

REVISION OF THE WESTERN PALAEARCTIC PHANEROTOMINI (HYMENOPTERA: BRACONIDAE)

by

C. VAN ACHTERBERG

Achterberg, C. van: Revision of the Western Palaearctic Phanerotomini (Hymenoptera: Braconidae).

Zool. Verh. Leiden 255, 19-i-1990: 1-106, figs. 1-360. — ISSN 0024-1652.

Keys are given to the Western Palaearctic genera of the subfamily Cheloninae (Hymenoptera: Braconidae), and to Western Palaearctic species of the genera *Phanerotoma* Wesmael and *Phaneromella* Szépligeti of the tribe Phanerotomini. The genus *Leptodrepana* Shaw, 1983 is synonymized with the genus *Ascogaster* Wesmael, 1835. The genera *Ichneutipterus* Vachal, 1907; *Tritoma* Szépligeti, 1908; *Szépligetia* Schulz, 1911; *Neoacampis* Szépligeti, 1914, and *Tritomios* Strand, 1921 are new synonyms of the genus *Phanerotoma* Wesmael. The following new specific synonyms are established: *Phaneromella nigra* Szépligeti, 1900 and *P. flavipes* Snoflák, 1951 with *P. bisulcata* (Herrich-Schäffer, 1838); *Phanerotoma picta* Snoflák, 1951 with *P. diversa* (Walker, 1874); *P. bicolor* Snoflák, 1958, *P. asini* Llopsi, 1967, and *P. snoflaki* Shenefelt, 1973 with *P. planifrons* (Nees, 1816); *P. minor* Snoflák, 1951 with *Chelonus dentatus* Panzer, 1805; *Phanerotoma antennalis* Snoflák, 1951 with *Chelonus tritonus* Marshall, 1898; *P. rjabovi* Vojnovskaja-Krieger, 1929, *P. media* Shestakov, 1930, *P. hispanica* var. *desertorum* Hedwig, 1957, and *P. flavitestacea* Fischer, 1959 with *P. ocellaris* Kohl, 1906; *P. rugiferum* Wesmael, 1838 and *P. platypyga* Snoflák, 1951 with *P. rufescens* (Latreille, 1809); *P. sareptana* Kohl, 1906 with *P. katkowi* Kokujev, 1900; *P. olearia* Fischer, (Dec.) 1968 with *P. permixtella* Fischer, (April) 1968. Nine new species are described, a neotype is designated for *Chelonus dentatus* Panzer, 1805 and a lectotype for *Phanerotoma bilinea* Lyle, 1924, *P. kozlovi* Shestakov, 1930, *P. masiana* Fahringer, 1934, and *P. desertorum* Hedwig, 1957. *Phanerotoma hispanica* Kokujev, 1899 could not be recognized among the available material. *Phanerotoma gracilipes* (Szépligeti, 1914) is a new combination.

Key words: Braconidae; Phanerotomini; *Phaneromella*; *Phanerotoma*; keys; distribution; Palaearctic; biology.

C. van Achterberg, Rijksmuseum van Natuurlijke Historie, Postbus 9517, 2300 RA Leiden, The Netherlands.

CONTENTS

Introduction	4
Biology	5
Systematic part	6
Key to Western Palaearctic genera of the subfamily Cheloninae	6
<i>Phaneromella</i> Szépligeti	7
Key to Western Palaearctic species of the genus <i>Phaneromella</i>	8
<i>Phanerotoma</i> Wesmael	10
Key to Western Palaearctic species of the genus <i>Phanerotoma</i>	12
Excluded species	65
Acknowledgements	66
List of abbreviations	66
References	67
Index to host species	69
Index to species and genera of Phanerotomini	70
Figures	71

INTRODUCTION

The Cheloninae is one of the more easily recognizable groups of the Braconidae because of the metasomal carapace (fig. 37) and the presence of the complete postpectal carina (fig. 39). It is a moderately large subfamily with almost 800 described species worldwide and is divided into two tribes, both represented in the Palaearctic fauna. A key to the genera is provided including several characters not used before. The genus *Leptodrepana* S.R. Shaw, 1983 has the metasomal carapace open apically (cf. fig. 1) but not related spp. have a similar metasoma, intermediate shape of metasoma occurs, and no additional characters could be found. Therefore it is included in *Ascogaster* Wesmael, 1835 (*syn. nov.*) in this paper. The Western Palaearctic species of the tribe Chelonini are currently under revision by Mr. T. Huddleston. The members of the tribe Phanerotomini have been difficult to identify because of the lack of a comprehensive modern revision and it is important that the taxonomy of the group is properly understood because it includes parasites of several species which may be pests in the Mediterranean area. The European species (*P.(P.) fracta* and *P.(P.) ocellaris*) have been introduced into the U.S.A. for biological control purposes, the first under the wrong name of *P. planifrons*, the second under the junior synonym of *P. flavitestacea*. Of the existing keys the best is the well-illustrated key to the Czechoslovakian spp. by Snoflák (1951), but types were not examined, many names are wrong and several species are excluded because they were not known from Czechoslovakia.

A further justification for this revisionary work on the European Phanerotomini is the correction of the obviously wrong interpretation of the type-species of the nominal genus *Phanerotoma* Wesmael, viz. *Chelonus dentatus* Panzer, 1805. In addition several species were mixed up under the name of *Phanerotoma planifrons* (Nees, 1816), none of them agreeing with the original description. To correct this situation a revision was desirable and, so as to include South Mediterranean specimens recently received, the region was extended to include roughly Europe, N. Africa and Asia Minor; most species of the Arabian Peninsula, however, can also be identified with the following key. In the Eastern Palaearctic region many different species occur and for these species this revision cannot be used properly; for East Palaearctic species of *Phanerotomella* the paper by Belokobylskij (1986) should be used.

The extremely variable colour of several species in the Phanerotomini is a problem in their identification — as in many other groups of Braconidae. The very variable shape of the third metasomal tergite (including presence or absence of apical emargination) of some spp., the pronounced sexual dimorphism, and the variation in shape of veins 1-SR+M and SR1 of fore wing also

cause problems in the recognition of the species. Reared series are essential to recognize the species limits. Important to note is the more or less compressed apical half of antenna of females; the view at the maximum width is used for measurements and figures.

The tribe Phanerotomini has a world-wide distribution, but occurs predominantly in the subtropical and tropical areas. An asterisk indicates if a species is recorded for the first time for a country.

For the terminology used in this revision, see Van Achterberg, 1988 (p. 5-11).

BIOLOGY

The Phanerotomini contains solitary endoparasitic koinobionts of Pyralidae and to a lesser extent of Olethreutidae, Carposinidae, Gelechiidae, Oecophoridae and Coleophoridae (Lepidoptera), and are ovo-larval parasites. That several species select Pyralidae as hosts seems to be a special development within the Phanerotomini; in the Chelonini parasitization of the Pyralidae is exceptional, occurring, apart from the Phanerotomini, only in a few species of the genus *Chelonus* (Jones, 1985).

The females begin to search for hosts immediately after emergence from their thin (semi-)transparent silvery cocoon and oviposit as soon as suitable hosts are located (Bennett, 1960). Mating takes place readily; for about two seconds the male attempts antennal contact, follows the female for mounting on her back. If the female refuses to mate she raises her wings and moves away. The male may revert to the antennal contact stage and try again. Copulation is carried out in an end to end position and lasts 10-50 seconds (Bennett, 1960; Harbo & Kraft, 1969).

When searching for host eggs, the female runs quickly over the substrate exploring the surface with her rapidly vibrating antennae. When she senses the presence of a host egg the female concentrates on the spot with the antennae vibrating more rapidly until the egg is touched. After examining the egg briefly, first with the distal segments of the antennae and then with the basal ones, the female moves forwards slowly until the tip of the ovipositor, which is extended downwards and forwards, touches the egg. The female deposits usually one egg in the egg of the host (Bennett, 1960; Harbo & Kraft, 1969); if more than one egg is laid in the host egg, then only one parasite develops because the other(s) fail to hatch or die shortly after hatching. The period of examination and oviposition is very brief; up to eight eggs are laid in two minutes (Bennett, 1960). The parasite egg hatches before that of the host, but the parasite larva

remains small until the onset of the host's pupation stimulates further development.

The first three larval instars have a caudal vesicle (or rectal evagination; probably an accessory respiratory organ) and are translucent. The last (fourth) instar has no caudal vesicle, can survive outside the host and is white opaque. Parasitized host larvae can usually be distinguished from unparasitized larvae by their smaller size (Hawlitzky, 1979b), the head is smaller than the thorax and often a goitrelike lobe protrudes under the mentum. Nevertheless they appear well nourished, even rather fat and have a normal colour (Parker, 1951). Obviously there is a blockage of the development of the host larva after making its cocoon, and a precocious initiation of host metamorphosis by Cheloninae has been hypothesized (Jones, 1985). As a consequence, unnatural hosts of Cheloninae should be recognizable by the lack of the precocious metamorphosis; the host larvae merely grow slowly and are very stunted (Jones, 1985). The late third or early fourth instar kills the host larva and the fourth instar parasite larva begins to emerge from the host larva (Harbo & Kraft, 1969). It pierces a hole in the lateral wall of the third thoracic or first abdominal segment of the host and works its way out until only its last abdominal segment remains inside. The parasite then makes several incisions in the abdominal segments of the host and feeds externally until only the head integument of the host remains. After this final ectoparasitic phase, which lasts several hours (Parker, 1951), the parasite constructs a cocoon inside that of the host (or inside the emergence tunnel of the host (Harbo & Kraft, 1969)) and pupates. It needs a confined space (host cocoon, cell occupied by the host) to be able to construct its cocoon; failure to make its cocoon usually led to premature death (Parker, 1951; Bennett, 1960) or abnormal development (Harbo & Kraft, 1969). The entire life cycle requires about 30 days at about 25°C (Parker, 1951).

SYSTEMATIC PART

Key to Western Palaearctic genera of the subfamily Cheloninae

1. Lateral carina of mesoscutum lamelliform, protruding next to the axillae (fig. 20); occipital carina separated from hypostomal carina (fig. 38); metasoma usually without distinct transverse sutures (figs. 1, 10, 11, 37); eyes glabrous or setose; mesosoma usually black; prepectal carina remains below level of ventral third of pronotal sides (figs. 1, 11); (tribe Chelonini Nees) 2

- Lateral carina of mesoscutum weak, not lamelliform or protruding next to axillae (figs. 31, 351); occipital carina just meeting hypostomal carina (fig. 41); metasoma with two complete, transverse sutures (figs. 25, 147), exceptionally obsolescent; eyes glabrous (fig. 30); mesosoma usually largely yellowish; prepectal carina attaining level close to middle of pronotal sides (figs. 25, 348), or exceptionally reduced; (tribe Phanerotomini Baker) ... 3
- 2. Vein 1-SR+M of fore wing present (fig. 36); eyes glabrous or nearly so; carapace of male without apical opening; vein r usually arises far distad of middle of pterostigma (fig. 36) *Ascogaster* Wesmael, 1835
- Vein 1-SR+M of fore wing absent (fig. 12); eyes distinctly setose (fig. 22); carapace of male sometimes with apical opening; vein r usually arises near middle of pterostigma (fig. 12) *Chelonus* Panzer, 1806
- 3. Vein 2-R1 of fore wing present (figs. 27, 51); vein CU1b of fore wing absent, resulting in an open first subdiscal cell apico-posteriorly (fig. 27); antennal segments 24-60; vein r of hind wing absent (fig. 27); vein M+CU of hind wing shorter than vein 1-M (fig. 27) *Phanerotomella* Szépligeti, 1900
- Vein 2-R1 of fore wing absent (figs. 57, 349); vein CU1b of fore wing usually present, resulting in a closed first subdiscal cell (figs. 71, 84, 349); antennal segments (of both sexes) 23, exceptionally up to 27 (*potanini*); vein r of hind wing often present (figs. 1, 349); vein M+CU of hind wing equal to vein 1-M or longer (fig. 349) *Phanerotoma* Wesmael, 1838

Phanerotomella Szépligeti

Phanerotomella Szépligeti, 1900a: 59; Shenefelt, 1973: 929. Type-species: *Phanerotomella longipes* Szépligeti, 1900. (Examined). Designated by Viereck, 1914: 115.

Plesiosphaeropyx Cameron, 1912: 82, 84. Type-species: *Plesiosphaeropyx albipalpis* Cameron, 1912. Monotypic.

Diagnosis. — Antennal segments (24-)30-60; eyes glabrous; vein 2-R1 of fore wing present (figs. 27, 51); second submarginal cell more or less triangular (figs. 27, 51, 56); vein CU1b of fore wing absent, resulting in an open first subdiscal cell (fig. 27); pterostigma usually comparatively slender; first discal cell of fore wing less acute anteriorly (fig. 51); vein r of hind wing absent (fig. 27); vein 1-SR+M of fore wing present; carapace with distinct transverse sutures (fig. 25); third metasomal tergite without slender lateral teeth, at most corners protruding latero-posteriorly (fig. 54).

Distribution. — In Europe restricted to Central and Southeast regions. Further known from the East Palearctic, Afrotropical (including Malagasy) and Indo-Australian regions.

Key to Western Palaearctic species of the genus *Phanerotomella*

1. Apex of third metasomal tergite of male with lateral pair of lamelliform-lobes (figs. 54, 55); eyes comparatively large (fig. 53); second submarginal cell of fore wing usually distinctly petiolate (fig. 56); body yellowish or brown; hind femur and tibia yellowish; antennal segments usually 32-37 *rufa* (Marshall)
- Apex of third tergite of male without lobes (fig. 52); eyes comparatively small (fig. 50; of female smaller); second submarginal cell of fore wing subsessile (fig. 51); body blackish(-brown); hind femur and tibia largely (dark) brown; antennal segments 30-32 *bisulcata* (Herrich-Schäffer)

***Phanerotomella bisulcata* (Herrich-Schäffer)**

(figs. 50-52)

Chelonus bisulcatus Herrich-Schäffer, 1838: 154, fig.*Phanerotomella bisulcatus*; Shenefelt, 1973: 929.*Phanerotomella flavipes* Snoflák, 1951: 31-33, fig. 11; Shenefelt, 1973: 929-930. **Syn. nov.***Phanerotomella nigra* Szépligeti, 1900b: 215, 218; Shenefelt, 1973: 930; Zettel, 1987: 369. **Syn. nov.**

Material examined. — 7 ♂♂: 1 ♂, (TMA), holotype: “Budapest, Svábhegy”, “99.VII.17, Szépligeti”, “Holotype ♂ *Phanerotomella nigra* Szépl., det. Papp, 1967”, “Hym. Typ. No. 475, Mus. Budapest”; 1 ♂, (BMNH): “Yugoslavia, Hrvatska, Trogir, vii-viii.1978, G. Nonveiller”; 3 ♂♂, (HC, RMNH): N. Italy, “Parschins, Südtirol, 1000 m, Fc., 20.7.66, Haeselb.” (1 ♂) and “Meran, 400 m, B, 21.7.66, Haeselb.” (2 ♂♂); 2 ♂♂, (ZMK): Greece “Monemvasia, 31.V. & 8.VI.1984, G. Christensen”.

Length of fore wing 2.2-2.3 mm, of body 2.6-2.8 mm.

Head. — Subapical antennal segments of ♀ unknown, number of antennal segments of ♂ 30(3), 31(2) (one is holotype of *nigra*) or 32(1), of ♀ unknown; POL slightly longer than diameter of posterior ocellus; frons regularly transversely rugose; vertex coarsely transversely rugose; length of eye in dorsal view about 0.8 times temple; temple in lateral view evenly curved posteriorly, narrower and densely rugose (fig. 50); face regularly transversely rugose; length of malar space 1.3-2 times basal width of mandible; inner tooth of mandible slightly shorter than outer tooth; head in frontal view with upper condyli distinctly below lower level of eyes.

Mesosoma. — Mesosternum coarsely punctate, punctures partly confluent laterally.

Wings. — Fore wing: SR1 and 2-SR straight; marginal cell medium-sized (fig. 51); 1-R1 subequal to length of pterostigma; parastigma rather small (fig.

51) and dark; 1-SR+M distinctly pigmented, equal to vein 2-CU1; second submarginal cell subsessile (fig. 51).

Legs. — Middle tibia slender, without blister.

Metasoma. — Shape of metasoma elongate; first and second tergites similar in sculpture to third tergite, coarsely reticulate; shape of apex of third tergite of ♀ unknown to me; third tergite of ♂ without lateral lobes apically (fig. 52), rather convex, its medial length about 0.9 times medial length of second tergite.

Colour. — Blackish(-brown); palpi, clypeus more or less, scapus, pedicellus, tegulae and legs, largely dark brown; wing membrane rather infuscated; tibiae pale yellowish basally.

Distribution. — Austria, Czechoslovakia, *Greece, Hungary, *Italy, *Yugoslavia, USSR, West Germany.

The biology is unknown.

Note. — The type-series of *P. flavipes* was not available for study, but the synonymy of *P. nigra* with *P. flavipes* was established by Mr. H. Zettel (Wien) who was able to compare the types of both species directly.

***Phanerotomella rufa* (Marshall)**

(figs. 53-56)

Phanerotoma rufa Marshall, 1898: 172; Zettel, 1987: 369.

Phanerotomella rufa; Shenefelt, 1973: 931.

Phanerotomella kerteszi Szépligeti, 1900b: 215, 218; Shenefelt, 1973: 930.

Phanerotomella graeffei Fischer, 1959: 20-22, fig. 5; Shenefelt, 1973: 930.

Material examined. — 5 ♀♀ + 25 ♂♂. 3 ♂♂ (1 ♂ lectotype *kerteszi*), (TAM): “Novi, Kser-tész”, “Lectotype ♂ *Phanerotomella kerteszi* (sic!) Szépl., 1900, Papp, 1965”, “Hym. Typ. no. 476 Mus. Budapest”; 1 ♂ (holotype) + 1 ♀ (paratype) of *graeffei*, (NMW): “Collect. Graeffe”, “Istrien”, “*Phanerotomella graeffei* n. sp., det. Fischer”; 1 ♂, (HC), N. Italy (Riva s. Garda, 240 m, 5.7.66, Bb); 1 ♂, (BMNH), Hungary (Nagyharsany); 1 ♀ + 6 ♂♂, (BMNH, RMNH), Greece (Iliia, Kalambaka, Lakonia (Mt. Taysetas); 4 ♀♀ + 8 ♂♂, (BMNH, RMNH), Yugoslavia (Hrvatska, Kolubara, Zajecar, Dracevice, Drazevac, Vozilici).

Length of fore wing 2.4-2.5 mm, of body 2.8-3.1 mm.

Head. — Subapical antennal segments of ♀ moderately slender, antenna strongly narrowed apically; number of antennal segments of ♂ 32(1), 33(1), 34(2), 35(2), 36(1) or 37(1), of ♀ 32(1), 34(1) or 35(1); POL slightly longer than diameter of posterior ocellus, ocelli small; frons largely smooth medially, laterally rugose; vertex shiny rugulose; length of eye in dorsal view 0.9-1.2 times temple, temple more or less bulging, somewhat sinuated posteriorly, somewhat wider (fig. 53), sparsely sculptured (striate), and partly smooth

face moderately rugose; length of malar space 1.2 (♂)-2.0 (♀, lectotype *kereszii* 1.6) times basal width of mandible; inner tooth of mandible medium-sized, distinctly shorter than outer tooth; head in frontal view directly narrowed ventrally, with upper condyli below lower level of eyes.

Mesosoma. — Mesosternum coarsely rugose.

Wings. — Fore wing: 2-SR and SR1 straight; marginal cell short (fig. 56); 1-R1 subequal to or longer than pterostigma; parastigma rather small (fig. 56); 1-SR+M less pigmented than vein 2-CU1; second submarginal cell usually distinctly petiolate (fig. 56).

Legs. — Middle tibia slender, without blister.

Metasoma. — Shape of metasoma rather elongate; first and second tergites coarsely reticulate, similar to sculpture of third tergite; third tergite of ♀ truncate, with lateral pair of lamelliform lobes, flat apically, its medial length about equal to medial length of second tergite; ovipositor sheath distinctly protruding beyond apex of metasoma.

Colour. — Yellowish or brown; palpi, legs and tegulae (pale) yellowish; body colour varies from completely yellowish-brown to largely dark brown dorsally, especially males are darkened; flagellum of male more or less infuscated, but at least basally yellowish in female.

Distribution. — Austria, *Greece, *Hungary, Italy, *Turkey, USSR (Moldavia), Yugoslavia.

The biology is unknown.

Phanerotoma Wesmael

Phanerotoma Wesmael, 1838: 165. Type-species: *Chelonus dentatus* Panzer, 1805. (Neotype designated in this paper). Designated by Haliday, 1840: 63; Shenefelt, 1973: 909-910.

Phanerogaster Wesmael, 1838: 165 (unavailable name, published in synonymy with *Phanerotoma*).

Sulydus Du Buysson, 1897: 354. Type-species: *Sulydus marshalli* Du Buysson, 1897. (Examined). Monotypic.

Ichneutipterus Vachal, 1907: 122. **Syn. nov.** Type-species: *Sigalphus? ichneutipterus* Vachal, 1907. (Examined). Monotypic.

Neophanerotoma Szépligeti, 1908b: 227. Type-species: *Phanerotoma orientalis* Szépligeti, 1902. (Examined). Designation by Viereck, 1914: 99.

Tritoma Szépligeti, 1908a: 410 nec Fabricius, 1775. **Syn. nov.** Type-species: *Chelonus tritomus* Marshall, 1898. (Examined). Monotypic.

Bracotritoma Csiki, 1909: 13. Replacement name for *Tritoma* Szépligeti.

Szépligetia Schulz, 1911: 89. **Syn. nov.** Replacement name for *Tritoma* Szépligeti.

Neoacampis Szépligeti, 1914: 210. **Syn. nov.** Type-species: *Neoacampis gracilipes* Szépligeti, 1914. (Examined). Monotypic.

Tritomios Strand, 1921: 174. **Syn. nov.** Replacement name for *Tritoma* Szépligeti.

Phanerotomina Shestakov, 1930: 100. Type-species: *Phanerotomina gussakovskii* Shestakov, 1930 (= *Phanerotoma parva* Kokujev, 1903). Monotypic.

Unica Snoflák, 1951: 7, 9. Type-species: *Phanerotoma moravica* Snoflák, 1951. (Examined). Monotypic.

Diagnosis. — Antennal segments 23 (both sexes), exceptionally 25-27 (the East Palaearctic *potanini*-group); eyes glabrous; clypeus with three indistinct teeth ventrally or ventral margin straight unless otherwise stated; vein 2-R1 of fore wing absent (figs. 57, 349); second submarginal cell quadrangular or pentagonal (figs. 57, 110, 349); vein CU1b of fore wing more or less developed, resulting in a closed first subdiscal cell (fig. 71, 84, 349); pterostigma often comparatively stout (fig. 140); first discal cell of fore wing more or less truncate anteriorly (fig. 144); vein r of hind wing often present (fig. 71); vein M+CU of hind wing equal to vein 1-M or longer (fig. 71); vein 1-SR+M of fore wing present; carapace with distinct transverse sutures (fig. 147); third metasomal tergite without lateral teeth, at most its corners protruding latero-posteriorly (fig. 268); at most apical third of ovipositor sheath setose.

Distribution. — Nearly cosmopolitan; in Europe reaching its northern limit in Ireland, England, The Netherlands, Germany, South Sweden, and probably Poland. Occurs in The Netherlands in the warmer micro-habitats, i.e. sandy, (rather) dry areas: dunes, Veluwe, eastern provinces, etc. Both the subgenera have a cosmopolitan distribution, but the subgenus *Bracotritoma* Csiki has most of its species in the Holarctic region.

Twenty-five European species are here considered valid, of which six are newly described in this paper. Eight species are known from N. Africa, Asia Minor and the Arabian Peninsula; one of these (*ocularis*) occurs also in Europe and three are newly described. All (nine) Central Asian species are included because several (at least four) penetrate into the SE. European sub-region.

Notes. — The use of more than two subgenera for the W. Palaearctic spp. is superfluous. The recognition of the subgenera *Phanerotomina* Shestakov and *Unica* Snoflák is useless because of the presence of intermediate spp.; both are included in one rather heterogeneous subgenus, viz. *Bracotritoma* Csiki.

The holotype of the type-species of *Neoacampis* Szépligeti, *N. gracilipes* Szépligeti, 1914 has been examined. It is deposited in the Berlin Museum and is labelled: "Guinea, Westerm. S.", "12839" and "Neoacampis gracilipes Sz., 22". The holotype is badly damaged (figs. 42-45, 48, 49) but belongs to the genus *Phanerotoma* (*P. (Bracotritoma) gracilipes* (Szépligeti, 1914) comb. nov.) and resembles *P. (B.) tritoma*. However, *P. gracilipes* has the third tergite comparatively longer (fig. 49) and apically emarginate (fig. 44), vein 3-SR comparatively shorter (fig. 42), and the hind leg comparatively slender (fig. 45).

Key to Western Palaearctic species of the genus *Phanerotoma*

1. Maximum width of pterostigma 1.1-5.3 times length of vein 3-SR of fore wing (figs. 57, 71, 97, 144); vein 1-SR of fore wing as long as pterostigma or distinctly shorter (figs. 57, 71), but distinctly longer in *atra*, *bilinea*, *tritoma*, *longiradialis*, and *maculata* (figs. 140, 144); length of fore wing 1.5-3.2 mm, but *cyrenaica*, *longiradialis*, and *tritoma* may reach about 4 mm; inner tooth of mandible somewhat shorter than outer tooth and comparatively robust (figs. 94, 124, 145), if distinctly shorter than ovipositor sheath protruding far beyond apex of third tergite (fig. 267), lateral mesoscutal lobes (densely) rugulose or coriaceous, or length of vein r of fore wing 1-2 times vein 3-SR (figs. 57, 100); veins 2-SR and SR1 of fore wing (nearly) straight (figs. 57, 108); middle tibia usually without distinct blister, but present in *cyrenaica*, *gijswijti*, *longiradialis*, and *maculata*, and weakly developed in several other spp.; (subgenus *Bracotritoma* Csiki) 2
- Maximum width of pterostigma 0.5-1.0(-1.1) times vein 3-SR of fore wing (figs. 211, 238, 247); vein 1-R1 of fore wing somewhat longer than pterostigma (figs. 247, 262), but not in the S. Palaearctic *cyrenaica*, *semenowi*, *nocturna* and *glabra* (figs. 219, 224); length of fore wing usually 2.9-5.5 mm, but fore wing of *ocularis*, *soror*, and *semenowi* may be 2-3 mm long; inner tooth of mandible about half as long as outer tooth or shorter (figs. 245, 286), if longer or wider (*planifrons*, fig. 273) then ovipositor sheath hardly or not protruding, or lateral lobes of mesoscutum reticulate-rugose, and vein r 0.2-0.5 times vein 3-SR (figs. 247, 270); veins 2-SR and SR1 variable (figs. 211, 238, 326); middle tibia frequently with (often minute) whitish blister (figs. 212, 281, 300); (subgenus *Phanerotoma* Wesmael) 21
2. Eyes small, length of eye in dorsal view 0.5-0.8 times length of temple (figs. 59, 72, 77); maximum width of pterostigma 2-3 times length of vein 3-SR of fore wing (fig. 71) 3
- Eyes medium-sized to large, length of eye in dorsal view (about) equal to temple or longer (figs. 87, 98, 109); maximum width of pterostigma 1.1-5.3 times length of vein 3-SR (figs. 84, 92, 97, 247) 7
3. Metasoma subcylindrical (figs. 65, 81); parastigma yellowish and usually smaller (figs. 75, 76), but dark brown and medium-sized in *waitzbaueri*; vein 1-R1 of fore wing shorter than pterostigma, except in *waitzbaueri* which has maximum width of pterostigma about twice vein 3-SR of fore wing (fig. 76) 4
- Metasoma robust (fig. 60); parastigma blackish and medium-sized (fig.

- 57) or yellowish and larger (fig. 160); length of vein 1-R1 of fore wing about as long as pterostigma (fig. 57); maximum width of pterostigma 2.6-2.8 times vein 3-SR of fore wing (fig. 57) 6
4. Second tergite distinctly longitudinally rugose, different from sculpture of third tergite (fig. 81); tegula and humeral plate similarly coloured; head normal, less convex dorsally (fig. 83); propodeum dark brown; third tergite of female slightly emarginate (unknown of *waitzbaueri*); (C. Europe) 5
- Second tergite similarly densely reticulate as third tergite (fig. 65); tegula variable, often yellowish, strongly contrasting with dark brown humeral plate; head strongly convex dorsally (figs. 73, 74); propodeum yellowish-brown or dark brown dorsally; third tergite of female distinctly emarginate (fig. 68); (S.W. Europe) *gracilisoma* spec. nov.
5. Parastigma dark brown and somewhat longer (fig. 76); head black; femora dark brown; second metasomal tergite coarsely longitudinally rugose (fig. 81) *waitzbaueri* Zettel
- Parastigma yellowish and small (fig. 75); head brown; femora yellowish-brown; second tergite more weakly rugose *moravica* Snoflák
6. Parastigma blackish and medium-sized (fig. 57); clypeus with pair of minute yellowish teeth (fig. 58); body black; (Spain) *gijswijti* spec. nov.
- Parastigma yellowish and rather large (fig. 160); clypeus with pair of large black teeth (fig. 165); body brownish-yellow; (S. USSR) *popovi* Telenga
7. Malar space long, its length 1.7-1.8 times basal width of mandible (figs. 86, 88); length of eye in dorsal view equal to length of temple (fig. 87); vein r of fore wing 1.0-1.5 times vein 3-SR (fig. 84); tegulae dark brown; mesoscutum densely rugose; (Turkey) *intermedia* spec. nov.
- Malar space short, about equal to basal width of mandible or less (figs. 196, 200); length of eye in dorsal view 1.3 times temple or more (figs. 101, 109); if about equal then vein r of fore wing much shorter than vein 3-SR (fig. 140) or tegulae yellowish and mesoscutum rugulose-coriaceous .. 8
8. Body completely black; third metasomal tergite of female deeply semi-circularly emarginate, distinctly convex and ovipositor sheath protruding (cf. fig. 127); parastigma dark brown; vein r 0.7-1.7 times vein 3-SR (fig. 92); clypeus with two distinct teeth ventrally (fig. 93) *atra* Snoflák
- Body (partly) yellowish; if completely black then third tergite flattened or parastigma yellowish; third tergite of female not emarginate and ovipositor sheath not or slightly protruding (except in *bilinea* and *maculata*, but emargination wider (figs. 142, 268)); vein r usually longer than vein 3-SR (fig. 128) or distinctly shorter (0.2-0.6 times) than vein 3-SR (fig. 140);

- clypeus with minute teeth or virtually without teeth 9
9. Vein 1-M of fore wing pale yellowish; if rather brown then apical half of metasoma dark brown ventrally; vein r of fore wing 0.8-2.3 times vein 3-SR; third metasomal tergite strongly flattened posteriorly (figs. 106, 112), except in *permixtellae* (figs. 123, 127); (South Palaearctic spp.) ...
..... 10
- Vein 1-M of fore wing (dark) brown; if pale yellowish (*bilinea*) then vein r of fore wing 0.3-0.4 times vein 3-SR; metasoma yellowish(-brown) ventrally (except of *tritoma* p.p.); third tergite usually less flattened posteriorly (figs. 146, 150, 176); vein r of fore wing 0.3-2.0 times vein 3-SR
..... 15
10. Pterostigma completely pale yellowish; length of fore wing about 3.6 mm; vein 1-Rl of fore wing about 1.5 times length of pterostigma (fig. 127); penultimate antennal segments of female comparatively slender (fig. 251)
..... *longiradialis* spec. nov.
- Pterostigma dark brown medially; length of fore wing 1.5-2.9 mm (except in *cyrenaica*); if pterostigma is brownish and length of fore wing more than 3 mm, then vein 1-Rl of fore wing shorter than pterostigma (fig. 135); penultimate antennal segments of female more robust (figs. 103, 114, 121, 131) 11
11. Vein r of fore wing slightly inclivous (fig. 100); propodeum finely and evenly reticulate, without distinct transverse carina; parastigma infuscated; (Spain) *acara* spec. nov.
- Vein r of fore wing reclivous or perpendicular (figs. 110, 118); propodeum remotely reticulate and a weak irregular transverse carina may be present; parastigma yellowish or dark brown; (Arabian Peninsula, Syria; N. Africa) 12
12. Marginal cell of fore wing shorter than pterostigma (figs. 128, 135), but intermediate in *permixtellae* which has third tergite convex (fig. 123); parastigma usually pale yellowish; length of fore wing 1.9-2.9 mm; antennal segments longer (figs. 131, 132), or more geniculate (fig. 121); vein r of fore wing vertical (figs. 118, 119); middle tibia more or less widened and whitish subbasally (figs. 116, 136) 13
- Marginal cell of fore wing about as long as pterostigma (fig. 110); third tergite flat (fig. 112); parastigma dark brown; length of fore wing 1.5-2.2 mm; antennal segments comparatively short (fig. 114); vein r of fore wing slightly reclivous (fig. 110); middle tibia without blister (fig. 117) and yellowish subbasally *graciloides* spec. nov.
13. Third metasomal tergite distinctly flattened (figs. 134, 138), rather shiny and superficially sculptured (fig. 129), but may be completely granulate-

- rugulose in large specimens; penultimate antennal segments of female somewhat less robust (fig. 131); length of eye of female in dorsal view 2.2-3.0 times temple (fig. 130); apex of pterostigma somewhat yellowish 14
- Third tergite convex, dull and strongly densely sculptured (figs. 123, 126, 127); penultimate antennal segments of female robust (figs. 121, 125); length of eye of female in dorsal view 1.5-2.2 times temple; apex of pterostigma dark brown *permixtellae* Fischer
14. Maximum width of pterostigma about 4.5 times vein 3-SR of fore wing (fig. 128); medial length of third metasomal tergite 1.2-1.5 times second tergite (fig. 129); length of fore wing 1.9-2.9 mm; vein r of fore wing 1.5-2.3 times vein 3-SR (fig. 128) *masiana* Fahringer
- Maximum width of pterostigma about 1.8 times vein 3-SR (fig. 135); medial length of third tergite about twice length of second tergite (fig. 139); length of fore wing about 3.8 mm; vein r of fore wing about 0.7 times vein 3-SR (fig. 135) *cyrenaica* Masi
15. Vein 1-R1 (somewhat) longer than pterostigma (figs. 140, 144, 149); humeral plate dark brown or at least slightly darker than tegula; length of fore wing 2.3-4.3 mm; parastigma variable, if yellowish then ovipositor sheath distinctly protruding and hypopygium with long spine (fig. 267) 16
- Vein 1-R1 of fore wing about as long as pterostigma or shorter (figs. 160, 167, 171); humeral plate and tegula equally yellowish; length of fore wing 2-3 mm; ovipositor sheath not or slightly protruding; hypopygium at most with short spine (fig. 177) 18
16. Third metasomal tergite distinctly excavated apically (figs. 142, 268); length of vein r of fore wing 0.3-0.6 times vein 3-SR (figs. 140, 262); blister of middle tibia (rather) distinct and whitish or if rather yellowish and minute then vein 1-M of fore wing yellowish; ovipositor distinctly protruding (figs. 141, 267) 17
- Third tergite truncate apically (fig. 154); length of vein r of fore wing 0.6-1.1 times vein 3-SR (fig. 149); blister of middle tibia obsolescent or minute (fig. 148) and yellowish as its surroundings; ovipositor not or slightly protruding *tritoma* (Marshall)
17. Vein 1-M of fore wing dark brown; apical half of third metasomal tergite strongly shiny and (partly) smooth (fig. 141); surroundings of blister of middle tibia dark brown; (Madeira) *maculata* (Wollaston)
- Vein 1-M of fore wing yellowish; apical half of third tergite rather matt and coarsely rugose; surroundings of blister of middle tibia pale yellowish (Continental Europe, England) *bilinea* (Lyle)

18. Pterostigma with pale, rather contrasting posterior margin; hind femur of male normal (fig. 204; unknown of *bouceki*); frons rather coarsely transversely rugose laterally; temples less contracted posteriorly (figs. 185, 188); head variable (figs. 185, 188) 19
- Posterior margin of pterostigma slightly contrasting, somewhat paler than middle of pterostigma; hind femur of male strongly inflated (fig. 175); frons mainly granulate, with some rugulae; temples more contracted (figs. 172, 178); head moderately transverse (figs. 172, 178) *parva* Kokujev
19. Vein r of fore wing about 1.2 times vein 3-SR1 (fig. 181); penultimate antennal segments of female comparatively long (fig. 184); eyes more protuberant (fig. 185), maximum width of head in dorsal view 1.2 times width directly behind eyes; metasoma robust (fig. 183); body nearly completely (yellowish-)brown; posterior half of metasoma partly (dark) brown ventrally *bouceki* spec. nov.
- Vein r of fore wing 1.7-2.5 times vein 3-SR1 (figs. 192, 194); penultimate antennal segments of female moderately to very short (figs. 189, 190, 205); eyes less protuberant (figs. 188, 197, 207), maximum width of head 1.1 times width directly behind eyes; metasoma somewhat more slender (figs. 193, 202); meso- and metasoma partly dark brown; posterior half of metasoma completely dark brown ventrally 20
20. Subapical antennal segments of female extremely short and strongly transverse (figs. 189, 190); length of eye in dorsal view 1.1-1.2 times temple (fig. 188); metasoma more robust (fig. 193) ... *kasachstanica* Tobias
- Subapical antennal segments of female normal (fig. 205); length of eye in dorsal view 1.5-1.8 times temple (figs. 197, 202); metasoma less robust (fig. 202) *capeki* spec. nov.
21. Third metasomal tergite of female slender, (sub)triangular, and its lateral sides nearly straight (fig. 208), but somewhat less slender in male; metasoma strongly flattened (fig. 209); medial length of third tergite of female 1.7-1.9 times medial length of second tergite; blister of middle tibia distinct (fig. 212) *acuminata* Szépligeti
- Third tergite more robust, semi-oval or subrectangular, its sides more or less curved (figs. 218, 213, 264, 302); convexity of metasoma variable, usually less flattened (figs. 267, 298); if third tergite is comparatively long (fig. 291: *obscura*), then blister of middle tibia indistinct or absent (fig. 288) 22
22. Mesoscutum between notauli and large punctures largely smooth and strongly shiny (fig. 214); hind femur of female inflated (fig. 215; unknown of *glabra*); mesosternum smooth; (S.USSR) 23

- Mesoscutum rugose and rather dull, with notauli slightly or not developed (fig. 315); hind femur of female not or weakly inflated (figs. 226, 358); mesosternum variable 24
- 23. Pterostigma yellow; length of eye in dorsal view about twice length of temple *glabra* Telenga
- Pterostigma largely infuscated; length of eye in dorsal view at least 3 times length of temple (fig. 217) *nocturna* Tobias
- 24. Fore tarsus long setose, several setae about as long as twice width of tarsal segments; length of fore wing about 5.5 mm, of body about 7 mm; maximum width of head 0.8 times maximum width of mesoscutum
..... *robusta* Zettel
- Fore tarsus normally setose, setae at most as long as width of tarsal segments; length of fore wing 4.5 mm or shorter, of body less than 6 mm; head wider than maximum width of mesoscutum 25
- 25. Pterostigma, vein 1-M of fore wing and parastigma yellowish or pale brownish; vertex shiny and often partly smooth (fig. 221, 236, 257) .. 26
- Pterostigma (except its base which is paler than distal half), vein 1-M and parastigma, dark brown; vertex rather dull and more or less rugose (figs. 315, 352) 29
- 26. Third metasomal tergite largely smooth (fig. 225); scapus wide (fig. 222); length of eye in dorsal view about 3.5 times temple (fig. 221); mesoscutum distinctly rugose; vertex largely smooth between punctures (fig. 223)
..... *semenowi* Kokujev
- Third tergite distinctly rugose or densely rugulose (fig. 244); scapus narrower (figs. 237, 246, 248, 259); length of eye in dorsal view 1.4-2.1 times temple (figs. 250, 257), if about 3.5 times (fig. 236) then mesoscutum punctate only; vertex variable (figs. 236, 257) 27
- 27. Clypeus with pair of comparatively long teeth (fig. 234); third tergite of female slightly emarginate medio-posteriorly (fig. 233); length of eye in dorsal view about 3.5 times temple (fig. 236); mesoscutum punctate only; vertex punctate and partly smooth (fig. 236) *transcaspica* Kokujev
- Clypeus with at most three minute teeth; third tergite of female not emarginate (fig. 244); length of eye in dorsal view 1.4-3.2 times temple (figs. 239, 250, 257); mesoscutum densely reticulate-rugose; vertex rug(ul)-ose 28
- 28. Length of eye in dorsal view about 3 times temple (fig. 239); blister of middle tibia medium-sized (fig. 240); third metasomal tergite more semi-circular (fig. 244), very finely and densely rugulose; length of fore wing about 3 mm *minuta* Kokujev
- Length of eye in dorsal view 1.3-1.4 times temple (figs. 250, 257); blister

- of middle tibia indistinct (fig. 260); third tergite more elongate (fig. 256), and finely and densely reticulate-rugose; length of fore wing 4.5-5 mm *katkowi* Kokujev
29. Base of mandible, complete antenna, all femora, tegulae, and mesosternum dark brown or blackish; head and mesoscutum reddish-brown; inner tooth of mandible distinctly developed (fig. 273), often somewhat shorter or subequal to outer (or dorsal) tooth; mesosternum usually largely smooth, except for faint microsculpture; (SW. Europe) *planifrons* (Nees)
- Mandible basally, antenna largely (except of *obscura* and *fracta*), femora (except of *obscura*), tegulae (id.) and/or mesosternum (partly) yellowish; head and mesoscutum yellowish or blackish; inner tooth of mandible small, much smaller than outer tooth (figs. 286, 319, 353), but sometimes rather large (fig. 343); mesosternum finely sculptured 30
30. Subapical antennal segments of female parallel-sided, 1.7-2.0 times their maximum width (fig. 279); antenna yellowish-brown, but may be infuscated apically; third metasomal tergite in lateral view comparatively truncate apically (fig. 284); length of eye in dorsal view 1.1-1.4 times temple (fig. 278); mesosternum yellowish *soror* spec. nov.
- Subapical antennal segments of female more or less narrowed basally, submoniliform, 1.1-1.5 times their width (figs. 296, 301, 307, 310, 342) or antenna largely dark brown; third tergite in lateral view less truncate (but sometimes intermediate); length of eye in dorsal view 1.4-2.1 times temple (figs. 299, 315); if less than 1.4 times (fig. 340), then mesosternum more or less dark brown 31
31. Blister of middle tibia absent (fig. 288) and tibia largely infuscated or (yellowish-)brown subbasally; third metasomal tergite rather elongate (fig. 291); middle femur largely (rather) dark brown; mesosoma (except pronotum, scutellar sides and metanotum), blackish or dark brown; vertex very coarsely sculptured *obscura* Snoflák
- Blister of middle tibia (rather) distinct (figs. 300, 304, 316, 331, 338, 359) and more or less yellowish or whitish, exceptionally infuscated; if blister is minute, then third metasomal tergite semi-circular (*diversa*; fig. 294); middle femur yellowish, but may be dark brown in *diversa*; mesosoma largely yellowish-brown dorsally, except usually in *diversa*; vertex usually moderately sculptured 32
32. Scutellum black or dark brown and mesoscutum with (pale) yellowish U-shaped patch posteriorly; third metasomal tergite almost semi-circular (fig. 294) and largely reticulate basally; humeral plate yellowish or brown, and about as pale as mesoscutum medio-posteriorly; vein 2-SR of fore

- wing distinctly bent (figs. 292, 293); mesosternum of female blackish or (partly) dark brown; hind tibia with rather inconspicuous subbasal patch in dorsal view *diversa* (Walker)
- Scutellum yellowish(-brown) and mesoscutum without U-shaped patch, but sometimes more or less developed and scutellum exceptionally infuscated; third tergite more or less semi-elliptical (figs. 318, 257) and usually rugose basally; if semi-circular (*dentata* and *kozlovi*; figs. 302, 329) and reticulate basally then humeral plate dark brown, darker than mesoscutum medio-posteriorly, and vein 2-SR of fore wing straight or nearly so (fig. 297), or mesosternum of female usually yellowish-brown; hind tibia usually with conspicuous subbasal patch in dorsal view 33
 - 33. Third metasomal tergite comparatively short (fig. 302), semi-circular (male) or somewhat truncated apically, distinctly convex posteriorly (fig. 298), very densely coarsely reticulate and dark brown or black; humeral plate and usually tegula dark brown, darker than mesoscutum medio-posteriorly, but sometimes (especially in old specimens) brown; mesosternum of female usually yellowish-brown; length of eye in dorsal view 0.9-1.0 times temple (fig. 299); second tergite usually finely sculptured; blister of middle tibia whitish or pale yellowish and usually with a (minute) dark patch above it (fig. 300); hind tibia usually with conspicuous subbasal dark patch in dorsal view (fig. 40) *dentata* (Panzer)
 - Third tergite longer, more or less semi-elliptical (figs. 318, 357) and (usually) rugose basally; if comparatively short (fig. 329) then yellowish or/ and third tergite in lateral view more flattened apically (fig. 334), and more weakly reticulate; tegulae yellowish (but humeral plate sometimes dark brown), similarly coloured as mesoscutum medio-posteriorly or nearly so; mesosternum variable, frequently dark brown or infuscated; if yellowish then length of eye in dorsal view 1.4-2.2 times temple (fig. 315); second tergite variable; blister of middle tibia without distinct dark patch above it and colour of blister variable; hind tibia at most with an inconspicuous subbasal patch in dorsal view 34
 - 34. Mesosternum brownish-yellow; length of eye in dorsal view 1.4-2.1 times temple (fig. 315); antenna of female largely yellowish; blister of middle tibia hardly pigmented, pale yellowish, and usually larger (fig. 316); vein SR1 of fore wing frequently (nearly) straight (fig. 313); if rather curved then marginal cell shorter (figs. 311, 326); length of fore wing 2.9-3.9 mm 35
 - Mesosternum more or less dark brown, at least infuscated; length of eye in dorsal view 1.1-1.2 times temple (fig. 352), if 1.3-1.4 times (fig. 340) then antenna of female largely infuscated or dark brown; blister of middle

- tibia variable (figs. 337, 338, 359); vein SR1 of fore wing distinctly bent and marginal cell rather slender (figs. 336, 339, 349); length of fore wing 3.3-4.4 mm 36
35. Mesosternum rather dull and more or less granulate; third metasomal tergite less convex and not truncate apically (figs. 305, 309, 317, 322); teeth of clypeus absent to medium-sized *ocularis* Kohl
- Mesosternum shiny and largely smooth; third tergite comparatively convex and rather truncate apically (figs. 328, 333); teeth of clypeus comparatively large (fig. 327) *kozlovi* Shestakov
36. Antenna of female (except scapus and pedicellus) dark brown, at least fourth segment darker than scapus; basal half of hind tibia of female (yellowish-)brown, but blister paler; second tergite moderately rugose-striate (fig. 330); third tergite of female yellowish-brown medio-basally *fracta* Kokujev
- Basal half of antenna of female yellowish; basal half of hind tibia of female whitish or pale yellowish; second tergite very coarsely, spaced longitudinally rugose (figs. 348, 356); third tergite of female blackish medio-basally *rufescens* (Latreille)

Phanerotoma (Bracotritoma) acara spec. nov.
(figs. 100-106)

Material examined. — Holotype, ♀, (RMNH): "Museum Leiden, Bär, Blöte, de Jong & Osse, 25 km ZW van Salou, 17-x-1952, Spanje". Paratypes: 2 ♀♀, (RMNH): similar labels but from Sagunto, 14.x.1952 and from Estepona, 3.x.1952.

