REVISION OF THE PALAEARCTIC CARPOSINIDAE WITH DESCRIPTION OF A NEW GENUS AND NEW SPECIES (LEPIDOPTERA: PYRALOIDEA)

by

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Carposinidae, a familiy of ditrysian Lepidoptera, is a natural, easily recognizable group. Nonetheless, its study has been strongly neglected for a long time, as far as the Palaearctic fauna is concerned. The present paper is a revision, with the use of original types, as far as they are available. A corrected generic classification is presented, based chiefly on the genital characters, instead of those of the wing venation as used by the older authors. Eight genera, 44 species, three subspecies, and one forma are recorded for the Palaearctic Region and most of them are redescribed, while the genitalia of the two sexes are described and figured, many for the first time. One genus, 18 species, and two subspecies are described as new. Besides, three extralimital species are recorded and their genitalia described and figured; 11 species are transferred to other genera.

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INTRODUCTORY PART

The present family of ditrysian Lepidoptera forms a seémingly natural group, so distinct that its species can be recognized almost at a glance. And yet, especially in the Palaearctic Region, their study has been rather neglected, and the group remained little known.

This paper is a revision of the Palaearctic fauna of the family, with a critical reassessement of the genera and that of the species, based on re-investigation of the extant type-specimens (several of them apparently not touched since their description).

In our region the Carposinidae are not numerous: since the discovery of the first genus and species, *Carposina berberidella* Herrich-Schäffer, in 1853, less than thirty species have been added to the family within our region. More can be expected though with further collecting, and perhaps with closer search in the existing museum material.

Distribution

One of the peculiar features of the family is its distribution: the species occur over the whole world, but scantily and irregularly. They are not numerous anywhere, the last estimate of the discribed species of the world fauna being around 200 (Davis, 1969) and not many added since. Most Carposinidae occur in the Indo-Malayan and Austrialian regions, about three-quarters of the known species, almost all of them endemics of those regions. But also there the species are distributed quite irregularly: there is a rather numerous and variegated fauna in Australia (31 species), a considerable one in New Zealand (more than 15 species), and richer ones in the Hawaiian Islands (37 species), and New Guinea (44 species), while other parts of the region are much less densely populated. The Pacific Region has a sprinkling of Carposinidae, except the Marquesas Islands where they appear to be absent (Clarke, 1986). Even less species of Carposinidae have been described so far from the New World. More promising seems the Afrotropical fauna where the present number of known species doubtlessly will increase. The Palaearctic Region with the best known fauna of the world, has been explored for Carposinidae rather inadequatly, it seems. Its noteworthy and peculiar feature in our Region is the apparent preference of the family for Atlantic islands: while for a long time only two species were recorded from the whole of western Central Europe, not less than five species, all endemics, are becoming known from Macaronesia (Madeira and Canary Islands together).

It seems that the world harbours a widely spread, but strongly reduced in number, fauna of the Carposinidae, a fauna of relicts of an extinct ancient population, now in a state of decline (Meyrick, 1922). Therefore it might be more correct to regard the isolated accumulations of species not as "zoocenters" (Diakonoff, 1954) or "centers of speciation" (Davis, 1969), but rather as centers of survival.

Historical remarks

It proved difficult to assign the Carposinidae to a proper place in the Lepidopterous system. The first genus described, *Carposina* Herrich-Schäffer, 1853, was placed in the Tineidae, but later referred to the Gelechiidae, until Meyrick transferred it to the "Tortricina" (1882a). Walsingham sought for a stronger distinction and first treated the group as a subfamily of the Tortricidae: "Carposinae subfam. nov." (1897) but finally erected a separate family Carposinidae (1907); he was followed by Kennel (1908-1916, though reluctantly!), by Eckstein (1933) and by Meyrick himself (1910). So the idea of some connection with the Tortricidae lingered. In 1928, however, Meyrick erected a new "tribe" Copromorphoidea, containing three families Orneodidae, Carposinidae and Copromorphidae and belonging to his supergroup "Tineina". So for the first time a connection of the Orneodidae (at present Alucitidae) and Carposinidae was expressed, but the group placed within the Tineoidea, as Meyrick failed to discover the pyraloid relationship of the two last families.

Philpott (1928) and Diakonoff (1954) re-emphasized the isolated position of the Carposinidae, far from the Tortricidae, referring to the characters of the male genitalia; the latter author in his turn pointed out relationship with the Copromorphidae; however, he proposed, but for the Carposinidae alone, the status of a superfamily, Carposinoidea (1961). Davis (1969) followed him in his extensive revision of the American Carposinidae, the first survey of the family in the New World.

In the meantime Swatschek (1958) arrived at the same conclusion, resulting from his elaborate study of the external larval anatomy of two common Palaearctic species, *Carposina scirrhosella* and *berberidella*, and also proposed the separate superfamily Carposinoidea, near to, but distinct from the Pyraloidea.

Common (1970) and then Brock (1971) accepted Meyrick's concept of the superfamily Copromorphoidea, as well as Heppner (1977, 1987), but the last author extended that concept by including the families Epermeniidae and Glyphipterigidae sensu stricto. (I prefer to assign these two families to the

Yponomeutoidea (Diakonoff, 1986), in concurrence with Kyrki (1984)). Zimmerman (1978) re-established Meyrick's Copromorphoidea but changed the name to Alucitoidea, based on the Alucitae Linnaeus, 1755[1]).

Now that the study of the phylogeny of Lepidoptera attracts so much attention and that consequently the comparative anatomy of the order is being quickly promoted by old and new methods, we are learning more useful facts, also for the characterization of the small family Carposinidae.

A new treatment of the family is presented by Kuznetsov & Stekolnikov, the authors of an elaborate series of papers on the system and phylogeny of Lepidoptera based on the functional morphology of the male genitalia, viz., of the musculature of the male genital apparatus. In 1979 (a+b) they published an extensive, lucid survey of the superfamily Pyraloidea, proposing a novel arrangement of the orthodox pyralid families by including a number of "pyraloid" groups, less closely related to the former and to each other, but still possessing a series of characters doubtlessly showing their relationship to the pyralids; among these pyraloid groups are assigned Alucitidae, Carposinidae and Pterophoridae.

An important support to these conclusions forms the work of T.L. Kuznetsova (1981) who used comparative anatomy of skeleton and musculature of the pterothorax for a phylogenetic analysis of the above mentioned groups; her elaborate study provided the same results as those by Kuznetsov & Stekolnikov: the "pyraloid" families arranged themselves around the pyralids proper in the same phylogenetic sequence, with the Carposinidae intermediate, but closer to the Alucitidae than to Pterophoridae, but neither group deserving the status of a superfamily. So the assessement of our family to the Pyraloidea gets at last an actual and firm footing.

Finally may be mentioned studies of the Carposinidae of New Zealand (Dugdale, 1971 and another paper in preparation), promising interesting details on this remote fauna.

DISCUSSION OF CLASSIFICATION USED

Wing venation, generally a feature of paramount importance for the classification of the Lepidoptera, lets one down badly in the case of the present family: now that we are aware of another most important group of diagnostic characters, that of the genitalia, it becomes obvious that older students of

[1]) As the name "Alucitae" does not satisfy the demands of availability sub Art. 11e(i) of the International Code of Zoological Nomenclature, it should have been substituted by Alucitides Leach, 1815.

Carposinidae, who did not know nor use the genital characters al all, but relied exclusively upon general aspects, external features and, since Meyrick, especially upon wing venation, more than often have been led far astray, when trying to define the genera of the present family.

The fact is that wing venation in the Carposinidae is subject to considerable variation, making its use for the characterization of genera not at all reliable.

So the pairs of veins 3 and 4 and 8 and 9, respectively, in the fore wing and 3 and 4 in the hind wing can be separate, connate, or stalked in a single genus. This is clearly illustrated by Davis (1969: 8) with a whole table of venational variations in the American species of *Carposina* and in another genus, so far indicated with the name "*Bondia* Newman". Also the character of the degree of development (or reduction) of vein 6 in the hind wings, a diagnostic character strongly advocated by Meyrick (1910, 1922) as being an absolute indicator of the anciennity of the genera, so used by him for classification of the family, now proves to be subject to variation to such an extent, as to be in fact of little generic value.

The same can be said of several other external characters, e. g., the labial palpi: excellent specific features elswhere, they fail as generic diagnostic characters in the present family.

Nevertheless Davis uses wing venation for the separation of the American representatives of the genus *Carposina* in four subgenera. Such a division may be useful for a quick identification of the species concerned, but seems to us of little systematic value[2]).

These considerations brought us unavoidably to the conclusion that in the present family the features of wing venation are not acceptable as chief diagnostic characters for the separation of genera; neither are labial palpi, degree of ciliation of antennae nor wing markings, for these latter form a limited number of patterns, not coinciding with our concepts of the genera. On the contrary, the characters of the genitalia in the males[3]) display good and stable differences, at least, in the Palaearctic representatives of the family. These so intricate structures must possess much more complex genetic basis and so be more trustworthy for taxonomic conclusions.

Therefore predominantly, but with support of all other features available, we use the male genital characters for the separation of genera and hope so to have arrived at a sounder generic classification of this somewhat unusual

[2]) With the only exception of the South American *Trepsitypa* Meyrick (males of which are unknown), one of the rare Carposinidae with stalked veins 7 and 8 in the fore wing; it seems preferable to regard this as a distinct genus instead of a subgenus of *Carposina* Herrich-Schäffer, as proposed by Davis (1969).

[3]) Indicated throughout this paper by the symbol GS (=genitalia slide).

group, sometimes contrary to the older concepts; this has necessitated several reassessements of species of different genera. While the species of a genus mostly represent a solid natural group, the revised genera differ strongly by the genitalia.

We have tried to set up polarities of these apparently derived characters using the principle of gradual evolutionary reduction of separate parts of the genitalia that must be regarded as apomorphies, in a similar way, as is generally accepted for some other groups of ditrysian Lepidoptera, e.g., the much better known Tortricoidea, and used the following points for the sequence of the genera:

1. Progressive reduction of the uncus;

2. Development, out of the replicate folds of the tegumen, of paired organs, termed socii or gnathos arms or bibrachium, proceeding from papillation only, to diverse kinds of warts, finally to paired processes, caudad-directed spikes or a pair of hollow arms, followed by secondary reduction to paired small aciculate tumescences and then their total disappearence.

3. Dilatation of the more or less free valva, together with differentiation (in one genus only) of a free movable sacculus, crowned by ampulla, the valvae becoming more and more fused at base with the vinculum, so as to form a stiff funnel, together with bifurcation of cucullus.

4. Differentiation of a simple, small and flat aedeagus without cornuti, in a clavate, long, and cornutous one.

Polarities of the much less complicated female genitalia are not easy to follow. More or less parallel to those of the males obviously are:

1. Development and subsequent reduction of a complex sclerotic sterigma to a simple membraneous ostium.

2. Development and subsequent reduction of the genital tract with a characteristic subsclerotic and large, papillate colliculum, finally becoming a thin membraneous tube.

3. Ovoidal, large corpus bursae, with a single signum, sometimes with bipronged paired signa, becoming simple, slender, and tubular. (The signa, however, are unpredictable: disappearing in apparently related forms, but absent without exception in smaller species).

SYSTEMATIC PART

The family **Carposinidae** Walsingham, 1897

"Carposinae Walsingham, subfam. nov." Walsingham, 1897: 59 (subfamily of Tortricidae). Carposinidae Walsingham, in Sharp, 1907: 469. — Meyrick, 1910: 142. — Meyrick in Wagner,

1913: 1. — Meyrick in Wytsman, 1922: 1. — Philpott, 1928: 476, figs. — Inoue, 1954: 77. — Diakonoff, 1954: 115, figs. — Issiki, 1957: 36, figs. — Hannemann in Dahl, 1964: 77, figs. — Swatschek, 1958: 248, figs. — Davis, 1969: 1, figs. — Laithwaite c.s., 1975: 173. — Zimmerman, 1978: 792, figs. — Kuznetsov & Stekolnikov, 1979a-b: 64/91. — Kuznetsova, T.L., 1981: 44, figs. — Liu-Youqiao, 1981: 25. — Kawabe, 1982: 289/217. — Park, 1982: 449, 904. — Popescu-Gorj, 1984: 60. — Kuznetsov in Medvedev, 1986: 18, figs.

The Palaearctic representatives of the family may be characterized as follows:

Ditrysian Lepidoptera of small to moderate size and pyraloid facies, with rather long pointed, and narrow wings, with raised roundish scale-tufts along the edge of basal parch, the end of cell and often some more tufts in disc: or rather large species with long wings, whitish, marked with dark round dots.

Head with dense, loosely appressed scales, smooth on face and directed ventrad. Chaetosema and ocellus absent. Haustellum developed, naked at base. Antenna $^{2}/_{3}$-$^{3}/_{4}$, in male usually with long, fine ciliations, in female filiform, scape without pecten. Maxillary palpus rudimentary, 1-or 3-segmented. Labial palpus in male sometimes moderate, curved and ascending or porrect, median segment often rather rectangularly dilated with more or less appressed scales, often loosely rising towards middle of upper side, terminal segment exposed, obtuse or pointed; labial palpus in female usually longer, sometimes very long, porrect, median segment diversely thickened with appressed scales above or/and beneath, terminal segment moderate or long, pointed or obtuse; seldom palpus in female moderate. Posterior tibia with thin, appressed hair-scales above. Abdomen with modified tineoid articulation.

Fore wing elongate, little dilated, with tufts of raised scales. Vein 1b short-furcate at base, lower fork tending to disappear, 1c sometimes long, traceable from before middle to edge of wing, 2 from toward or near lower angle of cell, 3 from angle, 3-4 closely approximated, sometimes connate or stalked, 5 closely approximated, 7 to termen, mostly separate, seldom stalked with 8, 8 and 9 often stalked, 11 from beyond middle of cell, sometimes from 2/3.

Hind wing over 1, subtrapezoidal, with apex often produced and pointed, termen sometimes slightly sinuate; with a cubital pecten in both sexes or only in female, or absent, cilia rather long. Vein 1b short-furcate, 2 remote from angle, sometimes closely approximated to cubitus at base, 3 from angle, free, connate, or stalked with 4, 5 always absent, 6 seldom fully developed, mostly obliterate for a part in or beyond cell, or absent (fold-like), 7 to apex.

Larva bisetose; thoracic legs with setal group VII formed by four setae. Pupa without abdominal dorsal spines, not protruding during ecdysis.

As remarked above, the male genitalia are of paramount importance for the taxonomy of the present group. They are strongly differing between the seven

known Palaearctic genera and form clear-cut diagnostic characters; some of these show distinct phylogenetic trends, enabling to set up developmental series, at least, in larger genera, as, e.g. *Carposina*. Therefore also the genital musculature is of special interest in the Carposinidae for conclusions on phylogeny.

It is regrettable therefore that the last mentioned method of research has one serious practical disadvantage: only specially fixed material can be used for the study of the musculature, while the great mass of the dried museum material is of no avail. Kuznetsov & Stekolnikov (1979a-b) could investigate the genital musculature of two Palaearctic genera so far, viz. *Meridarchis excisa* Walsingham and *Carposina rosella* Kuznetsov: they confirmed the pyraloid alliance of the family and so transferred it to the superfamily Pyraloidea.

Male genitalia

Because of the special importance of the male genitalia of this family for our classification we define their morphology under this heading.

Tegumen. In its plesiomorphous state is long, narrowed caudad, with sclerotic sides (pedunculi Diakonoff, 1938), and a rather weak, subsclerotic median part. These simple, plesiomorphous pedunculi participate in a considerable metamorphosis, starting with semioval folds on the ventral side, curving mesad and becoming areas of violent apomorphous development. (For convenience's sake we indicate these folds with an eloquent botanical term "replicate" (re-turning upon themselves). In *Heterogymna* these replicate folds show the earliest modifications: along the edge and on inner and upper surfaces they get fields of aciculae and papillae, a fringe of dense spiculae and finally (*Meridarchis*) strong sclerotic tumescences with spined surface, often asymmetrical and in some tropical species huge sclerotic warts; each side often develops a long slender spine, directed caudad and flanking the uncus. Probably homologous to these there is another important metamorphosis of the replicate folds, viz. the development of the socii (or paired gnathos). These are a pair of sclerotic filaments, symmetrically attached with the bases to the edge of the fold, well below the foot of tegumen. Each "arm" actually is a ribbon-like filament, with the sides rolled, so as to form a long and thin tube, with inside a streak of fine aciculae, extending along the original ventral side from base to below top, where the tube widens into a small funnel and the aciculae change in a tight sheaf of spines, at top diverging beyond the funnel; when the arms are long, they are abruptly twisted before their middle, recurving and running caudad (in figures upwards); at the place of the twist

their edges part slightly and expose the aciculae inside. When the gnathos arms are short, they may remain flat, with edges not rolled into a tube, and with the strip of aciculae or often larger hairs, freely exposed along the arm and unchanged at its top. These socii (or gnathos arms) are unique and form an important autapomorphy of the genus *Carposina*[4]). I regard the long, twisted and tubular gnathos (socii) an apomorphy, as against the short, less curved and flat arms.

Socii in *Archostola* can be traced as small, membraneous appendages or small curved sclerotic rods; these must represent a primitive stage, secondary to that in *Heterogymna*. In *Alexotypa* socii are vestigial and are either very small aciculate filaments on small knobs, or tumescences covered with dense, short spinulae (*A. japonica*), or covered with papillae (*A. caradjai*): these vestigial socii must be of still more secondary character.

The shape of tegumen in the primitive *Carposina* species is broadly triangular and in the more progressive species, truncate and depressed, with a large globular wart-like tumescence crowned with stiff hairs, sitting just ventrad and below the top of tegumen; we consider this tumescence to be the modified tuba analis and not the uncus, because in certain *Meridarchis* species exactly similar tumescence can be found at the same place, but then ventrad of the base of a long uncus.

Whether the paired, sclerotic appendages of the tegumen are a paired gnathos (Diakonoff, 1954; Davis, 1969), or socii (Kuznetsov & Stekolnikov, 1979a+b), is a point of controversy. The origin of these organs at the very edge of the replicate folds, so far from the top of the tegumen does not agree with the usual place of the socii (as, e.g., in the Tortricidae); but the paired gnathos articulates with the tegumen at about the same height; an unpaired gnathos is found in the species of *Tesuquea* Klots, a Carposinid from Southern America (Davis, 1969). Kuznetsov & Stekolnikov, however, emphasize that the muscles m_1 (uncus depressors) always connect with only the unpaired, single gnathos, and then only when the uncus is lost. But in the studied *M. excisa* and *C. rosella* they found muscles m_1 connected with the paired appendages, although the uncus is present.

It is not clear, therefore, whether it are the socii, or the gnathos arms that are so well developed in *Carposina*. Finally Dugdale kindly informs us that in a New Zealand *Ctenarchis* Meyrick he found a paired socii-sclerite situated on

[4]) A special term is proposed for this structure: bibrachium (Amsel, 1980), because its point of attachment differs from that of a tortricoid gnathos. Indeed the arms of a true unpaired gnathos are attached at the sides of the uncus; while bibrachium originates much lower, at or below the middle of the replicate folds, more or less in contact with the edge of the fold. However, in spite of this difference it seems obvious that bibrachium is homologous with socii or unpaired gnathos. Still, for the sake of convenience, we use the new term for this uniquely shaped structure.

top of a paired plesiomorphous gnathos-sclerite, at the foot of the uncus, and speaks of "gnathos/socii" (in lit.).

Uncus. — A long, slender and slightly curved uncus is a plesiomorphy (*Heterogymna, Meridarchis*). In primitive *Carposina* species the uncus is a broad triangle with ill-defined base; in its advanced members uncus is entirely absent, as is said above. In the strongly specialized genus *Metacosmesis* uncus is sclerotic, an acute dagger-shaped and straight process. In tortricid-looking genitalia of *Archostola* uncus is small and flat, a simple lobe, bent down and appressed to the ventral surface of the tegumen.

Vinculum. — In plesiomorphous *Heterogymna* vinculum is rather short, broad, and rounded, without a saccus; but in the large and polymorphous genus *Meridarchis* it is short, without saccus (*M. crotalus* spec. nov.) or thin, with an extremely long saccus (*M. jamboa*). In the genera with "fused" genitalia vinculum is large, with a broad saccus (*Alexotypa*), or long and with a thin saccus, clavate at end (*Commatarcha*).

Valva. — Throughout the carposinid history the valvae have undergone considerable changes. Long and slender and sclerotized only towards base in primitive *Heterogymna* and some *Meridarchis*, in *Archostola* they are of moderate length and strongly reminding one of grapholitine Tortricidae (which must be a parallelism); these are the "not fused valvae". In *Carposina* the valvae are slightly fused at base, with a large, pointed and weak cucullus, while the sacculus is enlarged, strong, with a sclerotic apical ampulla (Pierce, 1919). According to Kuznetsov & Stekolnikov (1979) these sacculi possess intravalvar muscles m_7, are movable, and must have taken over during copulation the greater part of the prehensive function of the weak entire valvae. Valvae in *Peragrarchis* are stronger fused at bases, the ampullae are stronger and situated in globular cavities, from which they possibly project when in function; cucullus and sacculus form together a tongs-like pair of processes: sometimes there is a distinct transtilla and above its bases small oval sclerites that must be homologous with processus basales. In *Alexotypa* and especially in *Commatarcha* the valval fusion is strong, the genitalia forming together with the bases of tegumen and vinculum a tight funnel, the sacculus sclerotic and enlarged, with a sacculus process scoop-shaped in the former, rod-like in the latter genus, in both without ampulla, while the cucullus process is clavate and bristly.

Transtilla. — This part is developed in a number of advanced *Carposina* species and bears a pair of labides, long slender and weakly clavate appendages at its ends, directed caudad. Transtilla is well illustrated by Davis (l.c.) in some American species (*C. ottawana* (Kearfott), *C. fernaldana* Busck, *C. cretata* Davis) and also in *Atoposea maxima* (Meyrick) and in this paper, in the Australian *C. zymota* (Meyrick). In the Palaearctic *Carposina* species trans-

tilla is often vestigial or absent, but labides always are well developed, each attached to the extreme base of costa of the valva, and are of diverse specific size and shape.

Anellus. — This sclerite originally is a narrow ring around the opening of the diaphragma through which protrudes the aedeagus. It is absent in not fused genitalia and diversely developed in the fused ones where it becomes partly or entirely sclerotic and band-like along its dorsal part and sometimes forms on top a strong pointed process or blade (in *Commatarcha chrysanches* (Meyrick), *citrogramma* (Meyrick)), and in some species of the American, so-called "*Bondia* Newman" (Davis, l.c.).

Juxta (also termed "fultura" by Kuznetsov and Stekolnikov, 1979). — A diversely shaped and developed unpaired sclerite, joining bases of valvae ventrally, usually small and vertical, or subcordiform. Sometimes it possesses juxta lobes (Davis, l.c.), that are shaped as labides but usually are straight at base, more robust, attached to juxta laterally; seldom they occur together with labides: *Carposina niponensis* (Walsingham).

Aedeagus. — In its plesiomorphous shape it is small, flattened and unarmed (*Heterogymna, Archostola* and *Metacosmesis*). In more advanced genera it has the characteristic carposinid shape: a long "stalk" with an oblong, thickened "clavus", with longitudinal combs of spiny cornuti; in smaller species it is arrow-shaped: long and needle-like, with a small clavus, armed with a single row of large, recurved spines and a small club at the other end. The aedeagus is encased in a tough, hyaline manica.

Cornuti. — Not deciduous and arranged in several longitudinal rows or combs; their number and exact position must be of specific value, which a close future study will clarify; for this purpose the clavus should be placed in exactly the same position, for slightest turn along its length axis changes its whole aspect considerably. Another unique feature of the carposinid aedeagus is that in some species the posterior part of the sometimes wide ductus ejaculatorius is clothed on the inside with a dense layer of strong spinulae. Apparently these spinulae are no cornuti, because one can hardly visualize the seminal tract being extruded so far that these spinulae could reach the female.

At about the middle of the dorsal side of the aedeagus enters ductus ejaculatorius; the part basad from this point, the longer part of the slender stalk actually is the coecum penis.

Female genitalia

Usually characteristic specifically, the female genitalia are much less distinct generically. The eighth segment is darkly sclerotic, while other segments

remain membraneous; the seventh segment harbours the ostium and sometimes has a developed sterigma (*Meridarchis*). The often strongly developed colliculum is enlarged and forms a wide, thick-walled dark tube, with a densely papillate, subsclerotic wall, ending in a constriction and a flattened "twist", an abrupt turn to the right side, where the much narrower ductus bursae begins, once more turning rostrad. The bursa copulatrix is oblong, pear-shaped in larger, and tubular, "sausage-shaped", in smaller species. The ostium usually is little modified, sometimes emarginate or slightly produced in front as a lip, but in *Heterogymna* it contains one or more egg-shaped, entirely hyaline large papillae. The signa are of a unique shape in *Carposina* and *Meridarchis*: paired concave small sclerites, each with a pair of strong, flattened and pointed prongs, serrulate along margins. However, in *Peragrarchis* and in *Heterogymna* there is only one signum, shaped as a slightly curved weakly crescentic lamina dentata, moderately scobinate or spumose. These single signa are not similar in the two unrelated genera which suggests a paralellism within the family. Very often signa can be absent in certain species of all genera, but they are absent permanently in genera of smaller species with a tubular corpus bursae.

The eight Palaearctic genera have such a different aspect of the general build of the male genitalia that the monophyly of the group appears dubious: it seems possible that some of the remarkable carposinid features could have originated by parallelism. So the genitalia of *Archostola* have some decidedly tortricoid aspect and remind one of the Olethreutini (simple valvae, characteristically connected by a small juxta). *Heterogymna* has a single, simple signum, of different structure than is the signum of *Peragrarchis*; in both widely remote from the double "bipronged" type of *Carposina* or *Meridarchis; Metacosmesis* finally with its unique male genitalia is devious and puzzling. And yet they all possess doubtlessly carposinid characters of their general internal and external structure, suggesting polyphyly or development by parallelism or convergence.

Bionomics

The bionomics are unknown for most species. Others are recorded living always internally in berries and fruits (e.g., the two common European species, *Carposina berberidella* in berries of *Berberis* and *C. scirrhosella* in fruits of wild *Rosa* species) or are mining in leaves (Meyrick, 1922). This author records the plant families Campanulaceae, Epacridaceae, Ericaceae, Myrtaceae, and Rosaceae as hosts of larvae in Australia. Davis (1969) observed larvae as probable inquilinae of mycetogenous stem galls of trees in N.

America (and perhaps in Japan). Zimmerman (1978) records 16 different plant families as hosts of the larvae in Hawaii, one of which is a palm. One species, *Carposina sasakii* Matsumura, is a notorious pest of pome fruit and peach in Japan. Davis (l.c.) states that for this reason the biology of that species attracted more attention, and cites Anonymous (1958), Hukusima (1953, 1957), and Miyashita et al. (1955). There are two to three generations a year in Japan, depending on the climate. The moths fly after sunset. The eggs are deposited singly on the fruits, occasionally on leaves. The full grown larva enters the ground before pupation and makes a cocoon of tight pale grey silk at the depth of 1-2 inches; it emerges after two weeks, but in the case of last brood of the season the larva overwinters and pupates only in the following spring.

The life history of the New World species is very little known: one species was found in ripe currents, another, "*Bondia*" *commonana* Kearfott, is boring in large stem galls in peach trees, probably as an inquiline, in very much the same way as *Commatarcha palaeosema* Meyrick occurs in Japan, in stem galls of the trees of the family Fagaceae (Yano, 1959).

Early stages

Egg. Description of only one species is known (*Carposina sasakii* Matsumura). They are yellowish, are deposited externally and singly, preferably in hairy cavities of the surface of the fruit, are spherical and approximately 0,5 mm in diameter (Hukusima, 1953).

Larva. The larva of Northern American *Carposina* and *Lotisma* is briefly described as follows. Bisetose, i.e., with two prespiracular bristles on the prothoracic shield. Setae L1 and L2 are together on abdominal segments I-VIII; meso- and metathorax with L1 and L2 on one pinnaculum, L3 on one of its own. Anterior half of submentum with setae, posterior half with a pair of protuberances (Mackay, 1972).

The oldest complete description of the carposinid larva we owe to Swatschek (1958); it is based upon two common species of *Carposina, scirrhosella* and *berberidella*. His diagnosis may be briefly repeated thus. Prothorax is bisetose, with two setae: V and IV, while seta VI is absent. The thoracal legs have the setal group VII consisting of four setae. The 8th abdominal segment with seta III situated dorso-cranially of the spiraculum. The abdominal segment 9 with seta I nearer to II than to III, but setae IV and V are absent. Abdominal legs with crochets uniserial. The adfrontalia do not reach the posterior edge of the head. Swatschek's conclusion is that this chaetotaxy is basically different from that of the Tortricidae, in the first place by the bisetose prestigmal shield or pinnaculum (trisetose in the last family)

and so appearing to belong to the similarly bisetose Pyralidae, but through other separating characters should be regarded as a convergency. He therefore transfers *Carposina* to the independent family Carposinidae.

Another elaborate and detailed description of a carposinid larva is by Yano (1959), of a different genus. viz. *Commatarcha palaeosema* Meyrick. For the sake of brevity we may refer to our fig. 2 of the chaetotaxy of this species.

Pupa. — The pupa is without dorsal spines and is not protruded from cocoon during emergence of the moth. Still it is very interesting to note that "Basal parts of dorsal setae on abdominal segments are well elevated and lateral areas of abdominal segments are prominently rugged" (Yano, l.c.: 216). This peculiar situation of the abdominal dorsum of the *palaeosema* pupa seems to present some intermediate stage between a non-protruding and a protruding pupa. However, this pupa apparently does not protrude.

KEY TO THE GENERA OF PALAEARCTIC CARPOSINIDAE (MALES)

1. Maxillary palpi 3-segmented. Tegumen slender, triangular. Uncus long, thin, curved. Valva long, narrow, with a small subbasal harpe. Aedeagus flat, unarmed ..... *Heterogymna*
– Maxillary palpi l-segmented. Tegumen, uncus, valva and aedeagus not thus at the same time 2
2. Labides half as long as valvae, thick, bristly ..... *Alexotypa* gen. nov.
– Labides, if present, slender, digitoid 3
3. Bibrachium present, mostly tubular, filled with spinulae, or ribbonlike, with spinulae on upper surface ..... *Carposina*
– Bibrachium absent or vestigial 4
4. Tegumen truncate, uncus awl-shaped, aedeagus bat-like. Fore wing with androconial pocket ..... *Metacosmesis*
– Tegumen, uncus and aedeagus not thus. Fore wing without pocket .. 5
5. Anellus forming a single dagger-shaped dark blade .... *Commatarcha*
– Anellus without such blade 6
6. Uncus mostly long and thin, hooked. Hind wing with long androconial pencil ..... *Meridarchis*
– Uncus not hooked, short or absent. Hind wing without pencil 7
7. Valvae fused to vinculum, their tops tongs-shaped; ampullae present ..... *Peragrarchis*
– Valvae free, tortricoid, without ampullae ..... *Archostola*

CLASSIFICATION OF PALAEARCTIC CARPOSINIDAE

[**Bondia nigella** Newman, 1856, extralimital]

I. **Commatarcha** Meyrick, 1935
Bondia auet. nec Newman, 1856
Delarchis Meyrick, 1938 syn. nov.
1. **palaeosema** Meyrick, 1935
2. **vaga** spec. nov.
3. **quaestrix** (Meyrick, 1935) *(Bondia)* comb. nov.
4. **characterias** (Meyrick, 1932) *(Bondia)* comb. nov.
autocharacta (Meyrick, 1932) *(Bondia)* comb. nov.
5. **oresbia** spec. nov.
6. **acidodes** spec. nov.
7. **chrysanches** (Meyrick, 1938) *(Bondia)* comb. nov.
8. **citrogramma** (Meyrick, 1938) *(Delarchis)* comb. nov.

