spec., 27. VI. 1958,!. – Common on different *Labiatae* in moist localities, e.g. on the shores of small brooks. – Syrio-Anatolian.

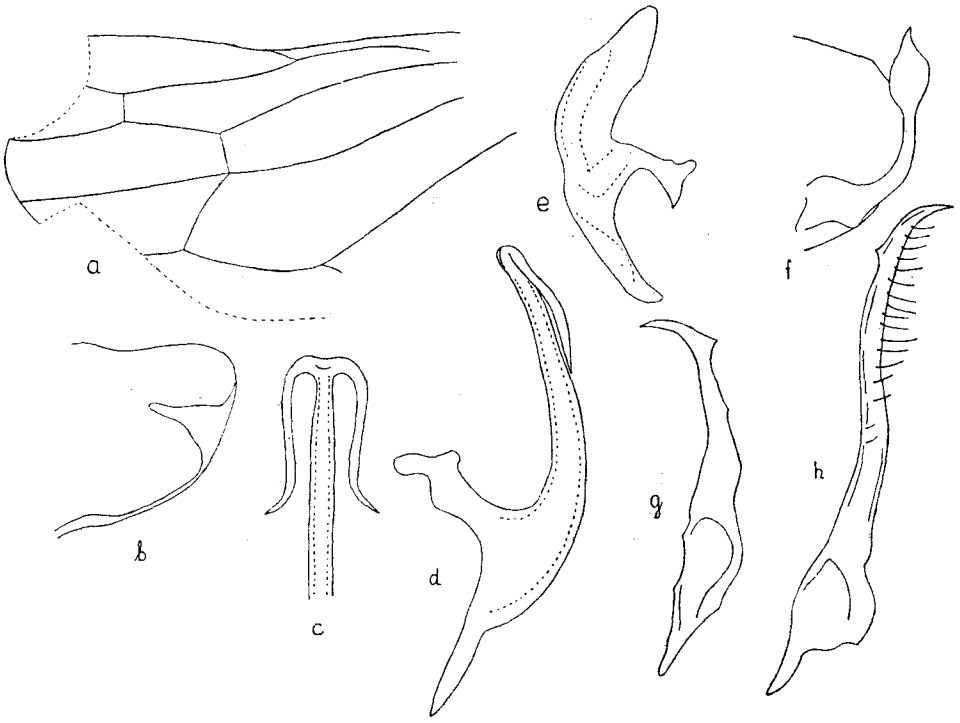



Fig. 38. *Eurhadina angulata* n.sp.: a flying wing. – *Eupteryx nemoricola* n.sp.: b side lobe of pygofer, median aspect; d penis, lateral aspect; c apex of same, ventral aspect. – *Zyginella pistaciae* n.sp.: e penis, lateral aspect; f side lobe of pygofer, median aspect; g stylus. – *Youngiada tarsalis* n.sp.: h stylus. – Orig.

*E. insulana* (Rib.) – Dan, 10 spec., 7 – 8. VII. 1958,!; 'Ein Gedi, 1 spec., 19. VI. 1958,!. – On *Labiatae* in moist shore localities. – Syrio-Anatolian. New record for Israel.

*E. nemoricola* n.sp.

Length 2.5 mm. Externally as *E. stachydearum* (Hdy.). Frontoclypeus with sides slightly embrowned and with 2 small black dots in upper margin. Crown with 3 black spots: 2 semilunar ones in anterior margin and one transverse median spot in basal margin. Male genitalia: Side lobes of pygofer (fig. 38 b) with a straight median spine. Penis (fig. 38 c, d) with stem long and rather straight, provided with a pair of long apical appendages directed basally. Other genitalia as in *E. stachydearum*.

Type, a male; allotype, a female and 4 paratypes, Dan, 7 – 8. VII. 1958,!. – On *Labiatae* in a dusky wet grove at the source of the River Jordan.

Easily distinguished in the shape of the penis.

## *Zyginella* P.Löw

*Z. pulchra* P.Löw. – Dan, 14 spec., 11. VII. 1958,!; Jerusalem, 2 spec., 9. XI. 1943, Waterston (!). – On *Platanus orientalis*. – Holomediterranean. New record for Israel.

*Z. pistaciae* n.sp.

Length 3 mm. ♂ brighter, ♀ paler yellow. Elytra yellowish hyaline, apical veins and apical margin bordered with dark smoky; 2nd apical cell with a round dark spot (*above* the triangular apical cell).

Crown (♂) only roundedly produced anteriorly or (♀) distinctly angulate. Venation of elytra and flying wings as in *Z. pulchra*. Male genitalia: Side lobes of pygofer (fig. 38 f) with a long ventral appendage conspicuously expanded apically. Stylus (fig. 38 g) with apophysis distinctly bent laterad apically, bearing a subapical tooth. Penis (fig. 38 e) simple, stem short, lamellar. Other genitalia as in *Z. pulchra*.

Type, a male; allotype, a female and 16 paratypes, Rehovot, 28. VII. 1958,!. – On *Pistacia palaestina* in a botanical garden.

*Z. pulchra* much resembles *Z. pistaciae* externally, but has the round black spot on the triangular apical cell of the elytra. The male genitalia are also much dissimilar. *Z. albifrons* Hv. is smaller, length 2.75 × mm. and the crown is provided with a lemon-yellow longitudinal stripe. The male genitalia of *Z. albifrons* are unknown.

## *Youngiada* Dlab.

*Y. tarsalis* n.sp.

Length 3 mm. ♂. Head, lateral margins of pronotum and scutellum pale whitish ochraceous. Median parts of pronotum and scutellum and in addition also elytra up to apical area golden yellow; apical cells smoky. Under surface and legs greenish yellow. Hind tibiae with black hairs, hind tarsi black. ♀. Whitish ochraceous. Pronotum with 2 orange longitudinal bands. Elytra pale yellowish; commissural margin of clavus orange; a narrow orange band parallel to claval suture on corium; apical cells smoky. Legs pale ochraceous; hind tibiae with brownish hairs; hind tarsi scarcely darkened.

A small slender species. Crown roundedly produced. Male genitalia: Side lobes of pygofer (fig. 39 c) rounded, apex with a few short setae. Genital plates (fig. 39 d) slender, base with a few macrosetae, apex with some slight teeth. Stylus (fig. 38 h) with apophysis long and slender, apex sharp-tipped and bent laterad, a subapical tooth present. Penis (fig. 39 a, b) symmetrical, stem recurved ventrad, provided with a pair of ventral subapical processes and with an unpaired dorsal subapical process. 7th sternite (♀) strongly produced caudad with a faint V-shaped median notch.

Type, a male and a paratype, Aqua Bella, 14. VI. 1958,!; allotype, a female and 16 paratypes, Haifa, Mt. Karmel, 29. VI. 1958,!; 3 paratypes, Wadi Karen near Goren, 6. VIII. 1958,!; 1 paratype, Shimron, 4. VIII. 1958,!. – On *Quercus calliprinos*.

Resembling *Y. loewi* (Leth.), but with dissimilar colouring and male genitalia.

## *Typhlocyba* Germ.

*T. (Edwardsiana) tshinari* Zachv. – Dan, 18 spec., 8 – 11. VII. 1958,!. – On *Platanus orientalis*. – Apparently Irano-Turanian. Previously known from Uzbekistan. The original description (ZACHVATKIN 1945 a, p. 114 – 115) is fairly short without illustrations. The Palestinian species seems anyhow to agree well with the description. The penis of the Palestinian species is illustrated in fig. 39 e.

*T. (Ficocyba) ficaria* Hv. – Yarkon, 22 spec., 28. VI. 1958,!. – On *Ficus carica*. – Holomediterranean. A new record for Israel.

## *Ribautiana* Zachv.

*R. tenerrima* (H.S.) – Bat Shlomo, 1 spec., 29. VII. 1958,!; Dan, 21 spec., 7 – 11. VII. 1958,!; Hadera-Petah-Tikvah, 1 spec., 25. VI. 1958,!; Haifa, 1 spec., 29. VI. 1958,!; Wadi Rubin, 1 spec., 27. VI. 1958,!; Yarkon, 6 spec., 28. VI. 1958,!. – On *Rubus sanguineus*. – Holomediterranean with a large extension into Central Europe. New record for Israel.

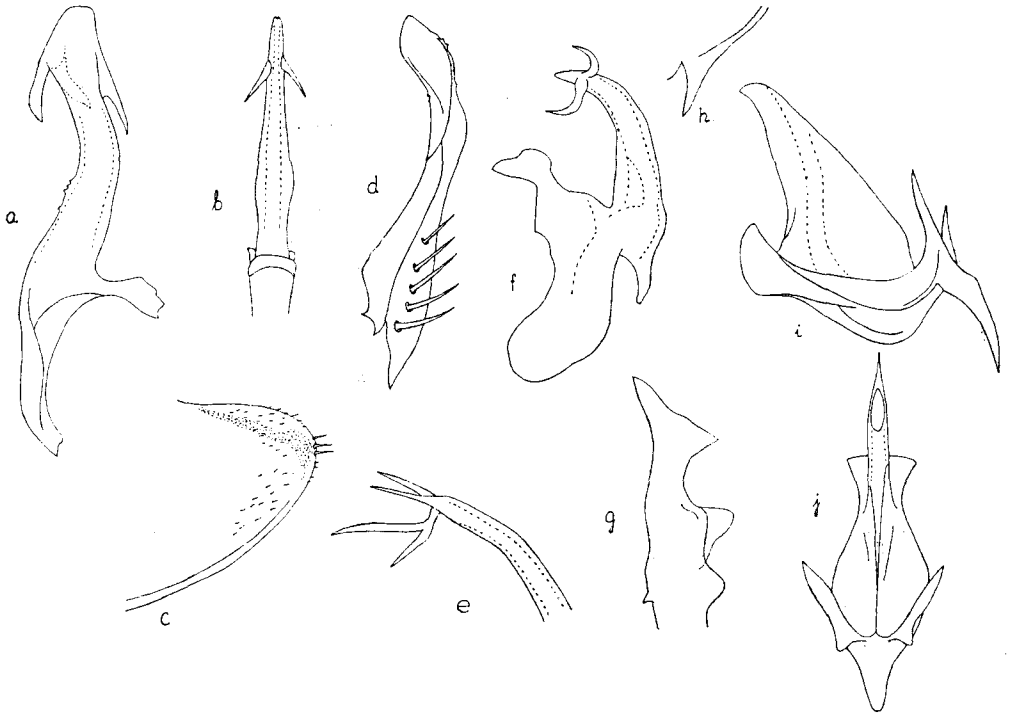



Fig. 39. *Youngiada tarsalis* n.sp.: a penis, lateral aspect; b same, ventral aspect; d genital plate; c side lobe of pygofer, lateral aspect. – *Typhlocyba tshinari* Zachv.: e apex of penis, lateral aspect. – *Helionidia biplagiata* (Hpt.): f penis, lateral aspect; g stylus.– *Erythroneura ithaburensis* n.sp.: h anal hook; i penis, lateral aspect; j same, ventral aspect. – Orig.

*Erythroneurini*

## *Heliona* Mel.

*H. adspersa* Hpt. – Palestine (BODENHEIMER op.cit.); Deganya, 2 spec., 22. VII. 1958,!; Yotvata, 1 spec., 20. VI. 1958,!. – Collected at lamps. – Endemic.

## *Helionidia* Zachv.

*H.* (s.str.) *biplagiata* (Hpt.) – Palestine (BODENHEIMER op.cit.); Beersheba, 1 spec., 1. VIII. 1958,!; Beit Jubrin, 9 spec., 26. VI. 1958,!; Deganya, 59 spec., 23. VII. 1958,!; 21 km S of Nahal Hiyon, 1 spec., 20. VI. 1958,!; Nazareth, 1 spec., 5. VIII. 1958,!; Rehovot, 10 spec., 28. VII. 1958,!; Shimron, 59 spec., 4. VIII. 1958,!; Wadi Rubin, 1 spec., 27. VI. 1958,!. – On *Acacia* sp., *Acacia albida* and *Prosopis farcata*. – Eremian.

*H. desmanthi* (Ldb.) is externally like *biplagiata*. In the last-named, however, the apophysis of the stylus is shorter (fig. 39 g), the stem of the penis distinctly curved dorsad and the apical appendages of the same distinctly thicker (fig. 39 f).

*H.* (*Tamaricella*) *tamaricis* (Pt.) – Beersheba, 5 spec., 1. VIII. 1958,!; Deganya, 13 spec., 22. VII. 1958,!; Tiberias, 3 spec., 21. VII. 1958,!. – On *Tamarix*. – Holomediterranean. New record for Israel.

*H.* (*Tamaricella*) *fasciolata* (Leth.)

*Chlorita fasciolata* LETHIERRY 1876.

*Erythroneura tamaricis cypria* RIBAUT 1948, p. 6.

*Erythroneura franckeniae* LINBERG 1953, p. 254 – 255, n.syn.

Palestine (BODENHEIMER op.cit.); Ashqelon, 21 spec., 2. VII. 1958,!; Beersheba, 2 spec., 19. VI. 1958,!; Beer Mashash, 13 spec., 23. VI. 1958,!; Deganya, 2 spec., 23. VII. 1958,!; 'Ein Gedi, 2 spec., 18. VI. 1958,!; Gvuloth, 19 spec., 20. III. 1958, Amitai (!), 14 spec., 17. VII. 1958,!; Hatserim, 1 spec., 20. III. 1958, Amitai (!); Herzliya, 19 spec., 29. VII. 1958,!; Jerusalem, 2 spec., 13. VI. 1958,!; Rehovot, 6 spec., 12. VI. 1957, Swirski (!); Revivim, 11 spec., 23. VI. 1958,!; Tel-Aviv, 2 spec., 29. VI. 1958,!; Yarkon, 4 spec., 5. VII. 1958,!; Yotvata, 54 spec., 11. VI. 1958,!. – Very common on *Tamarix*. Also at lamps. – Eremian.

## *Erythroneura* Fitch

*E.* (*Arboridia*) *adanae* Dlab. – Hadera, 2 spec., 1. VII. 1958,!; Palmahim, 3 spec., 4. VII. 1958,!. – On *Vitis vinifera* at Palmahim. Probably on *Quercus ithaburensis* at Hadera. – Syrio-Anatolian. Previously known only from Turkey.

*E.* (*Arboridia*) *ithaburensis* n.sp.

Length 3 – 3.2 mm. Of the *parvula* group. White or greenish. Face pale or sometimes anteclypeus slightly infumed. Crown with 2 round black spots. Pronotum with 2 minute dark dots in anterior margin. Scutellum with black basal triangles. Elytra as in *E. parvula* (Boh.): a dark longitudinal band in clavus and another in corium; apex smoky. Under surface and legs whitish.

Body as in *E. parvula*, but smaller and graciler. Male genitalia: Anal hooks short and claw-like (fig. 39 h). Stylus (fig. 40 a) with apophysis as in *E. uncinata* Rib. Penis (fig. 39 i, j) with stem broad basally and strongly tapering apically in lateral aspect; a pair of short basal processes present.

Type, a male; allotype, a female and a paratype, Hagoshrim, 8. VII. 1958,!; 2 paratypes, Dan, 8 – 11. VII. 1958,!; 1 paratype, Hadera, 1. VII. 1958,!; 34 paratypes, Neve Ya'ar, 29. VII. 1958,!; 11 paratypes, Shimron, 4. VIII. 1958,!. – On *Quercus ithaburensis*.

Closely related to *E. uncinata* Rib. In the last-named species, however, the stem of the penis also narrows distinctly basally in the lateral aspect and the appendages of the anal tube are bifid.

*E.* (*Flammigeroidia*) *discolor* Hv. – Aqua Bella, 2 spec., 14. VI. 1958,!; Aroub, 1 spec., 20. IX. 1937, Brair (!); Jerusalem, 2 spec., 18. VI. 1934, Jolles (!), 6 spec., 17. VI. 1958,!; Maaleh Hahamisha, 2 spec., 23. VI. 1958, Michaeli (!); Miqve Israel, 6 spec., 26. VI. 1957, Michaeli (!); Rehovot, 5 spec., 19. V – 21. VII. 1957, Michaeli, Swirski (!); Yaron, 1 spec., 20. V. 1948, Michaeli (!). – On *Prunus amygdalus* and *Quercus calliprinos*. – Pontomediterranean. New record for Israel.

*E.* (*Zygina*) *rhamni* (Ferr.) – Jerusalem, 12 spec., 17. VI. 1958,!; Nabi Rubin, 2 spec., 4. VII. 1958,!; Palestine, several spec., Bodenheimer (!); Palmahim, 7 spec., 4. VII. 1958,!; Tel-Aviv, 25 spec., 11. II. 1957, Rubin (!). – On *Vitis vinifera*. – Holomediterranean. New record for Israel.

*E.* (*Zygina*) *pulcherrima* Lv. – Hagoshrim, 3 spec., 11. VII. 1958,!; Neve Ya'ar, 6 spec., 29. VII. 1958,!; Shimron, 23 spec., 4. VIII. 1958,!. – On *Quercus ithaburensis*. – Pontomediterranean. New record for Israel.

*E.* (*Zygina*) *nivea* (M.R.)? – Nahariya, 1 ♀, 6. VIII. 1958,!. – On *Vitex agnus-Castus*. – Holomediterranean. New record for Israel.

*E.* (*Zygina*) *bisignata* (M.R.) – Aqua Bella, 3 spec., 14. VI. 1958,!; Haifa, 1 spec., 29. VI. 1958,!; Jerusalem, 26 spec., 13 – 17. VI. 1958,!; Wadi Karen near Goren, 5 spec., 6. VIII. 1958,!. – On *Poterium spinosum* and *Prunus amygdalus*. – Holomediterranean. New for Israel.

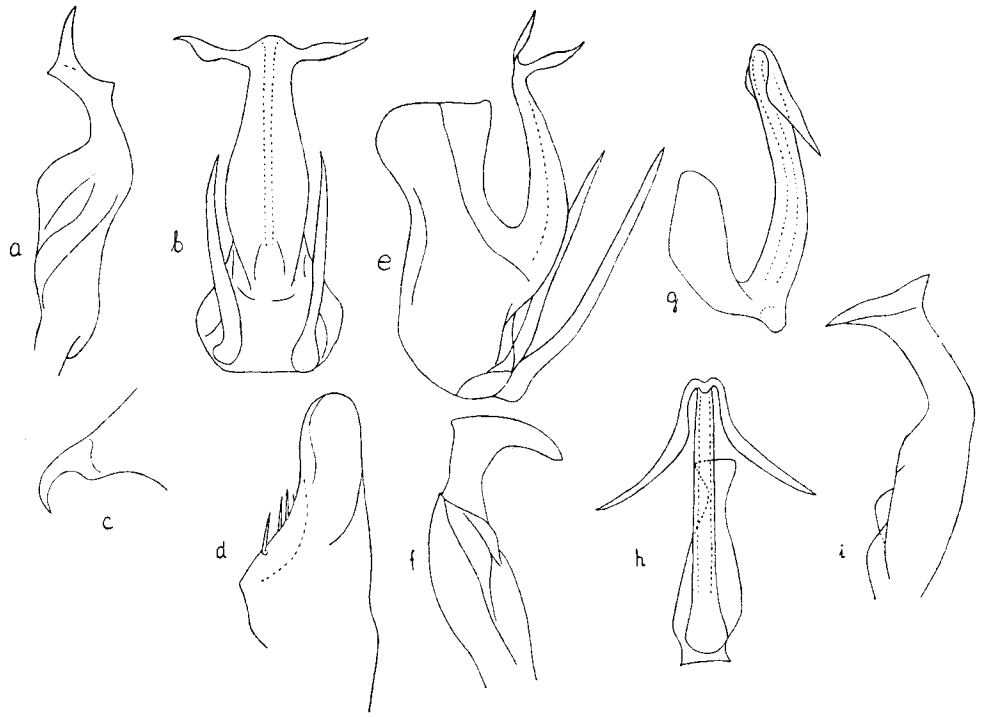



Fig. 40. *Erythroneura ithaburensis* n.sp.: a stylus. – *E. imbecilla* n.sp.: b penis, ventral aspect; e same, lateral aspect; c anal hook; d genital plate; f stylus. – *E. gediensis* n.sp.: g penis, lateral aspect; h same, ventral aspect; i stylus. – Orig.

*E.* (*Zygina*) *sanguinosa* (R.) – Aqua Bella, 1 spec., 14. VI. 1958,!; Haifa, 1 spec., 29. VI. 1958,!; Nazareth, 1 spec., 5. VIII. 1958,!; Shimron, 3 spec., 4. VIII. 1958,!. – On *Rhamnus palaestina*. – Holomediterranean. New record for Israel.

*E.* (*Zygina*) *nebulosa* Rib. – Dan, 1 spec., 7. VII. 1958,!. – Swept from herbaceous plants in a dusky wet grove at the source of the River Jordan. – Apparently Syrio-Anatolian. Previously known only from Cyprus.