Length of fore wing 2.1-2.3 mm, of body 2.4-2.6 mm.

Head. — Subapical antennal segments of ♀ moniliform, rather slender (fig. 103); POL longer than diameter of posterior ocellus (fig. 101); frons coriaceous-granulate medially, and coriaceous-rugulose laterally; vertex coriaceous and with some rugulae; length of eye in dorsal view 0.9-1.3 times temple (fig. 101); face granulate and rather dull; length of malar space 0.8 times basal width of mandible; inner tooth of mandible slender, as long as outer tooth; head in frontal view with upper condyli below lower level of eyes.

Mesosoma. — Mesosternum rather shiny and granulate; mesoscutum granulate-rugose, matt; propodeum reticulate, without distinct transverse carina and tubercles obsolescent.

Wings. — Fore wing: r 1.2-1.5 times vein 3-SR, slightly inclivous (fig. 100); 2-SR and SR1 straight; marginal cell rather slender (fig. 100); 1-R1 distinctly shorter than pterostigma (fig. 100); parastigma rather small (fig. 100), brown;

1-SR+M slightly pigmented, far less than vein 2-CU1; maximum width of pterostigma 2.0 times 3-SR.

Legs. — Middle tibia with distinct, pale blister (fig. 104).

Metasoma. — Shape of metasoma elliptical, slender; first and second tergites densely longitudinally rugose, different from sculpture of third tergite; third tergite finely and densely reticulate-rugose, not emarginate posteriorly (fig. 105), without protruding corners, rather flat (fig. 106), its medial length 1.6-1.8 times (♀) medial length of second tergite; ovipositor sheath not protruding beyond apex of metasoma.

Colour. — Yellowish-brown; apical 0.5-0.7 of antenna, stemmaticum, and posterior half of metasoma (including sternites) dark brown; remainder of antenna of holotype, mesosoma (except-pronotum), hind femur and tibia apically and humeral plate infuscated; tegula, vein 1-M of fore wing and palpi pale yellowish; parastigma brown; pterostigma dark brown; wing membrane subhyaline; base pterostigma largely or slightly pale; blister of middle tibia yellowish.

Note. — Resembles *P. (B.) waitzbaueri*, but *waitzbaueri* has smaller eyes (fig. 77), base of antenna more slender (fig. 80), middle tibia without blister (fig. 78), third metasomal tergite more slender (fig. 81), vein 1-M of fore wing dark brown, clypeus with distinct teeth (fig. 79) and vein r of fore wing vertical (fig. 76). Morphologically also very similar to *P. (B.) tritoma*, however, it differs strongly in size, less in colour and it possesses a distinct pale blister on the middle tibia (which is absent in *tritoma* (fig. 148)). The biology is unknown.

***Phanerotoma (P.) acuminata* Szépligeti** (figs. 208-212)

Phanerotoma acuminata Szépligeti, 1908a: 410; Shenefelt, 1973: 910; Abdinbekova, 1975: 206; Zettel, 1987: 363.

Material examined. — Holotype, ♀, (TMA): “Mehádia [= Romania], 1889, leg Pável”, “Holotypus, ♀, *Phanerotoma acuminata*, det. Papp, 1967”, “Hym. Typ. No. 474, Mus. Budapest”; 1 ♀, (RMNH): “Nederland, L., Venlo, 20.VII.1982, B. v. Aartsen”; 3 ♀♀ + 1 ♂ (CC, RMNH): Pata [Czechoslovakia], 25.VII.1957, Čapek”; 1 ♀, (HC), W. Germany, “Bavaria mer., Gräfelting, 7.VII.1947, F. Daniel”; 21 ♀♀ + 26 ♂♂, (BMNH, RMNH): “from granary, England, WK, Dartford, 15.VII.1950, R.L.E. Ford”; 2 ♀♀, (BMNH), Yugoslavia, Serbia, “Zajecar, VII.1978, Zecevic” & “Dra Zevace, nr. Belgrade, 27-28.VI.1981, M. Day & M. Fitton”; 2 ♀♀ + 1 ♂, (BMNH), England, “Temple, Berks., 14.VII.(19)34, reared from nest of Grey Squirrel”; 1 ♀, (BMNH), “S. Italy, Pompei, 14.VIII.1966, J. Osborne”; 1 ♀, (BMNH): “France, Var, 8 km S. St. Tropez, 6.IX.[19]86, Boucek”.

Length of fore wing 3.1-3.5 mm, of body 4.2-4.9 mm.

Head. — Subapical antennal segments of ♀ rather slender (fig. 210); POL less than diameter of posterior ocellus; frons with curved rugae; vertex rugose-estriate; length of eye in dorsal view 1.3-1.4 times temple; face coarsely regularly rugose; length of malar space 0.7-0.9 times basal width of mandible; inner tooth of mandible short, much shorter than outer tooth; head in frontal view with upper condyli below lower level of eyes.

Mesosoma. — Mesosternum shiny coriaceous; mesoscutum densely and finely rugose.

Wings. — Fore wing: r 0.3 times vein 3-SR; 2-SR and SR1 straight or slightly curved; marginal cell rather long (fig. 211); 1-R1 distinctly longer than pterostigma; parastigma large, dark; 1-SR+M only basally pigmented; less than vein 2-CU1; maximum width of pterostigma about 0.7 times 3-SR.

Legs. — Middle tibia with conspicuous blister (fig. 212).

Metasoma. — Shape of metasoma slender, subtriangular posteriorly (fig. 208) and strongly flattened (fig. 209); first and second tergites coarsely longitudinally rugose, different from sculpture of third tergite, except its base; third tergite of ♀ not or slightly emarginate, its lateral sides nearly straight (fig. 208), somewhat less slender in ♂, without protruding corners, flattened, largely densely reticulate-rugose, its medial length 1.7-1.9 times ($\frac{\text{♀}}{\text{♂}}$) medial length of second tergite; ovipositor sheath protruding comparatively far beyond apex of metasoma.

Colour. — Yellowish-brown; scapus (sometimes yellowish), antenna apically, frons medially, face partly dorsally, mesoscutum anteriorly and laterally, metanotum, mesopleuron and -sternum and axillae, narrow subbasal and wide subapical band of hind tibia, third and apico-laterally second tergite (somewhat) dark brown; blister of middle tibia, basal and submedial ring of hind tibia whitish; vein 1-M of fore wing, parastigma and pterostigma medially, dark brown; base (widely) and posterior margin of pterostigma (pale) yellowish; tegula and humeral plate yellowish.

Distribution. — Austria, Czechoslovakia, *England, *Italy, *France, *Netherlands, Romania, USSR (Azerbajdzhan, Crimea), *W. Germany, *Yugoslavia.

Note. — Antenna of ♂ frequently completely dark brown; some specimens resemble *P. rufescens* and *obscura* but *rufescens* has third tergite more convex apically (fig. 348), and more reticulate basally (fig. 357). *P. obscura* differs by the lack of the blister on the middle tibia (fig. 288) and its colour. The biology is unknown, obviously some lepidopterous host in stored products and mammal nests.

Phanerotoma (Bracotritoma) atra Snoflák

(figs. 92-98)

Phanerotoma atra Snoflák, 1951: 18, fig. 5; Shenefelt, 1973: 910-911; Zettel, 1987: 364.

Material examined. — Type-series of *atra* (holotype ♀, 1 ♀ + 4 ♂♂-paratypes; MMB); 3 ♂♂ (CC, RMNH): Czechoslovakia, "Vinica, 16.VI.1956, Čapek"; 2 ♂♂ + 1 ♀, (BMNH), "Yugoslavia, R.L. Coe, 9-21.VI.1955, Macedonia, Prepa Geul, Otesevo, swept from vegetation by lake"; 5 ♂♂, (BMNH, RMNH): "Greece, Mt. Pilion, Tsangarada, 20.VI.1974"; 1 ♀, (BMNH); "Spain, Barcelona, Calella d. Costa, VI.1971, Boucek"; 2 ♀♀, (BMNH, RMNH): "France: Drôme, Col de Macuègne, (2) 18.6.1987, M. de V. Graham".

Length of fore wing 2.7-2.9 mm, of body 3.2-4.5 mm.

Head. — Subapical antennal segments of ♀ rather slender (fig. 95); POL more than diameter of posterior ocellus; frons finely rugulose-granulate; vertex finely rugulose and shiny; length of eye in dorsal view 1.1-1.7 times temple; face rugulose; length of malar space 0.7-0.8 times basal width of mandible; inner tooth of mandible medium-sized, about half as long as outer tooth (fig. 94); head in frontal view with upper condyli near lower level of eyes; clypeus with two distinct ventral teeth (fig. 93).

Mesosoma. — Mesosternum shiny, superficially coriaceous-granulate; mesoscutum granulate-coriaceous, but rugose medio-posteriorly.

Wings. — Fore wing: r 0.7-1.2 times vein 3-SR; 2-SR and SR1 nearly straight; marginal cell rather slender (fig. 92); 1-R1 somewhat longer than pterostigma; parastigma medium-sized, dark; 1-SR+M similarly pigmented as vein 2-CU1; maximum width of pterostigma 1.5-1.6 times 3-SR.

Legs. — Middle tibia without distinct, pale blister (fig. 96).

Metasoma. — Shape of metasoma oval, and distinctly convex; first and second tergites densely, rather finely rugose-reticulate similar to sculpture of third tergite; third tergite of ♀ deeply semi-circularly emarginate, without protruding corners, convex, its medial length 1.5-1.6 times (♀/♂) medial length of second tergite; ovipositor sheath protruding comparatively far beyond apex of metasoma.

Colour. — Black; tegulae, malar space and antennal base reddish-brown; tegulae, palpi and base of mandibles brownish; legs yellowish, but coxae largely, apical half of hind tibia and tarsus brown; base of tibiae yellowish; para- and pterostigma dark brown; base and apex of pterostigma narrowly pale yellowish; wing membrane rather infuscated.

Distribution. — Austria, Czechoslovakia, *France, *Greece, *Spain, *Yugoslavia.

Note. — The clypeal teeth are stronger in S. European specimens than in C. European specimens. The biology is unknown.

Phanerotoma (Bracotritoma) bilinea Lyle
(figs. 262-269)

Phanerotoma bilinea Lyle, 1924: 101, fig.; Zettel, 1987: 364.

Bracotritoma bilinea; Shenefelt, 1973: 909.

Phanerotoma gregori Snoflák, 1951: 13, fig. 3; Shenefelt, 1973: 916.

Material examined. — Type series of *gregori* (♀, holotype, 1 ♂-paratype; MMB); 1 ♀, (BMNH), here designated lectotype of *bilinea*: “2057”, “G.T. Lyle, New Forest, 9.8.1912”, “G.T. Lyle Coll., B.M. 1930-579”, “*Phanerotoma bilinea* Lyle” (the lectotype has been collected from a *Quercus*-tree; paralectotypes (2 ♂♂ and 1 ♀) not examined); 1 ♀, (RMNH): “Nederland, Wijster (Dr.), opposite Biol. Stat., 12-19.VIII.1977, C. v. Achterberg”; 3 ♀♀, (RMNH), topotypic, 6-13.VIII.1976(1) & 19-26.VIII.1976(2); 1 ♂, (RMNH): “Nederland-Gld., 't Harde, 6.IX.1984, B. v. Aartsen”; 4 ♀♀, (CC, RMNH): Czechoslovakia, “Bohemia centr., Praha-Ruzyně, Sedivy, 22.VII.(19)53”, and “Banska Štiavnica, IX.1956, Čapek”; 1 ♂ + 1 ♀, (BMNH), England, “Surrey, Oxshott Woods, 14.VIII.1977, J.S. Noyes” & “Norfolk, Foulden Common, 5.IX.1977, J.S. Noyes”; 1 ♀, (BMNH): “Brentswood, Essex, 1-8-46, Ash, P. Freeman”; 1 ♀, (RMNH), “Portugal, Marateca, Baixo Alentejo, 16.V.1958”; 1 ♀, (KBIN), Belgium, “S. Andr., 21.VII.(19)36, A. Crèvecoeur”; 1 ♂, (RMNH): “France, Var, 10 km S. St. Tropez, Ramatuelle, 1.IX.1986, RMNH '86, M.J. Gijswijt”; 5 ♂♂ + 1 ♀, (BMNH, RMNH): “France, Var, 8 km S. St. Tropez, 18-21.8.1988, Boucek”; 1 ♀, (BMNH): “France, Var, Cap Camarat, 5.IX.86, Boucek”.

Length of fore wing 2.3-3.2 mm, of body 2.9-4 mm.

Head. — Subapical antennal segments of ♀ rather slender (fig. 265); POL equal to or somewhat more than diameter of posterior ocellus; frons granulate, and laterally rugose; vertex finely (granulate-)rugose; length of eye in dorsal view 1.1-1.6 times temple; face (finely) granulate-rugose; length of malar space 0.5-0.6 times basal width of mandible; inner tooth of mandible short, shorter than half length of outer tooth (fig. 269); head in frontal view with upper condyli near or below lower level of eyes (fig. 263).

Mesosoma. — Mesosternum granulate, rather matt; mesoscutum granulate-coriaceous, but rugose medio-posteriorly.

Wings. — Fore wing: r 0.3-0.4 times vein 3-SR; 2-SR and SR1 straight or weakly curved; marginal cell slender (fig. 262); 1-R1 somewhat to distinctly longer than pterostigma, exceptionally of equal length; parastigma large, pale; 1-SR+M less pigmented than vein 2-CU1; maximum width of pterostigma 1.0-1.5 times 3-SR.

Legs. — Middle tibia with minute blister, rather inconspicuous (fig. 266).

Metasoma. — Shape of metasoma moderately elongate (fig. 264); first and second tergites coarsely irregularly rugose and rather matt as third tergite; third tergite of ♀ distinctly emarginate, with protruding corners latero-apically (fig. 268), moderately convex (fig. 267), and its medial length 1.1-1.2 times medial length of second tergite; ovipositor sheath protruding far beyond apex of metasoma (fig. 267); hypopygium aberrant, because of presence of long apical spine (fig. 267).

Colour. — Yellowish-brown; palpi, coxae, fore and middle femora whitish; wide (sometimes incomplete) subapical band of hind tibia, third tergite and second tergite laterally dark brown; parastigma and vein 1-M of fore wing yellowish; tegula and humeral plate, pterostigma largely dark brown, but base widely and posterior margin pale yellowish; middle and hind tibia whitish basally and submedially. Flagellum of male dark brown.

Distribution. — Belgium, Czechoslovakia, *France, Germany, Hungary, *Netherlands, *Portugal, England, USSR.

Note. — The biology is unknown.

***Phanerotoma (Bracotritoma) bouceki* spec. nov.**

(figs. 181-187)

Material examined. — Holotype, ♀, (BMNH): Italy, "Mte Gargano, 10 km S. of Vieste, 3.IX.79, Boucek".

Length of fore wing 2.5 mm, of body 2.9 mm.

Head. — Subapical antennal segments of ♀ slender (fig. 184); POL about 1.5 times diameter of posterior ocellus (fig. 185); frons rather coarsely, transversely rugose laterally; vertex rather weakly rugulose-coriaceous; length of eye in dorsal view 1.8 times temple (fig. 185); face superficially coriaceous-rugulose, shiny; length of malar space 0.6 times basal width of mandible; inner tooth of mandible somewhat shorter than outer tooth (fig. 182); head in frontal view with upper condyli near lower level of eyes; eyes comparatively protuberant (fig. 185), maximum width of head in dorsal view 1.2 times width directly behind eyes.

Mesosoma. — Mesosternum shiny and superficially very finely punctulate-coriaceous; mesoscutum granulate-coriaceous, only notauli with some rugae.

Wings. — Fore wing: r 1.2 times vein 3-SR; 2-SR and SR1 straight; marginal cell short (fig. 181); 1-R1 about as long as pterostigma; parastigma medium-sized (fig. 181) and pale; 1-SR+M not pigmented, much paler than vein 2-CU1; maximum width of pterostigma 1.8 times 3-SR.

Legs. — Middle tibia slender, without distinct blister, pale basally (fig. 186).

Metasoma. — Shape of metasoma oval and rather flat (fig. 183); first and second tergites coarsely longitudinally rugose, different from sculpture of third tergite; third tergite of ♀ convex and without protruding corners, flat, densely coarsely reticulate-rugose, less dense than in *capeki*, and its medial length 1.7 times (♀) medial length of second tergite; length of ovipositor sheath unknown.

Colour. — Brownish-yellow; apical half of antenna, subbasal ring and apical half largely, most veins of fore wing including 1-M of fore wing, pterostigma (except base, posterior margin and apex narrowly) dark brown; third tergite brown, contrasting with yellowish first and second tergites; parastigma yellow; base and apex of pterostigma subhyaline; posterior margin of pterostigma brown; membrane of fore wing rather infuscated below base of pterostigma, marginal cell and base of wing subhyaline.

Distribution. — *Italy.

Notes. — Closely related to *P. (B.) parva* but *bouceki* is a more sturdily built species with different colour of pterostigma and normal hind femur (figs. 172, 178, 185). Differs from *P. (B.) capeki* by the shape of the head (fig. 197) and of the metasoma, and by colour. From *P. (B.) popovi* by the indistinct teeth of clypeus, comparatively shorter temples, shorter malar space and less sculptured mesosternum. The biology is unknown. It is a pleasure to name this species after its collector, the eminent Chalcidologist, Dr. Z. Bouček (London).

***Phanerotoma (Bracotritoma) capeki* spec. nov.**

(figs. 194-207)

Material examined. — Holotype, ♀, (CC): "Veltrusy, [= Czechoslovakia], 12.V.1964, Lgt. Mikula/Bior. pallida", (this host record is obviously wrong). Paratypes: 2 ♀♀ + 3 ♂♂; 1 ♀ + 1 ♂ (CC, RMNH): "Stúrovo, V.1964, ld. M. Čapek/ex Teleia sp."; 1 ♀ (CC): "B. Štiavnica, IX.1956, Lgt. M. Čapek"; 1 ♂, (RMNH): "Podhajska, VI.1964, ld. M. Čapek/ex Coleophora lutipennella"; 1 ♂, (BMNH): "Turkey: Ankara, (Dikmen), 3000 ft., 5.7.1959, K.M. Guichard."; 1 ♀, (LC): "CSSR-Slovakia occ., B. Karpaty-Jaktar, Drietoma, 6.9.1976, J. Lukás lgt, Querc(us)".

Length of fore wing 2.2-2.5 mm, of body 2.6-3.1 mm.

Head. — Subapical antennal segments of ♀ small and robust (fig. 205); POL about 1.3 times diameter of posterior ocellus (fig. 207); frons (rather) coarsely rugose laterally, granulate medially; vertex rugulose; length of eye in dorsal view 1.5-1.8 times temple (fig. 197); face rugulose-granulate; length of malar space 0.8 times basal width of mandible; inner tooth of mandible distinctly developed, somewhat shorter than outer tooth (fig. 201); head in frontal view with upper condyli near lower level of eyes; eyes less protuberant than in *bouceki* (fig. 197), maximum width of head in dorsal view at level of eyes 1.1 times width directly behind eyes.

Mesosoma. — Mesosternum finely granulate and moderately shiny; mesoscutum granulate-coriaceous, but rugose medio-posteriorly.

Wings. — Fore wing: r 1.7-2.5 times vein 3-SR; 2-SR and SR1 straight; marginal cell short (fig. 194); 1-R1 about as long as pterostigma; parastigma

small (fig. 194), pale; 1-SR+M hardly pigmented, less than vein 2-CU1; maximum width of pterostigma about 4 times 3-SR (fig. 194).

Legs. — Middle tibia without distinct blister, pale basally (fig. 206); hind femur of ♂ as slender as of ♀ (figs. 199, 203, 204).

Metasoma. — Shape of metasoma slender elliptical (fig. 202); first and second tergites coarsely and densely reticulate, similar to sculpture of third tergite; third tergite of ♀ slightly emarginate (fig. 198), without protruding corners, rather flat (fig. 195), very densely reticulate and its medial length 1.4-1.8 times (♀/♂) medial length of second tergite; ovipositor sheath just protruding beyond apex of metasoma (fig. 195).

Colour. — Yellowish-brown; apical third of antenna, pterostigma (except pale base and apex), metanotum, mesopleuron rather, metapleuron largely, metasoma, vein 1-M and most veins distad of it, subbasal ring and apical half of hind tibia more or less dark brown; pterostigma yellow; membrane of fore wing infuscated, except basally and band below base of pterostigma. The male has flagellum completely dark brown and apex of hind femur darkened.

Distribution. — *Czechoslovakia, *Turkey.

Notes. — Resembles *P. (B.) parva*, but *capeki* has vein r of fore wing longer (but sometimes intermediate length in *capeki*), body darker, hind femur of both ♂ and ♀ slender, and head less narrowed posteriorly. *P. (B.) capeki* differs from *P. (B.) popovi* Telenga, 1941 from Kazakhstan by the much shorter temples, body partly darkened, and third metasomal tergite more truncate apically. *P. (B.) kasachstanica* Tobias, 1964 differs from *capeki* by the longer temples (length of eye in dorsal view 1.1-1.2 times temple), smaller ocelli and aberrant subapical antennal segments of ♀. *P. capeki* appears to be a parasite of *Teleiodes* spp. (Gelechiidae) on *Quercus*; the record of *Coleophora lutipennella* (Zeller) needs to be confirmed. The record from *Biorhiza pallida* is almost certainly due to a parasitised Gelechiid having used an empty gall as a pupation retreat. Named in honour of Dr. M. Čapek (Banská Štiavnica) who reared this species.

Variation. — Colour variable; only scutellum, propodeum and third tergite may be dark brown, or basal half of metasoma yellowish, scutellum dark brown and further as described above for holotype.

***Phanerotoma (Bracotritoma) cyrenaica* Masi**
(figs. 135-139)

Phanerotoma cyrenaica Masi, 1932: 435-437, fig. 2; Shenefelt, 1973: 912.

Material examined. — Holotype, ♂ (not ♀ as stated in original description), (Museum Genova): “Miss. Zool. a Cufra, Gialo, v.1931”, “Typus”, “*Phanerotoma cirenaica* (sic!), det. L. Masi, Typus”.

Length of fore wing 3.8 mm, of body 4.9 mm.

Head. — Apical antennal segments broken off; scapus comparatively large (fig. 137); POL less than diameter of posterior ocellus; frons largely rugose; vertex rugose and moderately shiny; length of eye in dorsal view 2.7 times temple; face rugose dorsally, largely smooth ventrally; length of malar space 1.1 times basal width of mandible; inner tooth of mandible not easily seen in holotype, shorter than outer tooth; head in frontal view with upper condyli below lower level of eyes.

Mesosoma. — Mesosternum shiny and granulate; mesoscutum coarsely rugose and rather shiny; propodeum without tubercles and distinctly rugose; mesopleuron distinctly rugulose.

Wings. — Fore wing: r 0.7 times vein 3-SR; 2-SR weakly bent and SR1 straight; marginal cell small (fig. 135); 1-R1 shorter than pterostigma; parastigma large, pigmented; 1-SR+M slightly pigmented, similar to vein 2-CU1; maximum width of pterostigma about 1.8 times length of 3-SR (fig. 135).

Legs. — Middle tibia with distinct, yellowish blister (fig. 136).

Metasoma. — Shape of metasoma oval (fig. 139); first and second tergites longitudinally aciculate, shiny, different from sculpture of third tergite; third tergite not emarginate, without protruding corners, flattened and largely smooth medially, finely aciculate laterally, its medial length 2.1 times (♂) medial length of second tergite.

Colour. — Brownish-yellow; parastigma, veins 1-M, 1-SR+M and largely 2-CU1 of fore wing pale yellowish; pterostigma (except base and posterior margin) brownish; third tergite infuscated.

Distribution. — Libya.

Note. — Similar to *P. (P.) semenowi* Kokujev, but *semenowi* has vertex and mesopleuron sparsely punctate only and strongly shiny, maximum width of pterostigma about equal to length of vein 3-SR, mesoscutum finely rugulose, scapus more robust, propodeum with pair of small tubercles, and pterostigma paler.

***Phanerotoma (P.) dentata* (Panzer)**

(figs. 40, 41, 297-302)

Chelonus dentatus Panzer, 1805: 88, fig. (nec auct. p.p.).

Phanerotoma minor Snoflák, 1951: 22, fig. 7; Shenefelt, 1973: 919-920; Abdinbekova, 1975: 206.

Syn. nov.

Material examined. — Type-series of *minor* (holotype ♂, 7 ♀♀ + 4 ♂♂-paratypes; MMB); 1 ♀, (RMNH): “Netherlands, Meijndel, near The Hague, Bierlap, outer dunes, 11-18.VII. 1974, A.P.M. v.d. Zon”, here designated neotype of *dentata*; 1 ♀, (RMNH), id., 26.VII.-2.VIII.1979; 1 ♂, “(Netherlands, Rijnsburg, in house”, “11.VII.1979, P.H. v. Doesburg”; 4 ♀♀ + 5 ♂♂, (CC, RMNH): ex *Acrobasis consociella* (Hübner), Czechoslovakia: “Kováčová, 10-26.VI/1-29.VII.1978, M. Čapek”; id., “Hliník, VI.1958, Čapek”; 1 ♂, (CC), ex *Acrobasis sodalella* Zeller, Czechoslovakia, “Banská Štiavnica, VI.1958, M. Čapek; 3 ♂♂, (CC, RMNH), ex *Eurhodope advenella* (Zincken), Czechoslovakia, “L. Vieska, V.78” & “B. Štiavnica, V.1955, M. Čapek”; 1 ♂, (CC), Helovousy (Boh; Czechoslovakia); 1 ♂, (CC), ex *Acrobasis* sp., Czechoslovakia, “Stráz, 23.V.1969, Čapek”; 1 ♀, (HC), West Germany, “Goslar a.H., Haldenstieg, 18.VIII.1943, E. Bauer”; 2 ♀♀, (HC), Italy, “Riva s. Garda, 500 m, D/3.7.66, Haeslb.” & “Partschins, Südtirol, 900 m, Fb, 20.7.66, Haeslb.”; 1 ♂, ex *Eurhodope advenella* (Zincken), Austria, “D.104, Mistelbach, 3.7.78, e.g. 22.5.78”; 2 ♀♀ + 1 ♂, (HC), Italy: “Meran, 400 m, 21.7.66, B, Haes.” & “J., Imperia [= near San Remo, Italy], 15.9.1983”; 2 ♂♂ + 1 ♀, (BMNH): “Sardinia, Tempoi, 19.IX.1965, C.G. Roche”; 1 ♀, 1 ♂, (BMNH, RMNH): “Cant. Larai, Sardinia, 18.ix.1965, C.G. Roche”; 3 ♂♂, (RMNH): “Museum Leiden, Italy, C. Sardinia (Prov. di Nuoro), Nuoro, 9.IX.1980, Ph. Pronk (80.031)”; 1 ♀, (BMNH): “Italia, Ortovero, near Albenga (Savona), 5.X.69, Boucek”; 1 ♀, 4 ♂♂, (BMNH, RMNH): “S. France, Var: 8 km S. of St. Tropez, 31.8.1986, Boucek”; 4 ♀♀, 2 ♂♂, (RMNH): “France, Gard, M.J. Gijswijt”, “La Roque s.-C., 10-19.IX.1988”; 1 ♀, (RMNH): id., but from St. Michel d’Euzet, 8 km WNW Bagnols s/Cèze, 15.IX.1988; 1 ♀, (ZMA): “France, Var, Grimaud, 12.X.1971, B.J. Lempke, K. Straatman”; 1 ♀, (ZMA): “CSSR, Slovensko ent. exe. Zool. Mus.”, Pohranice, 6 km NO v. Nitra, 23.VII.1968”; 1 ♀, (BMNH), “British Isles, Stephens, BM 1853-46”; 1 ♂, (BMNH), “59-101, Germany, Ruthe Coll. 59-101”; 1 ♀ + 1 ♂, (KBIN), Belgium, nr Liège (♀) or Oostmael (♂): “Coll. Wesmael, 1941, Ascogaster ♂/♀dentatus Panz., det. C. Wesmael”; 1 ♂, (KBIN), Belgium, “Barvx., 29.VII.(19)34, A. Crèvecoeur”; 1 ♀, (RMNH): “Belgie-Lb, Zutendaal, 11.8.1987, V. Lefebvre, 11”; 1 ♂, (NMI), no labels, from Curtis Collection and from England; 1 ♀, (RMNH), “Greece, 5 km S. Monemvasia, 12.XI.1983, G. Christensen”; 1 ♀, (RMNH): “Nederland, Overveen, 19.VI-II.1970, J.B. Wolschrijn”; 1 ♀, (RMNH): Netherlands, “Exloo, 11/8-1980, K. V(egter)”; 4 ♀♀, (RMNH): Spain, Géróna, 19.X.1952 or 10 km NW. Blanes, 18.X.1952; 1 ♂, (RMNH): Netherlands, Meijndel, Kijfhoek, 8.VIII.1941, H. T(eunissen); 1 ♂, (RMNH): “Nederland, Oostvoorne (Z.-H.), Biol. Station, 2-14.VIII.1974, C. v. Achterberg”; 1 ♂, (RMNH): “Brisch(ke), Danz(ig)” [Gdansk, Poland]; 1 ♀, (BMNH): “Suffolk, Aldeburgh, Aug. 1922, O.G. Heath”; 1 ♀, (BMNH): “Blean Woods, Kent, em. 6-7-1935, *Acrobasis consociella* Hübner, H. W. Daltry”; 1 ♀, (SC): England, “Hembury Woods, Devon., ? *Spilonota ocellana*, Quercus, coll. 4-6-86, R.J. Heckford”; 1 ♀, (BMNH): “Englanda, SH, New Forest, Nr. Brockenhurst, 12.ix.1956, J.A.J. Clark, B.M. 1960-206”; 1 ♀, (BMNH): “Sweden, SK, Löderup, 22.vii.1938, D.M.S.P[erkins] & J.F.P[erkins], B.M. 1938-414”.

Length of fore wing 2.9-3.6 mm, of body 3.9-5.2 mm.

Head. — Subapical antennal segments of ♀ rather slender, antenna of ♀ strongly narrowed apically (fig. 301); POL less than diameter of posterior ocellus (fig. 299); frons transversely rugose; vertex coarsely reticulate; length of eye in dorsal view 0.9-1.0 times temple (fig. 299); face coarsely rugose laterally, obsolescent medially; length of malar space 0.6-0.7 times basal width of mandible; inner tooth of mandible much shorter than outer tooth; head in frontal view with upper condyli below lower level of eyes.

Mesosoma. — Mesosternum granulate; mesoscutum distinctly densely rugose.

Wings. — Fore wing: r 0.3-0.4 times vein 3-SR; 2-SR straight or curved and SR1 straight or nearly so; marginal cell rather long (fig. 297); 1-R1 somewhat longer than pterostigma; parastigma large, dark; 1-SR+M basally pigmented, similar to vein 2-CU1; maximum width of pterostigma about 0.7 times 3-SR.

Legs. — Middle tibia with (rather) distinct, pale blister (fig. 300), which is sometimes minute.

Metasoma. — Shape of metasoma slender oval (fig.); first and second tergites reticulate (fig. 302), rather different from the finer sculpture of third tergite; third tergite of ♀ somewhat truncated apically ((fig. 298), of ♂ semi-circular), densely and finely reticulate, without protruding corners, convex posteriorly, its medial length 1.3-1.5 (♀) or 1.5-1.8 (♂) times medial length of second tergite; ovipositor sheath not or slightly protruding beyond apex of metasoma.

Colour. — Yellowish- or reddish-brown; stemmaticum, third tergite and apex of second tergite blackish; frons medially, antenna apically, palpi, patch above blister of middle tibia usually, dorsal apical half largely, subbasal patch of hind tibia and telotarsi, dark brown; parastigma and pterostigma dark brown with its base yellowish; pedicellus paler than scapus; hind femora may be partly dark brown; tegula dark brown (but exceptionally yellowish), humeral plate yellowish or dark brown; (part of) blister of middle tibia and sub-medial ring of hind tibia whitish or pale yellowish; hind tarsus (except telotarsis) rather pale yellowish to brown; head posteriorly, mesosoma, and metasoma may be largely black, only first tergite medio-posteriorly and second tergite basally yellowish.

Distribution. — *Austria, *Belgium, Czechoslovakia, *England, *Greece, Italy, *Netherlands, *Poland, *Spain, *Sweden, USSR (Azerbajdzhan), W. Germany.

Note. — Some males may have flagellum and mesosternum darkened. Parasite of Pyralidae: *Acrobasis consociella* (Hübner) [= *A. sodalella* Zeller sensu auct.], and *Eurhodope advenella* (Zincken).

Note. — The identity of *Phanerotoma dentata* auct. has been puzzling to me for a long time since this species has no teeth on the metasoma and disagrees in colour with the figure (fig. 40) given by Panzer in his original description. *P. dentata* was not recognized by Snoflák (1951) in his revision of the Czechoslovakian spp. and he included it in his key on basis of the interpretation by older authors. This resulted in a mixture of spp. being included under *dentata*, but mostly comprising *P.(B.) tritoma*. The type-material of *Chelonus dentatus* Panzer (Stürm Coll.) is lost (E. Diller (München) in litt.), and the interpretation of the species must therefore rest entirely on the description. However, none of the current interpretations agree with the figure given by Panzer

(1805); the head and mesosoma are partly darkened, the parastigma is dark brown, the vein r of fore wing medium-sized, the hind tibia with a dark basal ring (fig. 40), the antenna rather short and apex of the oval carapace with three short protuberances (fig. 40). The latter is a bit puzzling; is it a male with corners of metasoma weakly protruding or a female with short ovipositor and protruding corners? Since I do not know any males of Palaearctic species with protruding corners, oval carapace and similar colour, there remains only the possibility of a comparatively dark female with short ovipositor. This rules out *P. (P.) bilinea* Lyle, which has a comparatively long ovipositor, and no distinct dark basal ring on the hind tibia. The only species which fits Panzer's figure reasonably well is *P. (P.) minor* Snoflák, 1951; this agrees with the interpretation by Wesmael (1835). Only the protruding corners of the carapace are over-exaggerated in Panzer's figure. The many hosts given in literature (Shenefelt, 1973: 913) need to be confirmed because of the uncertainty of the identity of the parasite in the past.

***Phanerotoma (P.) diversa* (Walker) stat. nov.**
(figs. 292-296)

Chelonus diversus Walker, 1874: 308.

Phanerotoma diversus: Shenefelt, 1973: 924 (as synonym of *P. planifrons*).

P. picta Snoflák, 1951: 24-26, fig. 8; Shenefelt, 1973: 923-924; Zettel, 1987: 365. **Syn. nov.**

Material examined. — Type-series of *picta* (holotype ♀ + 1 ♀-paratype; MMB) from Czechoslovakia (Javorník, Moravia); 1 ♀, (NMW): Austria, "Weidling, A.i. Wien, Mader"; 1 ♀, (RMNH): "Steiermark-Austria, Glazau S. Kirchbach, 16.7.1983, leg. J. u E. van der Vecht"; 1 ♂, (RMNH): "Steiermark-Austria, Streitholz, 12.7.1983, NE. St. Andrä/Sausal, leg. J. u E. van der Vecht"; 1 ♂, (NMW): Austria, "Ob. Öst-Linz, Pfenningberg, 11.7.47, J. Kleiber; 1 ♀, (RMNH): "Japan, Kusakai, Kawai V., Iwate, 3-4.VIII.1981, A. Takasu, RMNH'82"; 1 ♂, (RMNH): "Museum Leiden, Japan, Gaga Spa-Zaô, Miyagi Pref., 31.VII.1981, A. Takasu". The latter four specimens were identified by Mr. H. Zettel as *P. diversa* (Walker).

Length of fore wing 3.5-3.8 mm, of body 4.7-5.2 mm.

Head. — Subapical antennal segments of ♀ narrowed basally, rather robust (fig. 296); POL equal to diameter of posterior ocellus; frons coarsely rugose; vertex coarsely rugose; length of eye in dorsal view 1.0-1.2 times temple; face slightly less transverse than *dentata*, coarsely rugose; length of malar space 0.4-0.5 times basal width of mandible; inner tooth of mandible much shorter than outer tooth; head in frontal view with upper condyli just below lower level of eyes.

Mesosoma. — Mesosternum granulate-coriaceous, and rather matt; mesoscutum densely rugulose-coriaceous.

Wings. — Fore wing: r 0.3-0.4 times vein 3-SR; 2-SR distinctly and SR1 weakly curved or straight (figs. 292, 293); marginal cell rather slender (fig. 293); 1-R1 longer than pterostigma; parastigma large and dark; 1-SR+M similarly pigmented as vein 2-CU1; cu-a strongly oblique (fig. 293); maximum width of pterostigma about 0.9 times 3-SR.

Legs. — Middle tibia with minute, pigmented blister.

Metasoma. — Shape of metasoma slender oval (fig. 294); first and second tergites reticulate-rugose, rather different from the finer sculpture of third tergite; third tergite densely and finely reticulate, with some rugae basally, of ♀ not emarginate, truncate apically, without protruding corners, distinctly convex posteriorly (fig. 295), its medial length 1.5-1.8 times (♀/♂) medial length of second tergite; ovipositor sheath slightly protruding beyond apex of metasoma (fig. 295).

Colour. — Yellowish brown (Europe) or ivory (Japan); usually face largely, frons medially, vertex largely, occiput, mesoscutum (except U-shaped patch posteriorly), scutellum, metanotum largely, propodeum, meso- and metapleuron, mesosternum, first tergite apico-laterally, second tergite laterally, third tergite, hind femur largely, and apical 0.4 of hind tibia dark brown or blackish; hind tibia subbasally, apical 0.6 of middle tibia, scapus of most specimens and antenna apically infuscated; blister of middle tibia yellowish or ivory, exceptionally somewhat infuscated; parastigma and pterostigma largely dark brown; base of pterostigma, vein 1-R1, veins in basal third of fore wing yellowish; veins 1-M and base of 1-SR+M brownish; wing membrane weakly infuscated below para- and pterostigma; antenna of ♂ largely brownish; humeral plate largely yellowish, brown or ivory; tegula yellowish, infuscated or dark brown.

Distribution. — Austria, Czechoslovakia, Italy, Japan, Mongolia.

Note. — Very closely related to *P. dentata* and differs mainly by its colouration, in addition *dentata* has vein 2-SR of fore wing straight or nearly so. The biology is unknown.

The synonymy with *P. (P.) picta* is based on specimens identified and kindly provided by Mr. H. Zettel.

***Phanerotoma (P.) fracta* Kokujev**
(figs. 330, 334-347)

Phanerotoma fracta Kokujev, 1903: 285; Shenefelt, 1973: 915-916; Zettel, 1987: 365.
Phanerotoma planifrons auct. p.p.