II. **Alexotypa** gen. nov.
[**vitiata** (Meyrick, 1913) *(Meridarchis)* comb. nov., extralimital]
9. **caradjai** spec. nov.
10. **japonica** (Walsingham, 1900) comb. nov.

III. **Peragrarchis** Diakonoff, 1959
[**rodea** (Diakonoff, 1950) *(Meridarchis)*, extralimital]
11. **emmilta** spec. nov.
12. **syncolleta** (Meyrick, 1928)

IV. **Metacosmesis** Diakonoff, 1949
13. **laxeuta** (Meyrick, 1906) (*Paramorpha*) comb. nov.

V. **Carposina** Herrich-Schäffer, 1853
[**zymota** (Meyrick, 1910) *(Meridarchis)* comb. nov., extralimital]
14. **niponensis** Walsingham, 1900
15. **scirrhosella** Herrich-Schäffer, 1853
16. **diampyx** spec. nov.
17. **rosella** Kuznetzov, 1975
18. **roesleri** Amsel, 1977
19. **ekbatana** Amsel, 1978
20. **tetratoma** spec. nov.
21. **berberidella** Herrich-Schaffer, 1853
22. **sasakii** Matsumura, 1898
22a. **sasakii** forma **viduana** Caradja, 1916, status nov.
23. **askoldana** spec. nov.
24. **atlanticella** Rebel, 1894
25. **gigantella** Rebel, 1917
26. **sublucida** Diakonoff, 1988
27. **cinderella** Diakonoff, 1988
28. **anopta** Diakonoff, 1988

VI. **Archostola** Diakonoff, 1949
29. **ocytoma** (Meyrick, 1938) *(Meridarchis)* comb. nov.
30. **niphauge** spec. nov.
31. **amblystoma** spec. nov.
32. **martyr** spec. nov.

VII. **Meridarchis** Zeller, 1867
Autogryphus Walsingham, 1897
Pexinola Hampson, 1900

Propedesis Walsingham, 1900
Tribonica Meyrick, 1905
33. **excisa** (Walsingham, 1900) *(Propedesis)*
34. **crotalus** spec. nov.
35. **jamboa** Kawabe, 1980
36. **isodina** spec. nov.
37. **ensifera** Diakonoff, 1950
38. **merga** spec. nov.
39. **longirostris** Hampson, 1900 *(Pexinola)*
40. **bryonephela** Meyrick, 1938
41. **trapeziella** Zeller, 1867
42. **xerostola** (Diakonoff, 1984) *(Metacosmesis)* comb. nov.

VIII. **Heterogymna** Meyrick, 1918
43. **metarsia** spec. nov.
44. **ochrogramma** Meyrick, 1913
44a. **seriatopunctata** Matsumura, 1931 status nov.
44b. **toxotes** subsp. nov.
44c. **coloba** subsp. nov.

The extralimital genus *Bondia* Newman, 1856

Discussion.— The generic name *Bondia* Newman, 1856, has been used by Edward Meyrick for a series of new Australian species of Carposinidae in 1882a and in 1910. At that time he stated that the genus was confined to Australia, but in 1913b he described one species from Colorado, U.S.A.

It was much later that Meyrick introduced the name *Bondia* in the Palaearctic Fauna, by describing two new species from Kashmir (1932) and a third from China (1935). In the same year he also described the genus *Commatarcha*, for a single species from Japan.

When comparing that latter species, *Commatarcha palaeosema* Meyrick, with his Palaearctic species of '*Bondia*' we were struck by the similarity of the two genera, became doubtful about the identity of the Newman's genus, and tried to verify it. The type-specimen of *Bondia nigella* Newman, the type-species of the genus not being available, we chose the second best material: a couple of *B. nigella* from Australia in Meyrick's Collection, identified by himself. The male from New South Wales, after dissection of the genitalia, showed at once that the original Australian *Bondia* is completely different from the Asiatic species, described by Meyrick under that generic name, and that the latter species belongs to a distinct genus, viz., the already available *Commatarcha* Meyrick, 1935.

The veritable Australian *Bondia* of Newman, although externally very similar to the Asiatic *Commatarcha* species, appears to have the most simplified male genitalia known to us in the Carposinidae, as is illustrated by the following descriptions and figs, 46C-E. It is likely that also the New World species of "*Bondia*" need to be generically reviewed.

Bondia Newman, 1856
(figs. 46C-E)

Bondia Newman, 1856: 289. Type species, *Bondia nigella* Newman, 1856, by monotypy.

Material.— ♂ Sydney, New South Wales, 11/9/1879; 24085. ♀ Fernshav, Victoria, 10/11/1882 24086, both E. Meyrick det., in Meyrick Coll. BM(NH).

Description.— The male genitalia of the type-species, *Bondia nigella* Newman, may be described thus:

Tegumen moderate, slightly sclerotic, top rather slender, rounded; sides of top slightly curving inside, thinly haired. Vinculum broader, rather high, saccus moderate, slightly narrowed, top obtusely angulate. Valva broad and moderately long, oblong-subtruncate, top rounded, apical half bristly, costa gently concave, sacculus ½, triangular, unarmed; a small bristly round knob at base of costa must be a labis. Juxta a transverse oblong sclerite. Anellus peculiar: sclerotic, U-shaped, its ends (or sides, homologues of anellus lobes), abruptly rising, tips acute, separate, harpoon-shaped. Aedeagus moderately long, stalk ½, clavus slightly dilated, topped with two similar oval bulb-shaped bodies of cornuti within a manica.

Female genitalia.— Eighth segment rather small, sclerotic, naked in center, surrounded by minute papillae, posterior edge with a row of long bristles. Sterigma is shaped of two rounded-quadrate, contiguous sclerites. Colliculum membraneous, funnel-shaped, wider posteriorly, ductus bursae long, tubular, simple, becoming a wide tube anteriorly, corpus bursae ill-defined, a simple final dilatation. Signa two simple sclerotic round plates, with 8-9 dark sclerotic warts on each.

Remarks.— The genitalia contain most elements of the Carposinidae, but are of a very simplified build. Therefore we regard them as being primitive. They are widely remote from the genitalia type of *Commatarcha* species which show strong specializations that must be apomorphies: the fused valvae, that are differentiated in strongly sculptured, sclerotic sacculi, in modified and specialized bifid cuculli, arrow-shaped aedeagus, etc.

The female seems to possess primitive, besides more progressive features: the unique signa have an archaic look, while a sclerotic sterigma (also present in *Commatarcha quaestrix* (Meyrick) comb. nov. I estimate to be more primitive than the absence of a developed thick-walled colliculum (a secondary reduction), etc.

Distribution.— Australia.

I. **Commatarcha** Meyrick
(figs. 1-2)

Commatarcha Meyrick, 1935: 594. Type-species, *Commatarcha palaeosema* Meyrick, by monotypy.
Delarchis Meyrick, 1938: 15. **Syn. nov.** Type-species, *Delarchis citrogramma* Meyrick, by monotypy.
Literature.— Diakonoff, 1950: 294.— Clarke, 1963: 46, figs.— Yano, 1959: 2, fig.— Okano, 1959: 269.— Kawabe, 1982: 1: 289; 2: 216.— Park, 1983: 60, 450, 905.

Discussion.— The genus *Commatarcha* was characterized by moderate, curved, ascending and rather slender palpi of the female, less so by the development of vein 6 in the hind wing. According to Meyrick these two features should drastically separate this "primitive" genus from the extremely similar but "progressive" genus *Bondia* Newman, 1856, from Australia. Asiatic *"Bondia"* males have the same kind of palpi as *Commatarcha*, but the females would have long, porrected palpi, with the median segment long, densely scaled and the terminal segment moderate, exposed and slightly rising.

After having studied several species from Japan, China and Pakistan, we came to the conclusion that the two diagnostic characters mentioned above are subject to considerable variation. Especially the degree of development of vein 6 in the hind wing is variable throughout the family and in *Commatarcha* can be reduced to a weak vestige, traceable in and beyond the cell, but with the base, and also the apex at the wing margin gradually disappearing. In a new species from Pakistan vein 6 is fully developed, but the palpi of the female, though not extremely long, have the median segment oblong, dilated by scales, roughish above and beneath, while the terminal segment is moderate and obliquely rising.

On the other hand the facies, coloration, and markings of the species are very similar and even more so are the complicated male genitalia. Therefore we are satisfied that the so-called Asiatic *"Bondia"* species should all be assigned to the genus *Commatarcha* Meyrick.

Description.— The reviewed diagnosis of *Commatarcha* is as follows:

Species of rather diverse size.

Head with appressed scales. Haustellum developed. Ocellus posterior or absent. Antenna ¾, in male with fine, long ciliations (4-5), in female filiform. Palpus in male moderately long, curved and ascending, or less curved and subascending; palpus in female diversely shaped: curved and ascending, or porrected with terminal segment more or less rising, moderate and exposed, median segment more or less densely scaled, and roughish above and beneath. Maxillary palpi not visible. Posterior tibia loosely scaled above.

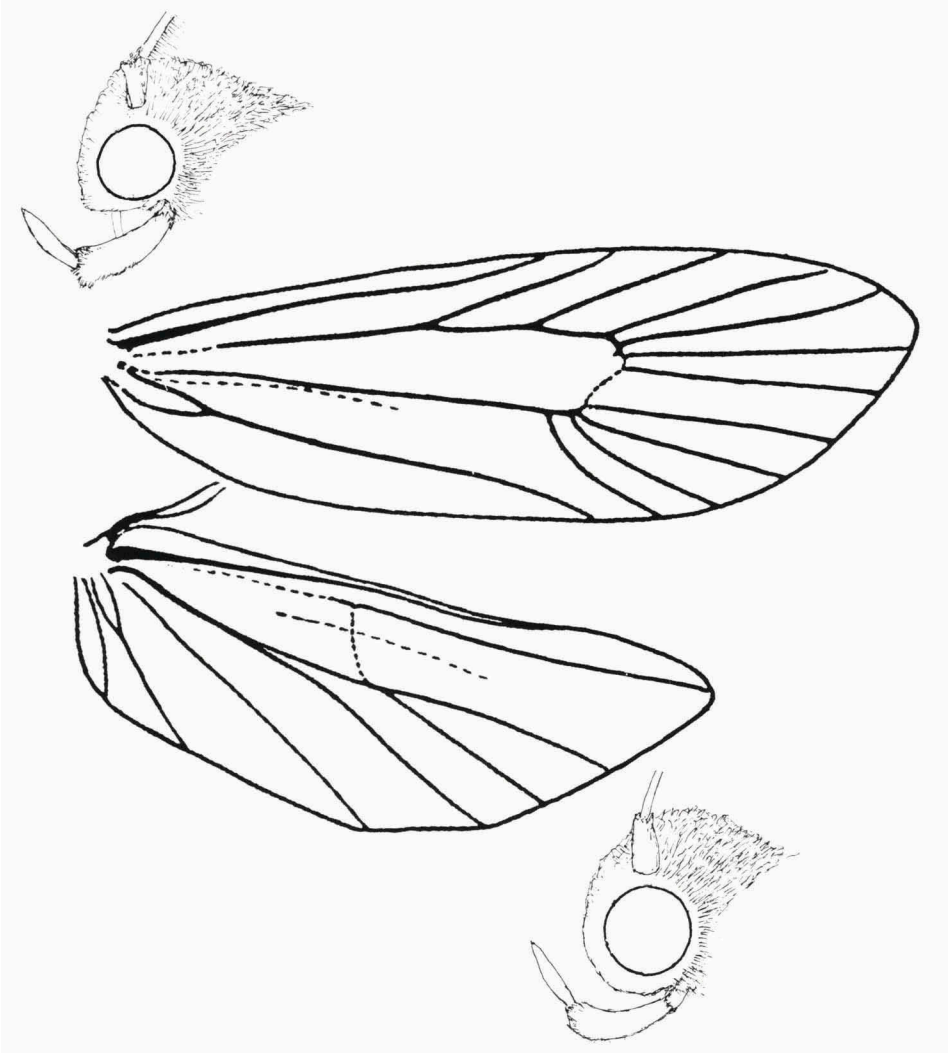

Fig. 1. *Commatarcha palaeosema* Meyrick, sketch of wing venation and heads: left, head ♂, right ♀. (Venation after Clarke, 1963).

Fore wing: with tufts of scales (disappearing in even lightly rubbed specimens). Vein 2 from distinctly before angle, 3-5 moderately approximated at base, 6 distant, 7 and 8 approximated towards base, seldom 8 and 9 stalked, 10 distant, 11 from middle of cell.

Hind wing trapezoidal-semiovate, without or with a very slight cubital pecten. Vein 2 from beyond middle, usually from ¾, 3 and 4 short-stalked, 5

absent, 6 variably developed: from entirely absent to traceable throughout except at ends, slightly diverging from 7 towards wing margin, 7 always to apex.

Male genitalia are complicated, the sacculus halves of the valvae being fused together, with a small juxta and fused to vinculum along their bases, so obscuring separate parts. Very useful for their identification were figures in Davis' monograph of the American species of *"Bondia"* (1969). Viewed in ventral aspect the genitalia may be described as follows:

The valvae are strongly concave, with three processes: the ventral, mesad directed sacculi, being mostly sclerotic plates on top with hooks, sometimes with tops contiguous in middle or overlapping, so closing the main cavity of the genitalia; and a sclerotic cucullus, with a submembraneous more slender caudal, and a sclerotic broader rostral process. Diaphragma in its center with a large round opening for the aedeagus. Anellus is the edge of this opening, with on the dorsal side a pair of long sclerotic extentions, the anellus lobes, that are overlapping and fused, so as to form darkly sclerotic dagger-shaped, flat rising process, with bases of lobes sometimes forming a dark crescentic piece. Joining the bases of the valvae is a small juxta, mostly vertical and narrowed rostrad. Tegumen is more or less membraneous, with a fleshy uncus, shaped as a more or less rounded knob, with a thin sclerotic rod for base. A gnathos is not perceptible. Vinculum normally large, elongate-triangular, with a long saccus. Aedeagus arrow-shaped: long and slender, a straight rod, with at the apical part diversely extended stripe of heavy, recurving spines. The aedeagus is encased in a pointed membranous sac (manica).

Female genitalia are of a simplified general type, with an erectile ovipositor and the but slightly sclerotic 8th segment; 7th segment bearing lamella postvaginalis and ostium that is specifically distinct, but of a rather simple shape; it gradually passes into colliculum, a tube of moderate size, smaller than in other genera, with less heavily sculptured (papillate) wall, sometimes with small longitudinal folds. Corpus bursae long and slender, "sausage-like". Signa absent.

Remarks.— Several species are small, narrow-winged and very similar externally, dark fuscous or bronze, with characteristic cretaceous set of markings. Others are larger, with the usual appearance of a *Carposina*. In all cases study of genitalia is necessary for identification.

1. **Commatarcha palaeosema** Meyrick
(figs. 1-2, 10A, 21A-B, 31A-C, F-G)

Commatarcha palaeosema Meyrick, 1935b: 594 (♀, Japan, Honshu).

Literature. — Diakonoff, 1950: 294; 297 (*"quaestrix"*). — Kuroko, 1951: 8. — Iconogr., 1958: 455. — Okano, 1959: 269, figs. — Yano, 1959: 24, figs. — Clarke, 1963: 46, figs. — Stănoiu & Nemeş, 1968: 108. — Issiki, 1973: 36, figs. — Kawabe, 1982, 1: 289; 2: 216, figs. — Park: 60, 450, no 508, p. 905.

Holotype. — ♀, 13 mm/Japan (Honsyū), Kyoto, April (K. Takeuchi). GS 6753 JFGC (Teste Clarke, 1963: 46, pl. 22 figs. 1-1d). BM(NH).

Secondary Material. — Honshu, Mt. Rakusho-san, Toyota, Aichi Prefecture, 21.IV.1976, 1 ♂, GS 10834; 5.VI.1977, 1♀, GS 10838; 9.VIII.1977, 1♂, GS 10836 (Y. Arita leg.). — Mt. Sanageyama, Toyota, Aichi Prefecture, 1.VIII.1978, 1♂, GS 10835, 2 ♀, GS 10837, 10839 (B. Tanaka leg.). — Hokkaido, Mt. Rausu-dake, 22.VI.1969, 1♂, GS 10811 (Y. Arita leg.). All ZLMU. — Honshu, Tyubu-Nagano, Sigakogen, 13.VL.1953 (T. Kodama leg.). Issiki Coll., 1♂ GS 10891. — Kinki, Makinoo-san, 20.IX.1966 (S. Issiki). USNM. Kyushu, Fukuoka, 23.VI.1957 GE 10860; 5.VI.1957, 1♀ GS 10861 (K. Yano, 3♂ 4♀. ELKU). Kyushu, Hikosan, Buzen, 30.V.1954 (H. Kuroko), 1♂, GS 10806. RMNH.

Description. — ♂, 11-15 mm. Head smoothly thick-scaled from vertex to end of face only occiput roughish laterally; glossy deep bronze, forehead and face glossy leaden. Antenna slightly thickened and subserrulate, ciliations over 1. Labial palpus with median segment considerably curved (so palpus is held close to face and appearing shorter in dorsal aspect), terminal segment about ⅓ of median, moderately long, rather slender and subacute.

Fore wing oblong-suboval, with normal tufts of raised scales, costa gently curved throughout, more so towards apex, apex subobtuse, termen gradually curved, oblique. Deep glossy bronze, raised tufts and basal patch dull bronze-blackish, dark markings dull and visible only in certain lights. Basal patch small, along less than $^1/_6$ of costa, edge slightly raised, strongly oblique, serrate with three ill-defined teeth; more than posterior half of costa with five bronze-blackish spots, equidistant and slightly and gradually increasing in size posterad, ultimate spot smaller, subapical; a curved subterminal bronze-blackish band from below penultimate costal spot, more curved than termen, slightly attenuated below, to dorsum just before tornus; raised tufts small, round, faintly edged along posterior half with whitish: an inwards-oblique pair at ¼, another pair more oblique, along closing vein, more approximated; a fourth raised tuft, rather flat, of ground colour, between middle of cell and fold; cretaceous dull markings variable, well defined shaped usually thus: a dentoidal spot with top on $^2/_3$ of costa, its lower edge concave by inclusion of first scale tuft; a moderate fasciate, outwards-oblique blotch, with top hooked

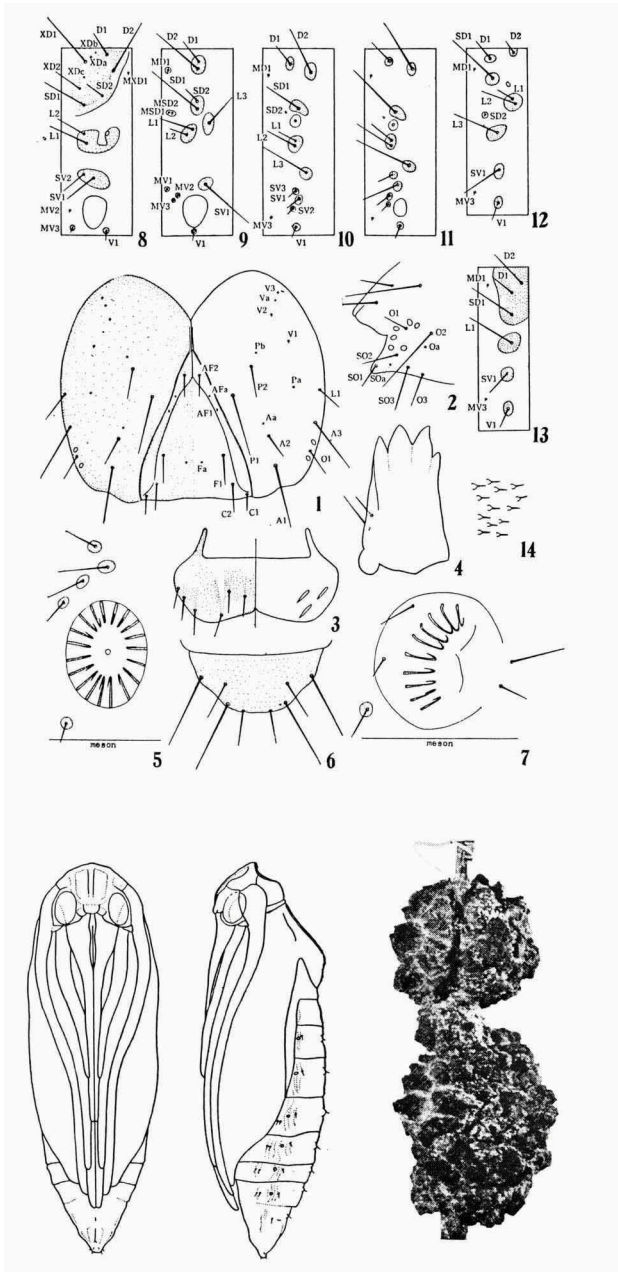

Fig. 2. *Commatarcha palaeosema* Meyrick, larval chaetotaxy, pupa (ventral and lateral aspects), and galls on Fagaceae from which larvae have been reared (After Yano, 1959).

anterad around the second subcostal raised tuft and a slender and shorter inwards-oblique second mark before and below preceding, touching the subapical scale-tuft from outside, limited below by fold; a faintest terminal dark line. Cilia greyish-bronze, paler than wing. (Species redescribed, GS 10735).

Hind wing without a cubital pecten, rather narrow, 1; light glossy bronze, with hardly any grey tinge. Cilia concolorous.

♀, 11,5 mm. Very similar to the male; labial palpus exactly similar and of the same length; only wing darker, markings deep black, the costal dots extended, but preapical dot smaller; irregular dull black spots in disc preceding the white markings.

Hind wing paler, bronze-greyish; otherwise as male.

Male genitalia. — Uncus, a rounded tumescence, ⅓ width of tegumen. Valva sclerotic, semioval, with a sinuate lower edge, mesad- erected process (top) of sacculus hooked, sclerotic, top more or less acute (slightly variable), dorsal (caudal) process of cucullus submembraneous, moderate, bristly on caudal surface; ventral (rostral) process subtriangular sclerotic, top obtuse. Anellus pointed, triangular, with dark basal edge. Aedeagus a slender rod, stripe of cornuti spindle-shaped, with an acute tip, base reaching middle. Vinculum with a long saccus.

Female genitalia. — Ovipositor rather short. Eighth segment short, membraneous, short-aciculate on upper part, with a small group of 3-4 bristles at the sides of the top. Ostium shaped as a narrow transverse frontal split between the cap-like sclerotic, triangular and dubble-walled modification of the dorsal edge of ostium and its simple membraneous ventral edge that is convex; ostium proper membraneous, thin-walled and tubular; it is followed by wider and thick-walled colliculum, rather funnel-shaped, strongly narrowed downwards, throughout with fine longitudinal folds; ductus bursae narrow, membraneous coarsly but not densly papillate. Corpus bursae narrow, tubular, rather constricted in middle, upper half spindle-shaped, lower subconical. Signa absent.

Distribution. — Japan.

Remarks. — K. Yano (1959) published an elaborate study of the larva and pupa of the present species, with nice figures that we reproduce here. He adds the following notes on the biology.

Food plants. — *Shiia cuspidata* Makino, *Quercus glauca* Thunberg and *Quercus serrata* Thunberg (Fagaceae). In Kyushy district larva causes considerable damage to the first named plant, less serious, to the second. The moths emerge from April to June. The larvae bore under the bark of trunks and branches, causing strong swellings of the trunks and very large gall-like tumors of the branches. Usually several larvae bore together and often in company of the larvae of a Sesiid *(Conopia quercus)* (Matsumura, 1931) and discharge

small reddish pellets of frass and excrements in both *Shiia* and *Quercus glauca*. From April to May the larva constructs a cocoon, covered with pellets and pupates therein. It is 6.3-8.5 mm long and 3.0-3.8 mm broad.

Davis (1969) suggests that the large swellings and galls may be caused by a fungus, while the larvae act as inquilines.

Note. — In 1950 Diakonoff identified in the British Museum four females, labelled "Japan, 1886 (Pryer) (Walsingham Collection)", as "*Bondia quaestrix* Meyrick". I am now satisfied, after dissection of one specimen, that this material belongs to the present species.

2. **Commatarcha vaga** spec. nov.
(figs. 21C, 31D-E)

Holotype. — ♀ GS 10812, Japan, Honshu, Mt. Rokusho-san, Toyota, Aichi-ken, 9.VII.1977 (Y. Arita), ZLMU.

Description. — ♀, 15 mm. Head, scape of antenna and thorax dark purplish-bronze, flagellum paler towards tip, face glossy leaden. Labial palpus with median segment slightly curved, moderately dilated with smooth scales, dull dark purplish-black, terminal segment moderate, slightly over half median, paler purplish-bronze, rather slender, obtusely pointed, obliquely ascending. Abdomen purple-black.

Fore wing rather narrow, oblong-suboval, dilated, broadest beyond middle, costa moderately curved towards extremities, almost straight in middle, apex obtusely pointed, termen almost straight above, rounded beneath, long and oblique. Deep purple-bronze, with a strong gloss along upper half of wing, in disc posteriorly and in apex and along termen turning paler, glossy leaden in certain lights. Basal patch blackish-bronze, to ⅛ of costa, edge crested, rectangular at upper ⅓, thence rounded, not reaching dorsum, edged posteriorly by a transverse white mark below costa and by a white dot below fold; costa with a transverse cretaceous mark at ¼, reaching cell, lower end including a black round tuft of raised scales; another tuft obliquely opposite this just below fold; posterior half of costa with four faint silvery-leaden triangular dots; a dull ferruginous transverse band edging closing vein anteriorly, posteriorly edged by a conspicuous, cretaceous-white S-shaped line, from around top of that vein to above dorsum, upper half outwards-oblique, lower almost vertical; a dull ferruginous transverse band, halfway and parallel to termen; termen with ferruginous spots on ends of veins; all these ferruginous markings becoming dull black in certain lights. Cilia dark ashy-grey with anthracite gloss.

Hind wing without cubital pecten; semipellucent grey, on posterior half becoming opaque, suffused with grey-purplish. Cilia blackish-grey.

Female genitalia. — Eighth segment longer than in *palaeosema*, more narrowed caudad, more sclerotic. Ostium a moderate cup, narrowed upwards, with concave sides that are prominent above top and flanked by narrow hyaline edges, followed by sclerotic ones; lateral sclerites forming a narrow V-shaped median split (in front); colliculum not separate from ostium, a rather thick, long tube (longer and stronger than in *palaeosema*), turning to the left, gradually narrowing downwards (rostrad) darkly staining only along the right side, with fine longitudinal wrinkles. Ductus bursae narrow, wall finely papillate, followed by an erect-pear-shaped corpus bursae, papillate over its upper narrowed part (corpus bursae wider than in *palaeosema*).

Remarks. — The species is closely allied and externally very similar to *C. palaeosema* Meyrick, from which it differs by the structure of the ostium; additional material, especially of the males, is very desirable.

3. **Commatarcha quaestrix** (Meyrick) comb. nov.
(figs. 21D, 32A-B)

Bondia quaestrix Meyrick, 1935a: 85 (♀, China, Chekiang).

Lectotype. — ♀, (present designation by Dr. A. Popescu-Gorj): West-Tien-Mu-Shan (1600 m), Chekiang, 15.IV.32. H. Höhe (print & ink)/Lectotype Bondia quaestrix Meyr. ♀, Des. Dr. A. Popescu-Gorj (red cadre, print & ink) / Bondia quaestrix Meyr. Type (ink, in Caradja's hand) / România Muzeul Ist. Nat. "Gr. Antipa" (print). GS 10869. MGAB.

The species is represented by two syntypes, females: one in Meyrick Coll., BM(NH), a mouldy specimen without abdomen and another, the present lectotype, in Caradja Coll., MGAB. The lectotype may be redescribed as follows.

Description. — ♀, 17 mm. Head glossy bronze, lower part of face pale fuscous. Antenna subserrulate, short-ciliate, scape slightly dilated and flattened. Labial palpus moderately long, curved and ascending, moderately diverging, tip reaching above base of antenna; smooth-scaled, median segment gently dilated, top rounded. Thorax bronze-brown. Abdomen pale grey-ochreous, anal tuft pale ochreous.

Fore wing elongate, costa gently curved, apex obtusely pointed, termen oblique, slightly convex. Glossy bronze, markings dull dark fuscous. Posterior half of costa with five minute silvery-grey marks, first to third more distant than third to fifth, third largest; an angulate preterminal band from ¾ of costa to middle of vein 7, thence to dorsum before tornus; discal whitish mark spindle-shaped, its upper hooked part tinged fulvous, lower mark reduced to a fragment across bases of veins 5-3; raised tufts not perceptible (erased). Cilia fuscous-bronze, lighter than wing.

Hind wing, with a slight cubital pecten; light grey, subpellucent. Cilia light fuscous, with a narrow pale basal line.

Female genitalia. — Eighth segment weakly sclerotic, conical, ostium with a sterigma-like sclerotic plate, rounded, upper edge truncate, deeply incised in middle to below center of plate. Colliculum a broad, straight tube, with left side sclerotic, ending in an oblique small, longitudinally plicate and narrowed semisclerotic part, followed by a long ductus, first simple, then coarsly granulate. Corpus bursae small ovoidal. Signa absent.

Distribution. — China.

Remarks. — The species is larger and more robust than *B. palaeosema* Meyrick, with distinct genitalia.

4. **Commatarcha characterias** (Meyrick) comb. nov. (figs. 21G, 32C-E)

Bondia characterias Meyrick, 1932: 312 (♂, Kashmir, 8800 ft.). Literature. — Diakonoff, 1950: 294 *(Bondia autocharacta* syn.). — Clarke, 1963: 44, figs. *(Bondia)*.
Bondia autocharacta Meyrick, 1932: 312 (♂, Kashmir, 8800 ft.). (Teste Diakonoff, 1950: 294).

Holotype. — ♂: /Type (red-edged disc)/ Lectotype D♂ (the same)/ Gulmarg Kashmir T.B.F. 8800' .7.31 (black ink, Meyrick's hand)/♂ genitalia on slide 4 Feb. 1948 JFGC 6751 (print & ink, Clarke's hand)/Bondia characterias Meyr, 1/1 E. Meyrick det. In Meyrick Coll. (print & ink)/ Meyrick Coll. BM 1938-290 (print)/ characterias Meyr. (ink, Meyrick's hand) / BM(NH).

Description. — This perfectly preserved type-specimen of *characterias* is briefly redescribed: ♂, 18 mm. Head grey-fuscous, face whitish-grey, lower part whitish in certain lights. Antenna fuscous, finely ringed with white, ciliations 3, scape with a whitish apical ring. Labial palpus smoothly scaled, median segment dilated, terminal slender, short, acute; purple-black, appearing leaden-grey in certain lights. Thorax whitish-creamy, glossy, appearing pale grey in certain lights.