*E.* (*Zygina*) *aridula* Lv. – Aqua Bella, 8 spec., 14. VI. 1958,!; Beit Jubrin, 2 spec., 16. VI. 1958,!; Jerusalem, 1 spec., Wahrman (!), 16 spec., 13 – 17. VI. 1958,!; Palestine, several spec., Bodenheimer (!). – On *Labiatae* in moist biotopes. – Endemic.

*E.* (*Zygina*) *coacta* Rib.– Bat Yam, 1 spec., 3. VII. 1958,!; Deganya, 18 spec., 23. VII. 1958,!; Hadera, 6 spec., 26. VI. 1958,!; Hagoshrim, 1 spec., 11. VII. 1958,!; Hula, 12 spec., 9. VII. 1958,!; Kefar-Malal, 1 spec., 27. VII. 1958,!; Kvutsath Schiller, 1 spec., Harpaz (!); Miqve Israel, 3 spec., 16. VII. 1957, Michaeli (!); Nabi Rubin, 8 spec., 4. VII. 1958,!; Rehovot, 25 spec., 4 – 28. VII. 1957, Derech, Michaeli, Swirski (!); Revadim, 39 spec., 18. VII. 1958,!; Sa'ad, 4 spec., 17. VII. 1958,!; Sha'alvim, 15 spec., 28. VII. 1958,!; Shavei Zion, 15 spec., 8. IX. 1958, Harpaz (!); Shimron, 1 spec., 6. VIII. 1958,!; Tanninim, 1 spec., 20. VII. 1958,!; Tel-Aviv, 8 spec., 26. VI. 1958,!; Tiberias, 1 spec., 21. VII. 1958,!; Tivon, 1 spec., Sternlicht (!); Wadi Karen near Goren, 12 spec., 6. VIII. 1958,!; Wadi Sukreir, 30 spec., 27. VI. 1958,!; Yarkon, 6 spec., 26. VI. 1958,!; 7 km S of Yeroham, 1 spec., 22. VI. 1958,!. – Very common on corn and *Andropogon sorghum*. – Syrio-Anatolian. New record for Israel.

*E. (Zygina) imbecilla* n.sp.

Length 3.5 mm. Uniformly whitish ochraceous or pale green, without any dark markings. Apical part of elytra slightly smoky. Tibiae and tarsi brightly green (as in the genus *Empoasca*).

Body slender and elongate. Crown of uniform length, 2.2 × as broad as long. Male genitalia: Anal hooks claw-like (fig. 40 c). Genital plates (fig. 40 d) with lateral margins distinctly insinuated; a few macrosetae present. Stylus (fig. 40 f) with apophysis strongly bent laterad apically. Penis (fig. 40 b, e) with a large basal socle; stem relatively long, bearing a pair of apical processes directed laterad; a pair of long basal appendages arising from the central part of the socle and directed upwards.

Type, a male, Tel-Aviv, 4. VII. 1958,!; allotype, a female and 34 paratypes, same locality, 30. VII. 1958,!; 2 paratypes, Jerusalem, 22. I. 1932, Jolles; 44 paratypes, Neot Mordekhai, 21. VII. 1958,!; 5 paratypes, Rehovot, 28. VII. 1958,!. – On a number of deciduous trees and bushes: *Pistacia palaestina*, *Populus euphraticus* and *Salix acmophylla*.

Easily recognized from the Palearctic species by the green coluring with brightly green tibiae and tarsi. Externally as *E. lubiae* Ch. from the Sudan, but with dissimilar genitalia.

*E. (Zygina) gediensis* n.sp.

Length 3 – 3.5 mm. Uniformly whitish, without any dark markings. Eyes dark brown; tip of ovipositor black.

Body slender. Crown of uniform length. Male genitalia: Side lobes of pygofer (fig. 36 d) with a sharp-tipped process both in the caudo-dorsal and in the caudo-ventral angle. Anal tube unarmed. Stylus (fig. 40 i) with apophysis strongly expanded and truncate apically. Penis (fig. 40 g, h) with a small basal socle; stem long and slender, bearing a pair of long falcate apical processes directed latero-ventrad.

Type, a male; allotype, a female and 6 paratypes, 'Ein Gedi, 18. VI. 1958,!.

*E. (Zygina) distinguenda* (Kbm.) ssp. *ecbalii* n.ssp.

Length 2.9 – 3 mm. Like the nominate form, but with somewhat dissimilar male genitalia: Side lobes of pygofer (fig. 36 e) with a claw-like process. Stylus (fig. 36 i) with apophysis expanded sharp-tippedly both laterad and mesad. Penis (fig. 36 f – h) with stem parallel-sided in ventral aspect bearing a pair of small lateral teeth and a pair of minutely serrate ventral appendages that are straight in lateral aspect.

Type, a male; allotype, a female and 7 paratypes, Jerusalem, 17. VI. 1958!; 2 paratypes, same locality, U. Saalas; 1 paratype, same locality, Bodenheimer; 1 paratype, same locality, 24. XII. 1937, Crünberg; 3 paratypes, same locality, 3. VI. 1956, Werner; a paratype, Aroub, 20. IX. 1937, Brair. – On *Ecbalium elaterium*.

The nominate form (as illustrated by RIBAUT 1936, p. 68) has the stem of the penis shorter and tapering apically and provided with larger lateral teeth in the ventral aspect and with the ventral appendages somewhat thicker and recurved ventrad apically in the lateral aspect.

*E. (Zygina) rivularis* n.sp.

Length 2.9 – 3 mm. Externally as *E. distinguenda*, but with dissimilar male genitalia: Stylus as in fig. 41 c. Penis (fig. 41 a, b) with stem remarkably long and slender, distinctly recurved ventrad in lateral aspect, apex bifid and provided with a pair of claw-like processes directed laterad. Other genitalia as in *E. distinguenda*.

Type, a male; allotype, a female and a paratype, Yarkon, 28. VI. 1958,!; a paratype, Bat Shlomo, 29. VII. 1958,!; 7 paratypes, Dan, 11. VII. 1958,!. – Swept among herbs in moist shore-biotopes.

*E. (Zygina) acaciae* n.sp.

Length 2.2 – 2.5 mm. Externally much resembling species of the genus *Chlorita* Fb. Yellowish green or whitish green, without dark markings. Elytra whitish green with 4 distinct fulvous or orangish longitudinal bands (2 on clavus and 2 on corium); apex faintly smoky. Legs green.

Body relatively short. Head broad, crown roundedly produced anteriorly, convex. Male genitalia: Appendages of anal tube short and bifid (fig. 41 e). Genital plates as in fig. 41 f.

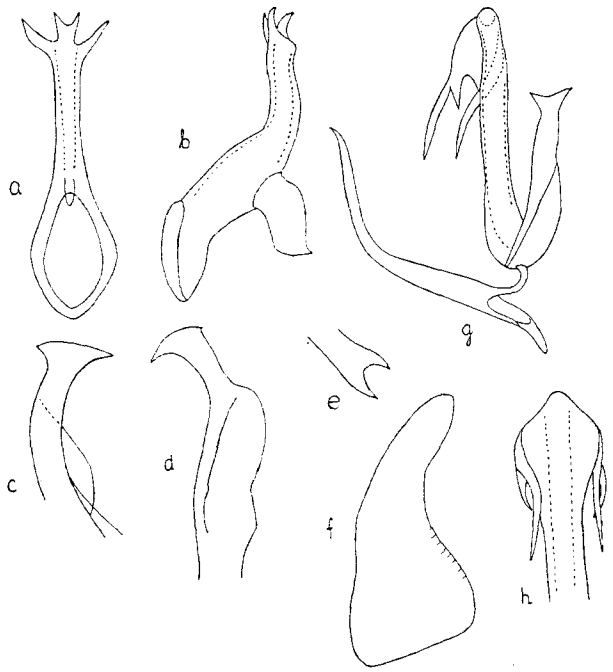



Fig. 41. *Erythroneura rivularis* n.sp.: a penis, dorsal aspect; b same, lateral aspect; c stylus. – *E. acaciae* n.sp.: d stylus; e process of anal tube; f genital plate; g penis, lateral aspect; h apex of same, dorsal aspect. – Orig.

Stylus (fig. 41 d) with apophysis conspicuously bent laterad apically. Penis (fig. 41 g, h) with stem long and slender, straight, apex expanded bearing a pair of long bifurcate appendages directed ventrad; a single long falcate ventral process present. 7th sternite (♀) sharply triangularly produced at the middle.

Type, a male; allotype, a female and 8 paratypes, Rehovot, 25 – 26. VII. 1957, Derech, Swirski; 146 paratypes, same locality, 28. VII. 1958,!; 10 paratypes, 'Ein Gedi, 18. VI. 1958,!; 2 paratypes, 21 km. S of Nahal Hiyon, 22. VI. 1958,!; 2 paratypes, Yotvata, 22. VI. 1958,!. – On *Acacia* in desert conditions. Very common in Rehovot on planted Acacias in a botanical garden.

## *Membracidae*

### *Centrotus* F.

*C. israelensis* n.sp.

Fig. 41 a – c. ♀. Length 5 mm. Light reddish brown, head and anterior part of pronotum somewhat darker. Elytra subhyaline, greyish, basally tinged with reddish brown, here and there obscure dark fuscous spots; veins reddish brown, apical ones dark fuscous.

Body short and broad, 1.6 × as long as broad at pronotal horns. Head and pronotum densely but relatively finely punctate. Pronotum with strong lateral horns directed nearly horizontally laterad and somewhat recurved ventrad apically; posterior process distinctly arched dorsad basally in lateral aspect, narrowly lance-shaped in dorsal aspect. Elytra a little longer than abdomen. 7th sternite (♀) short, hind margin concave. Entire body very densely covered with whitish tomentose hairs.

Type, a female, Eilat, Wadi Masri, 20. VI. 1958,!. – On *Acacia*.

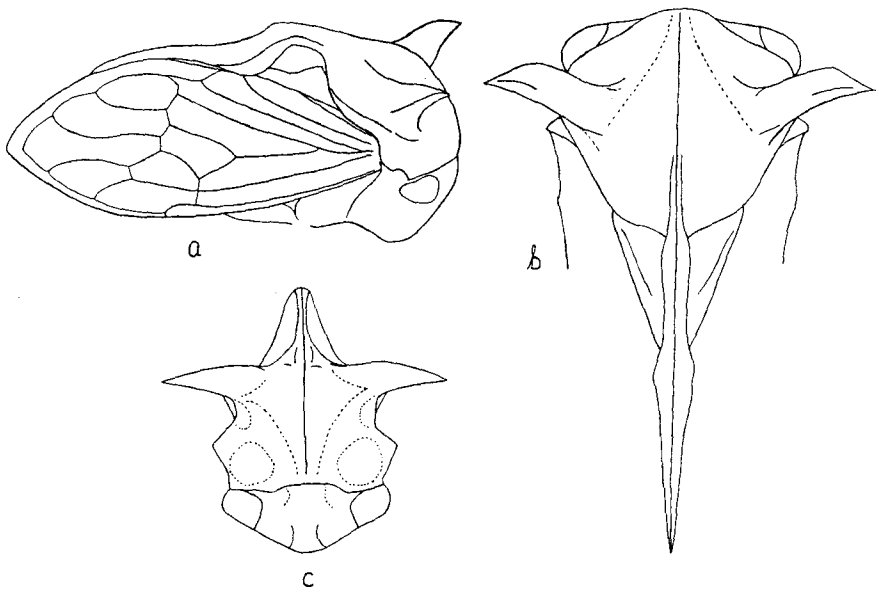



Fig. 42. *Centrotus israelensis* n.sp.: a lateral view; b dorsal view; c head and pronotum, frontal view. – Orig.

Easily distinguished by the general appearance. Mr. R. J. Izzard has kindly compared the specimen with African types in the British Museum and has confirmed the species to be previously undescribed.

### *Oxyrrhachis* Germ.

*O. capeneri* Izz. (or sp. propr.) – 12 km. NE of El-Arish, Sinai, several spec., XII. 1956, Wahrman (!); Yarkon, some spec., 21. II. 1957, Amitai (!). – Eremian.

*O. versicolor* Dist. — Deganya, 4 spec. Palmoni(!); 'Ein Gedi, 1 spec., 19. VI. 1958,!; Rishon le Zion, 1 spec., 7. XII. 1948, Harpaz (!); Wadi Beersheba, numerous spec., 2. VIII. 1958,!. – Common on *Tamarix*. – Eremian. Previously known from Arabia.

*O. furva* Cpn. – Gvuloth, 3 spec., 21. XI. 1957, Kaplah (!); Wadi Raman, several spec., 27. II. 1958, Werner(!). – On *Acacia*. — Eremian. New record for Israel.

### *Psyllidae*

My *Psyllidae* material will be worked out by Prof. Karel Vondráček of Brno,Czechoslovakia.

## 3. ADDITIONS AND CORRECTIONS TO PARTS I AND II

*Coptosoma costale* Stål (Part I, p. 4). – Jaffa, 1 spec., VII. 1954, coll. Eckerlein (!).

*Psacasta herculeana* Hv. (Part I, p. 6). – According to STICHEL (1961, p. 734) a valid species. – Holomediterranean.

*Ventocoris martini* (Hv.) (Part I, p. 8). – According to STICHEL (1961, p. 738) a valid species. – Eremian.

*Dicranocephalus pilicornis* Lv. (= *D. pallidus* Lv. nec Sign.) (Part I, p. 22).

Very closely related to *D. bianchii* (Jak.). Last year I collected the last named species from the Sudan and was also able to examine the type specimens in Leningrad. Below a comparison between the two species:

| *D. pilicornis* Lv. ♀ | *D. bianchii* (Jak.) |
|---|---|
| 1. robuster, body 3.8 × as long as greatest width. | 1. considerably more gracile, body 4.25 × as long as greatest width. |
| 2. head shorter; anterior part (from tip of genae to ocelli) 2.47 × as long as basal part (from anterior margin of ocelli to basal margin). | 2. head longer; anterior portion 3.8 × as long as basal part. |
| 3. 4th antennal joint 0.95 × as long as 2nd. | 3. 4th antennal joint 1.1 × as long as 2nd. |
| 4. length of longest hairs in antennae and in hind tibiae 0.225 mm. | 4. length of longest hairs in antennae and in hind tibiae 0.195 – 0.210 mm. |
| 5. puncturing of pronotum somewhat less dense. | 5. puncturing of pronotum dense. |
| 6. legs shorter; length of hind femora 3.80 mm.; hind tibiae 0.47 × as long as body. | 6. legs longer and more gracile; length of hind femora 4.50 mm.; hind tibiae 0.53 × as long as body. |

*Piocoris* Stål (Part I, p. 34) = a subgenus of *Geocoris* Fn., n.status.

During the last summer I have been able to collect a considerable amount of material of *Piocoris* from North Africa, including the rare *P. confalonierii* Bgv. On studying this species I found it to be closely related to certain species of the genus *Geocoris*, namely to *G. pulchricornis* Lv., *G. tannimensis* Lv. and *G. paradoxus* Lv. While differences between typical *Piocoris* and *Geocoris* species are distinct, it is impossible to separate *P. confalonierii* generically from the *Geocoris* species mentioned above (and from certain other related species). Hence it seems best to regard *Piocoris* as a subgenus of *Geocoris*.

*Key to the Piocoris and the related Geocoris species of the Middle East.*

1 ( 2) Head brightly red, other parts of body shining black. *P. erythrocephalus* (Le P.S.)
2 ( 1) Colouring not as above ..... 3
3 ( 8) 2nd antennal joint without stouter raised bristles; body short and broad ..... 4
4 ( 5) Anterior margin of pronotum before calli with only 1 or very rarely with 2 rows of punctures; calli large and prominent; the puncture row bordering the calli basally consisted of 20 – 23 punctures; puncturing of the disk sparse and coarse, basal margin broadly impunctate; – scutellum sparsely and coarsely punctate; basal calli distinct, swollen and almost impunctate; a broad impunctate median longitudinal line present; – antennal joints 1st – 3rd black with pale apices; – colouring relatively dark, pronotum, scutellum and elytra usually with dark fuscous shadows. – On *Tamarix*. *P. luridus* (Fb.)
5 ( 4) Anterior margin of pronotum before calli with 4 rows of punctures; also basal margin of pronotum punctate; – lighter species; antennae only slightly infuscate or pale ..... 6
6 ( 7) Colouring with an orangish tinge; – entire pronotum (exl. calli) uniformly and remarkably densely but relatively finely punctate; calli remarkably narrow; the puncture row bordering calli basally consisted of 30 – 38 punctures, the distance between the punctures in the middle less than the diameter of a single puncture; disk rather flat between punctures; – scutellum uniformly and densely punctate without any distinct calli and median line. – On *Acacia*. ..... *P. nebulosus* Mtd.
7 ( 6) Colouring more whitish, elytra with a slight reddish tinge; – puncturing of pronotum remarkably sparser and somewhat coarser, punctures in basal margin distinctly smaller

than on the disk; calli broader; the puncture row bordering the calli basally consisted of 25 – 28 punctures, the distance between punctures always conspicuously longer than the diameter of a single puncture; disk between punctures elevated; – scutellum with small impunctate basal calli and a narrow median line, puncturing on the disk much sparser and coarser, disk somewhat swollen between punctures. – On *Quercus ithaburensis.* ..... *P. quercicola* n.sp.

8 ( 3) 2nd antennal joint with stouter raised bristles; body more elongate ..... 9

9 (10) Uniformly pale yellow or whitish yellow, without larger distinct crimson or dark fuscous markings (antenna 1 joints marked with sanguineous); – puncturing of pronotum remarkably fine, anterior margin nearly impunctate; – puncturing of scutellum and of elytra also remarkably fine; – body robuster and more strongly tapering caudad; – basal joint of hind tarsi slightly longer than the other joints together ..... ..... *G. pulchricornis* Lv.

10 ( 9) With distinct large crimson or fuscous markings; – puncturing on pronotum coarse, also anterior margin of pronotum and entire scutellum coarsely punctate; – body more elongate; – basal joint of hind tarsi distinctly longer than the other joints together .. 11

11 (12) Narrower; – general colouring grey with dark brownish markings; – eyes smaller, vertex 3.3 × as broad as eye; – bristles of 2nd antennal joint stouter; – puncturing of pronotum and of scutellum somewhat sparser; calli on pronotum narrower and dark brown ..... *G. tanninimensis* Lv.

12 (11) Robuster; – general colouring ochraceous yellow with distinct crimson markings; – eyes larger, vertex 2.93 × as broad as eye; – bristles of 2nd antennal joint less stout; – pronotum and scutellum densely punctate; calli on pronotom broader, fulvous or reddish. – On *Acacia* and *Tamarix.* ..... *G. confalonierii* (Bgv.)

*Geocoris* (*Piocoris*) *nebulosus* Mtd.

*Piocoris nebulosus* MONTANDON 1907, p. 82.

*Piocoris aurantiacus* BERGEVIN 1932, p. 110, n.syn.

The species has a wide distribution in Africa. It is, for instance, relatively common in Egypt and in the Sudan, where I found it in several places during my recent trip.

*Geocoris* (*Piocoris*) *luridus* (Fb.) (Part I, p. 34). – Jordan, 1 spec., 14. III. 1904, Saalas (!). – Eremian.

*G.* (*Piocoris*) *quercicola* n.sp.

Length 3.5 – 4.5 mm. Whitish ochraceous, shining, with slight reddish tinge. Antennae whitish ochraceous, bases of 1st – 3rd joints narrowly infuscate. Scutellum rarely somewhat infuscate medially. Elytra golden yellowish; membrane brownish hyaline. Abdomen dorsally, under surface and legs light ochraceous.

Body short and broad, 1.8 × as long as broad. Head somewhat broader than pronotum; vertex 2.84 – 2.85 × as broad as eye. Proportions between antennal joints 6 + 10 + 7.5 + 10, 2nd and 3rd joints with fine raised hairs. Pronotum short and broad, 1.74 – 1.8 × as broad as long, nearly parallel-sided, disk coarsely punctate also in anterior margin, punctures in basal margin conspicuously smaller than on the disk; calli broader; the puncture row bordering calli basally consisted of 25 – 28 punctures, the distance between punctures always conspicuously longer than the diameter of a single puncture; disk between punctures elevated. Scutellum with small impunctate basal calli and with a narrow median line; puncturing on the disk sparse and coarse, disk somewhat swollen between punctures. Elytra a little longer than abdomen, puncturing as in *P. luridus.*

Type, a male and a paratype, Neve Ya'ar, 29. VII. 1958,!; allotype, a female and 2 paratypes, Shimron, 4. VIII. 1958, !4; paratypes, Hagoshrim, 8. VII. 1958,!. – On *Quercus ithaburensis.*

*Auchenodes joakimoffi* Sdst. & Jos. in litt. (= *A. peyerimhoffi* Lv. nec Roy.) (Part I, p. 40). – Pontomediterranean.

*Plinthisus angustus* E.Wgn. in litt. – Bethlehem, 3 spec., J. Sahlberg. – Endemic.