Material examined. — 1 ♀, probably syntype (ZIL): “S. Mong.: dol. (?) Talp, ra 19-21. [18]99, eksp Potanina”, “2058”, “No. 2058, Ph. fracta Kok.”; 1 ♀, (RMNH): “S. Greece, Lakonia, 5 km S. of Monemvasia”, “6. VIII.1980, G. Christensen”; 2 ♀♀, (CC, RMNH): Czechoslovakia, “Jelka, VIII.58* jaro 1959, Lgt. R. Leontovye / ex Etiella zinckenella”; 1 ♀, (BMNH): “Sarre (Aosta), Italia sept., 13.9.69, Boucek”; 1 ♀, (CC): Czechoslovakia, “Drna, 8.8.73, Lgt. Čapek”; 1 ♀, (NMW): Austria, “Gumpoldskirchen, Colutea arboresca Schoten”, “ex Etiella zinckenella Tr.”, “Coll. Fulmek, 1.9.1947”; 2 ♀♀, 2 ♂♂, (USNM, RMNH); “Hungary, H.L. Parker”, “Par. of E. zinckenella”, “4274, VIII.7-13”; 1 ♂, (BMNH): “Calella d. Costa (Barcelona), Spain, Boucek, VI.1971”; 1 ♀, (BMNH): “France, Hérault, Lac du Salagou, 1.8.[=viii] [19]88, Boucek”.

Length of fore wing 3.0-4.4 mm, of body 4.1-5.2 mm.

Head. — Subapical antennal segments of ♀ robust, 1.3-1.5 times their width, more or less narrowed basally (fig. 342); POL somewhat less than diameter of posterior ocellus (fig. 340); frons coarsely, irregularly and obliquely rugose; vertex coarsely rugose; length of eye in dorsal view 1.1-1.5 times temple (fig. 340); face moderately rugose; length of malar space 0.4-0.6 times basal width of mandible; inner tooth of mandible rather robust and much shorter than outer tooth (fig. 343); head in frontal view with upper condyli near lower level of eyes.

Mesosoma. — Mesosternum shiny, sparsely punctate or punctulate and (superficially) coriaceous; mesoscutum densely finely rugose, matt.

Wings. — Fore wing: r 0.2-0.3 times vein 3-SR; 2-SR and SR1 weakly to distinctly curved (figs. 336, 339); marginal cell rather slender (fig. 339); 1-R1 about as long as pterostigma or longer (figs. 336, 339); parastigma large and dark; 1-SR+M distinctly pigmented, similar to vein 2-CU1; maximum width of pterostigma 0.6-0.7 times 3-SR.

Legs. — Middle tibia with comparatively small blister (fig. 338), or large (fig. 337) of about same colour as its surroundings or somewhat paler; hind femur comparatively robust, especially of ♂ (fig. 345).

Metasoma. — Shape of metasoma elliptical (fig. 330); first and second tergites moderately rugose-striate, different from sculpture of third tergite; third tergite of ♀ rather densely reticulate less evenly convex apically in lateral view than in *ocularis*, moderately to hardly emarginate posteriorly (fig. 335), with corners not or slightly protruding (fig. 335), rather flat subapically (fig. 334), its medial length 1.4-1.8 times (♀) medial length of second tergite; ovipositor sheath protruding beyond apex of metasoma (fig. 335).

Colour. — Brownish-yellow; stemmaticum and mesoscutum laterally blackish; flagellum (except usually base of third segment of antenna), mesosternum, scutellum (only laterally or largely), metathorax, propodeum, metasoma more or less apico-ventrally, third tergite partly and pterostigma (except base) dark brown; blister of middle tibia brownish-yellow, distinctly pigmented; vein 1-M, veins distad of it and parastigma largely rather (dark) brown;

apical 0.4 of hind tibia brown; fore wing membrane somewhat infuscated especially below para- and pterostigma; humeral plate brown. Melanistic males are known (Parker, 1951).

Distribution. — Austria, *Czechoslovakia, *France, *Greece, *Hungary, Iran, *Italy, Mongolia, *Spain, USA (introduced in California), USSR (Siberia).

Note. — The ♀ from Drna has flagellum less dark brown and metasoma yellowish apico-ventrally. The specimen from Spain has tegula somewhat infuscated and mesoscutum hardly darkened. Common parasite of *Etiella zinckenella* Treitschke (Pyralidae) on *Robinia pseudacacia* L. in Hungary. In Hungary it has one generation. The peak of adult emergence is in August; part of this generation and the next generations pass the winter in the host larvae (Parker, 1951). Between 1936-1938 introduced from Hungary into the USA as *P. "planifrons"* for biological control of this species (the Lima-Bean Pod Borer; Parker, 1951).

***Phanerotoma (Bracotritoma) gijswijti* spec. nov.**

(figs. 57-64)

Material examined. — Holotype, ♀, (RMNH): "España, [prov.] Málaga, M.J. Gijswijt", "Ronda, 3.VI.1986".

Length of fore wing 2.5 mm, of body 3.5 mm.

Head. — Subapical antennal segments of ♀ rather slender (fig. 63); POL 1.3 times diameter of posterior ocellus (fig. 59); frons granulate-rugose laterally, granulate medially; vertex densely finely rugose-granulate; length of eye in dorsal view 0.8 times temple (fig. 59); face strongly granulate, rather dull; clypeal teeth minute (fig. 58); length of malar space 1.3 times basal width of mandible; inner tooth of mandible medium-sized, about half as long as outer tooth; head in frontal view with upper condyli far below lower level of eyes (fig. 58).

Mesosoma. — Mesosternum distinctly granulate, dull; scutellum coarsely rugulose-granulate; mesoscutum densely rugose.

Wings. — Fore wing: r 1.8 times vein 3-SR; 2-SR and SR1 straight; marginal cell small (fig. 57); 1-R1 equal to length of pterostigma; parastigma medium-sized, dark; 1-SR+M slightly pigmented, less than vein 2-CU1; maximum width of pterostigma about 2.6 times 3-SR (fig. 57).

Legs. — Middle tibia with pale blister (fig. 61).

Metasoma. — Shape of metasoma oval, robust (fig. 60), basally steep; first and second tergites coarsely densely reticulate, similar to sculpture of third

tergite (fig. 60); third tergite of ♀ not emarginate (fig. 64), with transverse depressions, without protruding corners, evenly convex (fig. 62), its medial length 1.6 times (♀) medial length of second tergite; ovipositor sheath hardly protruding beyond apex of metasoma (fig. 64).

Colour. — Black; submedial ring of tibiae and narrow ring at base of femora pale yellowish; basal ring of tibiae (but less of fore tibia), palpi and tegulae dark brown; vein 1-M posteriorly and veins of basal third of fore wing yellowish; remainder of vein 1-M and other veins, parastigma, and pterostigma dark brown; fore wing membrane basally and below base of pterostigma subhyaline, remainder infuscated; clypeus conspicuously yellowish and long setose.

Distribution. — *Spain.

Notes. — This species cannot be *P. hispanica* Kokujev because of its colour, deep metasomal sutures (fig. 60) and its 23 antennal segments. This is one of the darkest species of *Phanerotoma* known. The biology is unknown. It is a pleasure to name this species after its collector, the Chalcidologist Mr. M.J. Gijswijt (Ankeveen), who has collected many interesting Braconidae in S. Europe.

***Phanerotoma (P.) glabra* Telenga**

Phanerotoma glabra Telenga, 1941: 226, 431; Shenefelt, 1973: 916; Tobias, 1986: 295.

Included in key on basis of the original description only; both types are probably lost (Tobias, 1986: 295) and no additional material was available. Described from S. USSR (Central Asia (Farab) and Kazakhstan (NE. of Aral Sea)). Judging from the original description this species is very similar to *Phanerotoma (P.) nocturna* Tobias, 1966 from Turkmenia. May be separated from *nocturna* by the longer temples and malar space, and the yellowish pterostigma.

***Phanerotoma (Bracotritoma) gracilisoma* spec. nov.**

(figs. 65-74)

Material examined. — Holotype, ♀, (RMNH): "France, Gard, M.J. Gijswijt", "la Roque s.C., 30.8-12.9.1985"; Paratypes: 6 ♀♀ + 7 ♂♂; 2 ♂♂, (RMNH), topotypic; 1 ♂, (RMNH): "France, Dept. Drôme, Eygaliers, 5.VIII.1973, M.J. Gijswijt"; 1 ♀, (RMNH): "France (Gard), Crespian, 28.VIII.1986, M.J. Gijswijt"; 1 ♀ + 1 ♂, (BMNH): "Spain, Murcia, Sra de España, nr. Totana, 20.VI.1973, Z. Boucek"; 3 ♀♀, (BMNH, RMNH): "Spain (Granada), Nerja, 3.VII.1974, Z. Boucek"; 1 ♀ + 1 ♂, (UVB): Spain, "Fredes, 18.VIII.(19)87"; 1 ♂, (RMNH): Spain, "Requena, alfalfa, 22.VII.(19)87"; 1 ♂, (UVB): "Alcira-Rio Verde, Valencia (Hispania), I. Docavo Alberti".

Length of fore wing 2.2-2.8 mm, of body 3.3-3.8 mm.

Head. — Subapical antennal segments of ♀ rather robust (fig. 67); POL about twice diameter of posterior ocellus (fig. 72); frons obliquely rugose, but sculpture superficial medially; vertex shiny, remotely rugose; length of eye in dorsal view 0.5-0.8 times temple (fig. 72); face shiny and rather weakly rugose; length of malar space 1.0-1.1 times basal width of mandible; inner tooth of mandible of holotype medium-sized, about half as long as outer tooth (but in most paratypes nearly as long as outer tooth, fig. 70); head in frontal view with upper condyli below lower level of eyes (fig. 73).

Mesosoma. — Mesosternum shiny and mainly superficially coriaceous; scutellum matt and coarsely rugose-granulate but in several paratypes superficial and shiny; mesoscutum moderately rugose, but coarser medio-posteriorly.

Wings. — Fore wing: r 1.0-1.6 times vein 3-SR, but exceptionally 0.7-0.8 times; 2-SR and SR1 straight; marginal cell small (fig. 71); 1-R1 shorter than pterostigma; parastigma medium-sized and pale (fig. 71); 1-SR+M not pigmented, more than vein 2-CU1; maximum width of pterostigma about 2.3 times 3-SR.

Legs. — Middle tibia with distinct but minute, pale blister (fig. 66).

Metasoma. — Shape of metasoma slender subcylindrical (fig. 65); first and second tergites densely reticulate, similar to sculpture of third tergite; third tergite of ♀ deeply emarginate (fig. 68), corners slightly or not protruding, evenly convex (fig. 69), and its medial length 1.3-1.6 times (♀/♂) medial length of second tergite; ovipositor sheath just protruding beyond apex of metasoma (fig. 69).

Colour. — Yellowish-brown; apical half of antenna, stemmaticum, palpi, humeral plate (but tegula usually yellowish!), scutellum, metanotum, propodeum posteriorly, apical half of metasoma, hind femur largely, base and apical third of hind tibia, vein 1-M of fore wing and most veins distad of it, and pterostigma (except subhyaline base) dark brown; wing membrane of fore wing infuscated except below base of pterostigma and basal third of fore wing; parastigma pale yellowish. Nearly completely dark brown specimens occur frequently, with first tergite laterally and second tergite basally, yellowish and both tegula and humeral plate blackish. The specimens from Nerja have the body completely yellowish-brown.

Notes. — Resembles *P.(B.) popovi* Telenga, 1941 from Kazakhstan, but *P.(B.) gracilisoma* differs by the slender metasoma, the emarginate apex of third tergite, partly darkened legs and metasoma hardly or not rugose. The marginal cell of the hind wing is strongly narrowed, far more so than in other species. The hind femur may be largely brownish, at most darkened apically; the male has flagellum dark brown. Closely related to *P.(B.) kasachstanica*

Tobias, 1964, which has length of eye in dorsal view 1.1-1.2 times temple, subapical antennal segments of female extremely shortened, strongly transverse (figs. 189, 190) and metasoma more robust (fig. 193). The biology is unknown.

Phanerotoma (Bracotritoma) graciloides spec. nov.

(figs. 110-115, 117)

Material examined. — Holotype, ♀, (BMNH): "Saudi Arabia, W. Büttiker", "Rumah, 9.xi.1979"; 2 ♀♀, (BMNH, RMNH): topotypic, same date; 2 ♂♂, (BMNH, RMNH): "Saudi Arabien, W. Büttiker", "Bahara, 24.8.76"; 1 ♀, (BMNH): id., but without date and locality.

Length of fore wing 1.5-2.2 mm, of body 2.1-2.9 mm.

Head. — Subapical antennal segments of ♀ rather slender (fig. 114); POL longer than or equal to diameter of posterior ocellus; frons and vertex granulate-coriaceous, rather dull; length of eye in dorsal view 2.0-2.8 times temple (fig. 111); face dull, densely coriaceous; length of malar space 0.4 times basal width of mandible; inner tooth of mandible long, slightly shorter than outer tooth; head in frontal view with upper condyli near lower level of eyes; head strongly narrowed ventrally.

Mesosoma. — Mesosternum strongly shiny and superficially granulate; mesosoma depressed (fig. 115); mesoscutum densely finely rugulose-coriaceous and matt.

Wings. — Fore wing: r 1.0-1.5 times vein 3-SR, reclivous (fig. 110); 2-SR and SR1 straight; marginal cell rather large (fig. 110); 1-R1 1.0-1.4 times length of pterostigma; parastigma rather small (fig. 110), and dark; basal half of 1-SR+M similarly pigmented as vein 2-CU1; maximum width of pterostigma about 1.6 times 3-SR.

Legs. — Middle tibia without distinct blister (fig. 117).

Metasoma. — Shape of metasoma rather oval; first and second tergites densely and finely longitudinally striate, similar to sculpture of third tergite; third tergite of ♀ not emarginate (fig. 113), without protruding corners, flat (fig. 112), weakly sculptured posteriorly, its medial length 1.3-1.4 times (♀) medial length of second tergite; ovipositor sheath just protruding beyond apex of metasoma (fig. 112).

Colour. — Brownish-yellow (including middle tibia submedially); apical half of antenna and stemmaticum largely dark brown; bases of middle and hind tibiae pale yellowish; vein 1-R1 basally, 1-M, M+CU1 and base of pterostigma pale yellowish; apical half of metasoma ventrally, para- and remainder of pterostigma and most veins dark brown; humeral plate brown and tegula pale

yellowish; wing membrane of fore wing of ♀ rather dark brown, but below apex and base of pterostigma, and its basal third subhyaline; apical half of middle and hind tibiae (and just above middle of latter) somewhat darkened.

Distribution. — *Saudi Arabia.

Note. — Resembles *P. (B.) gracilis* Tobias, 1970 from Siberia but *gracilis* has parastigma wider (fig. 108), ocelli larger (fig. 109) and vein r perpendicular to anterior margin of fore wing (fig. 108). The biology is unknown.

***Phanerotoma (Bracotritoma) intermedia* spec. nov.**
(figs. 84-91)

Material examined. — Holotype, ♀, (RMNH): "Museum Leiden, Turkey, Hakkari, 2900 m, Suvani Halil Pas, 11.VIII.1983, K. Warncke". Paratype: 1 ♂, (RMNH), topotypic.

Length of fore wing 2.4-2.5 mm, of body 3.5-3.6 mm.

Head. — Subapical antennal segments of ♀ rather robust (fig. 89); POL 1.3 times equal to diameter of posterior ocellus (fig. 87); frons obliquely rugose; vertex rugose; length of eye in dorsal view equal to temple (fig. 87); face rather finely rugose; length of malar space 1.7-1.8 times basal width of mandible; inner tooth of mandible distinct, about 0.7 length of outer tooth; head in frontal view with upper condyli far below lower level of eyes (fig. 88).

Mesosoma. — Mesosternum shiny and superficially coriaceous; mesoscutum densely rugose; propodeal tubercles distinctly protruding (but hardly in ♂).

Wings. — Fore wing: 1.0-1.5 times vein 3-SR; 2-SR and SR1 straight; marginal cell short (fig. 84); 1-R1 shorter than pterostigma; parastigma rather large (fig. 84) and dark; 1-SR+M mostly not pigmented (and 2-SR only weakly), less than vein 2-CU1; maximum width of pterostigma about 2.3 times 3-SR.

Legs. — Middle tibia with rather small, pale blister (fig. 85).

Metasoma. — Shape of metasoma oval (fig. 90); first and second tergites coarsely reticulate-rugose, similar to sculpture of third tergite; third tergite of ♀ truncate and without protruding corners posteriorly (fig. 91), evenly convex, and its medial length 1.7 (♀) or 1.6 (♂) times medial length of second tergite; ovipositor sheath hardly protruding beyond apex of metasoma.

Colour. — Blackish; antenna (only apically infuscated), head, pronotum, and mesoscutum anteriorly yellowish-brown; propleuron, base of first and second tergites, and legs brown, but basal half of middle and hind tibia largely pale yellowish; palpi, tegulae, apex of hind femur and apical third of hind tibia dark brown; membrane of fore wing dark brown but its basal third, a band

below base of pterostigma and marginal cell subhyaline; base of pterostigma yellow; remainder of pterostigma, parastigma, vein 1-M and veins distad of it mostly dark brown. The male has scapus, pedicellus and apical half of antenna black, and femora largely dark brown.

Distribution. — *Turkey.

Note. — Resembles *P. (B.) kasachstanica* Tobias, 1964, but this species has aberrant apical antennal segments (figs. 189, 190), and metasoma very densely reticulate (fig. 193). The related *P. (B.) kobdensis* Tobias, 1973 and *P. (B.) genalis* Tobias, 1974 (both from Mongolia) have veins r and 3-SR short and widened (fig. 97), 3-SR1 subcontinuous with 2-SR (fig. 97), malar space longer (its length about 2.3 times basal width of mandible (fig. 99)), length of eye in dorsal view 1.3 times temple (fig. 98), metasoma subcylindrical, second metasomal tergite yellowish, and ocelli smaller. The biology is unknown.

Phanerotoma (Bracotritoma) kasachstanica Tobias
(figs. 188-193)

Phanerotoma kasachstanica Tobias, 1964: 186; Shenefelt, 1973: 918; Tobias, 1986: 296.

Material examined. — Holotype, ♀, (ZIL): "50 km zap. Zhana-Arka, Karagand, g. Agadr, Tobias, 21.VI.(1)958", "Holotypus *Phanerotoma kasachstanica* Tobias"; 1 paratype, ♂, (ZIL): topotypic.

Length of fore wing about 2.5 mm; of body about 3.5 mm.

Head. — Subapical antennal segments of ♀ extremely short and strongly transverse (figs. 189, 190); POL larger than diameter of posterior ocellus; frons laterally and vertex reticulate-rugose; frons granulate-coriaceous medially; length of eye in dorsal view 1.1-1.2 times temple (fig. 188); face rugulose; length of malar space about half basal width of mandible; inner tooth of mandible somewhat shorter than outer tooth; head in frontal view with upper condyli near lower level of eyes.

Wings. — Fore wing: r about 2 times vein 3-SR, vertical (fig. 192); 2-SR and SR1 straight; marginal cell rather slender (fig. 192); 1-R1 about equal to length of pterostigma; parastigma comparatively small (fig. 192), yellow; maximum width of pterostigma about 3.3 times 3-SR.

Legs. — Middle tibia with distinct, pale blister.

Metasoma. — Metasoma rather robust (fig. 193); first and second tergite finely reticulate-rugose, similar to sculpture of third tergite; third tergite of ♀ rather emarginate (fig. 191), without protruding corners, rather convex, its medial length about 1.2 times (♀) medial length of second tergite; ovipositor sheath not protruding beyond apex of metasoma.

Colour. — Reddish-brown (♀), or dark brown or blackish (♂), but head and mesoscutum more or less yellowish; vein 1-M of fore wing and most veins distad of it and pterostigma (except apex and base) dark brown.

Distribution. — USSR (Kazakhstan).

Note. — Resembles *P. (B.) capeki* but *capeki* has normal subapical segments of antenna, metasoma more robust, ocelli larger, and eyes larger (fig. 197).

***Phanerotoma (P.) katkowi* Kokujev**
(figs. 255-261)

Phanerotoma katkowi Kokujev, 1900: 30; Shenefelt, 1973: 918.

Phanerotoma sareptana Kohl, 1906: 125-126, figs. 10-18, 29; Shenefelt, 1973: 925-926. **Syn. nov.**

Material examined. — 1 ♀, (ZIL): [Kazakhstan], "Dpelmbara-kum, priaralsb. Kara Kumn., 7.IX.[19]30, Lunnova", "*Phanerotoma katkowi* Kok., N. Telenga det."; holotype of *sareptana*, ♀, (NMW): "Becher, 1871, Sarepta", "178", "138", "*Phanerotoma dentator* Pz., det. Reinhard", "*Phanerotoma sareptana* Kohl, Type det. Kohl", "Typus".

Length of fore wing 4.5-5 mm, of body 5.3-6 mm.

Head. — Subapical antennal segments of ♀ unknown (antennae largely missing); scapus large (fig. 259); POL of ♀ 0.6-0.8 diameter of posterior ocellus (fig. 257); frons rugose laterally, with curved striae; vertex moderately (punctate-)rugose and shiny; length of eye in dorsal view about 1.3-1.4 times temple (fig. 257); face transversely rugose, shiny; length of malar space 0.9-1.0 times basal width of mandible; inner tooth of mandible much shorter than outer tooth; head in frontal view with upper condyli distinctly below lower level of eyes.

Mesosoma. — Mesosternum rather densely punctate and interspaces smooth, with some obsolescent microsculpture; mesoscutum densely rugose.

Wings. — Fore wing: r 0.4 times vein 3-SR; 2-SR and SR1 more or less curved; marginal cell rather slender (fig. 258); 1-R1 much longer than pterostigma; parastigma rather large (fig. 250), and pale; 1-SR+M similarly pigmented as vein 2-CU1 or somewhat paler; maximum width of pterostigma about 0.7 times 3-SR.

Legs. — Middle tibia with blister indistinct (fig. 260), and yellowish.

Metasoma. — Shape of metasoma elliptical (fig. 256); first and second tergites densely and finely rugose(-reticulate), similar to somewhat finer sculpture of third tergite; third tergite of ♀ not distinctly emarginate (fig. 256), slightly concave or truncate posteriorly, without protruding corners, flat to rather convex (fig. 255), sculptured posteriorly, and its medial length 1.5-1.8 times (♀) medial length of second tergite; ovipositor sheath distinctly protruding beyond apex of metasoma (fig. 255).

Colour. — Brownish-yellow; stemmaticum may be partly dark brown; para- and pterostigma, and vein 1-M pale yellowish; wing membrane subhyaline.

Distribution. — Albania, Mongolia, USSR (Volgograd district; Kazakhstan).

Note. — The type of *P. (P.) katkowi* Kokujev is most probably lost (V.I. Tobias, in litt.). The type of *P. (P.) sareptana* differs by the evenly convex third tergite which is 1.5 times longer than second tergite. I have examined four ♂♂ (BMNH) from Egypt which have the scapus about 1.5 times wider than third segment (about twice in *P. katkowi*, fig. 259) and they belong obviously to a related species. The biology is unknown.

***Phanerotoma (P.) kozlovi* Shestakov**
(figs. 326-329, 331-333)

Phanerotoma kozlovi Shestakov, 1930: 103; Shenefelt, 1973: 918; Abdinbekova, 1975: 206; Tobias, 1986: 295.

Material examined. — Lectotype here designated, ♀, (ZIL): “r. Sulejchë u Satsjzjou, Gamun Gobi, Rob[orovskij] Kozlov, 7.VIII.[18]95”, “*Phanerotoma kozlovi* Kok., det. N. Kokujev” “Holotypus”. Paralectotype, 1 ♀, (ZIL): “p. Dangè ju Satsjzjou, Gamunskoe Gobi, Rob Kozlov, 27.VII.[18]95”.

Length of fore wing 3.7-3.8 mm, of body 4.7-4.8 mm.

Head. — Antennal segments of both types missing; POL about 0.6 times diameter of posterior ocellus; frons obliquely rugose, largely smooth medially; vertex rather matt, punctate-rugose, behind stemmaticum more finely sculptured; length of eye in dorsal view 1.8-1.9 times temple; face punctate-rugose, shiny; length of malar space 0.5 times basal width of mandible; inner tooth of mandible much shorter than outer tooth; head in frontal view with upper condyli near lower level of eyes; clypeus with three rather large teeth (fig. 327).

Mesosoma. — Mesosternum indistinctly punctulate, largely smooth and strongly shiny; mesoscutum densely and coarsely punctate-rugose, rather matt; mesopleuron smooth and shiny below precoxal sulcus.

Wings. — Fore wing: r 0.4 times vein 3-SR; 2-SR and SR1 curved (fig. 326); marginal cell rather wide (fig. 326); 1-R1 about as long as pterostigma; parastigma large (fig. 326), pigmented; 1-SR+M largely pigmented, similar to vein 2-CU1; maximum width of pterostigma about 0.9 times 3-SR.

Legs. — Middle tibia with small blister and yellowish submedially (fig. 331).

Metasoma. — Shape of metasoma oval; first and second tergites coarser but densely rugose, different from fine and dense vermiculate-reticulate sculpture

of third tergite; third tergite of ♀ semi-circular, distinctly emarginate (fig. 332), with slightly protruding corners, strongly convex (figs. 328, 333), its medial length about 1.4 times (♀) medial length of second tergite; ovipositor sheath more or less protruding beyond apex of metasoma (fig. 328); hypopygium normal (fig. 328).

Colour. — Brownish-yellow; stemmaticum partly dark brown; bases of tibiae and middle of hind tibia ivory; hind tibia hardly infuscated sub-basally; middle tibia yellowish submedially; vein 1-M, para- and pterostigma largely (rather pale) brown; base of pterostigma yellowish; wing membrane subhyaline, but somewhat infuscated below pterostigma.

Distribution. — Mongolia, USSR (Caucasia, Central Asia).

Notes. — Close to *P. (P.) ocularis* but differs by the less sculptured mesosternum and mesopleuron, truncate convex third tergite (figs. 328, 333) and comparatively large teeth of clypeus (variable in *ocularis*, but nearly always less pronounced).

A specimen from USSR (♀, (ZIL), Geoktatsa) has third tergite less convex and black, mesosoma distinctly flattened, bases of tibiae yellowish, face and vertex more finely sculptured, and head distinctly excavated medio-posteriorly. This specimen may belong to an undescribed species.

***Phanerotoma (Bracotritoma) longiradialis* spec. nov.**
(figs. 247-254)

Material examined. — Holotype, ♀, (BMNH): "IR 149", "Iraq, Penjwin, 18.VIII.(19)71, on *Quercus libani*, C.I.E.A. 5059".

Length of fore wing 3.6 mm, of body 4.1 mm.

Head. — Subapical antennal segments of ♀ slender (fig. 251); scapus rather robust (fig. 248); POL less (about 0.6 times) than diameter of posterior ocellus (fig. 250); frons (transversely) rugose; vertex distinctly rugose; length of eye in dorsal view 2.0 times temple (fig. 250); face coriaceous-rugulose; clypeus without distinct teeth; length of malar space 0.8 times basal width of mandible; inner tooth of mandible robust, slightly shorter than outer tooth (fig. 252); head in frontal view with upper condyli near lower level of eyes.

Mesosoma. — Mesosternum densely coriaceous, matt; mesoscutum densely rugulose-coriaceous and matt; propodeum with transverse carina and with pair of small tubercles.

Wings. — Fore wing: r as long as 3-SR; 2-SR straight; SR1 slightly curved; marginal cell rather long (fig. 247); 1-R1 much longer (1.5 times) than pterostigma; parastigma large (fig. 247) and yellowish; 1-SR+M hardly pigmented,

paler than vein 2-CU1; maximum width of pterostigma about 1.1 times 3-SR (but pterostigma rolled in).

Legs. — Middle tibia with distinct, pale yellowish blister (fig. 249).

Metasoma. — Shape of metasoma oval; first and second tergites densely longitudinally rugose, different from sculpture of third tergite; third tergite finely and densely reticulate-rugose, tergite of ♀ not emarginate (fig. 253), without protruding corners, rather flat (fig. 254), its medial length 1.1 times (♀) medial length of second tergite; ovipositor sheath not protruding beyond apex of metasoma.

Colour. — Brownish-yellow; antenna apically, near ocelli and hind tibia (slightly) infuscated; palpi, tergite, metasoma basally, legs (except hind femur and tibia apically), most veins (including 1-M), para- and pterostigma pale yellowish; wing membrane subhyaline.

Distribution. — *Iraq.

Note. — Very similar to *P. (B.) gracilis* Tobias from Mongolia but *P. gracilis* has veins r and 3-SR of fore wing shorter (fig. 108), vertex with some rugulae only, parastigma largely brownish, fore wing about 2 mm and pterostigma brown. The host is unknown.

***Phanerotoma (Bracotritoma) maculata* (Wollaston)**
(figs. 140-143)

Ascogaster maculata Wollaston, 1858: 24; Shenefelt, 1973: 825.

Phanerotoma maculata; Huddleston, 1984: 381; Graham, 1986: 1-4.

Material examined. — Holotype, ♀, (BMNH): "B.M. Type Hym. 3.c.838", "1238", "Ascogaster maculata W.", "Madeira, Wollaston, 55.7"; 1 ♀, (RMNH): "Madeira: Achada do Teixeira, 10.8[August].1985, Mrs. E.M. Graham".

Length of fore wing 2.5 mm, of body 3.4 mm.

Head. — Width of scapus 2.1 times width of third segment, antennal segments rather slender; face finely and densely rugulose, shiny; mandibles of holotype not visible because of glue, of additional specimen medium-sized, inner tooth about half as long as outer tooth.

Wings. — Fore wing: r 0.3 times vein 3-SR; 2-SR and SR1 straight (fig. 140); marginal cell rather long (fig. 140); 1-R1 distinctly longer than pterostigma; parastigma large (fig. 140) and dark brown; maximum width of pterostigma 1.5-1.7 times 3-SR.

Legs. — Middle tibia with distinct, whitish blister (fig. 143).

Metasoma. — Shape of metasoma slender (fig. 141), distinctly narrowed

posteriorly (fig. 141) and rather flat; first and second tergites and base of third finely and densely strigose; apical half of third tergite (partly) smooth (fig. 141) and shiny; third tergite of ♀ excavated posteriorly (fig. 142), its lateral sides rather straight (fig. 141), without protruding corners, and its medial length 1.4-1.7 times medial length of second tergite; ovipositor sheath protruding far beyond apex of metasoma (fig. 141).

Colour. — Brownish yellow; face medially, frons somewhat medially, stemmaticum, head posteriorly, mesosternum, propodeum, metasoma largely (except first and second tergites medially), mesoscutal lobes largely (except middle lobe posteriorly) dark brown or blackish; all tibiae medially whitish and remainder (rather dark) brown; para- and pterostigma dark brown.

Distribution. — Madeira Islands.

Note. — The biology is unknown. According to Graham (1986) the habitat of *P. (B.) maculata* is the *Erica arborea* L. groves in the high-altitude zone (up to 2000 m) of Madeira. It was collected together with the moth *Xenochlorodes nubigena* (Wollaston).

***Phanerotoma (Bracotritoma) masiana* Fahringer stat. nov.**
(figs. 128-134)

Phanerotoma ?*parva* Kokujev; Masi, 1932: 434-435, fig. 1.

Phanerotoma parva var. *masiana* Fahringer, 1934: 573; Shenefelt, 1973: 922.

Material examined. — Lectotype (here designated), ♂, (Museum Genova): "Miss. Zool. a Cufra, Gialo, IV.1931", "♀" [incorrect = ♂], "Typus", "Ph. parva var. masiana Fahr."; paralectotype, 1 ♂ (id.; second specimen lost) topotypic, but V.1931 and with label "Phanerotoma parva ♀", 1 ♀, (id.), topotypic, VII.1931; 13 ♀♀, (BMNH, RMNH): Saudi Arabia, Zalim, 6-7.ii.1980, W. Büttiker"; 1 ♂, (BMNH): "Wadi Tinan, 850 m, 15.IV.1974"; 1 ♀, (BMNH): "16 km W. Badr Hunayn, 18.IV.1979"; 1 ♀ (BMNH): "Wadi, Luotaie, 5.3.35, Sinai, W. Wittmer"; 1 ♀, (RMNH): "Wadi Isla, 28.2.35, Sinai, W. Wittmer"; 1 ♀, (BMNH): "Light trap, 7-11.30 p.m.", "Egypt, Khamissa, 5.viii.1935, J. Omer-Cooper"; 1 ♀, (BMNH): "Saudi Arabia, W. Büttiker", "Hakimah, 85 m, 13.X.(19)79".

Length of fore wing 1.9-2.9 mm, of body 2.5-3.6 mm.

Head. — Subapical antennal segments of ♀ rather slender to moderately robust, but less than of *permixtella* (fig. 131); POL more than diameter of posterior ocellus (fig. 130); frons and vertex granulate; length of eye in dorsal view 2.2-3.0 times temple (fig. 130); face granulate; length of malar space 0.8 times basal width of mandible; inner tooth of mandible somewhat shorter than outer tooth and similar; head in frontal view with upper condyli near lower level of eyes.

Mesosoma. — Mesosternum smooth and shiny as most of mesopleuron;

propodeum reticulate-rugulose, without distinct strong carinae; mesoscutum very finely and densely sculptured, matt.

Wings. — Fore wing: r 1.5-2.3 times vein 3-SR, perpendicular (fig. 128); 2-SR and SR1 straight; marginal cell short (fig. 128); 1-R1 shorter than pterostigma; parastigma medium-sized (fig. 128), pale; 1-SR+M not distinctly pigmented, less than vein 2-CU1; maximum width of pterostigma about 4.5 times 3-SR.

Legs. — Middle tibia slender, without distinct blister.

Metasoma. — Shape of metasoma slender elliptical (fig. 129); first and second tergites finely longitudinally aciculate-rugulose, dull, different from sculpture of third tergite, which is shiny and partly smooth (but may be completely granulate-rugulose in large specimens); third tergite of ♀ not emarginate, without protruding corners, flattened apically (fig. 134), its medial length 1.2-1.5 times (♀/♂) medial length of second tergite; ovipositor sheath protruding beyond apex of metasoma.

Colour. — Brownish-yellow; apex of antenna, pterostigma (but base, apex and ventral margin pale) and apical half of metasoma ventrally dark brown; tegulae, basal half of metasoma, parastigma, veins 1-M, 1-SR+M and m-cu of fore wing pale yellowish; wing membrane below pterostigma somewhat infuscated; remainder of veins largely brown; middle tibia whitish subbasally. Mesosoma and apical half of metasoma and of hind tibia, and a subbasal ring of hind tibia may be (partly) infuscated.

Distribution. — *Egypt, Libya, *Saudi Arabia.

Note. — Fahringer (1934) described this species as a variety of *P. parva* because of the absence of transverse carinae on the propodeum, the hind tibia whitish basally and medially, and the length of body 8 mm (!). The latter is most likely a miswriting for "3 mm", but also both other characters are useless for the recognition of this species. *P. (B.) parva* has the metasoma completely brownish-yellow ventrally, vein 1-M of fore wing dark brown; mesosternum superficially sculptured, hind femur of ♂ strongly inflated (fig. 175), and vein r of fore wing comparatively shorter (figs. 156, 157, 171).

Closely related to *P. (B.) ebneri* Fahringer from Sudan but *ebneri* has upper condyli of mandible above lower level of eyes, the antennal segments of the ♀ are more robust (fig. 168), length of eye in dorsal view about 2.3 times temple, and length of fore wing about 1.8 mm.

Phanerotoma (P.) minuta Kokujev
(figs. 238-246)

Phanerotoma minuta Kokujev, 1903: 286; Shenefelt, 1973: 920; Tobias, 1986: 295 (lectotype designation).

Material examined. — Lectotype, ♀, (ZIL); "Repetek [= Turkmenia], 13.V.[18]89, A. Semenov", 2060", "Ph. minuta Kok.", "Lectotypus *Phanerotoma minuta* Kok., design. Tobias 1981".

Length of fore wing 3.0 mm, of body 3.5 mm.

Head. — Subapical antennal segments of ♀ robust (fig. 243); POL less than diameter of posterior ocellus (fig. 239); frons smooth medially, rugulose laterally; vertex rugulose and shiny; length of eye in dorsal view 3.2 times temple (fig. 239); face rugulose; length of malar space equal to basal width of mandible; inner tooth of mandible much shorter than outer tooth (fig. 245); head in frontal view with upper condyli near lower level of eyes.

Mesosoma. — Mesosternum largely smooth, and strongly shiny; mesoscutum coarsely reticulate-rugose.

Wings. — Fore wing: r about 2.3 times vein 3-SR; 2-SR and SR1 slightly curved; marginal cell medium-sized (fig. 238); 1-R1 about as long as pterostigma; parastigma large (fig. 238) and pigmented; 1-SR+M distinctly pigmented, but somewhat less than vein 2-CU1; maximum width of pterostigma about 0.9 times 3-SR.

Legs. — Middle tibia with distinct, pale yellowish blister (fig. 240).

Metasoma. — Shape of metasoma oval; first and second tergites finely longitudinally rugose, different from very fine and dense sculpture of third tergite; third tergite of ♀ robust (fig. 244), not emarginate, without protruding corners, moderately convex (fig. 241), its medial length about 1.5 times (♀) medial length of second tergite; ovipositor sheath not protruding beyond apex of metasoma (fig. 241).

Colour. — Brownish-yellow; legs, palpi, veins C+SC+R, M+CU1 and 1-M of fore wing and tegulae completely pale yellowish; pterostigma (except basally and posteriorly), parastigma and most other veins brown; wing membrane subhyaline.

Distribution. — USSR (Turkmenia (Transcaspia), Kazakhstan, C. Asia).

Note. — The biology is unknown.

Phanerotoma (Bracotritoma) moravica Snoflák
(fig. 75)

Phanerotoma (Unica) moravica Snoflák, 1951: 9, fig. 1; Shenefelt, 1973: 929; Zettel, 1987: 366.

Material examined. — Holotype, ♀, (MBB) from steppes at Ponzdrany (Czechoslovakia).

Length of fore wing about 2 mm, of body 3.5 mm.

Head. — Subapical antennal segments of ♀ rather slender; frons and vertex mostly granulate; length of eye in dorsal view about 0.6 times temple; face coriaceous only; length of malar space 1.3 times basal width of mandible; inner tooth of mandible medium-sized, shorter than outer tooth; head in frontal view with upper condyli far below lower level of eyes.

Wings. — Fore wing: r 1.7 times vein 3-SR; 2-SR and SR1 straight; marginal cell rather short (fig. 75); 1-R1 shorter than pterostigma; parastigma small (fig. 75); 1-SR+M not sclerotized or nearly so, only pigmented, and less than vein 2-CU1; maximum width of pterostigma about 3 times 3-SR.

Legs. — Middle tibia without distinct blister.

Metasoma. — Shape of metasoma subcylindrical, convex; first and second tergites distinctly longitudinally rugose, different from sculpture of third tergite; third tergite of ♀ hardly emarginate, without protruding corners, evenly convex, and its medial length 1.3 times medial length of second tergite; ovipositor sheath slightly protruding beyond apex of metasoma.

Colour. — Brown; mesosoma (except mesoscutum and prothorax) largely blackish; second-fifth antennal segments yellow; femora and trochanters yellowish-brown; tibiae basally yellowish; middle and hind tibiae with wide whitish ring; wing membrane brown, but basal third, band below base of pterostigma and patch below its apex, subhyaline; parastigma, base and apex of pterostigma, yellowish; remnant of pterostigma dark brown.

Distribution. — Czechoslovakia, Hungary.

Note. — The biology is unknown.

Phanerotoma (P.) nocturna Tobias
(figs. 213-220)

Phanerotoma nocturna Tobias, 1966: 1804, 1807; Shenefelt, 1973: 920; Tobias, 1986: 295, figs. 178: 1-6.

Material examined. — Holotype, ♀, (ZIL): "TSSR [Turkmenia], Repetek, kvarts. lampa, G. Gornostajev, Visnevskaja, 2.VI1962", "Holotypus *Phanerotoma nocturna* Tobias".

Length of fore wing 3.0 mm, of body 3.8 mm.

Head. — Subapical antennal segments of ♀ robust, moniliform (fig. 216); scapus normal; POL slightly more than diameter of posterior ocellus (fig. 217); frons smooth medially, sparsely punctate laterally; vertex with some large punctures (fig. 217), largely smooth and shiny; length of eye in dorsal view 3.3 times temple (fig. 217); face sparsely punctate, largely smooth and shiny; length of malar space 0.7 times basal width of mandible; inner tooth of mandible minute, much shorter than outer tooth; head in frontal view with upper condyli near lower level of eyes.

Mesosoma. — Mesosternum smooth and strongly shiny; mesoscutum and scutellum smooth between coarse punctures, strongly shiny and notauli indicated (fig. 214).

Wings. — Fore wing: r 0.4 times vein 3-SR; 2-SR curved; SR1 straight; marginal cell robust (fig. 219); 1-R1 somewhat shorter than pterostigma; parastigma large (fig. 219), pigmented; 1-SR+M pale, less pigmented than vein 2-CU1; pterostigma comparatively slender distally (fig. 219); maximum width of pterostigma about 0.8 times 3-SR.

Legs. — Middle tibia without blister (fig. 220); hind femur of ♀ very robust and largely glabrous (fig. 215), more strongly inflated in ♂.

Metasoma. — Shape of metasoma wide elliptical; first and second tergites coarsely reticulate-rugose, similar to sculpture of third tergite; third tergite of ♀ not emarginate (fig. 218), without protruding corners, moderately convex, its medial length 1.5 times (♀) medial length of second tergite; ovipositor sheath slightly protruding beyond apex of metasoma.

Colour. — Yellowish-brown; metasoma largely, palpi, tegulae, pronotum ventrally, fore leg, middle tibia largely, middle tarsus, hind tibia sub-medially, wing veins pale yellowish, apical half of antenna, most of para- and pterostigma infuscated; mesoscutum slightly darker brown laterally. Wing membrane subhyaline but slightly infuscated apically.

Distribution. — USSR (Turkmenia).

Note. — The biology is unknown.

Phanerotoma (P.) obscura Snoflák
(figs. 287-291)

Phanerotoma obscura Snoflák, 1951: 27, fig. 9; Shenefelt, 1973: 920; Zettel, 1987: 365.

Material examined. — Holotype, ♂, (MBB) from Czechoslovakia, Brno, (Reckovice); 2 ♂♂, (CC, RMNH), Czechoslovakia, "Cemjata, VI.1958, Čapek" & "Přaha-Sarka, VI-VII.1961, Strejček"; 2 ♂♂, (RMNH): "Hilversum c.l. Hyphantidium [= Assara] terebrella (Zincken), 4.6.1942, coll. Doets"; 1 ♀, (NMW): Austria, "Bad Leopoldsdruhe, b. Lienz, 27.6.1900, Dr. E. Galvagni".

Length of fore wing 3.7-4.3 mm, of body 4.8-6 mm.

Head. — Subapical antennal segments of ♀ unknown; POL somewhat less than diameter of posterior ocellus; frons coarsely rugose; vertex very coarsely and densely sculptured; length of eye in dorsal view 0.9-1.1 times temple; face rugose; length of malar space 0.5-0.7 times basal width of mandible; inner tooth of mandible much shorter than outer tooth; head in frontal view with upper condyli just below lower level of eyes.

Mesosoma. — Mesosternum shiny and superficially punctulate-coriaceous; mesoscutum densely rugose.

Wings. — Fore wing: r 0.3 times vein 3-SR; 2-SR bent or straight; SR1 straight; marginal cell rather slender (fig. 287); 1-R1 distinctly longer than pterostigma; parastigma large (fig. 287), and dark; 1-SR+M evenly pigmented as vein 2-CU1; cu-a strongly inclivous; maximum width of pterostigma equal to 3-SR.

Legs. — Middle tibia without distinct blister and pigmented subbasally (fig. 288).