Fore wing rather narrow, dilated, broadest at tornus, costa abruptly curved at base, straight in middle, more gradually curved before apex, apex subobtuse, termen gently convex, strongly oblique. Pale greyish-white, wing inside the area from less than ¼ of dorsum to below costa, thence horizontally to costa before apex: touched with pale fulvous; basal patch to less than $^1/_5$ of costa, well defined, oblique, slightly sinuate, lower edge running above dorsum to base of wing, purplish-black, costa with six spots, black, posterior two brownish; first before ⅓, small, second submedian, oblong, following four spots becoming larger posteriorly, rather equidistant, each of three ultimate spots followed by a glossy white dot; two small black raised tufts, inwards-oblique, below first costal spot, below costa, and below fold, respectively,

lower mark largest, oblong; a fine third in between, slightly shifted outwards; a faint pure white transverse line, following them; a blotch of purple-black dusting in center of wing, from below second costal dot to cretaceous mark on end of cell and from upper edge of cell to fold; a pair of subcostal oblong black marks before and below the fourth and the fifth costal spots, respectively; a curved series of small dark marks from second subcostal dot to tornus and along end of dorsum, outwards-convex; a conspicuous cretaceaous-white mark around and along closing vein, thickened in middle, narrowed downwards, just not reaching fold; entire wing speckled with dark scales, black upon pale grey part, fuscous-brown on fulvous-tinged part of wing. Cilia pale grey, touched with fulvous and mixed and slightly barred with black.

Hind wing with produced apex and sinuate termen, with a very slight cubital pecten; whitish-creamy, with a faint silky gloss, apex slightly greyish. Cilia concolorous, touched with grey-fulvous.

Male genitalia. — Tegumen membraneous, lateral edges sclerotic, forming a triangle. Uncus is an apical conical prominence. Anellus a smaller triangle, sclerotic entirely. Vinculum broad, with rounded sides and strongly sclerotic edges; saccus rather long, strong, with similar edges and an arrow-shaped point. Valva with a sinuate edge of sacculus that is sclerotic and swollen, with a few short hairs, oblong-oval; cucullus with the rostral process strongly sclerotic, narrow and prong-like, caudal process shorter, more slender, straight, and rod-like. Aedeagus arrow-shaped, long slender, top with a bunch of recurving spines.

Distribution. — Kashmir.

5. **Commatarcha oresbia** spec. nov.
oresbios = living on mountains
(figs. 21E-F, 33A-C)

Holotype. – ♂ GS 10841; 1♀, allotype, GS 10840: Western Pakistan, Shangla, Swat, 2140 m, 23.VIII.1970 (Y. Arita) ZLMU.

Description. — ♂, 14 mm. Head grey-fuscous, face glossy whitish. Antenna dark fuscous, ciliations white, about 2. Palpus moderately long, median segment moderately curved and ascending, dilated with dense scales, smooth above minutely roughish along lower edge, terminal segment slender, subclavate, pointed, exposed, rather short; black, silvery opalescent on the inside. Thorax glossy silvery with a bronze tinge, a purple-black anterior edge with concave margin, anterior half of tegula purple-black. Abdomen pale fuscous-grey.

Fore wing rather narrow, ovate-sublanceolate, costa curved at base gradu-

ally curved along posterior fifth, apex obtusely pointed, termen hardly convex, very oblique. Light glossy fuscous-cinereous, markings reduced, light fuscous-grey. Basal patch $^1/_6$, blackish-fuscous, edge straight, inwards-oblique, followed by a whitish area on costa to beyond middle, outer edge indefinite, to ¼ of dorsum; costa with blackish marks: an outwards-oblique small blotch before middle, preceded and followed by a small dot; over posterior third of costa blackish; discal markings as follows: a thin almost vertical line from below first costal dot, slightly inwards-oblique, on dorsum extended posterad by a small marginal blotch; some fuscous suffusion from anterior part of costal blotch, across wing, including a small fuscous vertical mark on fold before middle of wing; a slender whitish line around upper angle of cell, outwardly shaped as a question mark, below almost reaching to fold, anteriorly edged by fuscous suffusion, forming a line to above dorsum at $^2/_3$; a dark fuscous suffusion below posterior third of costa, continued as a narrowed band across wing to tornus; edge of termen with some four dark dots. Cilia pale fuscous, dark fuscous around apex, elsewhere with a fuscous subapical band, lighter tips and a pale basal line.

Hind wing without a cubital pecten; with vein 6 developed throughout, but weaker in cell; pointed, termen straight and oblique. Glossy whitish-fuscous, veins narrowly darker. Cilia whitish-fuscous with a silky gloss.

♀, 14.5 mm. Very similar to the male, differing thus. Palpus with median segment longer, staight, less dilated, apical segment slender, porrect, acute. Fore wing with the white subbasal area extended, also on dorsum; posterior third of costa not obscured with fuscous, with three blackish suffused spots; otherwise similar to the male, but white line of the 'question mark' thicker. Hind wing without pecten; suffused with grey.

Male genitalia. — Tegumen throughout with a slender sclerotic marginal ridge. Uncus a small sclerotic and pointed triangle. Valva semi-sclerotic, sacculus broad, outer edge obtuse, ventral edge extended and convex, median process of cucullus sclerotic, long, with an angulate base, dorsal process long, slender, with a few long thin bristles. Anellus sclerotic, W-shaped. Juxta moderate, with a rounded base. Aedeagus slender and very long, patch of cornuti short. Vinculum and saccus long, rather slender.

Female genitalia. — Ovipositor long and pointed. Eighth segment rather long. Ostium a subsclerotic tube with a V-shaped cut of frontal edge and a long split, separating a pair of lateral lobes or valves passing into colliculum, that is short. Ductus bursae membraneous, strongly wringkled, with a strong curve at the left side; ductus punctulate throughout. Corpus bursae (damaged) with a smooth wall, without signa.

Distribution. — Pakistan.

Remarks. — A very interesting species from high mountains, resembling *C.*

characterias (Meyrick) from high Kashmir, probably another relict species, with characteristic and distinct genitalia.

6. **Commatarcha acidodes** spec. nov.

acidodes = pointed
(figs. 22E-F, 33D-F)

Holotype. — ♂, GS 10784; the same, 2 paratypes, ♂: 25.VII and 7.VIII.1934, GS 10801, and 10805, respectively. China, Province N. Yunnan, Li-kiang (H. Höne). MAKB, RMNH.

Description. — ♂, 17.5 mm. Head light fuscous, mixed with creamy. Antenna creamy, flagellum banded with fuscous, long-and fine-ciliate. Labial palpus strongly curved, vertically ascending, median segment roughish along lower edge, terminal segment moderate, rather slender, vertically rising, subspindle-shaped, subobtuse. Thorax tawny-creamy with a strong gloss. Abdomen pale tawny-grey.

Fore wing oblong, rather narrow, dilated, broadest at $^3/_4$, costa gently curved at base, more so towards apex, almost straight in middle, apex rather pointed, termen long, oblique, gently concave. Rather glossy, creamy, dusted with tawny-fuscous, markings darker fuscous. Basal patch to $^1/_6$ of costa, edge straight, inwards-oblique, to dorsum, greyish-fuscous; costa with some six fuscous dots, fairly equidistant, slightly more distant from basal patch, last dot subapical; first dot beyond $^1/_4$, indicating origin of a slender, straight transverse band towards $^1/_3$ of dorsum interrupted in cell and on dorsum; second mark elongate along costa, below costa continued as an outwards-curved suffused short band pointing towards upper angle of cell, not reaching this; other dots subtriangular; a round dark fuscous raised tuft on end of cell, narrowly edged with white except anteriorly, preceded by a couple of irregular not raised fuscous spots; a suffusion along discoidal vein, from lower angle of cell continued by an outwards-concave vertical streak to end of dorsum; posterior half of terminal area and apex darkly infuscated; terminal edge blackish, tending to form a series of spots. Cilia creamy, with a greyish submedian band, cilia around apex and along upper half of termen dark grey with a whitish base.

Hind wing without a cubital pecten; glossy light grey-fuscous, becoming bronze-fuscous towards apex, paler and semipellucent towards base. Cilia pale fuscous-grey.

Male genitalia. — Tegumen narrowed towards top with a slight subapical step-like lateral structure. Uncus rather short, robust but not sclerotic. Ventral surface of tegumen with a wreath of coarse bristling and punctulation below this. Valva short, robust, strongly concave: caudally submembraneous and

bifid cucullus, rostrally concave, double-folded sclerotic sacculus, its top rectangular. Vinculum broad at base and funnel-shaped, saccus moderate. Aedeagus longer than distance from tip of uncus to that of saccus, straight, top oval, with a pecten of recurved spines of diverse size.

Distribution. — China.

Remarks. — The species is characterized by larger size, narrow fore wings and distinct genitalia with a peculiarly folded sacculus and an erect uncus.

7. **Commatarcha chrysanches** (Meyrick) comb. nov. (figs. 21H, 34A-C)

Bondia chrysanches Meyrick, 1938: 16 (♂, China).

Holotype, — ♂/Gen. no. 10870 A. Diak. (print & ink)/Likiang (China) Provinz Nord-Yuennan, 27.VI.1935, H. Höne (print)/Holotype Bondia chrysanches Meyr. ♂ (ink, red cadre)/Bondia chrysanches Meyr. Typus (black cadre, ink, Caradja's hand)/.MGAB.

Description. — ♂, 16 mm. Head pale fuscous, centered on vertex with blackish-fuscous. Antenna dark fuscous, flagellum posteriorly subserrulate, ciliations 3-4. Labial palpus rather long, curved and ascending, median segment dilated, broadest in middle, smooth, lower edge slightly roughish, top truncate; terminal segment over $^1/_2$ of median, very slender, acute steeply rising; deep blackish-purple, tip indistinctly whitish. Thorax (damaged) pale fuscous-grey, tegulae purplish. Abdomen pale greyish-brown anal tuft pale ochreous.

Fore wing long, gradually dilated, broadest at $^4/_5$, costa almost straight, curved towards apex, apex obtusely pointed, termen long, hardly convex, oblique. Rather light leaden-grey. Basal patch small, dark grey; costa before $^1/_3$ with a black dot, followed by five oblong black blotches, each edged with white posteriorly and becoming broader last one well before apex; a spot of dark fuscous suffusion below first blotch; a subterminal band of same suffusion halfway between cell and wing margin, from well below costa to above tornus, edges ill-defined; some five roundish-triangular black spots on ends of terminal veins; discal white marking finely edged with dark, angulate, with upper half orange, lower half vestigial, lower white mark absent. Cilia fuscous-grey, with a narrow pale basal line.

Hind wing without a cubital pecten; glossy pale fulvous-grey. Cilia whitish.

Male genitalia. — Tegumen rather long and narrow. Uncus represented by a small membraneous, down-curving flap. Vinculum triangular with a long slender saccus. Valva sclerotic, short, main part trapezoidal, with an angularly projecting bristly sacculus; cucullus a strong, down-curved process, bristly

below, and a dorsal narrow shorter appendix, dilated at base. Juxta large, a slender cone; anellus long, with lobes sclerotic and united at the top (severed in mount). Aedeagus very long and slender, arrow-shaped, but apical fourth flattened, so as to form a slender clavus. Cornuti an apical comb of spines.

Distribution. — China: Yunnan, Yulingshan Range, 4000-5000 m.

Remarks. — The unique type specimen is in bad condition, defaced, with thorax damaged and left hind wing missing. The genitalia are very distinct.

8. **Commatarcha citrogramma** (Meyrick) comb. nov. (figs. 22A, 34D-E)

Delarchis citrogramma Meyrick, 1938: 15 (♂, China).

Holotype, ♂/Gen. no. 10871 A. Diak. (print & ink)/Li-kiang (China) Provinz Nord-Yuennan, 14.VIII.1935 H. Höne (print)/Holotype Delarchis citrogramma Meyr. ♂ (ink, red cadre)/Delarchis citrogramma Meyr. Type (black cadre, cardboard, ink, Caradja's hand)/România Muzeul Ist. Nat. "Gr. Antipa" (print)/.MGAB.

Secondary material. — A male topotype, 21 mm, labelled "A-tun-tse (Nord-Yünnan, obere Höhe ca 4500 m, 27.VII.1937 (H. Höne)". A specimen in perfect condition, according to Dr. Popescu-Gorj, not sent at the time to Meyrick; a green-edged label reads: "Topotype Delarchis citrogramma Meyr. ♂. Des. Dr. A. Popescu-Gorj". MGAB.

Description. — ♂, 22 mm. Head white, vertex silvery. Antenna purplish-black, narrowly ringed with silvery, ciliations 1. Labial palpus moderate, median segment suboval, densely smooth-scaled, lower edge convex, roughish, terminal segment slender, acute, smooth, obliquely rising, less than half median. Thorax (denuded) greyish-white, tegula black. Abdomen pale ochreous-grey.

Fore wing with all veins separate: oblong, gently dilated, broadest at $^4/_5$, rather narrow, costa curved at ends, straight in middle, apex pointed, termen almost straight, hardly convex, oblique. White, markings purplish, black and grey. Basal patch to $^1/_6$ of costa, edge well defined, straight and oblique; patch followed by a grey costal streak, narrow anteriorly, dilated in a large triangular median patch, top truncate by fold; median third forming a black streak in cell, costal third of patch including four black equidistant subquadrate blotches, thinly edged on both sides by white; anterior edge of patch irregularly sinuate, posterior edge step-like dentate three times, upper dent with an oblique prominence pointing towards middle of termen; apex and termen with a broad band reaching halfway towards cell, grey with anterior half black, inner edge slightly irregular, lower end rounded, top including two white costal dots; terminal edge with faint irregular black dots on ends of veins; a dentoidal black spot on $^1/_4$ of dorsum, with a subtriangular base, reaching as far as vein 1b, top slender and bent posterad, truncate by lower edge of cell. Cilia purplish-black, paler than dark wing markings.

Hind wing with a trace of a cubital pecten; pale glossy fulvous-grey, cilia whitish-fulvous.

Male genitalia. — Tegumen moderate, narrowed, sides concave. Uncus a membraneous flap, folded forwards. Vinculum broadly triangular, saccus subclavate, shorter than vinculum. Valva sclerotic, with sacculus part folded upwards lengthwise over the main part; this projecting beyond fusion, with a bristly top; cucullus strongly curved at base, thence projecting posterad with two parallel arms, lower darkly sclerotic and shorter, upper hyaline, subclavate, with a bristly top. Juxta small rounded. Anellus single, lobes completely fused, so forming a sclerotic dagger-like blade. Aedeagus moderate, slender, arrow-shaped, top clavate with a sclerotic point, a sheaf of spines along one entire side.

Distribution. — China, N. Yünnan, Yülingshan Range, 4000-5000 m.

Remarks. — A large species with conspicuous coloration and markings, judging from the male genitalia nearest to the preceding species. The original description of the labial palpus, in fact the only feature separating *Delarchis* from *Commatarcha* is incorrect: the terminal segment is half the length of the median which becomes evident when studying the insect from the underside: the head is damaged and the left palpus that is intact, (while of the right palpus terminal segment is missing), is pushed to the right and depressed below the head. When looking from the upperside of the specimen, the basal part of the median segment is concealed; perhaps this is the explanation of Meyrick's statement that "the third joint is as long as second". Having studied the specimen from all sides I am satisfied that it is a large *Commatarcha* species and am relegating the generic name *Delarchis* to synonymy.

II. **Alexotypa** gen. nov.

alexis = protection, *tipos* = shape

(fig. 3)

Description. — Head with smoothly appressed thick scales, face smooth. Ocellus not perceptible. Haustellum developed. Antenna in male slightly thickened, biciliate, ciliations 3-4. Labial palpus in male moderately long, curved, ascending close to face, median segment dilated with smoothly appressed scales, roughish towards apex below, terminal segment moderate, over 1/3 of median, smooth, pointed. Labial palpus in female long, porrected, median segment straight, with closely appressed smooth scales, gradually dilated in middle, terminal segment rather short, pointed, subporrected or slightly drooping. Thorax with a moderate apical tuft of raised scales. Abdomen normal. Posterior tibia with a fringe of thin scales above.

Fore wing oblong, hardly dilated, costa curved at ends, hardly curved in middle, apex obtusely pointed, termen slightly sinuate (concave) along lower half, oblique. Vein 1c developed, fused with basal fifth of cubitus, vein 2 from just before angle of cell, 3 from angle, 3-5 closely approximated, somtimes 4 and 5 connate, 6 widely remote, parallel, 7 free to termen, 8 and 9 stalked, 9-11 equidistant, 11 from beyond middle of cell.

Hind wing without, seldom with a cubital pecten, oblong, semioval, pointed, vein 1c developed, 2 from 2/3, 3 and 4 stalked, from angle, 5 absent, 6 traceable from discoidal vein towards wing margin (obliterate in cell) 7 to apex.

Male genitalia. — Tegumen submembraneous, rounded, or with a distinct triangular uncus; when rounded, sometimes with a median groove; sometimes with vestigial socii, lateral tumescences, papillate or with fine aciculae, or short aciculate filaments. Vinculum with a broad, subrectangular saccus. Valva with a bifid top, caudal process of the cucullus curving upwards, clavate and bristly; rostral process mostly naked, sclerotic and more or less scoop-shaped, concave and pointed. Labides present, very large, fleshy, thick and

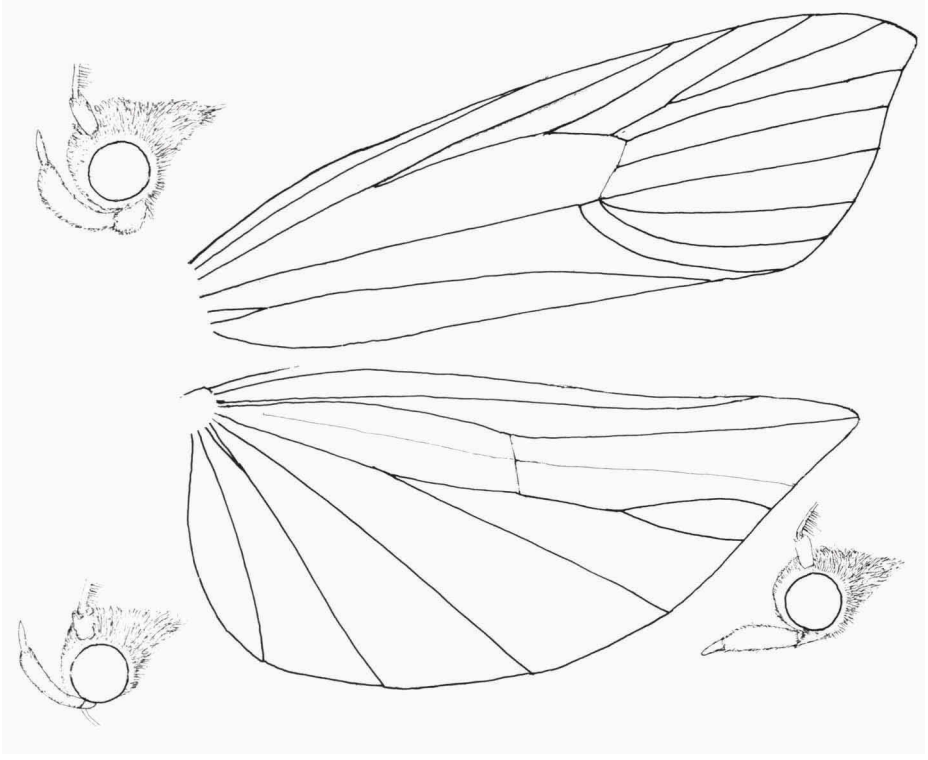

Fig. 3. *Alexotypa* gen. nov., sketch of wing venation and heads: above, head of *A, japonica* (Wals.), ♂; middle, the same, ♀; below, the same, ♂, GS 10813.

bristly, originating from bases of valvae. Juxta strong, a pending, subacute, Y-shaped sclerite. Aedeagus rather long, slender, with a thin stalk and a flat ribbon-like clavus, with a narrow sclerotic edge and a pointed or obtuse tip, of diverse length. Cornuti absent.

Female genitalia. — Eighth segment short, sclerotic, its ventrite finely papillate throughout, with a denser median stripe of longer bristles along caudal edge. Ostium ill-defined, showing as a small transverse split, cupped by a hyaline, hemisperical structure. Colliculum little modified, a simple, rather wide hyaline tube, spindle-shaped in frontal aspect, gently narrowed downwards and passing without borders in a simple, but wider ductus bursae, followed by a sausage-shaped moderate corpus bursae. Signa are absent.

Type-species. — *Propedesis japonica* Walsingham.

Remarks. — An interesting form, not recognized earlier, with the trivial appearence of a *Carposina* and neuration of a *Meridarchis*, but with unique and characteristic male genitalia of the "fused" type, differing from the former genus by the split valvae, absence of ampullae, by vestigial bibrachium, and from both those genera by the presence of large and thick bristly anellus lobes and a slender, unarmed, flat aedeagus.

Alexotypa vitiata (Meyrick) comb. nov.
(figs. 22B, 34F-H)

Meridarchis vitiata Meyrick, 1913: 72 (♂, Assam). Literature. — Meyrick, 1913b: 4. — 1922: 4. — Diakonoff, 1950: 297 (lectotype designated), 299. — Clarke, 1963: 61, figs. (Nec Kawabe, 1982).

Lectotype. — ♂ (Designated by Diakonoff, 1950): /Type (red-edged disc)/ Khasi Hills, Assam .4.1906 (print & ink)/♂ genitalia on slide 31 Jan. 1948 JFGC 6736 (print & ink, black cadre)/ Meridarchis vitiata Meyr. 3/1 E. Meyrick det. In Meyrick Coll. (print & ink)/ vitiata Meyr. (ink, Meyrick's hand)/ BM(NH).

Description. — The rather rubbed type specimen may be redescribed thus: ♂, 16 mm. Head creamy-white. Antenna slightly thickened, creamy-white ciliations 2-3. Labial palpus moderate, median segment moderately dilated with short appressed scales, roughish along lower edge, subporrected, terminal segment about ⅓ of median, smooth, acute; fuscous, apical third of median segment white, terminal segment white with a fuscous submedian band. Thorax creamy-ochreous (partly defaced).

Fore wing narrowly oblong-triangular, moderately dilated and broadest at $^{6}/_{7}$, where the straight costa is slightly but distinctly prominent, apex pointed, termen gently sinuate, oblique. Rather defaced, left fore wing creamy, pale ochreous and beyond cell white. A suffused blackish-fuscous spot on costa beyond base, disappearing in cell. A subtriangular fuscous transverse patch, formed by a paler suffusion along about third fourth of costa, by a darker

fuscous streak below this between the course of veins 8 and 9, half the length of preceding and by a rectangular fuscous-grey blotch, occupying posterior third of cell, its posterior edge darker, forming an oblique streak along closing vein to fold; traces of purplish dusting along fold; in right wing more or less intact terminal seventh suffused with fuscous, its anterior edge well defined, accentuated by deep fulvous dots on costa before apex and a similar marginal band from apex to tornus. Cilia whitish except along base, with four dark grey suffused spots.

Hind wing without cubital pecten; glossy pale creamy-fulvous, semipellucent. Cilia dull pale grey, a creamy basal line.

Male genitalia. — Tegumen strong, inverted-trapezoidal, caudal points slightly prominent, middle angularly projecting. Vinculum equally strong, with robust sides, also inverted-trapezoidal, ending in a rounded sclerite. Valva with basal part small, process of costa strongly curved, naked, cucullus proper a hairy oval lobe, process of sacculus shorter, equally strong, with darkly sclerotic edge, ending in an apical thorn; labis curved, only apical half hairy, not reaching middle of valva. Juxta short, convex. Aedeagus moderate, with stalk as long as clavus that is flat and erect-oval.

Distribution. — Assam: Khasi Hills.

Remarks. — The species is extralimital and is being recorded here only in order to stress its differences with *A. japonica* (Walsingham), a species, confounded with it because of some similarity of the male genitalia that is, however, only superficial.

9. **Alexotypa caradjai** spec. nov.
(figs. 22G, 36A-B)

Holotype. — ♂ GS 10876. China, Kwangtung Province, Lofao-shan Range, about 900 m, 30.VIII.1918. MGAB.

Description. — ♂, 14 mm. Head smooth, creamy, glossy. Antenna with ciliations over 1. Labial palpus moderately long, median segment with smoothly appressed scales, slightly roughish at apex, clavate and porrect, fuscous with a white apex; terminal segment moderate, about ⅓ of median segment clavate, slightly rising, white with a subapical fuscous ring. Thorax with thick, smoothly appressed scales, creamy with a silky gloss. Abdomen pale glossy-grey, anal tuft pale ochreous.

Fore wing oblong, rather narrow, dilated along basal third, posteriorly parallel-sided, costa almost straight, at apex slightly curved, apex obtusely pointed, termen straight, oblique. Cream-color, markings fuscous. Basal $^2/_5$ of costa as far as cell suffused fuscous; a large triangular deep fuscous patch, with base along costa from middle to beyond ¾, extending below to fold, anterior

edge irregular, posterior strongly zigzag along upper half, along lower forming a dark brown streak along closing vein, clavate at ends; two dark spots on costa between patch and apex; a lighter, broad greenish-fuscous terminal band, with edge well defined, in middle becoming convex and reaching almost halfway towards cell, concave above and beneath; a slender, dark fuscous transverse line at ⅓, more inwards-oblique than end of cell, from centre of cell to ⅓ of dorsum, a faint indication of the dark edge of a basal patch: halfway preceding and base of wing; a sparse dusting of fuscous scales all over wing. Cilia creamy except in tornus, broadly barred with grey, a creamy basal line and a pale line at ⅓ from tips.

Hind wing fuscous-grey, glossy, finely transversely striated (pale bases of scales). Cilia pale grey.

Male genitalia. — Resembling those of *A. japonica* (Walsingham) comb. nov., but differing as follows: tegumen with a triangular, well defined uncus, flanked by rounded tumescences at the 'shoulders' of the tegumen, covered with small round papillae probably vestigial gnathos arms. Vinculum strong, with an oblong, narrowed saccus, with concave sides and an obtuse top. Valva rather short, cucullus with an oval, evenly bristled caudal process and a shorter, equally broad but less bristly oval ventral process, bearing a longitudinal sclerotic narrow ridge. Labides bristly, thick and broad, suboval. Juxta large and strong, wedge-shaped. Aedeagus rather similar to that in *japonica*, but with obtuse apex and thicker edge.

Remarks. — Nearest to *A. japonica* (Walsingham), distinct by genitalia and quite different markings. Dedicated to the memory of Prince Aristide Caradja.

10. **Alexotypa japonica** (Walsingham), comb. nov.
(figs. 3; 10B-C; 22C-D, H; 23A-B; 34J; 35C-H; 47B)

Propedesis japonica Walsingham, 1900: 123 (♀? Japan).
Meridarchis vitiata Kawabe, 1982, 1: 289; 2: 217 (pl. 32 fig. 9 (nec Meyrick, 1913), err. identif.
Literature. — Meyrick, 1913b: 4 *(Meridarchis)*. — 1922: 4 *(Meridarchis)*. Inoue, 1954: 77 *(Meridarchis)*. — Kawabe, 1982: 217 *(Meridarchis)*.
Holotype. — ♀/Holotype (red-edged disc/Japan, Pryer, 1886, 70603. (print)/ Walsingham Collection, 1910-427 (print)/Propedesis japonica Wlsm. Ann. & Mag. NH (5), No. 912(5)1900. Type ♀/BM Genitalia slide ♀ No. 23595/. BM(NH).
Metallotype, ♂, Japan, Sikoku, Iyo, 1450 m, 12.VI.1961 (T. Saito), GS 10892. Issiki Collection. USNM.
Other secondary material. — Japan, Sikoku, Yakushima I., Aikodake, 17.V.1972 (T. Watanabe) GS 10859 ♂, GS 10856 ♀; 8.VII.1972, GS 10857 ♂; 10.V.1972 ♀ GS 10848; — Yakushima I., Nagata, 16.VII.1972, ♂ GS 5236, A. Kawabe fec. — Amagi-Oshima Is., Mt. Yuwan-dake, 9-11.VIII.1977 (A. Seino), GS 108456. Kawabe Collection. Shikoku, Iyo, Omogokei, 3.VII.1959 (M. Okada), GS 108646, 10865 ♀ Honsyu, Yamato/Ise, Kunimiyama, 16.VIII.1960 (S. Moriuti), GS 10866 ♂. Issiki Collection. USNM.
Japan, Kyushu, Yakusima I., Onosida, 19.IX.1978 (Y. Arita). GS 10813. ZLMU.

The typical material of the present species that is available to us consists of one female, 20 mm, the holotype; and one male that we regard conspecific and now designate metallotype. It is described below.

Description of the male metallotype. — ♂, 21 mm. Head glossy white with a faintest greenish tinge. Antenna whitish, flagellum finely ringed with fuscous, ciliations 3. Labial palpus rather long, top of median segment almost reaching top of eye, tip of terminal almost to the top of scape of antenna; curved and steeply ascending, median segment dilated with appressed scales, long and roughish along lower edge towards apex, terminal segment moderate, with smoothly appressed scales, subobtuse. Thorax whitish, shoulder infuscated. Abdomen silvery white.

Fore wing oblong, suboval, moderately dilated, costa slightly curved at base, hardly curved in middle and before apex, apex obtusely pointed, almost rectangular, termen almost straight, slightly concave only along lower half, oblique. Glossy white with the faintest greenish tinge (of Walsingham's description!), strewn with light fuscous scales. Basal patch slightly over $^1/_6$ of costa, edge straight, well defined, raised, except in fold and on upper edge of cell; rather dark fuscous-grey, paler in middle of base; costa with six suffused, oblong, gradually slightly dilated grey spots: first just beyond ⅓, second and third almost confluent, slightly beyond middle of costa, third to last tolerably equidistant, last small, subapical; an oblong 8-shaped, raised dark fuscous-grey bar along closing vein (in right wing separated in two round dots), upper largest, black); light fuscous dusting indicating traces of lower half of a large costal triangle (of which the base would stretch from first to fourth costal spots); moderate, round, slightly raised tufts of scales: one above fold before middle of wing, another well below fold at ¼, darker, with a faint inwards-oblique extension across fold; some fuscous dusting forming a faint preterminal transverse band; a row of pale fuscous triangular, more or less interconnected spots along termen. Cilia whitish, faintly mixed and barred with pale fuscous-grey.

Hind wing with a small but distinct, appressed cubital pecten; glossy whitish, tinged very pale pink. Cilia concolorous, less glossy.

Male genitalia. — In rest retracted into the thin and membraneous eighth abdominal segment, with only the tips of valvae showing above the dark coremata of the seventh segment, also entirely retracted. Tegumen with a rounded flattened top, sometimes with a small median, longitudinal gulley dorsally, at the sides with small rounded knobs, densely beset with short black aciculations (vestiges of a bibrachium). Valva subsclerotic, top half cleft in a costal clavate and bristly part, beyond middle curving upwards, and a sacculus part, less curved, scoop-like and pointed in lateral aspect. Juxta long and pointed. Labis large and broad, concave and bristly, top at dorsal side slightly

produced. Aedeagus very long, clavus longer than stalk, flat, hyaline, with thin sclerotic edges and a simple, pointed top, without any cornuti.

It must be born in mind that this species possesses an unusual feature, viz. the aedeagus of variable length: in secondary material this part can be as long as in the metallotype, but other paratypes have the clavus as long as the stalk, and there are also intermediates. However unusual, this variable length of the aedeagus must be the specific feature of *japonica*.

Description of a female paratype. — ♀, 17 mm. Labial palpus projecting width of head beyond face, rather slender, lower edge straight and smooth, upper convex, slightly roughish towards end, terminal segment short, pointed; white, coarsely dusted with fuscous. Similar to the male, but all markings pale or reduced. Basal patch reduced except on costa: costal patch represented by a longitudinal spot in upper half of disc, including upper ill-defined raised dark tuft; a dark fuscous streak along closing vein.