*Tropistethus lanternae* Lv. (Part I, p. 41). – Also in Turkey. – Syrio-Anatolian.

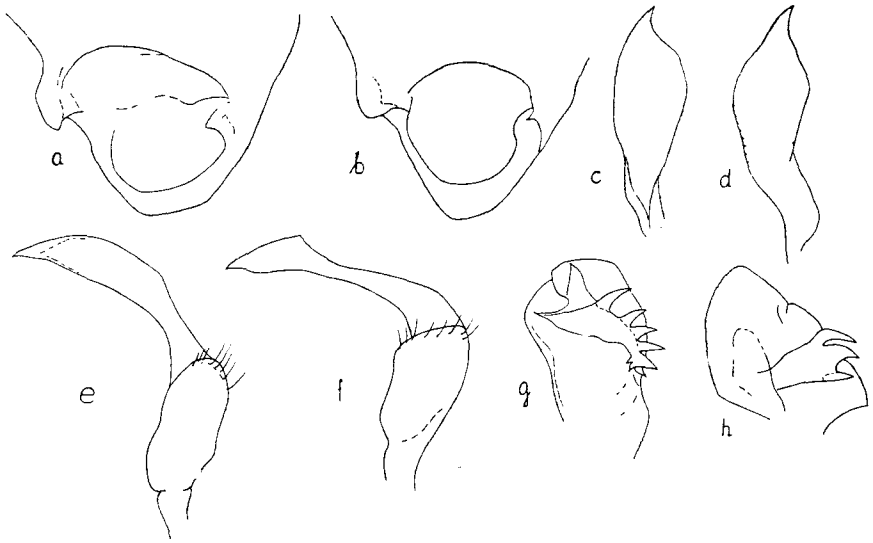



Fig. 43. *Phytocoris oleae* n.sp.: a genital segment (without styles) from above; d right stylus; f left stylus; h spiculum of vesica. – b, c, e and g same of *P. scitulus* Rt. – Orig.

*Emblethis major* Mtd. (Part I, p. 43). – According to a letter from Mr. Seidenstücker a valid species. – Probably Syrio-Anatolian.

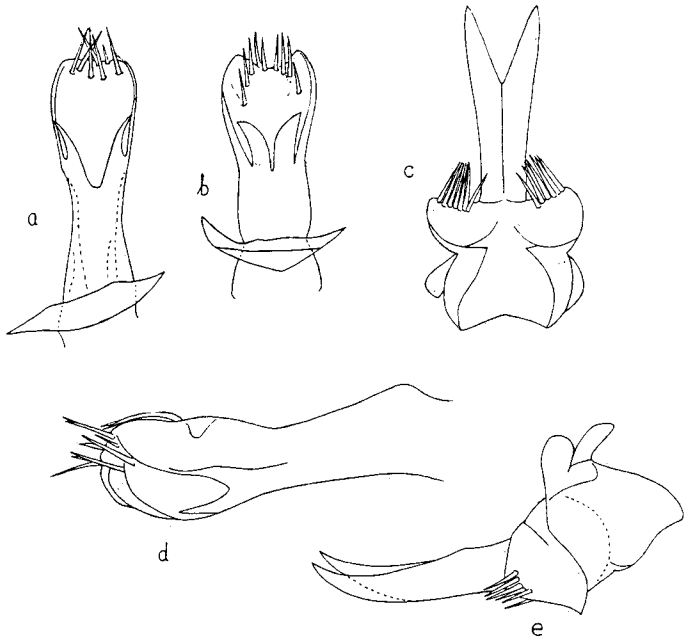
*Phytocoris oleae* n.sp. (= *P. scitulus* Lv. nec Rt. (Part I, p. 60).

Length 5 mm. Ground colouring whitish grey. Face below antennae tinged with dark brown; vertex marked with numerous transverse orangish or brownish stripes as well as with a longitudinal median stripe of the same colour. Antennae: 1st joint white with 4 irregular rings irrorated with dark brown (very reduced in ♂); 2nd joint white, apex and 2 distinct transverse rings in basal half dark brown; 3rd joint brown with base and apex whitish; 4th joint brown. Collar with orangish markings; disk of pronotum orangish brown or light chocolate brown, anterior and posterior margins narrowly whitish grey; a transverse row of irregular dark brown spots before posterior margin. Scutellum marked with orangish or light chocolate brown. Elytra dirty greyish brown with a reddish tinge; a dark brown longitudinal band along claval suture forming a conspicuous dark area in the inner apical area of corium; costal margin with brownish spots; cuneus reddish brown, median margin with 2 dark spots; membrane dark smoky, irrorated with milky, veins brownish. Under surface reddish brown. Legs whitish. Anterior and middle femora with scanty dark reddish brown irroration; hind femora heavily irrorated with the same colour in anterior margin, sometimes the dark colouring reduced, forming only 3 transverse rings. Tibiae with dark transverse rings; those of the hind tibiae much narrower than the intermediate light areas.

Vertex $1.18 \times$ (♂) or $1.67 \times$ (♀) as broad as eye. Antennae gracile, proportions between joints 22 + 47 + 30 + 10 (♂) or 25 + 53 + 35 + 13 (♀); 1st joint $1.02 \times$ (♂) or $1.14 \times$ (♀) as long as breadth of head, 2nd joint $1.30 \times$ (♂) or $1.47 \times$ (♀) as long as basal width of pronotum. Hair covering of upper surface dense, yellowish, smooth. Male genitalia: Genital segment provided with a prominent lateral knob (fig. 43 a). Right stylus (fig. 43 d) relatively elongate. Left stylus (fig. 43 f) with hypophysis long and slender, triangularly expanded apically. Spiculum of vesica (fig. 43 h) with only 3 teeth.

Type, a male; allotype, a female and a paratype, Jerusalem, 15. VI. 1958,!; a paratype, Tel-Aviv, 18. VII. 1958,!. – On *Olea europaea.*

Externally much as *P. scitulus* Rt. In this species, however, the vertex (♂) is $1.38 \times$ as




Figg. 44. *Dictyophara sinica* Wk.: a – b penis, dorsal aspect (a of type, b of another specimen); d same, lateral aspect (of type). – *D. inscripta* Wk.: c penis, dorsal aspect, e same, lateral aspect. – Orig.

broad as eye and the male genitalia considerably dissimilar: Genital segment (fig. 43 b) with a smaller lateral knob. Right stylus (fig. 43 c) broader. Left stylus (fig. 43 e) with hypophysis much shorter and thicker. Spiculum of vesica (fig. 43 g) with several teeth. I have examined 2 ♂♂ of *P. scitulus* from Cancasia. One of them has been found on *Taxus baccata*. *P. scituloides* Ldb. from Cyprus has been described on the basis of the female sex only. The vertex in this species, however, is only a little broader than eye, the 1st antennal joint dark with 3 – 4 light rings, the 2nd joint provided with only i black ring together with a longitudiral dark dash in the basal half, the upper surface is not tinged with reddish, the dark apical spot of elytra is absent, the dark irroration of the femora is more intensive and the hair covering of the body is black. It has been found on *Pinus pallasiana*. *P. parvulus* Rt. and *P. parvuloides* E.Wgn. have the hind tibiae not marked with dark rings.

*Cyrtopeltis kochi* E.Wgn. in litt. (= *Dicyphus sedilloti* Lv. nec Pt.) (Part II, p. 4). – Eremian.

*Holotrichius loricatus* Dps. – Jerusalem, 1 spec., 10. II. 1950 (Dispons 1962, p. 37). – Endemic.

*H. reuterianus* Dps. var. *pallescens* Rt. – Haifa (Dispons op.cit., p. 38). – Eremian.

*H. squalidus* (Dgl.Sc.) – The type specimen in the British Museum is a female larva. Since the larvae of the genus *Holotrichius* are not distinguishable, *H. squalidus* must be regarded as an invalid name.

*Monosteira pardoi* E.Wgn.

E. Wagner (1961, p. 4 – 5) has recently divided *M. unicostata* (M.R.) into several species. The Palestinian specimens recorded as *M. unicostata* (Part II, p. 49) belong to *M. pardoi* E.Wgn. – Holomediterranean. Recorded from North Africa, Sardinia and Iraq.

*Lygus italicus* E.Wgn. ssp. *israelensis* nom.nov. (Part I, p. 64). – A new name for *L. italicus* ssp. *orientalis* Lv., which is a homonym of *L. kalmi* (L.) v. *orientalis* Reuter (1896, p. 78).

## 3. SURVEY OF THE TOPOGRAPHICAL AND BIOGEOGRAPHICAL REGIONS OF ISRAEL

In preparing this survey, the paper by EIG (1927) and the road map of Israel (1956) have been consulted. Moreover, my own observations have been added from the places studied by myself. The faunal composition of the different regions is given in Table 1 and the limits of the regions in map Fig. 45. In the list the species mentioned by BODENHEIMER (op.cit.) have not been placed in any region in the absence of any detailed knowledge about the localities where they were found. Moreover, some of his dubious species have been entirely excluded. The list is undoubtedly incomplete. Further finds in the future will certainly add to our knowledge of the distribution of the species in Palestine and so alter to some extent the percentages given in Table 2.

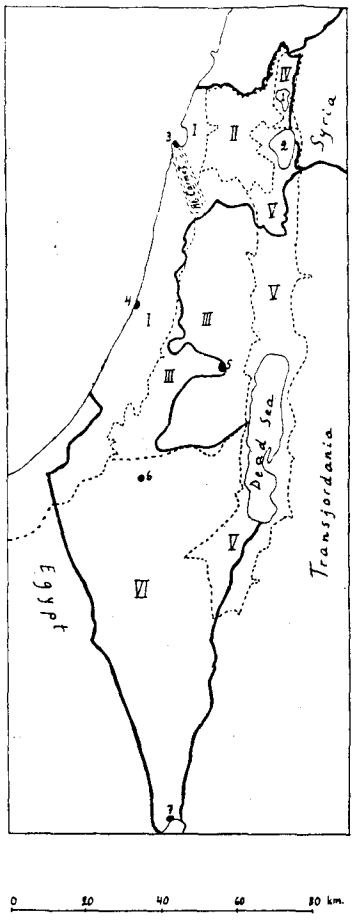



Fig. 45. Biogeographical regions of Israel. I = The coastal plain, II = Galilee, III = The central mountain and hill region, IV = The Upper Jordan Valley, V = The Lower Jordan Valley, VI = The Negev. – 1 = Lake Hula, 2 = Lake Tiberias, 3 = Haifa, 4 = Tel-Aviv, 5 = Jerusalem, 6 = Beersheba, 7 = Eilat. – Orig.

### *The coastal plain (I)*

The coastal plain forms a continuous zone along the Mediterranean coast, being interrupted only by Mount Carmel (alt. 546 m. a.s.l.) near Haifa. In the north it is narrow, approximately 8 km. wide, while in the south its breadth is about 30 km. The altitude of the zone is 0 – 100 m. In some places the coastal plain is penetrated by small rivers, the most important being the Yarkon, Tanninim, Hadera and Wadi Rubin. Throughout the whole length of the region there stretches a strip of light soils (especially sand-dunes and fields of sandy loam), narrow in the north and wide in the south, where these soils gradually pass into the semi-light loess soils. In this belt of light soils, however, there are also patches of more or less heavy soil. The average annual temperature is about + 19° C; the maximum temperature about + 40° C. and during the winter the temperature rarely drops below 0° C. The rainfall decreases considerably from north to south; during the years 1924 – 1926 the annual rainfall at Haifa was 694 – 707 mm., at Tel-Aviv 435 – 441 mm. and at Gaza 330 – 334 mm.

Table 1. Distributional list of the Hemiptera of Israel. Explanations of the columns: I = the coastal plain, II = Galilee, III = the central mountain region, IV = the upper Jordan valley, V = the lower Jordan valley, and VI = the Negev.

| | I | II | III | IV | V | VI | Element |
|---|---|---|---|---|---|---|---|
| **Cydnidae** | | | | | | | |
| *Cephalocteus scarabaeoides* (L.) | + | – | – | – | – | – | Holomedit. |
| *Mesocricus cribripennis* Hv. | + | – | – | – | – | – | Endemic |
| *Aethus hispidulus* Kl. | + | – | + | + | – | – | Eremian |
| *A. sahlbergi* Rt. | – | + | + | – | – | – | Pontomedit. |
| *A. pilosus* H.S. | – | – | + | – | – | + | Holomedit. |
| *A. pilosulus* Kl. | + | + | – | – | – | – | Eremian |
| *A. syriacus* (Hv.) | + | – | – | – | – | – | Eremian |
| *A. flavicornis* (F.) | – | – | – | – | – | – | Holomedit. |
| *Macroscytus brunneus* (F.) | + | – | + | – | – | – | Holomedit. |
| *Geotomus punctulatus* (C.) | – | – | – | – | + | – | Holomedit. |
| *G. antennatus* Sign. | + | + | + | – | + | – | Syrio-Anat. |
| *G. elongatus* (H.S.) | + | – | + | + | – | – | Holomedit. |
| *G. caucasicus ciliatitylus* Sign. | – | – | – | – | – | – | Pontomedit. |
| *G. simillimus* E.Wgn. | – | – | – | – | – | + | Endemic |
| *Cydnus aterrimus* (Forst.) | + | – | + | – | – | – | Holomedit. |
| *Amaurocoris curtus* (Brlé.) | + | – | – | – | – | + | Eremian |
| *Legnotus limbosus* (Gffr.) | – | – | – | – | – | – | European |
| *Crocistethus waltli* (Fb.) | – | – | – | – | – | – | Holomedit. |
| *C. basalis* (Fb.) | – | + | – | – | – | – | Eremian |
| *Sehirus cypriacus* Dhrn. | – | – | + | – | – | – | Syrio-Anat. |
| *S. ovatus* (H.S.) | – | – | – | – | – | – | Syrio-Anat. |
| *S. bicolor* (L.) | – | – | – | – | – | – | Euro-Siberian |
| *S. delagrangei* Pt. | – | – | + | – | – | – | Syrio-Anat. |
| *S. melanopterus* (H.S.) | + | + | + | + | + | + | Holomedit. |
| *Ochetostethus nanus* (H.S.) | + | – | + | + | – | + | Euro-Siberian |
| *O. sahlbergi* E.Wgn. | + | + | – | – | – | + | Eremian |
| **Plataspidae** | | | | | | | |
| *Coptosoma costale* Stål | + | – | – | – | – | – | Ethiopian |
| *C. josuae* Hv. | – | – | – | – | + | – | Endemic |
| **Pentatomidae** | | | | | | | |
| *Solenostethium ledereri* (Fb.) | – | – | – | + | + | – | Pontomedit. |
| *Odontoscelis fuliginosa* (L.) | + | – | + | – | – | – | Euro-Siberian |
| *O. dorsalis* (F.) | – | – | + | – | – | – | Holomedit. |
| *O. seminitens* E.Wgn. | + | – | – | – | – | – | Syrio-Anat. |
| *Irochrotus lanatus* (Pall.) | + | – | + | – | – | – | Pontomedit. |
| *Odontotarsus caudatus* (Burm.) | – | – | – | – | – | – | Holomedit. |
| *O. robustus* Jak. | + | + | + | + | – | – | Holomedit. |
| *O. purpureolineatus* (R.) | – | – | – | – | – | – | Holomedit. |
| *O. rufescens* Fb. | + | – | + | + | – | – | Pontomedit. |
| *O. freyi* Pt. | – | – | – | – | – | – | Pontomedit. |
| *O. oculatus* Hv. | – | – | – | – | – | – | Eremian |
| *O. plicatulus* Hv. | – | – | – | – | – | – | Caspian |
| *Elllipsocoris trilineatus* Mayr. | – | – | – | – | – | – | Endemic |
| *Phimodera argillacea* Jak. | – | – | – | – | – | – | Irano-Turan. |
| *Psacasta marmottani* Pt. | – | – | – | + | – | – | Holomedit. |
| *P. exanthematica* (Scop.) | + | – | – | – | – | + | Holomedit. |
| *P. herculeana* Hv. | + | – | + | – | – | – | Holomedit. |
| *P. pallida* Rt. | – | – | – | – | – | – | Syrio-Anat. |
| *P. tuberculata* (F.) | – | – | – | + | – | – | Holomedit. |
| *Eurygaster integriceps* Pt. | – | – | + | + | – | + | Pontomedit. |
| *E. maurus* (L.) | – | – | – | – | – | – | Euro-Siberian |
| *Tarisa virescens* H.S. | – | – | – | – | – | – | Pontomedit. |
| *T. camelus* Rt. | – | – | – | – | – | + | Eremian |
| *T. fraudatrix* Hv. | – | – | – | – | – | – | Irano-Turan. |
| *T. fraudatrix maris-mortui* Lv. | – | – | – | – | + | – | Endemic |

| | I | II | III | IV | V | VI | |
|---|---|---|---|---|---|---|---|
| *T. aeliodes* (Bol.) | – | – | – | – | – | + | Ethiopian |
| *Ventocoris trigonus* (Kryn.) | – | – | – | + | – | – | Pontomedit. |
| *V. fischeri* (H.S.) | – | – | + | – | – | – | Pontomedit. |
| *V. falcatus achivus* (Hv.) | – | – | – | + | – | + | Pontomedit. |
| *V. martini* (Hv.) | – | – | + | – | – | – | Eremian |
| *Putonia torrida* Stål | – | – | – | – | – | + | Eremian |
| *Tshingisella robusta* Lv. | – | – | + | – | – | – | Endemic |
| *Leprosoma ståli* Dgl.Sc. | + | – | – | – | – | – | Endemic |
| *L. reticulatum* (H.S.) | – | – | – | – | – | – | Eremian |
| *L. inaequale* Hv. | – | – | – | – | + | – | Syrio-Anat. |
| *Ancyrosoma leucogrammes* (Gmel.) | + | + | + | + | + | + | Holomedit. |
| *Tholagmus flavolineatus* (F.) | + | – | + | + | – | – | Holomedit. |
| *T. chobauti* Pt. | – | – | – | – | – | + | Eremian |
| *Graphosoma semipunctatum* (F.) | – | – | + | + | – | – | Holomedit. |
| *G. lineatum* (L.) | – | – | – | – | – | – | Holomedit. |
| *G. italicum* Muell. | + | + | + | + | – | – | Holomedit. |
| *Mustha spinulosa* (Lefeb.) | – | – | – | – | – | – | Pontomedit. |
| *M. incana* Stål. | – | – | – | – | – | + | Iranian |
| *Apodiphus amygdali* (Germ.) | – | – | – | – | – | – | Pontomedit. |
| *Mecidea lindbergi* E.Wgn. | + | – | + | – | + | + | Eremian |
| *Menaccarus arenicola* (Schltz.) | – | – | – | – | – | – | Holomedit. |
| *Pododus dohrnianus* (M.R.) | + | – | – | – | – | – | Eremian |
| *P. ovalis* (Pt.) | – | – | – | – | – | + | Eremian |
| *Sciocoris deltocephalus* Fb. | – | – | – | – | – | – | Pontomedit. |
| *S. macrocephalus* Fb. | – | – | – | – | – | – | Holomedit. |
| *S. luteolus* Fb. | + | + | + | + | – | – | Pontomedit. |
| *S. ochraceus* Fb. | + | – | – | + | – | – | Pontomedit. |
| *S. distinctus* Fb. | – | – | + | – | – | – | Pontomedit. |
| *S. sahlbergi* E.Wgn. | + | + | + | – | – | – | Endemic |
| *S. atticus* Hv. | – | – | + | – | – | – | Pontomedit. |
| *S. umbrinus* (Wlff.) | – | – | – | – | – | – | Euro-Siberian |
| *S. homalonotus* Fb. | – | – | – | – | – | – | Holomedit. |
| *S. maculatus* Fb. | – | – | + | – | – | – | Holomedit. |
| *S. orientalis* Lv. | + | – | – | – | + | – | Endemic |
| *S. conspurcatus* Kl. | – | – | – | – | – | + | Eremian |
| *S. sulcatus* Fb. | + | – | – | – | – | – | Holomedit. |
| *S. helferi* Fb. | + | – | – | – | – | + | Holomedit. |
| *S. hoberlandti* E.Wgn. | – | – | + | – | – | – | Endemic |
| *S. cursitans* (F.) | – | – | + | – | – | – | Euro-Siberian |
| *S. angusticollis* Pt. | – | – | – | – | – | + | Eremian |
| *Dyroderes umbraculatus* (F.) | – | – | – | – | – | – | Holomedit. |
| *Caystrus langei* (Bredd.) | – | – | – | – | – | – | Endemic |
| *Aeliomorpha lineaticollis* (Westw.) | – | – | – | – | + | – | Indian |
| *Aelia acuminata* (L.) | + | – | + | + | – | + | Euro-Siberian |
| *A. virgata* Kl. | – | – | – | – | – | – | Pontomedit. |
| *Neottiglossa bifida* (C.) | + | – | + | – | – | + | Holomedit. |
| *Stagonomus bipunctatus* (L.) | – | – | – | + | – | – | Holomedit. |
| *S. grenieri* (Sign.) | + | – | + | – | – | – | Holomedit. |
| *S. amoenus* (Brlé.) | – | + | + | – | – | – | Holomedit. |
| *Stollia inconspicua* (H.S.) | + | + | + | + | + | + | Holomedit. |
| *Gompsocranum christophi* (Jak.) | – | – | – | – | + | – | Iranian |
| *Staria lunata maroccana* Ldb. | + | – | + | + | – | – | Eremian |
| *Holcostethus vernalis* (Wlff.) | + | – | + | – | – | – | Euro-Siberian |
| *H. strictus* (F.) | + | – | – | – | – | – | Holomedit. |
| *Palomena viridissima* (Poda) | – | – | – | – | – | – | Euro-Siberian |
| *Carpocoris mediterraneus* Tam. | + | – | + | + | – | – | Holomedit. |
| *Codophila varia* (F.) | + | – | + | – | – | – | Holomedit. |
| *C. maculicollis* (Dall.) | – | – | – | – | + | – | Eremian |
| *Dolycoris baccarum* (L.) | + | – | + | + | – | – | Holarctic |
| *Chroantha ornatula* (H.S.) | – | – | – | – | – | + | Holomedit. |
| *Brachynema cinctum* (F.) | – | – | – | – | + | – | Holomedit. |
| *B. virens* (Kl.) | – | – | + | – | + | + | Holomedit. |