Metasoma. — Shape of metasoma elliptical; first and second tergites coarsely longitudinally rugose, different from sculpture of third tergite; third tergite moderately rugose, distinctly narrowed posteriorly, not emarginate, densely rugose (fig. 291), moderately and evenly convex (♂) or flattened (♀: fig. 290), its medial length 1.6-1.9 times (♀/♂) medial length of second tergite; ovipositor sheath rather protruding (fig. 290).

Colour. — Dark brown or blackish, including antenna and palpi; mesosoma and third metasomal tergite largely blackish; temples, and orbits may be rather reddish-brown; legs dark yellowish-brown, but middle and hind tibia often with basal and submedial whitish rings; parastigma and pterostigma dark brown, base and apex of pterostigma indistinctly pale; wing membrane only slightly infuscated.

Distribution. — Austria, Czechoslovakia, *Netherlands.

Notes. — *P.(P.) sculptifrons* Tobias, 1970 (East USSR) resembles *P.(P.) obscura* but *sculptifrons* has mesosoma reddish-brown, vein 1-R1 of fore wing about as long as pterostigma (fig. 275), vein m-cu of fore wing postfurcal (fig. 275), head distinctly rugose dorsally, face remotely coarsely rugose, head deeply emarginate medio-posteriorly, hind femur largely blackish, and transverse carina of propodeum distinctly recognizable from surrounding sculpture.

Parasite of *Assara terebrella* (Zincken) (Pyralidae).

Phanerotoma (P.) ocularis Kohl

(figs. 303-322)

Phanerotoma ocularis Kohl, 1906: 124-125, figs. 10-16, 22; Shenefelt, 1973: 920-921.*Phanerotoma rjabovi* Vojnovskaja-Krieger, 1929: 234, figs. ; Shenefelt, 1973: 925. **Syn. nov.***Phanerotoma media* Shestakov, 1930: 102; Shenefelt, 1973: 919. **Syn. nov.***Phanerotoma hispanica* var. *desertorum* Hedwig, 1957: 112. **Syn. nov.***Phanerotoma flavitestacea* Fischer, 1959: 18, figs.; Shenefelt, 1973: 915; Ferran & Daumal, 1973: 869-872 (low temperature damage); Hawlitzky, 1972: 375-389 (egg deposition); Daumal et al., 1973: 593-608 (acclimatisation); Hawlitzky, 1979a: 237-245 (egg deposition); Hawlitzky, 1979b: 337-352 (influence on host); Marsh, 1979: 239. **Syn. nov.**

Material examined. — 2 ♀♀, one labelled lectotype of *ocularis* by H. Zettel, (NMW): “Sokotra, 2.99, leg. O. Simony”, “Ph. ocularis Kohl, Type, ♀, det. Kohl”. 1 ♀, not a type of *rjabovi*, but identified by Vojnovskaja-Krieger (ZIL): “Derbent, 31.VIII.1928, Kriger-Voinov.”, “Phanerotoma rjabovi m., Voinovski det.”; 1 ♂, (not ♀ as indicated by Shenefelt (p. 919)), holotype of *media* (ZIL): “Chiva, Ravat, 9.V.[1]927, V. Gussakovskij”, “K. Tesmakova”, “Phanerotoma media n. sp., typ. aut. det. Shestakov”, “Holotypus”; 1 ♀, Staatliches Museum Stuttgart, here designated as lectotype of *P. desertorum* Hedwig, 1957: “Iran, Belutschistan, Iranshar, 800 m, 1-10.III.1954, Richter u. Schäufler”. “Phanerotoma hispanica Kok. v. desertorum Hedwig, Holotyp.”, “Holotypus”, “Typus”; 1 ♀, holotype of *flavitestacea* (ZMW): “Insel Krk [= Yugoslavia], Cro., Mader”, “Phanerotoma flavitestacea n. sp., det. Fischer”, “Holotype”; 1 ♀ + 1 ♂ (RMNH): “France, Versailles, bred by Biliotti, 1976”; 1 ♀, (RMNH): “S. Greece, Lakonia, 5 km S. of Monemvasia”, “6.VII.1980, G. Christensen”; 12 ♀♀ + 2 ♂♂, (RMNH); Saudi-Arabia, “Jizan, 6.VIII.1981, ex leaf-tying Pyralid on Tamarix”, “Hail, 6.VI.1981, ex Pyralid on Euphorbia retusa” & “Al Kharj, from grapes infested by *Catra figulilella* Gr.”; 5 ♀♀ + 2 ♂♂, (BMNH, RMNH), Cyprus, “Kyrenia, 29.XII.1931 & 10.I.1932”, “Pera Pedi, 27.IX.1937, Mavroumoustakis”, “Cherkes, 8.VI.1934, id., “Limassol, II.1937, id.”, “Akrotiri, Bay, 13.VII.1934, id.” & “Kilani Krios R., 2.X.1937, id.”; 1 ♀, (BMNH), “Greece, nr. Delfi, 30.VI.1974, L.A. Mound”; 2 ♀♀, (HC), Greece, Aegina; 1 ♀, (HC), Italy, “Toblino, Trento, 300 m, 11.967 Hbth”; 2 ♀♀, (HC), Turkey, Cukurova, citrus-plantage; 1 ♀, (BMNH), Egypt, “Meadi, Cairo, 1.I.33, Wittmer”; 5 ♀♀ + 4 ♂♂, (BMNH, RMNH), Saudi Arabia, “Hakimah, 85 m, 13.X.1979”, “Wadi Uqdah, 12.II.1980”, “16 km W Badr Hunayn, 18.IV.1979”, and “Wadi Daykah, 600 m, 7.IV.1980”; 1 ♀, (BMNH), “France, Versailles”; 1 ♀, (BMNH), England, “Oakwood Ave, Boreham wood, Herts, 8.6.1969, E.S. Bradford, emerged (from) almonds infested by *Ectomyelois ceratoniae* (Zeller)”; 1 ♀, (BMNH): “British Isles, T.R. Billups Coll.”, “Bred from figs. (?), 9.7.05”; 2 ♀♀ + 2 ♂♂, (BMNH), “Turkey, Izmir, IX.1957, H. Erturk, in stored dry fig.”; 2 ♀♀ + 2 ♂♂, (BMNH), “Turkey, Samsun, 25.VI.1964, on *Nicotiana tabacum*”; 1 ♀, (KBIN), Belgium, “Woluwe, St. Lamb. (B.), 28.XI.1968, J. Verbeke rec.”; 1 ♀ + 1 ♂, (BMNH): “Tripolitania, Sidi Mesri, 24.IX.65, on *Sorghum* CIE A527”; 1 ♀, (BMNH): “Egypt, Dokki, 76, XI.1967, ex *Pectinophora gossypiella*”; 1 ♀ + 2 ♂♂, (BMNH): Egypt, Gara, 4.VII.1935 & Sina, 24-26.IV.1935; 1 ♀, (BMNH): “Wadi Lustaie, 5.3.35, Sinai, W. Wittmer”; 1 ♀ + 1 ♂, “Egypt, Alexandria, ex larva on *Ziziphus jujuba*”; 1 ♂, (RMNH): Spain, X.(18)84, ex *Ephestia xanthotricha* Staudinger [= *Cadralidella* (Guinée)]; 2 ♀♀ + 2 ♂♂, (BMNH, RMNH): “France, Var, 8 km S. St. Tropez, 18.8[=viii].1988, [1 ♀, 6.IX.1986], Boucek”.

Length of fore wing 2.0-3.9 mm, of body 3.7-5 mm.

Head. — Subapical antennal segments of ♀ rather moniliform and narrowed basally, robust, 1.0-1.2 times their width (figs. 307, 310); antenna of ♀ moderately narrowed apically (fig. 314); POL less than diameter of posterior

ocellus (about 0.6 times; fig. 315); frons (rather) coarsely reticulate-rugose; vertex rugose or (rather weak) rugulose, behind stemmaticum sometimes only aciculate or granulate; length of eye in dorsal view 1.4-2.1 times temple (fig. 315); face evenly rugose; length of malar space 0.4-0.6 times basal width of mandible; inner tooth of mandible small, about a third of length of outer tooth (fig. 319); head of ♀ in frontal view with upper condyli just below lower level of eyes; clypeal teeth medium-sized or hardly developed.

Mesosoma. — Mesosternum shiny, partly smooth and superficially granulate; mesoscutum densely granulate-rugulose or -coriaceous, but rugose medio-posteriorly.

Wings. — Fore wing: r 0.2-0.3 times vein 3-SR; 2-SR bent; SR1 strongly curved to nearly straight; marginal cell somewhat shorter than in *fracta*, rather robust (fig. 303); 1-R1 somewhat longer than pterostigma; parastigma large (fig. 304), dark; 1-SR+M pigmented, similar to vein 2-CU1; maximum width of pterostigma 0.5-0.8 times 3-SR.

Legs. — Middle tibia with distinct, pale blister (figs. 304, 316).

Metasoma. — Shape of metasoma elliptical, convex; first and second tergites longitudinally rugose, different from sculpture of third tergite; third tergite of ♀ evenly convex (figs. 305, 309, 317) and gradually lowered in lateral view, not emarginate, without protruding corners, finely and densely sculptured, and its medial length 1.4-1.5 times (♀/♂) medial length of second tergite; ovipositor sheath slightly to moderately protruding beyond apex of metasoma (figs. 309, 317).

Colour. — Yellowish-brown; stemmaticum and usually apex of antenna blackish; mesoscutum apico-posteriorly, scutellum laterally and metasoma apico-ventrally may be partly or largely dark brown; first and second tergites comparatively pale yellow or ivory; blister of middle tibia whitish; hind tibia with (weak) subapical infuscation; hind tibia medially and hind tarsus whitish; para- and pterostigma largely dark brown, but (e.g. in types of *ocularis*) only slightly infuscated and largely yellowish, at least basal quarter of pterostigma yellowish; antenna yellowish-brown largely, brown apically.

Distribution. — *Belgium, *Cyprus, *Egypt, *England, *France, *Greece, Iran, Israel, *Libya, *Saudi Arabia, Sokotra, *Spain, *Turkey, USA (introduced in California), S. USSR, Yugoslavia.

Notes. — Parasite of *Paramyelois transitella* (Walker), *Ectomyelois ceratoniae* (Zeller), (in laboratory) *Ephestia kuehniella* (Zeller) and *Cadra calidella* (Guinée) (Pyralidae) and *Platyedra gossypiella* (Saunders) (Gelechiidae). The flange at the third tergite apically may be narrow (fig. 320) or wide (fig. 325) and straight or somewhat emarginate, as shown by the reared series. The shape of the third tergite (especially of the ♂) is rather variable, from rather

convex and truncate to distinctly flattened in lateral view. It may be intermediate to *P.(P.) soror* spec. nov., but *ocularis* has less slender, more or less narrowed subapical antennal segments.

Phanerotoma (P.) ornatulopsis De Saeger, 1942 (from Zaire, type examined) is very close to *ocularis* Kohl, but *ornatulopsis* differs by the distinctly transversely rugose vertex behind stemmaticum, the coarsely rugose frons and the gradually flattened third tergite (fig. 304).

***Phanerotoma (Bracotritoma) parva* Kokujev**
(figs. 156-159, 171-180)

Phanerotoma parva Kokujev, 1903: 285; Shenefelt, 1973: 922; Tobias, 1986: 296 (lectotype designation).

Phanerotoma aberrans Shestakov, 1930: 102.

Phanerotomina gussakovskii Shestakov, 1930: 100-101.

P. gussakovski; Shenefelt, 1973: 922.

Material examined. — 1 ♂, paralectotype of *parva*, (ZIL): [Turkmenia], Repetek, 13.VII(18)89, A. Semenov", "2061" and paralectotype label by Dr. Tobias; 1 ♀, (RMNH): "S" Greece, Lakonia, 1000 m, 14.VII.1980", "Mt. Taysetas, G. Christensen"; 1 ♀, id., but 5 km S. of Monemvasia, 7.VIII.1980; 2 ♀♀ (BMNH), "Cyprus, Pera Pedi, 16.IX.1937 & 18.IX.1937, 2500 ft., G.A. Mavroumoustakis".

Length of fore wing 2-2.5 mm, of body 2.4-2.8 mm.

Head. — Subapical antennal segments of ♀ submoniliform, about as long as wide (fig. 173); antenna slender medially; POL 1.0-1.4 times diameter of posterior ocellus (fig. 172, 178); frons and vertex mainly granulate, with some rugulae; length of eye in dorsal view 1.4-1.6 (♀, ♂ up to 2.5) times temple (figs. 172, 173); face granulate; length of malar space 0.5-0.6 times basal width of mandible; inner tooth of mandible robust and somewhat shorter than outer tooth (figs. 158, 174); head in frontal view with upper condyli near lower level of eyes, strongly narrowed ventrally.

Mesosoma. — Mesosternum shiny and superficially granulate; mesoscutum coriaceous-granulate, but rugulose medio-posteriorly.

Wings. — Fore wing: r 0.8-1.4 times vein 3-SR; 2-SR and SR1 straight; marginal cell short (figs. 156, 157, 171); 1-R1 shorter than pterostigma; parastigma rather small (fig. 171), pale; 1-SR+M largely not or weakly pigmented, paler than vein 2-CU1; maximum width of pterostigma 3.5-5 times 3-SR.

Legs. — Middle tibia slender submedially, without distinct blister; hind femur of ♂ strongly inflated (fig. 175).

Metasoma. — Shape of metasoma elliptical; first and second tergites rugulose, similar to sculpture of third tergite; third tergite of ♀ not emarginate (fig.

180), without protruding corners, flattened, and its medial length 1.4-1.7 times ($\text{♀}/\text{♂}$) medial length of second tergite; ovipositor sheath distinctly protruding beyond apex of metasoma.

Colour. — Brownish-yellow; apical half of antenna, posterior half and sub-basal patch of hind tibia in dorsal view (and to a lesser degree of middle tibia) and pterostigma darker brown; hind (and to lesser degree middle) tibia with submedial whitish band; base and apex of pterostigma hyaline; remainder of pterostigma, veins 1-M, 1-CU1 and cu-a of fore wing dark brown; parastigma pale yellowish; first tergite may be dark brown, of ♂ subhyaline; fore wing membrane moderately infuscated except basal third, of ♂ subhyaline.

Distribution. — *Cyprus, *Greece, Mongolia, S. USSR.

Notes. — *P. (B.) parva* resembles *P. (B.) gracilis* Tobias, 1970 from Siberia, but *gracilis* has vein 1-R1 of fore wing distinctly longer than width of pterostigma (about 1.4 times in holotype; fig. 108), ocelli usually larger (fig. 109), length of eye in dorsal view about 2 times temple (fig. 109), and parastigma largely brownish and larger (fig. 108). The biology is unknown.

***Phanerotoma (Bracotritoma) permixtellae* Fischer**
(figs. 116, 118-127)

Phanerotoma permixtellae Fischer, (April) 1968a: 107-109, figs. 18-20; Shenefelt, 1973: 922.

Phanerotoma olearia Fischer, (Dec.) 1968b: 331-333, figs. 1-3; Shenefelt, 1973: 921. **Syn. nov.**

Material examined. — Paratype, ♀ , (NMW): "*Phanerotoma permixtellae* n. sp., ♀ , det. Fischer / Paratype", "Typus". The type-locality is (according to the original description): Syria, Lattaquié; ♀ , holotype, (MG): "*Phanerotoma olearia* n. sp., det. Fischer / Holotype", "C.I.L.B., Ex.: S/olivier, Syrie"; ♀ , paratype, (NMW): "Syrien, an Ölbaum, lg Katlab", "*Phanerotoma olearia* n. sp., ♀ , det. Fischer / Paratype", "Typus".

Length of fore wing about 2.5 mm, of body 3.2-3.6 mm.

Head. — Subapical antennal segments of ♀ moniliform, (very) robust, length of penultimate segment 1.1-1.3 times its width (figs. 121, 125); POL 1.3-1.5 times diameter of posterior ocellus; frons transversely rugulose laterally, and granulate medially; vertex coarsely rugose; length of eye in dorsal view 1.5-2.2 times temple; face distinctly granulate; length of malar space 0.7-0.8 times basal width of mandible; second tooth of mandible robust, subequal to first tooth (fig. 124); head in frontal view with upper condyli near lower level of eyes.

Mesosoma. — Mesosternum shiny superficially granulate and with sparse punctures; propodeum densely reticulate.

Wings. — Fore wing: r 1.4-1.6 times vein 3-SR, perpendicular (figs. 118,

119); 2-SR and SR1 straight; marginal cell short (fig. 119); 1-R1 shorter than (0.9 times) pterostigma; parastigma rather large, pale; 1-M paler than 1-CU1; 1-SR+M hardly pigmented, less than vein 2-CU1; maximum width of pterostigma 2.7-3.2 times 3-SR.

Legs. — Middle tibia with minute, ivory blister (fig. 116).

Metasoma. — Shape of metasoma broad elliptical (fig. 122); first and second tergites coarsely, and partly longitudinally rugose, different from coarse and dense reticulation of third tergite; third tergite of ♀ not emarginate (fig. 120), without protruding corners, distinctly convex (figs. 123, 126, 127), its medial length 1.2-1.6 times (♀) medial length of second tergite; ovipositor sheath distinctly protruding beyond apex of metasoma (fig. 127).

Colour. — Brownish yellow; apical quarter of antenna, scutellum laterally, metanotum, third tergite, apical half of metasoma ventrally, and to a lesser degree mesopleuron and -sternum, subbasal ring and apical 0.4 of hind tibia, pterostigma (except base), veins 1-CU1, cu-a and veins of apical third of fore wing, dark brown; base of pterostigma, parastigma, veins 1-M (mainly), base of 1-R1, M+CU1 and 1-SR+M (narrowly), yellowish(-brown); fore wing slightly infuscated below pterostigma.

Distribution. — Syria.

Note. — Reared from *Cacochroa permixtella* (H.-S.) (Oecophoridae) on olive-tree. The paratype of *P. olearia* is somewhat aberrant because of the short third tergite (fig. 120) and more concave occiput. The holotype of *P. permixtella* should be in the Genève Museum, but could not be found (Dr. C. Besuchet, in litt.).

Closely related to *P. (B.) masiana* Fahringer, 1934, but *masiana* has shorter temples, somewhat less robust penultimate segment of antenna, third tergite more flattened and superficially sculptured, and apex of pterostigma yellowish.

***Phanerotoma (P.) planifrons* (Nees)**

(figs. 270-274)

Sigalphus planifrons Nees, 1816: 259, fig. (nec auct.); Shenefelt, 1973: 923.

Phanerotoma bicolor Snoflák, 1958: 381 (nec Sonan, 1932). **Syn. nov.**

Phanerotoma asini Llopsi, 1967 (in Docavo): 82-83, fig. 15. **Syn. nov.**

Phanerotoma snoflaki Shenefelt, 1973: 926. **Syn. nov.**

Material examined. — 3 ♀♀ + 1 ♂, (RMNH): Portugal, "Almansil (Algarve), 31.III-7.IV.1983, Joh. Teunissen"; 1 ♂, (RMNH): Portugal, "Dogueno (Alg.), 16.IV.1983, Joh. Teunissen"; 1 ♀, (BMNH): "France, Valescure, 28.5.1971, K. Guichard"; 1 ♀, (ZMA): France, "20-5-1960, Gravenstein", "Pyr. Or., Vernet les Ba."; 1 ♂, (RMNH): Spain, "El Escordal (Madrid), 1/6 1985, Jég. H. Teunissen"; 1 ♂, (RMNH): "Spain, road Jete-Almuñecar, 2-4-1983, Joh. Teunissen"; 1 ♀,

(RMNH): "Mus. Leiden, Spain, Huelva, 8 km E. Calaras, 14.V.1981, at light, C. Gielis"; 6 ♀♀, (Museon, The Hague; RMNH): "Tunesië, 14-IV-1988, 15 km NO of Zaghouan, 500 m, cistussen, langs beekje [= on *Cistus* spec. along rivulet], leg. R.T.A. Schouten". The holotype (♀) of *bicolor* (Prague Museum) was not available for study.

Length of fore wing 3.9-4.1 mm, of body 4.6-5.5 mm.

Head. — Subapical antennal segments of ♀ rather robust, antenna strongly narrowed apically (fig. 271); POL 1.3-1.4 times diameter of posterior ocellus; frons coarsely rugose laterally, and largely granulate medially; vertex coarsely rugose; eye rather globose, its length in dorsal view 0.7-0.8 times temple; face obliquely rugose, sculpture obsolescent medially; length of malar space 0.8 times basal width of mandible; inner tooth of mandible medium-sized, distinct, but shorter than outer tooth (fig. 273); head in frontal view with upper condyli below lower level of eyes.

Mesosoma. — Mesosternum usually mainly smooth and shiny, partly punctulate-granulate; mesoscutum coarsely rugose.

Wings. — Fore wing: r 0.2-0.5 times vein 3-SR; 2-SR and SR1 straight; marginal cell rather slender (fig. 270); 1-R1 longer than pterostigma; parastigma large (fig. 270), dark; 1-SR+M equally pigmented as vein 2-CU1; maximum width of pterostigma about 0.8 times 3-SR.

Legs. — Middle tibia rather dark, with distinct and pigmented blister.

Metasoma. — Shape of metasoma oval, rather convex; first and second tergites longitudinally rugose, similar to sculpture of third tergite; third tergite of ♀ slightly to moderately emarginate, with corners not or slightly protruding, evenly convex (fig. 274), its medial length 1.2-1.8 times (♀/♂) medial length of second tergite; ovipositor sheath slightly protruding beyond apex of metasoma (fig. 274).

Colour. — Head largely (but stemmaticum black), mesopleuron dorsally, mesoscutum and scutellum, reddish-brown; head ventrally, complete antenna, base of mandible, tegulae, legs largely, mesosternum, propodeum, and metasoma, dark brown or blackish; middle and hind tibia submedially pale brownish; para- and pterostigma dark brown, but posterior border, base and apex of pterostigma, yellowish; wing membrane rather infuscated. ♂ may have head and mesosoma largely dark brown except vertex and orbita.

Distribution. — France, *Portugal, Spain, *Tunisia.

Notes. — Resembles dark specimens of *P. (P.) dentata* (Panzer), but *planifrons* had darker palpi and first metasomal tergite, and base of hind tibia is yellowish (whitish in *dentata*). The temples and clypeus laterally may be largely black, and one ♂ is nearly completely dark brown or black.

The biology is unknown. The host-data given in literature are incorrect because the parasite is incorrectly named.

Phanerotoma (Bracotritoma) popovi Telenga
(figs. 160-166)

Phanerotoma popovi Telenga, 1941: 227, 432; Shenefelt, 1973: 924; Tobias, 1986: 296 (lectotype designation).

Material examined. — Holotype, ♀, (ZIL): "ust. r. Chit-Irgiz, Turg, obl. [= Kazakhstan]; 10.VII.[1]928, V. Popov", "Phanerotoma popovi sp. n., Telenga det.", "Lectotypus Phanerotoma popovi Tel., design. Tobias, 1981". This specimen is considered to be the holotype because there is no indication in the original description that Telenga had more than one specimen of this species.

Length of fore wing 3.0 mm, length of body according to original description 4 mm (holotype has metasoma missing).

Head. — Subapical antennal segments of ♀ very robust (fig. 163), antenna weakly narrowed apically; POL about 1.2 times diameter of posterior ocellus (fig. 166); frons rugulose-coriaceous; vertex densely and finely rugose; length of eye half as long as temple (fig. 161; plane of head in fig. 166 incorrect because of preparation); face largely densely rugulose; length of malar space 1.1 times basal width of mandible; inner tooth of mandible rather large, but distinctly shorter than outer tooth (fig. 164); head in frontal view with upper condyli distinctly below lower level of eyes (fig. 161); clypeus with pair of blackish and large teeth (fig. 165).

Mesosoma. — Mesosternum shiny granulate; mesoscutum rugulose-coriaceous.

Wings. — Fore wing: r 1.3 times vein 3-SR; 2-SR and SR1 straight; marginal cell rather slender (fig. 160); 1-R1 about as long as pterostigma (fig. 160); parastigma rather large and pale; 1-SR+M less pigmented as vein 2-CU1; maximum width of pterostigma about 2.8 times 3-SR.

Legs. — Middle tibia pale, without distinct blister (fig. 162).

Metasoma. — Missing of holotype. According to original description: shape of metasoma oval and convex; first and second tergites rugose, similar to sculpture of third tergite; third tergite of ♀ not emarginate and its corners not protruding posteriorly, robust with curved sides and its medial length nearly twice (♀) medial length of second tergite; ovipositor sheath hardly protruding beyond apex of metasoma.

Colour. — Brownish-yellow; antenna (except scapus and pedicellus), pterostigma (except pale base and posterior margin), patch below pterostigma (including veins r, 2-SR, 3-SR and 2-M) and paler patch below vein 1-M (including veins 1-M (largely), 1+2CU1 and cu-a) dark brown; other veins, parastigma and base of pterostigma pale yellowish; tegula pale yellowish and humeral plate infuscated.

Distribution.— USSR (Kazakhstan).

Note. — Easily recognizable by the large dark teeth of clypeus, comparatively small eyes and its colour.

***Phanerotoma (P.) robusta* Zettel**

Phanerotoma robusta Zettel, 1988: 199-201, figs. 1-7.

Only known from the holotype from Saudi-Arabia (Dasmal). Easily recognizable because of the long setae on the fore tarsus, its size and the comparatively small head.

***Phanerotoma (P.) rufescens* (Latreille) stat. nov.**
(figs. 45, 46, 348-360)

Sigalphus rufescens Latreille, 1809: 13; Shenefelt, 1973: 913.

Phanerotoma rugiferum Wesmael, 1838: 166; Shenefelt, 1973: 913; Zettel, 1987: 365. **Syn. nov.**

Phanerotoma platypyga Snoflák, 1951: 15, fig. 4; Shenefelt, 1973: 924. **Syn. nov.**

Phanerotoma planifrons auct. p.p.; Marsh, 1979: 240.

Material examined. — Holotype of *rugiferum*, 1 ♂, (KBIN), head lost; "Coll. Wesmael", "1941", "Ascogaster dentatus Panz. ♂/♀, det. C. Wesmael; 1 ♀, (KBIN; figured), "Diest [Belgium], 1838, Hannon"; 2 ♂♂, (KBIN), (identified by Marshall in 1887 as *planifrons* and *dentata*, respectively), the latter three specimens are not types, despite being part of the Wesmael Coll.; holotype (♀) and paratypes (1 ♀, 1 ♂) of *platypyga* (MMB); 9 ♀♀, (CC, RMNH): (Czechoslovakia), "B. Štiavnica, VII.1956, M. Čapek"; 3 ♂♂, (CC, RMNH), Czechoslovakia, "Chotin, 18.VII.1961, Strejček" & "Boh. occ., Flaje, Sedivý, 16.8.(19)56, Bouček"; 3 ♂♂, (RMNH): "Budapest, Ungarn"; 1 ♀, (RMNH): Netherlands, "Bilthoven Ut., 18.VIII.1973, Dr. C. de Jong".

Length of fore wing 3.3-4.2 mm, of body 4.3-5.3 mm.

Head. — Subapical antennal segments of ♀ robust, moniliform (fig. 47); POL equal to diameter of posterior ocellus (fig. 352); frons transversely rugose (fig. 352); vertex coarsely rugose; length of eye in dorsal view 1.1-1.2 times temple (fig. 352); face densely transversely rugose (fig. 355); length of malar space 0.7 times basal width of mandible; inner tooth of mandible much shorter than outer tooth (fig. 353); head in frontal view with upper condyli below lower level of eyes (fig. 355).

Mesosoma. — Mesosternum punctulate-coriaceous; mesoscutum densely rugulose or largely rugose, at least rugose medio-posteriorly.

Wings. — Fore wing: r 1.2-0.3 times vein 3-SR; 2-SR strongly curved and SR1 slightly curved; marginal cell (rather) slender (fig. 349); 1-R1 longer than pterostigma; parastigma large, dark; 1-SR+M equally pigmented as vein 2-CU1; maximum width of pterostigma 0.8-0.9 times 3-SR.

Legs. — Middle tibia with distinct blister, paler than surroundings (fig. 359); hind femur rather swollen (fig. 358), more strongly in ♂ (fig. 46).

Metasoma. — Shape of metasoma oval, flattened (figs. 356, 357); first and second tergites very coarsely, remotely longitudinally rugose-striate (fig. 356), similar to sculpture of third tergite, except apically (fig. 348); third tergite rather elongate, of ♀ shallowly emarginate posteriorly (fig. 357), with slightly protruding corners, rather flat (fig. 348), apically densely reticulate-rugose, and its medial length 1.5-1.8 times (♀/♂) medial length of second tergite; ovipositor sheath just protruding beyond apex of metasoma (fig. 348).

Colour. — ♀: yellowish-brown; stemmaticum and third tergite largely blackish; antenna apically, mesosoma largely, (but scutellum and propodeum yellowish medio-dorsally) and mesosternum largely dark brown; pterostigma (except yellowish base) and parastigma, dark brown; apex of hind femur, small dorsal (subbasal) patch of hind tibia and apical 0.4 of hind tibia infuscated; hind tibia whitish; middle tibia pale yellowish; humeral plate (partly) dark brown, contrasting with paler tegula; fore wing more or less infuscated below ptero- and parastigma. Flagellum of male dark brown. Holotype of *rugiferum* has meso- and metasoma nearly completely dark brown or blackish and apical 2/3 of hind femur infuscated. The male has antenna (except scapus and pedicellus) dark brown.

Distribution. — Belgium, Czechoslovakia, France, *Hungary, *Netherlands.

Notes. — The diagnosis of *rufescens* by Latreille is incomplete and the type is lost, but the combination of characters given by Latreille (body largely yellowish-brown, antenna (except base) infuscated, propodeum with obtuse tubercles and metasoma rugulose) and considering the species known to occur in N.W. Europe, allows only one conclusion: Latreille had a ♂ of *rugiferum* in front of him when he described *rufescens*. I could not find the type of *Sigalphus rufescens* Latreille in the MNNH (Paris); also it is not in the MG (Genève) or in the Spinola Collection (Turin; information kindly provided by Drs C. Besuchet and P. Passerin d'Entrèves, respectively).

The biology is unknown.

***Phanerotoma* (P.) *semenowi* Kokujev**
(figs. 221-228)

Phanerotoma semenowi Kokujev, 1900: 32; Shenefelt, 1973: 926; Tobias, 1986: 295 (lectotype designation).

Phanerotoma semenovi; Telenga, 1941: 223 (misspelling).

Material examined. — Lectotype, ♀, (ZIL): "Repetek [Turkmenia], 13.V.[18]89, A. Semenov", "K. Kokujev", "1772", "Lectotypus *Phanerotoma semenovi* (sic!) Kok., design. Tobias, 1981".

Length of fore wing 2.5-4 mm, of body 3.5-5 mm.

Head. — Subapical antennal segments of ♀ robust (fig. 223), scapus strongly enlarged (fig. 222); POL 7.0 times diameter of posterior ocellus (fig. 221); frons superficially rugulose-punctate laterally and smooth medially; vertex punctate only (fig. 221), shiny; length of eye in dorsal view about 3.5 times temple (fig. 221); face punctate, but rugose dorsally, strongly shiny; length of malar space about 1.2 times basal width of mandible; inner tooth of mandible much shorter than outer tooth; head in frontal view with upper condyli below lower level of eyes.

Mesosoma. — Mesosternum smooth and shiny; mesoscutum moderately rugulose-punctate and rather dull.

Wings. — Fore wing: r about 0.3 times vein 3-SR; 2-SR curved; SR1 sinuate; marginal cell rather wide (fig. 224); 1-R1 shorter than pterostigma; parastigma large, hardly pigmented; 1-SR+M pigmented, but less than vein 2-CU1; maximum width of pterostigma equal to 3-SR (fig. 224).

Legs. — Middle tibia without distinct blister (fig. 227), and hardly pigmented subbasally.

Metasoma. — Shape of metasoma rather slender oval; first and second tergites rugulose, different from sculpture of third tergite; third tergite of ♀ largely smooth, not emarginate (fig. 225), without protruding corners, rather flat (fig. 228), its medial length about 1.8 times (♀) medial length of second tergite; ovipositor sheath not protruding beyond apex of metasoma.

Colour. — Brownish-yellow; para- and pterostigma, hind femur, tarsi, basal half of middle tibia, veins M+CU1 and 1-M pale yellowish; wing membrane subhyaline.

Distribution. — USSR (Transcaspica, Predkavkaza).

Note. — The biology is unknown.

***Phanerotoma (P.) soror* spec. nov.**
(figs. 277-286)

Phanerotoma planifrons auct. p.p.

Material examined. — Holotype, ♀, (RMNH): "France (Gard), Crespian, 28.VIII.1986, M.J. Gijswijt, RMNH '86". Paratypes: 11 ♀♀ + 3 ♂♂: 1 ♀, (HC): Italy, "Toblino, Trento, 300 m, 11.9.67, Hbth"; 1 ♀, (RMNH): France, "St. Rémeze (Ardeche), 8-8-1976, Leg. H. Teunissen"; 6 ♀♀ + 3 ♂♂, (RMNH, BMNH): "Museum Leiden, S. Greece, Lakonia, 7 km S. of Monemvasia", "10.VII.1980 (1 ♀ 6.VII.1980 and 1 ♀ 7.VIII.1980), G. Christensen"; 2 ♀♀, (RMNH): "Museum Leiden, S. Greece, Lakonia, 1000 m, 14.VII.1980", "Mt. Taysetas, G. Christensen"; 1 ♀, (SC): "France: St. Maximin de St. Baume, Var, 4.8 [=viii]. [19]87, M.R. Shaw"; 1 ♀, (BMNH): "France, Hérault, Lac du Salagoa, 1.8.[=viii] [19]88, Boucek".

Length of fore wing 2.5-3.7 mm, of body 3.1-4.7.

Head. — Subapical antennal segments of ♀ parallel-sided, 1.7-2.0 times their width (fig. 279); POL less (0.8 times) than diameter of posterior ocellus (fig. 278); frons largely (very) coarsely reticulate-rugose; vertex (reticulate-) rugose; length of eye in dorsal view 1.1-1.4 times temple (fig. 278); face coarsely reticulate-rugose; length of malar space 0.6-0.7 times basal width of mandible; inner tooth of mandible minute, much shorter than outer tooth (fig. 286); head in frontal view with upper condyli below lower level of eyes.

Mesosoma. — Mesosternum shiny and distinctly coriaceous-granulate; mesoscutum largely rugose.

Wings. — Fore wing: r 0.3-0.4 times vein 3-SR; 2-SR and SR1 slightly curved; marginal cell rather slender (fig. 277); 1-R1 distinctly longer than pterostigma; parastigma large (fig. 277), and dark; 1-SR+M equally pigmented as vein 2-CU1; maximum width of pterostigma equal to 3-SR.

Legs. — Middle tibia with distinct, pale blister (fig. 281).

Metasoma. — Shape of metasoma oval, rather convex; first and second tergites reticulate-rugose, similar to sculpture of third tergite, but coarser; third tergite of ♀ comparatively evenly convex and truncate apically in lateral view (fig. 284), not emarginate (fig. 282), densely finely rugulose basally, and its medial length 1.4-1.5 (♀) or 1.4-1.7 (♂) times medial length of second tergite; ovipositor sheath in normal position not protruding beyond apex of metasoma; hypopygium subtruncate or with short spine apically.

Colour. — Brownish-yellow; stemmaticum blackish; vein 1-M of fore wing, para- and pterostigma dark brown, but base of pterostigma yellowish; hind tibia whitish medially, and apical half similarly coloured as hind femur; apex of pterostigma partly subhyaline; wing membrane dark brown below pterostigma and parastigma; blister of middle tibia pale yellowish, slightly contrasting with colour of base of tibia; apex of antenna may be somewhat infuscated apically.

Distribution. — *France, *Greece, *Italy.

Note. — The biology is unknown; some of the hosts (Tortricidae, Pyralidae) mentioned in literature under *P. planifrons* may belong to *soror*.

***Phanerotoma* (P.) *transcaspica* Kokujev**
(figs. 229-237)

Phanerotoma transcaspica Kokujev, 1902: 7; Shenefelt, 1973: 928; Tobias, 1986: 295.

Material examined. — Syntype, ♀, (ZIL): "K.D. Anger", "Aidinja Zakas., 11.V.[18]98, Kusty, 2059", "Ph. transcaspica Kok., No. 2059".

Length of fore wing 4.5 mm, of body 5.6 mm.

Head. — Subapical antennal segments of ♀ missing; POL about 0.8 times diameter of posterior ocellus (fig. 236); scapus rather slender (fig. 237); frons densely rugulose laterally, smooth medially; vertex densely finely punctate, moderately shiny, and densely setose; length of eye in dorsal view about 3.5 times temple (fig. 236); face densely finely punctate, moderately shiny; length of malar space 0.8 times basal width of mandible; clypeus with two medium-sized teeth (fig. 234); inner tooth of mandible minute, very much shorter than outer tooth; head in frontal view with upper condyli just below lower level of eyes.

Mesosoma. — Mesosternum strongly shiny and moderately punctulate; mesoscutum densely punctulate only, rather shiny.

Wings. — Fore wing: r 0.4 times vein 3-SR; 2-SR curved; SR1 straight; marginal cell rather slender (fig. 229); 1-R1 somewhat longer than pterostigma; parastigma large, pale; 1-SR+M slightly pigmented, less than vein 2-CU1; maximum width of pterostigma about 0.7 times 3-SR.

Legs. — Blister of middle tibia indistinct (fig. 230).

Metasoma. — Shape of metasoma oval; first and second tergites densely rugose, slightly different from strong and dense sculpture of third tergite; third tergite of ♀ semi-circular (fig. 231), shallowly emarginate, with weakly protruding corners (fig. 233), convex (fig. 232), its medial length about 1.3 times (♀) medial length of second tergite; ovipositor sheath somewhat protruding beyond apex of metasoma.

Colour. — Brownish-yellow; apical half of antenna infuscated; palpi, tegulae, basal 0.4 of middle tibia and basal 0.7 of hind tibia, pterostigma, parastigma and most veins (including vein 1-M of fore wing) pale yellowish.

Distribution. — USSR (Transcaspica).

Note. — The biology is unknown.

***Phanerotoma (Bracotritoma) tritoma* (Marshall) comb. nov.**
(figs. 144-155)

Chelonus (Ascogaster) tritonus Marshall, 1898: 170, fig.

Bracotritoma tritonus; Shenefelt, 1973: 909.

Phanerotoma antennalis Snoflák, 1951: 20, fig. 6; Shenefelt, 1973: 910; Zettel, 1987: 363. **Syn. nov.**

Phanerotoma dentata auct. p.p.; Shenefelt, 1973: 912-913.

Material examined. — Holotype of *tritoma*, ♂, (TMA): "England, Surrey, Oxshott, 4. VII. 1891", "tritonus m., Coll. Marshall" (original label by Marshall), and holotype-label by Papp (1974); 1 ♀, (RMNH): "Netherlands, Vierhouten (Nunspeet), Mal. trap., June 1981, fen STST [= fen at estate of Dr. Simon Thomas], H.J. Vlug"; 1 ♀, (RMNH): "Netherlands, St. Pietersberg, 15. VI. II. 1986, C.J. Zwakhals"; 1 ♂, (RMNH): "Rotterdam, Z.H., Lombardijen, 14. VIII. 1988, J.A.W.

Lucas"; 2 ♂♂, (BMNH), England, "London, Bedford Park, 23.VI.1929, J. Waterston" & "4535, Lyle Coll., ex *Sesia andreniformes*, 7.6.1909, bred by Cockayne"; 2 ♂♂, (BMNH, RMNH), "England" & "England, Surrey, Boxhill, R.L.E. Ford, 2 and 13.VI. 1960, ex *Pammene regiana* (Zeller)"; 1 ♀, (NMI): "Sept. 12 [= 1839, collected by Haliday in Ireland], Box 15-4", "*Phanerotoma dentata* AWS 1950"; 1 ♂, (NMI), without labels, probably from Curtis collection and collected in England; 2 ♀♀, (SC): England, "Suffolk: Barton Mills, 8-11.7.83, MV trap, M.R. Shaw" and "East Wretham, W. Norfolk, 10.7.83, M.R. Shaw"; type-series of *antennalis* (holotype ♀, 42 ♀- and 11 ♂-paratypes, MMB); 1 ♀, (BMNH): "Nederland, Wijster (Dr.), opposite Biol. Station, 8-15.IX.1975, C. v. Achterberg"; 1 ♀, (BMNH): "Netherlands, Buurse (Ov.), oakwood nr. Schipbeek", "9-16.VIII.1980, A.L. v. Berge Henegouwen"; 1 ♀, (RMNH): "Netherlands, St. Pietersberg, 15.VIII.1986, C.J. Zwakhals"; 10 ♀♀ + 2 ♂♂, (CC, RMNH): Czechoslovakia (Banska Stiavnica, M. Vozice (Boh.), Stedrovice, Sturovo, Puste-Vlany (ex *Grapholita sinana* Felder), Kamenica, Kysihybel); 1 ♀ + 2 ♂♂, (HC), Italy, "Toblino, Trento, 300 m, 11.9.67, Hoth" & "Riva s. Garda, 500 m, D/3.7.66, Haeselb."; 1 ♂, (BMNH), England, "Chat Moss, Man., on Betula, coll. 9.9.77, M.R. Shaw"; 1 ♂, (BMNH), "Italy, Varazz, nr. Genova, 4.IX.71, Boucek"; 1 ♀ (BMNH), Cyprus, Peri Pedi, 16.IX.1937, G.A. Mavroumoustakis"; 1 ♂ (BMNH), "S. France, Les Landes, Bassin d'Arcachon, Stn, Low bushes Forest, 9.VIII.1955"; 1 ♂, (KBIN), "Coll. Wesmael, *Phanerotoma dentata* Panz., det. T.A. Marshall, 1887", this specimen most likely originates from Belgium; 1 ♀, (RMNH): Netherlands, at light, "Meijendel, Bierlap, 14.8.1958, J.A.W. Lucas"; 1 ♂, (RMNH): "Nederland, L., Venlo, 19.VII.1982, B. v. Aartsen"; 1 ♂, (RMNH): Netherlands, (Fr.) "Terschelling, Biol. Station, 23-24.VIII.1967, RIVON"; 1 ♂, (RMNH): "Brischke, Dantz." [= Gdansk, Poland]; 1 ♂, (RMNH): "Netherlands, Kruiningen, 30.VII.1982, G.J. Slob"; 1 ♂, (RMNH): "Nederland, Wijster (Dr.), opposite Biol. Stat., 26.VI.-2.VIII.1974, C. v. Achterberg"; 1 ♀, (RMNH): "France, Dépt. Drôme, M.J. Gijswijt", "Saou, 19.VI.1982"; 1 ♀, (RMNH): "France (Var), 10 km S. St. Tropez, Ramatuelle, 1.IX.1986, RMNH '86, M.J. Gijswijt"; 1 ♀, (RMNH): "France, Drôme, M.J. Gijswijt", "Saillans, on Tilia, 6.IX.1987"; 1 ♀, 1 ♂, (SC): "Hampstead Heath, ex *Salix catkins* with *Epinotia nisella* and *Xanthia* spp., coll. 6.5.85, em. 11.7.85, R.A. Softly"; 1 ♀, (ZMA): "France, Var, Grimaud, 17.X.1971, B.J. Lempke, K. Straatman"; 1 ♂, (SC): "Axminster, Devon, Furzeleigh, SY 312972, MV light, 9.VIII.1983, E.C. Pelham-Clinton"; 1 ♂ (Museum, The Hague): "Spain, 1.viii.1988, 850 m, Campdovonal 6 km NW of Ripoli, light, beekweide [= meadow along rivulet], R. Schouten 22"; 1 ♂, (BMNH): "France, Hérault, Lac du Salagou, 5.VIII.[19]88, Boucek".