Hind wing with vein 6 distinct from end of cell to halfway wing margin; rather infuscated towards apex. Otherwise as male.

Female genitalia. — Eighth segment rather short, anapophyses fitting in deep sockets. Ostium not modified, but lamella antevaginalis with an apical broad lobe, broader than the top of colliculum and slightly exceeding orifice of colliculum. This distinctly spindle-shaped, simple and tubular, with smooth wall, without any structures, subsclerotic, ¾ length of anapophysis; abruptly followed by a membraneous ductus bursae, that passes in corpus bursae without any border; bursa simple, long and slender, without signa.

Finally, description of an albinistic male may be added for the completeness sake to the characterization of this so little known species.

Description of an albinistic male specimen. — ♂, 15 mm. Head snow-white. Antenna ochreous mixed with purple along upper side of basal half. Palpus pale tawny, apex of median and that of terminal segment white. Thorax snow-white, a large subapical pale silvery-golden not quite glossy patch, pointed rostrad. Abdomen silvery-white touched with pale grey.

Fore wing oblong, hardly dilated, costa straight in middle, gently curved at ends, apex rather pointed, termen sinuate, oblique. Silvery-white, markings pale and faint. Basal patch indicated by a pale golden-grey bar along more than basal fourth of costa, reaching to upper edge of cell, and a faint, straight, strongly oblique line towards dorsum well beyond base, dilated to a small triangle just above dorsum, almost obliterate towards costa; costa narrowly suffused with pale golden-grey, interrupted by ground colour, so as to form a small, marginal mark just beyond ⅓, and a more or less continuous narrow marginal line along posterior half of costa, posteriorly broken in three darker suffused dots; a very faint oblique greyish streak from below the first costal mark, to a whitish tuft of raised scales above dorsum beyond its ⅓; a grey

sparse dusting, broken in rather irregular small spots, largest along closing vein; finer dusting preceding this; a faint streak along middle of lower edge of cell; a greyish-golden terminal streak from below apex. Cilia silvery-white, apical half light grey.

Hind wing without a cubital pecten glossy silvery-white touched with grey. Cilia concolorous.

Distribution. — Japan.

Remarks. — The original description is very accurate, except that no mention is made of a dot of dark fuscous suffusion on upper edge of cell, below middle of costa. Besides, the delicate original tinges of the holotype, recorded in the original description apparently have disappeared completely now: the greenish-white of the ground colour of the fore wings and the olive-grey of the markings, as e.g. the basal patch, and the rosy tinge of the hind wings. In the type specimen all these parts have bleached to dirty whitish or pale fuscous.

The type specimen was rather puzzling, for the genitalia, as Mr. Tuck who dissected the holotype, kindly warned us already, missed all the parts of ductus bursae etc., from the base of the eighth segment downwards. However, closer study revealed that the absence of a papillate colliculum, a conspicuous part of the genitalia in *Meridarchis*, is due to the fact that the species belongs to the present genus instead, where such colliculum is absent.

III. **Peragrarchis** Diakonoff
(fig. 4)

Peragrarchis Diakonoff, 1959: 124. Type-species, *Meridarchis rodea* Diakonoff, 1950, by original designation.

Description. — The discovery of a female permits completion of the diagnosis of the present genus, that is cited below in full.

Head with appressed scales, vertex in male with rough tufts, in female with a pair of large flat lateral fan-like tufts touching mesally. Ocellus posterior in male, not perceptible in female. Haustellum weak. Labial palpus in male strongly ascending, palpi slightly divergent, median segment dilated posterad by roughish scales above and beneath, terminal segment exposed, rather short, thick, obtuse; labial palpus in female long, porrect, median segment dilated, roughish scales forming a triangular tuft in middle above, apical segment moderate, obtuse. Antenna in male ¼ with long fine ciliations, 3-4; antenna in female filiform. Thorax with a moderate posterior tuft of raised scales.

Fore wing with tufts of raised scales, vein 2 from near angle of cell, 3 and 4 connate in male, short-stalked in female, from angle, 7 to termen, 8 and 9

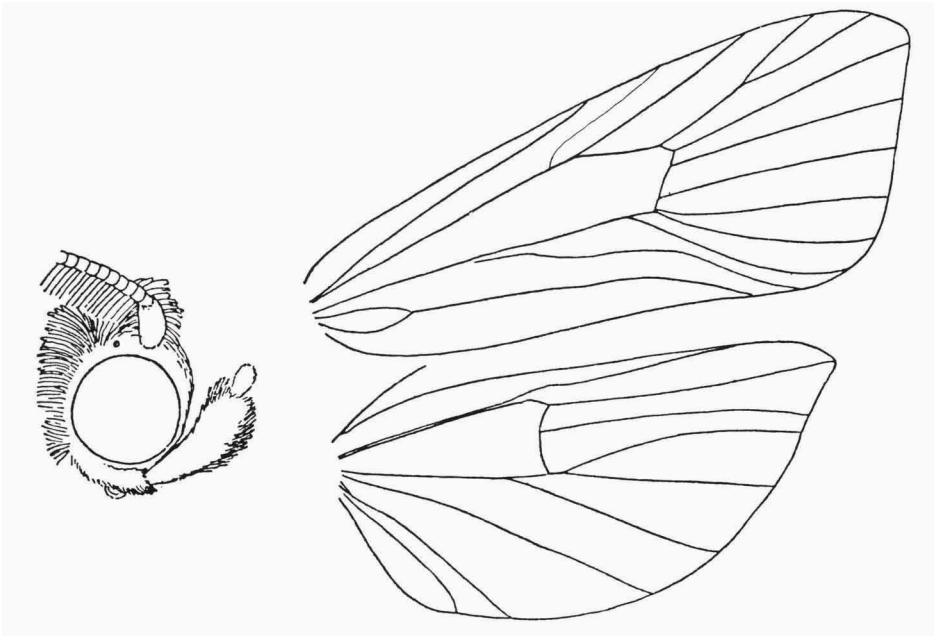

Fig. 4. *Peragrarchis rodea* Diakonoff, sketch of wing venation and head ♂. (After Diakonoff, 1949b).

stalked, 10 remote, from ¼ of cell, 11 abruptly curved at base, originating close to base of 10.

Hind wing with or without a cubital pecten, 2 from well before angle (from $^2/_3$) 3 and 4 short-stalked from angle, 5 absent, 6 weak in cell traceable in female, distinct beyond cell, 7 to apex.

Male genitalia. — Uncus simple, rounded. Shoulders of tegumen with bristles, looking like parietal socii. Vinculum a narrow bow. Saccus oval, moderate. Valva with a short disc and a strong sacculus ending in a dentate darkly sclerotic ampulla inside a cavity. Cucullus split and tong-shaped, in type-species bipartite to the base. Aedeagus long, straight, dilated in middle, top lancet-shaped, with short numerous cornuti on the inside.

Female genitalia. — Ovipositor long, extensile. Eighth segment sclerotic, ring-shaped, with a broad split in front, internally with reticulate wall, upper part aciculate externally. Colliculum strongly sclerotic, originating from base of split of ostium, moderately flattened and in middle tortuous for half its width, finely reticulate-papillate, ductus bursae narrow, coarser reticulate and with two dark longitudinal folds. Corpus bursae ovoidal, with one slender, slightly crescentic signum of sponge-like scobinations.

Remarks. — The so extended diagnosis presents a genus of considerable interest, chiefly because of the single signum of the female, being a lamina dentata instead of the pair of doubly pronged oval sclerites. The male genitalia are of the fused type from which the specialised type of *Commatarcha* could have originated.

In the original description of *Peragrarchis* the presence of vein 11 in the fore wing, strongly shifted posterad, has been overlooked.

11. **Peragrarchis emmilta** spec. nov.
emmiltus = tinged with red
(figs. 23C, 35E)

Holotype. — ♂, GS 10875. China, Province Kwangtung, Lofan-Shan Range, XII. MGAB.

Description. — ♂, 16 mm. Head and scape of antenna sordid creamy, mixed with fuscous. Antenna with scape dilated and flattened dorso-ventrally, flagellum long-ciliate, ciliations fine, 4-5: light grey. Labial palpus moderately long, about the diameter of head, porrect, smoothly short-scaled, median segment gradually dilated; blackish-brown outwardly, tip narrowly creamy, inside of palpus creamy with lower edge fuscous; terminal segment rather short, exposed, porrect and obtuse. Thorax (damaged) ferruginous, tegulae white. Abdomen pale grey, anal tuft whitish.

Fore wing oblong-suboval, costa curved at ends, gently convex in middle, apex moderately pointed, termen hardly sinuate, almost straight, oblique. Pale ochreous touched with pinkish, moderately marbled with light ferruginous, sparsely marked with deep purplish-ferruginous. A whitish spot at $^{2}/_{5}$ of costa, preceded by a marginal ferruginous streak followed by four moderate oblong dull marginal marks, posterior of these largest and darkest, at $^{3}/_{4}$ of costa; the dark marks alternating with narrow also marginal whitish streaks, shorter and thinner than the dark ones; posterior $^{1}/_{4}$ of costa pale ochreous-fulvous with a smaller ferruginous dot halfway towards apex; costa before apex and termen with a marginal band of more or less interconnected lighter ferruginous marks on ends of veins; an oblong suffusion below dark costal mark, separated from another larger and less defined suffusion below and before preceding, not reaching fold; ferruginous scales thinly scattered over the wing. Cilia light grey with a pale basal band.

Hind wing without cubital pecten; pale fulvous-grey with grey veins, apex suffused with grey. Cilia (imperfect) concolorous, clowded with grey, a narrow pale basal line.

Male genitalia. — Tegumen triangular, thinly haired underneath, with two

pairs of appressed lateral tumescences (vestiges of bibrachium). Uncus membraneous, spherical top slightly notched. Vinculum with a moderate subacute saccus. Valva partly sclerotic, costa spiny, cucullus with a dubble scizzors-like apical processes, caudal of these narrower, rostrad bristly; edge of sacculus strongly sclerotic, with a pair of cusps, serrulate between these; ampulla tumescent, with a tuft of hairs, its interior half forming a dentate comb with a long spine at its anterior end; costa in left valva with a sclerotic marginal comb of short teeth opposite the comb of sacculus (this part of valvae asymmetrical); juxta small, pending and clavate. Aedeagus long, strong and sclerotic, clavus shorter than stalk, with two large opposed basal combs of spines separated by a cavity, a subapical smaller comb; top of aedeagus produced in a long sclerotic cusp.

Remarks. — The specimen bears two identification labels: "*Meridarchis* spec." and "*Meridarchis zymota* Meyr.", in unknown hand, in ink.

Judging from the male genitalia, a very distinct species.

12. **Peragrarchis syncolleta** (Meyrick) comb. nov.
(figs. 19A, D, 23D-E, 36AD)

Meridarchis syncolleta Meyrick, 1928: 404 (♂, Andaman Is.). Literature. — Diakonoff, 1950: 297 (lectotype designated). — Clarke, 1963: 58, figs. — Kawabe, 1982, 1: 290; 2: 217, fig.

Lectotype. — ♂ (designated by Diakonoff, 1950): Port Blair, Andamans, F., .10.07. BM (NH).
Metallotype. — ♀, GS 10847. Japan, Kyushu, Yakushima I., Nagata, 15.VI.1972 (T. Watanabe),
Secondary material. — Ryukyu Is., Yaeyama group, Ishigaki I., Mt. Omoto-dake, 5-V.1978 (Y. Arita), 2 ♀, GS 476 YA and 10814. ZLMU. Yakushima I., Kurio, 26.IX.1971 (T. Watanabe), ♂, GS 5229 AK; 29.X.1971, 10.X.1972 (T. Watanabe), 2 ♀, GS 5230 AK., A. Kawabe Collection.

Description. — ♀, metallotype, 20 mm. Head glossy creamy white, lateral tufts on vertex roughly spreading. Antenna tawny. Labial palpus long, twice diameter of head, straight, porrected, flattened laterally; median segment dilated by a triangular tuft of long hair scales along posterior half of upper edge, longest in middle, lower edge straight and smooth, apical segment short, obtuse; light tawny, tuft of upper edge and apex creamy, inside glossy creamy. Thorax tawny-fulvous. Abdomen tawny-vinaceous.

Fore wing oblong, gradually dilated, rather long and narrow. Light ochreous-tawny. Costa narrowly suffused with blackish-brown, narrowed at ¼, along median third extended again, beyond 1/3 emitting from a triangular base an oblique, fasciate blotch of deep brown suffusion to middle of discoidal vein, slightly dilated in cell, top truncate; followed by a small dark spot just beyond cell; deep brown triangular patch along third fourth of costa, top

reaching to upper angle of cell; posterior fourth of costa bright golden-ochreous, with a dark brown dot halfway to apex, below costa connected with preceding mark; a blotch of brown suffusion along termen from vein 7 to above tornus, becoming paler downwards. Cilia grey-fuscous, with an orangish-ochreous basal band.

Hind wing with cubital pecten; apex rather produced. Pale grey-fuscous, apex darkly infuscated. Cilia concolorous.

Male genitalia. — Tegumen moderately narrowed, top truncate. Uncus moderate, subtriangular, submembranous, short-bristled laterally. Anellus shaped as a laterally sclerotic caudal edge of an oval, sclerotic juxta in centre of the diaphragma, connected by membraneous bands (transtilla) with small oval thinly bristled labides. Valva with a strong sacculus with a triangular base with black marginal teeth; top of sacculus with a large cavity, containing a corrugated and scobinate dark ampulla; cucullus rather narrow, tongs-shaped. Aedeagus with stalk thin, 1/3; clavus oblong-triangular with apical prong, cornuti a crossed pair of long spiny combs.

Female genitalia. Eighth segment sclerotic, rather broad, top rounded with sides slightly folded over and bristly. Ostium cylindrical, with strongly reticulate-papillate wall, colliculum originating at frontal wall of ostium cylinder, with dark sides, narrower at origin, thence angularly dilated; thence colliculum irregularly folded lengthwise and narrowed, dark and rigid, end abruptly curving to the right, ductus bursae membranous, but remaining rigid by wide maze and longitudinal folds in wall. Corpus bursae ovate-pear-shaped, rather small. Signum unique: a single slender slightly curved lamina dentata, being a ridge of small scobinations.

Distribution. Andaman Is. — Japan.

IV. **Metacosmesis** Diakonoff
(fig. 5)

Metacosmesis Diakonoff, 1949: 48, figs. 2 (note 6), 5, 10 (♂ ♀, Java). Type-species, *M. barbaroglypha* Diakonoff, 1949, by original designation.

Note. — In the original paper (Diakonoff, 1949: 42), the numbers indicating figures on the plate of p. 42 have been partly confounded, while those in the caption to the plate and in the text are correct. The numbers on the plate should be changed as follows: fig. 2 should be 6, 3=5, 5=3 and 6=2 (nos. of figs. 4, 7 and 8 are correct).

Description. — Due to the wrong position of the male genitalia in mount and in the figure of the type-species, some parts have been interpreted in the original description erroneously. This is being corrected in the following re-description of the present genus.

Head with thick, smoothly appressed scales on vertex, frons, and face; patagia roundish, rather cup-like, smooth and concave, with loosely rising fine scales along the edges which form together a slight median ridge. Ocellus absent. Haustellum vestigial or moderate. Antenna slightly thickened and ciliate in male, ciliations 1½ – 2½, scape oval, dilated, flattened. Antenna in female filiform, scape similar to that in male, but smaller. Labial palpus in male moderate, as long as diameter of head, porrected, median segment strongly dilated towards apex with dense fine hair-scales, triangular in profile, terminal segment short, smooth top slightly down-curved, subacute; palpus in female over 3 × diameter of head, porrect, median segment straight or gently down-curved, smooth on basal half, with appressed scales, roughish along lower edge on apical half, along upper edge forming a long loose tuft, hairs longest anteriorly, gradually decreasing in length posteriorly, terminal segment moderate, smooth, slightly drooping, subobtuse. Thorax smooth. Posterior tibia with fine, smoothly appressed hair-scales above. Abdomen with eighth segment (pygidium) enlarged and strongly swollen, depressed-spherical, valvae, equally enlarged and swollen, together forming a triangular body; flanked by large, stiffly extending lateral coremata.

Fore wing with raised scale-tufts; narrow, oblong, subtriangular, dilated, costa gently curved at base, more so towards apex, gently concave in middle, apex pointed, termen gently sinuate, strongly oblique; with on upper side an oblong-oval raised tumescence along about the second seventh of cell, with a longitudinal median dark split. All veins separate, 1b short-furcate at base, 2 from close to angle of cell, 3 from angle, approximated at base, sometimes connate in male, 7 to termen, 8 and 9 moderately approximated at base, from angle, 10 distant, 11 short, outwards-convex, close to 10 at base, from about 5/6 of cell.

Hind wing over 1, cubital pecten absent or distinct in male; present, sometimes closely appressed to cubitus in female. Vein 2 from about 5/6, 3 and 4 connate or short-stalked, 5 absent, 6 developed from beyond base, distinct in and beyond cell.

Male genitalia. — Tegumen strongly truncate, its upper edge straight diversely strongly sculptured and sclerotic, its lower edge deeply notched, almost bipartite, halves rounded below. Uncus sclerotic, rather long, straight, awl-shaped and pointed. Vinculum depressed-triangular, caudal edge concave; saccus short, pointed. Valva oblong-oval, concave, fused to vinculum along base, ampulla absent. A sclerotic curved harpe present in middle of costa. Anellus and labides absent.

A slender juxta, with a pair of rather large hyaline juxta lobes, joining the valvae. Aedeagus flat broad and short, with a rounded top, bat-shaped, with a short stalk and with fields of fine scobinations, without cornuti.

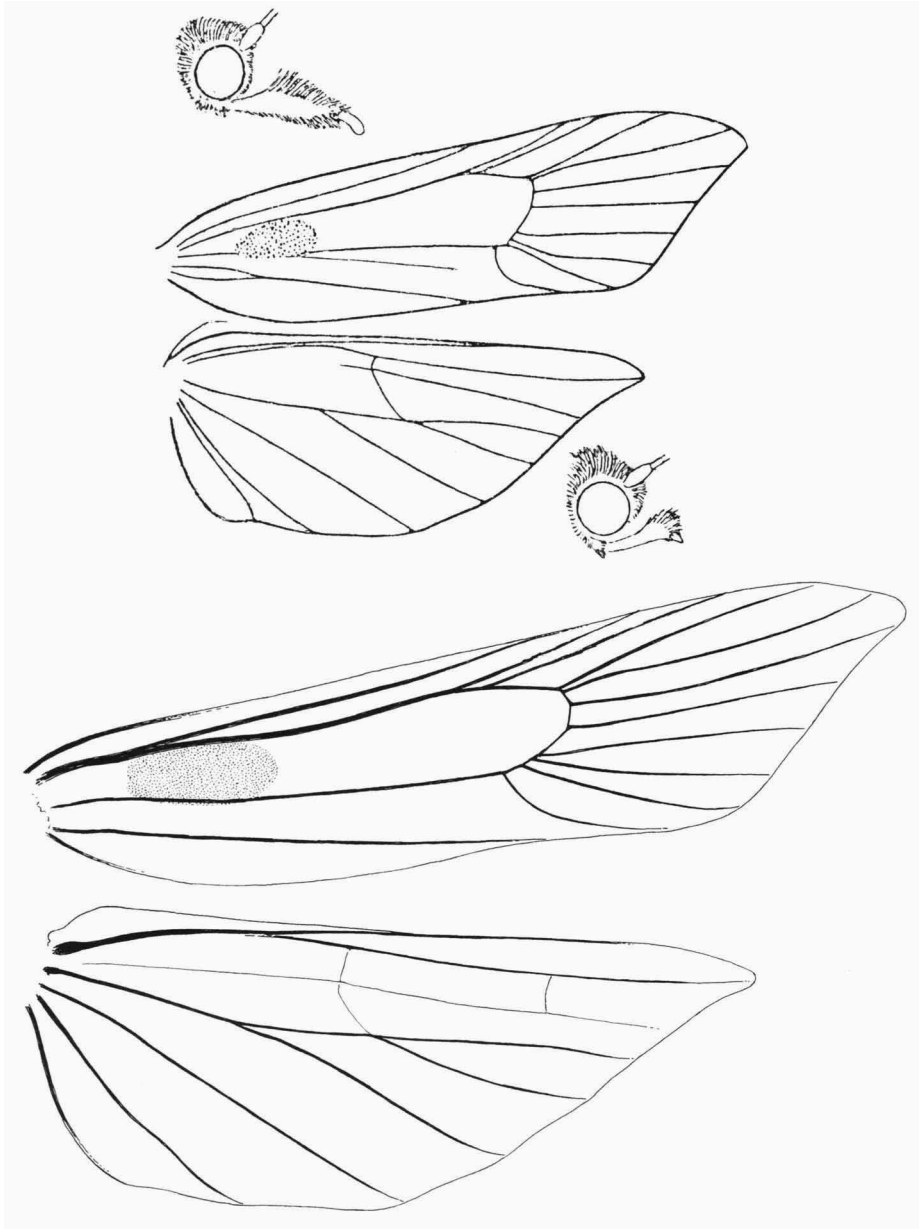

Fig. 5. *Metacosmesis* Diakonoff, males: above *M. barbaroglypha* Diak., sketch of wing venation and heads, left ♂, right ♀ (after Diakonoff, 1949a); below *M. laxeuta* (Meyrick).

Female genitalia. — Eighth segment a slender sclerotic cylinder. Lamella antevaginalis forming a large membranous sac, surrounding ostium as a globe. Ostium sclerotic with a single flat lamella postvaginalis, and a darker, wrinkled lamella antevaginalis; colliculum well defined funnel-shaped or spherical, sclerotic and reticulate, quickly narrowed, forming a strongly papillate ductus bursae, papillae continued on base of corpus bursae, this asymmetrical and funicular. Signa absent.

Remarks. — An interesting genus, apparently an off-shoot of the stem of the family. The males have strongly specialized genitalia, with a conspicuous large pygidium, held curved upwards, like the tail of a scorpion. The species mostly are small and narrow-winged, with a characteristic inverted-crescentic procumbent dark mark below upper angle of cell, and the males, a tumescent androconial scent organ situated before the base of cell of the fore wing upperside, being an oblong pocket filled out with short curled black scent hairs, and with a longitudinal median split.

The genus was originally described from Java; this is the first record from the Palaearctic Region. The differences of the three species known are slight in the males, but more distinct in the females.

13. **Metacosmesis laxeuta** (Meyrick) comb. nov.
(figs. 5, 19B, 23F-H, 37A-G)

Paramorpha laxeuta Meyrick, 1906: 136 (♀, Ceylon). Literature. — Meyrick, 1913 (*Paramorpha*). — 1922: 7 (*Paramorpha*). — Diakonoff, 1950: 297, 299 (*Paramorpha*; lectotype designated). — Clarke, 1963: 61, figs. (*Paramorpha*). — Kawabe, 1982, 1: 290; 2: 217., figs. (*Paramorpha*).

Lectotype. — ♀, 17 mm. "Maskeliya, Ceylon, J.P. .1.04". GS 6746 (teste Clarke, 1963: 61) (Lectotype designated by Diakonoff, 1950). BM (NH).

Secondary material. — Japan, Kyushu, Kagoshima-ken, Satamisaki, 19.V.1979 (Y. Arita), 1 ♀. RMNH. — Ryukyu Is., Yaeyama Is., Ishigaki I., Mt. Omoto-dake, 9.V.1978 (Y. Arita), 1♀, GS 475 YA. ZLMU. Japan, Kyushu, Oosumi, Sata, 7.XI.1958, 1♂, GS 10862 5♂, 6♀. From spun berries of *Glochydion obovatum* Von Sieb. 1♀, GS 10863. In total (T. Yasuda). Issiki Collection, 1972. USNM. China, Hoeng-shan, Provinz Hunan, 900 m, 26.IX.1933 (H. Höne), 1 ♂, GS 10874 (The specimen bears the original identification label: "Meridarchis zymota Meyr." written in an unknown hand; this is incorrect for *Carposina zymota* is quite distinct, as explained below). MGAB.

Description. — ♂, 14-15 mm. Head glossy white, creamy in certain lights, face polished, silvery white. Antenna light fuscous, ringed with white, ciliations white, 2-3, scape mixed with glossy white. Labial palpus moderate, porrected, smooth, median segment gradually dilated, top truncate, terminal segment very short, downcurved, almost concealed, at lower angle of top of median; thorax snow-white, outside basal half of median segment suffused

with black, edge of color concave. Thorax glossy white, tegula touched with pale fulvous. Abdomen glossy, creamy-white, pygidium enlarged, turned upwards, flanked by large, creamy coremata.

Forewing with cubital pecten; narrow, oblong-triangular, broadest at tornus, costa slightly curved at base, sinuate, more curved towards apex, apex pointed, termen gently sinuate, long and oblique; upper side with an oblong tumescent scent organ in cell from beyond base to before middle, with a narrow horizontal split, shorter than tumescence. White, creamy and suffused with pale, fuscous-fulvous, markings black. Basal $^1/_6$ of costa with a narrow marginal streak, followed by six inequal broader costal dots. First before $^1/_3$, smaller, first to third equidistant, fourth largest, close after third, two small dark fuscous dots before apex; a triangular pale greyish suffusion, indicating basal patch, not reaching dorsum; costa along four dots suffused with pale fuscous-fulvous, colour reaching cell; an inverted-crescentic black mark with ends below second and fourth dot, respectively, concave above; tumescence in cell glossy, creamy-white, not obscured; a fuscous-fulvous suffused patch between this and dorsum, that is very pale fulvous; a series of pale fulvous grey dots between lower edge of cell and fold; a light fulvous streak along lower half of end of cell; a transverse pair of roundish suffused pale fulvous patches, halfway cell and termen; a series of six brownish grey spots on ends of veins along termen and dorsum, from vein 7 to vein 1c. Cilia creamy with a grey apical and a paler fulvous grey median band.

Hind wing without pecten; glossy white, towards apex touched with creamy.

♀, 14-17 mm. Labial palpus over 2½ diameter of eye, porrected, median segment gradually dilated, edge obliquely truncate, so forming a triangular tuft above, terminal segment moderate, exposed, acute, following the oblique edge of median segment. Thorax, tegula, and metathorax glossy. Abdomen creamy.

Forewing with a grey basal patch, including a creamy round spot at base; costal marks slightly elongate; tumescence in disc absent, instead an inwards-oblique grey transverse blotch below first costal dot, parallel to edge of basal patch, broader above, narrower below fold, both ends rounded; preterminal patches larger and irregular.

Hind wing acutely pointed, apical third touched with pale grey. Otherwise as male.

Male and female genitalia as described with the genus above.

Distribution. — Sri Lanka. Java. China. Japan.

Host plant. — *Glochidion obovatum* Von Sieb. et Zucc. (Euphorbiaceae).

Remarks. — A variably coloured and marked species, sometimes with an orange-pinkish suffusion. One specimen (GS 457 YA) is much smaller: 14 mm, with white thorax and hind wings, but with identical genitalia.

V. **Carposina** Herrich-Schäffer
(fig. 6)

Carposina Herrich-Schäffer, 1853: 38, pl. 12 figs. 1-2. Type-species: *Carposina berberidella* Herrich-Schäffer, by subsequent designation of Fernald, 1908.

Discussion. — Meyrick (1922) cites the following generic names as synonyms of *Carposina*:

Enopa Walker, 1866: 1738, type-species *Enopa medilla* Walker, by monotypy.

Oistophora Meyrick, 1881: 699, type-species (*Oistophora pterocosmana* Meyrick =) *Enopa medilla* Walker, by subsequent designation of Meyrick, 1910: 154.

Paramorpha Meyrick, 1881: 697, type-species *P. aquilana* Meyrick, by subsequent designation of Meyrick, 1910: 154.

Heterocrossa Meyrick, 1882b: 178, type-species *Gelechia adreptella* Walker, by subsequent designation of Walsingham, 1907: 654.

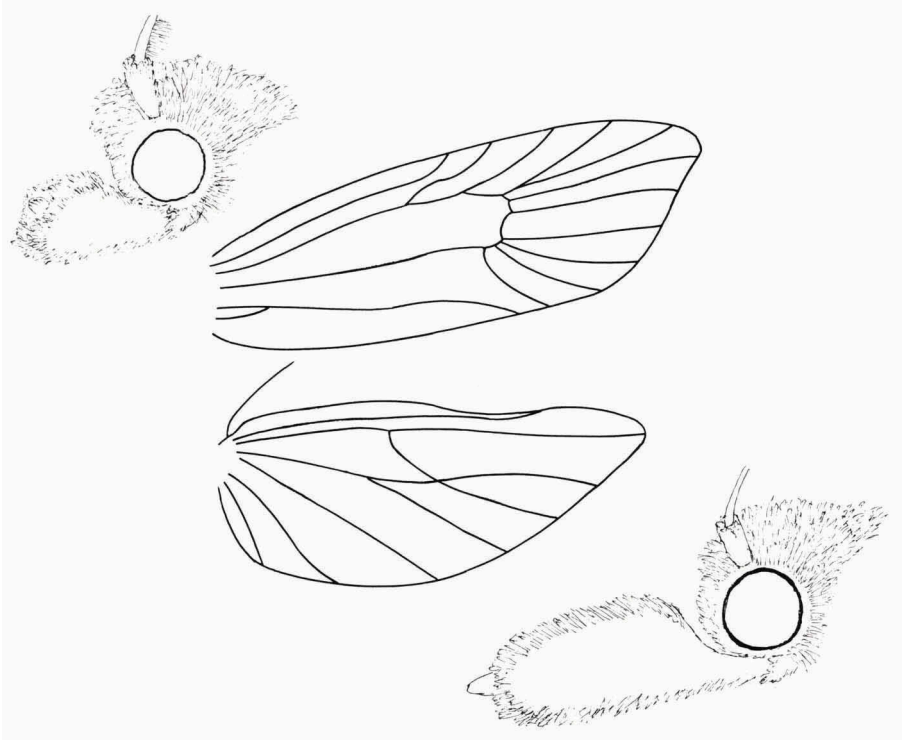

Fig. 6. *Carposina berberidella* Herrich-Schäffer, sketch of wing venation and heads: left ♂, right ♀.

Of these generic names *Oistophora* is an objective junior synonym of the preceding. As to the other three names, we follow Zimmerman (1978) who states that their males have a distinct free, projecting uncus and therefore cannot be congeneric with *Carposina*, in which the invariable absence of a free uncus forms a diagnostic character.

The genitalia of both sexes of the large genus *Carposina* seem to reflect the phylogenetic development of these organs. We tried to determine polarities of the states of certain characters important in this case. Having elaborated on the morphology of the genitalia above when surveying the genera of the family, we need not repeat us here.

Carposina zymota (Meyrick) comb. nov.
(fig. 24A, 41B-C)

Maridarchis zymota Meyrick, 1910: 146, no. 7.

Holotype. — ♂/Holotype (red-edged disc, print)/Woodlark I. New Guinea, A.S.N. .4.97 (ink, Meyrick's hand)/BM ♂ Genitalia slide No. 6030 (print & ink)/zymota Meyr. (ink, Meyrick's hand)/Meridarchis zymota Meyr., 2/1, E. Meyrick det., in Meyrick Coll. (ink & print)/Meyrick Coll. BM 1938-290 (print). BM(NH).