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|---|---|---|---|---|---|---|---|
| *Holcogaster exilis* Hv. | – | + | – | – | – | – | Holomedit. |
| *Eurydema ornatum* (L.) | + | + | + | + | + | – | Holomedit. |
| *E. fieberi* (Fb.) | – | – | – | – | – | – | Pontomedit. |
| *E. rugulosum* (Dhrn.) | + | + | + | – | – | – | Pontomedit. |
| *E. ventrale* Klti. | – | – | + | – | – | – | Holomedit. |
| *E. spectabile* Hv. | – | – | – | – | – | – | Pontomedit. |
| *Stenozygum coloratum* (Kl.) | + | + | – | – | + | – | Pontomedit. |
| *Bagrada abeillei* Pt. | – | – | – | – | – | – | Eremian |
| *B. picta* (F.) | – | – | – | – | – | – | Eremian |
| *Nezara viridula* (L.) | + | + | – | + | – | – | Cosmopolitan |
| *Acrosternum millierei* (M.R.) | + | – | – | + | – | + | Holomedit. |
| *A. heegeri* Fb. | + | – | – | – | – | – | Holomedit. |
| *Piezodorus lituratus* (F.) | – | – | – | – | – | – | Holomedit. |
| *Pausias elegans* Vid. | – | – | – | – | + | – | Eremian |
| *Rhaphigaster brevispina* Hv. | – | – | – | + | – | – | Irano-Turan. |
| *Pinthaeus sanguinipes* (F.) | – | – | – | – | – | – | Euro-Siberian |
| *Andrallus spinidens* (F.) | – | – | – | – | – | – | Intertropical |
| *Zicrona coerulea* (L.) | – | + | – | + | – | – | Holarctic |
| *Aspongopus viduatus* (F.) | – | – | – | – | + | – | Ethiopian |
| *Schizops aegyptiaca* (Lefeb.) | – | – | – | – | – | – | Ethiopian |
| *Phyllocephala albicornis* Hv. | – | – | – | – | – | – | Ethiopian |
| *P. negus* Dist. | – | – | – | – | – | – | Ethiopian |
| Stenocephalidae | | | | | | | |
| *Dicranocephalus agilis litoralis* Lv. | + | – | – | – | – | – | Endemic |
| *D. setulosus* (Ferr.) | – | – | + | – | – | – | Holomedit. |
| *D. albipes* (F.) | + | – | – | – | – | – | Holomedit. |
| *D. marginatus* (Ferr.) | – | – | – | – | + | – | Irano-Turan. |
| *D. pilicornis* Lv. | – | – | – | – | – | + | Endemic |
| Coreidae | | | | | | | |
| *Gonocerus imitator* Rt. | + | – | – | – | – | – | Holomedit. |
| *Haploprocta sulcicornis* (F.) | + | + | + | – | – | – | Holomedit. |
| *Enoplops cornutus* (H.S.) | – | – | – | – | – | – | Holomedit. |
| *E. scapha* (F.) | – | – | – | – | – | – | Euro-Siberian |
| *E. disciger* (Klti.) | + | + | – | – | + | – | Pontomedit. |
| *Coreus marginatus syriacus* Bl. | – | – | – | + | – | – | Endemic |
| *Centrocoris degener* (Pt.) | – | – | – | – | – | + | Eremian |
| *C. spiniger* (F.) | + | + | + | + | – | – | Holomedit. |
| *C. variegatus* Klti. | + | + | – | + | – | – | Holomedit. |
| *C. desertorum* Lv. | – | – | – | – | + | + | Endemic |
| *Cercinthus lehmanni* (Klti.) | + | – | – | – | + | – | Irano-Turanian |
| *Spathocera lobata* (H.S.) | + | – | – | + | – | – | Holomedit. |
| *Prionotylus brevicornis* (Mls.) | + | – | – | – | – | + | Holomedit. |
| *Phyllomorpha laciniata* (Vill.) | + | – | + | – | – | + | Holomedit. |
| *P. algirica* Guér. | – | – | – | – | – | – | Eremian |
| *P. lacerata* H.S. | – | – | – | – | – | – | Pontomedit. |
| *Pseudophloeus waltli* (H.S.) | + | – | + | – | – | – | Holomedit. |
| *Ceraleptus obtusus* (Brlé.) | – | – | – | + | – | – | Holomedit. |
| *Loxocnemis dentator* (F.) | – | – | + | – | – | – | Holomedit. |
| *Coriomeris hirticornis* (F.) | + | + | + | – | – | – | Holomedit. |
| *C. affinis aegyptiacus* K.Schm. | + | – | + | – | – | – | Eremian |
| *C. denticulatus* (Scop.) | – | – | – | – | – | – | Euro-Siberian |
| *C. bergevini* Popp. | – | – | – | – | – | – | Eremian |
| *Strobilotoma typhaecornis* (F.) | + | – | – | – | – | – | Holomedit. |
| *Euthetus sabulicola* Ldb. | + | – | – | – | – | + | Ethiopian |
| *Camptopus lateralis* (Germ.) | + | – | + | + | – | – | Holomedit. |
| *Tenosius proletarius* (Schaum.) | – | – | – | – | + | + | Ethiopian |
| *Nemausus simplex* Hv. | – | – | – | – | – | – | Eremian |

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|---|---|---|---|---|---|---|---|
| **Rhopalidae** | | | | | | | |
| *Corizus hyoscyami* (L.) | + | – | + | – | – | + | Euro-Siberian |
| *Liorhyssus hyalinus* (F.) | + | – | + | + | + | + | Cosmopolitan |
| *Rhopalus subrufus* (Gmel.) | – | – | + | – | – | – | Cosmopolitan |
| *R. rufus* (Schill.) | – | – | – | – | – | – | Holomedit. |
| *Brachycarenus tigrinus* (Schill.) | + | – | + | – | – | – | Euro-Siberian |
| *Stictopleurus crassicornis* (L.) | – | – | – | – | – | – | Euro-Siberian |
| *S. abutilon pictus* (Fb.) | + | – | – | + | – | – | Holomedit. |
| *S. riveti parvus* Ldb. | + | – | + | – | – | + | Syrio-Anatol. |
| *S. angustus* Rt. | – | – | – | – | – | – | Irano-Turan. |
| *Maccevethus lineola* (F.) | + | – | + | + | – | – | Holomedit. |
| *M. persicus* Jak. | + | – | + | + | – | – | Irano-Turan. |
| *M. houškai* Hob. | – | – | + | – | – | – | Syrio-Anatol. |
| *Agraphopus lethierryi* Stål | + | – | + | + | + | + | Holomedit. |
| *A. pallens* K.Schm. | – | – | – | – | – | + | Eremian |
| *Leptoceraea viridis* (Jak.) | – | – | – | – | – | – | Pontomedit. |
| *Chorosoma schillingi* (Schill.) | – | – | – | – | – | – | Holomedit. |
| **Pyrrhocoridae** | | | | | | | |
| *Pyrrhocoris apterus* (L.) | + | – | + | + | + | – | Euro-Siberian |
| *Scantius aegyptius* (L.) | – | + | + | + | + | – | Holomedit. |
| *S. försteri* (F.) | – | – | – | – | + | – | Etihopian |
| **Lygaeidae** | | | | | | | |
| *Lygaeus saxatilis* (Scop.) | + | + | – | – | – | – | Holomedit. |
| *L. pandurus* (Scop.) | + | + | – | + | – | + | Intertropical |
| *L. equestris* (L.) | + | – | + | + | – | – | Euro-Siberian |
| *L. creticus* (Luc.) | – | – | – | – | – | – | Pontomedit. |
| *Cosmopleurus fulvipes* (Dall.) | – | – | – | – | – | – | Eremian |
| *Melanocoryphus tristrami* (Dgl.Sc.) | + | – | + | – | – | – | Pontomedit. |
| *M. syriacus* (Rt.) | + | – | + | – | – | – | Holomedit. |
| *M. sanctus* Hv. | – | – | – | + | – | – | Eremian |
| *Graptostethus servus* (F.) | + | – | – | + | – | – | Interpropical |
| *Hormopleurus nysioides* Hv. | + | – | – | – | – | – | Endemic |
| *Melanotelus villosulus* (Stål) | – | + | – | – | – | – | Ethiopian |
| *Apterola gridellii* Mc. | + | – | – | + | – | – | Eremian |
| *A. rubicunda* (Stål) | + | – | + | + | – | – | Pontomedit. |
| *Lygaeosoma reticulatum* (H.S.) | + | – | + | – | – | – | Holomedit. |
| *Arocatus fallaciosus* Pt. | – | – | – | – | – | – | Ethiopian |
| *Caenocoris nerii* (Germ.) | – | – | – | – | + | – | Holomedit. |
| *Paranysius fallaciosus israelensis* Hob. | – | – | – | – | – | – | Endemic |
| *Nysius senecionis* (Schill.) | – | – | – | – | – | – | Holomedit. |
| *N. aegyptiacus* Priesn. & Alf. | + | – | – | + | + | + | Eremian |
| *N. graminicola* (Klti.) | + | – | + | + | + | + | Holomedit. |
| *N. cymoides* (Spin.) | + | – | + | + | + | + | Holomedit. |
| *Camptocoris longicornis* (Pt.) | + | – | – | – | – | + | Eremian |
| *Orsillus maculatus* (Fb.) | – | – | – | + | – | – | Holomedit. |
| *O. reyi* Pt. | – | – | + | – | – | – | Holomedit. |
| *Cymus claviculus* (Fn.) | + | – | + | + | + | – | Holarctic |
| *C. melanocephalus* Fb. | – | – | – | – | – | – | Holomedit. |
| *C. minutus* Ldb. | + | – | – | – | + | – | Eremian |
| *C. obliquus* Hv. | + | – | – | – | – | – | European |
| *Cymodema tabidum* Spin. | – | – | – | + | – | – | Holomedit. |
| *Ischnodemus sabuleti* (Fn.) | – | – | – | – | – | – | European |
| *I. caspius* Jak. | – | + | – | + | – | – | Pontomedit. |
| *I. suturalis* Hv. | – | + | – | – | – | – | Pontomedit. |
| *Blissus hirtulus* Burm. | + | – | – | – | – | – | Holomedit. |
| *Engistus boops gracilicornis* Lv. | – | – | – | – | + | – | Endemic |
| *E. exsanguis* Stål | + | – | – | – | + | + | Eremian |
| *Geocoris erythrocephalus* (Le P.S.) | + | + | + | + | – | – | Holomedit. |
| *G. luridus* (Fb.) | – | – | – | – | + | – | Eremian |

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|---|---|---|---|---|---|---|---|
| *G. quercicola* Lv. | – | + | – | + | – | – | Endemic |
| *G. nebulosus* Mtd. | – | – | – | – | + | + | Eremian |
| *G. scutellaris* Pt. | + | – | – | – | + | + | Eremian |
| *G. acuticeps* Sign. | – | – | – | – | + | – | Eremian |
| *G. pallidipennis* (C.) | + | – | – | – | – | + | Holomedit. |
| *G. megacephalus* (R.) | + | – | + | + | + | + | Holomedit. |
| *G. collaris* Pt. | + | – | – | – | – | – | Eremian |
| *G. ater albipennis* (F.) | – | – | + | – | – | – | Holomedit. |
| *G. lineola* (Rmb.) | – | – | – | – | – | – | Holomedit. |
| *G. nigriceps* Rt. | – | – | – | – | – | + | Eremian |
| *G. pulchricornis* Lv. | – | – | – | – | – | + | Endemic |
| *G. tanninimensis* Lv. | + | – | – | – | – | – | Endemic |
| *Stenophthalmicus fayoumensis* C. | + | – | + | – | – | – | Eremian |
| *S. biskrensis* Pt. | – | – | – | – | – | + | Eremian |
| *Artheneida tenuicornis* Kir. | – | – | – | – | + | – | Irano-Turan. |
| *Artheneis alutacea* Fb. | – | – | – | – | + | – | Holomedit. |
| *A. aegyptiaca* Ldb. | + | – | – | – | + | + | Eremian |
| *Holcocranum karumense* Bgv. | – | – | + | + | + | – | Eremian |
| *Cymophyes ochroleuca* Fb. | + | – | + | + | + | + | Pontomedit. |
| *Heterogaster longirostris* E.Wgn. | + | – | + | – | – | – | Pontomedit. |
| *Platyplax salviae* (Schill.) | – | – | – | – | – | – | Holomedit. |
| *P. inermis* (Rmb.) | + | + | – | – | – | + | Holomedit. |
| *Camptotelus carmini* Lv. | + | – | – | – | – | – | Endemic |
| *Macropternella inermis* (Fb.) | + | – | – | – | – | + | Holomedit. |
| *Leptodemus minutus* (Jak.) | – | – | + | – | – | + | Eremian |
| *L. bicolor* Ldb. | + | – | – | – | – | + | Eremian |
| *Microplax interrupta* (Fb.) | – | – | + | – | – | – | Holomedit. |
| *M. albofasciata* (C.) | – | – | – | – | – | – | Holomedit. |
| *Brachyplax palliata* (C.) | – | – | – | + | – | – | Holomedit. |
| *Metopoplax origani* (Klti.) | – | + | + | – | + | + | Holomedit. |
| *M. fuscinervis* Stål | – | – | – | – | – | – | Holomedit. |
| *Oxycarenus hyalinipennis* (C.) | + | – | + | + | + | + | Holomedit. |
| *O. pallens* (H.S.) | + | – | + | + | + | + | Holomedit. |
| *Macroplax fasciata* (H.S.) | + | + | + | – | – | – | Holomedit. |
| *Auchenodes joakimoffi* Seid. & Jos. | + | – | – | – | – | – | Pontomedit. |
| *Marmottania simonis* Pt. | – | – | + | – | – | – | Eremian |
| *Stygnocoris fuligineus* (Gffr.) | + | – | – | – | – | – | Euro-Siberian |
| *Plinthisus ptilioides* Pt. | – | – | – | – | – | – | Pontomedit. |
| *P. angustus* E.Wgn. | – | – | + | – | – | – | Endemic |
| *P. subtilis* Hv. | – | – | – | – | – | – | Syrio-Anat. |
| *P. hungaricus* Hv. | + | – | + | + | – | – | Pontomedit. |
| *P. humilis* Hv. | + | + | + | – | + | – | Pontomedit. |
| *P. angulatus* Hv. | + | – | – | – | – | – | Endemic |
| *P. obsoletus* Hv. | + | – | – | – | – | – | Endemic |
| *P. brevipennis* (Latr.) | – | – | – | – | – | – | European |
| *P. convexus* Fb. | – | – | – | – | – | – | Pontomedit. |
| *P. marginatus* Ferr. | + | + | – | – | – | – | Syrio-Anat. |
| *Drymus pilipes* Fb. | + | – | – | – | – | – | Holomedit. |
| *Scolopostethus brevis* Saund. | – | – | – | + | – | – | Holomedit. |
| *Thaumastopus taurus* (C.) | + | – | – | – | – | – | Holomedit. |
| *T. cinnamomeus* Hv. | – | – | – | – | – | – | Syrio-Anat. |
| *Taphropeltus intermedius* (Pt.) | – | – | – | – | – | – | Pontomedit. |
| *Camptocera glaberrima* (Wk.) | + | – | – | + | + | + | Eremian |
| *Tropistethus lanternae* Lv. | – | – | + | + | – | – | Syrio-Anat. |
| *Lethaeus picipes* (H.S.) | – | – | – | – | – | – | Irano-Turan. |
| *L. fulvovarius* Pt. | – | – | + | – | + | – | Ethiopian |
| *L. cribratissimus* (Stål) | + | – | + | – | – | – | Pontomedit. |
| *L. lethierryi* (Pt.) | – | – | – | – | + | – | Eremian |
| *L. nitidus* (Dgl.Sc.) | + | + | – | – | + | – | Pontomedit. |
| *Pterotmetus staphyliniformis* (Schill.) | – | – | – | – | – | – | Euro-Siberian |
| *Pionosomus heterotrichus* Hv. | – | – | + | – | – | – | Pontomedit. |
| *Neurocladus brachiidens* (Duf.) | – | – | + | + | – | – | Holomedit. |

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|---|---|---|---|---|---|---|---|
| *Ischnopeza hirticornis* (H.S.) | – | – | – | – | – | – | Holomedit. |
| *I. pallipes* Pt. | + | – | + | + | – | – | Pontomedit. |
| *I. taborskyi* Hob. | – | – | – | + | – | – | Syrio-Anat. |
| *Emblethis griseus* (Wlff.) | + | – | – | + | – | – | Holarctic |
| *E. denticollis* Hv. | – | – | + | + | – | + | Pontomedit. |
| *E. angustus* Mtd. | – | – | + | + | – | + | Holomedit. |
| *E. verbasci* (F.) | – | + | + | + | – | – | Holomedit. |
| *E. major* Mtd. | + | + | + | – | – | – | Syrio-Anat. |
| *E. ciliatus* Hv. | + | – | – | – | – | + | Pontomedit. |
| *E. brachypterus* Lv. | – | – | – | – | + | – | Endemic |
| *E. gracilicornis* Pt. | – | – | – | – | – | – | Eremian |
| *Gonianotus marginepunctatus* (Wlff.) | – | – | – | – | – | – | Holarctic |
| *G. barbarus* Mtd. | – | – | + | – | – | + | Eremian |
| *Aphanus rolandri* (L.) | – | – | + | – | – | + | Holomedit. |
| *A. rolandri aethiops* Dgl.Sc. | + | – | – | – | – | – | Holomedit. |
| *Proderus bellevoyei* Pt. | – | – | – | – | – | – | Pontomedit. |
| *P. crassicornis* Jak. | + | – | – | – | + | – | Pontomedit. |
| *Megalonotus colon* (Pt.) | – | – | + | – | – | – | Pontomedit. |
| *M. praetextatus* (H.S.) | + | + | + | + | – | – | Holomedit. |
| *M. brevicornis* (Pt.) | + | – | – | – | – | – | Syrio-Anat. |
| *M. rugulosus* (Lv.) | – | – | + | – | – | – | Endemic |
| *M. maximus* (Pt.) | – | – | + | – | – | – | Syrio-Anat. |
| *M. chiragra sabulicola* (Thms.) | + | – | – | – | – | – | Holomedit. |
| *Allocentrum heteronotum* (Pt.) | – | – | – | – | – | + | Eremian |
| *A. brevicolle* Hv. | – | – | – | – | + | – | Endemic |
| *Piezoscelis staphylinus* (Rmb.) | – | – | + | – | – | – | Holomedit. |
| *Lamprodema maurum* (F.) | + | – | – | + | – | – | Holomedit. |
| *Lasiocoris anomalis* (Klti.) | – | – | + | – | – | – | Holomedit. |
| *L. apicimacula* (C.) | – | – | – | – | – | – | Holomedit. |
| *Peritrechus pusillus* Hv. | – | + | – | + | – | – | Pontomedit. |
| *P. rhomboidalis* Pt. | – | – | + | – | – | – | Pontomedit. |
| *Aellopus atratus* (Gze.) | – | – | – | – | – | – | Holomedit. |
| *A. syriacus* (Rt.) | + | – | – | – | – | – | Holomedit. |
| *Rhyparochromus moerens* (Rt.) | – | – | + | – | – | – | Iranian |
| *R. consors* (Hv.) | + | – | – | + | – | – | Holomedit. |
| *R. lynceus* (F.) | – | – | – | – | – | – | Holomedit. |
| *R. minusculus* (Rt.) | + | – | – | – | – | – | Pontomedit. |
| *R. saturnius* (R.) | + | – | + | + | – | – | Holomedit. |
| *R. confusus* (Rt.) | – | – | – | – | – | – | Holomedit. |
| *R. albocuminatus* (Gze.) | + | – | – | – | – | – | Holomedit. |
| *R. vulgaris* (Schill.) | – | – | – | + | – | – | European |
| *R. phoeniceus sanguineus* (Dgl.Sc.) | – | – | – | – | – | – | European |
| *Beosus quadripunctatus* (Müll.) | + | – | + | + | + | – | Holomedit. |
| *B. maritimus* (Scop.) | – | – | + | – | – | – | Holomedit. |
| *Callistonotus nigroruber* (Stål) | – | – | + | – | – | – | Pontomedit. |
| *Dieuches syriacus* Dhrn. | + | – | + | + | – | + | Pontomedit. |
| *Pachybrachius annulipes* (Bär.) | + | – | – | + | – | – | Holomedit. |
| *Paromius gracilis* (Rmb.) | + | – | – | + | – | + | Holomedit. |
| **Berytidae** | | | | | | | |
| *Berytinus nigrolineatus* (Jak.) | + | – | – | – | – | – | Pontomedit. |
| *B. montivagus* (Mey.) | – | + | – | + | – | – | Holomedit. |
| *B. brevicornis* (Hv.) | + | – | – | – | – | – | Pontomedit. |
| *B. signoreti* (Fb.) | – | – | – | – | – | – | Holomedit. |
| *Cardopostethus annulosus* Fb. | – | – | – | + | – | – | Holomedit. |
| *Metacanthus pusillus* Lv. | – | – | – | + | – | – | Endemic |
| *Gampsocoris punctipes* (Germ.) | + | – | + | – | + | + | Holomedit. |
| **Corixidae** | | | | | | | |
| *Micronecta scutellaris* (Stål) | + | – | – | + | + | + | Ethiopian |
| *M. plicata* (C.) | – | – | – | – | – | – | Ethiopian |
| *M. isis* Hv. | – | – | – | – | + | – | Ethiopian |