Length of fore wing 3-4.3 mm, of body 3.7-5.2 mm.

Head. — Subapical antennal segments of ♀ comparatively slender, antenna hardly narrowed apically (fig. 153); scapus rather slender (fig. 155); POL less than, equal to or slightly more than diameter of posterior ocellus; frons medially granulate, obliquely rugose laterally; vertex subcoriaceous(-aciculate), granulate-rugose or rugulose, shiny; length of eye in dorsal view 1.0-1.6 times temple; face completely coarsely rugose, but medially often more or less coriaceous and largely without rugae; length of malar space 0.9-1.0 times basal width of mandible; inner tooth of mandible long, robust, only slightly shorter than outer tooth (figs. 145, 151); head in frontal view with upper condyli below lower level of eyes, less narrowed in frontal view than in *parva*; clypeus with three minute teeth ventrally.

Mesosoma. — Mesosternum shiny to rather matt, very finely granulate, its anterior half flattened; mesoscutum coriaceous-granulate to densely finely rugose, but rugose medio-posteriorly.

Wings. — Fore wing: r 0.6-1.1 times vein 3-SR; 2-SR and SR1 straight; marginal cell long, slender (figs. 144, 149), longer than in *parva* (fig. 171); 1-R1 longer than pterostigma; parastigma large (fig. 149), moderately pigmented; 1-SR+M often slightly pigmented, largely less than vein 2-CU1; maximum width of pterostigma 1.6-1.7 times 3-SR.

Legs. — Middle tibia slender, without distinct blister (fig. 148), exceptionally a small blister may be present.

Metasoma. — Shape of metasoma comparatively slender, subparallel-sided and (rather) flat (fig. 147) to rather robust and oval (fig. 152); first and second tergites longitudinally rugose as third tergite but coarser medially; third tergite of ♀ not emarginate (fig. 154), without protruding corners, rather flat (figs. 146, 150), matt densely rugose, its medial length 1.3-2.0 (♀/♂) times medial length of second tergite; ovipositor sheath slightly or not protruding beyond apex of metasoma.

Colour of typical form. — Blackish (including metasomal apex ventrally); head (but stemmaticum, face medially and temple posteriorly blackish), tegula, legs (but hind tibia with subbasal patch and apical half in dorsal view blackish), propleuron, mesopleuron medio-posteriorly, metapleuron medially, scutellum, metanotum and propodeum basally, yellowish; pronotum ventrally, mesoscutum medio-posteriorly, first and second tergites medially, ivory or pale yellowish; parastigma brown; pterostigma dark brown; antenna largely (dark) brown, but scapus apically, pedicellus largely, and antenna medially paler brown; vein 1-M of fore wing yellowish; humeral plate darker than tegula, usually dark brown; hind tibia pale yellowish basally and medially; base of middle tibia less pale than hind tibia; apical third of metasoma dark brown ventrally.

Colour of forma *antennalis*. — Yellowish-brown; stemmaticum, mesoscutum (narrowly) laterally, propodeum, scutellum posteriorly, metapleuron partly, metanotum partly, and more or less third tergite, first and second tergites laterally, dark brown or black; telotarsi, para- and pterostigma dark brown; pterostigma slightly yellowish(brown) basally; antenna yellowish, but darkened apically; humeral plate (somewhat) darker than tegulum, usually dark brown, exceptionally both yellowish; coxae, trochanters, middle femur, middle and hind tibia pale yellowish basally and medially; hind tibia with small dark spot on its outer side subapically; fore wing membrane subhyaline, moderately infuscated below middle of pterostigma and below base of parastigma; apical third of metasoma (largely) yellowish or brown.

Distribution. — Austria, *Cyprus, Czechoslovakia, England, *France, *Ireland, *Italy, *Netherlands, *Poland, *Spain.

Note. — The dark typical form resembles *P. obscura* in colour but *tritoma*

differs in shape of mandibular teeth, longer vein r of fore wing and head only slightly emarginate posteriorly. The colour and shape of the metasoma is extremely variable in this species. Attempts to separate the pale form (= *antennalis*) proved to be in vain after discovering mixed reared series and several intermediate specimens. The male may be largely yellowish, with stemmaticum, patches on mesosoma laterally and posteriorly and on base of first tergite dark brown or body completely yellowish. Also the female may be completely yellowish. The shape of carapace varies considerably, even within series from the same locality.

Closely related to the Nearctic *P. (B.) fasciata* Provancher, 1881, but *fasciata* has vein r of fore wing 1.3-1.4 times vein 3-SR, antenna more slender apically and face more rugose.

Parasite of *Pammene regiana* (Zeller) and *Grapholita delineana* Walker (= *G. sinana* Felder) (Tortricidae); the record of *Sesia andreniformis* Lasp. (Sesiidae) needs to be confirmed.

***Phanerotoma (Bracotritoma) waitzbaueri* Zettel**
(figs. 76-83)

Phanerotoma waitzbaueri Zettel, 1987: 366-368, figs. 1-6.

Material examined. — 1 ♂, paratype (Collection Zettel): "Austria inf., Hundsheimer Berg, leg. Waitzbauer", "Hdsh/Bf 11 [= Barberfalle 11], 22.5-11.6.1980", "Phanerotoma Waitzbaueri n. sp.; ♂, PT., det. H. Zettel, 1987", "Paratypus".

Length of fore wing 2.8 mm, of body 3.9 mm.

Head. — Subapical antennal segments of ♀ unknown; POL about twice diameter of posterior ocellus (fig. 77); frons very densely finely rugose; vertex very densely rugulose and matt; length of eye in dorsal view 0.6 times temple (fig. 77); face densely and finely rugose and rugulose, matt; length of malar space 1.3 times basal width of mandible; inner tooth of mandible slightly shorter than outer tooth; head in frontal view with upper condyli far below lower level of eyes; both clypeal teeth rather long (fig. 79).

Mesosoma. — Mesosternum distinctly granulate; mesoscutum rugose, coarser medio-posteriorly.

Wings. — Fore wing: r 1.4-1.5 times vein 3-SR; 2-SR and SR1 straight; marginal cell rather small (fig. 76); 1-R1 nearly as long as pterostigma; parastigma rather small (fig. 76); 1-SR+M weakly pigmented, distinctly less than vein 2-CU1; maximum width of pterostigma twice 3-SR.

Legs. — Middle tibia pale submedially and without blister (fig. 78).

Metasoma. — Shape of metasoma slender, elliptical (fig. 81); first and second tergites very coarsely longitudinally rugose, different from sculpture of third tergite, which is finely and densely rugose (fig. 81); shape of third tergite of ♀ unknown, medial length of third tergite 1.3-1.4 (♂) times medial length of second tergite, rather flat.

Colour. — Black; tegula and humeral plate similarly coloured, dark brown; basal 0.4 of tibiae (but hind tibia dark brown basally); fore and middle basitarsi, base of femora slightly, and base of pterostigma pale yellowish; palpi, remainder of legs, and of pterostigma, parastigma, remainder of tibiae and tarsi, and antenna more or less dark brown; hind tibia without dark subbasal patch; wing membrane of fore wing below vein 1-M and pterostigma dark brown, and remainder subhyaline.

Distribution. — Austria.

Note. — Closely related to *P. (B.) moravica* (because of colour, sculpture, long temples) and differs mainly by colour and the somewhat larger parastigma.

EXCLUDED SPECIES

***Phanerotoma hispanica* Kokujev**

Phanerotoma fasciata Marshall, 1897: 171, nec Provancher, 1881.

Phanerotoma hispanica Kokujev, 1899: 62 (nom. nov.); Shenefelt, 1973: 917.

The identity remains enigmatic to me because the type could not be found in the BMNH (London) (T. Huddleston, in litt.), in the Zoological Museum at Barcelona, or in the TMA (Budapest). Marshall (1897) stated that it should have about 33 antennal segments, body and palpi largely blackish, wings with two dark bands and both metasomal sutures hardly developed. Possibly it is a *Phanerotomella* or *Ascogaster* species (because of the 33 antennal segments) with weakly developed metasomal sutures and infuscated wings. If it is considered to belong to the genus *Phanerotoma*, then the 33 antennal segments is a miswriting for 23 (as all known Spanish spp. have) and the holotype-♀ might have been a melanistic specimen of *P. gracilisoma* spec. nov. Albeit that I have never seen a ♀ of *P. gracilisoma* as dark as described by Marshall, but similarly dark ♂♂ are known to exist. The colour of the wings and legs, and size of body agree (fairly) well. However, Marshall (1897) stated that the metathorax (= propodeum) and mesoscutum are evenly granulate (in *gracilisoma* the propodeum is coarsely densely reticulate, different from sculpture of lateral mesoscutal lobes), shape of metasoma is similar to that of other *Phanerotoma* spp.

(shape of metasoma of *gracilisoma* is aberrant, viz. very slender, parallel-sided (fig. 65)), both transverse metasomal sutures are hardly developed (in *gracilisoma* both transverse metasomal sutures are distinct), and ovipositor probably comparatively long ("tarrière moins longue que le 3e segment [of metasoma]"; in *gracilisoma* ovipositor rather short, protruding part much shorter than third metasomal segment). In conclusion the synonymy of *P. hispanica* and *gracilisoma* cannot be accepted because of profound differences in the original description of *P. hispanica*.

ACKNOWLEDGEMENTS

To the following persons I am indebted for the loan of types, for providing valuable information and/or (gifts of) unidentified specimens; Mr. B. van Aartsen ('t Harde); Mr. A.L. van Berge Henegouwen (Den Haag); Dr. M. Čapek (Banská Štiavnica); Dr. E. De Coninck (Tervuren); Dr. J.P. O'Connor (Dublin); Dr. P. Dessart (Brussels); Dr. Th. van Dijk (Wijster); Mr. J.V. Falco (Burjasot); Dr. M. Fischer (Wien); Mr. C. Gielis (Lexmond); Mr. M.J. Gijswijt (Ankeveen); Dr. E. Haeselbarth (München); Dr. M.W.R. de Vere Graham (Oxford); Mr. T. Huddleston (London); Dr. L. Huggert (Lund); Dr. F. Koch and the late Dr. E. Königsmann (Berlin); Br. Virgilius Lefeber (Maastricht); Mr. J.A.W. Lucas (Rotterdam); Dr. J. Lukáš (Trenčín); Dr. P.M. Marsh (Washington); Ms. J. Moreno (Burjasot); Dr. J. Papp (Budapest); Dr. P. Passerin d'Entrèves (Turin); Mr. R.T.A. Schouten (Leiden); Dr. M.R. Shaw (Edinburgh); Mr. B. Sigwalt (Paris); Mr. H.G.M. Teunissen (Oss); Drs. V.I. Tobias & S.A. Belokobylskij (Leningrad); Mr. K. Vegter (Emmen); Mr. J.B. Wolschrijn (Apeldoorn); Mr. C.J. Zwakhals (Arkel); Mr. H. Zettel (Wien). Valuable critical remarks were provided by Mr. T. Huddleston. The manuscript has been typed by Mrs. A.L. Wielkens.

LIST OF ABBREVIATIONS OF (TYPE-)DEPOSITORIES

- BMNH – British Museum (Natural History), London.
 CC – Čapek Collection, Banská Štiavnica.
 HC – Haeselbarth Collection, München.
 KBIN – Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussel.
 LC – Lukáš Collection, Trenčín.
 MG – Muséum d'Histoire Naturelle, Genève.
 MMB – Moravskéno Musea v Brně, Brno.
 MNHN – Muséum National d'Histoire Naturelle, Paris.
 NMI – National Museum of Ireland, Dublin.
 NMW – Naturhistorisches Museum, Zoologische Abteilung, Wien.
 RMNH – Rijksmuseum van Natuurlijke Historie, Leiden.
 SC – Shaw Collection, Edinburgh.

- TMA – Természettudományi Múzeum Allatára, Budapest.
 USNM – U.S. National Museum of Natural History, Washington.
 UVB – Universitat de València, Burjasot.
 ZIL – Zoological Institute, Akademia NAUK SSSR, Leningrad.
 ZMA – Zoologisch Museum, Instituut voor Taxonomische Zoölogie, Amsterdam.

REFERENCES

- Abdinbekova, A.A., 1975. Brakonidy (Hym., Braconidae) Azerbajdzhana, p. 1-323, figs. 1-124. — Baku.
- Achterberg, C. van, 1988. Revision of the subfamily Blacinae Foerster (Hym., Braconidae). — Zool. Verh. Leiden 249: 1-324, figs. 1-1250.
- Belokobylskij, S.A., 1986. Phanerotomella Szépligeti, 1900 — New for the fauna of Far East USSR, Insecta-Braconidae-Cheloninae (Hym., Braconidae). — Hym. East Siberia and Far East, Vladivostok: 41-48, figs. 1-22.
- Bennett, F.D., 1960. Parasites of *Ancylostomia stercorea* (Zell.) (Pyrilidae, Lep.) a pod borer attacking pigeon pea in Trinidad. — Bull. ent. Res. 50: 737-757, figs. 1-6.
- Buysson, R. du, 1897. Voyage de M.E. Simon dans l'Afrique australe (Janvier -Avril, 1893). 6e Memoire. Hyménoptères. — Anns Soc. ent. Fr. 66: 351-363.
- Cameron, P., 1912. Descriptions of new genera and species of parasitic Hymenoptera taken at Kuching, Sarawak, Borneo by Mr. John Hewitt, B.A. — Societas ent. 27: 74-78, 82, 84-85.
- Csiki, E., 1909. Irodalom "V. Szépligeti: Braconiden aus der Sammlung des Ungarischen National Museums". — Rovart hapok 16: 12-13.
- Daumal, J., P. Jourdheuil & J.P. Marro, 1973. Acclimatation sur la côte méditerranéenne française de *Phanerotoma flavitestacea* Fischer (Hym.: Braconidae) parasite d'*Éctomyelois ceratoniae* Zell. (Lep.: Pyralidae). — Anns Zool. Ecol. an. 5: 593-608.
- Fahringer, J., 1934. Opuscula braconologica. 3(2) 5-8: i-xi + 321-594, 1 pl.
- Ferran, A. & J. Daumel, 1973. Conséquences sur les larves d'*Anagasta kühniella* Zeller (Lep., Phycitidae) de l'élimination précoce par le froid de son endoparasite *Phanerotoma flavitestacea* Fischer (Hym., Braconidae). — Compt. Rend. Acad. Sc. Paris (D) 277: 869-872.
- Fischer, M., 1959. Neue und wenig bekannte Braconiden aus Jugoslavien (Hym.). — Acta Mus. Maced. Sc. nat. 6: 1-22, figs. 1-5.
- Fischer, M., 1968a. Über gezüchtete Raupenwespen (Hym., Braconidae). — Pflanzensch. Ber. 37: 97-140, figs. 1-38.
- Fischer, M., 1968b. Eine neue *Phanerotoma*-art aus Syrien (Hym., Braconidae). — Entomophaga 13: 331-334, figs. 1-3.
- Graham, M.W.R. de Vere, 1986. Rediscovery of *Phanerotoma maculata* (Wollaston) (Insecta, Braconidae) in the high-altitude Zone of Madeira. — Bocagiana 103: 1-4, figs. 1-3.
- Haliday, A.H., 1840. Braconides. In: J.O. Westwood (ed.). An Introduction to the modern classification of insects. — Synopsis of the genera of British insects 2: 61-65. London.
- Harbo, J.R. & K.J. Kraft, 1969. A study of *Phanerotoma toreutae*, a parasite of the Pine Cone Moth *Laspeyresia toreuta*. — Ann. ent. Soc. Am. 62: 214-220, figs. 1-5.
- Hawlitzky, N., 1972. Mode de pénétration d'un parasite ovaraire *Phanerotoma flavitestacea* Fisch. (Hym.: Braconidae) dans son hôte embryonnaire; *Anagasta kühniella* Zell. (Lep.: Pyralidae). — Entomophaga 17: 375-389.
- Hawlitzky, N., 1979a. Devenir de l'oeuf et comportement de la larve de *Phanerotoma flavitestacea* (Hym.: Braconidae) lorsque la femelle pond dans les oeufs d'*Anagasta kuehniella* (Lep.: Pyralidae) ayant atteint des stades de développement variés. — Entomophaga 24: 237-245, figs. 1-3.

- Hawlitzky, N., 1979b. Étude expérimentales des relations hôte-parasite chez les insectes. II. Action d'un parasite ovo-larvaire, *Phanerotoma flavitestacea* Fisch. (Hym.: Braconidae) sur quelques caractères biologiques et anatomiques de son hôte, *Anagasta kuehniella* Zell. (Lep.: Pyralidae). — *Archs Zool. exp. gén.* 120: 337-352.
- Hedwig, K., 1957. Ichneumoniden und Braconiden aus Iran 1954 (Hymenoptera). — *Jh. Ver. vaterl. Naturk. Württ.* 112: 104-107, figs. 1-5.
- Herrich-Schäffer, G.A.W., 1838. *Faunae Insectorum Germaniae initiae oder Deutschlands Insecten. Hymenoptera.* — Regensburg.
- Huddleston, T., 1984. The Palaearctic species of *Ascogaster* (Hymenoptera: Braconidae). — *Bull. Br. Mus. nat. Hist. (Ent.)* 49: 341-392, figs. 1-79.
- Jones, D., 1985. Endocrine interaction between host (Lepidoptera) and parasite (Cheloninae in Hymenoptera): Is the host or the parasite in control?. — *Ann. ent. Soc. Am.* 78: 141-148.
- Kohl, F.F., 1906. *Hymenopteren Südarabiens*, p.1-133, 11 pls.
- Kokujev, N., 1899. Sur quelques noms préoccupés de Braconides. — *Annls Soc. ent. Belg.* 43: 62.
- Kokujev, N., 1900. *Symbolae ad cognitionem Braconidarum Imperii Rossici et Asiae Centralis.* II. — *Horae Soc.* ent. ross. 34: 24-35.
- Kokujev, N., 1902. Matériaux pour la faune hyménoptérologique de la Russie 1. — *Ent. Obozr.* 2: 4-12.
- Kokujev, N., 1903. *Hymenoptera asiatica nova.* 1. — *Ent. Obozr.* 3: 285-288.
- Latreille, P.A., 1806-1809. *Genera crustaceorum et insectorum secundum ordinem naturalem in familias disposita, iconibus exemplisque plurimis explicata*, pts 1-4. Paris & Strasbourg.
- Llopsi Minguez, B., 1967. In: J. Docavo Alberti: *Mi vida entomológica.* — *An. Univ. Valencia* 41: 37-95, figs. 1-15.
- Lyle, G.T., 1924. Contributions to our knowledge of the British Braconidae. — *Entomologist* 57: 99-103.
- Marsh, P.M., 1979. Braconidae, Aphidiidae, p. 144-313. In: Krombein, K.V., et al. (eds.). — *Catalog of Hymenoptera in America North of Mexico* 1: 1-1198. Washington, D.C.
- Marshall, T.A., 1897. *Species des Hyménoptères d'Europe et d'Algérie.* — *Braconides* 5 bis: i-viii + 1-144, pls 1-6.
- Marshall, T.A., 1898. *Id.*, 5 bis: 145-288, pls 7-12.
- Masi, L., 1932. *Spedizione Scientifica all'oasi di Cufra.* — *Ann. Mus. civ. Stor. nat. Giacomo Doria* 55: 431-450.
- Nees von Esenbeck, C.G., 1816. *Ichneumonides adsciti, in genera et familias divisi.* — *Mag. Ges. Naturf. Fr. Berlin* 7: 243-277.
- Panzer, G.W.F., 1805. *Faunae Insectorum Germaniae initia oder Deutschlands Insekten.* Parts 85-96 + 24 pls. Nürnberg.
- Parker, H.L., 1951. Parasites of the Lima-Bean Pod Borer in Europe. — *Techn. Bull. U.S. Dep. Agric.* 1036: 1-27, figs. 1-10.
- Schulz, W.A., 1911. *Zweihundert alte Hymenopteren.* — *Zool. Annln.* 4: 1-220.
- Shenefelt, R.D., 1973. *Hymenopterorum Catalogus (nov. ed.).* Part 10, Braconidae 6: 813-936. 's Gravenhage.
- Shestakov, A., 1930. Neue Braconidenarten aus den Gattungen *Phanerotoma* gen. nov. und *Phanerotoma* Wesm. — *Ent. Obozr.* 24: 100-103.
- Snoflák, J., 1951. La monographie de *Phanerotoma* Wesm. et de *Phanerotomella* Szépl. (Hym.-Bracon.) de la Tchécoslovaquie. — *Ent. Listy* 13: 5-33, figs. 1-11.
- Snoflák, J., 1958. *Novij druh lumcika rodu Phanerotoma.* — *Zool. Listy* 7(11): 381-383, figs. 1-2.
- Strand, E., 1921. Fünf neue Insektengattungen. — *Int. ent. Z.* 14: 174.
- Szépligeti, G., 1900a. Braconiden aus Neu-Guinea in der Sammlung des Ungarischen National-Museums. — *Természetr. Füz.* 23: 49-65.
- Szépligeti, G., 1900b. Neue Braconiden aus Ungarn. — *Természetr. Füz.* 23: 213-219.
- Szépligeti, G., 1908a. Braconiden aus der Sammlung des ungarischen national Museums II. — *Ann. hist.-nat. Mus. nat. Hung.* 6: 397-427.
- Szépligeti, G., 1908b. *Jacobson'sche Hymenopteren aus Semarang (Java), Evaniiden, Braconiden und Ichneumoniden.* — *Notes Leyden Mus.* 29: 209-260.

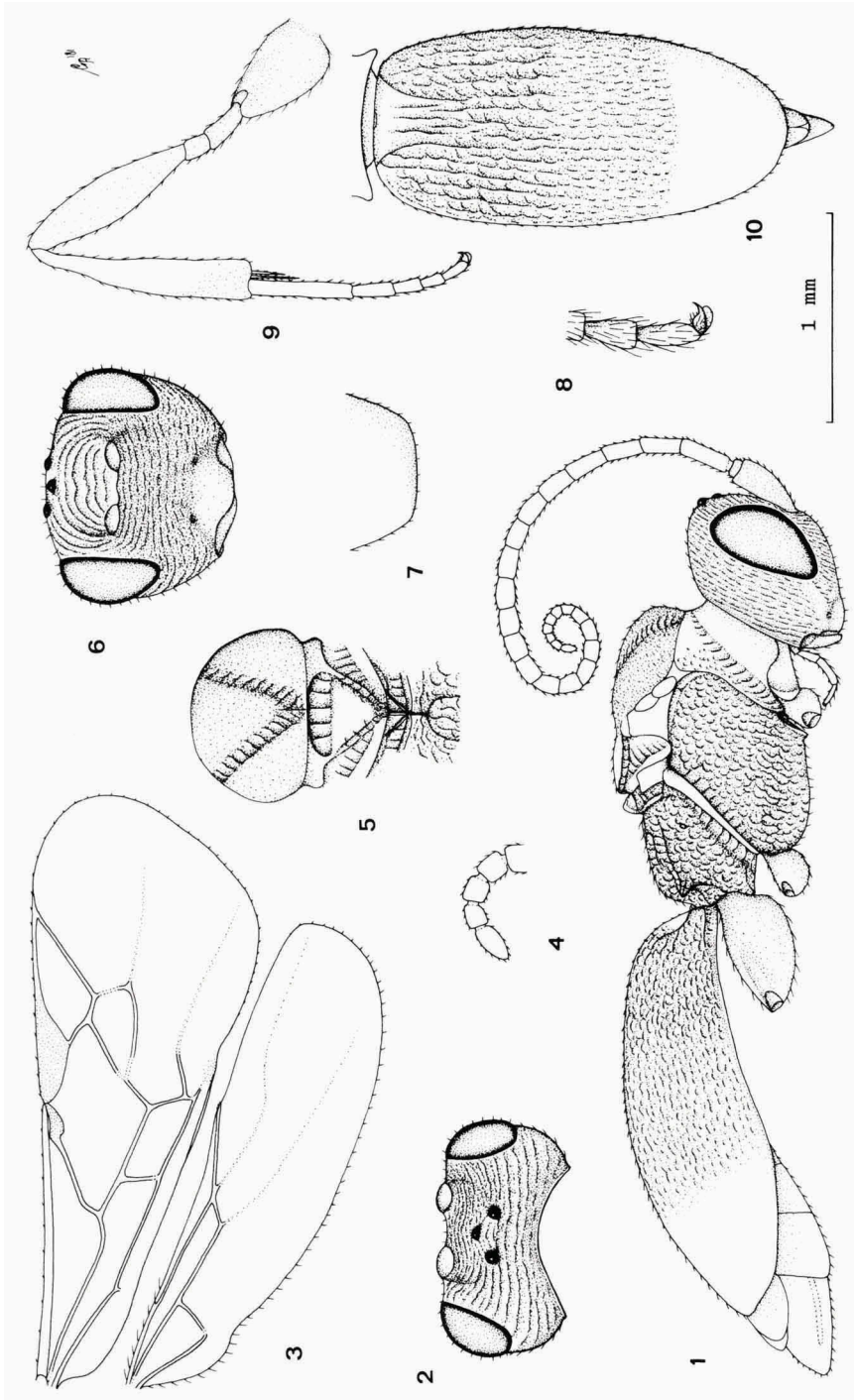
- Szépligeti, G., 1914. Afrikanische Braconiden des Königl. Zoologischen Museums in Berlin. — Mitt. zool. Mus. Berl. 7: 153-230.
- Telenga, N.A., 1941. Hymenoptera 5(3). — Fauna SSSR [2]24: i-xvii + 1-466, figs. 1-129.
- Tobias, V.I., 1964. Novye vidy i rod brakonid (Hym., Braconidae) iz Kazakhstana. — Trudy zool. Inst. Leningr. 34: 177-234.
- Tobias, V.I., 1966. Naездniki-brakonidy (Hym., Braconidae) sobrannye na svet kvartsavoi lampy v Turkmenii, ikh izmenchivost i prisposobleniya k zhizni v pustyne. — Zool. Zh. 45: 1804-1814.
- Tobias, V.I., 1986. Cheloninae, p.293-335. In: Medvedev, G.S. (ed.). Opredelitel Nasekomykh Evropeiskoi Tsasti SSSR 3, Perepontosatokrylye 4. — Opr. Faune SSSR 145: 1-501, figs. 1-263.
- Vachal, J., 1907. Hyménoptères de la Nouvelle-Calédonie rapportés par le Lieutenant Quod. — Rev. Ent. Caen 26: 113-123.
- Viereck, H.L., 1914. Type species of the genera of Ichneumon flies. — Bull. U.S. nat. Mus. 83: 1-186.
- Vojnovskaja-Krieger, T.G., 1929. Einige neue Braconiden-Arten aus Russland. — Konowia 8: 234-235, figs. 1-2.
- Walker, F., 1874. Descriptions of some Japanese Hymenoptera. — Cistula ent. 1: 301-310.
- Wesmael, C., 1838. Monographie des Braconides de Belgique. — Nouv. Mém. Acad. sci. R. Bruxelles 11: 1-166, figs. 1-17 + A-F.
- Wollaston, T.V., 1858. Brief diagnostic characters of undescribed Madeiran insects. — Ann. Mag. nat. Hist. 1: 18-28.
- Zettel, H., 1987. Beitrag zur Kenntnis der Sigalphinen- und Cheloninen Fauna in Österreich (Hym., Braconidae). — Linzer biol. Beitr. 19: 359-376, figs. 1-6.
- Zettel, H., 1988. Eine neue Phanerotoma-Art aus Saudi-Arabien (Hym.: Braconidae, Cheloninae). — Linzer biol. Beitr. 20: 199-201, figs. 1-7.

INDEX TO HOST SPECIES

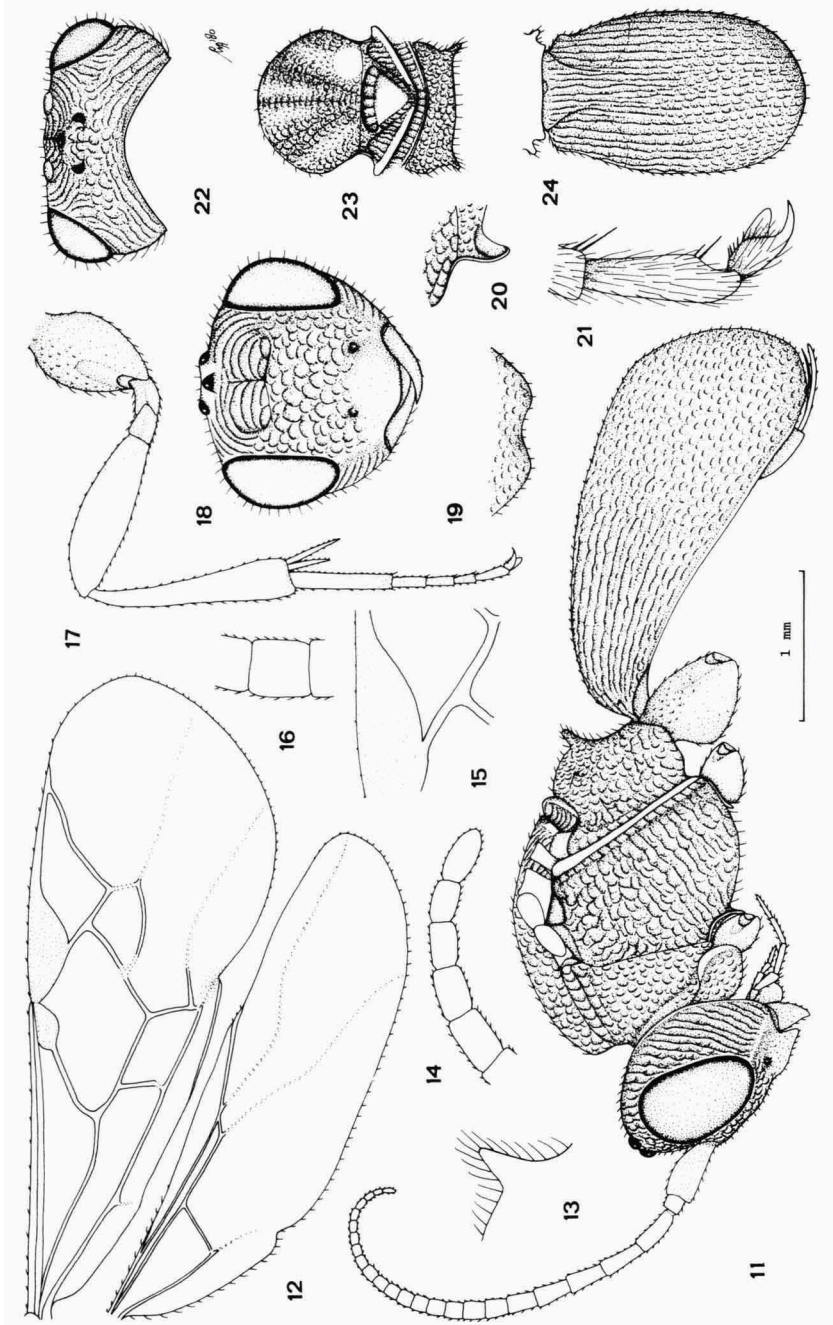
<i>advenella</i> (Zincken) (<i>Eurhodope</i>)	30
<i>andreniformis</i> Lasp. (<i>Sesia</i>)	64
<i>calidella</i> (Guinée) (<i>Cadra</i>)	51
<i>ceratoniae</i> (Zeller) (<i>Myelois</i> or <i>Ectomyelois</i>)	51
<i>consociella</i> (Hübner) (<i>Acrobasis</i>)	30
<i>delineana</i> Walker (<i>Grapholita</i>)	64
<i>gossypiella</i> (Saunders) (<i>Platyedra</i>)	51
<i>kuehniella</i> (Zeller) (<i>Ephestia</i>)	51
<i>lutipennella</i> (Zeller) (<i>Coleophora</i>)	27
<i>permixtella</i> (Herrich-Schäffer) (<i>Cacochroa</i>)	54
<i>regiana</i> (Zeller) (<i>Pammene</i>)	64
<i>sinana</i> Felder (<i>Grapholita</i>)	64
<i>sodalella</i> auct. (<i>Acrobasis</i>)	30
<i>Teleiodes</i> spp.	27
<i>terebrella</i> (Zincken) (<i>Assara</i>)	49
<i>transitella</i> (Walker) (<i>Paramyelois</i>)	51
<i>zinckenella</i> Treitschke (<i>Etiella</i>)	34

INDEX TO SPECIES AND GENERA OF PHANEROTOMINI
(valid names in bold-faced type)

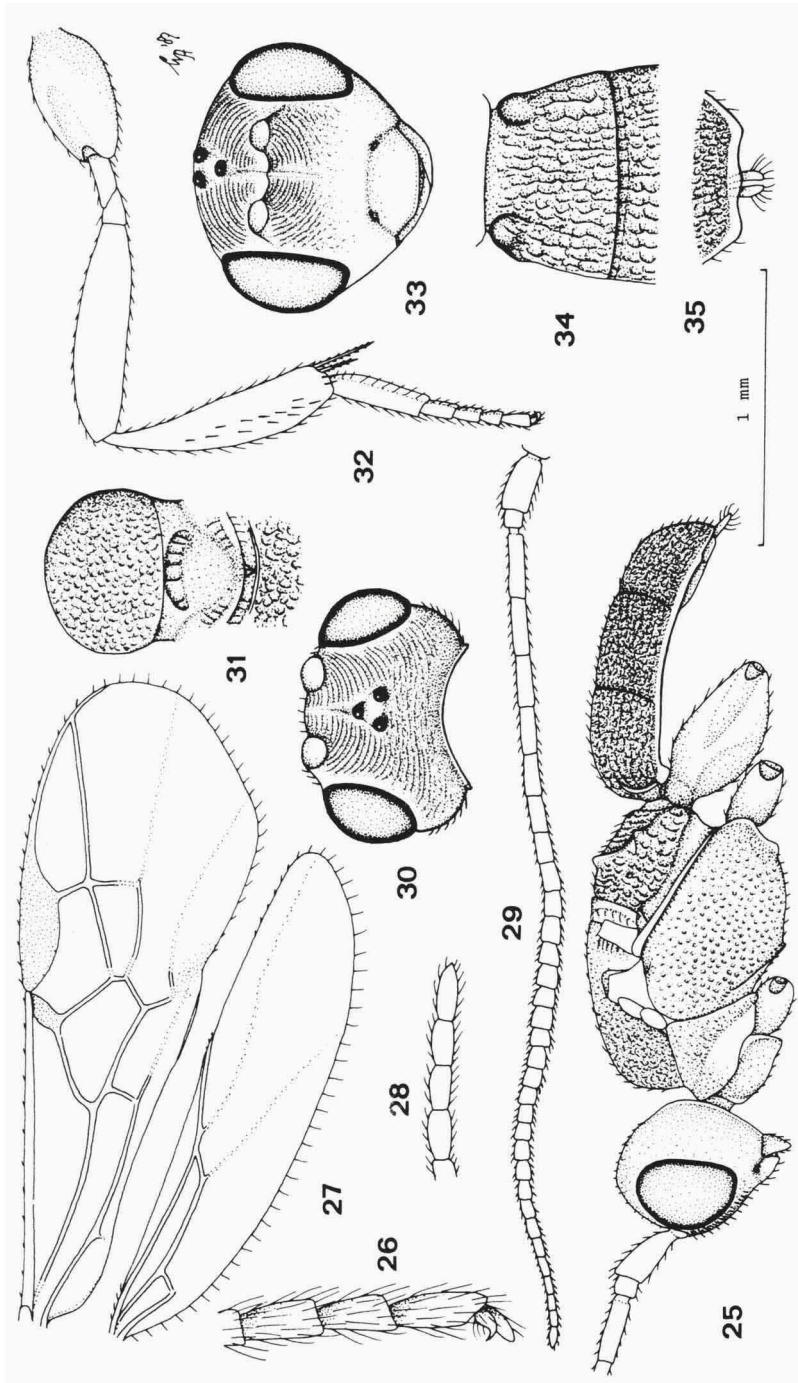
acara spec. nov.	20	longipes Szépligeti	73
acuminata Szépligeti	21	longiradialis spec. nov.	42
aberrans Shestakov	52	maculata (Wollaston)	43
antennalis Snoflák	61	masiana Fahringer	44
Arichelonus Viereck	71	media Shestakov	50
asini Llopsi	54	minor Snoflák	28
Ascogaster Wesmael	7	minuta Kokujev	46
atra Snoflák	23	moravica Snoflák	47
bicolor Snoflák	54	Neoacampis Szépligeti	10
bilinea Lyle	24	Neophanerotoma Szépligeti	10
bisulcata (Herrich-Schäffer)	8	nigra Szépligeti	8
Bracotritoma Csiki	10, 12	nocturna Tobias	47
bouceki spec. nov.	25	obscura Snoflák	48
capeki spec. nov.	26	ocularis Kohl	50
Chelonus Panzer	7	olearia Fischer	53
cyrenaica Masi	27	ornatulopsis De Saeger	52
dentata auct.	61	parva Kokujev	52
dentata (Panzer)	28	permixtellae Fischer	53
desertorum Hedwig	50	Phanerogaster Wesmael	10
diversa (Walker)	31	Phanerotoma Wesmael	7, 10, 12
ebneri Fahringer	45	Phanerotomella Szépligeti	7
fasciata Marshall	65	Phanerotomina Shestakov	10
flavipes Snoflák	8	picta Snoflák	31
flavitestacea Fischer	50	planifrons auct.	32, 57, 59
fracta Kokujev	32	planifrons (Nees)	54
genalis Tobias	39	platypyga Snoflák	57
gijswijti spec. nov.	34	Plesiosphaeropyx Cameron	7
glabra Telenga	35	popovi Telenga	56
gracilipes Szépligeti	11	rjabovi Vojnovskaja-Krieger	50
gracilis Tobias	38, 53	robusta Zettel	57
gracilisoma spec. nov.	35	rufa (Marshall)	9
graciloides spec. nov.	37	rufescens (Latreille)	57
graeffei Fischer	9	rugiferum Wesmael	57
gregori Snoflák	24	sareptana Kohl	40
gussakovskii Shestakov	52	semenowi Kokujev	58
hispanica Kokujev	65	snoflaki Shenefelt	54
Ichneutipterus Vachal	10	soror spec. nov.	59
intermedia spec. nov.	38	Sulydus Du Buysson	10
kasachstanica Tobias	39	Szépligetia Schulz	10
katkowi Kokujev	40	transcaspica Kokujev	60
kerteszi Szépligeti	9	Tritoma Szépligeti	10
kobdensis Tobias	39	tritoma (Marshall)	61
kozlovi Shestakov	41	Tritomios Strand	10
Leptodrepana Shaw	4	Unica Snoflák	10
		waitzbaueri Zettel	64



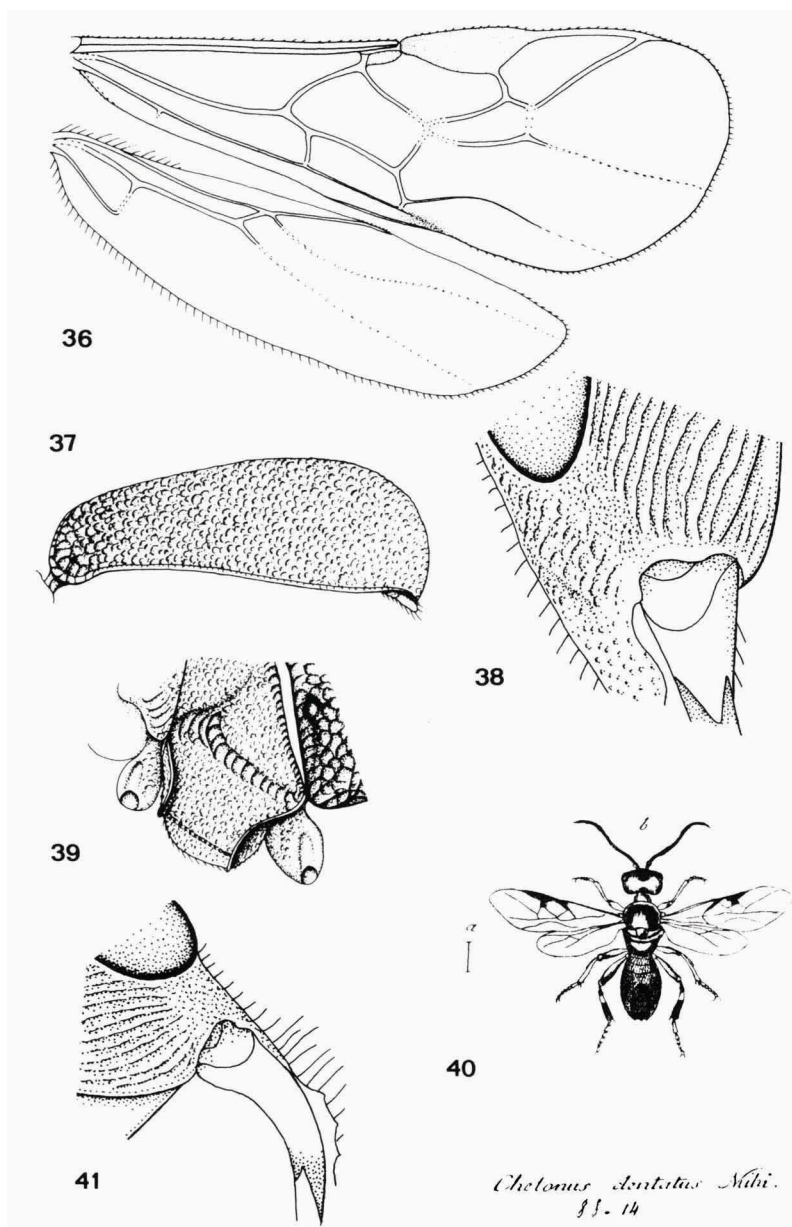
Figs. 1-10, *Chelonus aculeatus* Ashmead (= type-species of *Arichelonus Viereck*), ♀, holotype. 1, habitus, lateral aspect; 2, head, dorsal aspect; 3, wings; 4, apical antennal segments; 5, mesosoma, dorsal aspect; 6, head, frontal aspect; 7, apex of carapace, postero-dorsal aspect; 8, hind claw; 9, hind leg; 10, metasomal carapace. 1-3, 5-7, 9, 10: scale-line (= 1 X); 4, 8, 2.5 X.