Description. — ♂, 15 mm. Head smooth, light ochreous-greyish. Antenna (with apical part on both sides missing), whitish, sharply, narrowly ringed with fuscous, scape rather short, flattened meso-laterally. Labial palpus rather short, diameter of eye, triangularly, densely and smoothly scaled, except upper edge of median segment: with very short roughish scales, terminal segment very short, smooth, almost concealed; pale ochreous, dusted with purplish. Thorax pale greyish-ochreous mixed with chestnut.

Fore wing oblong-subtrapezoidal, rather narrow, dilated, broadest before 3/4, costa almost straight, gently curved before apex, apex obtusely pointed, termen hardly sinuate, long and oblique. Glossy ochreous-creamy, slightly dusted with vinaceous, markings pale tawny, vinaceous and chestnut. Basal patch to 1/5 of costa, edge straight, strongly oblique, rather infuscated, more so on costa; costa as far as cell suffused with pale tawny and coarsely dusted with vinaceous, with dark brown marks: three longitudinal marginal ones along anterior half, in right wing rather confluent; and three triangular, smaller ones, along posterior third; an oblong-oval dark brown patch on end of cell, with posterior edge blackish, raised and encircled with a narrow pale line; this patch preceded by a snow-white spot; a subtriangular patch of light fuscous suffusion from middle of costa to end of fold, edges ill-defined; a marginal series of deep vinaceous triangular dots on ends of veins, from before apex to tornus, moderately confluent. Cilia greyish, moderately barred with creamy, with a creamy basal line.

Hind wing pale greyish-fuscous, with a slight silky gloss, apex slightly darker grey. Cilia concolorous.

Male genitalia. — Characteristically *Carposina*-like. Tegumen rounded with sparse short hairs. Bibrachium rather short, fully developed, base with a circular loop, filled with dense long aciculae, rising part without aciculae, slightly sinuate, dilated towards top, this with an oblique bunch of thin bristles. Vinculum an erected triangle, tip truncate. Transtilla wide and slender; anellus lobe long, slender, with a few bristles. Valva rather short, concave, top rounded, costa dentate. Ampulla rather long, with a dilated base, with a round crevice, top slightly bifid. Aedeagus long, stalk slender, clavus pointed, cornuti in an oblong central patch and a lateral, just subapical group of larger spines.

Distribution. — New Guinea.

Remarks. — The genitalia are of a true *Carposina* species and not of a *Meridarchis*. Therefore I am convinced of the necessity of the above transfer, in spite of the stalked veins 8 and 9 in the fore wing. As remarked under the generic diagnose above, this situation is also known from several American *Carposina* species (Davis, 1969). Furthermore I may refer to the discussion of the systematic value of wing neuration in the present family.

14. **Carposina niponensis** Walsingham
(figs. 24B, 38A-D)

Carposina niponensis Walsingham, 1900: 121 (♂, Japan). Literature. — Meyrick, 1913: 6 (*Sasakii* (sic) good species). — 1922: 7 (*Sasakii* (sic) good species.). — Hukusima, 1953: 55. — 1957: 1. Esaki, 1952: 456, figs. — Inoue, 1954: 77 (*sasakii, persicana* syn.). — Issiki, 1957: 36, figs. — Okano, 1959: 269. — Yasuda, 1969: 86. — Liu-Yuqiao, 1981: 26. fig. 117. — Kawabe, 1982, 1: 216, figs; 2: 289. — ? Park, K.T., 1983: 447, pl. 31 no. 507; p. 905. — Kuznetsov. 1986: 22, figs.

Holotype. — ♂/Holotype (red edged disc)/Japan, Pryer, 1886 (print)/Walsingham Collection, 1910-427 (print)/Carposina niponensis Wlsm., Ann. & Mag. NH. (5) no. 912 (3) 1900. Type ♂ (ink, black cadre)/BM Genitalia slide ♂ No. 23596/. BM(NH).

Description. — ♂, 16 mm. Head whitish, vertex slightly infuscated, face light grey, sides of head turning dark fuscous in certain lights. Antenna whitish, ciliations 4-5. Labial palpus moderate, projecting beyond face diameter of head, straight, porrected, slightly rising; smoothly scaled, median segment triangularly dilated, top truncate, lower angle strongly prominent, broadly rounded, almost reaching tip of terminal segment, terminal segment rather short, thick, obtuse; light fuscous, upper edge of median, top of terminal segment and inside iridescent white in certain lights. Thorax whitish, mixed with pale tawny (damaged).

Fore wing oblong-suboval, gently dilated, broadest at 4/5, costa moderately curved throughout, more broadly curved before apex, apex obtusely pointed, termen gently convex, oblique; with raised scale tufts. White with a silky gloss. Basal patch to about $^1/_5$ of costa, greyish-tawny, with a round dark fuscous tuft of raised scales "near the outer extremity of the outer edge" of the basal patch; this edge raised, finely edged with whitish posteriorly, strongly inwards-oblique, slightly concave; costa from margin to cell slightly dusted with pale tawny, with six darker, greyish-tawny oblong suffused spots; first of these largest, at $^2/_5$, followed by a spot of ground colour; posterior half of costa with three fuscous spots, rather suffused below, followed by two smaller subapical dots; lower edges of first and second costal spots connected by a grey-fuscous-tawny suffusion, running further as an oblique blotch, with upper edge concave, to a larger dark fuscous round tuft of raised scales on upper angle of cell, narrowly continued downwards along discoidal vein to lower angle of cell; a faint and slender light tawny line from between first and second costal spots, running obliquely across wing to above $^1/_3$ of dorsum, at end recurving posterad; an indistinct row of suffused light tawny dots from penultimate costal dot to tornus, gently outwards-convex; a suffused fuscous marginal streak around apex, along termen to tornus. Cilia fuscous-grey, with a pale basal and a darker suffused median band.

Hind wing without cubital pecten; greyish-fuscous, gradually becoming paler on basal half, terminal edge narrowly darker fuscous. Cilia greyish, a pale basal line along termen.

Male genitalia. — Tegumen rather low, subspherical. Uncus absent. Tuba analis a low tumescence with a large flat tuft of long dark hairs. Bibrachium (gnathos arms) long and slender, with a slightly dilated twist, originating from a small tumescence with dense black spinulae; these fill the narrow cavity of the arm as a slender tight bar; top of arm clavate, with a sheaf of dark spines. Vinculum strong with a long slender saccus. Valva long and narrow, sacculus with an indent basal lobe and an apical concavity in which fits sclerotic, rather rounded, long-dentate ampulla followed posteriorly by a field of dense black bristles; cucullus slender, sublanceolate, acutely pointed, thinly short-haired. Labides long and slender, abruptly curved at base, then running parallel mesally above one another (seemingly entvined). Juxta lobes long and slender, straight and sclerotic, also running parallel mesally, but beside one another, being narrow naked blades. Aedeagus very long and slender, clavus almost $^1/_2$, a long cone; cornuti visible in slender conical sheafs: right one double, a ventral short group and a dorsal one, four times as long; left sheaf single, short, at apex.

Distribution. — Japan. China. ? Korea.[5])

Remarks. — The genitalia with the blade-like sclerotic median naked juxta

lobes and above and parallel to them, a seemingly entvined pair of labides, are very peculiar; they differ entirely from the situation in *C. sasakii* Matsumura, including all other species of *Carposina,* where there is only one pair of usual labides and no juxta lobes at all, the saccus is a short stump and the ampullae are short-dentate.

So the male genitalia of the unique type specimen of *C. niponensis* Walsingham separate it at once from the common notorious pest of peach and pome fruit trees in the Far East and Japan, so that that species should regain its original name, *Carposina sasakii* Matsumura, erroneously synonymized with *C. niponensis* for so long.

[5]) Judging from Park's figure (1983) this record may be a misidentification. I did not study any Korean material of *niponensis* yet.

15. **Carposina scirrhosella** Herrich-Schäffer (figs. 24C, 38E-F, 39A-C)

Carposina scirrhosella Herrich-Schäffer, [1853]: pl. 81, fig. 615. — [1854]: 142. Literature. — Von Heinemann, 1870: 353. — Rebel, in Staudinger & Rebel, 1901: 102. — Fernald, 1908: 39. — Kennel, 1913: 352. — Kennel, in Spuler, 1910: 263. — Meyrick, 1913a: 6. — 1922: 7. — Hering, 1932: 238. — Eckstein, 1933: 83. — Thurner, 1940: 24. — Von Toll, 1947: 113. — Osthelder, 1951: 68. — Swatschek 1958: 249. — Razowski, 1959: 163, 164, figs. — Stănoiu & Nemeş, 1968: 107, 109, 111, figs. (*Carposina orientella* n. sp.: 110, figs.) — Hannemann, 1964: 78, figs. — Davis, 1969: 20. — Amsel, 1978: 230, figs. — Kuznetsov, 1954: 416-417, figs. — 1986: 21 figs. (*orientella* syn.). — Popescu-Gorj, 1984: 130 (*scirrhosella, orientella*).
Carposina orientella Stănoiu & Nemeş, 1968: 110, figs. **Syn. nov.**

Holotype of *C. scirrhosella.* — Possibly lost, depository unknown.

Secondary material. — Central Southern Europe; Austria, Vienna GS 10753 ♂ 10755 ♂. (Coll. Wocke, Ershov, Disqué, Reisser (ZIAN, MAKB). Hungaria, Budafok (Schmidt) Bulgaria, Donau (Coll. Osthelder). GS 10756 ♀, 10762 ♀. MAKB.

Asia Minor, Anatolia, Kizilkahamkan (Gläser). Brussa (Mann). RMNH. Reared from *Rosa,* 6.VIII. (GS 10778 ♀). ZIAN.

Holotype of *C. orientella.* — ♂, Romania, Suceava, 7.VII.1954, leg. I. Nemeş, GS 983. Collection I. Nemeş, Suceava. MGAB.

Description. — ♂, 16-17 mm. Head mixed whitish and dark fuscous. Antenna fuscous, long- and fine-ciliate, ciliations 3-4. Labial palpus rather long, projecting beyond face almost diameter of head, porrect, median segment strongly, almost rectangularly dilated with appressed scales, lower edge smooth, upper edge with a rough tuft beyond face, top below broadly rounded and projecting almost beyond tip of apical segment; this moderate, slightly rising, truncate; outside densely dusted with dark fuscous, inside mixed with white. Thorax creamy-white, densely dusted with blackish-fuscous, apical third creamy, tegula creamy-white except edges. Abdomen whitish with a silky gloss.

Fore wing oblong, rather dilated, broadest at $^3/_4$, costa gently curved at base, more so at apex, apex subobtuse, termen straight, oblique. White-creamy, beyond cell pure white. Markings dark and light fuscous. Basal patch over $^1/_5$, top truncate as far as upper edge of cell, edge raised and finely edged white, in middle notched, below slightly suffused, not reaching dorsum, costa along basal $^2/_3$ more or less suffused with blackish-fuscous, with an oblong black spot beyond $^1/_3$, followed by two small and two larger wedge-shaped black spots; third of these largest, followed by small flattened marks on ends of veins: two on costa before apex, some four along termen, decreasing gradually in size; an ill-defined depressed-triangular costal grey-fuscous suffusion, from first costal spot faintly reaching apex, including a subtriangular spot of pure white below and beyond middle of costa; a blackish spot along closing vein, formed by a larger, rounded and an oblong tuft, upper merging in top of costal triangle, lower preceded by a triangular suffusion in cell limited below by fold, with blunt top reaching its middle; a slender black concave line from lower angle of cell to $^3/_4$ of dorsum; terminal area with pure white ground colour, traversed by a grey suffused band from ultimate costal dot to tornus, slightly less oblique than termen, indistinctly connected along veins with dots along termen; a pale grey rounded suffusion beyond lower half of closing vein; raised pale grey scale-tufts in an oblique pair between first costal spot and $^1/_3$ of dorsum. Cilia grey, with paler apical and darker basal half.

Hind wing with a cubital pecten in female, absent in male; creamy-white, apex infuscated. Cilia creamy with a pale fuscous suffused subbasal band.

Male genitalia. — Tegumen broad, with truncate, subconcave top, with a large wart-like tumescence of tuba analis with a crown of long bristles. Vinculum V-shaped, large and broad, with a saccus but slightly shorter than the largest hight of vinculum above it. Gnathos arms long, sinuate, with a large, thickened twist, filled with fine spicula. Transtilla a moderate, straight, darkly colored band. Labides long, clavate, reaching to base of "uncus". Valva broad, strongly sinuate, with a strong hyaline costal edge. Cucullus densely bristled, apex moderately acute. Sacculus broad, sclerotic, concave at base of ampulla; this rather curved, with a dilated base, strongly sclerotic throughout. Aedeagus long, with rather narrow monocuspidate clavus, with a large fan of marginal bristles below top at the right side, a small central bunch higher up and an appressed patch of marginal bristles at the left side.

Female genitalia. — Eighth segment broadly conical, with truncate rounded top. Lamella postvaginalis finely pileate. Ostium a wide sac, laterally sides curving mesad and produced caudad, joined to the sides of lamella postvaginalis; rim of ostium with a moderate median point, top of a median fold, concave on both sides of this; wall sclerotic but rather transparent, evenly and rather coarsely papillate; its length as large as width, ostium narrowed,

without other border passing into colliculum, this wide and long, straight, finer and denser papillate, moderately narrowed above twist. Ductus bursae moderately wide, with reticulate wall, being fine wrinkles with dark longitudinal folds. Corpus bursae oblong-ovoidal. Signa with strong basal plates and thin long legs (in mount seen in lateral aspect).

Distribution. — S.E. Europe, Asia Minor. Transcaucasus.

Host plants. — Cultivated and wild *Rosa* species, in fruits.

Remarks. — The larvae of the present species and *berberidella* differ thus (Swatschek, 1958: 219):

— All thoracic legs with 12 crochets; 9th abdominal segment with setae II not upon a common pinnaculum: *scirrhosella*.

— Thoracic legs with 15 crochets, but the last pair only with 8; setae II of the abdominal segment 9 upon a common pinnaculum: *berberidella*.

16. **Carposina diampyx** spec. nov.

di = two, *ampyx*= a ribbon

(figs. 25E-F, 39D-E)

Holotype. — ♂, GS 10750, USSR, Armenia, Gegnard, 1700 m, 40 km E of Erivan (Kasy & Vartian leg.), 3-4.VIII.1976. Allotype, the same locality and collectors (abdomen missing). MNHW.

Secondary material. — Armenia, Daralagësz Range, pag. Azizbekov (Pashalu), 1650 m, 7.VIII.1938 (L. Sheluzhko & N. Pavlitskaya. (U.A.N.K.), 1 ♀, paratype (abdomen missing) (*berberidella*, N. Obraztsov det.). ZIAN.

Description. — ♂, 20 mm. Head light anthracite-grey. Antenna fuscous, long ciliate, ciliations about 3. Labial palpus rather long, 2 times diameter of eye, porrected, gently rising, median segment strongly dilated with appressed scales, rather smooth along upper edge that is slightly convex, long and rough along lower, with a slight apical tuft, terminal segment slender, moderate, gently rising and smooth, top rounded; light greyish-fuscous, a faint suffused median streak along side, another shorter one, parallel, along apical tuft. Thorax whitish-anthracite grey, anterior edge fuscous black, emitting short edges to tegulae; top of tegula black; a strongly curved transverse group of three blackish spots beyond middle. Abdomen whitish, anal tuft white.

Fore wing with veins 8 and 9 closely approximated at base; with distinct raised scale-tufts; oblong-suboval, little dilated, costa slightly curved at base, straight anteriorly, posterior half gently curved, more so at apex, apex pointed, termen hardly convex, almost straight, oblique. Snow-white, glossy, in middle of wing dull, touched with greyish; markings black and suffused grey. Basal patch to $^1/_6$ of costa, dark grey, edge oblique or slightly convex, raised, edge not reaching dorsum; a large subtriangular patch of dark grey suffusion,

on costa from $^1/_3$ to $^3/_4$, costal edge with an oblong mark and three subquadrate ones; end of costal edge from beyond fourth costal mark with a well defined black marginal line to apex, thence along termen to end of dorsum, below broken into several small dots; patch extending to fold before its end, its posterior edge extending beyond end of cell, except in middle; upper angle of cell with a large round black tuft, with posterior edge raised, emitting a curved dark grey band to second costal mark, and below emitting a strongly sinuate dark grey stria to end of fold; a pair of round pale grey raised tufts on lower edge of cell; terminal area with a white band from end of dorsum to below costa, followed by suffused pale grey-fulvous band, parallel to posterior end of costa, angulate opposite apex, thence parallel to termen, running to tornus; space beyond this band with a faintest touch of bluish-anthracite. Cilia creamy, dusted with pale grey, darker grey on costa.

Hind wing with pecten; silvery-white, posterior half hardly touched with greyish, apex brighter creamy, Cilia creamy.

♀, 20 mm. Very similar to the male, but labial palpus much longer, 5 times the diameter of eye, median segment appearing more elongate, above with a short tuft towards base, below less rough, terminal segment truncate. Triangular median spot larger, inverted-trapezoidal, with top limited by fold, except black comma-shaped connection with end of fold; terminal area entirely white, subterminal band darker, well defined, marginal dark line paler. Cilia darker grey. Hind wing with pecten; pale grey, cilia creamy-greyish.

Male genitalia. — Resemble most those of *scirrhosella* but differ as follows. Valva with cucullus more slender, narrower, longer; sacculus large, oblong-ovate, with only one subbasal lobe faintly sclerotic, ampulla with a strongly constricted, membraneous base, sclerotic only beyond this, oblong-subovoidal. (In *scirrhosella* valva much broader, costal edge also broader, cucullus with denser bristles, ampulla with a dilated sclerotic base, not constricted, beyond this more narrowed and pointed). Labis slender, with a slender, not narrowed base (in *scirrhosella* robust, base dilated, not curved). Aedeagus shorter and more slender, clavus large, over $^1/_2$, oblong-oval, with a rounded top, slightly notched in middle, with three almost equally large patches of cornuti bristles in an oblique series across clavus, from left below to right subapically (in *scirrhosella* clavus oblong, narrowed and pointed, three cornuti patches inequal, slender and elongate, left near base, longest, median shifted to the right side and nearest to apex, right fan-like, longer and lower than the median patch). Finally vinculum and saccus depressed-Y-shaped, all parts about equally thick (in *scirrhosella*) much larger and longer, vinculum arms dilated and concave, saccus narrower).

Remarks. — Belongs to the *scirrhosella* group of species, but is much larger, with well defined dark basal and median patches, long palpi and conspicuous

sharp marginal line in fore wing, preceded by the subterminal band.

17. **Carposina rosella** Kuznetsov
(figs. 12C, 13E, 25G-H, 50C)

Carposina rosella Kuznetsov, 1975: 415, fig. Literature. — Kuznetsov, 1982: 21, figs.
Holotype. — ♂/Holotypus ♂ Carposina rosella Kuznets. (red; print & ink)/Gissar Range, Takob, 14.VII.1965 (Russ., print & ink)/Danilevski (Russ., print)/Micr. prep. No. 8331 ♂ (print & ink)) reverse: Carposina rosella Kuzn.)/ZIAN.
Secondary material. — USSR, Tadzhikistan, Gissar Range, Takob, 16-17.VIII.1965 (A.S. Danilevski), 1 ♀ GS 10764; the same locality and collector, GS 8331 ♀ paratype ZIAN. The same locality, Kandara Chasm, 11.VII.1971, Sherniyazova leg., ♀, paratype. RMNH.

Description. — The type specimen may be redescribed thus: ♂, 17.5 mm. Head light grey. Antenna pale ochreous, ciliations 2. Labial palpus moderate, slightly over diameter of head, median segment strongly triangularly dilated, with smoothly appressed scales, a long edge roughish, terminal segment very short, almost concealed, subobtuse; dark fuscous-grey, paler along extreme apex. Thorax dark fuscous, slightly mixed with whitish, before middle laterally forming an ill-defined pair of rings. Abdomen white.

Fore wing rather long and narrow, oblong-suboval, with scale-tufts, costa slightly curved throughout, more so at ends, apex obtusely pointed, termen gently convex. White, densly dusted and suffused with fuscous and along termen light cinereous, markings darker fuscous. Basal patch dark fuscous, in middle slightly paler, on costa to over $^1/_5$, edge strongly inwards-oblique, gently concave; costa with four ill-defined fuscous spots, first largest, submedian, others quickly becoming smaller, last almost obliterate, at $^3/_4$; upper edge of cell with an oval dark fuscous spot, continued along closing vein and with a lighter grey suffusion between angle and costa; a grey-fuscous suffusion filling out posterior third of cell, preceded by oblique irregular transverse strigulae, anterior of these more distinct, forming a dark oblique mark below fold at $^1/_4$ of wing; terminal area halfway towards cell cinereous, edge straight; a band of white ground colour most distinct beyond basal patch, and a similar white central patch beyond cell. Cilia cinereous, with a pale base.

Hind wing without cubital pecten; evenly pale cinereous, slightly darker and touched with fuscous on posterior half. Cilia as in fore wing but paler.

Male genitalia. — Resembling those of *scirrhosella* but saccus broadly triangular, not produced in a slender process; median third of costal edge of valva with a regularly concave, shallow emargination (absent in *scirrhosella*); sacculus less elongate, more oblong-oval, with a circular median darker lobe from lower edge, ampulla more slender. Labis long and slender, strongly curved at base, top distinctly clavate and bristly. Aedeagus with two marginal,

almost apical combs of spines, left and right arranged symmetrically (in *scirrhosella* three combs, if two, then asymmetrical: left one longer, along median part of edge of clavus). Also resembling the genitalia of *diampyx* spec. nov., sacculus almost similar but smaller and narrower, especially saccus different: massive, triangular (while in *diampyx* saccus Y-shaped, with stalk and arms equally long and thick, top with a small point).

♀, 22 mm. Head fulvous-fuscous, with a whitish gloss. Antenna paler, scape with a whitish iridescence. Labial palpus very long, porrected, projecting beyond face 3 $^{1}/_{2}$ times the diameter of head; smooth, upper edge before middle with a triangular tuft of raised hair-scales, terminal segment short, truncate; pale grey, outwardly densely suffused and punctulate with purplish, except the upper edge throughout, terminal segment dark purple with a white tip. Thorax fuscous-fulvous (denuded). Abdomen grey with a white top.

Fore wing with veins 7 and 8 separate; moderately broad, dilated, broadest at $^{3}/_{4}$, with rather depressed tufts of scales on surface; costa markedly curved at ends, hardly curved in middle, apex subobtuse, termen straight, oblique. Pale tawny, becoming paler towards dorsum, markings of lighter tawny-fuscous and purplish-fuscous dusting and dark tawny-fuscous. Basal patch narrow, on costa over 1/4, edge strongly inwards-oblique, well defined, narrowly raised, more so on dorsum, all around edges suffused with dark purplish-fuscous; on dorsum this edge dilated into a round spot; dusting forming a large median costal triangle, from well beyond basal patch, extending almost to dorsum beyond middle, and posteriorly along costa to apex, and in a broad terminal band to tornus; costa marked as in male; the more or less distinct, characteristic small transverse streak, obliquely cutting lower edge of cell above 1/4 of dorsum; anterior edge of triangle with a depressed, small and raised tuft on lower edge of cell; costa along median triangle with four darker fuscous-purple rather suffused spots, two more of these between patch and apex; a large fasciate mark along discoidal vein, with top rounded, gently narrowing downwards with a narrow marginal line of pale ground colour along its anterior edge; centre of triangle darker infuscated; terminal band darker anteriorly and on costa, along terminal veins faintly paler. Cilia greyish-tawny with a pale basal, a supramedian and an apical streak.

Hind wing without a cubital pecten; tawny-creamy, slightly darker towards apex and termen. Cilia concolorous, with a darker subbasal band.

Female genitalia. — Ovipositor furcate. Ostium simple and wide, edge with a pointed lip in middle, flanked by distinct excisions. Lamella postvaginalis rather large, moderately narrowed towards top, pilose. Colliculum coarsly reticulate. Corpus bursae a long clavate tube, with a narrowed end. Signa each with a single additional small latero-basal extra prong, or without it.

Distribution. — Central Asia: Tadzhikistan.

Host plant. — Wild *Rosa* species; injurious by boring in fruit.

18. **Carposina roesleri** Amsel
(figs. 11B, 12A, 24E-F)

Carposina roesleri Amsel, 1977: 227, figs. 1_{3a}, 1_{3b}, 2_{2a}, 2_{2b}. Literature. — Amsel, 1980: 3.

Holotype. — ♂/Iran, Fars, Kazeroon, Tangueh-Tehogan, 900 m, 9.5.74 leg. Abai & Pazuki/. GU 5375/. LNK.
Secondary material. — Iran, Fars, Kazeroon, Tangueh-Tehogan, 900 m 9.V.1974 (Abai & Pazuki leg.), 1 ♀, allotype, GS 5376; 2 ♀, paratypes. LNK and in collection of the Entomological Institute Teheran-Evin.

Description. — ♂, 16 mm. Head black mixed with pale grey, face denser mixed. Antenna pale grey, black-ringed, ciliations 1, pale grey. Palpus short, as long as head, triangularly dilated by smoothly appressed scales, roughish along distal edge, terminal segment very short, almost concealed; black slightly dusted with light grey. Thorax black, less mixed with grey.

Fore wing narrow, oblong, costa hardly curved at base, distinctly so at apex, apex subacute, termen straight, oblique. White, densely suffused with black, in middle of disc tinged dull fuscous. Costa broadly black from just beyond middle divided by ground colour in four somewhat inequal oblong spots; basal fourth denser suffused with black and indistinctly marked with fuscous; an ill-defined, inwards-oblique black transverse streak from below and beyond $^1/_3$ of costa, not reaching fold; a second transverse complete streak of raised jet-black scales, from penultimate costal spot at $^3/_4$, inwards-oblique, angulate in middle, thence to $^3/_4$ of dorsum, including a larger black round spot in angulation; the space between the black transverse streaks marbled by dull rather light fulvous: roundish spots of more or less raised scales, some of these palely edged, forming a streak below middle third of costa; a pair of pale spots before and beyond first black streak in middle of wing breadth, and some suffusion before and along second black streak; all fuscous markings ill-defined (probably slightly rubbed); terminal area beyond second streak less densly suffused along basal half, with a dark grey, suffused fascia from last costal spot to tornus, angularly projecting posteriorly above middle; veins 4-7 streaked with jet-black lines; a strong black continuous marginal line along costa before apex, in apex and along termen to tornus. Cilia white, tinged creamy, suffused, except along base, with light grey and barred throughout (also at base) with darker grey.

Hind wing glossy cinereous white, costa and dorsum touched wiht fuscous.

♀, 17 mm. Palpus long, 3 $^1/_2$ times diameter of eye, oblong, along upper median third and along lower posterior third edge roughly tufted; Head, palpi and thorax blackish.

Fore wing longer and narrower, with strong raised ridges and tufts: beyond base, the inwardly oblique edge of basal patch, and along second dark transverse line; a round scale tuft just before centre of wing and another below fold at $^1/_3$. Hind wing broader, cell paler. Otherwise similar to the male.

Male genitalia. — Tegumen moderately narrowed. Tuba analis oval long-haired. Gnathos arms rather sinuate, dilated along the loop. Valva rather long, with sclerotic sacculus and large, almost sickle-shaped ampulla slightly concave, with dorsal edge irregularly serrate, with a series of small transverse cracks. Labis long moderately thick, indistinctly clavate, top with a few bristles all around. Juxta strong, subcardiform, with a dubble pair of small valves (lobes) on top. Vinculum large, broad, saccus long and slender. Aedeagus with a long slender blade (clavus), as long as the stalk; cornuti two marginal rows, one (right) shorter, subapical, of longer spines, another (left) more shifted mesad, with somewhat smaller, equal spines.

Female genitalia. — Sterigma oblong-conical, with small lateral prominences in middle, above these a pair of small crescentic cavities. Ostium very wide, edge in front pointed and slightly projecting in middle. Colliculum rather short, narrowed, with the usual single twist, ductus bursae slender, aciculate-granulate. Signa with weak plates and very slender, simple legs (prongs), laterally slightly thicker.

Distrubtion. — Iran.

19. **Carposina ekbatana** Amsel
(figs. 11A, 24G)

Carposina ekbatana Amsel, 1978: 215 (♂, W. Iran). Literature. — Amsel, 1980: 3.

Holotype. — ♂/Holotypus (Monotypus) ♂/W-Iran, Hamadan, 7.7.38 leg. F.P. Wiltshire/GU 5469/. LNK.

Description. — ♂, 17 mm. Head white. Antenna white, tawny-ringed, scape slightly clavate, flagellum finely long-ciliate. Palpus porrect, over twice the diameter of eye (longer than head), gradually dilated to middle, thence with roughly projecting scales above and beneath, rough at apex, terminal segment thick, exposed, truncate; median segment white, with more than basal half densely dusted with blackish, mixed with blackish also along lower edge and along tips of scales at apex, terminal segment black, white at tip and inwardly. Thorax (partly denuded), white mixed with grey. Abdomen white (judging from photograph).

Fore wing oblong suboval, broadest at $^3/_4$, costa slightly curved at base, more so at apex, gently curved in middle, apex subacute, termen straight, hardly

convex. White, markings blackish, partly formed by grey dusting. Basal patch to less than $^1/_4$ of costa, edge strongly inwards-oblique and concave, on costa irregularly truncate; black, not quite reaching dorsum, including a small whitish spot at base of dorsum; costa with five black spots; first oblong, slightly closer to second which is median, subtriangular, twice as small; third to fifth tolerably equidistant, fourth largest, last subapical; a fasciate blotch along closing vein, faintly constricted above middle, slightly gradually narrowed downwards to fold, thence narrow, curving outwards, then inwards, to $^4/_5$ of dorsum; this blotch included in a rather irregular dark grey dusting, inverted-triangular, from below first to fourth costal dots, to $^3/_4$ of dorsum, leaving a narrow white edge to the blotch on end of cell; two oval, inwards-oblique grey spots, below fold before its middle, and above fold, beyond middle, respectively; slight grey suffusion along termen to halfway cell and a blackish, suffused marginal line along end of costa, around apex and along termen to tornus, in tornus interrupted between veins. Cilia white, broadly and suffusedly barred with greyish dusting.

Hind wing whitish, dusted throughout with grey, denser so towards apex, with a silky gloss. Cilia dark grey, turning paler towards tornus, whitish on dorsum.

Male genitalia. — Tegumen broadly spherical, top truncate, tuba analis depressed, curving ventrad as a subtriangular lobe, weakly haired. Gnathos arms strong, basal loop over $^1/_3$, acicula dense and thin, at the top of arm becoming small spikes, darker and thicker, projecting in a sidewards directed sheaf outside top of arm. Valva rather broad, at top rather abruptly pointed, costa thickened, except at apex; labis rather long, thickish, subsclerotic, apical club oblong, bristly only dorsally; sacculus subsclerotic, ampulla moderate, awl-shaped, subacute, dorsally slightly excavate. Vinculum longer than sacculus, rather slender. Aedeagus (in mount visible sublaterally) with top narrowed and pointed, shorter than stalk, with apical half edged throughout by rather strong spines, at the right also with a small, more proximal group of broader bristles; ductus seminalis densely and finely ribbled.

Remarks. — The white, sparsly blackish-marked species is nearest to *C. tetratoma* spec. nov., also from Iran; it differs by much longer, differently shaped male palpi, by longer, more slender hyaline labides, by the angulate base of ampulla, and by shorter top part of the aedeagus.