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|---|---|---|---|---|---|---|---|
| *M. perparva* Hv. | – | – | – | – | + | – | Endemic |
| *M. parvula* Ldb. | – | – | – | – | + | – | Endemic |
| *Corixa punctata* Ill. | – | – | + | + | – | – | Euro-Siberian |
| *C. affinis* Lch. | + | + | – | – | – | – | Euro-Siberian |
| *Sigara sexlineata* (Rt.) | – | – | – | + | – | – | Ethiopian |
| *S. lateralis* (Lch.) | + | – | – | + | + | + | Euro-Siberian |
| *S. striata* (L.) | – | – | – | – | – | – | Euro-Siberian |
| *S. nigrolineata* (Fb.) | – | – | + | + | – | – | Euro-Siberian |
| **Pleidae** | | | | | | | |
| *Plea atomaria* (Pal.) | – | – | + | – | – | – | Euro-Siberian |
| *P. pullula* (Stål) | – | – | – | + | + | – | Ethiopian |
| **Notonectidae** | | | | | | | |
| *Anisops sardea* H.S. | + | – | – | + | + | + | Holomedit. |
| *A. varia* Fb. | – | – | – | – | – | – | Ethiopian |
| *Notonecta marmorea* F. | – | + | + | + | – | – | Holomedit. |
| *N. maculata* F. | + | – | + | + | – | – | Holomedit. |
| **Nepidae** | | | | | | | |
| *Nepa sardiniensis* Hf. | – | – | – | + | – | – | Pontomedit. |
| *Laccotrephes fabricii* Stål | – | – | – | – | – | + | Ethiopian |
| **Ranatridae** | | | | | | | |
| *Ranatra vicina* Sign. | – | – | – | + | – | – | Ethiopian |
| **Belostomatidae** | | | | | | | |
| *Belostoma cordofanum* (M.) | + | – | – | + | + | – | Ethiopian |
| *Limnogeton fieberi* M. | – | – | – | + | – | – | Ethiopian |
| *Sphaerodema urinator* (Df.) | – | – | – | + | – | – | Ethiopian |
| **Naucoridae** | | | | | | | |
| *Ilyocoris cimicoides* (L.) | – | – | – | + | – | – | Euro-Siberian |
| *Naucoris maculatus* F. | – | – | – | – | + | – | Holomedit. |
| *Heleocoris minusculus* (Wk.) | – | – | – | – | – | + | Ethiopian |
| **Pelogoniidae** | | | | | | | |
| *Ochterus strigicollis* Hv. | – | – | – | + | – | – | Endemic |
| **Leptopodidae** | | | | | | | |
| *Leptopus marmoratus* (Gz.) | – | – | – | + | – | – | Holomedit. |
| *Patapius spinosus* (R.) | – | + | + | – | + | + | Holomedit. |
| *Erianotus lanosus* (Df.) | – | – | – | – | + | – | Holomedit. |
| **Saldidae** | | | | | | | |
| *Saldula variabilis* (H.S.) | – | – | – | – | + | – | Holomedit. |
| *S. amplicollis* (Rt.) | – | – | – | – | – | – | Holomedit. |
| *S. saltatoria* (L.) | – | – | – | + | – | – | Holarctic |
| *S. melanoscela* (Fb.) | – | – | – | + | – | – | Euro-Siberian |
| *S. pallipes* (F.) | – | – | – | – | – | + | Holarctic |
| *Chartoscirta cincta* (H.S.) | – | – | – | + | – | – | Euro-Siberian |
| **Hebridae** | | | | | | | |
| *Hebrus pusillus* (Fn.) | – | – | – | + | – | – | Euro-Siberian |
| *H. syriacus* Hv. | – | – | + | – | + | – | Endemic |
| **Mesoveliadae** | | | | | | | |
| *Mesovelia vittigera* Hv. | + | – | – | + | + | – | Ethiopian |

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|---|---|---|---|---|---|---|---|
| **Veliadae** | | | | | | | |
| *Rhagovelia nigricans* (Bm.) | ÷ | – | ÷ | – | + | – | Ethiopian |
| *Microvelia pygmaea* (Df.) | – | – | – | – | + | – | Holomedit. |
| *M. perexigua* Lv. | ÷ | – | – | – | – | – | Endemic |
| *M. gracillima* Rt. | – | – | – | + | – | – | Ethiopian |
| *Velia affinis* Klti. | + | – | – | + | – | – | Pontomedit. |
| **Gerridae** | | | | | | | |
| *Gerris paludum bergrothi* (Ldb.) | – | – | – | + | + | – | Endemic |
| *G. ventralis* (Fb.) | – | – | – | + | – | – | Pontomedit. |
| *G. costai fieberi* Sti. | – | – | – | – | – | – | Pontomedit. |
| *G. thoracicus* Schml. | – | – | – | + | – | – | Euro-Siberian |
| *G. asper* (Fb.) | – | – | – | – | – | – | Pontomedit. |
| *G. gibbifer* Schml. | – | ÷ | – | – | – | – | Euro-Siberian |
| *G. argentatus* Schml. | + | – | – | ÷ | – | – | Euro-Siberian |
| *Limnogonus cereiventris leptocerus* (Rt.) | – | – | – | – | + | – | Ethiopian |
| *Naboandelus bergevini popovi* Brw. | – | – | – | – | + | – | Ethiopian |
| **Hydrometridae** | | | | | | | |
| *Hydrometra stagnorum* (L.) | + | ÷ | ÷ | ÷ | – | – | Euro-Siberian |
| **Cryptostemmatidae** | | | | | | | |
| *Ceratocombus coleoptratus* (Zett.) | – | – | – | ÷ | – | – | Euro-Siberian |
| *Cryptostemma alienum* H.S. | – | – | – | – | – | – | European |
| **Termatophylidae** | | | | | | | |
| *Termatophylum insigne* Rt. | ÷ | – | – | – | – | – | Ethiopian |
| *Argyrotelaenus elegans* Rt. | – | – | – | – | – | ÷ | Ethiopian |
| **Miridae** | | | | | | | |
| *Pithanus marshalli* Dgl.Sc. | – | – | – | – | – | – | Holomedit. |
| *Miridius quadrivirgatus* (C.) | – | – | – | – | – | – | Holomedit. |
| *Phytocoris signaticollis* Lv. | – | ÷ | – | – | – | – | Endemic |
| *P. pini-halepensis* Ldb. | ÷ | ÷ | ÷ | – | – | – | Syrio-Anat. |
| *P. oleae* Lv. | + | – | ÷ | – | – | – | Endemic. |
| *P. flammula* Rt. | – | – | – | – | – | – | Holomedit. |
| *P. miridioides* Leth | – | – | – | – | – | – | Holomedit. |
| *P. albipennis* Rt. | – | – | – | – | – | – | Endemic |
| *P. seidenstückeri* E.Wgn. | + | – | – | – | – | – | Syrio-Anat. |
| *P. swirskii* Lv. | + | – | – | – | – | – | Endemic |
| *Ischnoscelicoris rubrinervis* (Rt.) | – | – | – | – | – | – | Eremian |
| *Creontiades pallidus* (Rb.) | + | ÷ | – | – | – | – | Eremian |
| *Megacoelum pellucens* Pt. | + | – | – | – | – | – | Endemic |
| *M. brevirostre* Rt. | – | – | – | – | – | – | Irano-Turanian |
| *Adelphocoris bimaculicollis* Ldb. | + | – | – | ÷ | – | – | Syrio-Anat. |
| *A. annulicornis innotatus* Rt. | – | – | – | – | – | – | Euro-Siberian |
| *Calocoris histrio* Rt. | – | – | – | – | – | – | Pontomedit. |
| *C. putoni* Hv. | – | – | – | – | – | – | Syrio-Anat. |
| *C. annulus* (Br.) | – | – | + | – | – | – | Pontomedit. |
| *C. nemoralis* (F.) | – | + | – | – | + | – | Holomedit. |
| *C. roseomaculatus saucius* Lv. | + | – | – | – | – | – | Eremian |
| *C. angularis* (Fb.) | – | – | – | – | – | – | Holomedit. |
| *C. norvegicus vittiger* Rt. | – | – | – | + | – | – | Holomedit. |
| *C. instabilis* Fb. | + | – | – | – | – | + | Holomedit. |
| *C. sanguineovittatus* Rt. | + | – | – | – | – | – | Endemic |
| *Grypocoris fieberi* Dgl.Sc. | – | – | – | – | + | – | Eremian |
| *G. syriacus* Rt. | – | – | – | – | – | – | Eremian |
| *G. amoenus* (Dgl.Sc.) | – | – | – | + | – | – | Endemic |
| *Brachycoleus bolivari* Hv. | – | – | + | – | – | – | Syrio-Anat. |

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|---|---|---|---|---|---|---|---|
| *Eurystylus bellevoyei* (Rt.) | – | – | – | – | + | + | Ethiopian |
| *Camponotidea saundersi* (Pt.) | – | – | – | – | – | – | Pontomedit. |
| *Lygus pabulinus* (L.) | – | – | – | – | – | – | Holarctic |
| *L. apicalis* (Fb.) | + | – | – | + | – | + | Intertropical |
| *L. italicus israelensis* Lv. | + | – | – | + | – | + | Endemic |
| *L. brachycnemis* Rt. | – | – | – | – | – | – | Eremian |
| *L. divergens* Rt. | + | – | – | – | – | – | Endemic |
| *L. conspurcatus* Rt. | + | + | + | – | – | + | Holomedit. |
| *Cyphodema instabile* (Lc.) | – | – | – | – | + | – | Holomedit. |
| *Polymerus cognatus* (Fb.) | – | – | – | + | – | – | Euro-Siberian |
| *Liocoris tripustulatus* (F.) | – | – | + | + | – | – | Euro-Siberian |
| *Deraeocoris rutilus* (H.S.) | + | – | + | – | – | – | Pontomedit. |
| *D. schach* (F.) | – | – | – | – | – | – | Holomedit. |
| *D martini* (Pt.) | + | – | – | – | + | – | Eremian |
| *D. addendus* Lv. | + | – | – | – | + | – | Eremian |
| *D. lutescens* (Schl.) | – | – | – | – | – | – | Holomedit. |
| *D. putoni* (Mtd.) | – | – | – | – | – | – | Pontomedit. |
| *D. pallens* Rt. | + | – | + | – | + | + | Eremian |
| *D. serenus* (Dgl.Sc.) | + | – | + | + | + | + | Holomedit. |
| *Capsodes lineolatus* (Br.) | – | – | – | – | – | – | Holomedit. |
| *C. infuscatus* (Br.) | + | – | + | – | – | + | Holomedit. |
| *Dionconotus neglectus* (F). | – | – | – | – | – | – | Pontomedit. |
| *D. cruentatus* (Br.) | + | – | + | + | – | – | Holomedit. |
| *Stenodema calcaratum* (Fn.) | + | – | + | – | – | – | Euro-Siberian |
| *S. laevigatum* (L.) | – | – | – | – | – | – | Euro-Siberian |
| *Notostira elongata* (G.) | – | – | – | – | – | – | Holomedit. |
| *Trigonotylus pulchellus* (H.) | + | – | + | + | + | + | Pontomedit. |
| *T. pallidicornis* Rt. | + | – | – | – | + | – | Eremian |
| *T. brevipes* Jak. | – | – | – | – | – | – | Pontomedit. |
| *Macrolophus costalis* Fb. | – | – | + | – | – | – | Holomedit. |
| *M. caliginosus* E.Wgn. | + | – | + | + | – | – | Holomedit. |
| *Cyrtopeltis tenuis* Rt. | + | – | + | – | + | + | Intetropical |
| *C. impictus* Lv. | – | – | – | – | + | – | Endemic |
| *C. kochi* E. Wgn. | + | – | – | – | – | – | Eremian |
| *Dicyphus tamaninii* E.Wgn. | – | – | – | – | + | – | Holomedit. |
| *D. lindbergi* E.Wgn. | – | – | – | + | – | – | Syrio-Anat. |
| *D. ononidis* E.Wgn. | + | – | – | + | – | – | Pontomedit. |
| *Campyloneura virgula* (H.S.) | – | – | – | – | – | – | European |
| *Plagiorrhamma concolor* Rt. | + | – | – | – | – | – | Caspian |
| *Hallodapus costai* (Rt.) | + | – | – | + | + | + | Eremian |
| *Laemocoris reuteri* (Jak.) | + | – | – | – | – | – | Eremian |
| *Hypomimus secundus* Lv. | + | – | – | – | – | – | Endemic |
| *Orthotylus nassatus* (F.) | – | + | – | – | – | – | European |
| *O. priesneri* K.Schm. | – | + | – | – | – | – | Eremian |
| *O. hodiernus* Lv. | + | – | – | – | – | – | Endemic |
| *O. fieberi* F.-G. | – | – | – | – | + | – | Pontomedit. |
| *O. virescens* (Dgl.Sc.) | + | – | – | – | – | – | Holomedit. |
| *O. spartiicola* Rt. | + | – | – | – | – | – | Endemic |
| *O. divisus* Lv. | – | – | – | – | – | + | Pontomedit. |
| *O. haloxyloni* E.Wgn. | – | – | – | – | – | + | Eremian |
| *O. pusillus* Rt. | – | – | – | – | – | + | Eremian |
| *Pachylops punctipes* (Rt.) | – | – | – | – | + | – | Eremian |
| *Heterocordylus tibialis* (H.) | – | – | – | – | – | – | European |
| *Zanchius alatanus* Hob. | + | – | – | + | + | – | Syrio-Anat. |
| *Brachynotocoris viticinus* Sdst. | + | + | – | – | – | – | Syrio-Anat. |
| *B. cyprius* E.Wg. | + | + | + | – | – | – | Syrio-Anat. |
| *Platycranus putoni* Rt. | + | – | – | – | – | + | Eremian |
| *Plagiotylus dispar* Rt. | – | – | – | – | – | – | Endemic |
| *Dimorphocoris punctiger* (Hv.) | – | – | – | – | – | – | Endemic |
| *D. lateralis* Rt. | + | – | – | – | – | – | Pontomedit. |
| *D. mariae* Lv. | – | + | – | – | – | – | Endemic |
| *D. debilis* (Rt.) | + | – | – | – | – | – | Holomedit. |

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|---|---|---|---|---|---|---|---|
| *Orthocephalus proserpinae* Mls.R. | – | – | – | – | – | – | Holomedit. |
| *O. tenuicornis* (Mls.R.) | – | + | + | – | – | + | Holomedit. |
| *Pachytomella phoenicea* (Hv.) | – | + | – | – | – | – | Holomedit. |
| *P. passerinii* (C.) | – | – | – | – | – | – | Holomedit. |
| *Strongylocoris niger* (H.S.) | – | – | – | – | – | – | Holomedit. |
| *S. amabilis* (Dgl.Sc.) | – | – | + | – | – | – | Syrio-Anat. |
| *S. cicadifrons* C. | – | – | – | – | – | – | Holomedit. |
| *Halticus rugosus* Rt. | – | – | – | – | – | – | Endemic |
| *Nasocoris albipennis* Ldb. | + | – | – | – | – | – | Eremian |
| *Atomophora fuscomaculata* Rt. | – | – | – | – | – | + | Irano-Turan. |
| *Oncotylus nigricornis* Sd. | + | – | – | – | – | – | Holomedit. |
| *Pastocoris putoni* (Rt.) | – | – | – | – | – | – | Holomedit. |
| *Conostethus roseus* (Fn.) | – | – | – | – | – | – | Holomedit. |
| *C. venustus* (Fb.) | + | – | + | – | – | + | Holomedit. |
| *Psallopsis longicornis* (Jak.) | – | – | – | – | + | + | Irano-Turan. |
| *P. bisulcis* Lv. | – | – | – | – | – | – | Endemic |
| *Malthacosoma halimocnemis* (Bck.) | + | – | – | – | – | – | Irano-Turan. |
| *Pronototropis longicornis* Rt. | + | – | – | – | – | – | Holomedit. |
| *Pachyxyphus lineellus* (Mls.R.) | – | – | – | – | – | – | Holomedit. |
| *Megalocoleus aurantiacus* (Fb.) | – | + | – | – | – | – | Holomedit. |
| *M. molliculus* (Fn.) | + | – | – | – | – | – | European |
| *M. longirostris* (Fb.) | – | – | – | – | + | – | Holomedit. |
| *M. krueperi* (Rt.) | + | – | – | – | + | – | Holomedit. |
| *Amblytylus inscriptus* Lv. | + | – | – | – | – | – | Endemic |
| *A. gregarius* Lv. | + | – | – | – | – | – | Endemic |
| *Macrotylus atricapillus* (Sc.) | + | + | + | + | – | – | Holomedit. |
| *Camptotylus bipunctatus* (Rt.) | – | – | – | – | – | – | Irano-Turan. |
| *C. linae* (Pt.) | – | – | – | – | – | – | Caspian |
| *Harpocera hellenica* Rt. | – | + | – | – | – | – | Pontomedit. |
| *Orthonotus syriacus* (Pt.) | – | + | – | – | – | – | Endemic |
| *Ectagela guttata* K.Schm. | – | – | – | – | + | – | Eremian |
| *Tytthus parviceps* (Rt.) | + | – | – | + | + | + | Intertropical |
| *Compsidolon elegantulum* Rt. | – | – | – | – | + | – | Endemic |
| *C. acacicola* Lv. | – | – | – | – | – | + | Ethiopian |
| *Psallus ancorifer sengüni* E.Wgn. | + | – | – | – | – | – | Endemic |
| *P. ancorifer syriacus* E.Wgn. | – | – | – | – | + | – | Syrio-Anat. |
| *P. perrisi* Mls.R. | + | + | – | – | – | – | European |
| *P. albicans* Rt. | – | + | – | – | – | – | Irano-Turan. |
| *P. punctulatus* Fb. | – | + | – | – | – | – | Holomedit. |
| *P. salviae* Lv. | + | – | – | – | – | – | Endemic |
| *Plagiognathus bipunctatus* Rt. | – | – | – | – | + | – | Pontomedit. |
| *P. chrysanthemi* (W.) | – | – | – | – | – | – | Euro-Siberian |
| *P. fulvipennis* (Kbm.) | + | – | – | – | – | – | Holomedit. |
| *Utopnia torquata* (Pt.) | – | + | – | – | – | – | Syrio-Anat. |
| *Atomoscelis onustus* (Fb.) | + | – | – | – | – | + | Holomedit. |
| *A. signaticornis* Rt. | + | – | – | – | + | + | Eremian |
| *A. noualhieri* Rt. | – | – | – | – | + | – | Eremian |
| *Campylomma viticis* Ldb. | + | – | – | – | – | – | Syrio-Anat. |
| *C. impicta* E.Wgn. | + | + | – | – | + | + | Eremian |
| *C. acaciae* Lv. | – | – | – | – | – | + | Endemic |
| *Paramixia suturalis* Rt. | + | – | – | – | – | – | Eremian |
| *Auchenocrepis alboscutellata* Pt. | + | – | – | + | + | + | Eremian |
| *Tragiscocoris fieberi* (Fb.) | – | – | – | – | – | – | Holomedit. |
| *Maurodactylus albidus* (Klti.) | – | – | – | – | – | – | Holomedit. |
| *Tuponia tamaricicola* Ldb. | – | – | – | – | – | + | Eremian |
| *T. pallida* Rt. | – | – | – | – | – | + | Eremian |
| *T. lethierryi vulnerata* Lv. | + | – | – | – | + | + | Pontomedit. |
| *T. nupta* Lv. | – | – | – | – | – | + | Endemic |
| *T. albomarginata* Lv. | + | – | – | + | + | – | Endemic |
| *T. longipennis guttata* E.Wgn. | + | – | – | – | + | + | Eremian |
| *T. concinnoides* Lv. | + | – | – | – | + | + | Eremian |
| *T. obscuriceps* Rt. | + | – | – | – | + | + | Eremian |