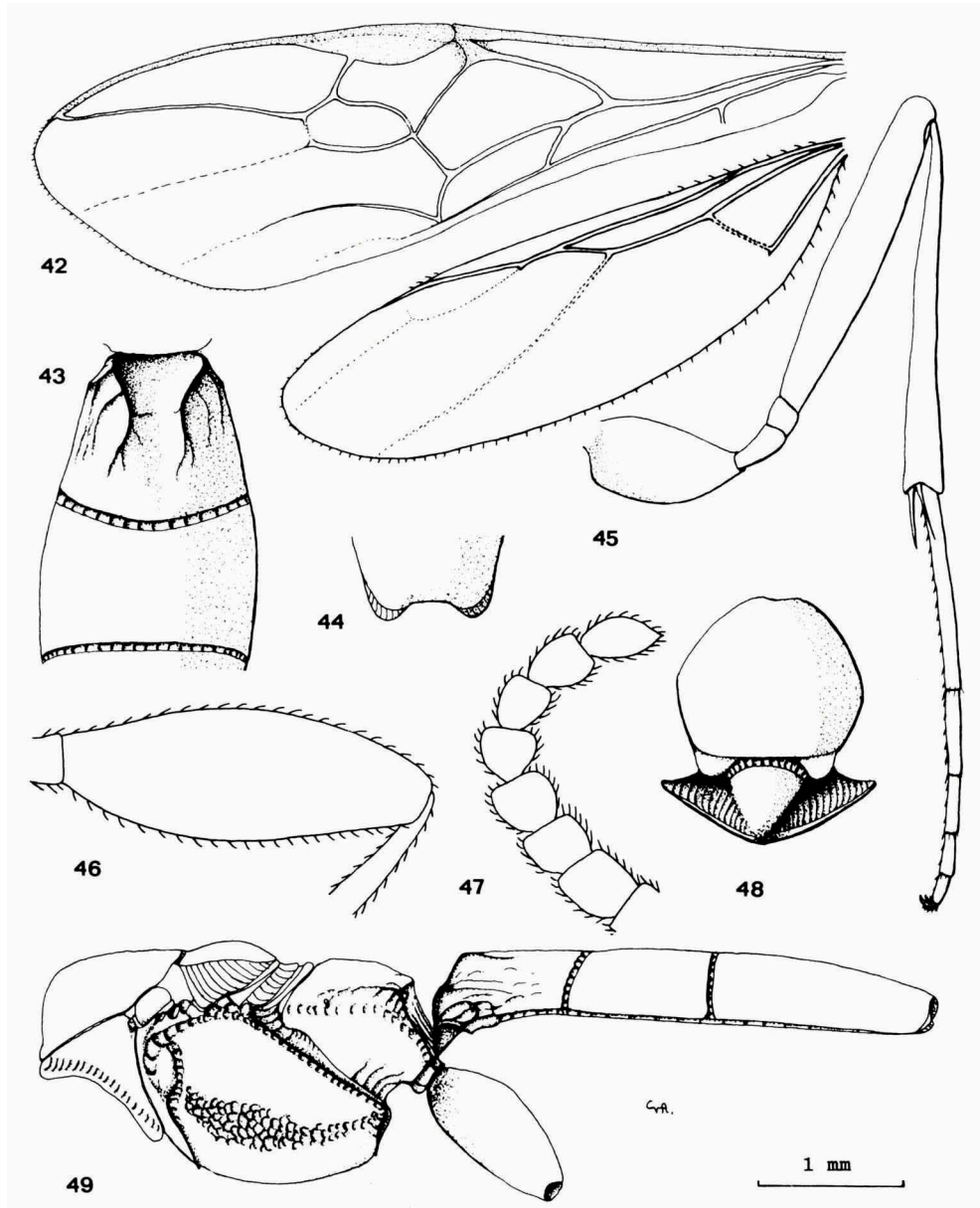
Figs. 11-24, *Chelonus oculator* (Fabricius), ♀, neotype. 11, habitus, lateral aspect; 12, wings; 13, propodeal tubercle, dorso-lateral aspect; 14, apical antennal segment; 15, detail of vein r of fore wing; 16, 16th antennal segment; 17, head, frontal aspect; 18, apex of carapace, posterior-dorsal aspect; 19, detail of lateral carina of mesoscutum, posterior part; 20, detail of lateral carina of mesoscutum, dorsal aspect; 21, hind claw; 22, head, dorsal aspect; 23, mesosoma, dorsal aspect; 24, metasoma, dorsal aspect. 11, 12, 17-19, 22: scale-line (= 1 ×); 13, 15, 20: 2 ×; 14, 16, 21: 5 ×; 23, 24: 0.6 ×.



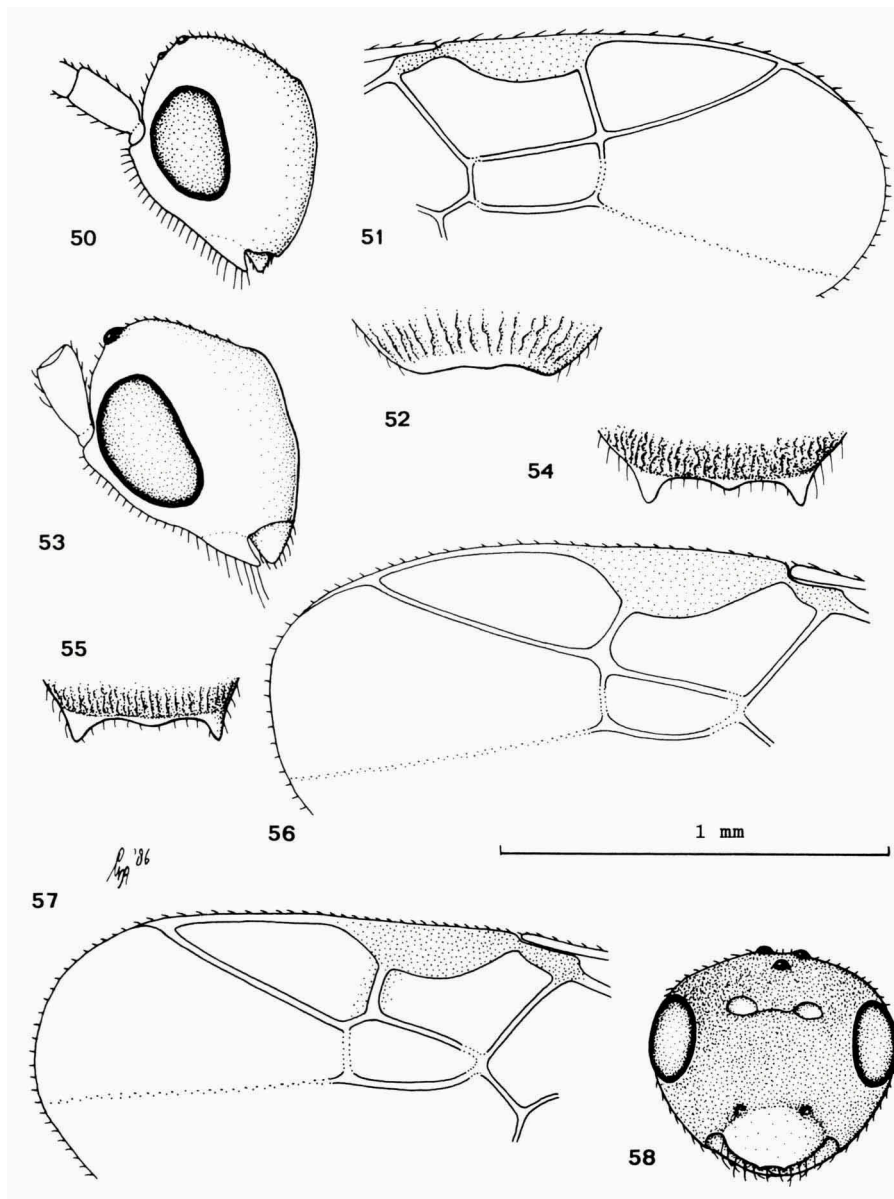
Figs. 25-35, *Phanerotomella longipes* Szépligeti, ♀, holotype. 25, habitus, lateral aspect; 26, hind claw; 27, wings; 28, apical antennal segments; 29, antenna; 30, head, dorsal aspect; 31, mesosoma, dorsal aspect; 32, hind leg; 33, head, frontal aspect; 34, first metasomal tergite, dorsal aspect; 35, apex of third metasomal tergite, postero-dorsal aspect. 25, 27, 29, 32: scale-line (= 1 ×); 26: 3 ×; 28: 2.5 ×; 30, 31, 33-35: 1.3 ×.



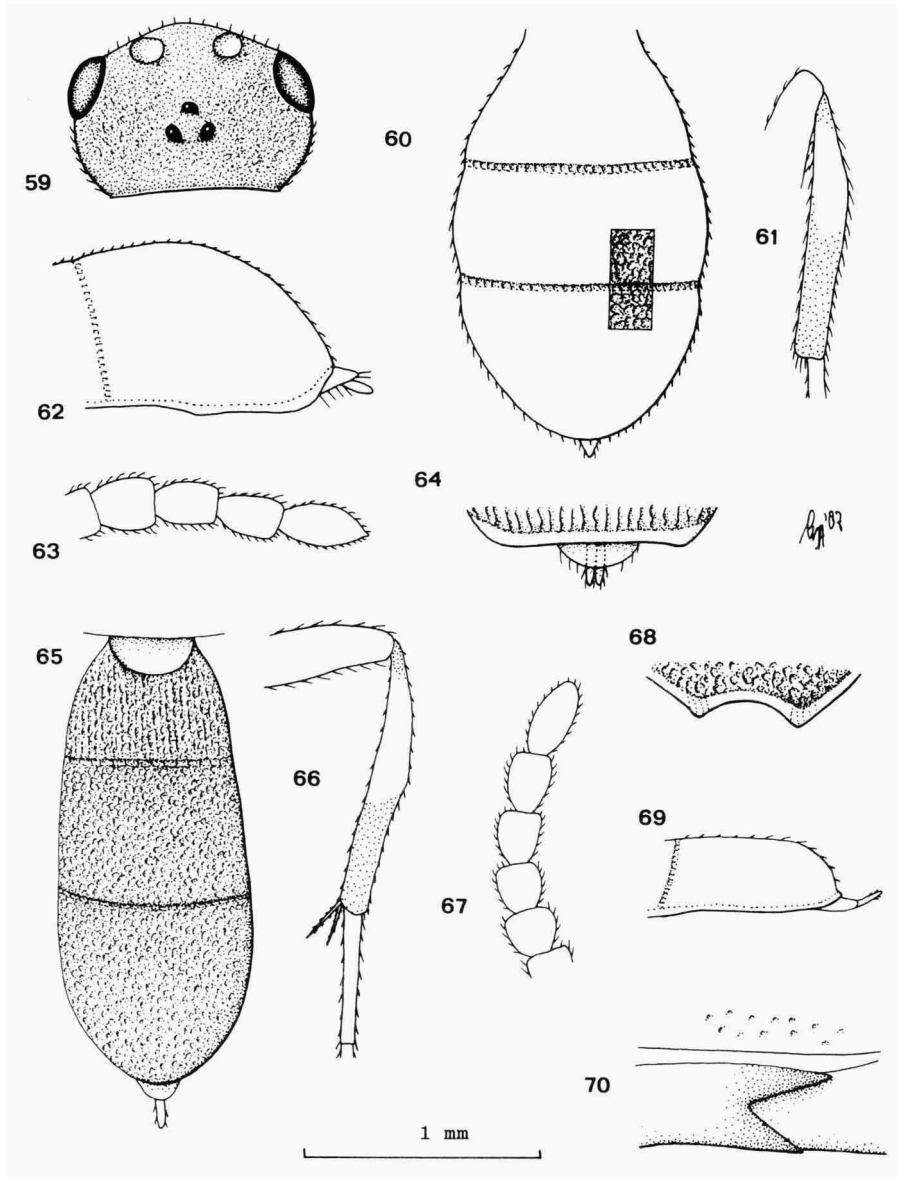
Figs. 36, 37, 39, *Ascogaster instabilis* Wesmael, ♀, Netherlands, Asperen; fig. 38, *Chelonus oculator* (Fabricius), ♂, Netherlands, Valkenswaard; fig. 40, 41, *Phanerotoma (P.) dentata* (Panzer), 40, ♀, Germany; 41, ♂, Netherlands, Oostvoorne. 36, 37, 39: after Van Achterberg, 1976; 40: after Panzer, 1805.



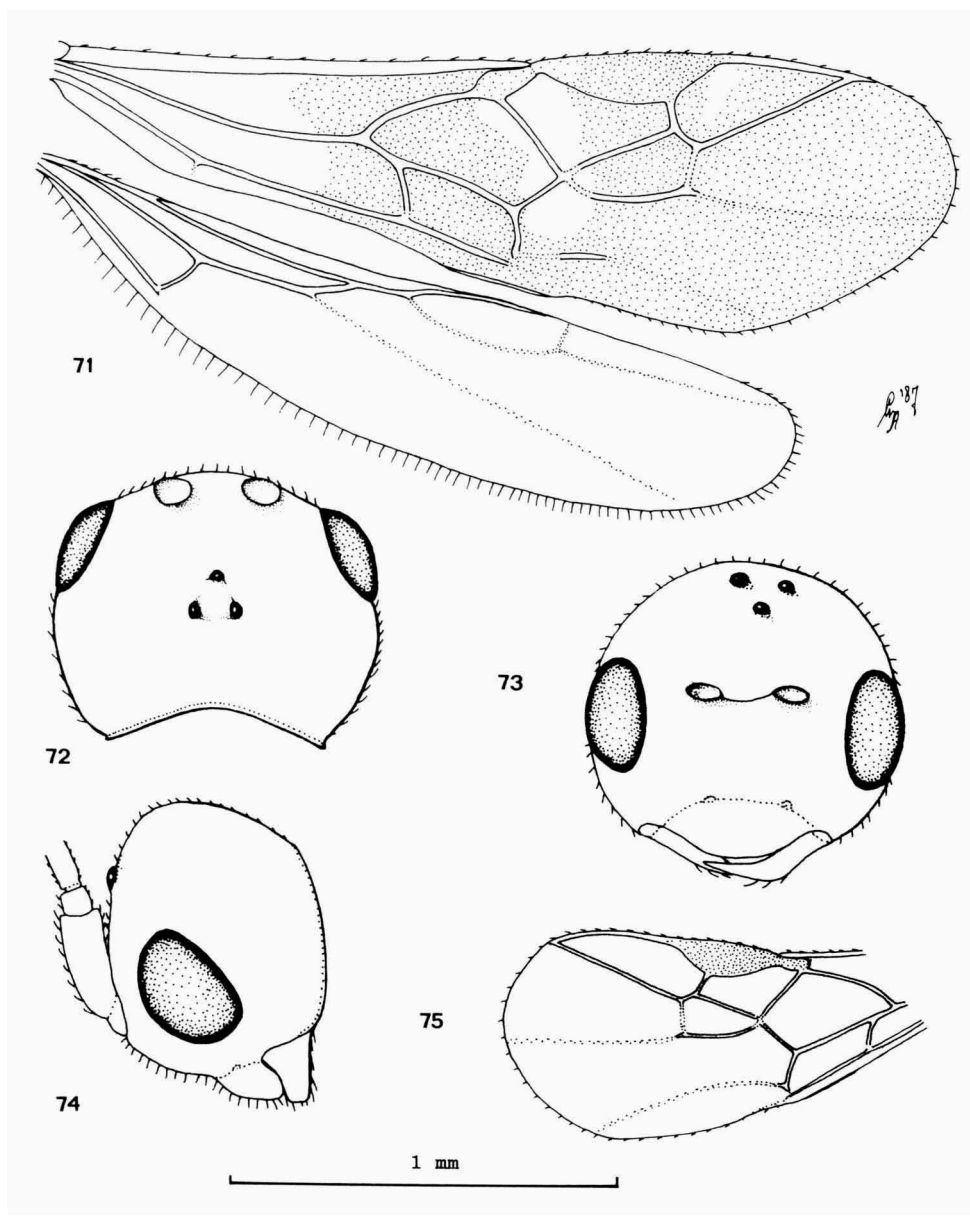
Figs. 42-45, 48, 49, *Phanerotoma (Bracrotitoma) gracilipes* (Szépligeti), ♂, holotype; fig. 45, *Phanerotoma (P.) rufescens* (Latreille), ♂, Hungary, Budapest; fig. 46, id., ♀, Netherlands, Bilthoven. 42, wings; 43, first and second metasomal tergites, dorsal aspect; 44, third metasomal tergite, postero-dorsal aspect; 45, hind leg; 46, hind femur; 47, apical antennal segments; 48, mesonotum, dorsal aspect; 49, meso- and metasoma, lateral aspect. 42-45, 48-49: scale-line (= 1 ×); 46: 2.6 ×; 47: 6 ×.



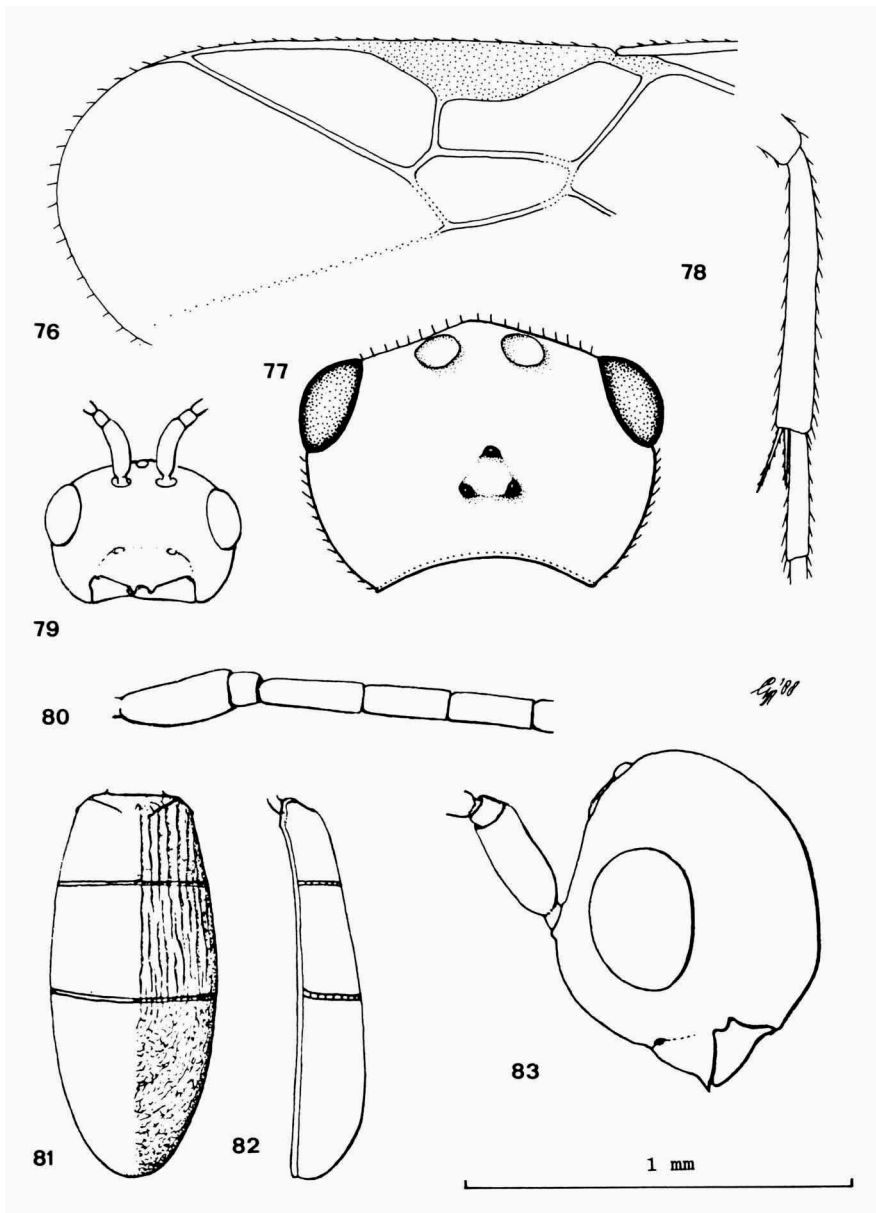
Figs. 50-52, *Phanerotomella bisulcata* (Herrich-Schäffer), ♂, holotype of *P. nigra* Szépligeti; figs. 53-56, *Phanerotomella rufa* (Marshall), ♂, lectotype of *P. kerteszi* Szépligeti, but 55 of ♀, Yugoslavia, Zajecar; figs. 57-58, *Phanerotoma (Bracotritoma) gijswijti* spec. nov., ♀, holotype. 50, 53, head, lateral aspect; 51, 56, 57, apical part of fore wing; 52, 54, 55, third metasomal tergite, postero-dorsal aspect; 58, head, frontal aspect. 50-57: scale-line (= 1 ×); 58: 0.6 ×.



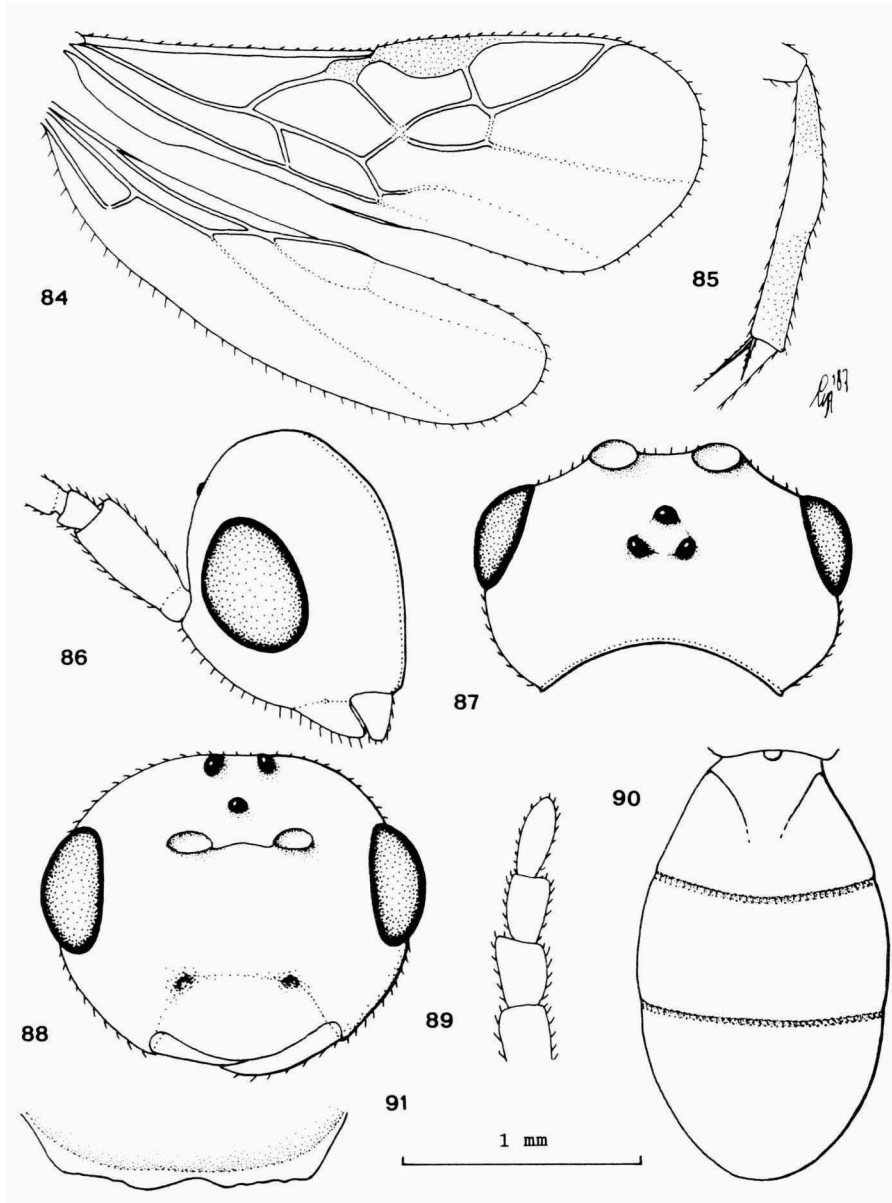
Figs. 59-64, *Phanerotoma (Bracotritoma) gijswijti* spec. nov., ♀, holotype; figs. 65-70, *Phanerotoma (B.) gracilisoma* spec. nov., ♀, holotype, but 70 of ♂, paratype. 59, head, dorsal aspect; 60, 65, metasoma, dorsal aspect; 61, 66, middle tibia, posterior aspect; 62, 69, third metasomal tergite, lateral aspect; 63, 67, apical antennal segments; 64, 68, apex of third tergite, postero-dorsal aspect; 70, mandible. 59, 60, 65, 69: scale-line (= 1 ×); 61, 62, 64, 66, 68: 1.6 ×; 63, 67, 70: 3.8 ×.



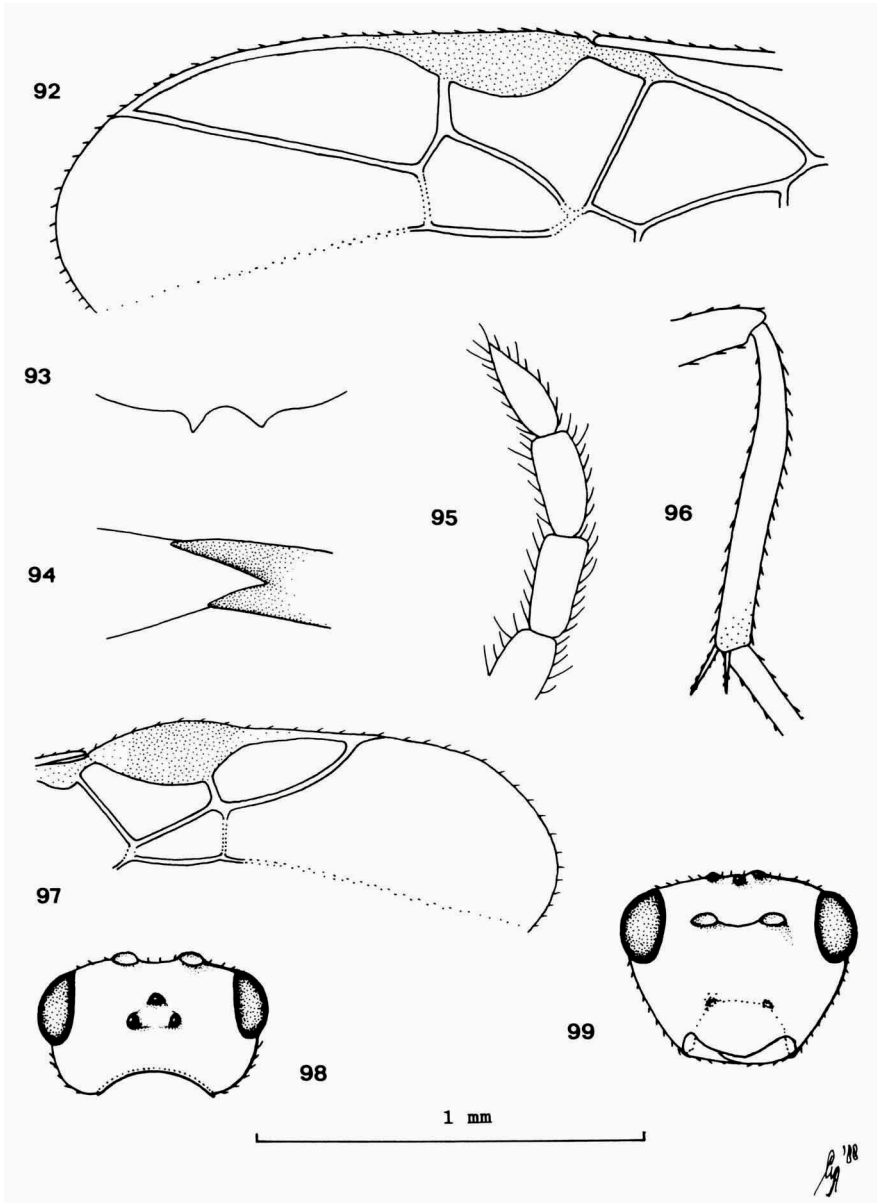
Figs. 71-74, *Phanerotoma (Bracotritoma) gracilisoma* spec. nov., ♀, holotype; fig. 75, *Phanerotoma (B.) moravica* Snoflák, ♀, holotype. 71, wings; 72, head, dorsal aspect; 73, head, frontal aspect; 74, head, lateral aspect; 75, apical half of fore wing. 71-74: scale-line (= 1 ×); 75: 0.7 ×.



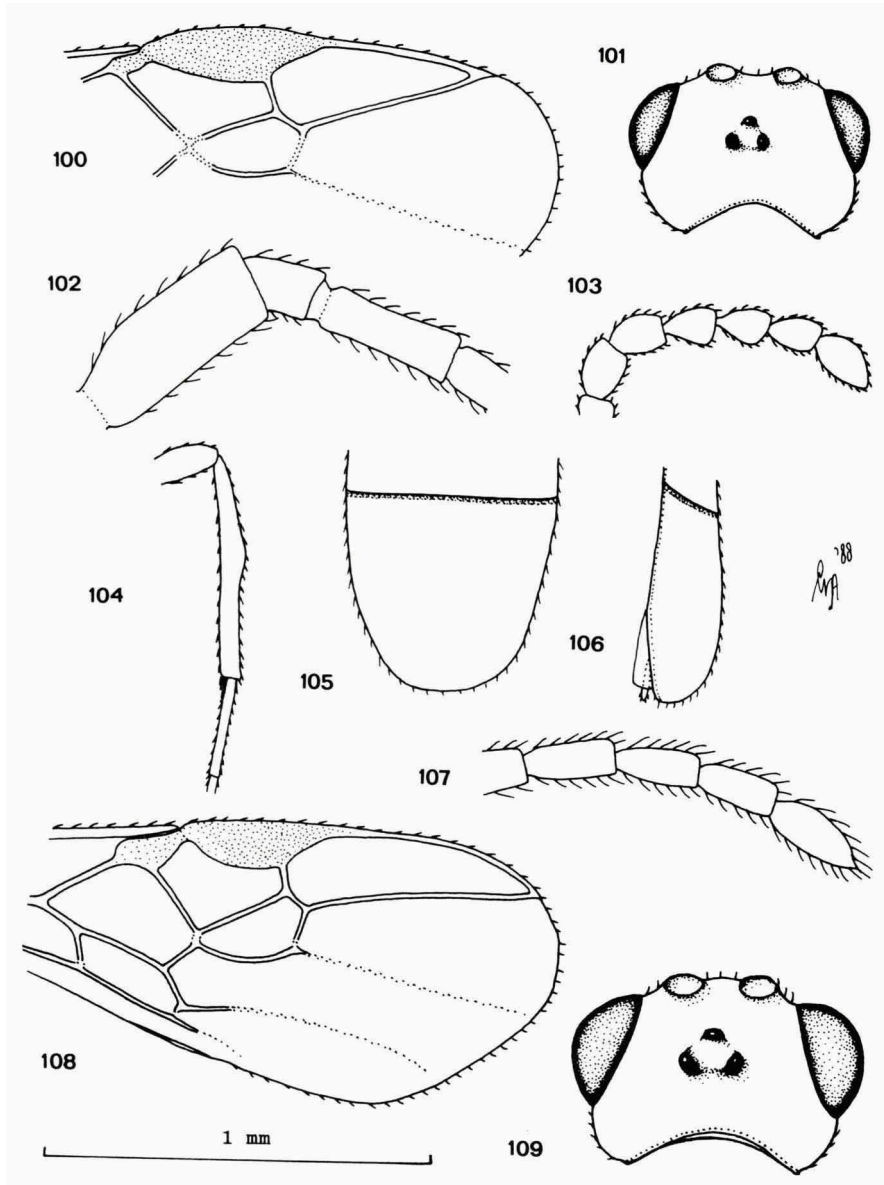
Figs. 76-83, *Phanerotoma (Bracrotitoma) waitzbaueri* Zettel, ♂, paratype (but 79-83 after Zettel, 1987). 76, apical part of fore wing; 77, head, dorsal aspect; 78, middle tibia, posterior aspect; 79, head, ventro-anterior aspect; 80, base of antenna; 81, metasoma, dorsal aspect; 82, id., lateral aspect; 83, head, lateral aspect. 76-78: scale-line.



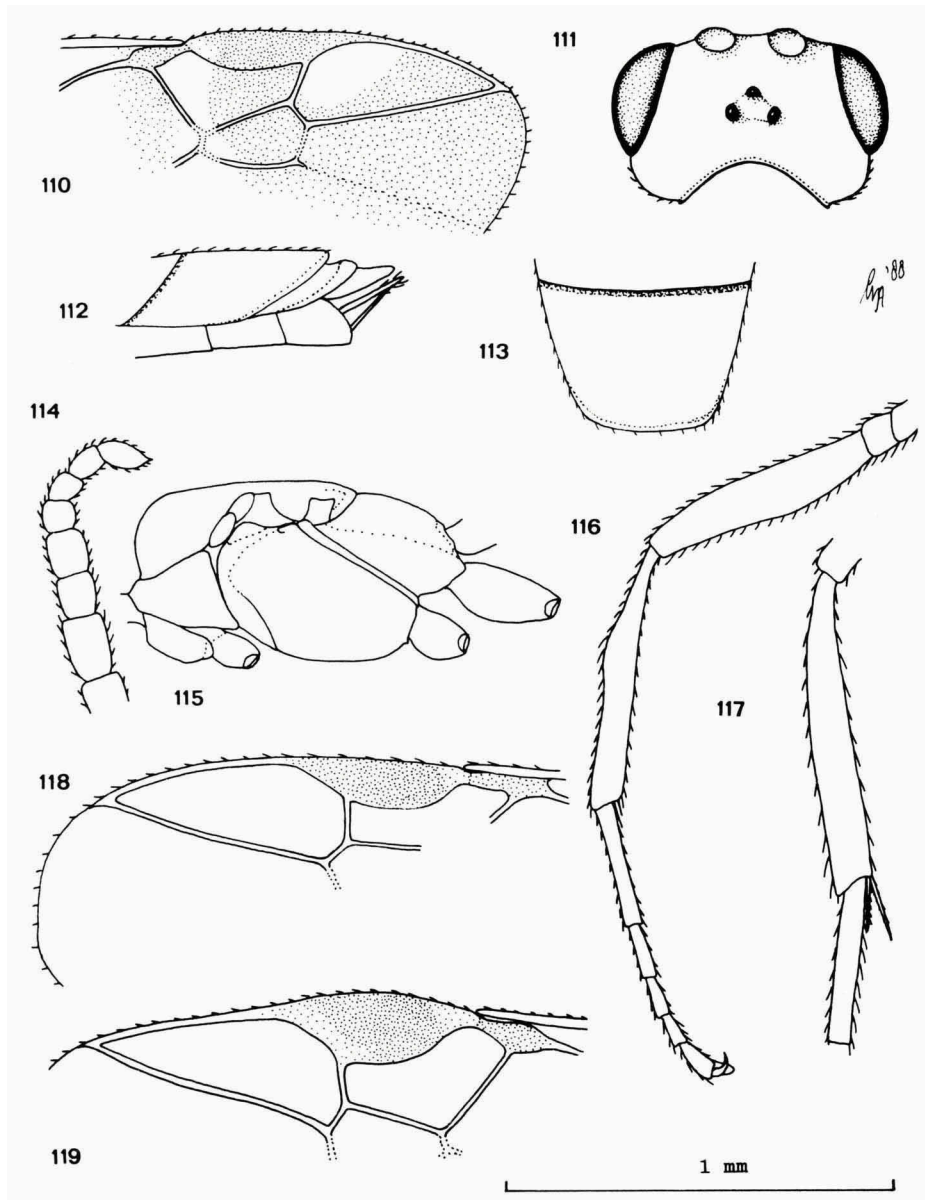
Figs. 84-91, *Phanerotoma (Bracotritoma) intermedia* spec. nov., ♀, holotype, but 90 of ♂, paratype. 84, wings; 85, middle tibia, posterior aspect; 86, head, lateral aspect; 87, head, dorsal aspect; 88, head, frontal aspect; 89, apex of antenna; 90, metasoma, dorsal aspect; 91, apex of third tergite, postero-dorsal aspect. 84, 85, 90: scale-line (= 1 ×); 86-88: 1.6 ×; 89: 3.8 ×; 91: 2.5 ×.



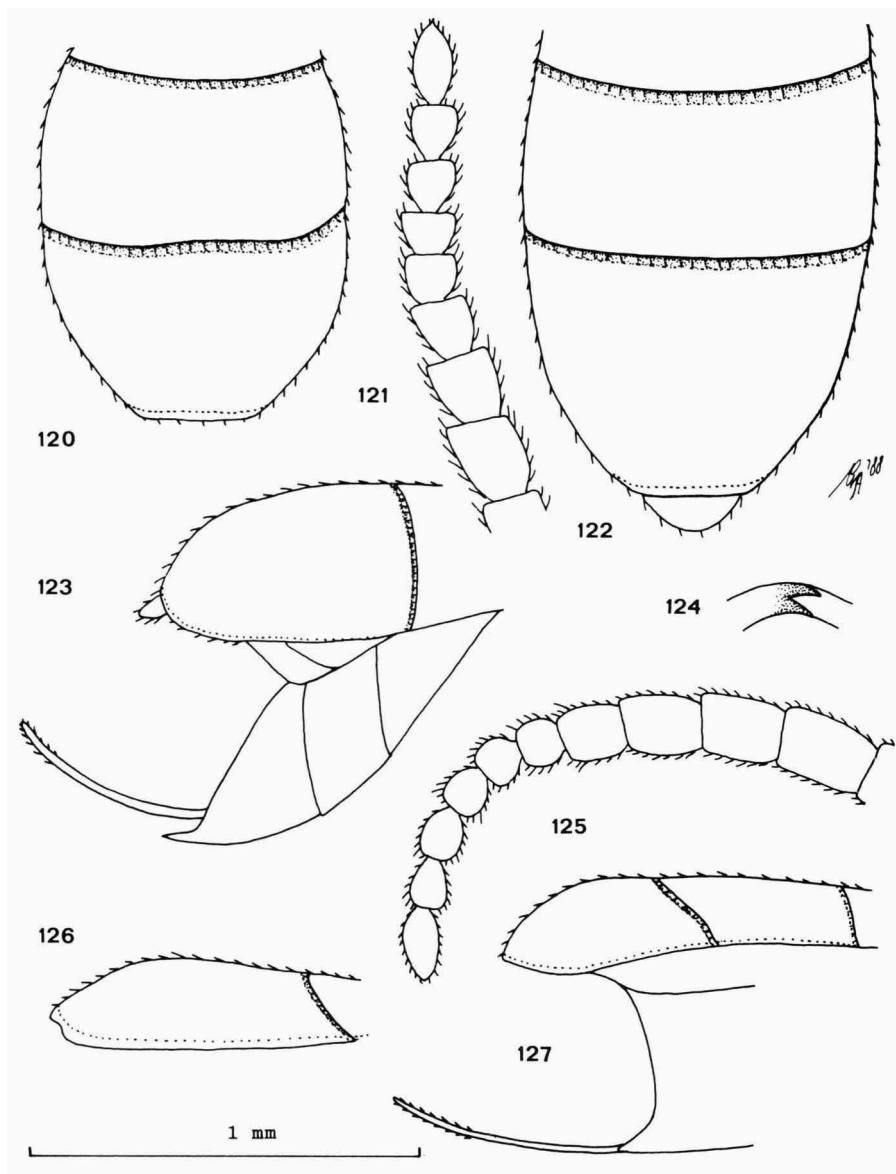
Figs. 92-96, *Phanerotoma (Bracotritoma) atra* Snoflák, ♂, Czechoslovakia, Vinica; figs. 97-99, *Phanerotoma (B.) genalis* Tobias, ♂, holotype. 92, 97, apical part of fore wing; 93, teeth on ventral rim of clypeus; 94, mandible; 95, apex of antenna; 96, middle tibia, posterior aspect; 98, head, dorsal aspect; 99, head, frontal aspect. 92, 96: scale-line (= 1 ×); 93-95: 2.3 ×; 98, 99: 0.6 ×.



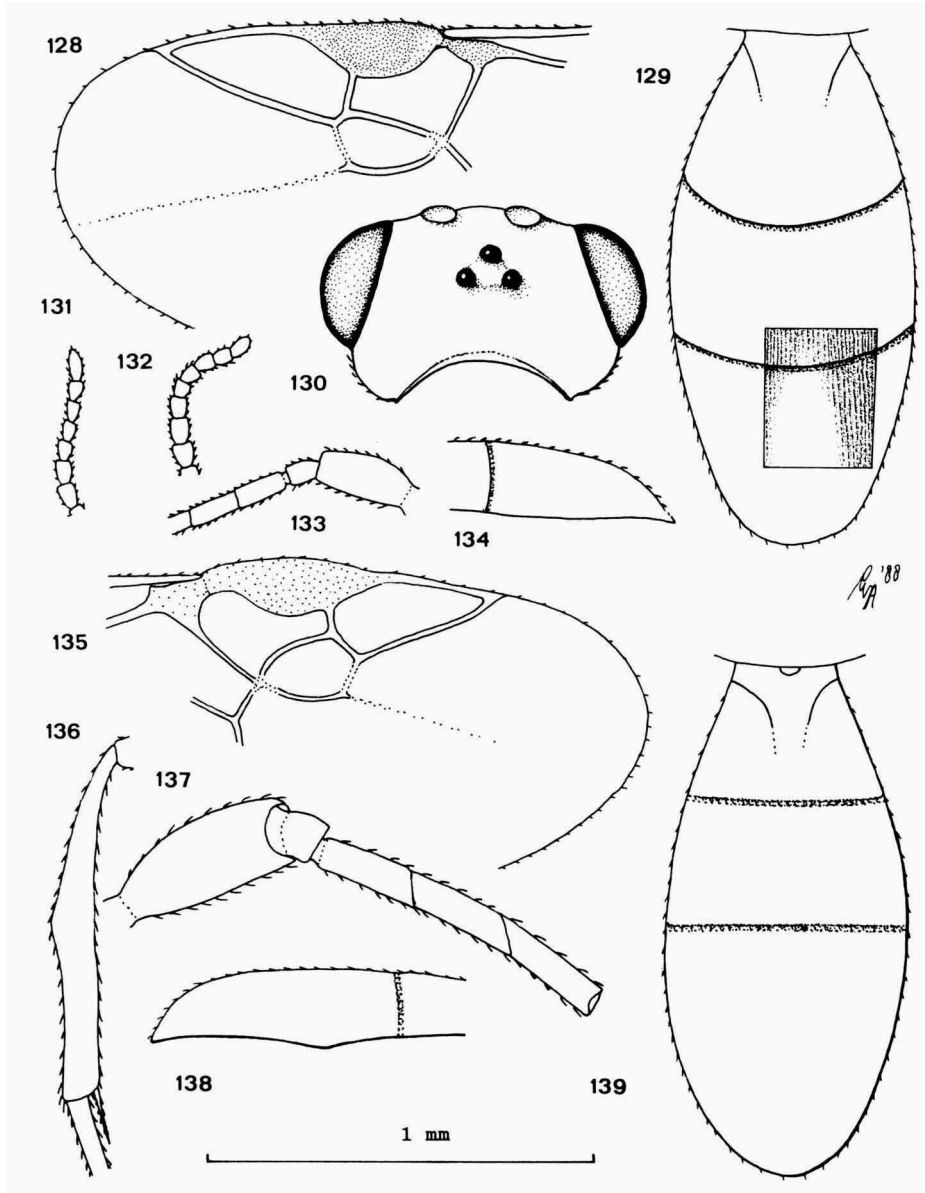
Figs. 100-106, *Phanerotoma (Bracotritoma) acara* spec. nov., ♀, holotype; figs. 107-109, *Phanerotoma (B.) gracilis* Tobias, ♂, holotype. 100, 108, apical part of fore wing; 101, 109, head, dorsal aspect; 102, base of antenna; 103, 107, apex of antenna; 104, middle tibia, posterior aspect; 105, third metasomal tergite, dorsal aspect; 106, id., lateral aspect. 100, 101, 104-106, 108, 109: scale-line (= 1 ×); 102, 103, 107: 2.3 ×.