20. **Carposina tetratoma** spec. nov.
tetra = four, *tomein* = to cut
(figs. 13A-D, 14C, 25C-D)

Holotype. — ♂, GS 10752; allotype, ♀, GS 10763, Afghanistan, Pagman, 30 km NW v. Kabul, 2200 m, 20-23.VII.1963 (Kasy & Vartian leg.). LNK

Secondary material. — Paratypes, the same locality, 1 ♂, GS 10758, the same date; 1 ♀, the same locality, 29.VI-9.VII.1963, GS 10759; 1 ♀, 2500 m, 27.VII.19635, 1 ♀, (abdomen missing). LNK.

Description. — ♂, 18 mm. Head white. Antenna white, finely ringed with chestnut. Palpus moderate, slightly shorter than breadth of head, median segment broadly triangular-oval, densly clothed with appressed scales, rough towards apex; dark ashy-grey, apex white; terminal segment short obtuse white, tipped with grey. Thorax whitish, more than posterior half, except apex and sides, suffused with ashy-grey, shoulder with a suffused black spot. Abdomen glossy pale fulvous-creamy.

Fore wing rather narrow, gently dilated and broadest at $^3/_4$, costa slightly curved anteriorly, almost straight posteriorly, before apex rather abruptly and obliquely truncate, apex pointed, termen moderately convex, oblique and long. White markings black and ashy-grey. Basal patch black, on costa to slightly less than $^1/_6$, edge strongly inwards-oblique, slightly notched above fold, including an irregular white basal spot; costa with an oblong black spot at $^1/_3$ below limited by course of vein 12, both ends outwards-oblique; this spot followed by four black dots; spot and three anterior dots rather far apart and equidistant, fourth dot remote; first and second dots rather inwards-oblique, fourth dot quadrate, largest; ultimate dot small; a narrow black marginal line from beyond last dot to apex, thence along termen to end of dorsum, along lower half of termen broken in four short fragments; a postmedian black mark in disc, shaped like figure 7, upper part forming a thick horizontal mark, concave above, whith a black dot above its middle; stalk of "7" vertical, strongly outwards-convex, narrowed, not reaching dorsum; a small inwards-oblique mark below fold at its $^1/_3$, with a few scales in disc between this and costal spot, tending to form fragments of an oblique transverse fascia; an inwards-oblique broad band of grey dusting along median third of wing, leaving white edges to a part of black markings, an ill-defined third fascia of dark grey suffusion, rather narrow, outwards-convex, from below ultimate costal dot to tornus. Cilia white, with broad faint light grey bars.

Hind wing without cubital pecten; white, faintly tinged pale fulvous towards apex. Cilia white.

Variability. — The markings of the type-specimen are the most complete; the male paratype is paler, with reduced markings.

♀, 15-18.5 mm. Similar to the male, but palpi almost twice as long, median segment dark grey, paler towards upper edge, apex less rough, narrowed; terminal segment short, more slender, dark grey with a white tip. Fore wing with dark grey suffusion almost absent (in allotype), or reduced, postmedian fascia partly obliterate.

Male genitalia. Tegumen very broad, depressed, with an oblong-oval, thinly pilose, thick and large tumescent lobe, attached in the middle, under the top of tegumen. Arms of gnathos long and strong, with dilated angles, triangularly projecting downwards. Saccus rather large, acutely-triangular.

Valva acutely pointed and corrugated (when compressed, top gets twisted downwards, as in figures). Sacculus less than $^1/_2$ valva, with a rounded basal lobe and a pointed-conical, straight ampulla. Labis long, straight and gently clavate. Aedeagus with a large oblong-oval clavus, with two marginal spine-clusters, slightly subapical, the right one longer than the left; stalk slender, $1\ ^1/_3$ length of clavus.

Female genitalia. Ostium wide, a simple edge, with a frontal angulation, eighth segment evenly and moderately sclerotic, in more proximal segments densely and finely granulate as far as fold, thence sparser granulate at the above end. Corpus bursae simple, oblong, acutely pointed. Signa absent.

Distribution. — Afghanistan.

Remarks. — A distinct species, with abruptly narrowed apex of fore wing, well marked by the black marginal line. Apparently nearest to *C. ekbatana* Amsel, that differs distinctly by shorter palpi in males, the fore wing with a larger basal patch, a regular row of six costal dots and the entirely obliterate horizontal part of figure "7". The male genitalia of both *ekbatana* and *roesleri* differ strongly by bristled cucullus, shape of ampulla, narrower saccus, much narrower differently bristled aedeagus, etc.

21. **Carposina berberidella** Herrich-Schäffer (figs. 6, 25B, 26A-B, 39F-G, 40A-C)

Carposina berberidella Herrich-Schäffer, 1853: pl. 81, fig. 614. — 1854, 5: 142.

Literature. — Von Heinemann, 1870: 353. — Walsingham, 1900: 490. — Rebel, in Staudinger & Rebel, 1901: 102. — Kennel, 1913: 353, figs. — 1910, in Spuler: 263. — Meyrick, 1913a: 6. — 1922: 7. — Schille, 1917: 110. — Zerny, 1927: 471. — Eckstein, 1933: 83. — Klimesch, 1958: 21. — Swatschek, 1958: 249. — Razowski, 1959: 166, figs. — Pfister, 1961: 9. — Hannemann, 1964: 77, figs. — Stănoiu & Nemeş, 1968: 107, 108, 109, figs. — Davis, 1969: 13, 16, 20, 80, figs. — Zimmerman, 1978: 497, fig. — Popescu-Gorj, 1984: 130. — Kuznetsov, 1986: 21, figs.

Holotype. — Probably lost, depository unknown.

Secondary material. — Germany: Beieren (Stgr), ♂; Vöslau, 14.VII.1892. Austria: Wien. Hungary, diverse localities. Asia Minor: Ak Shehir, 12.VI.1934, 2 ♂, GS 10915. MGAB.

Asia Minor, Turcia, Kizilcahamam, 925 m, 19.VI-6.VII.1965 (U. u. W. Glaser) GS 10787, 3

♂. Asia Minor, W. v. Gürün, 1000 m, 9100 km NW v Malelya), 22.VI.1969, 3 ♂, 1 ♀ GS 10921 (F. Kasy). NHMW. — Austria, Dürnstein, e l., 19.V.1936 (J. Klimesch) GS 10776♂, 10777♀. Coll. Dr. J. Klimesch.

Description. — ♂, 14 mm. Head and scape of antenna light tawny, mixed with glossy cream-colored scales, visible only in certain lights, more numerous on forehead and face. Ocellus not perceptible. Haustellum present. Flagellum of antenna whitish, ringed with fuscous, ciliate below, cilia 3. Labial palpus moderately long, projecting twice diameter of eye, slightly obliquely ascending, densely scaled and triangularly dilated, rather smooth, roughish along posterior third above and beneath and along obliquely truncate apex; terminal segment very short, almost concealed, truncate; tawny, densely dusted with dark fuscous. Thorax light tawny mixed with creamy (tips of scales); tegulae short. Abdomen light tawny-fuscous, anal tuft whitish-ochreous.

Fore wing oblong-oval, rather pointed; with vein 2 close to angle, 7 to termen, 8 and 9 short-stalked; costa gradually curved at ends, almost straight in middle, apex obtusely pointed, termen straight, oblique. Creamy-white, glossy, densely but irregularly dusted with blackish-fuscous. Basal patch to $^1/_7$ of costa, not reaching dorsum, bright fulvous on costal third, basal half densely mixed with pale ground colour and dusted with fuscous edge of patch twice excavate in cell and below cell, respectively, with two raised blackish scale-tufts at bottom of notches; posterior $^2/_3$ of costa with six purple spots, four anterior larger, equidistant from $^1/_3$ to $^2/_3$ of costa, two posterior more distant, small; an oblique row of three round light ochreous-tawny spots, parallel to edge of basal patch, from below first costal dot to below fold, with posterior edges slightly raised; a light ochreous-tawny transverse streak, from below second costal dot, with a strong obtuse posterad prominence at $^1/_3$, thence to before end of fold, outwards-concave, with an anterad directed slender end on dorsum; posterior edge of streak elevated, suffused with black; obtuse top of prominence narrowly edged with white posteriorly; a large transverse-subtriangular raised patch on fold halfway between row of spots and streak, followed by dense purple dusting in disc; streak followed by a pale not dusted area, edged posteriorly by a lighter tawny-ochreous band from below fifth costal dot to dorsum before tornus; terminal veins suffused with pale tawny, with purple marginal slender marks on ends of veins. Cilia with basal half grey, apical half pale grey with a whitish median band.

Hind wing tinged very pale glossy fuscous, becoming deeper towards apex, with slight gloss. Cilia pale grey, with a faintly darker basal half around apex and along apical half of termen, with a pale base.

♀, 14.5 mm. Similar to the male, but labial palpus one half longer, therefore median segment not triangular but oblong, with parallel and smoother edges,

terminal segment more slender, almost concealed. Fore wing with central raised tuft larger, edge along the whole discoidal vein, other markings denser dusted with purplish.

Hind wing with a slight cubital pecten; slightly darker greyish.

Male genitalia. — Tegumen broad and short, truncate. Tumescence of uncus large and bristly, as in *scirrhosella*. Vinculum stronger, with a thicker, more abruptly pointed saccus. Bibrachium much shorter, with only apical third of arms projecting above edge of tegumen (in *scirrhosella* and allied species projecting with half length of arms above tegumen edge), arms thicker, less sinuate. Anellus lobes longer than in *scirrhosella*, slightly clavate, rather pointed. Ampulla with lower basal half rather narrowed and curved, top oblong-triangular. Aedeagus with a broad clavus, less than $^1/_2$ length of stalk; both cornuti sheafs reaching apex, left one short, right one as long as clavus (in *s.* clavus almost as long as stalk).

Female genitalia. — Eighth segment short, rather semicircular. Seventh segment oval, broadest in middle (in *s.* broadest at base). Edge of ostium with a stronger prominent lip, its body with lateral oblong folds $^1/_3$ length of entire colliculum, more sclerotic and reticulate-papillate, its median third between fold hyaline; remainder of colliculum narrower and slightly shorter than in *s.* Signa with straight and very thin prongs.

Distribution. — South East Europe, from S. Germany to Asia Minor. S. and SW. of USSR; Transcaucasus: Georgia, Armenia.

Host plant. — *Berberis*, berries.

Remarks. — Easily discernible from *C. scirrhosella* by shorter bibrachium in the male and by an ovoidal shorter and narrower colliculum with a hyaline upper third, in the female.

Larvae VIII-IX, in ripe berries of *Berberis* (Berberidaceae) recognizable by a small entrance hole with emerging excrements; hibernate in berries or in debris. For differences from the larva of *C. scirrhosella*, see under that species.

22. **Carposina sasakii** Matsumura
(figs. 14A, 19C, 24H, 25A, 40C-F, 46A-B)

Carposina sasakii Matsumura, 1900: 198 (Japan, ♀).
Carpcapsa (sic) *persicana* Sasaki, 1905: 32-36.
Carposina niponensis auctt. (nec Walsingham, 1900), error identification.

Lectotype. — ♂ (correctly ♀), designated by Razowski & Kumata, 1985/4.VI.27. Larvae attack the fruits of Prunus persica (in Japanese), label with perforated edge and glued on the backside, an octagonal triple red-golden cadre; india ink & print/? Lectotype Carposina sasakii Matsumura (red, black cadre, india ink and print). EIHU.
Note. In the recent List of Matsumura's types (Razowski & Kumata, loc. cit., 1985) the following remark is added (translated here from German) "Lectotype ♂ in bad condition. Almost the whole

body mouldy. Labelled: "4/VI.27" . . . Probably "27" means "Meiji 27" of the Japanese calendar. This would correspond with the year 1894 of the European calendar. . . ."
The sex of the lectotype is recorded erroneously, it is not a male, but a female, easily recognizable by the long labial palpus (only right one extant). It is about "1.7 mm long", as stated in the original description.

Description. — A topotypical male specimen may be redescribed as follows. ♂, 15-16 mm. Head opalescent silvery-white, with a strong gloss, tufts on vertex appearing grey in certain lights, then frons conspicuously glossy, with an acute silvery angle projecting posterad towards vertex. Antenna in male thickened, glossy bronze-fuscous, ciliations over 1. Labial palpus in male moderately long, rather smoothly scaled, median segment slightly curved, strongly dilated anteriorly, with an obliquely truncate top, angularly projecting forward, apical segment rather short, exposed, obtuse; palpus in certain lights blackish-grey, base of apical segment whitish, in certain lights palpus entirely silvery-white, strongly opalescent. Thorax silvery-grey, with a serrate blackish transverse band before middle, extending over base of tegulae; posterior half of thorax opalescent silvery, with a glossy white apical patch. Abdomen opalescent grey, marked dark fuscous.

Fore wing oblong, slightly dilated, costa gently curved at ends, almost straight in middle, apex obtuse, termen straight, slightly oblique. Silvery-white with a slight opalescent gloss and a faint creamy tinge. Basal patch about $^1/_5$, dark grey, edge black, raised, a whitish spot at base of dorsum; costa suffused with pale glossy grey, including seven dark grey spots; the third to sixth of these forming the base of a large subtriangular costal patch, inwards-oblique, top truncate by fold; this patch including rather diversely shaped oblong black spots in upper angle of cell, below reaching to middle of cell, edged anteriorly by a broader, posteriorly a narrow glossy white line, both faintly zigzagging across wing; anterior line preceded by a row of light grey raised tufts, not reaching dorsum; a thin grey line from lower angle of cell to $^2/_3$ of dorsum; a round grey spot in apex; a well defined blackish terminal streak from well below apex to tornus, preceded by a parallel broader band, grey, suffused and partly interrupted above. Cilia rather dark grey.

Hind wing with a moderate cubital pecten; vein 6 traceable from closing vein to termen; wing grey with a slight gloss and a faint fuscous tinge.

♀, 15 mm. Similar to the male, but labial palpus long, over 2½ times diameter of head, porrect, median segment oblong, dilated by rather smooth scales, forming a roughish fringe above, apical segment moderate, porrect, truncate; pale grey. Fore wing rather denser suffused with greyish, cell markings extended, a dark grey marginal line along end of costa, around apex and along termen; preterminal band dark grey, above turning anterad, merging in costal patch. Cilia darker grey, with a submedian and a basal pale streaks.

Hind wing with cubital pecten; paler and less glossy. Otherwise similar to male.

Male genitalia. — Resembling those of the type-species. Bunch of tegumen bristles larger and denser. Gnathos arms with rising part long and slender. Vinculum with a short saccus. Valva rather constricted beyond base; lower edge rounded and prominent beyond constriction; sacculus sclerotic, angularly bent at base, ampulla folded lengthwise and flattened. Aedeagus with a large clavus, flattened-oval, almost ½, with three splits, forming two thick, obtuse tops, laterally with two shorter acute and slender spine clusters and with two strong lateral ones, left one V-shaped, right one single.

Female genitalia. — Eighth segment rather long. Ostium and colliculum completely united, without border; sclerotic, rather short, oval, top slightly narrowed, wall evenly and finely punctulate throughout, outer edge of ostium sinuate, median projection distinct and rounded (obtuse), side lobes rounded-sinuate, base stronger narrowed than top, wall submembranous, reticulate, with several interrupted longitudinal dark folds or ridges. Corpus bursae broadly oval. Signum cup-shaped, with ring-like structure, prongs long and very slender.

Distribution. — Japan (Tokyo, Sendai, Akashi). — Korea, much of eastern China and Manchuria. — Far East.

Hosts. — *Prunus persica*, (peach), *Malus malus* (apple), *M. pumila* (pome tree).

Remarks. — As is stated above, *Carposina sasakii* Matsumura is a distinct species, the notorious and common pest of peach and some other fruits all over the Far East. But it is not a synonym of *Carposina niponensis* Walsingham, of which the only specimen known is the type.

In the United States of America and in Canada there occurs a closely related species, distinct by biology, or a subspecies; it does not attack Rosaceae, but feeds on Cornaceae and Saxifragaceae (Davis, 1969: 18). This author uses the subspecific status for this insect: "*C. niponensis ottawana* Kearfott, 1907", to which I agree except that the name should now be **C. sasakii ottawana** Kearfott status nov. Davis' interesting remarks on the distribution and the economic importance of *ottawana* may be cited here in full (pp. 18-19):

"The correct identity of this insect is of great practical importance because quarantine measures are currently being enacted against the accidental entry of *C. n. niponensis* into this continent. Thus, it is possible that we are needlessly guarding against a pest species that already occurs in the United States. *Carposina n. niponensis*, however, is a major pest of pome fruits over much of the Orient, particularly Japan, and it seems unusual that its counterpart in North America has not attracted equal attention. To my knowledge, *C. n. ottawana* has never been reported as an orchard pest and apparently has never

been reared from rosaceous fruits. It would seem that if *ottawana* merely represented a relatively recent introduction of *C. n. niponensis* into this country, then the moth would be an even more serious pest in the apple and peach growing regions of North America than in Japan since it would, more than likely, be largely devoid of natural enemies. Of course, it is possible that a reverse situation occurred (i.e., with North America being the point of origin) although the early, widespread distribution of the oriental species does not suggest this. Furthermore, *C. n. niponensis* clearly belongs to a Palearctic species group which also includes *C. berberidella* Herrich-Schäffer and *C. scirrhosella* Herrich-Schäffer. Thus, the available evidence seems to suggest that the two subspecies actually are distinct, and that they may differ significantly in their biology. Largely for this reason, I have not synonymized *C. n. ottawana*, but prefer to recognize it as a separate subspecies even though present morphological evidence does not fully support such a division."

The doubtless validity of the name *C. sasakii* Matsumura is not the only surprise connected with this species: it appears to possess also a melanistic form with entirely different superficial appearence, so far regarded as a distinct species, viz., "*Carposina viduana*" Caradja.

22a. **Carposina sasakii** forma **viduana** Caradja status nov. (figs. 14B, 27B)

Carposina vidua Walsingham (nomen nudum) (collection label).
Carposina viduana Caradja, 1916: 55. Literature. — Kuznetsov, 1986: 296, fig. (*Carposina viduana*).

Holotype. — ♀/Gen. no. 10914 A. Diak. (print & ink)/Raddé Korb 05 (black ink)/5072 Wlsm 1908 (black cadre)/Carposina vidua Wlsm. Type ♀ descr. (black cadre)/Holotype Carposina viduana Car. (red cadre)/România Museul Ist. Nat. "Gr. Antipa" (print)/. MGAB.

Secondary material. — USSR, Ussuri Region, Spasski Rayon, Yakovlevka, 13.VII.1926 (Djakonov, Filipjev), 1 ♀, Paseka Kvashuka/Carposina viduana Car., Danilevsky det./. ZIAN.

Description. — ♀, 21 mm. Head dark purple and anthracite-grey. Antenna grey, purplish towards base. Labial palpus about 2 times diameter of head, porrected, median segment dilated by rather short and smooth scales, along middle of upper edge and towards apex below with longer and roughish scales, median segment elongate-oval in lateral aspect, terminal segment moderate, obtuse, porrect, finely tipped white. Thorax dark purple.

Fore wing glossy creamy-white, markings deep purple and anthracite-grey, densely strewn with purple scales. Basal patch over $^1/_6$ of costa, dark purple, with edge from costa to fold slightly concave, below fold patch reduced to a triangular, just subbasal dark purple spot; costa beyond patch light anthracite-

grey, dusted with purple; more than posterior half of wing anthracite-grey, turning dark purple in certain lights two large blackish raised tufts on closing vein, a third halfway to base on lower edge of cell, grey; anterior edge of dark color slightly angulate in middle of cell posterad, thence running along fold to $^2/_3$ of wing; thence to dorsum, concave; a posterad angulate series of ill-defined whitish marks (in second specimen they are large, white, distinct, and round), cutting off a triangular purple spot of the dark area, situated in center of wing; a small purple suffused dot on vein 1b at $^1/_4$ of wing; a faint dark purple rather suffused transverse band parallel to wing margin more than halfway between closing vein and termen. Cilia paler purplish-fuscous, basal half along termen darker, cilia along posterior half of costa with some five ochreous marginal marks at base, extending over extreme margin of costa.

Hind wing rather dark grey-purple, dull. Cilia concolorous, with a faint darker subbasal band.

Distribution. — USSR, Far East, Raddé (Radeyevka) on the Amur. — Southern Maritime District (Kuznetsov, 1986).

Remarks. — In second specimen white colour is pure, dark markings brighter anthracite-glossy; the fore wing is a trifle narrower, termen less sinuate than in the holotype: ♀, 18 mm.

Female genitalia exactly similar to those of the nominate form.

The present form does not show any differences of the genitalia from the nominate form, but the markings of the fore wing appear strickingly different at first; however, when regarded closer, it is obvious that only the extension of the dark markings causes this distinction. The fore wing seems a trifle broader, with termen slightly more sinuate in the holotype than in *s. sasakii*, but the second specimen does not have these differences. It is a pity that no males of the form *viduana* are available, but even without their testimony I venture to relegate *viduana* to the status of a forma.

23. **Carposina askoldana** spec. nov.
(figs. 28D, 43E)

Holotype. — ♀, USSR: Far East, Askold I., "Hed.", GS 10767 (Coll. ex-Grand Duke Nikolaï Mikhailovich). ZIAN.

♀, 16.5 mm. Superficially remarkably similar to *Meridarchis excisa* Walsingham, but differing at once except by markings and genitalia also by shorter palpi with smooth upper edge and thorax not suffused with black.

Close to *C. sasakii* Matsumura and easiest compared with that as follows. Fore wing narrower, termen less sinuate. Basal patch narrower, more oblique; the four costal dots much smaller, from the second to the fourth not reaching

upper edge of cell; dark patch along end of cell narrower; the preterminal row of spots almost entirely reduced, except the costal small dot, and replaced by faint fuscous dusting, cilia paler, hardly suffused with grey.

Hind wing pale creamy, with a golden gloss, cilia concolorous. Cilia creamy-whitish.

Female genitalia. — Close to, but differing from those of *sasakii* as follows, Colliculum longer, more elongate-ovoidal; lamella postvaginalis with exposed posterior edge that is deeply concave, with at the sides rounded lobes, each with a pair of radiar dark streaks (folds or narrow wrinkles) (such lobes completely absent in *sasakii*); sclerotization of ductus bursae not reaching orifice of corpus bursae, prongs of signa similar, but decidedly shorter.

Remarks. — The markings are quite distinct from those of *sasakii*: a black transverse spot along end of cell, not reaching costa (instead of the large black triangular costal patch).

24. **Carposina atlanticella** Rebel
(figs. 15A, 26E)

Carposina atlanticella Rebel, 1894: 92 (Madeira). Literature. — Rebel, in Staudinger & Rebel, 1901: 102. — Kennel, 1913: 353. — Meyrick, 1913a: 6. — 1922: 7.

Lectotype. — ♀, (present designation), labelled as follows./Gen. no. 10747 A. Diak./234 Wlsm, Coll./Madeira V. Leech 1886, 1085/atlanticella Rbl Type (Black and red ink, Rebel's hand)/Lectotype ♀ Carposina atlanticella Rebel. Designated by A. Diakonoff 1985 (black cadre)/ Type (red paper) NHMW. The ♀ lectoparatype bears the same labels, except lectotype label, but has nos. 235 and 1087, respectively. RMNH.

Description. — ♀, 15 mm. Head white, slightly mixed with pale fuscous. Antenna light fuscous, scape fuscous-whitish. Labial palpus long, extending twice the diameter of head beyond face, hardly down-curved, almost straight and porrected, throughout with thin, loosly projecting long scales above and beneath; grey, white above, apical segment whitish-grey, slender, about $^1/_6$ length of median, shorter scaled. Thorax brownish-fuscous, anterior fourth and tegulae pale tawny. Abdomen light grey, venter white.

Fore wing rather slender, dilated and broadest at $^2/_3$, costa gently curved towards ends, apex pointed, termen long, hardly convex, almost straight, oblique. Edge of basal patch forming a narrow oblique ridge of raised scales, followed by three more, tolerably parallel series of raised scale tufts, largest on closing vein. Creamy-white, markings rather light brownish-fuscous. Basal patch to $^1/_6$, darker, edge straight and very oblique; costa with six suffused dark spots, rather irregularly spaced, two anterior irregularly fasciate, reaching $^1/_3$ across wing, other spots larger, oblong, extending over costal cilia, posterior

edges well defined; first spot continued obliquely across wing by three dark raised tufts, edged with pale, last tuft minute, above dorsum; second costal mark clavate, submedian, outwards-oblique to edge of cell, thence angulate, continued by three raised dots, lower of these round, in fold, all pale-edged: following costal spots more suffused and greyer-tinged; a distinct fasciate inwards-oblique dark raised stria along more than median third of closing vein, broadly edged with pale ground colour, above connected with costa by an infuscation; a fuscous streak along posterior third of fold; a semioval spot of less suffused ground colour around end of cell except above, extending halfway towards dorsum, with posterior edge well defined; posteriorly of this wing rather infuscated, slightly darker along termen. Cilia rather light fuscous, suffusedly barred with pale, ill-defined spots along costa and less so along termen.

Hind wing with pecten; whitish-creamy, with a light violet tinge. Cilia concolorous.

Female genitalia. — Sterigma deeply and regularly excised, end of notch with a narrow short continuation, surrounded by minute wrinkles. Lamella postvaginalis strongly elongate and narrowed caudad, short-pileate, this part flanked by also pileate and bristly lateral lobes. Anapophyses robust, sinuate. Postapophyses almost twice as long and straight. Ductus bursae long, gradually turning into corpus bursae, that is also long, and narrow, without signa.

Distribution. — Madeira Island.

Remarks. — A narrow-winged small light fuscous species with pointed fore wings and little contrasting markings. The paralectotype is very pale and without abdomen.

25. **Carposina gigantella** Rebel
(figs. 18A-D, 26C-D, 27A, 41A)

Carposina gigantella Rebel, 1917: 52, no. 247 (Tenerife, ♀).

Holotype. — ♀/Gen. no. 10903 A. Diak./Carposina gigantella Reb. Type (black and red ink, Rebel's hand)/Schumach. 11.5.14 (black ink)/Tenerifa Orotava 3-4-14/NHMW.

Canary Islands, Gran Canaria, St. Bartolomé, 9-19.V.1965, 1 ♀ GS 10786: 1 ♂ GS 10785 (Pinker). Teneriffe, Guimar, 1 ♂, metallotype, 30.III.1965 (J. Klimesch). 1 ♂, 3.XII.1962 (Pinker). La Palma, Los Lianos, 1 ♂, 17-20.IV.1965 (Pinker) GS 10785. Gran Canaria, Bandana, 1 ♂, 21-22.III.1967; 3 ♂, 7.III.1967 (F. Kasy) GS 10920. J. Klimesch coll. Tenerifa, sep., Beo de Ruiz, 21-25.III.1967 (Kasy & Pinker) GS 10751♂, 10919♂, NHMW.

Description. — ♂, 25 mm, metallotype. Head creamy, vertex with two faint sublateral spots of dark fuscous suffusion, visible in certain lights, face becoming whitish, mixed with dark fuscous. Antenna gently dilated, creamy, dark brown-fuscous above, bases of segments with blackish rings; ciliations over 2;

scape creamy, mixed with dark fuscous scales, except around top. Palpus long, over twice width of eye projecting beyond head, moderately curved downwards, porrected, median segment triangularly dilated by loose long hair-scales above, terminal segment rather smooth, pointed. Thorax without a crest, creamy, finely sparsely dusted with fuscous, tegula densely mixed with dark brown-fuscous. Abdomen creamy, gently infuscated, with a strong golden gloss.

Fore wing oblong-oval, gently dilated, costa strongly curved at base little curved along posterior third, apex moderately pointed, termen almost straight, hardly convex, oblique. Creamy, posteriorly tinged slightly deeper ochreous, finely dusted with black scales. Markings rich brown-fuscous, more or less woolly raised, edged with unobscured ground colour. Basal patch small on costa, to about $^1/_8$, inner edge inwards-oblique, gently emarginate below costa, slightly prominent in fold; a narrow, more inwards-oblique transverse band at $^1/_4$, formed of a bar from below costa to above fold, clavate and bent outwards at lower end and an oblique triangular spot on dorsum before $^1/_3$; an inwards-oblique, suboval spot in lower half of cell before and above middle of fold; posterior discal bar slightly sinuate, along discoidal vein, ends gently clavate, upper preceded by a higher round spot; a blackish dusting, denser in center of wing, more or less interconnecting described discal markings; posterior $^2/_3$ of costa with six blackish dentoidal spots, suffused anteriorly, well-defined and edged with pale ground colour posteriorly, anteriorly slightly more distant; smaller similar but, more triangular black marks on ends of veins along termen and in apex; space between cell dark-dusted only along edges, especially posterior edge, so forming a broad inwards-oblique band of unobscured slightly brighter ochreous-tinged ground colour, with rounded top not exceeding vein 9, outer edge more or less parallel to edge of wing. Cilia creamy, mixed and suffusedly barred with dark fuscous, less so along base.

Hind wing with a strong pecten; pale creamy with on basal half, a silvery, on marginal half, a golden strong gloss. Cilia concolorous.

Male genitalia. — Tegumen broad, triangular, shoulders slightly depressed long-haired. Gnathos halves long, excurved, with dilated base, tops exceeding tegumen, outer side spiny. Vinculum broad, saccus strong, upper half of sides and base with thickened legs, valvae moderately broad, fused mesally, sacculus, a thickened basal irregularly oval sclerite, posterior half forming a free ampulla, a broad base with a long curved sclerotic hook. Anellus, a simple sclerotic collar, open ventrally. Aedeagus very slender, top oblong-clavate, oblique, with a submedian broad split, dark-edged on the left, edge short on the right, with a patch of strong spines.

♀, 25 mm. Similar to the male, slightly differing only in the following minor points. Slightly paler; basal patch larger, more extended along costa, its edge

being a trifle more oblique, consequently; the transverse line at 1/3 less strong, with upper and lower thirds slightly more oblique, its median third less oblique than in the male; edge of discoidal mark not inbent, but gradually moderately convex. Fore wing broader, with end of costa more rounded; termen less oblique and also more rounded. Otherwise similar to the male. Hind wing with a cubital pecten.

Female genitalia. — Eighth segment sclerotic, side lobes broad, finely pileate along caudal and ventral edges, with spread bristles. Lamella postvaginalis as broad as ostium, high, densely radiating-pileate. Ostium a sclerotic cup with accolade-shaped upper edge: sinuate laterally, excised in middle. Colliculum short, almost ovoidal, subsclerotic, densely papillate. Ductus bursae membraneous, wide, but narrower than colliculum, passing without border into the sausage-like corpus bursae. Signa absent.

Distribution. — Canary Islands.

Remarks. — A conspicuous species, very distinct by size, colouring and genitalia.

26. **Carposina sublucida** Diakonoff
(figs. 16A-B, 26G-H)

Carposina sublucida Diakonoff, 1988: 78, figs. 1, 2.

Holotype. — ♂, Canary Is., La Gomera Hermigya, reared from *Eonium* spec. e.l. 28.XII.1966 (J. Klimesch), GS 10038. Allotype, ♀, 24.IV-6.V.1965 GS 10039 (J. Klimesch). In coll. Dr. J. Klimesch.