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|---|---|---|---|---|---|---|---|
| *T. conspersa* Rt. | – | – | – | – | – | + | Irano-Turan. |
| *T. minutissima* Lv. | – | – | – | – | + | + | Endemic |
| *Eurycranella geocoriceps* Rt. | + | – | – | – | – | + | Eremian |
| *Isometopus taeniaticeps* Pt. | – | – | + | – | – | – | Endemic |
| **Cimicidae** | | | | | | | |
| *Cimex lectularius* L. | – | – | – | – | – | – | Cosmopolitan |
| *Cacodmus aridus* Ferr. & Us. | – | – | – | + | – | – | Endemic |
| **Anthocoridae** | | | | | | | |
| *Elatophilus pachycnemis* Hv. | – | – | – | – | – | – | Syrio-Anat. |
| *Anthocoris nemoralis* (F.) | + | – | – | + | – | – | European |
| *Montandoniola moraguesi* (Pt.) | + | – | – | – | – | – | Holomedit. |
| *Orius niger* W. | + | – | – | – | + | – | Euro-Siberian |
| *O. niger aegyptiacus* E.Wgn. | + | – | – | – | – | – | Eremian |
| *O. laevigatus cypriacus* E.Wgn. | + | + | – | + | + | + | Syrio-Anat. |
| *O. pallidicornis* (Rt.) | – | – | + | – | – | – | Holomedit. |
| *O. luridus* E.Wgn. | + | – | – | – | – | – | Endemic |
| *O. minutus* (Rt.) | – | – | – | – | – | – | Euro-Siberian |
| *O. ribauti* E.Wgn. | – | – | – | + | – | – | Holomedit. |
| *O. albidipennis* (Rt.) | + | – | + | – | + | + | Eremian |
| *Dokkiocoris bicolor* Mill. | + | – | – | – | – | – | Eremian |
| *Lyctocoris campestris* (F.) | + | – | – | – | – | – | Holarctic |
| *L. dorni* E.Wgn. | – | – | – | – | – | – | Pontomedit. |
| *Xylocoris maculipennis* (Bär.) | – | – | – | – | – | – | Holomedit. |
| *X. galactinus* (Fb.) | + | – | – | – | – | – | Cosmopolitan |
| *X. obliquus* (C.) | + | – | – | + | – | – | Holomedit. |
| *Brachysteles rufescens* (C.) | + | – | – | – | – | – | Holomedit. |
| *B. parvicornis* (C.) | – | – | – | – | – | – | Holomedit. |
| *Cardiastethus nazarenus* Rt. | + | + | + | – | – | – | Holomedit. |
| *Dufouriellus ater* (Df.) | – | – | – | – | – | – | Holarctic |
| **Microphysidae** | | | | | | | |
| *Loricula basalis* (Rt.) | – | + | – | – | – | – | Eremian |
| *L. nigritula* (Pt.) | – | – | – | – | – | – | Eremian |
| *Myrmedobia angusticollis* Rt. | – | – | – | – | – | – | Pontomedit. |
| **Nabidae** | | | | | | | |
| *Prostemma guttula* (F.) | + | – | – | – | – | – | Holomedit. |
| *P. aeneicolle* St. | – | – | – | – | – | – | Holomedit. |
| *P. krueperi* St. | – | – | – | – | – | – | Pontomedit. |
| *Himacerus mirmecoides* (O.C.) | – | – | – | – | – | – | Holomedit. |
| *Nabis capsiformis* Gm. | + | – | + | – | + | – | Cosmopolitan |
| *N. palifer* Sdst. | – | – | – | – | + | + | Syrio-Anat. |
| *N. viridis* Br. | + | – | – | – | + | + | Holomedit. |
| **Reduviidae** | | | | | | | |
| *Empicoris culiciformis* (Deg.) | – | – | – | – | – | – | Holarctic |
| *E. mediterraneus* Hob. | – | – | – | – | – | – | Syrio-Anat. |
| *Stenolemus bogdanovi* Osh. | – | – | – | – | – | – | Irano-Turan. |
| *S. novaki* Hv. | – | – | – | – | – | – | Holomedit. |
| *Ploearia domestica* Scop. | – | – | – | – | – | – | Holomedit. |
| *P. wahrmanni* Wyg. | – | – | + | – | – | – | Endemic |
| *P. mosconai* Wyg. | + | – | – | – | – | – | Endemic |
| *Gardena insignis* Hv. | – | – | – | – | – | – | Pontomedit. |
| *Metapterus linearis* C. | – | – | – | – | – | – | Holomedit. |
| *Sastrapada baerensprungi* (Stål) | + | – | – | – | – | – | Intertropical |
| *Deganya linnavuorii* Dps. | – | – | – | – | + | – | Endemic |
| *Oncocephalus acutangulus* Rt. | – | – | – | – | – | – | Eremian |

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| *O. pugnax* H. | – | – | – | – | – | – | Endemic |
| *O. obsoletus* Kl. | – | – | – | – | – | – | Eremian |
| *O. pilicornis* (H.S.) | + | – | – | – | – | – | Holomedit. |
| *O. brachymerus* Rt. | – | – | – | – | – | – | Caspian |
| *O. squalidus* (R.) | – | – | – | – | – | – | Holomedit. |
| *O. aspericollis* Rt. | + | + | + | – | + | – | Endemic |
| *O. arcticeps* Nh. | – | – | – | – | – | – | Syrio-Anat. |
| *O. pennatulus* Dps. | – | – | – | – | + | – | Endemic |
| *O. fasciatellus* Dps. | – | – | – | – | – | + | Endemic |
| *Holotrichius tenebrosus* Bm. | – | – | – | – | – | – | Pontomedit. |
| *H. denudatus* C. | – | – | – | – | – | – | Holomedit. |
| *H. apterus* Jak. | – | – | – | + | – | – | Irano-Turan. |
| *H. putoni* Rt. | – | – | + | – | – | – | Syrio-Anat. |
| *H. innesi* Hv. | – | – | – | – | – | + | Eremian |
| *H. luctuosus* (Mls. & My.) | – | – | – | – | – | – | Holomedit. |
| *H. rotundatus* Stål | – | – | + | – | – | – | Caspian |
| *H. bodenheimeri* Dps. | + | – | – | – | – | – | Endemic |
| *H. loricatus* Dps. | – | – | + | – | – | – | Endemic |
| *H. reuterianus pallescens* Rt. | + | – | – | – | – | – | Eremian |
| *Pasira basiptera* Stål | – | – | + | – | – | – | Holomedit. |
| *Reduvius personatus* (L.) | – | – | – | – | – | – | Holarctic |
| *R. nigricans* (K.) | – | – | – | – | – | – | Eremian |
| *R. autrani* Rt. | – | + | – | + | – | – | Endemic |
| *R. pallipes* (K.) | + | – | – | – | – | + | Eremian |
| *R. tabidus* (K.) | – | – | – | – | – | + | Eremian |
| *R. jakovleffi* Rt. | – | – | – | – | + | + | Eremian |
| *R. ustulatus* Mill. | – | – | – | – | – | + | Eremian |
| *R. testaceus* (H.S.) | – | – | – | – | – | – | Eremian |
| *R. israelensis* Dps. | – | – | – | – | – | – | Endemic |
| *Ectomocoris ululans* (R.) | + | – | – | + | – | – | Holomedit. |
| *E. melanogaster* (Fb.) | – | – | + | – | – | – | Pontomedit. |
| *E. quadrimaculatus jordanensis* Lv. | – | – | – | – | + | – | Endemic |
| *Pirates hybridus* (Scop.) | – | – | – | – | – | – | Holomedit. |
| *P. strepitans* Rb. | + | – | – | + | – | – | Holomedit. |
| *Rhaphidosoma lutescens* Pop. | – | – | – | – | + | – | Endemic |
| *R. bergevini* Pop. | – | – | – | – | + | + | Eremian |
| *R. argillaceum* Hv. | – | – | – | – | – | – | Iranian |
| *Vachiria natolica* Stål | – | – | – | – | + | + | Holomedit. |
| *V. immaculata* Lv. | – | – | – | – | – | + | Endemic |
| *Amphibolus venator* K. | – | – | – | – | – | – | Eremian |
| *A. leucopterus* (Hv.) | – | – | – | – | – | – | Endemic |
| *A. linnavuorii* Dps. | + | – | – | – | – | – | Endemic |
| *Rhinocoris bipustulatus* (Fb.) | – | – | + | – | + | – | Pontomedit. |
| *R. abeillei* (Pt.) | – | – | + | – | – | – | Endemic |
| *R. transitus* Hob. | – | – | + | – | – | – | Endemic |
| *R. iracundus* (Pd.) | – | – | – | – | – | – | Euro-Siberian |
| *R. punctiventris* (H.S.) | + | + | + | – | – | – | Pontomedit. |
| *R. christophi* (Jak.) | – | – | – | – | + | – | Caspian |
| *Sphedanolesthes pulchellus* (K.) | – | – | – | – | – | – | Pontomedit. |
| *S. annulatus* Lv. | + | – | + | + | + | – | Syrio-Anat. |
| *Coranus aegyptius* (F.) | + | – | + | + | + | – | Holomedit. |
| *C. angulatus* Stål | + | – | – | – | – | – | Eremian |
| *C. tuberculifer* Rt. | – | – | – | – | – | – | Holomedit. |
| *C. niger* (Rb.) | + | – | – | – | – | – | Holomedit. |
| *Nagusta goedeli* (Klti.) | + | – | – | + | – | – | Pontomedit. |
| *N. simonis* Pt. | – | – | – | – | – | + | Eremian |
| *Polididus armatissimus* Stål | + | – | – | – | – | – | Indian |
| *Pachynomus lethierryi* Pt. | – | – | – | – | – | – | Eremian |
| **Joppeicidae** | | | | | | | |
| *Joppeicus paradoxus* Pt. | + | – | – | – | – | – | Endemic |

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|---|---|---|---|---|---|---|---|
| **Aradidae** | | | | | | | |
| *Aradus betulae* (L.) | + | – | – | – | – | – | Euro-Siberian |
| **Tingidae** | | | | | | | |
| *Cantacader quadricornis nubilis* Hv. | – | – | – | + | – | – | Pontomedit. |
| *Campylosteira pilicornis* Hv. | – | – | – | – | – | – | Endemic |
| *Biskria gracilicornis* Pt. | – | – | – | – | + | – | Eremian |
| *Dictyonota reuteri* Hv. | – | – | – | – | – | – | Endemic |
| *Galeatus scrophicus* Sd. | – | – | – | – | – | + | Holomedit. |
| *Urentius aegyptiacus* Bgv. | – | – | – | – | + | – | Eremian |
| *U. abutilonis* Prn. & Alf. | + | – | – | – | – | – | Eremian |
| *Stephanitis pyri* (F.) | + | – | – | – | + | – | Holomedit. |
| *Elasmotropis testacea vicina* Hv. | – | – | + | – | – | – | Pontomedit. |
| *Lasiacantha hedenborgi* Stål | – | – | – | + | – | – | Syrio-Anat. |
| *L. beithovedensis* Lv. | + | – | – | – | – | – | Endemic |
| *Tingis hellenica* (Pt.) | – | – | – | – | – | – | Pontomedit. |
| *T. ciliaris* (Pt.) | – | – | – | – | – | – | Pontomedit. |
| *T. bodenheimeri* Ldb. | – | + | – | – | – | – | Endemic |
| *T. angustata* (H.S.) | + | – | – | + | – | – | Holomedit. |
| *T. grisea* Gm. | – | – | – | – | – | – | Holomedit. |
| *T. auriculata* (C.) | – | – | – | – | – | – | Holomedit. |
| *Catoplatus anticus syriacus* Hv. | – | – | – | – | – | – | Pontomedit. |
| *C. hilaris* Hv. | – | – | – | – | – | – | Syrio-Anat. |
| *Copium clavicorne* (L.) | – | – | – | – | – | – | Holomedit. |
| *C. horvathi* E.Wgn. | + | – | – | – | – | – | Pontomedit. |
| *C. brevicorne* (Jak.) | – | – | – | – | – | – | Pontomedit. |
| *Physatocheila dumetorum* (H.S.) | – | – | – | – | – | – | Holomedit. |
| *Cysteochila* n.sp. | – | – | – | – | – | + | Ethiopian |
| *Dictyla aridula* Lv. | + | – | – | – | – | – | Endemic |
| *D. nassata* (Pt.) | – | – | – | – | + | – | Holomedit. |
| *D. echii* (Schr.) | – | – | – | – | – | – | Euro-Siberian |
| *Monosteira lobulifera* Rt. | – | – | + | – | – | – | Pontomedit. |
| *M. pardoi* E.Wgn. | – | – | – | + | – | – | Holomedit. |
| *M. cleopatra* Hv. | – | – | – | – | – | + | Eremian |
| *Agramma atricapilla pallens* (Hv.) | + | – | + | + | + | – | Eremian |
| *A. globiceps* (Hv.) | + | – | – | – | – | – | Endemic |
| **Piesmidae** | | | | | | | |
| *Piesma rotundata* Hv. | + | – | – | – | + | + | Pontomedit. |
| **Cixiidae** | | | | | | | |
| *Oliarus angustiformis* Lv. | + | + | + | + | – | – | Endemic |
| *O. major interjectus* Lv. | + | + | + | – | – | – | Endemic |
| *O. pallens* (Germ.) | + | – | – | + | + | – | Pontomedit. |
| *O. lindbergi* Dlab. | + | – | – | + | + | – | Pontomedit. |
| *O. horridus* Lv. | + | + | – | – | – | – | Endemic |
| *Pseudoliarus fuscofasciatus palestinensis* Lv. | + | – | + | + | + | – | Endemic |
| *Cixius desertorum* Fb. | – | – | – | – | + | – | Pontomedit. |
| *C. perarmatus* Lv. | – | – | + | – | – | – | Endemic |
| *C. intermedius* Sc. | + | – | – | + | – | – | Holomedit. |
| *C. nervosus* (L.) | – | – | – | – | – | – | Euro-Siberian |
| *Hyalesthes obsoletus* Sign. | + | – | + | – | – | + | Holomedit. |
| *H. luteipes* Fb. | – | – | – | + | – | – | Holomedit. |
| *Hemitropis seticulosus* (Leth.) | + | – | – | + | + | + | Eremian |
| *Moysella sinaitica* Hv. | – | – | – | – | – | + | Eremian |
| **Dictyopharidae** | | | | | | | |
| *Dorysarthrus mobilicornis* Pt. | – | – | – | – | + | + | Endemic |
| *Dictyophara striata* Osh. | – | – | – | – | + | + | Eremian |

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|---|---|---|---|---|---|---|---|
| *D. striata albostriata* Lv. | + | – | + | – | – | – | Endemic |
| *D. xiphias* Pt. | + | + | – | – | – | – | Endemic |
| *D. xiphias compacta* Lv. | – | – | – | – | + | – | Endemic |
| *D. subsimilis* Lv. | + | – | + | + | + | – | Endemic |
| *D. asiatica* Mel. | + | – | + | – | – | – | Syrio-Anat. |
| *D. multireticulata* M.R. | – | + | – | – | – | – | Holomedit. |
| *D. eremica* Lv. | – | – | – | – | + | – | Endemic |
| *Sphenocratus huldaensis* Lv. | + | – | – | – | – | – | Endemic |
| *Tigrahauda recurviceps* Lv. | – | – | – | – | – | + | Endemic |
| **Issidae** | | | | | | | |
| *Ommatidiotus longiceps* Pt. | + | – | – | + | – | – | Holomedit. |
| *Trypetimorpha fenestrata* C. | + | – | – | – | – | – | Holomedit. |
| *T. pilosa* Hv. | + | – | – | + | – | – | Pontomedit. |
| *Perissana circularis* (Lv.) | – | – | – | – | – | + | Endemic |
| *Hysteropterum bilobum* Fb. | + | – | + | – | – | + | Holomedit. |
| *H. paludum deserticola* Lv. | – | – | – | – | – | + | Endemic |
| *H. retamae* Lv. | – | – | – | – | – | + | Endemic |
| *H. maculipes* Mel. | + | + | + | – | + | – | Pontomedit. |
| *H. syriacum* Mel. | + | + | + | – | + | – | Endemic |
| *H. campestre longispinosum* Lv. | + | – | + | – | – | – | Endemic |
| *Falcidius apterus* (F.) | – | – | – | – | – | – | Holomedit. |
| **Flatidae** | | | | | | | |
| *Phantia subquadrata* (H.S.) | + | – | + | + | – | + | Holomedit. |
| *P. indicatrix* Wk. | – | – | – | – | – | + | Eremian |
| *Phaiophantia jordanensis* Lv. | – | – | + | – | – | – | Endemic |
| *Rhinophantia longiceps* (Pt.) | – | – | – | – | – | + | Eremian |
| *Zarudnya* n.sp. | – | – | – | – | + | + | Eremian |
| **Delphacidae** | | | | | | | |
| *Asiraca clavicornis* (F.) | – | – | + | – | – | – | Holomedit. |
| *Delphax inermis* Rib. | – | – | – | – | – | – | Holomedit. |
| *Pseudaraeopus lethierryi* M.R. | + | + | – | – | – | – | Holomedit. |
| *P. bolivari* (Mel.) | + | – | – | – | + | + | Holomedit. |
| *Perkinsiella insignis* (Dist.) | + | – | – | – | + | – | Intertropical |
| *P. rivularis* Lv. | + | – | – | – | – | – | Endemic |
| *Alatades trilineus* Dlab. | – | – | – | – | + | – | Syrio-Anat. |
| *Nephropsia tuberipennis* M.R. | + | – | – | – | + | – | Holomedit. |
| *Stenocranus pallidus* Lv. | + | – | – | + | + | – | Endemic |
| *Kelisia brucki* Fb. | + | – | – | – | – | – | Holomedit. |
| *K. yarkonensis* Lv. | + | – | – | – | – | – | Endemic |
| *Leptodelphax cyclops* Hpt. | + | – | – | – | – | – | Syrio-Anat. |
| *Chloriona flaveola* Ldb. | + | – | – | + | – | – | Syrio-Anat. |
| *Eurysa lineata* (Perr.) | – | – | – | – | – | – | Holomedit. |
| *Delphacodes linnavuorii* (LeQ.) | – | – | – | + | – | – | Pontomedit. |
| *Calligypona striatella* (Fn.) | + | – | – | + | + | + | Holarctic |
| *C. vibix* (Hpt.) | + | + | + | + | + | + | Eremian |
| *C. segetum* (Hpt.) | – | – | – | + | – | – | Endemic |
| *C. maculipennis* Lv. | – | – | – | – | + | – | Endemic |
| *C. typhae* Ldb. | + | – | – | – | – | + | Eremian |
| *C. ornatipennis* (Hpt.) | – | – | – | + | – | – | Iranian |
| *C. propinqua* (Fb.) | + | + | + | + | + | + | Holomedit. |
| *C. obtusangula* Lv. | + | – | – | + | – | – | Pontomedit. |
| *Criomorphus albomarginatus* Ct. | – | – | – | – | + | – | European |
| **Achilidae** | | | | | | | |
| *Akotropis quercicola* Lv. | + | + | – | – | – | – | Syrio-Anat. |