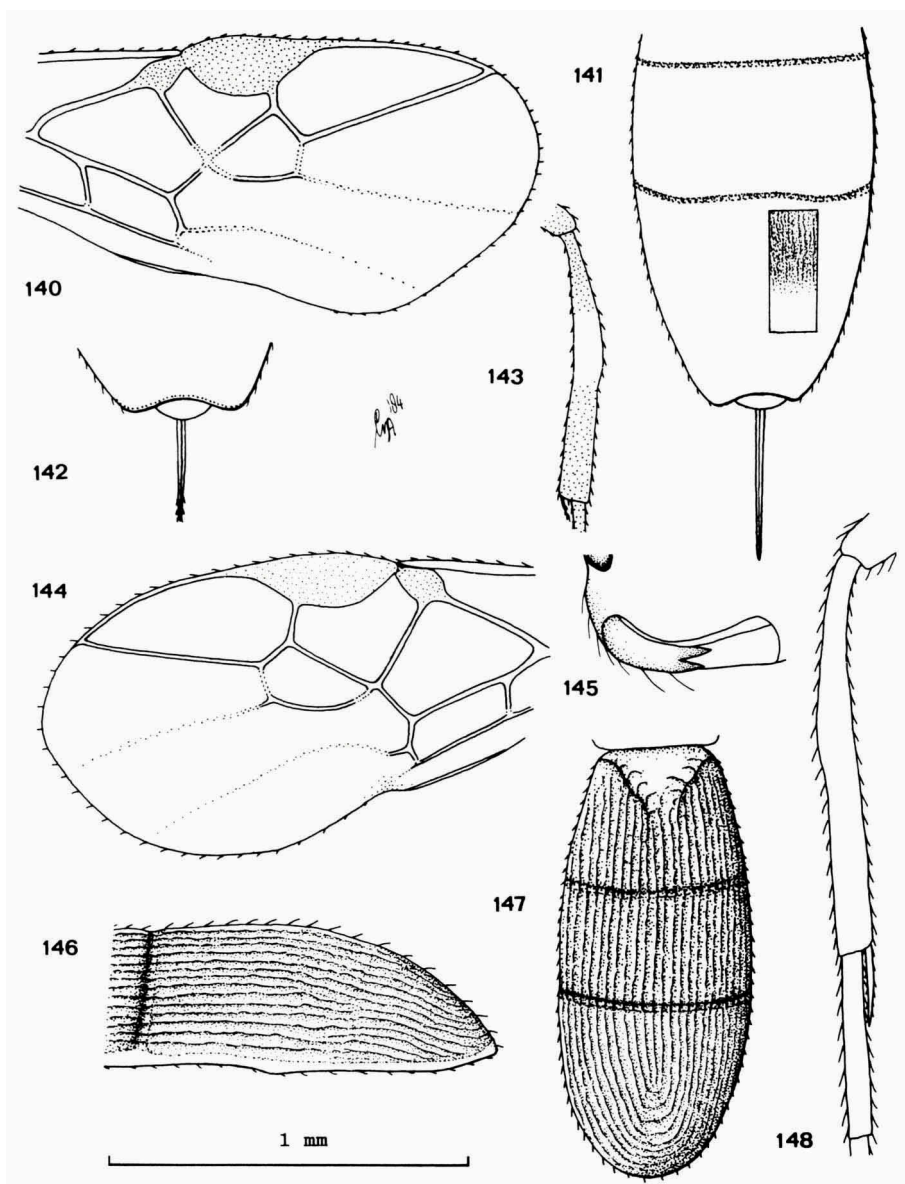
Figs. 110-115, 117, *Phanerotoma (Bracotritoma) graciloides* spec. nov., ♀, holotype; figs. 116, 118, 119, *Phanerotoma (B.) permixtella* Fischer, ♀, paratype, but 118 of ♀, paratype of *P. olearia* Fischer. 110, 118, 119, apical part of fore wing; 111, head, dorsal aspect; 112, third metasomal aspect, lateral aspect; 113, id., lateral aspect; 114, apex of antenna; 115, mesosoma, lateral aspect; 116, middle leg, posterior aspect; 117, middle tibia, posterior aspect. 110-113, 115, 116, 118, 119: scale-line (= 1 ×); 114: 2.3 ×; 117: 1.5 ×.



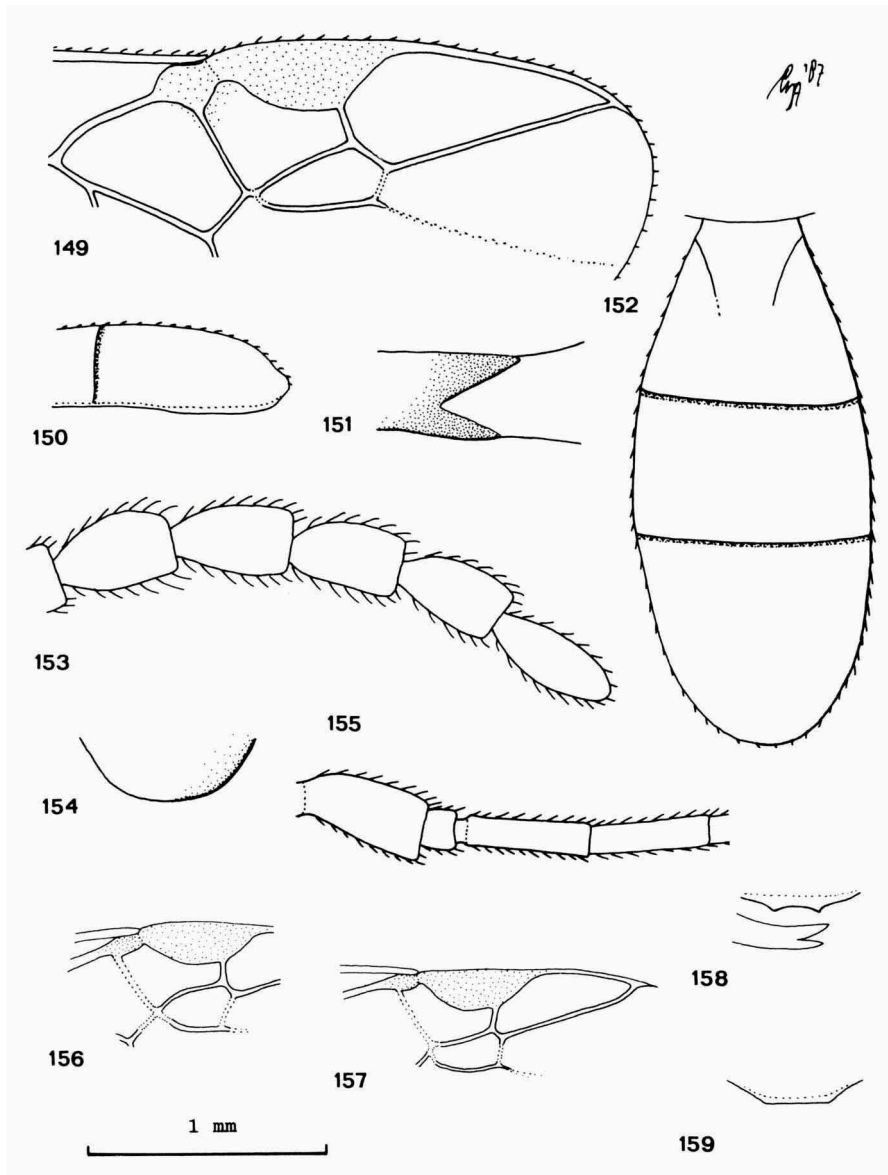
Figs. 120-127, *Phanerotoma (Bracotritoma) permixtellae* Fischer, ♀, paratype, but 120 and 127 of ♀, holotype of *P. olearia* Fischer, and 125 and 126 of ♀, paratype of *P. olearia*. 120, 122, second and third metasomal tergite, dorsal aspect; 121, 125, apex of antenna; 123, 126, 127, third tergite, lateral aspect; 124, mandible, ventro-lateral aspect. 120, 122-124, 126, 127: scale-line (= 1 ×); 121, 125: 2.3 ×.



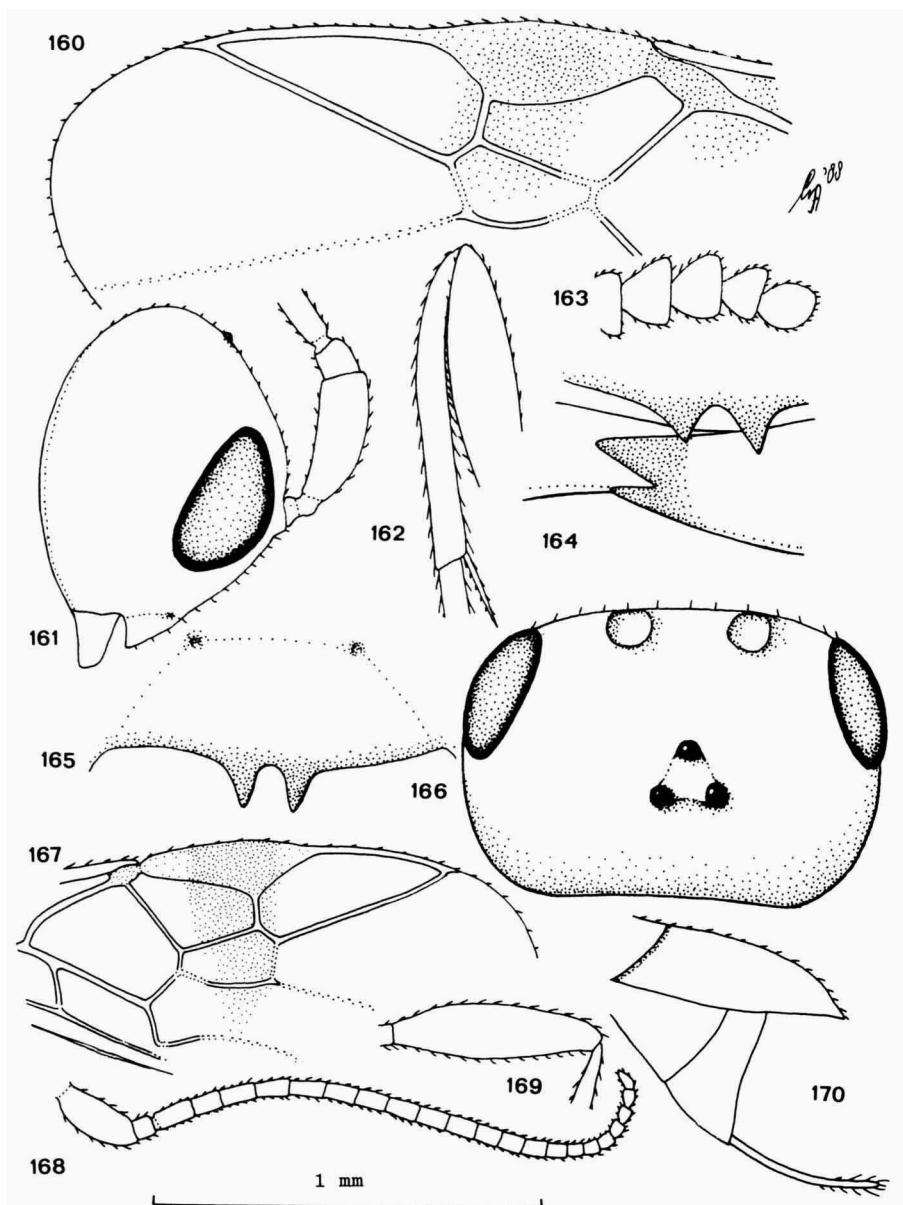
Figs. 128-134, *Phanerotoma (Bracotritoma) masiana* Fahringer, ♂, lectotype, but 131 of ♀, Libya, Cufra; figs. 135-139, *Phanerotoma (B.) cyrenaica* Masi, ♂, holotype. 128, 135, apical part of fore wing; 129, 139, metasoma, dorsal aspect; 131, 132, apex of antenna; 133, 137, base of antenna; 134, 138, third tergite, lateral aspect; 136, middle tibia, posterior aspect. 128-134, 136, 137: scale-line (= 1 ×); 135, 138, 139: 0.6 ×.



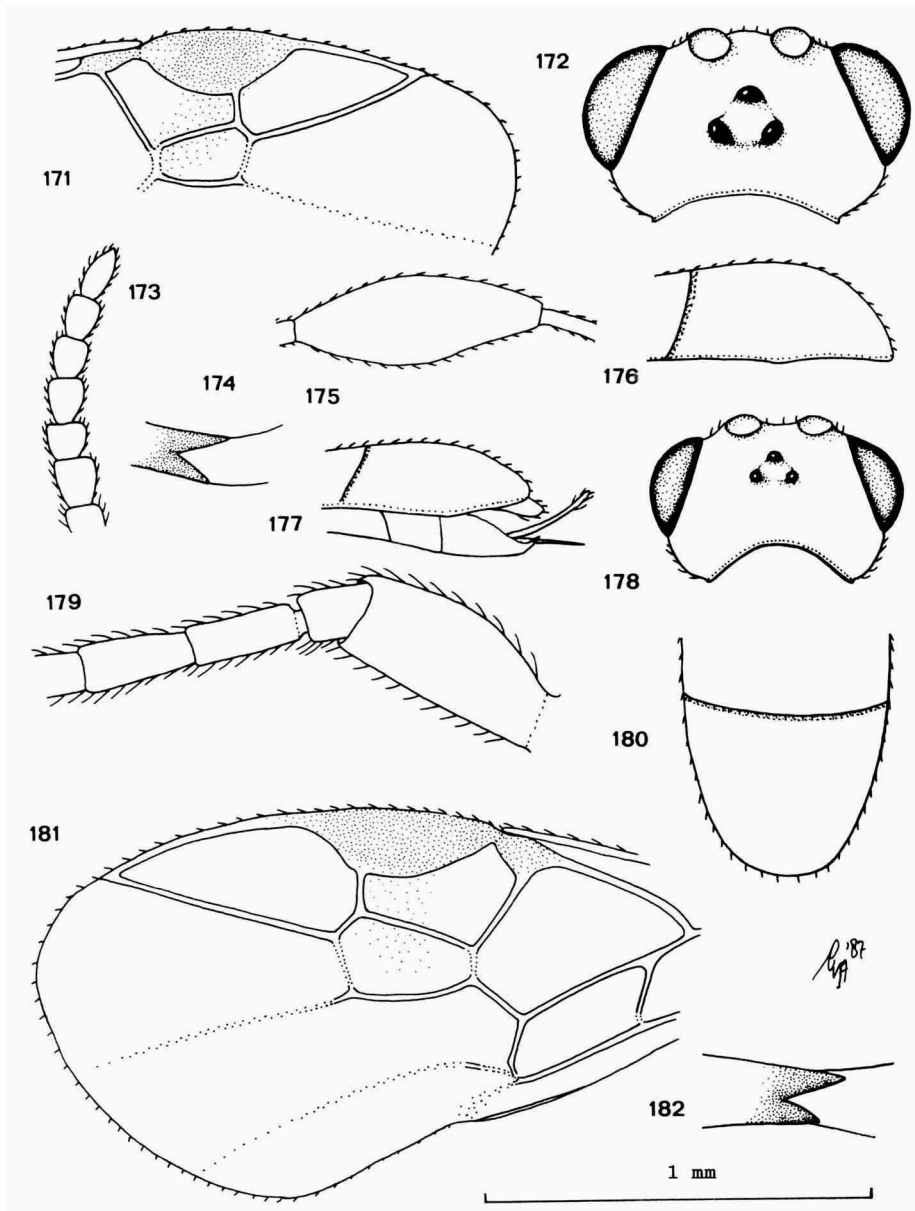
Figs. 140-143. *Phanerotoma (Bracotritoma) maculata* (Wollaston), ♀, holotype; figs. 144-148, *Phanerotoma (B.) tritoma* (Marshall), ♂, holotype. 140, 144, apical part of fore wing; 141, 147, metasoma, dorsal aspect; 142, apex of third tergite, postero-dorsal aspect; 143, 148, middle tibia, posterior aspect; 145, mandible; 146, third tergite, lateral aspect. 145, 146, 148: scale-line (= 1 ×); 140-142: 0.8 ×; 143: 1.1 ×; 144, 147: 0.5 ×.



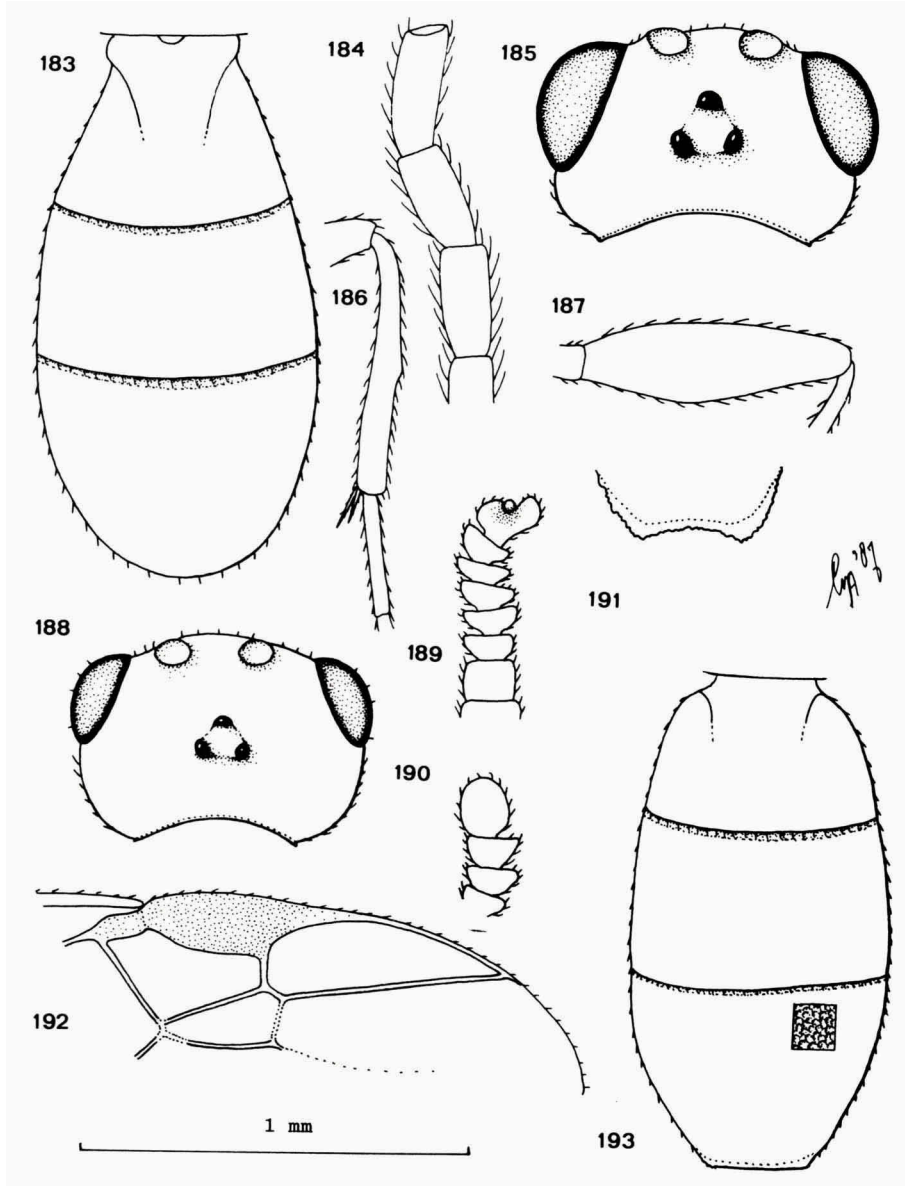
Figs. 149-155, *Phanerotoma (Bracrotitoma) tritoma* (Marshall), pale form, ♀, Czechoslovakia, B. Stiavnica; figs. 156-159, *Phanerotoma (B.) parva* Kokujev, ♂, USSR, but 156 and 158 of ♂, holotype of *P. gussakovskii* (Shestakov). 149, 156, 157, (sub)apical part of fore wing; 150, third tergite, lateral aspect; 151, mandible; 152, metasoma, dorsal aspect; 153, apex of antenna; 154, apex of third tergite, postero-dorsal aspect; 155, base of antenna; 158, 159, ventral rim of clypeus. 149, 150, 152, 154, 156, 157: scale-line (= 1 ×); 151, 153: 3.8 ×; 155: 1.6 ×; 158, 159: 2.5 ×.



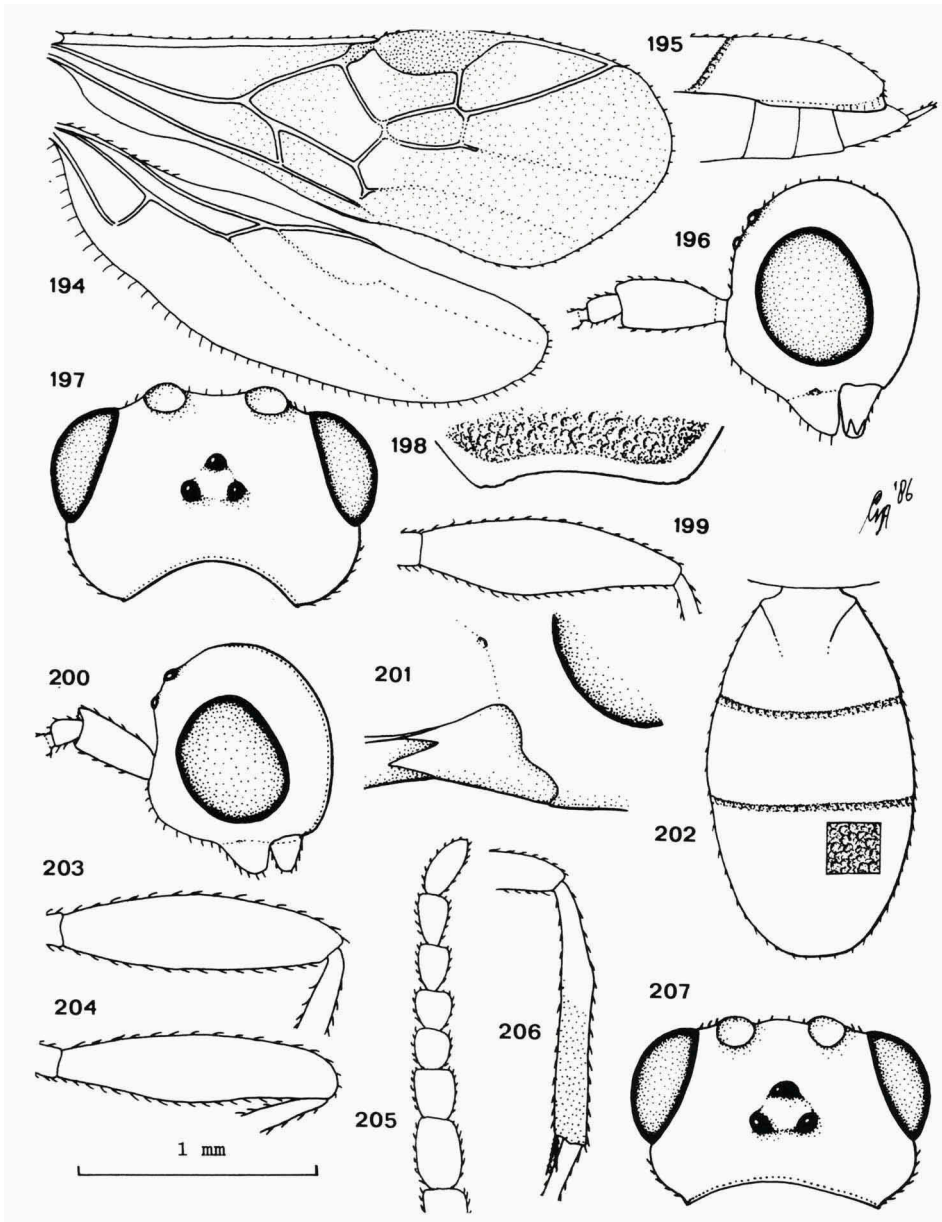
Figs. 160-166, *Phanerotoma (Bracotritoma) popovi* Telenga, ♀, holotype; figs. 167-170, *Phanerotoma (B.) ebneri* Fahringer, ♀, lectotype. 160, 167, apical part of fore wing; 161, head, lateral aspect; 162, middle tibia, posterior aspect; 163, apex of antenna; 164, mandible; 165, clypeus; 166, head, dorsal aspect; 168, antenna; 169, hind femur; 170, third tergite, lateral aspect. 160-162, 166-170: scale-line (= 1 ×); 163, 164: 2.3 ×; 165: 1.5 ×.



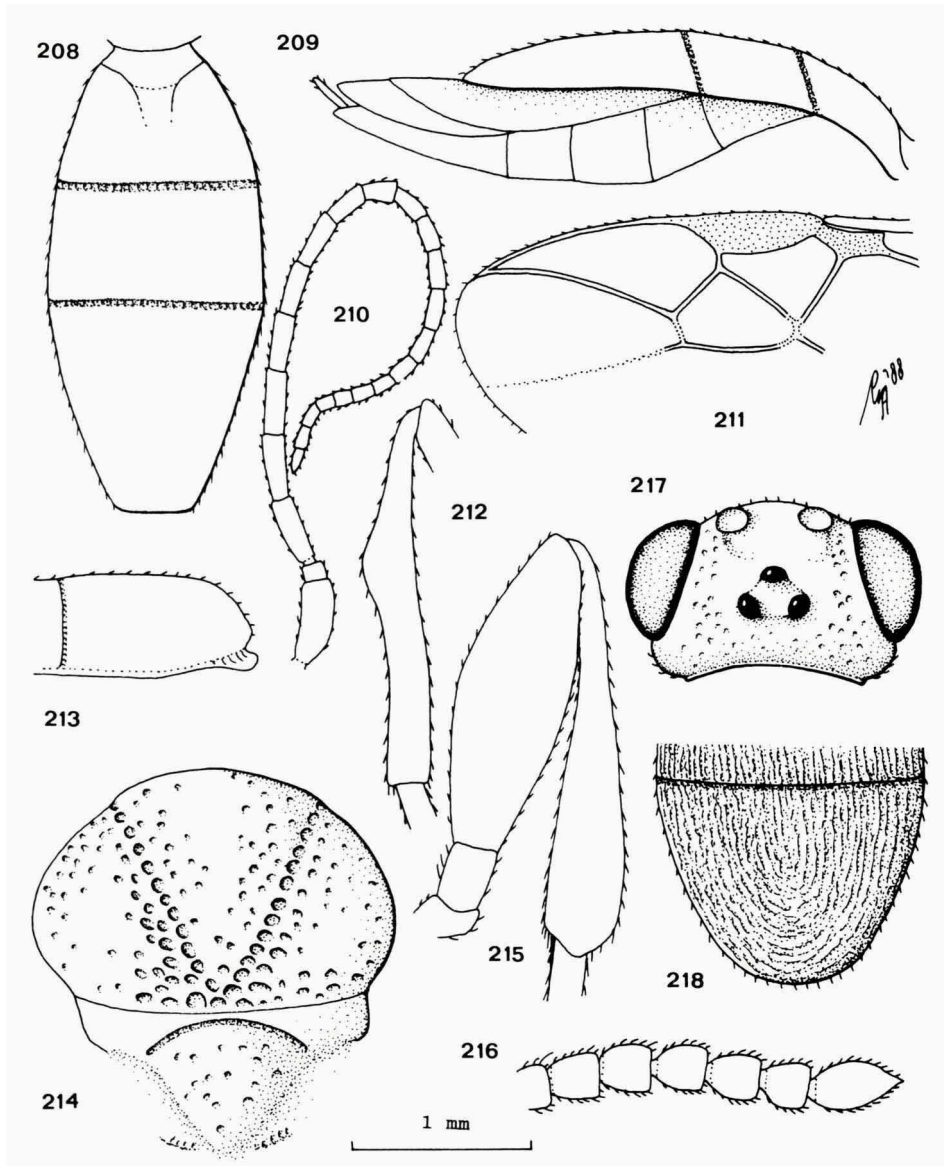
Figs. 171-180, *Phanerotoma (Bracrotitoma) parva* Kokujev, ♂, paralectotype, but 173-174 and 177-180 of ♀, Greece, Lakonia; figs. 181-182, *Phanerotoma (B.) bouceki* spec. nov., ♀, holotype. 171, 181, apical part of fore wing; 172, 178, head, dorsal aspect; 173, apex of antenna; 174, 182, mandible; 175, hind femur; 176, 177, third tergite, lateral aspect; 179, base of antenna; 180, third tergite, dorsal aspect. 171, 172, 175-178, 180, 181: scale-line (= 1 ×); 173, 174, 179, 182: 2.3 ×.



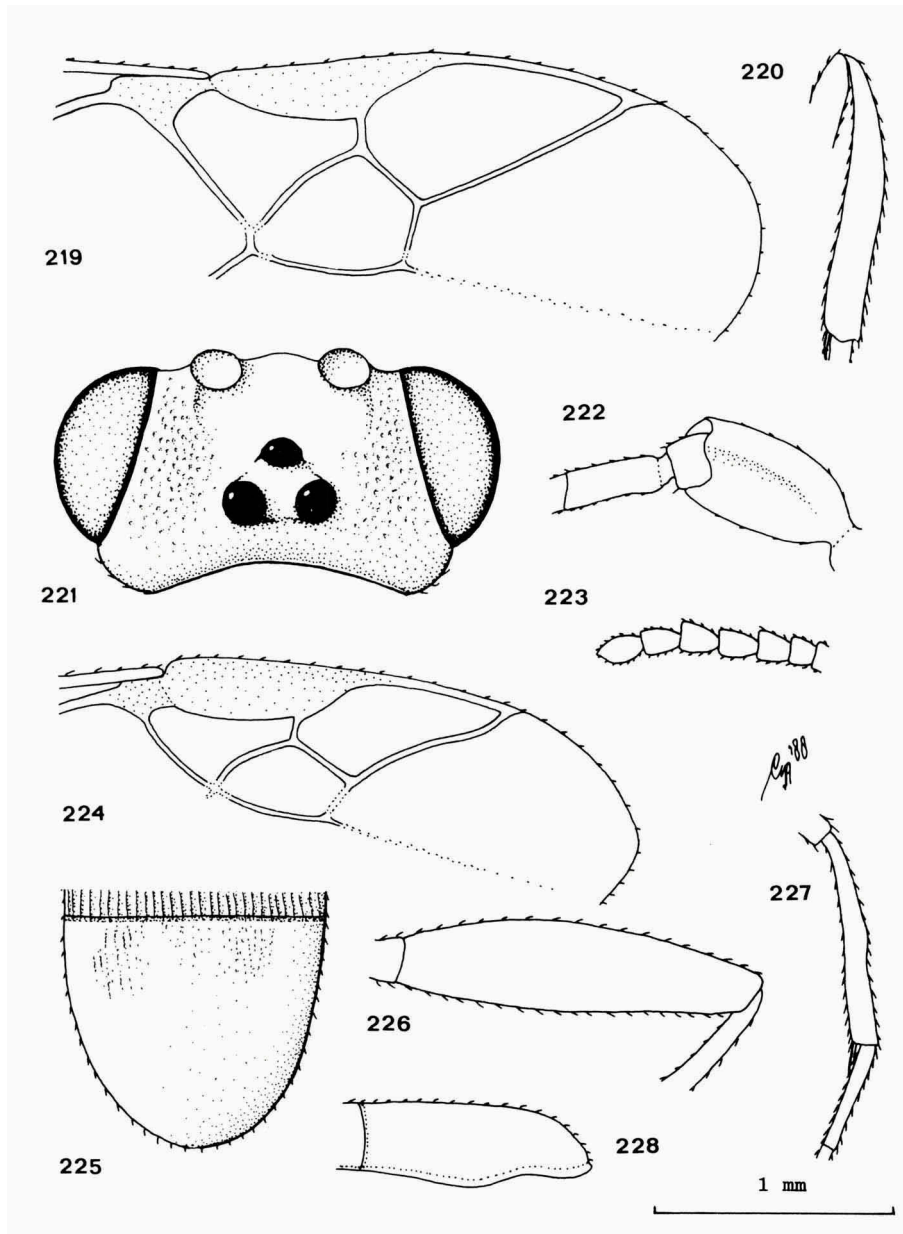
Figs. 183-187, *Phamerotoma (Bracotritoma) bouceki* spec. nov., ♀, holotype; figs. 188-193, *Phamerotoma (B.) kasachstanica* Tobias, ♀, holotype. 183, 193, metasoma, dorsal aspect; 184, 19th-21st antennal segments; 185, 188, head, dorsal aspect; 186, middle tibia, posterior aspect; 187, hind femur; 189, apex of right antenna; 190, apex of left antenna; 191, apex of third tergite, postero-dorsal aspect. 183, 185-188, 191-193: scale-line (= 1 ×); 184, 189, 190: 2.3 ×.



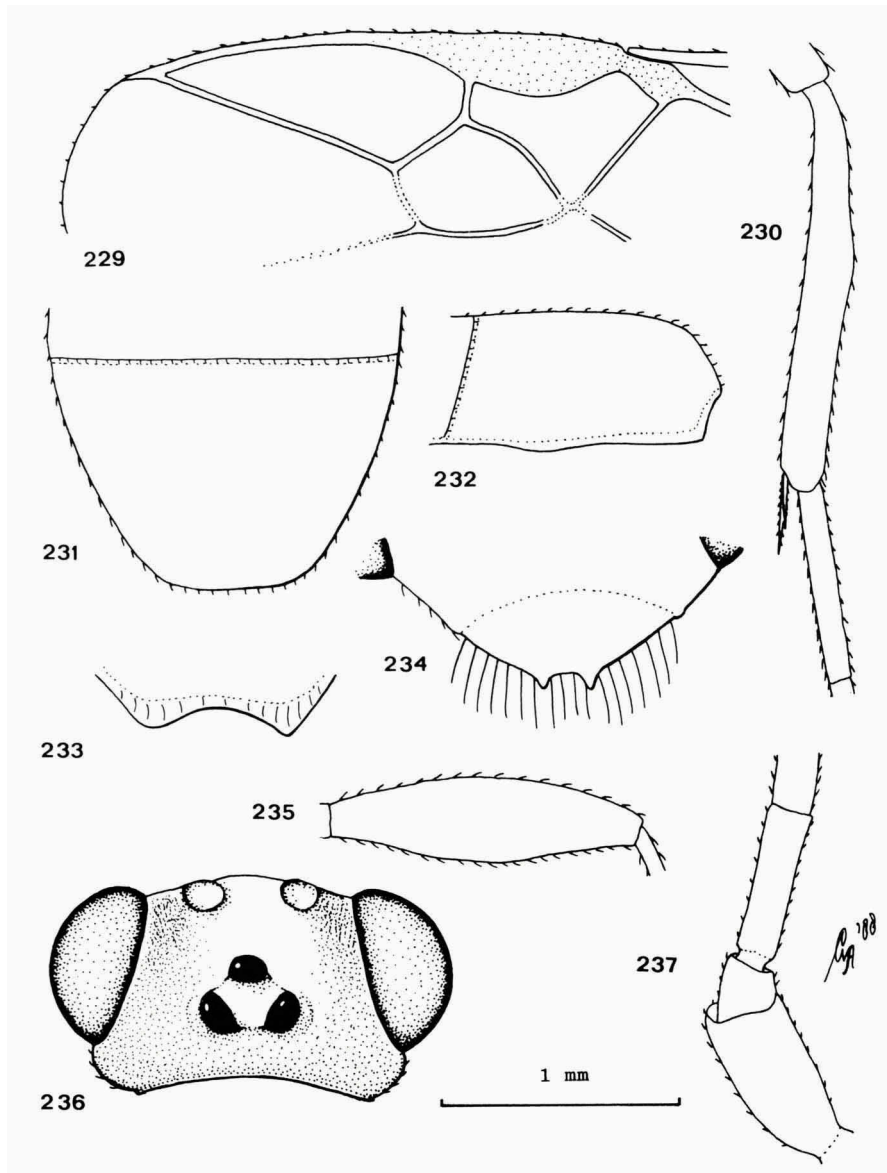
Figs. 194-207, *Phanerotoma (Bracotritoma) capeki* spec. nov., ♀, holotype, but 200, 204 and 207 of ♂, paratype and 203 of ♀, paratype. 194, wings; 195, third tergite, lateral aspect; 196, 200, head, lateral aspect; 197, 207, head, dorsal aspect; 198, apex of third tergite, postero-dorsal aspect; 199, 203, 204, hind femur; 201, mandible; 202, metasoma, dorsal aspect; 205, apex of antenna; 206, middle tibia, posterior aspect. 194, 195, 202: scale-line (= 1 ×); 196, 197, 199, 200, 203, 204, 206, 207: 1.6 ×; 198, 201: 2.5 ×; 205: 3.8 ×.



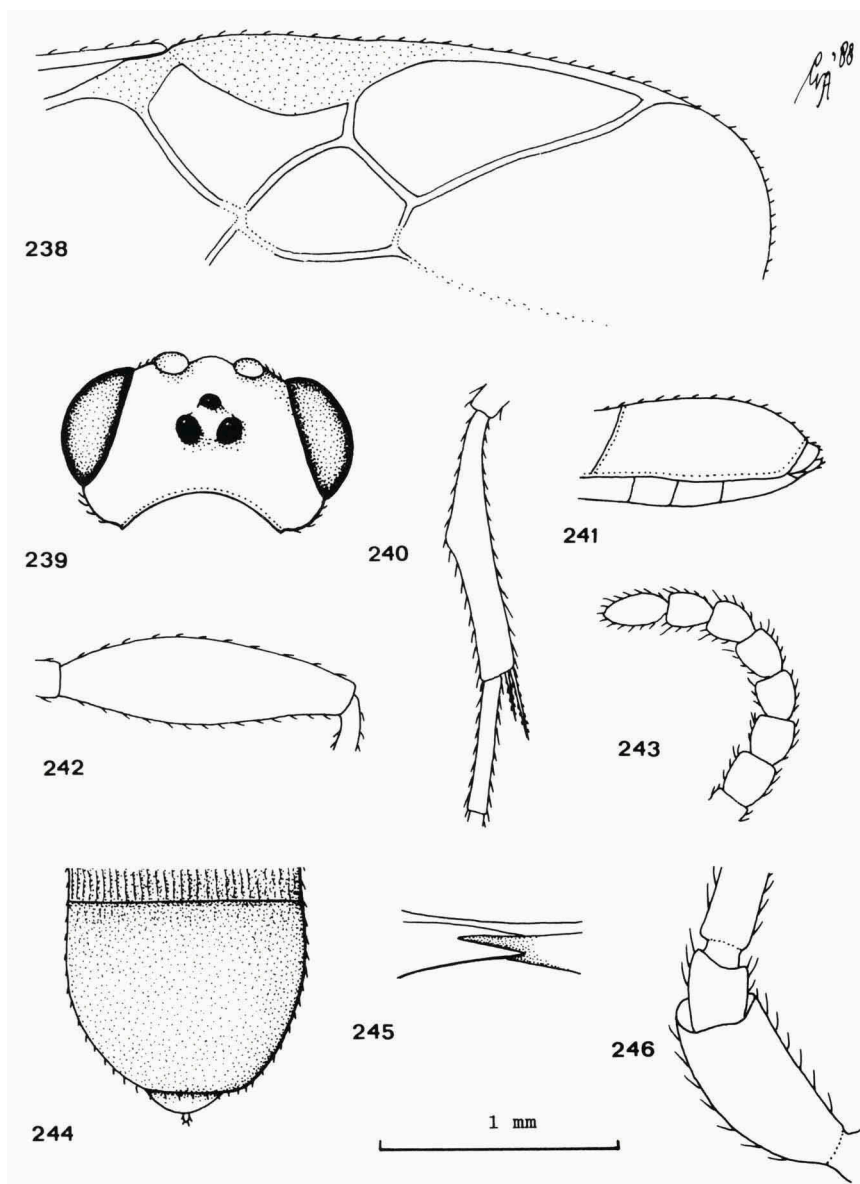
Figs. 208-212, *Phanerotoma (P.) acuminata* Szépligeti, ♀, holotype; figs. 213-218, *Phanerotoma (P.) nocturna* Tobias, ♀, holotype. 208, metasoma, dorsal aspect; 209, id., lateral aspect; 210, antenna; 211, apical part of fore wing; 212, middle tibia, posterior aspect; 213, third tergite, lateral aspect; 214, mesonotum, dorsal aspect; 215, hind femur and tibia, posterior aspect; 216, apex of antenna; 217, head, dorsal aspect; 218, third tergite, dorsal aspect. 208-211: scale-line (= 1 ×); 212: 2 ×; 213, 217, 218: 1.3 ×; 214, 215: 2.2 ×; 216: 3.8 ×.



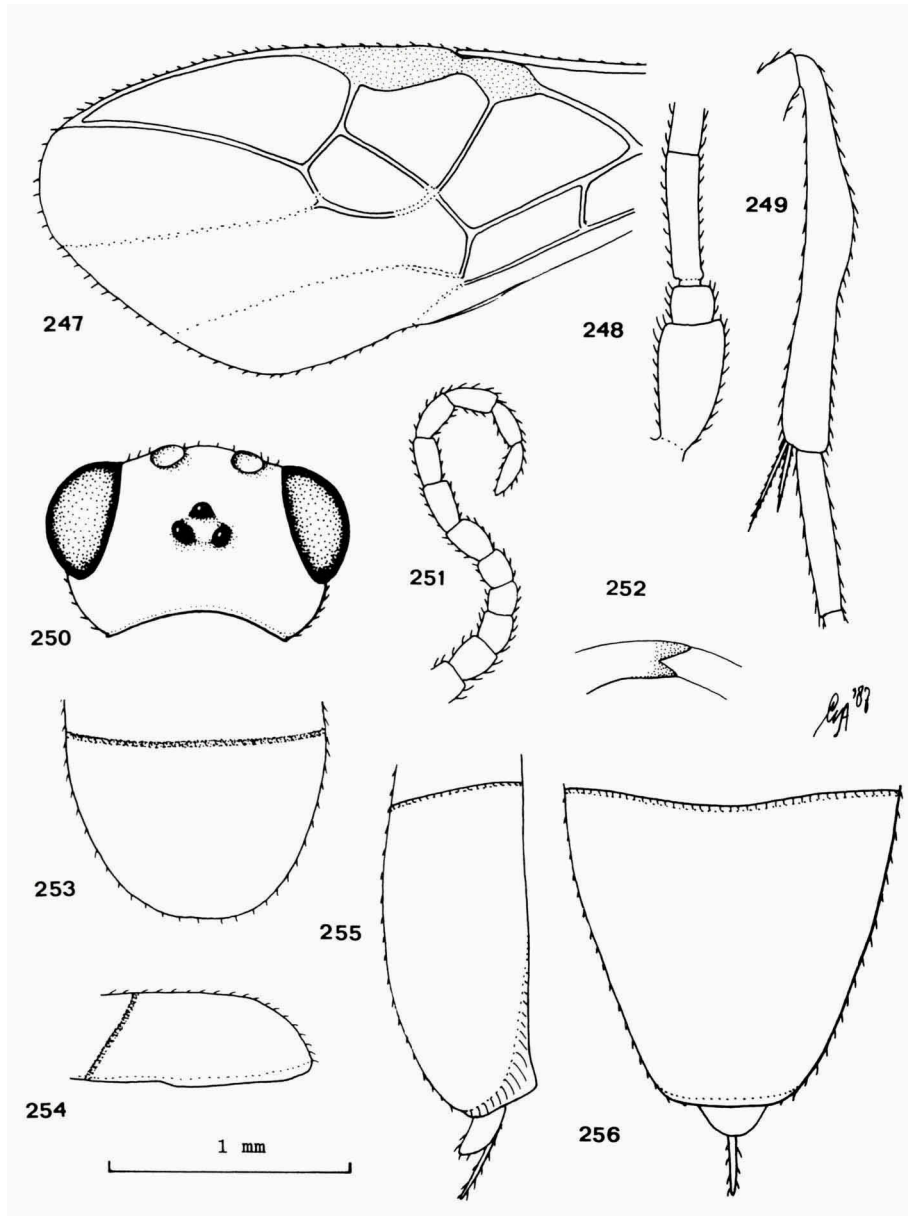
Figs. 219-220, *Phanerotoma (P.) nocturna* Tobias, ♀, holotype; figs. 221-228, *Phanerotoma (P.) semenowi* Kokujev, ♀, lectotype. 219, 224, apical part of fore wing; 220, 227, middle tibia, posterior aspect; 221, head, dorsal aspect; 222, scapus, lateral aspect; 223, apex of antenna; 225, third tergite, dorsal aspect; 226, hind femur; 228, third tergite, lateral aspect. 219, 224, 225, 227, 228: scale-line (= 1 ×); 220-223, 227: 1.6 ×.