Description. — ♂, 13 mm. Head whitish, sides of face grey, vertex glossy pale grey. Antenna whitish, faintly ringed with light grey, scape pale grey, marked with darker, top white; ciliations over 1. Palpus rather long, porrected, gently curved downwards, triangularly dilated by a loose tuft in middle above and a small tuft before apex below; light grey, densely dusted with blackish, except the sparsly dusted tuft above; terminal segment blackish. Thorax silvery-grey, mixed with darker. Abdomen glossy creamy. Fore wing sublanceolate, long and narrow, costa moderately curved towards ends, more curved towards base, apex rather pointed, termen slightly convex, very oblique. Whitish, rather sparsely dusted with small grey scales, except inwards-oblique denser grey suffusion across wing and posterior end of cell and a less dense dusting along costa posteriorly, in apex and along termen, here extending halfway towards cell; posterior half of costa with five subquadrate black suffused spots; basal patch well-defined not quite reaching dorsum, on costa to $^1/_6$, grey, edged except on dorsum with black; this edge dilated into a round spot above dorsum; outer edge inwards-oblique, well defined; submedian

fascia black, from $^1/_3$ of costa, parallel to edge of basal patch, not exceeding fold, broken into four subquadrate spots; halfway this fascia and discoidal, an indication of a median fascia, formed only by a small blackish dot just below first costal spot, and another on lower edge of cell, both whitish-edged. Discoidal mark sinuate, ends clavate and rounded, gently edged with whitish; termen from costa before apex and in apex with a black line, dentoidal small black bars on ends of terminal veins, two bars in tornus larger and separate. Cilia whitish, slightly mixed with grey, basal half with suffused and indistinct greyish blotches between terminal bars.

Hind wing without cubital pecten; whitish with a creamy gloss, cilia concolorous.

♀ 14 mm. Paler, due to slight rubbing, but with most markings of the male recognizable; dot on lower edge of cell somewhat extended, irregular. Top of abdomen light silvery grey. Otherwise as male.

Hind wing with a cubital pecten.

Male genitalia are very distinct. Tegumen semispherical. Uncus triangular, pointed, with broad base. Gnathos arms thick, heavy, with excurved tops, without median cavity, massive, base dilated, sessile, (not angulate, nor recurving), with a median strip of strong spines from top to base. Vinculum broad, top truncate. Valva broad short and curved, top rounded, sacculus $^1/_3$, ampulla large, angulate and transverse, with base marginal and bifid, apical part directed distad, thick, tip acute; cucullus bristly along margin. Transtilla apparently small but labis very large and stout. Aedeagus clavate, stalk moderate, over $^1/_2$, apex oval with a split top, a patch of long spines at the left, a single spine at the right side.

Female genitalia. — Postapophyses slightly, but abruptly dilated at 1/3 from bases, bases strongly dilated. Anapophyses simple and straight. Lamella postvaginalis finely aciculate. Ostium and colliculum rather wide, subsclerotic, spinulate above, becoming finely reticulate below, with honeycomb structure. Ductus bursae moderately long passing imperceptibly into a longer tubular corpus bursae, with rounded end, without any signa. (A moderately undulate long tubular spermatophore present, with a simply rounded end).

Remarks. — A small, pale species with characteristic markings, moderately resembling *C. berberidella*, but much smaller and paler, with only one subterminal fascia and distinct genitalia.

The aberrant gnathos arms, the shape of the valva and the unusual ampulla suggest a subgeneric distinction of this species, but other characters are quite normal.

Carposina cinderella Diakonoff
(figs. 16C, 26F)

Carposina cinderella Diakonoff, 1988: 80, fig. 3.

Holotype, — ♀, Canary Is., Tenerife, Guimar (Pinker). GS 10040. NHMW.

Description. — ♂, 16.5 mm. Head light grey, vertex slightly infuscated. Antenna (missing but for a stump), whitish, grey-ringed. Palpus rather long, porrected, dilated by roughish scales beyond middle, grey, outwardly densely suffused with blackish-grey. Thorax grey, sprinkled with blackish-grey. Abdomen glossy slaty-grey, top becoming whitish.

Fore wing oblong, sublanceolate, rather narrow, costa gently curved throughout, apex subobtuse, termen gently convex, oblique. Whitish-ochreous, densely dusted with dark grey, except along posterior edges of dark fuscous markings. Basal patch conspicuous, from $^1/_6$ of costa, edge raised, well-defined, very inwards-oblique and gently concave; a transverse moderate band at $^1/_3$, parallel to edge of basal patch, dark fuscous, formed of three spots: costal largest, triangular, median rounded, dorsal subtriangular, with base obliterate; space before this band coarsely strewn with dark grey scales except edges, space beyond band finer strewn, dusting forming a darker large blotch on upper half of cell, filling out this half, extending to discoidal spot and extending downwards slightly beyond it; discoidal blackish posterior edge strongly sinuate and well defined, anterior fused with suffused blotch; posterior half of costa with some fine dark fuscous obliquely transverse marks of diverse size, rather obscured by dark streaks along veins; veins beyond cell all streaked with blackish, streaks becoming thicker on margin; a transverse, slightly attenuated band of fuscous suffusion well before termen, preceded by an ill-defined parallel patch of light ground colour, from below costa to dorsum, hardly dusted with darker but not quite interrupting dark steaks on veins. Cilia whitish-ochreous, rather infuscated and with faint large greyish blotches between veins.

Hind wing with a slight cubital pecten; light grey, becoming suffused with dark grey from middle to costa. Cilia concolorous.

Male genitalia. — Tegumen broad and slightly depressed. Uncus conical, with laterally extended shoulders, submembraneous throughout. Gnathos arms not exceeding uncus, rather thick, without median cavity, upper half with lateral spines, lower, with spiculae. Vinculum large, almost $^1/_2$ length of valva, triangular, top obtuse, base thickened. Valva rather short, posterior half narrowed, bristly except along costa, top obtuse; sacculus oval, sclerotic, ampulla at its top, moderate, straight and obtusely pointed with longitudinal cracks. Aedeagus as long as valva, straight, stalk $^1/_2$, top rather irregular, with a

single patch of long spines in disc, to the left from middle.

Distribution. — Canary Islands.

Remarks. — A medium-sized species, with much narrower and more greyish tinged fore wings than in *C. gigantella* Rebel. Again the genitalia are decisively distinct from other known species, by the shape of the heavy gnathos arms and of the valva, sacculus and ampulla.

28. **Carposina anopta** Diakonoff
(figs. 17 A-D, 27C-D)

Carposina anopta Diakonoff, 1988: 81, figs. 4-7.

Holotype. — ♂ Madeira, Rabacal, 1000 m, 18.iv.1967 (F. Kasy leg.), GS 10749. ♀ allotype, the same locality and collector, GS 10748. NHMW.

Secondary material. — ♂, paratype, the same locality and collector, GS 10754. RMNH.

Description. — ♂, 15-17 mm (holotype 17 mm). Head white, vertex with grey spots, face glossy, silvery white. Antenna creamy with tawny rings, finely long-ciliate, cilia appressed. Palpus 1 $^1/_2$ times length of head, tawny fuscous, upper edge white, with a loose triangular tuft of long white hairs, terminal segment moderate, subacute, white-tipped. Thorax glossy white, with a pattern of fuscous marks, arranged thus: a central ring with a bar to the head, another longer one, to the apex, and a pair of thick short bars, obliquely to the sides; metathorax white. Abdomen creamy-white, glossy.

Fore wing oblong-suboval, narrow, broadest at $^2/_3$, costa moderately curved at ends, almost straight in middle, apex pointed-subobtuse, termen a trifle sinuate, almost straight, oblique. Glossy creamy white, scattered with separate dark fuscous dots throughout and marked with dark fuscous slightly suffused spots. Basal patch fuscous, to $^1/_6$ of costa, with edge darker fuscous, straight, strongly inwards-oblique, moderately roughened with elevated scales; a paler small spot beyond extreme base of dorsum; costa from before $^1/_3$ to apex with seven moderate, dark brown spots, first and second more distant, about equidistant with edge of basal patch, second slightly submedian; second to last rather equidistant, slightly oblong, truncate posteriorly; an oblique series of three rounded and raised scale-tufts, equidistant, parallel to edge of basal patch, from below and just beyond first costal spot, to below fold; an oblong, outwards-oblique large tuft below lower edge of cell at $^2/_5$ of wing; an inwards-concave tufted streak along end of cell, pale-edged posteriorly, with a dark spot between this and fourth costal spot; a pale area beyond these markings reaching to tornus, more or less narrowed upwards, not quite reaching costa; apical and terminal edge narrowly dark fuscous, slightly dilated on ends of terminal veins. Cilia creamy, suffusedly barred by grey, with a

supramedian and a basal creamy line.

Hind wing with a cubital pecten; white with a silky gloss and a finest greyish suffusion towards costa and apex, veins finely marked slightly darker. Cilia concolorous.

♀ 18 mm. Head as in male, antenna unicolorous fuscous. Palpus over 3 times length of head with a loose whitish tuft above becoming shorter posteriorly, and a more appressed rough fringe towards apex of median segment below, whitish, lower half mixed with fuscous. Otherwise very similar to the male, but less densely dusted, with dark markings more extended, but paler; wing beyond cell less darkly suffused throughout, with a faint subterminal fascia from penultimate costal dot, to dorsum before tornus.

Hind wing with cubital pecten; narrowly oblong-suboval, unicolorous greyish-white.

Male genitalia. — Tegumen moderate, rounded-truncate. Uncus, a pointed, slender cone, beset with short hairs. Gnathos arms very slender, thin and hyaline, slightly clavate, with a median streak of small aciculae. Vinculum strong, darkly staining, end obtuse. Valva small, oblong-oval, with a rounded top, thinly bristled along edge, except costa, sacculus under $^1/_2$, darkly staining, ampulla a simple spike with a gradually dilated base, in lateral aspect concave. Aedeagus awl-shaped, filled with cornuti, very long.

Female genitalia. — (Ovipositor missing). Ostium and colliculum, a wide, gradually narrowed tube, its upper third sclerotic and simple, with a small triangular frontal prominence of the upper edge, lower 2/3 of the tube minutely reticulate. Ductus bursae rather wide, minutely aciculate-granulate. Signa absent.

Remarks. — A narrow-winged, small species, of the same appearence as *C. atlanticella* Rebel, but distinct by darker tinge, slightly larger size and quite different female genitalia.

The genitalia of the female type of *atlanticella* (collecting locality "Madera") are quite different from those of *anopta*. Furthermore we are satisfied that the males and female of *anopta* from Rabacal are sex partners, originating from this very secluded and peculiar locality[6]). That implies that also the third known male with the identical label data, studied by the late N.L. Wolff is *anopta* and not *atlanticella*, as named by Dr. Bradley. Males of the latter species are still unknown.

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[6]) The wooded top of a secondary ridge inside a canyon on the top of a high plateau above the wood line, in western central part of the island of Madeira.

VI. **Archostola** Diakonoff
(fig. 7)

Archostola Diakonoff, 1949: 40, figs. 1, 6 (recte 2), 5 (recte 3).
Type-species, *Archostola tredecim* Diakonoff (♂♀, Sumatra).

Now that more species have come to our knowledge, the diagnosis of the genus should be extended and slightly corrected, as follows.

Description. — Head with loosely appressed scales, side tufts spreading. Ocellus absent. Haustellum developed. Antenna in male usually with long fine ciliations, in female simple. Labial palpus in both sexes moderate, longer in female, sometimes very long: in male porrect, median segment moderate, sometimes slightly down-curved, or long, with appressed scales, projecting above and beneath, more so in female. Thorax smooth. Posterior tibia with roughish hairs above.

Fore wing with small tufts of raised scales, vein 1b furcate at base, 2 from

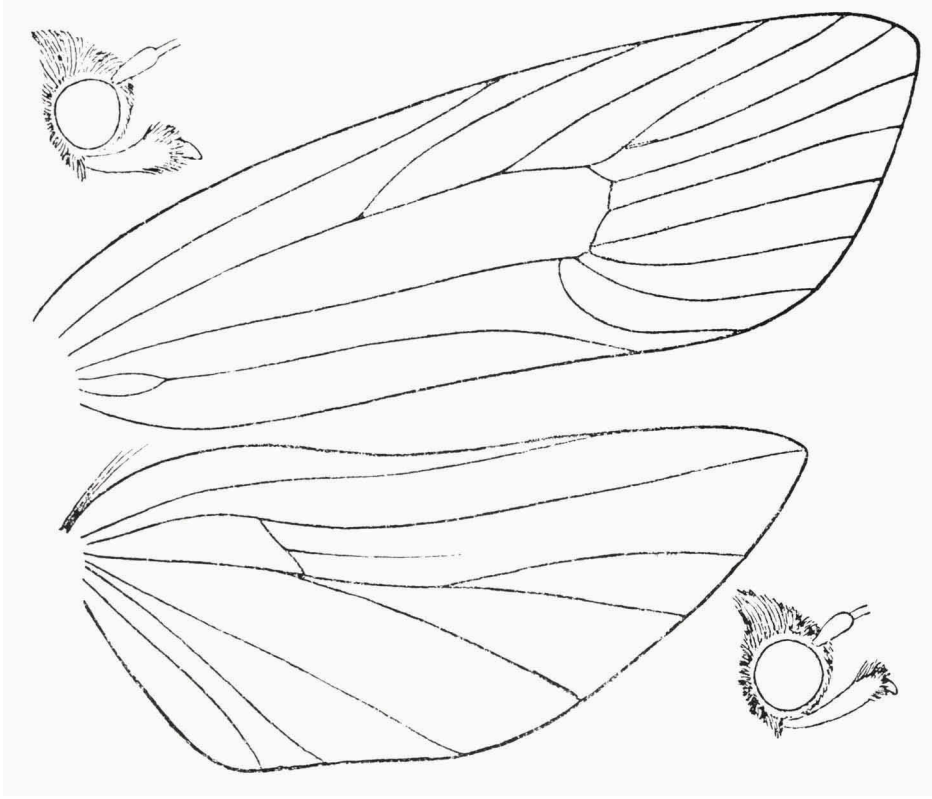

Fig. 7. *Archostola* Diakonoff, sketch of wing venation and heads: left ♂, right ♀ (After Diakonoff, 1949a).

before angle, 3 from angle, 4 closely aproximated at base, 7 separate to termen, 8 and 9 stalked, 10 from halfway base of 11, 11 from beyond middle.

Hind wing elongate, trapezoidal-ovate and pointed, with a cubital pecten in female, mostly absent in male; cell sometimes very short, under $^1/_3$ of wing length, vein 2 from $^3/_4$, at base approximated to lower edge of cell, 3 and 4 stalked from angle, 5 absent, 6 submedian, traceable as a short branch from the discoidal vein, obliterate posteriorly, 7 to apex.

Remarks. — A genus with simplified, plesiomorphous male genitalia, with an uncus present but small, while the valvae are simple and flat, rather tortricoid, with only slightly modified and weakly developed sacculus terminating in a free sclerotic rod, and a simple unarmed aedeagus. The short cell in the hind wing of the type-species must be rather a specific than a generic character.

Note. — In the original paper (Diakonoff, 1949: 42), the numbers indicating figures on the plate of p. 42 have been partly confounded, while those in the caption to the plate and in the text are correct. The numbers on the plate should be changed as follows: fig. 2 should be 6, 3=5, 5=3 and 6=2. (Nos. 4, 7, and 8 are correct).

29. **Archostola ocytoma** (Meyrick) comb. nov.
(figs. 10D-E, 15B, 27G-H, 41D-F)

Meridarchis ocytoma Meyrick, in Caradja & Meyrick, 1938: 14. Literature. — Diakonoff, 1950: 296 (lectotype designated). — Clarke, 1963: 57, figs.

Lectotype. — ♂: Likiang, China, 10500-12000' H. 17.8.35. GS 9413. BM (NH). (Designated by Diakonoff, 1950).

Secondary Material. — China, Province N Yunnan, Li-kiang, 26.VIII.1935 (H. Höne), male redescribed, GS 10794; the same locality and collector, 17.VIII.1935, ♀, metallotype, GS 10792; The same, 6.IX.1935, ♀, GS 10802; the same locality and collector, three males, GS 10773, 10779 and 10780, of 16.VIII, 16.VIII and 19.VIII.1935, respectively. MAKB.

The same locality and collector as above, 1 ♂, 20.VIII.1935, GS 10877, "Lectotype, Meridarchis ocytoma Meyr., ♂, Des. A. Popescu-Gorj" (red cadre; designation not published). 1 ♀, 26.VIII.1935, GS 10879; 1 ♂, 19.VIII.1935 (abdomen missing). 1 ♂ GS 10873, "Meridarchis scytoma" (black cadre, err. calam.). 19.VIII.1935, 6 ♀ GS 10905, 10906, 10907, 10908. — China, A-tun-tse (Nord Yuennan) mittlere Höhe (ca 4000 m), 12.VIII.1936, H. Höne, GS 10704, 1 ♀. — China, Nord-Yünnan, Likiang, the same collector, 1934, all female paratypes: 13.VII, GS 10906; 23.VII, GS 10907; 4.VIII, GS 10908; 6.VIII, no abdomen; 12.VIII, GS 10905. China, Nord-Yünnan, A-tun-tse, mittlere Höhe (ca 4000 m), 12.VIII.1936. H. Höne, ♀ GS 10904. MGAB.

Description. — ♂, 23 mm. Head silvery-white. Antenna silvery-white, with long, fine ciliations, 3-4 times as long as diameter of flagellum. Labial palpus in male long porrect slightly bent downward in middle, edges roughish, upper edge in middle angularly prominent by a tuft of loose scales, terminal segment slender, pointed, very gently curved down. Palpus in female longer, without dorsal tuft, more gradually curved downwards. Thorax white (rubbed). Abdomen whitish.

Fore wing rather broad, with veins 8 and 9 stalked, 11 from middle of cell; costa gently curved, more so at base, a trifle concave in middle, broadest at $^3/_4$, apex pointed, termen gently sinuate above, oblique. Silvery-white, markings grey-fuscous and blackish-fuscous. Basal patch indicated by a streak along $^1/_6$ of costal half of wing, lower edge suffused; costa with six blackish-fuscous rather oblong spots, first at $^1/_3$, second median, second to fourth equidistant, ultimate pair slightly more distant, as far from each other as from apex; two parallel, strongly inwards-oblique, transverse streaks, blackish, slightly spindle-shaped, first from below first costal spot, to above dorsum, second streak from below fourth costal spot, along discoidal vein, to lower angle of cell; preceded by a fuscous suffusion that is not reaching middle of wing and becoming darker posteriorly, except a circular white line around upper part of discoidal streak; a suffused transverse pale fuscous band from below the ultimate pair of costal spots, parallel to termen, hardly reaching tornus; a row of distinct triangular blackish spots along termen on ends of terminal veins. Cilia creamy, with a median band of broad suffused grey bars.

Hind wing silvery-white, subpellucent, touched except dorsal third, with pale fulvous. Cilia white.

♀, metallotype, 23 mm. Similar to the male, but slightly more infuscated. Labial palpus long, four times diameter of head, median segment straight, rather slender with a scale-tuft in middle above, terminal segment rather long, slender, obtuse; white, basal half of median segment black. Thorax slightly infuscated.

Fore wing more dilated, broadest at $^4/_5$, apex slightly produced. Basal dark streak on costa oblong-semioval, well-defined; first transverse streak well-defined, more slender, slightly inwards-concave, ends more truncate; second (discoidal) streak distinct only in middle, elsewhere obscured by a light grey suffused transverse band, on costa extending over spots 2-4 to before apex, anterior edge median, rather straight, posteriorly delimited by closing vein, edged with white and angulate on lower angle of cell, rather suffused and paler towards dorsum; six terminal dots, smaller and fainter. Hind wing whiter than in male.

Male genitalia. Uncus moderate ovoid-rhomboidal. Gnathos arm very characteristic: a slender, darkly sclerotic rod, running rostrad, then curving in a semicircle frontally (actually caudad), supporting the edge of a membraneous small conical sac, directed outwardly. Vinculum broad and rather flat, with a pointed median saccus-like process and an oblong small juxta, originating from the point of connection of extreme ventral ends of valvae. Valva oblong, sacculus sclerotic, its end reaching to end of valva, turning downwards, denticulate; a smooth rod from beyond middle of sacculus curving across disc of valva to origin of costa. Aedeagus with the third apical third little dilated, oblong and simple.

Female genitalia. — Eighth segment rather small, sclerotic, top abruptly narrowed, with a wreath of strong bristles; lateral edges strong, semioval. Lamella postvaginalis a distinct circular sclerite. Ostium with outer edge triangularly excised, sides of excision rolled outwards, surface aciculate. Surface of sterigma proper with dense, fine vertical wrinkles and a median narrow split. Ductus bursae long, simple. Corpus bursae simple, rather small, ovoidal. Signa absent.

Distribution. — China.

30. **Archostola niphauge** spec. nov.
niphas = snow, *auge* = gloss
(figs. 27E-F, 42A-B, 43A)

Holotype. — ♂, China, Province N Yünnan, Li-kiang, 30.III.1934 (H. Höne leg.) GS 10793. The same, ♀, allotype, GS 10790. MAKB.

Description. — ♂, 22 mm. Head and thorax glossy white. Antenna white, with long, fine ciliations, 3-4. Labial palpus in male long, porrect gently curved down, rather smooth, terminal segment porrect and pointed: palpus in female longer, upper edge with a loose tuft before middle, lower edge with a similar tuft at apex, terminal segment robust, subacute, slightly curving down. Thorax and abdomen whitish.

Fore wing with veins 8 and 9 stalked; 11 from middle of cell, dilated, broadest at $^4/_5$, costa gently curved, more so at ends, apex acute long, termen deeply sinuate, strongly oblique; silvery-white, along costa faintly suffused with pale grey. Markings jet-black. An oblong-oval basal spot along $^1/_6$ of costa; costa with six black spots, three anterior rather narrowly marginal, other more transverse, larger except ultimate one, and slightly suffused; first spot slightly before $^1/_3$, second submedian; posterior five tolerabely equidistant; an inwardly oblique transverse suffused spot across cell from below first costal spot, a narrower transverse one along closing vein, at top dilated in a strongly inwards-oblique oblong dot, preceded by a larger horizontal spot on upper edge of cell below second and third costal dots; a paler small suffusion at $^2/_3$ of lower edge of cell; apex and ends of terminal veins with seven small black marks. Cilia creamy, with an irregular pale fuscous median band.

Hind wing: cubital pecten absent in male, vestigial in female; rather dull greyish-white, towards costa and apex touched with cinereous. Cilia pale grey with a white base.

♀, 21 mm. Similar to the male, but all markings rather suffused, pale fuscous, fore wing slightly broader, less acutely pointed, faintly dusted with grey, discoidal vein more infuscated. Hind wing glossy silvery-white.

Male genitalia. Tegumen broadly spherical, top with a deep impression: in this fits small subsclerotic uncus, with lower half conical, upper cylindrical. Gnathos arm sclerotic, an oblong lateral sclertite, triangularly projecting mesad, topped with a moderate slender sclerotic hook, with a densely sculptured and aciculate surface. Vinculum flat with a rounded short saccus. Valva long, subsclerotic, with a sclerotic sacculus with a free, denticulate apex. Cucullus extended, obliquely rising, densely and finely haired. Aedeagus moderate, with a sclerotic simple oval top.

Female genitalia. — Eight segment subsclerotic except its top, bristles long only at the sides, small in middle. A transverse dark subapical fold. Lateral folds rather narrow. Lamella postvaginalis, a delicate oval erect sclerite with an emarginate upper edge. Ostium wide, unmodified. Sterigma subsclerotic, finely, evenly aciculate. Ductus bursae narrow, long, with a granulate wall. Corpus bursae membraneous, simple.

Distribution. — China.

Remarks. — Slightly rubbed pair, very distinct by the male genitalia. Judging from these related with, but distinct from *M. amblystoma* spec. nov., although superficially rather similar. Also similar externally to *M. ocytoma* Meyrick, but actually the male genitalia more remote.

31. **Archostola amblystoma** spec. nov.
amblys = obtuse, *stoma* = mouth
(figs. 28A, 42C-F)

Holotype. — ♂, China, Province N Yünnan, Li-kiang, X. 31.VIII.1934, (H. Höne leg.), GS 10788. Allotype, ♀, the same data, GS 10789. MAKB.

Secondary material. — 10 ♂, paratypes, the same locality and collector, 4-31.VII.1934 and 1935; the numbers of the genitalia slides are as follows: 10781 (9.VII.1934), 10791 (31.VII.1935), 10793 (9.VII.1934), 10795 (4.XII.1934), 10796 (9.VII.1934), 10797 (9.VII.1934), 10798 (26.VII.1935), 10799 (10.VII.1934), 10800 (17.VII.1934), 10803 (9.VII.1934). One ♂ not dissected. MAKB.

The same locality and collector, ♂, 10886 (7.VII.1934), ♂ 10887 (12.VI.1934, ♂ 10888 (11.VI.1934, "Maridarchis ocytoma Meyr.") 10878 (same date and name label). MGAB.

Description. — ♂, 22 mm. Head white, occiput with a pair of irregular fuscous lateral spots. Antenna white, ringed with tawny, scape white with fuscous mark at base above; with long fine ciliations, 2-3. Labial palpus moderately long, dark fuscous, white inside, median segment porrected, slightly angulate in middle, with posterior half of upper edge white, terminal segment very short, obtuse, white. Thorax white, mixed with tawny. Abdomen white, dorsum slightly infuscated.

Fore wing with veins 3 and 4 connate, 8 and 9 stalked, 11 from beyond middle; costa rather curved along basal third, straight beyond, curved towards

apex, apex pointed, slightly produced, termen sinuate, little oblique. White, partly finely dusted and suffused with light fuscous-tawny. Basal patch to $^1/_6$ of costa and middle of base, semi-oval, tawny with blackish posterior end; costa from $^1/_3$ to $^3/_4$ with four dark fuscous subquadrate spots and a pair of approximated small dots before apex; an ill-defined tawny inverted-trapezoidal suffusion, with base including four larger costal dots, becoming denser and darker posteriorly, top not reaching lower edge of cell; closing vein with a tawny fasciate blotch of raised short scales, from lower angle continued by a narrower and more outwards- oblique, small streak to end of vein 1b; so blotch and streak angulate on end of cell; the blotch narrowly edged with white around its upper half; a somewhat irregular short and thick transverse spot in cell at $^1/_4$ of wing, irregularly extending below to and beyond lower edge of cell, slightly inwards-oblique; this edge and vein 1c narrowly tawny; an ill-defined light tawny straight preterminal band, appearing zig-zag because of slender anterad-directed extensions along veins; a row of subtriangular dark tawny-fuscous marks along termen on ends of veins; wing sparsely threwn with dark fuscous scales and slightly dusted with tawny along dorsum. Cilia creamy with a fuscous suffused pale apical and a darker and broader submedian band, both with suffused darker broad bars.

Hind wing without cubital pecten; pale grey-fuscous, rather dull, with slight silky gloss. Cilia dull creamy, with very faint narrow apical and broad submedian pale grey suffused bands.

♀, 23 mm. Similar to the male. Labial palpus long, over 2½ times the diameter of head, porrect, slightly curved, on upper side bearing dense fringe of thin scales, terminal segment very short, subobtuse; fuscous, upper half pale tawny. Thorax white with a few fuscous irregular spots, shoulder with a fuscous blotch. Abdomen whitish.

Fore wing narrower than in male, costa less curved at ends. White, denser dusted and marked with tawny; costal spots larger, subquadrate, first largest; discal mark raised, stronger inwards-oblique, large, club-shaped, round thick top edged with whitish; median suffusion darker tawny and larger, reaching to dorsum, with anterior edge ill-defined, concave below cell; discoidal more obscured by tawny suffusion, also white-edged, scales slightly raised; posterior edge of suffusion straight, from fourth costal spot to $^3/_4$ of dorsum; this suffused except posteriorly. Otherwise as male.

Male genitalia. — Tegumen triangular, subsclerotic. Uncus small, onion-shaped, pointed, subsclerotic. Gnathos arm little modified: simple subsclerotic edge, below middle forming an obtusely triangular projection. Valva rather long and narrow, longer than in *ocytoma*, cucullus smaller than in *niphauge*. Vinculum very flat, with a robust, truncate saccus. Aedeagus long, with dilated large top ending in a slender point.

Female genitalia. — Eighth segment little modified, but gently subsclerotic only on lamella postvaginalis, being a finely papillate-pileate ill-defined sclerite. Ostium wide, with the same surface. Sterigma (lamella antevaginalis) membraneous, with a triangular split above and a median fold below parted in two, each half with an oval strongly papillate field. Colliculum present, long, simple, membraneous, ductus bursae rather wide, malleate-papillate, corpus bursae simple.

Distribution. — China.

Remarks. — Recognisable by tawny, instead of cinereous tinge (as in *ocytoma*). Apparently an intermediate species between *ocytoma* and *niphauge*, but all three with quite distinct female genitalia.

32. **Archostola martyr** spec. nov.

martyr = witness

(figs. 28H 43B-C)

Holotype. — ♂, China, Province N Yünnan, Li-kiang, 28.VIII.1935 (H. Höne leg.), GS 10889. MGAB.

Description. — ♂, 18 mm. Head and thorax white. Antenna white, with very long white ciliations: 4-5. Labial palpus with median segment long, porrect, loosly scaled above and beneath, whitish, upper and more so lower edge touched with grey; terminal segment slender, smooth, rather long, curving down. Abdomen whitish.

Fore wing shaped presumably as in *A. amblystoma* spec. nov. White, dusted with light fuscous. Base of costa with an oblong fuscous spot, well defined, elongate-semioval; a small fuscous spot at 1/4 of costa, another, larger, fuscous mark in cell, below and slightly before preceding, its posterior edge notched in middle (posterior half of left fore wing and the right fore wing missing).

Hind wing without cubital pecten; glossy white, tinged pale fulvous cilia concolorous.

Male genitalia resembling those of *A. niphauge* spec. nov., but valva shorter, with a small cucullus lobe, sacculus at base with an only indicated longitudinal sclerotic "rib", tegumen similar, a wide sac with a slight gully at the back; uncus peculiar, a convex "stalk" (process of the tegumen), with an articulating lozenge-shaped sclerite on top (the actual uncus); gnathos arms apparently represented by membraneous roundish lateral bodies, supported by thin curved rods. Juxta sclerotic, a slender rod. Aedeagus moderately long, with a rather thick stalk and a simpler, elongate clavus without cornuti.

Distribution. — China.

Remarks. — A single specimen in poor condition, but with the genitalia

characteristic and distinct. The species is nearest to *A. niphauge* spec. nov., but differing at once by the vestigial gnathos, distinctly developed in the former species, and by the small lobe of the cucullus.

A label in ink, apparently in Meyrick's hand, reads "*Meridarchis ocytoma* Meyr."

VII. **Meridarchis** Zeller
(fig. 8)

Meridarchis Zeller, 1867: 407. – Type-species, *M. trapeziella* Zeller, by monotypy.
Autogriphus Walsingham, 1897: 59. – Type-species, *A. luteus* Walsingham, by original designation.
Pexinola Hampson, 1900: 79. – Type-species, *P. longirostris* Hampson, by monotypy.
Propedesis Walsingham, 1900: 122. – Type-species, *P. excisa* Walsingham, by original designation.
Tribonica Meyrick, 1905: 590. – Type-species, *T. eremitis* Meyrick, by monotypy.

Discussion. — The above series of four synonyms is recorded by Meyrick (1922), without taking the genital characters into account.

Except for *Propedesis* Walsingham, from Japan, the true identity of the three other synonyms could not be ascertained, for the males of the respective type-species remain unknown. Nevertheless, it seems most likely that these synonymies are correct. The name *Propedesis* has been reestablished recenty as distinct from *Meridarchis* by Kawabe (1984), but the male genitalia of the type-species, *P. excisa* show that *Propedesis* is a synonym.