| | I | II | III | IV | V | VI | |
|---|---|---|---|---|---|---|---|
| **Meenoplidae** | | | | | | | |
| *Meenoplus albosignatus* Fb. | + | + | – | – | – | – | Pontomedit. |
| *Anigrus vicinus* Dlab. | – | – | – | – | + | – | Iranian |
| *Nisia atrovenosa* (Leth.) | – | – | – | – | + | – | Intertropical |
| **Tettigometridae** | | | | | | | |
| *Tettigometra impressifrons* M.R. | – | – | – | – | – | – | Holomedit. |
| *T. contracta* Ldb. | + | – | + | – | – | – | Endemic |
| *T. hexaspina* Klti. | – | – | + | – | – | – | Pontomedit. |
| *T. costulata* Fb. | + | + | + | + | – | + | Holomedit. |
| *T. sulphurea* M.R. | – | – | + | – | – | – | Holomedit. |
| *T. vitellina* Fb. | – | – | + | – | – | – | Caspian |
| *T. angulata* Ldb. | – | – | + | – | – | – | Caspian |
| *T. afra* Kbm. | – | – | – | – | – | – | Eremian |
| *T. obliqua* Pnz. | – | + | + | + | – | – | Euro-Siberian |
| *T. barani* Sign. | + | – | – | – | – | – | Holomedit. |
| *T. tafratensis* Bgv. | – | – | – | – | – | + | Eremian |
| **Cicadidae** | | | | | | | |
| *Adeniana longiceps* (Pt.) | – | – | – | – | – | + | Eremian |
| *A.* sp. | – | – | – | – | – | + | Eremian |
| *Cicada orni* Oliv. | – | – | + | – | – | – | Holomedit. |
| *Cicadatra atra platyptera* Fb. | + | – | + | + | + | – | Syrio-Anat. |
| *C. glycyrrhizae* Klti. | – | – | – | – | – | – | Caspian |
| *C. ramanensis* Lv. | – | – | – | – | – | + | Endemic |
| *C. lineola* (Hag.) | – | – | – | – | – | – | Caspian |
| *C. longipennis* Schum. | – | – | + | – | – | – | Endemic |
| *C. hyalina* (F.) | + | – | – | – | + | – | Pontomedit. |
| *C. querula* (Pall.) | – | – | – | – | – | + | Holomedit. |
| *C. flavicollis* Hv. | – | – | – | – | – | + | Eremian |
| *Cicadetta musiva* (Germ.) | – | – | – | – | + | + | Eremian |
| *C. sibilatrix* (Hv. | + | – | – | + | – | – | Syrio-Anat. |
| *C. tibialis* (Pnz.) | – | – | – | + | – | – | Holomedit. |
| **Cercopidae** | | | | | | | |
| *Cercopis sanguinolenta intermedia* Kbm. | – | – | + | – | – | – | Holomedit. |
| *C. septemmaculata* Mel. | – | + | – | – | + | – | Endemic |
| *C. fasciata* Kbm. | – | – | + | – | – | – | Pontomedit. |
| *Philaenus spumarius* (L.) | – | – | – | – | – | – | Holarctic |
| *P. impictifrons* Hv. | + | – | + | + | – | – | Eremian |
| *Neophilaenus campestris* (Fn.) | + | – | + | – | – | – | European |
| **Cicadellidae** | | | | | | | |
| *Macrosteles sexnotatus* (Fn.) | + | – | + | + | – | – | Euro-Siberian |
| *M. quadripunctulatus* (Kbm.) | + | + | – | + | + | + | European |
| *Cicadulina bipunctella* (Mts.) | + | – | – | + | + | + | Intertropical |
| *Pteropyx hyalinus* Hpt. | + | – | – | – | – | + | Endemic |
| *Cicadulella pallida* (Hpt.) | + | – | – | – | – | – | Eremian |
| *Balclutha flavella* Lv. | – | – | + | – | – | – | Caspian |
| *B. rufofasciata* (Mer.) | – | – | + | – | – | – | Intertropical |
| *B. saltuella* (Kbm.) | + | – | – | – | + | + | Cosmopolitan |
| *B. nicolasi* (Leth.) | + | – | – | + | + | – | Holomedit. |
| *B. rosea* (Sc.) | + | + | – | + | + | + | Cosmopolitan |
| *B. hebe* (Kk.) | + | + | + | + | + | + | Cosmopolitan |
| *Aconurella prolixa* (Leth.) | + | – | + | – | + | + | Eremian |
| *Euscelis alsius* Rib. | + | – | + | – | – | – | Holomedit. |
| *E. plebeius* (Fn.) | + | – | – | – | – | – | Euro-Siberian |
| *Euscelidius mundus* (Hpt.) | + | – | + | + | + | + | Iranian |
| *Carinifer amitinus* (Mel.) | – | – | + | – | – | – | Caspian |
| *C. impictus* Lv. | – | – | – | – | + | – | Endemic |

| | I | II | III | IV | V | VI | |
|---|---|---|---|---|---|---|---|
| *Aconura instabilis* Rib. | + | – | – | + | – | – | Pontomedit. |
| *A. acuticeps* Rib. | + | – | + | + | + | + | Syrio-Anat. |
| *Pseudaconura luxorensis* Lv. | – | – | – | – | – | + | Eremian |
| *Handianus procerus palestinensis* Lv. | – | – | + | – | – | + | Endemic |
| *Thamnotettix zelleri seclusus* Lv. | + | + | + | + | – | – | Endemic |
| *T. allygidioides* Lv. | – | + | + | – | – | – | Endemic |
| *Nephotettix apicalis* (Motsch.) | + | – | – | + | – | – | Intertropical |
| *Exitianus capicola* (Stål) | + | – | + | + | + | + | Cosmopolitan |
| *E. fasciolatus* (Mel.) | – | – | – | – | + | – | Ethiopian |
| *Paramesodes lucaniae* (Dlab.) | + | – | – | – | – | – | Pontomedit. |
| *Cicadula flori danensis* Lv. | – | – | – | + | – | – | Endemic |
| *C. divaricata* Rib. | + | – | – | – | – | – | Holomedit. |
| *Eohardya fraudulenta* (Hv.) | – | – | + | – | – | – | Pontomedit. |
| *Nesophrosyne filigranus* (Hpt.) | + | – | – | – | + | + | Eremian |
| *Neoaliturus tenellus* (Bak.) | – | – | + | – | – | + | Cosmopolitan |
| *N. haematoceps opacipennis* (Leth.) | + | + | + | – | + | + | Holomedit. |
| *N. fenestratus* (H.S.) | + | + | + | + | + | – | Holomedit. |
| *N. guttulatus* (Kbm.) | + | – | + | – | – | – | Holomedit. |
| *N. transversalis* (Pt.) | – | – | – | + | + | – | Pontomedit. |
| *N. pulchellus* (Hpt.) | – | – | – | – | + | + | Endemic |
| *N. inscriptus* (Hpt.) | + | – | – | – | – | – | Eremian |
| *N. macchiae* (Ldb). | + | – | – | – | – | – | Syrio-Anat. |
| *Concavifer marmoratus* Dlab. | – | – | – | – | – | – | Iranian |
| *Opsius lethierryi* W.Wgn. | + | – | – | + | + | + | Holomedit. |
| *O. scutellaris* (Leth.) | – | – | – | – | + | + | Eremian |
| *O. pallasi* (Leth.) | – | – | – | – | + | + | Eremian |
| *Phlepsius intricatus* (H.S.) | + | – | + | + | – | – | Pontomedit. |
| *P. asiaticus* Zachv. | – | – | – | – | + | – | Irano-Turan. |
| *Selenocephalus bytinskii* Ldb. | + | – | + | – | – | – | Endemic |
| *S. pallidus* Kbm. | + | + | – | – | – | – | Pontomedit. |
| *S. deserticola* Lv. | – | – | – | – | – | + | Endemic |
| *S. flavicosta* Lv. | – | – | + | – | – | – | Endemic |
| *S. striatus* (Ldb.) | + | – | – | – | – | – | Endemic |
| *Paramesus major* Hpt. | + | – | – | – | – | – | Endemic |
| *Allygus theryi* Hv. | – | – | + | + | – | – | Pontomedit. |
| *Allygidius furcatus* (Ferr.) | – | – | – | – | – | – | Holomedit. |
| *Aglena ornata* (H.S.) | + | – | – | – | – | – | Holomedit. |
| *Neolimnus aegyptiacus* (Mts.) | – | – | – | – | + | + | Eremian |
| *Paralimnus phragmitis* (Boh.) | – | – | – | + | – | – | Euro-Siberian |
| *P. inexpectatus* Dlab. | + | – | – | – | + | + | Irano-Turan. |
| *Rhombopsana virens* (Hpt.) | + | + | – | – | + | – | Eremian |
| *Stymphalus rubrolineatus* Stål | + | – | – | – | – | – | Ethiopian |
| *Grammacephalus pugio* (Nlh.) | + | – | + | – | + | – | Ethiopian |
| *Platymetopius undatus parvulus* Lv. | – | – | + | + | – | – | Endemic |
| *P. cruentatus* Hpt. | – | – | – | – | + | + | Eremian |
| *P. obsoletus* (Sign.) | – | – | – | – | – | – | Holomedit. |
| *P. retamae* Lv. | – | – | + | – | – | + | Endemic |
| *P. quercicola* Lv. | – | + | – | – | – | – | Endemic |
| *Jubrinia distincta* Lv. | + | – | + | – | – | – | Endemic |
| *Psammotettix adriaticus linnavuorii* W.Wgn. | + | – | – | – | – | – | Endemic |
| *P. majusculus* Lv. | + | + | + | + | + | + | Syrio-Anat. |
| *P. pictipennis* (Kbm.) | – | – | – | – | + | – | Pontomedit. |
| *Deltocephalus schmidtgeni* W.Wgn. | + | – | + | – | + | + | Holomedit. |
| *D. angustisectus* Lv. | + | – | – | – | + | – | Endemic |
| *Doratura homophyla* (Fl.) | + | + | – | + | + | + | Euro-Siberian |
| *Chiasmus conspurcatus* (Perr.) | + | – | – | – | – | + | Holomedit. |
| *Grypotes staurus* Iv. | + | + | + | – | – | – | Holomedit. |
| *Goniagnathus brevis* (H.S.) | + | – | + | – | – | + | Holomedit. |
| *G. guttulinervis* (Kbm.) | + | – | + | – | + | + | Holomedit. |
| *G. palliatus* (Leth.) | – | – | – | – | – | + | Eremian |
| *G. bolivari hoberlandti* Dlab. | – | – | + | – | – | – | Pontomedit. |

| | I | II | III | IV | V | VI | |
|---|---|---|---|---|---|---|---|
| *Fieberiella macchiae* Lv. | – | + | – | – | – | – | Endemic |
| *Synophropsis lauri* (Hv.) | + | + | + | + | – | – | Pontomedit. |
| *Phlogotettix cyclops* (M.R.) | – | – | – | + | – | – | Holomedit. |
| *Hecalus glaucescens* (Fb.) | + | + | + | – | + | + | Holomedit. |
| *H. eximius* (Kbm.) | + | – | – | – | – | – | Eremian |
| *H. eximius reticulatus* Lv. | – | – | – | – | + | – | Endemic |
| *Cicadella viridis* (L.) | – | – | – | – | – | – | Euro-Siberian |
| *Stegelytra albofasciata* Lv. | – | + | – | + | + | – | Endemic |
| *Aphrodes bicinctus diminutus* Rib. | + | – | – | – | – | – | Holomedit. |
| *A. paralongus* Dlab. | – | – | + | – | – | – | Endemic |
| *A. albifrons* (L.) | + | – | – | – | – | – | European |
| *Eupelix cuspidata* (F.) | + | – | + | – | – | – | European |
| *Chloropelix canariensis* Ldb. | – | – | – | – | + | – | Eremian |
| *Paradorydium dimorphum* Lv. | – | – | – | – | – | + | Endemic |
| *Ulopa trivia* Germ. | – | – | – | – | – | – | Holomedit. |
| *Megulopa sahlbergorum* Ldb. | – | – | – | + | + | – | Eremian |
| *Idiocerus vicinus* Mel. | – | – | – | + | – | – | Holomedit. |
| *I. notatus* (F.) | – | – | + | – | – | – | Holomedit. |
| *Agallia laevis* Rib. | + | – | + | + | + | – | Holomedit. |
| *A. hispanica* Hv. | – | – | – | – | – | + | Eremian |
| *A. minuta* Mel. | – | – | + | – | – | – | Pontomedit. |
| *Peragallia sinuata* (M.R.) | + | – | – | + | – | + | Holomedit. |
| *P. quadricornis* Lv. | + | + | – | – | – | – | Endemic |
| *Platyproctus agraphopteron* Bgv. | – | – | – | – | + | + | Eremian |
| *P. maculipennis* Lv. | – | – | – | – | – | + | Endemic |
| *Megophthalmus scabripennis* Edw. | – | – | + | – | – | – | Holomedit. |
| *Macropsis* sp. prope *notata* Proh. | – | – | – | + | – | – | Endemic |
| *M. scutellata* (Boh.) | – | – | – | – | – | – | European |
| *Hephathus orientalis* Lv. | + | – | + | + | – | – | Endemic |
| *Batrachomorphus glaber* Hpt. | + | – | + | + | + | – | Syrio-Anat. |
| *B. signatus* Ldb. | + | – | – | – | – | – | Eremian |
| *Alebra albostriella* (Fn.) | + | + | – | – | – | – | Holarctic |
| *Dikraneura acuticeps* Lv. | + | + | + | – | – | – | Endemic |
| *Empoasca decedens* (Pli.) | + | – | + | + | + | – | Holomedit. |
| *E. decipiens meridiana* Zachv. | + | – | + | – | + | + | Irano-Turan. |
| *E. distinguenda* (Pli.) | + | – | – | – | – | – | Ethiopian |
| *E. lybica* Bgv. | + | – | – | – | – | – | Ethiopian |
| *Chlorita eremophila* Lv. | + | – | – | – | – | + | Endemic |
| *Eurhadina angulata* Lv. | – | – | + | – | – | – | Endemic |
| *Eupteryx cypria* (Rib.) | + | – | + | + | – | – | Syrio-Anat. |
| *E. insulana* (Rib.) | – | – | – | + | + | – | Syrio-Anat. |
| *E. nemoricola* Lv. | – | – | – | + | – | – | Endemic |
| *Zyginella pulchra* P.Löw | – | – | + | + | – | – | Holomedit. |
| *Z. pistaciae* Lv. | + | – | – | – | – | – | Endemic |
| *Youngiada tarsalis* Lv. | + | + | + | – | – | – | Endemic |
| *Typhlocyba tshinari* Zachv. | – | – | – | + | – | – | Irano-Turan. |
| *T. ficaria* Hv. | + | – | – | – | – | – | Holomedit. |
| *Ribautiana tenerrima* (H.S.) | + | – | + | + | – | – | Holomedit. |
| *Heliona adspersa* Hpt. | – | – | – | – | + | + | Endemic |
| *Helionidia biplagiata* (Hpt.) | + | + | + | – | + | + | Eremian |
| *H. tamaricis* (Pt.) | – | – | – | – | + | + | Holomedit. |
| *H. fasciolata* (Leth.) | + | – | + | – | + | + | Eremian |
| *Erythroneura adanae* Dlab. | + | – | – | – | – | – | Syrio-Anat. |
| *E. ithaburensis* Lv. | + | + | – | + | – | – | Endemic |
| *E. discolor* Hv. | + | – | + | – | – | – | Pontomedit. |
| *E. rhamni* (Ferr.) | + | – | + | – | – | – | Holomedit. |
| *E. pulcherrima* Lv. | – | + | – | + | – | – | Pontomedit. |
| *E. nivea* (M.R.) | + | – | – | – | – | – | Holomedit. |
| *E. bisignata* (M.R.) | + | + | + | – | – | – | Holomedit. |
| *E. sanguinosa* (R.) | + | + | + | – | – | – | Holomedit. |
| *E. nebulosa* Rib. | – | – | – | + | – | – | Syrio-Anat. |
| *E. aridula* Lv. | – | – | + | – | – | – | Endemic |

| | I | II | III | IV | V | VI | |
|---|---|---|---|---|---|---|---|
| *E. coacta* Rib. | + | + | – | + | + | + | Syrio-Anat. |
| *E. imbecilla* Lv. | + | – | – | + | – | – | Endemic |
| *E. gediensis* Lv. | – | – | – | – | + | – | Endemic |
| *E. distinguenda ecbalii* Lv. | – | – | + | – | – | – | Endemic |
| *E. rivularis* Lv. | + | + | – | + | – | – | Endemic |
| *E. acaciae* Lv. | + | – | – | – | – | + | Endemic |
| Membracidae | | | | | | | |
| *Centrotus israelensis* Lv. | – | – | – | – | + | | Endemic |
| *Oxyrrhachis capeneri* Izz. | + | – | – | – | + | | Eremian |
| *O. versicolor* Dist. | + | – | – | + | + | | Eremian |
| *O. furva* Cpn. | + | – | – | – | + | | Eremian |

Table 2. The faunal elements of Israel.

| Region | Total number of species | European | Euro-Siberian | Holarctic | Holomedi-terranean | Pontome-diterra-nean | Caspian | Syrio-Anatolian | Iranian | Irano-Turanian | Eremian | Endemics | Ethiopian | Indian | Cosmopo-litan | Intertro-pical | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | 404 | 11 | 17 | 6 | 133 | 48 | 1 | 31 | 1 | 4 | 58 | 66 | 11 | 1 | 8 | 8 | spp. |
| | | 2.7 | 4.2 | 1.5 | 32.8 | 11.9 | 0.3 | 7.7 | 0.3 | 1.30 | 14.3 | 16.3 | 2.7 | 0.3 | 2.0 | 2.0 | % |
| II | 121 | 3 | 5 | 2 | 42 | 17 | – | 11 | – | 1 | 10 | 25 | 1 | – | 3 | 1 | spp. |
| | | 2.5 | 4.1 | 1.7 | 34.7 | 14.1 | – | 9.1 | – | 0.8 | 8.3 | 20.7 | 0.8 | – | 2.5 | 0.8 | % |
| III | 258 | 4 | 17 | 2 | 100 | 43 | 5 | 20 | 2 | 2 | 17 | 34 | 3 | – | 6 | 3 | spp. |
| | | 1.6 | 6.6 | 0.8 | 38.8 | 16.7 | 1.9 | 7.8 | 0.8 | 0.8 | 6.6 | 13.1 | 1.2 | – | 2.3 | 1.2 | % |
| IV | 222 | 4 | 20 | 6 | 83 | 29 | – | 18 | 2 | 5 | 13 | 22 | 9 | – | 5 | 6 | spp. |
| | | 1.8 | 9.0 | 2.7 | 37.1 | 13.1 | – | 8.1 | 0.9 | 2.3 | 5.9 | 9.9 | 4.1 | – | 2.3 | 2.7 | % |
| V | 238 | 3 | 6 | 2 | 52 | 22 | 1 | 16 | 3 | 6 | 55 | 42 | 17 | 1 | 6 | 5 | spp. |
| | | 1.3 | 2.5 | 0.8 | 21.9 | 9.2 | 0.4 | 6.7 | 1.3 | 2.5 | 23.1 | 17.7 | 7.1 | 0.4 | 2.5 | 2.1 | % |
| VI | 196 | 1 | 5 | 2 | 54 | 9 | – | 7 | 2 | 4 | 71 | 29 | 11 | – | 6 | 5 | spp. |
| | | 0.5 | 2.6 | 1.0 | 27.6 | 4.6 | – | 3.6 | 1.0 | 2.0 | 36.2 | 14.8 | 5.6 | – | 3.1 | 2.6 | % |
| I–VI | 943 | 19 | 52 | 15 | 273 | 119 | 12 | 57 | 8 | 21 | 142 | 161 | 38 | 2 | 11 | 11 | spp. |
| | | 2.0 | 5.5 | 1.6 | 29.0 | 12.6 | 1.3 | 6.0 | 0.9 | 2.2 | 15.1 | 17.1 | 4.0 | 0.2 | 1.2 | 1.2 | % |

The main vegetation types are the following: 1) The *psammophytic* flora of the sand-dunes. The most characteristic dune grasses are *Ammophila arenaria, Agropyrum junceum* and *Aristida scoparia.* Other typical plants include *Artemisia monosperma, Retama roetam, Citrullus colocynthis, Silene succulenta, Medicago marina, Ononis natrix, Oenothera drummondi* and *Neurada procumbens.* The most important shrub is *Pistacia lentiscus,* and *Ficus carica* is sometimes found. 2) The psammophytic flora is intermingled with *marshy elements* in more or less humid places, e.g. in valleys between the dunes, the dominant constituents being certain *Cyperaceae* and *Juncaceae* (e.g. *Juncus acutus* and *J. maritimus*) together with a number of plants typical of moist localities. At the rivers the hydrophytic flora is usually very rich, the most noteworthy grasses being *Phragmites communis, Arundo donax* and *Panicum barbinode* intermingled with *Cyperaceae* such as different *Cyperus* species (e.g. *Cyperus longus*). Moreover, one can find such bushes as *Nerium oleander* and *Vitex agnus-castus* beside the rivers. 3) In saline localities there occur certain *halophytes* such as *Chenopodiaceae* (e.g. *Salsola kali, Atriplex portulacoides, Salicornia herbacea* and *Suaeda fruticosa*) or *Mesembryanthemum* and *Euphorbia*

species often mixed with the marshy elements mentioned above. Of the trees *Tamarix* species are hemipterologically extremely important. 4) The patches of more or less heavy soil formed from calcareous sandstone are covered by *bathas* or *rocky steppes*, richer or poorer depending on the edaphic conditions. These are characterized by such plants as *Zizyphus spina-Christi, Lycium europaeum, Cistus* spp., *Ephedra campylopoda, Lotus villosus, Thymus capitatus, Salvia* spp., *Verbascum* spp. and *Carthamus* spp. 5) The vegetation of Mount Carmel consists of *bathas* as before and of *maqui* as in the neighbouring area of Galilee. The most important shrubs are *Quercus calliprinos, Pistacia lentiscus, Laurus nobilis* and the dwarf shrub *Poterium spinosum.* 6) Other parts of the coastal plain are very intensively cultivated, the natural vegetation being mostly destroyed.