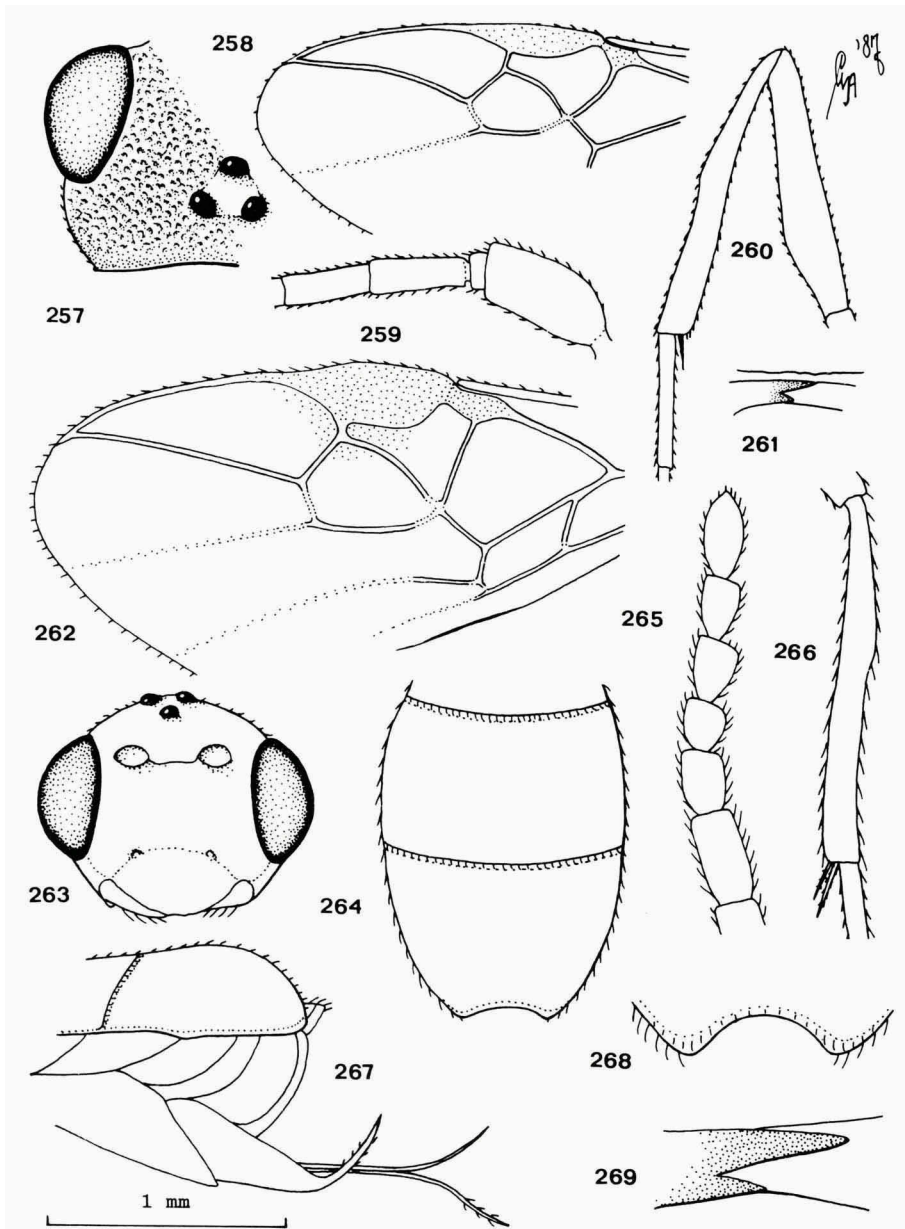
Figs. 229-237, *Phanerotoma (P.) transcaspica* Kokujev, ♀, syntype. 229, apical part of fore wing; 230, middle tibia, posterior aspect; 231, third tergite, dorsal aspect; 232, id., lateral aspect; 233, apex of third tergite, postero-dorsal aspect; 234, clypeus; 235, hind femur; 236, head, dorsal aspect; 237, base of antenna. 229, 231-233, 235, 236: scale-line (= 1 ×); 230, 234, 237: 1.6 ×.



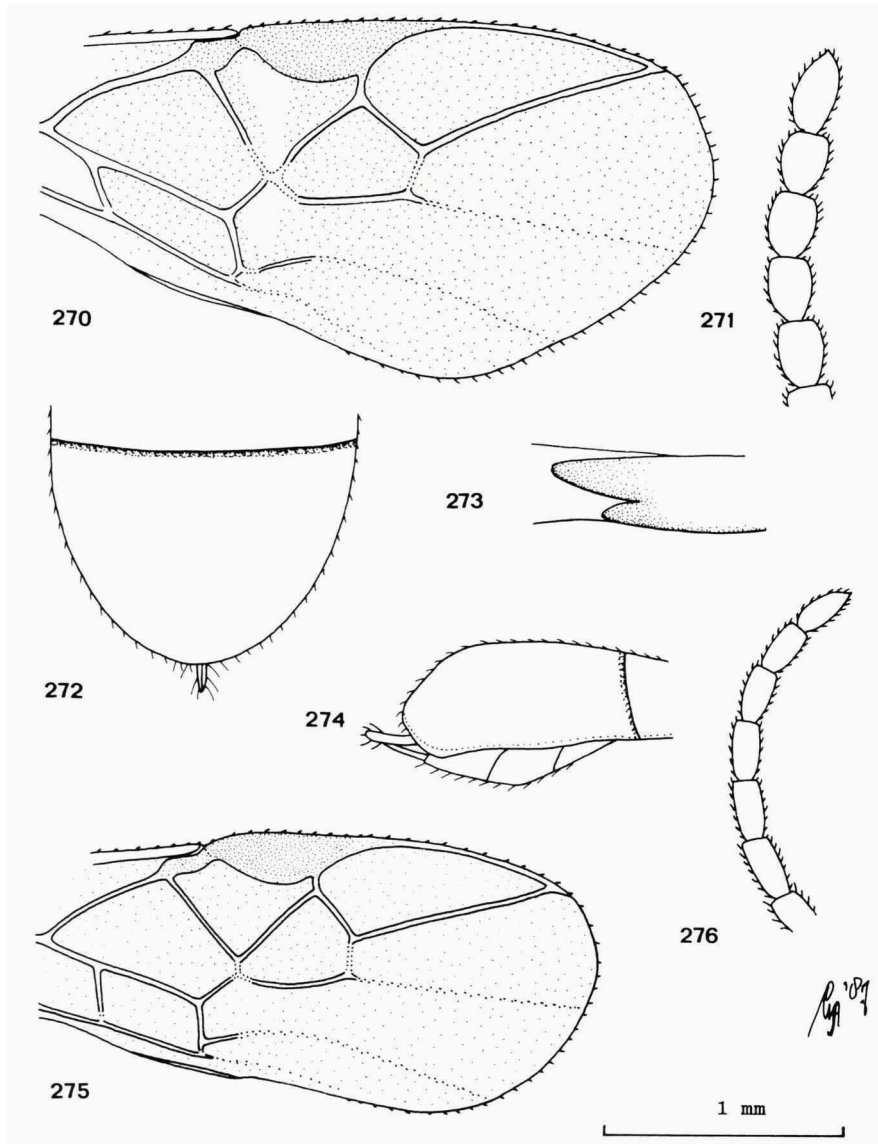
Figs. 238-246, *Phanerotoma (P.) minuta* Kokujev, ♀, lectotype. 238, apical part of fore wing; 239, head, dorsal aspect; 240, middle tibia, posterior aspect; 241, third tergite, lateral aspect; 242, hind femur; 243, apex of antenna; 244, third tergite, dorsal aspect; 245, mandible; 246, scapus and pedicellus. 239, 241, 244: scale-line (= 1 ×); 238, 240, 242: 1.6 ×; 243, 245, 246: 2.5 ×.



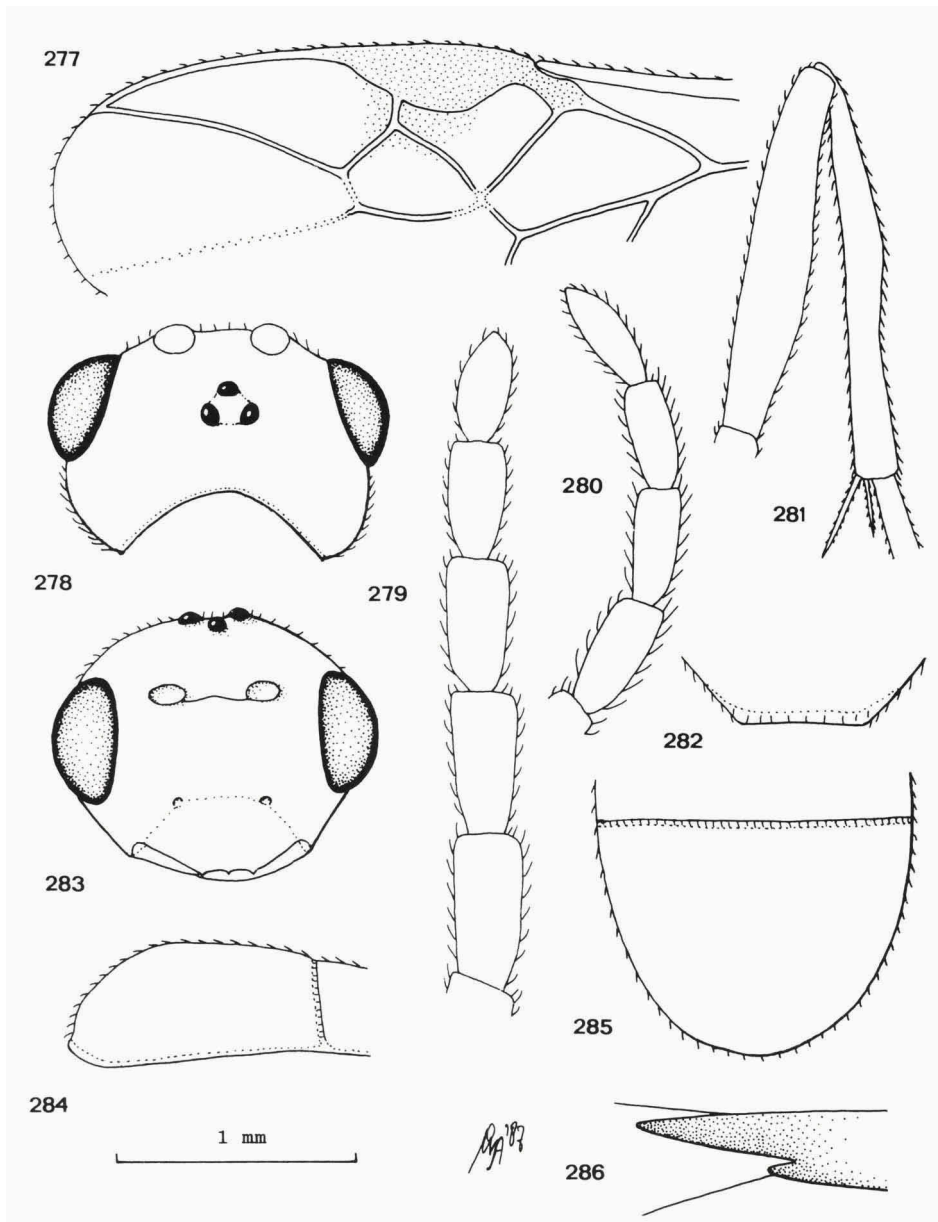
Figs. 247-254, *Phanerotoma (Bracrotitoma.) longiradialis* spec. nov., ♀, holotype; figs. 255-256, *Phanerotoma (P.) katkowi* Kokujev, ♀, holotype of *P. sareptana* Kohl. 247, apical half of fore wing (pterostigma rolled in); 248, base of antenna; 249, middle tibia, posterior aspect; 250, head, dorsal aspect; 251, apex of antenna; 252, mandible, ventral aspect; 253, 256, third tergite, dorsal aspect; 254, 255, id., lateral aspect. 247, 250, 253-256: scale-line (= 1 ×); 248-252: 2.5 ×.



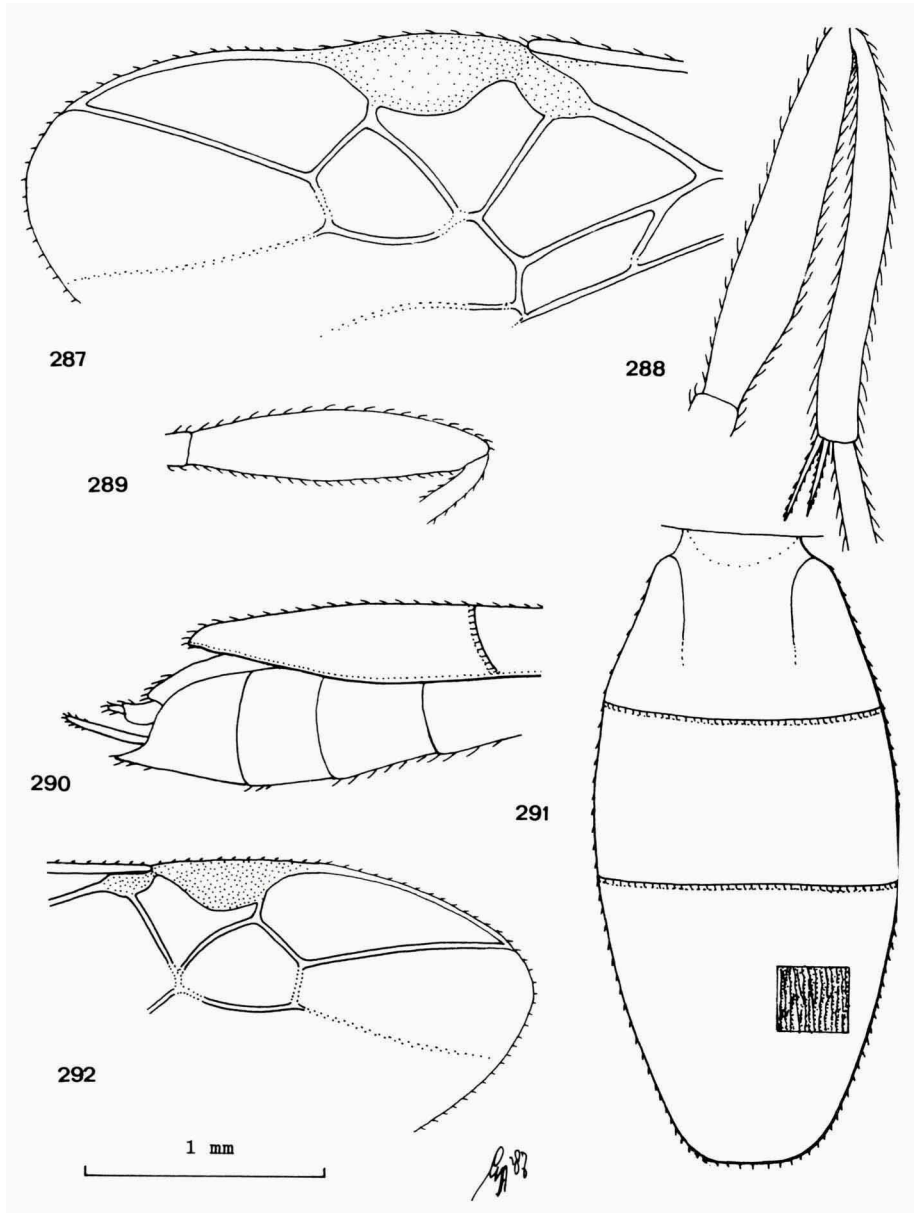
Figs. 257-261, *Phanerotoma (P.) katkowi* Kokujev, ♀, holotype of *P. sareptana* Kohl; figs. 262-269, *Phanerotoma (Bracotrötoma) bilinea* Lyle, ♀, Netherlands, Wijster. 257, part of head, dorsal aspect; 258, 262, apical part of fore wing; 259, base of antenna; 260, middle femur and tibia, posterior aspect; 261, 266, mandible, ventral aspect; 263, head, frontal aspect; 264, second and third tergites, dorsal aspect; 265, apex of antenna; 266, middle tibia, posterior aspect; 267, third tergite and hypopygium, lateral aspect; 268, apex of third tergite, postero-dorsal view. 257, 259-264, 267: scale-line (= 1 ×); 258: 0.5; 265, 269: 3.8 ×; 266, 268: 1.6 ×.



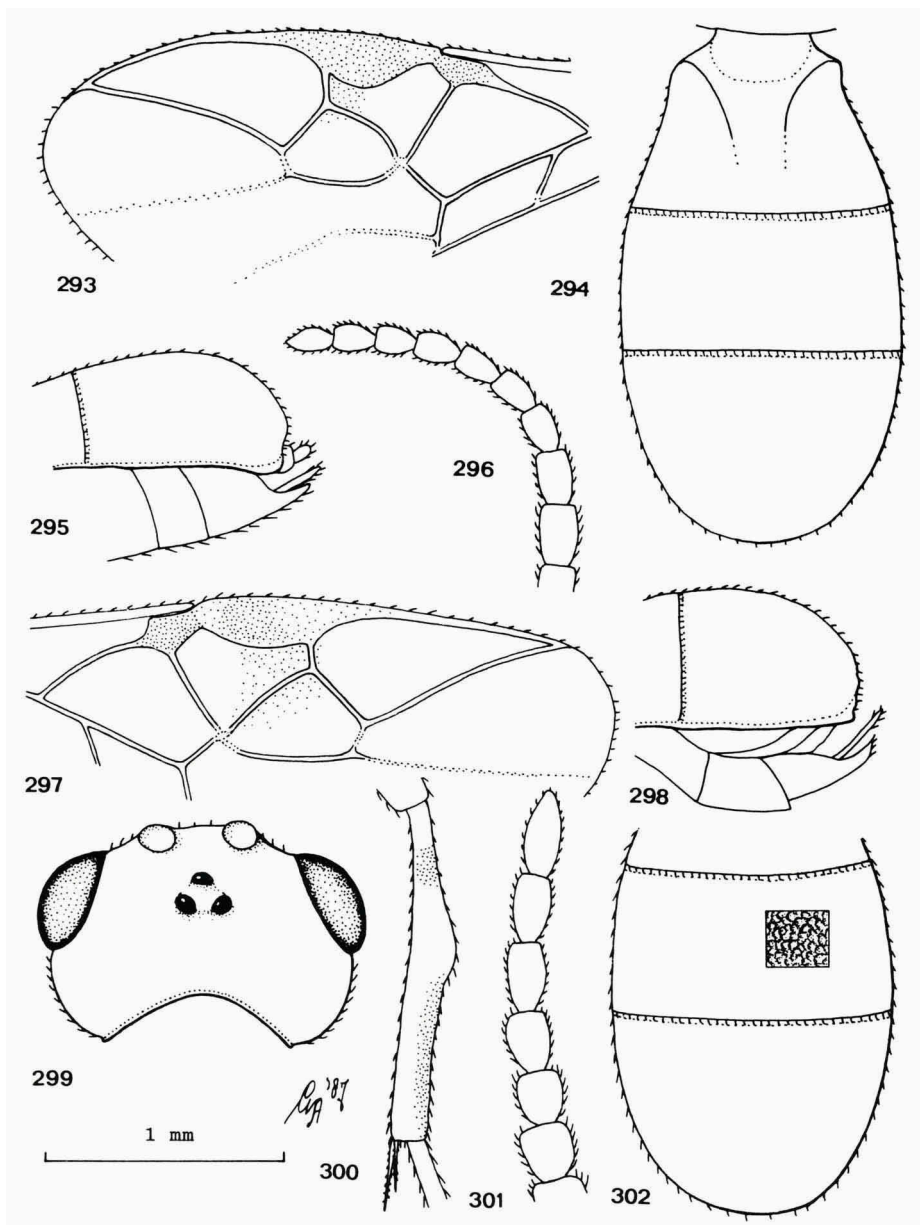
Figs. 270-274, *Phanerotoma (P.) planifrons* (Nees), ♀, France, Valescure; figs. 275-276, *Phanerotoma (P.) sculptifrons* Tobias, ♂, holotype. 270, 275, apical part of fore wing; 271, 276, apex of antenna; 272, third tergite, dorsal aspect; 273, mandible, ventral aspect; 274, third tergite, lateral aspect. 270-272, 274: scale-line (= 1 ×); 271, 273: 2.5 ×; 275: 0.8 ×; 276: 1.6 ×.



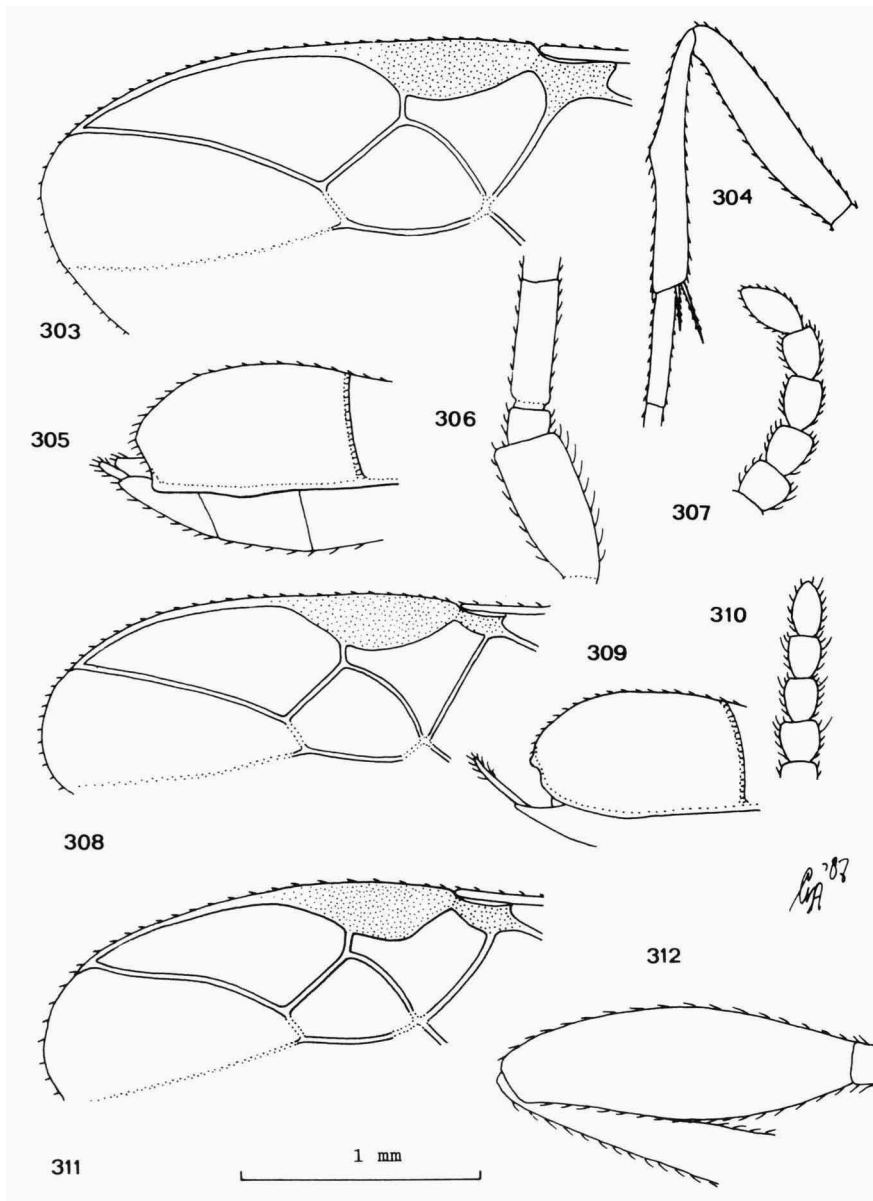
Figs. 277-286, *Phanerotoma (P.) soror* spec. nov., ♀, holotype, but 280 of ♂, Greece, Lakonia. 277, apical part of fore wing; 278, head, dorsal aspect; 279, 280, apex of antenna; 281, middle femur and tibia, posterior aspect; 282, apex of third tergite, postero-dorsal aspect; 283, head, frontal aspect; 284, third tergite, lateral aspect; 285, id., dorsal aspect; 286, mandible, ventral aspect. 277, 278, 282, 284, 285: scale-line (= 1 ×); 279, 280, 286: 3.8 ×; 281: 1.6 ×.



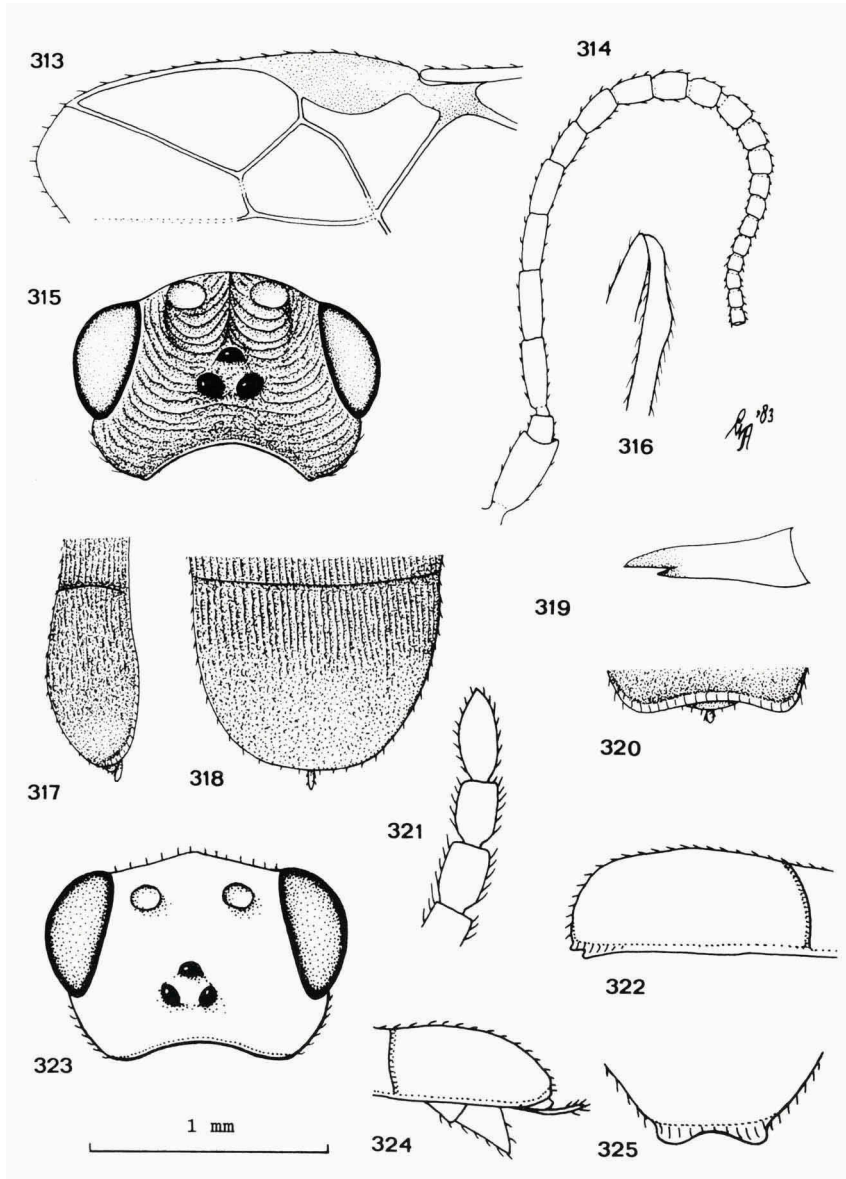
Figs. 287-291, *Phanerotoma (P.) obscura* Snoflák, ♂, Netherlands, Hilversum, but 290 and 291 of ♀, Austria, Bad Leopoldsdorfer Au; fig. 292, *Phanerotoma (P.) diversa* Walker, Austria, Weiding. 287, 292, apical part of fore wing; 288, middle femur and tibia, posterior aspect; 289, hind femur; 290, third tergite, lateral aspect; 291, metasoma, dorsal aspect. 287, 289: scale-line (= 1 ×); 288, 292: 1.6 ×; 290, 291: 2.5 ×.



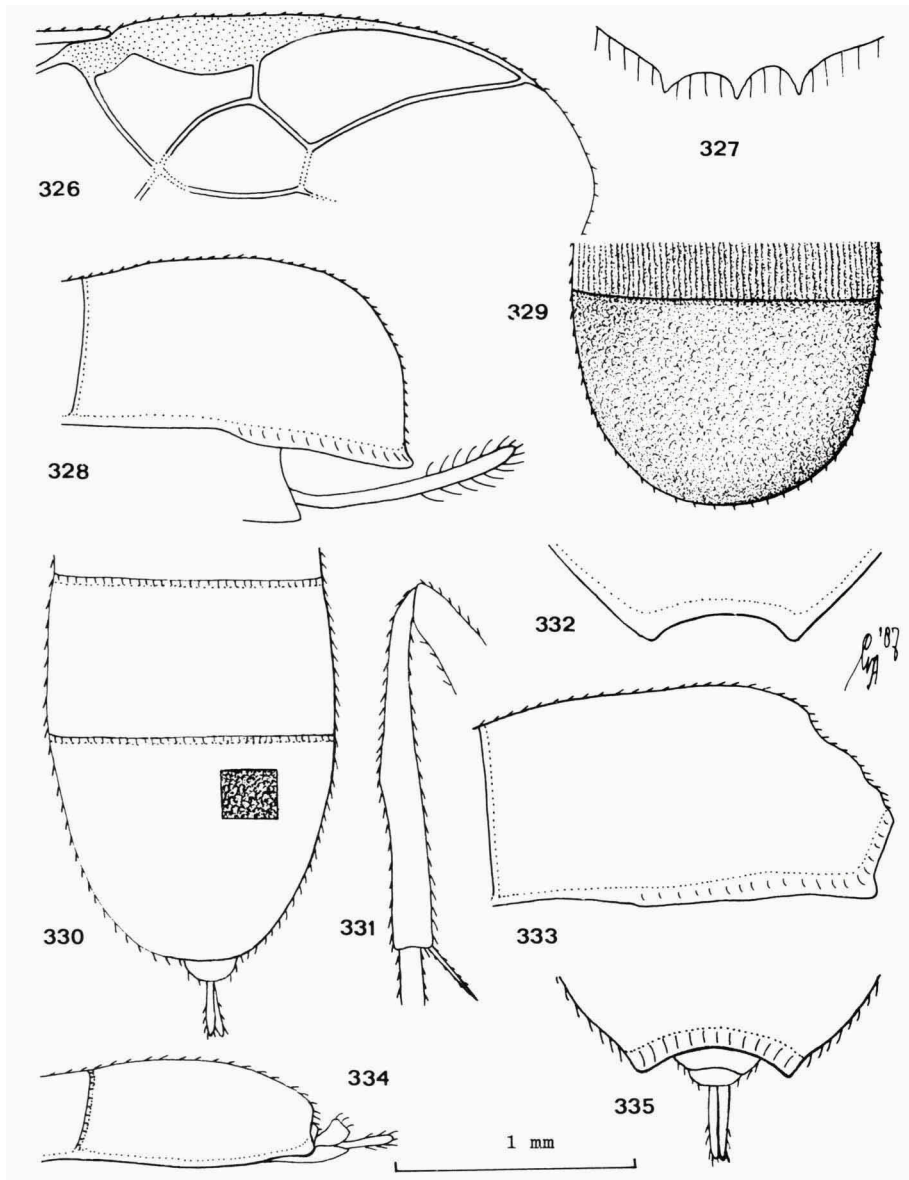
Figs. 293-296, *Phanerotoma (P.) diversa* Walker, ♀, Japan, Kusakai; figs. 297-302, *Phanerotoma (P.) dentata* (Panzer), ♀, neotype. 293, 297, apical part of fore wing; 294, 302, metasoma, dorsal aspect; 295, 298, third tergite, lateral aspect; 296, 301, apex of antenna; 299, head, dorsal aspect; 300, middle tibia, lateral aspect. 294, 295, 297-299, 302: scale-line (= 1 ×); 293, 300: 1.6 ×; 296, 301: 3.8 ×.



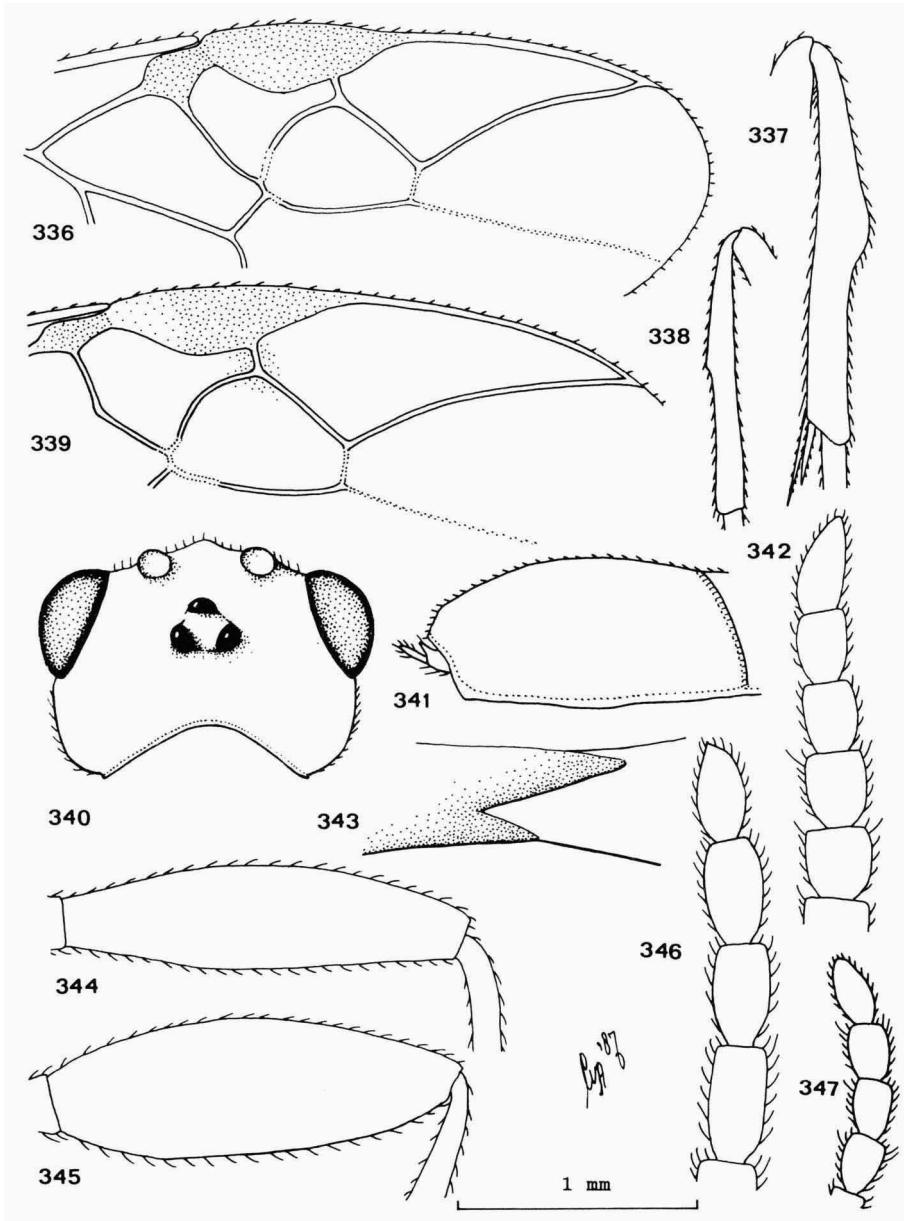
Figs. 303-312, *Phanerotoma (P.) ocularis* Kohl, ♀, lectotype, but 308-310 of ♀, lectotype of *P. desertorum* Hedwig and 311-312 of ♂, holotype of *P. rjabovi* Vojnovskaja-Krieger. 303-308, 311, apical part of fore wing; 304, middle femur and tibia, posterior aspect; 305, 309, third tergite, lateral aspect; 306, base of antenna; 307, 310, apex of antenna; 312, hind femur. 303-305, 308, 309, 311: scale-line (= 1 ×); 306, 312: 1.6 ×; 307: 3 ×; 310: 2.5 ×.



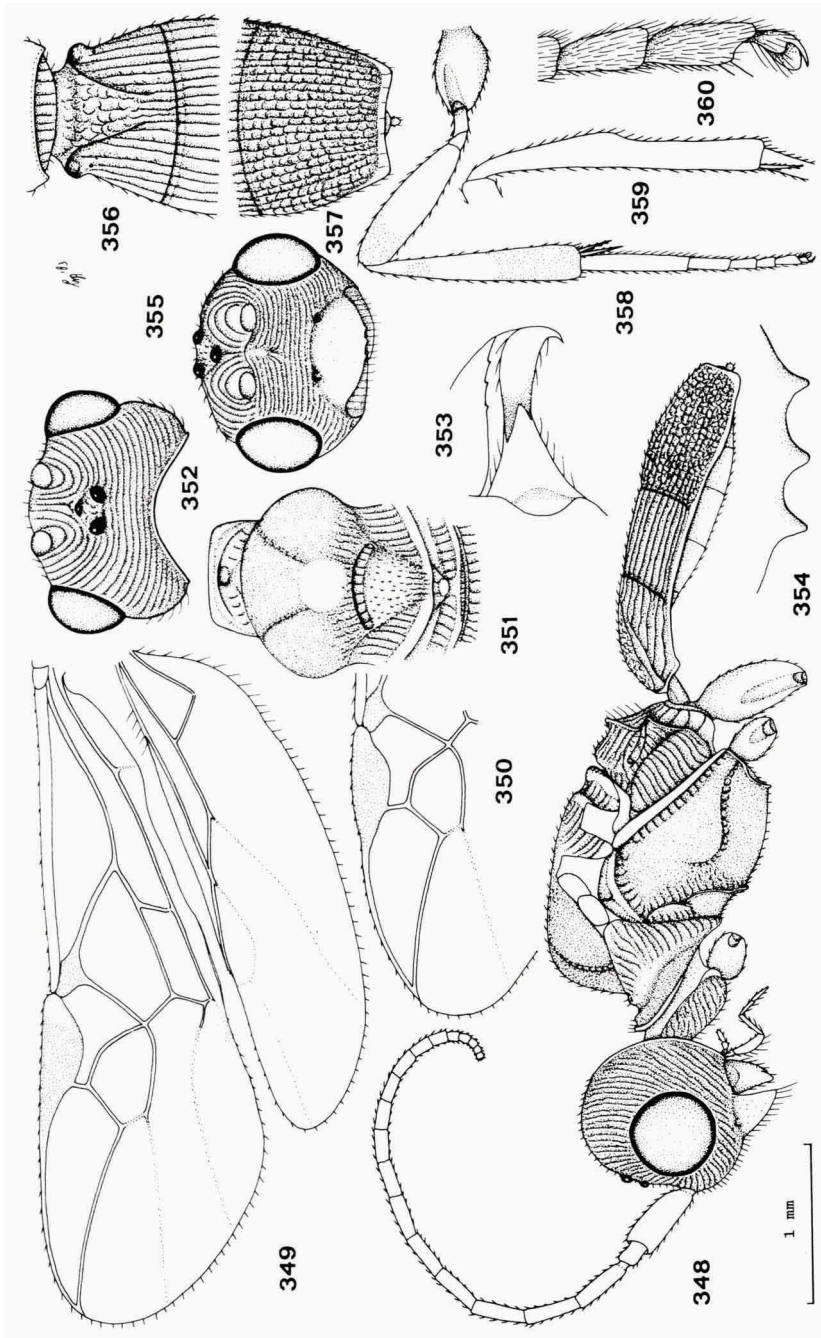
Figs. 313-322, 325, *Phanerotoma (P.) ocularis* Kohl, ♀, holotype of *P. flavotestacea* Fischer, but 321, 322, 325 of ♂, holotype of *P. rjabovi* Vojnovskaja-Krieger; figs. 323, 324, *P. (P.) ornatulopsis* De Saeger, ♀, holotype. 313, apical part of fore wing; 314, antenna; 315, 323, head, dorsal aspect; 316, basal half of middle tibia, posterior aspect; 317, 322, 324, third tergite, lateral aspect; 318, id., dorsal aspect; 319, mandible; 320, 325, apex of third tergite, postero-dorsal aspect; 321, apex of antenna. 313, 314, 317, 318, 320, 322-325: scale-line (= 1 ×); 315, 316, 319: 1.5 ×; 321: 2.5 ×.



Figs. 326-329, 331-333, *Phanerotoma (P.) kozlovi* Shestakov, ♀, lectotype, but 333 of ♀, paralectotype; figs. 330, 334, 335, *Phanerotoma (P.) fracta* Kokujev, ♀, Czechoslovakia, Jelka. 326, apical part of fore wing; 327, ventral rim of clypeus; 328, 333, 334, third tergite, lateral aspect; 332, 335, third tergite, postero-dorsal aspect; 329, 330, second and third tergites, dorsal aspect; 331, middle tibia, posterior aspect. 326, 328, 329, 331-333, 335: 1.6 ×; 327: 3.8 ×; 330, 334: scale-line (= 1 ×).



Figs. 336-347, *Phanerotoma (P.) fracta* Kokujev, ♀, Czechoslovakia, Jelka, but 338, 339, 341, 347 of ♀, syntype and 345, 346 of ♂, Hungary. 336, 339, apical part of fore wing; 337, 338, middle tibia, posterior aspect; 340, head, dorsal aspect; 341, third tergite, lateral aspect; 342, 346, 347, apex of antenna; 343, mandible, ventral aspect; 344, 345, hind femur. 336, 338, 339, 341: scale-line (= 1 ×); 337, 344, 345: 1.6 ×; 342, 346: 3.8 ×; 347: 2.5 ×.



Figs. 348-360, *Phanerotoma rufescens* Latreille, ♀, Belgium, Diest, but 350 of ♂, holotype of *P. rufiferum* Wesmael. 348, habitus, lateral aspect; 349, wings; 350, apical part of fore wing; 351, mesosoma, dorsal aspect; 352, head, dorsal aspect; 353, mandible, latero-ventral aspect; 354, ventral rim of clypeus; 355, head, frontal aspect; 356, first tergite, dorsal aspect; 357, third tergite, dorsal aspect; 358, hind leg; 359, middle tibia, posterior aspect; 360, hind claw. 348-352, 355-358: scale-line (= 1 ×); 353, 359: 2 ×; 354, 360: 5 ×.