The fauna of the coastal plain is remarkably rich as compared with the other zones of Israel. This may, of course, in part depend on the extensive collections made over a long period in the area (e.g. most of Bodenheimer's material has apparently been collected from this area), but it is certainly also a reality. As pointed out above, the zone consists of a great variety of biotopes, each possessing a fauna of its own. Most species of the zone (44.7 %) belong to the Mediterranean element. A remarkable feature is the high percentage of the Eremian element (14.3 %). Especially the dune area extending to the Negev and the Sinai Peninsula in the south has certainly served as a bridge for the distribution for the Eremian and Ethiopian species (e.g. *Coptosoma costale, Euthetus sabulicola, Geocoris scutellaris, Eurycranella geocoriceps* etc.), especially for those of the coastal area of North Africa. This feature is characteristic of the plants too (Eig op.cit., p. 13). In the same way several northern Mediterranean species (e.g. *Delphax inermis, Kelisia brucki, Balclutha nicolasi, Aglena ornata* etc.) have found an opportunity for spreading southwards via the coastal plain, reaching their southern limit there (the species have not been found in Egypt). A considerable number of endemic species have also been found, especially on the dunes.

### *Galilee* (II)

Galilee consists of hills and mountains in the northern parts of Israel. It is separated from the following region by the Plain of Yizreel and is delimited by the Jordan valley in the east. In its southern parts it is less continuous, being divided by numerous valleys. The main parts of the region rise 300 – 900 m. a.s.l., the highest points being 548 – 588 m. in the south and 1 006 – 1 208 m. in the north. Most of the mountains here as well as in the following region are chalk of the later limestone formations Cenoman and Senon and to a small extent Eocene. Apart from the chalk there is also basalt in the north (Eig op.cit., p. 14). The average annual temperature is about + 16° C., the maximum temperature + 41° C. on an average and the minimum temperature between 0° and – 6° C. The annual rainfall varied from 418 to 716 mm. at Nazareth in the years 1924 – 1926 and is more than 1 000 mm. in Upper Galilee (Zahavi & Wahrman 1957, p. 346).

The region has previously been covered by forests. At present, however, no noteworthy forests exist. In some places (e.g. at Shimron) there are small woods consisting of *Quercus ithaburensis*, in other places small woods of *Pinus halepensis* (possibly planted). The most interesting vegetation type is the *maqui*, which is extremely well developed in some places in Upper Galilee (e.g. in Wadi Karen near Goren) on the mountain slopes and inclines of the wadis. The most important shrubs are: *Quercus calliprinos*, *Laurus nobilis*, *Crataegus azarolus*, *Pyrus syriaca*, *Prunus ursina*, *Cercis siliquastrum*, *Ceratonia siliqua*, *Rhus coriaria*, *Pistacia palaestina*, *P. lentiscus*, *Acer syriacum*, *Rhamnus palaestina*, *Myrtus communis*, *Arbutus andrachne* and *Styrax officinalis*. In less favourable places the shrub elements of the maqui gradually decrease in quantity and size, while, on the other hand, the semi-shrubs and dwarf shrubs are on the increase. The resulting plant formation, is called the *garigue*. Typical plants of this formation besides some species of the maqui are the following: *Stipa aristella*, *Rubus discolor*, *Poterium spinosum*, *Calycotome villosa*, *Ononis antiquorum*, *Origanum maru*, *Salvia graveolens*, *Sideritis pullulans* and several other *Labiatae*, *Verbascum* sp., *Carlina involucrata*, *Carthamus* sp., *Echinops viscosus* etc. In still drier or otherwise unfavourable places there are *bathas*. Their principal element is *Poterium spinosum*, interspersed with other dwarf shrubs and perennial herbs such as *Ononis antiquorum*, *Eryngium glomeratum*, *Hypericum crispum*, *Origanum maru*, *Verbascum*, etc. In some other bathas, e.g. on the eastern slopes of Galilee, there occur certain tall *Umbelliferae*, especially *Psorolea bituminosa*, *Ferula communis* and *Foeniculum vulgare*, while in some other places *Zizyphus* bushes occur. As a peculiarity a small wood of *Acacia albida* (Ethiopian element) at Shimron could be mentioned.

The fauna of this interesting region is still rather imperfectly known. I only had time for some short excursions to the area. The Hemipterous fauna is thus certainly much richer, as mentioned in Table 2. The Mediterranean element is strongly represented (48.7 %), while the percentages of the Eremian, Ethiopian and Intertropical elements are considerably smaller (on *Acacia albida* the Eremian or Ethiopian *Orthotylus priesneri* was found, having thus been distributed with its food plant to this isolated place). The number of endemic species is relatively high. More intensive collecting will certainly prove a close faunal relationship with the corresponding areas in Syria and Turkey, since the mountain ranges extending through Syria and Lebanon to Upper Galilee certainly form an easy bridge for the spread of species from north to south and vice versa. Already, Dlabola has informed me in a letter that he has found some of my new species (e.g. *Akotropis quercicola*) in the northern parts of the Orient. This similarity between Galilee and the northern countries of the Orient is also noted in the flora.

### *The central mountain and hill region* (III)

The region extending from the Plain of Yizreel to the southern border of Transjordania is topographically and climatically much like Galilee. The rainfall, however, is lower (363 mm. at Jerusalem in the years 1924 – 1926).

The vegetation also shows remarkable similarities to that of Galilee. No large forests exist any longer. At Aqua Bella near Jerusalem I found a small wood of *Quercus calliprinos* (large trees) and in some other places in the vicinity of the same city small woods (planted or spontaneous) of *Pinus halepensis*. Here and there are also single trees of *Olea europaea*, probably cultivated. On the other hand neither *Quercus ithaburensis* nor typical maqui were seen. At Aqua Bella some garigues formed by *Quercus calliprinos*, *Punica granatum* and *Prunus amygdalus* were seen. The prevailing vegetation type is the *batha*, especially of the *Poterium spinosum* type. Among the other plants of the bathas *Hypericum* sp., *Ononis antiquorum*, *O. natrix*, *Echinops* sp., *Avena* sp., *Phlomis* sp., *Heliotropium* sp., *Salvia* spp. and *Thymus* sp. could be mentioned. At Beit Jubrin a damp depression with dense vegetation of *Typha*, *Carex* sp., *Daucus carota* and different grasses was studied.

As is seen in Table 2, the composition of the faunal elements is much like that of Galilee, save that the percentage of the Caspian, Iranian and Irano-Turanian elements is somewhat higher. In details, on the contrary, some differences exist: certain species characteristic of the *Quercus* vegetations and maqui of Galilee seem to be absent, while certain Eremian forms (e.g. *Marmottania simonis*) have been able to spread at least to the vicinity of Jerusalem. Probably the drier southern parts of the area belonging to Transjordania show a considerably stronger Eremian nfluence.

### *The Upper Jordan Valley* (IV)

The area consists of the northern part of the Jordan Valley from the sources of the Jordan at Dan in the north to Lake Tiberias in the south. In the middle of the area there is – or was – Lake Hula. The altitude of the area is 0 – 100 m. a.s.l.

Owing to the high humidity of the soil, the vegetation of the area is unique and luxuriant. At the sources of the Jordan at Dan, which are remarkably cold, watery and wet, there exists a shady dense grove formed by different (unidentified) broad-leaved trees with a very dense lower vegetation of *Cyperaceae*, *Labiatae*, *Rubus sanguineus* and ferns like *Adianthum capillus-Veneris*, a most interesting locality of several rare *Hemiptera*. The banks of the Jordan are bordered with a dense belt of *Salix* bushes, etc., in association with various grasses such as *Panicum* spp. and *Phragmites communis* and certain herbaceous plants like *Epilobium* sp. and *Polygonum* spp. Here and there there are also *Tamarix* bushes. An interesting small wood of *Quercus ithaburensis* was studied at Hagoshrim, a few kilometres south of Dan. The most remarkable place in the region is no doubt the marsh area

around Lake Hula. Here exists a large dense, exotic thicket of *Cyperus papyrus*, accompanied by *Phragmites*, *Cyperus alopecuroides*, *Cladium mariscus*, *Typha angustata*, *Polygonum* sp., etc. In drier areas there exist different types of steppes. All this interesting area has at present been taken into cultivation. Thus Lake Hula has been dried and the unique natural vegetation apparently destroyed. In 1958, drainage work had only just been started and so I still had an opportunity to study the place in its original state.

The greater part of the Hemipterous fauna again consists of the Mediterranean element (50.4 %). The percentage of the Euro-Siberian element is higher than in the other parts of Israel, while that of the Eremian element is substantially low. This is easy to understand in view of the floristic and topographic conditions of the region. The hygrophilous northern species like *Zicrona coerulea*, *Saldula melanoscela*, *Chartoscirta cincta*, *Ceratocombus coleoptratus*, *Cryptostemma alienum*, *Cicadula florii*, etc., have had a good chance to spread farther southwards here than in the other parts of the Orient. A more surprising feature is the occurrence of certain interesting Ethiopian species in the area. Among the aquatic Hemiptera, especially, there are a number of such species: *Micronecta scutellaris*, *Sigara sexlineata*, *Plea pullula*, *Limnogeton fieberi*, *Sphaerodema urinator*, *Ranatra vicina* and *Limnogonus cereiventris*. These species (save *Micronecta scutellaris*) have not been found in other parts of Israel, although most of them are large forms that would scarcely be overlooked by any collector. The occurrence of *Cyperus papyrus* (also found on the banks of the River Hadera in the coastal plain) is a similar phenomenon in the flora. These species have spread either via the coastal plain or more probably via the Lower Jordan Valley.

*The Lower Jordan Valley* (V)

The Lower Jordan Valley extends from Lake Tiberias to the northern end of Wadi Araba, about 80 km. south of the Dead Sea. The valley lies in a considerable depression, the lowest point being 394 m. below sea-level. The soil and the water are ± saline in several places, especially in the south. Moreover hot mineral springs occur in some places. The climate is almost tropical. The average annual temperature is + 22° C., the maximum temperature + 45 C°. or more. The rainfall is low, about 150 mm. or less.

Owing to the climatic and topographic conditions the flora is essentially Ethiopian and its centres of distribution are Nubia and Abyssinia. There are also a small element from tropical Arabia. The majority of these tropical species are also encountered in the Negev and the Sinai Peninsula. In the environs of the Dead Sea, however, there are also some tropical species which do not exist in Sinai (Eig op.cit., p. 79). Along the banks of the Jordan and the Dead Sea there usually exists a dense maqui of *Tamarix* (e.g. at Deganya and 'Ein Gedi) as well as a dense zone of *Phragmites* or in some places also of *Juncus acutus* and various grasses (e.g. at the hot mineral spring Hamei Zohar a few kilometres south of 'Ein Gedi) or of

*Cyperus* sp. (as at Beit Shean). In some places there also exist maquis of *Atriplex halimus* bushes. In the more saline localities there are different halophytes especially of the families *Chenopodiaceae* and *Zygophyllaceae*. In the drier localities, especially in the wadis, one finds small sparse woods of *Acacia tortilis* and sparse maqui of such plants as *Ochradenus baccatus* or *Capparis*. There also exist steppes mainly formed of *Stipa tortilis*.

Like the flora, the fauna is also very different form that of the preceding regions of Israel. Here the Mediterranean element, so typical of those regions, comprises only 31 % of the species studied. The differences in the flora and apparently also in the climatic conditions have clearly constituted a barrier to the distribution of the Mediterranean species. It is interesting to note that some of the Mediterranean or eastern species that have reached the Jordan Valley show a splitting into a separate geographical subspecies here, apparently due to the exceptional climatic conditions (e.g. *Tarisa fraudatrix maris-mortui*, *Engistus boops gracilicornis*, *Paranysius fallaciosus israelensis*, *Rhinocoris bipustulatus israelensis* and *Hecalus eximius reticulatus*). By contrast, the percentages of the Eremian and Ethiopian elements are remarkably high, thus paralleling the flora. Most of the species also occur in Sinai and in the Nile Valley, but there are also some species that have not been found in these regions (e.g. *Phyllocephala albicornis*, *Tenosius proletarius*, *Pachylops punctipes*, *Compsidolon acaciae*, *Zarudnya* n.sp. etc.). I shall refer to this matter later. The climatic conditions of the valley have thus formed an excellent bridge for the northward distribution of plants and insects of the southern elements. The percentage of endemic or other eastern species is also remarkably high. Some Iranian or Irano-Turanian species, have also reached the valley (*Artheneida tenuicornis*, *Aeliomorpha lineaticollis*, *Gompsocranum christophi*, *Dicranocephalus marginatus*, *Anigrus vicinus* etc.) via the steppe area between Israel and Iran.

## *The Negev* (IV)

The Negev Desert consists of the southern parts of Israel extending to the Gulf of Akaba in the south. It is a wide high plateau (altitude mainly between 300 – 600 m) interrupted by higher hill and mountain areas (altitude at most about 1 000 m.) and wadis. The largest wadi is Wadi Araba, extending from the end of the Gulf of Akaba to the Jordan Valley, its breadth being about 10 km. in the south; the altitude of the wadi is between 0 – 100 m. a.s.l. The mountains are formed of calcareous rock or sandstone or at Eilat of granite. The loose soil is in some places (e.g. at Beer Mashash) formed of sand, while in other places sandy loess soils prevail. The region is arid or at least semi-arid. According to ZAHAVI and WAHRMAN (1957, p. 346 and 350), the annual rainfall is about 200 mm. at Beersheba, decreasing considerably southwards and being only about 25 mm. in the southernmost parts.

Owing to topographical differences the vegetation is variable. As a whole the

area is desert or semidesert. The vegetation is xerophilous, of course, the prevailing type consisting of sparse steppes formed of such species as *Achillea santolina*, *Trigonella arabica*, *Asphodelus* spp., *Artemisia herba-alba* or other *Artemisia* species. In the desert wadis (e.g. at Timna) there occur small woods of *Acacia* (*A. tortilis* and *A. spirocarpa*) and bushes like *Calligonum comosum*, *Retama roetam* and *Ochradenus baccatus*. In sandy places (e.g. at Yotvata) there exist shrubs like *Haloxylon persicum* and *Tamarix* spp. and grasses like *Aristida scoparia* and *Agropyrum* sp. In saline biotopes, especially in the salt marshes in Wadi Araba, there occur dense thickets of *Tamarix*, such bushes as *Nitraria retusa* and *Suaeda monoica* and a number of halophytic herbaceous plants of *Chenopodiaceae* and other corresponding families.

The faunal composition resembles that of the Lower Jordan Valley. Here too, the Mediterranean element is strikingly reduced (32.1 %) and apparently still more so in strictly natural conditions (several Mediterranean species were found only in cultivated oases), while the percentage of the Eremian element is still higher than in the Jordan Valley. The fauna of the Negev is still relatively poorly known. Further collecting will certainly add considerably to the number of known species of this extremely interesting region.

## 4. SURVEY OF THE BIOGEOGRAPHICAL ELEMENTS OF ISRAEL

The biogeographical composition of the Hemipterous fauna of Israel is shown in Table 2. The position of Israel as a biogeographical transition area between the different elements is clearly seen. This is certainly due to the unique geographical position of the country in the southeastern corner of the Mediterranean Basin between North Africa and the Orient. A further reason has also been the unusually large topographical variability in this small country (superficial area only 18 000 km$^2$) with its great number of different biotopes suitable for the spread of both plants and animals of the different surrounding elements.

### *The Mediterranean element*

The majority of the Hemipterous fauna of Israel (41.6 %) belong to the Mediterranean element, which has had a chance to spread southwards along the coastal plain, hills and mountains of Western Palestine and the Upper Jordan Valley. Farther south the number of Mediterranean species decreases rapidly. PRIESNER & ALFIERI (1953) have not included a statistical survey of the Hemipterous elements of Egypt, but judging from their paper, the number of Mediterranean species is still considerably lower than in Israel. The Mediterranean species have clearly encountered difficulties in spreading southwards through the arid areas between Southern Israel and Egypt. In the northern parts of the Levant the number of Mediterranean species is larger than in Israel, of course. According to HOBERLANDT (1955, p. 238), for instance, 55.3 % of the Heteroptera species of Levant Turkey belong to this element.

*The European, Euro-Siberian and Holarctic elements*

The number of species belonging to these elements is considerably lower than in Turkey (of the Heteroptera of Turkey 2.8 % belongs to the European, 11.8 % to the Euro-Siberian and 3.3 % to the Holarctic element). All the species of these elements are relatively northern in their distribution and have apparently had difficulty in spreading southwards via Asia Minor. Most of the species that have reached Palestine occur only in the northern parts of the country.

*The Caspian, Iranian and Irano-Turanian elements*

The proportion of these elements in Palestine is rather low. Nevertheless, some of them have migrated through the steppe areas between Iran and Palestine into the latter country, being there largely confined to the corresponding steppes of eastern Palestine. It is highly probable that several endemic species of Palestine in fact belong to these elements, since a number of »endemic» Palestinian species have recently been recorded from Iran or Turkestan (DLABOLA 1960 a, 1961) and vice versa.

*The Indian element*

Only two species (0.2 %) of the Palestinian Hemiptera belong to the Indian element. The Indian species have evidently met with insuperable difficulties when spreading westwards through the Middle East or across the Indian Ocean, which have formed effective barriers to them. HOBERLANDT (op.cit.) has recorded only one Indian species (0.1 %) in Turkey.

*The Syrio-Anatolian element*

As known at present 6.0 % of the species have a Syrio-Anatolian distribution. In reality, several species at present regarded as endemics either in Turkey or in Palestine certainly belong to this element, since the opportunities for spread between these regions are good from both the topographical and botanical points of view. Some of my Palestinian species (e.g. *Tropistethus lanternae* and *Akotropis quercicola*) have Already been recorded from Turkey, while I have found several of Hoberlandt's, Dlabola's and Lindberg's species of Turkey and Cyprus in Israel.

*The Eremian and Ethiopian elements*

The percentages of these elements are much higher than in Turkey (only 3.3 % of the Heteroptera of Turkey belong to the Eremian and 0.5 % to the Ethiopian element), whilst in Egypt they are, of course, still better represented. The southern desert areas of Israel together with the dune area of the coastal plain and the

Lower Jordan Valley have been excellent bridges for the northward spread of Ethiopian and Eremian species. Further studies will certainly add considerably to the number of recorded species of these elements in Palestine, since the Negev area is still rather imperfectly known.

An interesting feature is that some Ethiopian and Eremian species occurring in Israel have not been found in the Nile Valley. A similar phenomenon is also seen in the flora: e.g. both of the desert acacias of Israel, *Acacia tortilis* and *A. spirocarpa*, have ranges extending from Israel along the Red Sea coast to the Sudan and from there to almost the whole East African savannah, while in Egypt one finds only *A. farnesiana* and *A. arabica* ssp. *nilotica*. BYTINSKI-SALZ (1954), in his studies on the *Acacia* fauna of Israel, has found a number of insects of various groups with a similar distribution. I have listed some examples of such Hemiptera before and, moreover, during my last trip to the Sudan, I found that some species described from Israel (as *Compsidolon acaciae* and *Cysteochila* n.sp.) were rather common in the Sudan. Such species have spread northwards from their centres of origin in the Sudan along the coastal mountain areas and then across the Red Sea or via Sinai or Arabia to Israel, while for some reason, either geological, climatic or edaphic, they have not been able to enter the Nile Valley. BYTINSKI-SALZ (op.cit.) has suggested that the immigration of these plants and animals occurred a long time ago, from the Middle Tertiary to the Late Pleistocene, when the lowlands of Egypt and also a part of the Sudan were immersed in a large gulf of the Tethys Sea or, in the Pleistocene, at least separated from the Abyssinian Highlands by a series of inland lakes. Only in the late Palaeolithic period, when the climate became drier and these barriers disappeared, was *Acacia nilotica* with its fauna able to migrate into the Nile Valley, while the two other desert acacias had ample time to migrate into Israel via Arabia and Sinai during Pliocene-Pleistocene times.

*The endemics*

The percentage of endemic species is remarkably high (17.1 %). As pointed out before, the majority of them are hardly true endemics in a strict sense, but have also spread to the surrounding ± imperfectly studied countries. There also seem, however, to be some species that really are restricted to Palestine and the neighbouring Syria. Further studies are badly needed to elucidate this question.

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## SELOSTUS

### ISRAELIN NIVELKÄRSÄISET III

Tutkimukseen sisältyy luettelo Israelin alueelta tunnetuista nivelkärsäislajeista sekä niitten löytöpaikoista, useitten uusien lajien ja rotujen kuvaukset sekä joukko oikaisuja eri muotojen taksonomista asemaa koskeviin käsityksiin. Lopussa on käsitelty Israelin nivelkärsäisfaunaa koskevia eliömaantieteellisiä kysymyksiä.