Discription. — Head with appressed scales, patagia roughish. Ocellus and haustellum absent. Labial palpus in male long, exceeding diameter of head, porrect, short-scaled, roughish along edges, mostly with a triangular tuft of loose scales in middle of upper edge, median segment slightly dilated, terminal segment pointed, short, slightly drooping or with tip turned down. Thorax smooth.

Fore wing long, oblong-triangular, termen oblique; with tufts of raised scales on surface (easily rubbed away and disappearing in worn specimens). Vein 2 from towards angle, 3 and 4 close together from angle, connate or, seldom, stalked, 7 to termen, 8 and 9 stalked, 11 close to base of 10, from before middle.

Hind wing oblong-triangular, with a long apex and often, concave upper part of termen; with a cubital pecten, larger in female. In male mostly an androconial slender and very long, expancible pencil of bristly hair-scales, usually ochreous or orange, from under a small plate or a round impression at the base of cubital vein, above the cubital pecten, usually flatly appressed to that vein, reaching $^1/_2$-$^3/_4$ length of wing, sometimes concealed, except its base,

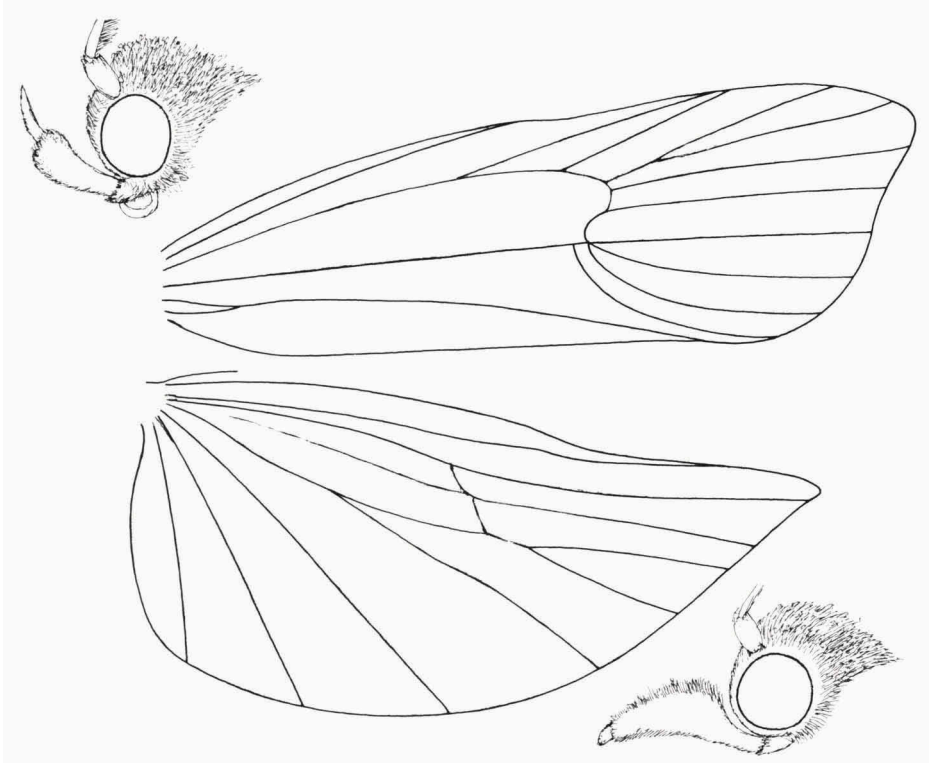

Fig. 8. *Meridarchis trapeziella* Zeller, sketch of wing venation and heads: left ♂, *M. trapeziella*; right, ♀ of *M. crotalus* spec. nov.

under the dorsum of fore wing, often so closely appressed to wing that it looks like a narrow streak of colour so escaping attention. Vein 2 from before angle of cell, 3 from angle, free, connate or stalked with 4, 5 absent, 6 weak but traceable from base to margin of wing, slightly supra-medianly traversing discoidal vein, 7 to just below apex.

Male genitalia. — Uncus long and slender, usually hooked. Tegumen with large replicate folds diversely developed in a paired, sometimes asymmetrical gnathos, often with large sclerotic cusp, tumescences, etc. Valvae not or slightly fused, long and narrow, with a small harpe towards base of disc, sacculus short with a subbasal ampulla. Anellus lobes present. Aedeagus spoon-shaped, sometimes with enormous cornuti.

Female genitalia. — Sterigma very diverse, mostly well developed. Colliculum present. Corpus bursae ovoidal. Signa paired, bi-pronged.

Remarks. — The species are numerous and diverse, with variable neuration, but the male genitalia are characteristic by the developed, sometimes asymmetrical gnathos, simple, slender and long valvae, and a long, thin uncus.

Aedeagus has strong spoon or spade-shaped clavus and rich assortment of large cornuti. The females usually have complicated sterigma, but still cannot be identified as belonging to the genus without the corresponding males.

Superficially the males are characteristic by the possession of the androconial cubital pencil at the base of the hind wing upper side.

33. **Meridarchis excisa** (Walsingham) (figs. 13D-E, 28B-C, 43D, 44A-B)

Propedesis excisa Walsingham, 1900: 123 (Japan). Literature. — Meyrick, 1913a: 4. – 1922: 4. – Inoue, 1954: 77. – 1958: 456. – Issiki, 1959: 269, figs. – 1957: 36. – 1973: 36 – Okano, 1959: 269, figs. – Kawabe, 1982, 1: 290; 2: 216, figs. – Kuznetsov, 1986: 22, figs.

Holotype. — ♀/Holotype (red-edged disc)/Japan, Pryer, 1886, 70602 (print)/Walsingham Collection 1910-427 (print)/Propedesis excisa Wlsm. Ann. & Mag. N.H. (.5) No. 912 (4) 1900 (ink, black cadre))/BM Genitalia Slide ♀ 23594/. BM(NH).

Secondary material. — Japan, Honshu, Uradani, 900 m, Kitashigara-gun Aichi Pref. 29.VI.1977, 31.V.1975, 3 ♂; the same, 31.X.1975, GS 10810. ZLMU.

Japan, Honsyu, Seibu, Aki, Sandankyo, 6.VI.1953 (S. Issiki), 1♂, 1♀. — Shikoku, Iyo, Zyozynsyo, 1450 m, 12.VI.1961 (Saito). — Hokkaido, Tonakomai, 26.VI.1919 (S. Issiki), 1♂, 1♀. Issiki Collection. USNM.

Description. — ♂, 18.5 mm. Head snow-white. Antenna pale tawny, above white finely dark-ringed, ciliations 4, or longer, white. Labial palpus moderately long, triangular, rather smooth, terminal segment very short, obtuse; white inwardly and along upper edge, outwardly black edge of this colour suffused; apex of median segment above touched with black. Thorax whitish, tegula snow-white, shoulder black. Abdomen creamy with a strong pale golden gloss.

Fore wing with veins 8 and 9 short-stalked, from before middle, costa rather curved at base, almost straight in middle, little curved towards apex, apex long, pointed, termen concave above, rounded beneath. White, sprinkled with pale fuscous-grey, markings black. Basal patch slightly under $^1/_6$ of costa, edge faintly scobinated, convex, reaching almost to dorsum, its basal third white, with an irregular edge; this white base reducing black basal spot below fold to a narrow bar; costa with six black spots, first at $^1/_3$, second just before middle, second to fourth equidistant, fourth largest, quadrate, fifth halfway to apex, sixth faint; a darker grey costal suffusion between first and third spots; a slightly sinuate, strongly clavate black mark along discoidal, with posterior edge raised and finely margined with white; a slender outwards-oblique and convex stria from lower angle of cell to dorsum; posterior half of cell filled out with dark grey suffusion, becoming pointed anteriorly, with three small dots along its upper edge; a small transverse mark above $^1/_3$ of dorsum; preterminal

band pale fuscous-grey, formed by irregular irroration, straight, from fifth costal spot almost to tornus; some five black dots along termen on ends of veins. Cilia white, with a sinuate pale grey submedian band, narrow around apex, preceded by a faint subapical narrow band, both bands becoming ill-defined in tornus.

Hind wing with cubital pecten replaced by a dense creamy short pencil of hair-scales, flatly appressed to wing and easily escaping attention; veins 3 and 4 short-stalked; costa subconcave along upper half. Creamy-greyish, with a silky gloss, apical third becoming suffused with slightly darker grey. Cilia creamy.

♀, 20 mm. Similar to the male, differing very slightly as follows. Labial palpus similar as to the shape and colour, but more elongate. Fore wing with first costal spot larger, well-defined, three following paler, suffused and slightly more interconnected by greyish dusting along costa; discal black spot denser but shorter; a more distinct oblique group of four raised scale warts (tufts) from below first costal dot to below fold, median wart slightly shifted posterad; edge of basal patch and that of discoidal streak more distinctly raised; preterminal band more suffused; terminal dots ill-defined.

Male genitalia. — Tegumen broad, subspheroidal, top truncate. Uncus slender, a moderate hook with a pair of lateral bristles. Gnathos arms sclerotic, left one longer and more curved, basal $^2/_3$ oblong-oval, top part slightly tortuous, apex pointed. Vinculum moderate, with base narrower than that of tegumen, arms slender, apex thickened. Valva long, slender, basal third broader, rest very narrow, sacculus subsclerotic, well-defined, 1, with weak long bristles throughout. Aedeagus with clavus slightly under $^1/_2$, oblong, right side with a strong pecten of long bristles, those at apex very long; left half of clavus clothed with dense thin bristles.

Female genitalia. — Eighth segment moderately sclerotic. Lamella postvaginalis throughout with minute punctulations, evenly spread on upper half, arranged in horizontal rows on lower half. Ostium a very wide membraneous sac (in mount broad upper edge folded over), coarsely papillate-pileate, denser so towards sides, an irregular triangular median area rather smooth. Colliculum slightly narrower, membraneous, upper narrow part smooth, followed by a band of strongly wrinkled thin membrane, thence colliculum hyaline and thick-walled, hardly narrower, smooth distally, becoming weakly papillate proximally, less than lower quart forming a double oval densely papillate and obliquely directed to the left side, abruptly changing to membraneous, rather wide ductus bursae, that is as long as ostium and colliculum together. Corpus bursae ovoidal, membraneous. Signa with a small and massive base, prongs rather short, slightly irregular, rather thick.

Distribution. — Japan. USSR: S Maritime District.

34. **Meridarchis crotalus** spec. nov.
krotalos = a rattle
(figs. 8, 20C-D, 29A-B)

Holotype. — ♂, USSR, S Marítime District, environs of Ussuriisk (V.I. Kuznetsov leg.), 1966, GS 10774. The same, ♀, allotype, 10775. ZIAN.

Description. — ♂, 17 mm. Head white. Antenna pale ochreous. long-ciliate, ciliations 4-5; scape white. (Labial palpi missing). Thorax very pale grey, tegulae white. Abdomen white with a pale fuscous irridescence in certain lights, anal tuft large, creamy-white.

Fore wing with veins 8 and 9 closely approximated at base; oblong, rather narrow, little dilated, broadest in middle. White, sparsely dusted with fine black points, at some places forming grey suffusion. Basal patch black, well defined, not reaching 1/6 of costa, not quite reaching dorsum, with edge regularly three-dentate, dents rectangular: costa with six black or dark grey spots, first oblong, beyond 1/4, fourth at 2/3, second and third approximated, slightly closer to fourth, third smallest, not reaching costal edge; fifth and sixth paler grey; discoidal vein with a black bar with a rounded-clavate top, its lower end with a short oblique appendix along end of fold, not reaching dorsum; this bar extending anteriorly by a dark grey suffusion, filling out cell and forming a rather well defined subquadrate blotch (together with black bar forming a figure, resembling a rattle with an oblique short handle); a small black mark on upper edge of grey quadrate, opposite second costal dot; a pale and faint band of grey suffusion, edging the black bar posteriorly and encircling its top, around top preceded by a narrow white line; fine black dusting condensed posteriorly, so as to form a transverse band of small grey spots, from below fifth costal dot to tornus; terminal edge with a narrow grey margin, interrupted between veins. Cilia creamy-white with a faint grey submedian band, from a blackish suffused spot opposite apex, to tornus.

Hind wing with a cubital pecten and with a strong pencil of long hairs from just beyond base of cubitus, without a basal cover plate, appressed along cubital vein, reaching to middle of wing, creamy white; wing white with a creamy gloss. Cilia creamy.

Male genitalia. — Tegumen a rather broad cone, gently narrowed and abruptly truncate at top, sides curved mesad and modified in sclerotic ovoid bodies, with upper part extended in a darkly sclerotic, slightly tortuous cusp, left body larger than right, with cusp longer. Uncus a thin hook. Vinculum moderate and elongate, triangular. Valva long and narrow, thinly haired, basal half dilated; sacculus and cucullus not modified. Anellus a small transverse fronto-dorsal sclerite. Anellus lobes simple slender naked processes. Aedeagus irregularly spoon-shaped, with a strong lateral pecten of spines, on

the right side shifted apicad, with a lateral bunch of dense, thin and blunt spines on the left side, shifted basad.

♀, 17.5 mm. Very similar to the male. Palpus moderate, oblong-triangular, with short, rather smooth scales, roughish only along upper edge, with a slight tuft in middle, also roughish at apex below; terminal segment short, obtuse, roughish below: white, except upper edge of median segment posteriorly and of terminal edge, densly dusted with purplish-fuscous.

Fore wing as in male, dark markings slightly extended thus. First costal spot larger, oblong: discal black "rattle" larger, its bar thicker, with two blunt anterad extentions, their tops interconnected (the figure resembling a letter W on its side, with the same oblique "handle" along end of fold); two extra black dots on upper edge of cell beyond its middle; grey-fuscous suffusion in disc and grey preterminal band extended; dark marginal dots interconnected in apex, black.

Hind wing with a slight cubital pecten; suffused with glossy greyish towards apex, that is narrow.

Female genitalia. — Eighth segment conical, sclerotic, at top a wreath of long strong bristles; lamella postvaginalis finely punctulate, otherwise not modified, long and narrowed downwards. Ostium very wide, its upper half surrounded by a strongly plicate membrane, its lower half densly punctulate. Corpus bursae long and narrow. Two rather small signa of usual shape.

Distribution. — USSR: S. Maritime District.

Remarks. — The pale tinged species is characterized by the blackish discal mark. Judging from the male genitalia it is related to the darker tinged "*Carposina*" *hercotis* Meyrick, 1913, from Assam, that should be transferred to *Meridarchis*.

35. **Meridarchis jamboa** Kawabe
(figs. 20A-B, 28E-G)

Meridarchis jamboa Kawabe, 1980: 29, figs. 14, 28, 41 (Japan, ♂♀). Literature. — Kawabe, 1982, 1: 290; 2: 217 fig.

Holotype, ♂:/Usui-tôge, Nagano Pref., 10.VI.1978 (A. Kawabe). GS No. 5229. A. Kawabe Collection.

Secondary material. — Paratype, ♀, genitalia slide only, No. 5228 (Courtesy Mr. A. Kawabe). A. Kawabe collection. Japan: Honshu. Mt. Sanatoga, Toyota, Aichi Pref., 22.IV.1976 (B. Tanaka), 1 ♀, GS 10815. (Courtesy Dr. Y. Arita). ZLMU.

Description. — The holotype may be redescribed as follows.

♂, 21 mm. Head glossy snow-white. Antenna pale ochreous. Palpus moderately long, median segment straight, with a triangular tuft in middle above,

apical segment moderate, slightly drooping; pale tawny-whitish, sprinkled with black points, apical segment white. Thorax glossy snow-white, bases of tegulae and two patches of anterior edge brownish-purple. Abdomen white, tinged pale fulvous towards base above.

Fore wing long and rather narrow, slightly and gradually dilated, broadest at $^3/_4$, costa straight, only slightly curved at base, less so at apex, apex pointed, termen hardly sinuate, oblique. Glossy white, here and there slightly touched with pale silvery-grey. Markings pale tawny, moderately dusted and pointed with purplish. An oval-triangular spot to $^1/_6$ of costa, below limited by fold, with purplish costal spots on its ends; a large regular, triangular costal patch, from just beyond $^1/_4$ to beyond $^3/_4$, edges hardly and irregularly scalloped, dark dusting on lower half of patch more or less condensed into round spots, faintly edged with white and indistinctly arranged in three horizontal rows, apical one single; an ill-defined suffused grey band from costa to tornus, less oblique than termen, more or less confluent with grey suffusion along end of costa and along termen, there including four black marginal dots (top of left fore wing damaged) a jet-black point on dorsum before end of fold. Cilia white, along termen suffused with pale grey, except a basal white band.

Hind wing with a pale ochreous pencil-like, flat and dense cubital pecten, situated horizontally, originating from the base of vein A3; white with a greyish tinge and gloss, towards apex becoming deeper greyish.

Male genitalia. — Rather resembling those of *M. isodina* spec. nov. but differing as follows. Uncus shorter. Top cornuti longer. Bases (lower ends) of gnathos arms densely bristled on the inside, and with a pair of smaller sacs each. Valva with cucullus shorter, less curved, spine at the end of costa shorter; sacculus, a longer flat process, densely spined on the distal surface. Saccus much longer and thinner. Stalk of aedeagus very much longer.

A nicely preserved female specimen may be described thus.

♀, 24 mm. Closely resembling the (somewhat defaced) holotype. Palpus moderately long, slightly down-curved, not dilated smooth-scaled, apical segment subobtuse. Costa of fore wing with a large, light tawny triangle, with straight and well defined sides; dark purplish dusting concentrated into some seven round raised spots, finely white-edged, arranged in three rows: upper subcostal of three distant spots, median, of three spots pressed together, lower: a single, strongly raised spot in apex of triangle; outer side followed by an orange suffused streak from below costa to top, in its turn followed by irregular grey suffused streak; posterior grey band more distinct, interrupted twice above middle; on costa followed by a grey subapical spot; another one in apex; termen with four black marginal dots; small jet-black mark before end of fold, slightly above dorsum.

Hind wing paler, glossy greyish-white. Otherwise similar to male.

Female genitalia. — Eighth segment conical, sclerotic. Seventh segment wide and membranous, folding. Ostium ring-like sclerotic, simple. Colliculum with upper fourth rather short, simple, with granulate wall, lower 3/4 darkly sclerotic, compressed and band-like, broadly sinuate and forming a recumbent S; ductus bursae short, weak and simple. Corpus bursae larger, asymmetrically narrowed at both ends.

Distribution. — Japan: Honshu, Central Mountains.

Remarks. — An elegantly coloured and marked species, closely related with *M. isodina* spec. nov., from China, but with very distinct genitalia.

36. **Meridarchis isodina** spec. nov.
eiso = inside, *deinos* = terrible
(figs. 15C, 29C-D, 44C-E)

Holotype, — ♂, China, S Shensi, Tsinling, Tapaishan, 19.VI.1935 (H. Höne leg.), GS 10782. The same, ♀, allotype, 24.VI.1935 GS 10783. MAKB.

Description. — ♂, 18 mm. Head creamy, face white. Palpus long, projecting diameter of head beyond face, porrected, median segment with a loose tuft of long hair-scales in middle above, terminal segment moderate, slender, subacute, smooth; white, strewn with black points. Antenna long-ciliate, creamy, scape white. Thorax white (partly rubbed). Abdomen pale fuscous, anal tuft creamy.

Fore wing with veins 8 and 9 short-stalked (8 short-furcate at end in right wing); long and rather narrow, costa little curved at base, more so at apex, apex acutely pointed, termen sinuate, long, oblique (partly defaced). White, markings dark fuscous. Basal patch moderate, indistinctly reaching below base of vein 1b, edge inwards-oblique; a large triangular patch from before $^1/_3$ of costa to $^3/_4$, followed by two suffused fuscous spots, last of these subapical; a row of suffused dark spots from apex to tornus; a faint suffusion before middle of termen. Cilia pale grey with a white base.

Hind wing without cubital pecten, but with an androconial pencil: thin, closely appressed to cubital vein, white; with 3 and 4 stalked, 6 developed from before discoidal vein to wing margin, 7 to below apex, semioval, almost 2, apex acutely pointed, termen sinuate above; creamy, with a silky gloss. Cilia whitish with a suffused pale grey submedian band.

Male genitalia. — Tegumen spherical. Uncus a long and slender hook, compressed laterally, with dilated base. Gnathos half, a large subsclerotic pear-shaped body, with top produced into a long, thin spine; lower half of body with several folds and base clothed with long aciculae. Vinculum rather long, subclavate. Valva long and slender, cucullus twice as narrow, bristly,

oblong; basal third of valva with costa sclerotic, end produced in a spike; $^2/_3$ of this base, ovate, end with a sclerotic edge and a short simple thorn (ampulla). Aedeagus robust, stalk $^1/_2$, clavus oblong-oval, with a round top, a dense subapical crest of dark spines to the left from middle, not reaching middle of clavus, a series of seven huge spikes right from middle, along median half of clavus spikes increasing in size apicad.

♀, 24 mm, allotype. Similar to the male, except the following points. Palpus longer, with a moderate tuft of median segment at base above and another, at apex below; terminal segment less smooth, thicker, obtuse; tawny-fuscous, irregularly spotted denser fuscous. Head and thorax glossy snow-white (intact!). Abdomen whitish, posterior edges of tergites suffused with light ferruginous. Light tawny-fulvous-fuscous, costal patch rather obscured by this colour. Basal patch replaced by a dark streak along base of costa, followed by a snow-white spot between patch and costal spot, this more distinct in cell as an oblong blackish suffusion; terminal area with two darker approximated transverse bands. Hind wing without cubital pecten; tinged pale tawny.

Female genitalia. — Eighth segment moderately sclerotic throughout, lamella postvaginalis finely punctulate and short-pileate. Ostium-colliculum tube darkly sclerotic, with straight edge, thick, gently curving to the right below, without a fold, ductus bursae short, corpus bursae large, subtriangular in profile; signa with thin legs, hooked at ends.

Distribution. — China: S. Shensi.

Remarks. — A rather rubbed pair, with very distinct genitalia in both sexes.

37. **Meridarchis ensifera** Diakonoff
(fig. 29E)

Meridarchis ensifera Diakonoff, 1950: 298 (♂♀, Sikkim). — 1959: 124, Pl. 6 fig. 9, Pl. 9 figs. 18, 19 (type ♀ figured).

Holotype. — ♀/Type (red-edged disc)/Gen. no. 2750 (print & ink)/Tonglo, Sikkim, 10.000 feet, July 1886, H.J. Elwes (print)/Walsingham Collection 1910-427 (print)/Holotype, ♀ Meridarchis ensifera A, Diakonoff, 1946 (print & ink, black cadre). Two mini slides of genitalia, nos. 2750 and 2750a. BM(NH).

Description. — The original description is as follows:

"♂♀, 26-32 mm. Head and thorax whitish. Palpi long, porrect, in ♀ suffused brownish at base. Abdomen whitish, anal tuft in ♂ pale ochreous. For wing with 3 and 4 free; elongate, narrow, costa gently and gradually arched along basal 3/4, apex acute, produced, termen sinuate, very oblique. Glossy white, scattered with brownish. grey on apical 1/3 of wing. An indistinct pale fuscous suffusion on 3/4 of costa, reaching to middle of wing. Markings dark

greyish-brown: on costa a streak along base and a row of some 6 dots, along termen a row of dots on veins, a conspicuous invardly oblique curved streak of somewhat raised scales across wing at about 2/5, not reaching costa and dorsum; a much narrower and paler transverse outwardly concave vertical streak before 2/3 from dorsum not reaching costa, an indistinct suffusion from costa before apex to tornus. Cilia glossy greyish white with interrupted median shadow. Hind wing glossy whitish, with narrow greyish edge, cilia greyish-white. Legs whitish, fore pair suffused with greyish."

Female genitalia. — Eighth segment sclerotized, rather short, apical wreath of bristles interrupted in front; a broad median strip of papillae. Ostium ill-defined, in center with a large hyaline vertical body, half as broad as ostium, with a small circular sclerite in center. Colliculum absent. Ductus bursae rather narrow, its wall finely scobinate throughout. Corpus bursae moderate, tubular above, pear-shaped below, with a simple wall. Signa absent.

Distribution. — Sikkim, 10.000 feet.

Remarks. — A large relict species of high mountains; probably the highest elevated collecting locality known of a carposinid.

The species has been placed near *M. excisa*, but seems to be better located here.

38. **Meridarchis merga** spec. nov.
merga = two-pronged fork
(figs. 46F-G)

Holotype. — ♀, Japan, Kyushu, Yakushima I. Aikedake, 8.VI.1972 (T. Watanaba leg.) GS 10858. A. Kawabe collection.

Description. — ♀, 18 mm. Head and thorax glossy white, tegula touched with pale fulvous at base. Antenna ochreous, narrowly white-ringed. Labial palpus long, straight, porrect, thickened with smoothly appressed scales, median segment gradually dilated towards middle, terminal segment short smooth, pointed and porrect; palpus white, basal half dark fuscous. Abdomen silvery white.

Fore wing oblong-suboval, little dilated, broadest at $^4/_5$, costa slightly curved throughout, more so at ends, apex rather pointed, termen gently but distinctly sinuate, oblique. White, less than $^1/_4$ of costa as far as cell with a pale fuscous-grey streak, at base of costa including some glossy purple scales; more than median third of costa fuscous-grey, cut in four oblong spots, median pair shorter and approximated, outer pair larger, more distant; these markings forming the base of a large triangular patch of paler fuscous suffusion, with tip in fold, in cell tinged deeper fuscous, including a darker fuscous blotch along

closing vein; the blotch slightly raised, narrowed below, posteriorly edged by a white streak, running from top of closing vein, to fold, thence outwards-curved, to above dorsum; posterior half of wing evenly dusted with pale fuscous, except along termen; an irregular preterminal band of darker fuscous dusting; two ultimate costal subapical spots, confluent; termen with a slender light fuscous suffused band. Cilia pale fuscous-grey with a pale basal line.

Hind wing without cubital pecten; rather deep glossy-grey, faintly touched with buff; termen sinuate, apex prominent. Cilia concolorous dull and slightly paler.

Female genitalia. — Eighth segment moderately sclerotic, median part finely papillate, in two parallel downwards-dilated stripes, on lower fourth lower edges of the median area indicated; a row of inequal bristles along caudal edge of segment, more bristles laterally along entire sides. Ostium behind a large membraneous horizontal fold, its upper edge rounded; sclerotic sterigma at the beginning of colliculum, being a rectangular plate with sides produced upwards in two long slender cusps, edge between these regularly rounded. Colliculum membraneous, ductus bursae papillate above, simple below. Corpus bursae ovoidal, with a submedian transverse band of larger dark granulations, more or less arranged in regular vertical rows.

Remarks. — Judging from the female genitalia the species is closely related to the tropical *M. heptaspila* Meyrick, from New Guinea, that, however, is quite differently coloured and marked, silvery-white and maculate with black. Besides, the furcate sterigma in *merga* is shorter, with parallel sides and shorter prongs, while the corpus bursae has a broader, lower situated band of smaller granulations.

39. **Meridarchis longirostris** (Hampson)
(fig. 29G, 45A)

Plexinola longirostris Hampson, 1900: 79, fig. 24 (♀, Tibet).
Literature. — Meyrick, 1913b: *(Meridarchis)*. — 1922: 4 *(Meridarchis)*.

Holotype, ♀/Type (red-edged disc, print)/Yatung, Tibet, A.E. Hobson, 98-201/Plexinola longirostris Hampson type (black ink)/BM Genitalia slide ♀24002 (print & ink)/. BM(NH).

Description. — The large and sturdy species, resembling its tropical congeners, may be redescribed thus:

♀, 28 mm. Head with vertex silvery whitish, glossy. Antenna filiform, fuscous. Labial palpus very long, over 4 times diameter of eye, porrect, gradually curved, convex above; median segment with smoothly appressed scales, loosely projecting towards middle above, forming a smooth pointed tuft at apex below, appressed to terminal segment from below; this segment

moderate, smooth, pointed; whitish, more or less infuscated, with basal half suffused with dark fuscous, along lower edge and on basal half of median segment dark fuscous. Thorax grey-purple, rather dull.

Fore wing with raised scale-tufts, long, dilated, broadest at tornus, costa distinctly curved along basal half, straight beyond, hardly curved before apex, apex pointed, slightly prominent, termen sinuate above, broadly rounded along lower half. Rather pale fuscous, with slight bronze tinge, densly and evenly dusted throughout with glossy fuscous-purple, markings indefinite. A darker purplish transverse fasciate blotch in middle of disc at ¼ of wing, its posterior edge well defined, slightly raised, rather straight, round, faintly pale-edged; raised scale tufts arranged thus: below $^2/_3$ of lower edge of cell and a larger round tuft or spot (rather rubbed) on upper angle of cell; the pale posterior edge of latter spot discending along closing vein to fold, very faint below. Cilia fuscous-bronze (imperfect).

Hind wing with a pale fulvous, appressed cubital pecten along basal ⅓ and a similar pecten along the anal vein; glossy white, with a pointed, prominent infuscated apex and less infuscated sinuate termen; with a faint pale fulvous tinge. Cilia pale fulvous around apex touched with darker fulvous.

Female genitalia. — Ovipositor moderately long, lobi anales long slender, subclavate, covered with short, not numerous strong bristles. Eighth segment subsclerotic, rather conical, sternite finely, microscopically aciculate throughout, at top forming a long submembranous cone: sparcely bristled sublaterally and with a transverse row of 5-6 large bristles below caudal edge, in a band of longer aciculae. Seventh segment forming a transverse suboval and submembranous sac, with a densly aciculate-papillate wall, except a median vertical naked stripe. Ostium undefined, colliculum a membranous tube; ductus bursae rather narrow, in the median part with some transverse strigulation, lower part subsclerotic. Corpus bursae ovate, thin-walled, simple. Signa absent.

Distribution. — Tibet.

Remarks. — A large, unicolorous species, with dark bronze fore wings; the specimen has the raised scale-tufts rather defaced. The female genitalia are little instructive.

40. **Meridarchis bryonephela** Meyrick
(figs. 29F, 45F-G)

Meridarchis bryonephela Meyrick, 1938: 14 (♀, China).

Holotype. — ♀/Gen. No. 10884 A. Diak. (print & ink)/Likiang, China N Yuennan, 14.VIII.1935 H.Höhe (pale yellow)/Holotype Meridarchis bryonephela Meyr. ♀ (red cadre)/ Meridarchis

bryonephela Meyr. type (card board, ink, black cadre)/. MGAB.

Description. — The large grey-fuscous species may be redescribed thus: ♀, 30 mm. Head snow-white, vertex slightly infuscated in certain lights. Antenna light ochreous-fuscous, scape mixed with white. Labial palpus porrected, long: four times diameter of head beyond face; median segment with rather rough scales raised along basal half of upper edge, apical half of lower edge with a roughish tuft, at end projecting obliquely forwards, terminal segment moderate, exposed, slightly clavate, obtusely pointed; rather dark grey mixed with dark fuscous-blackish, tips of segment and upper edge of median segment mixed with white. Thorax grey-fuscous, anterior edge white. Abdomen whitish-fuscous.

Fore wing (with scale-tufts defaced), long rather narrow, costa gently curved at end, straight in middle, broadest at $^4/_5$, apex subrectangular, termen straight above, rounded beneath, moderately oblique. Grey-fuscous, upper half of wing as far as $^4/_5$ of costa darker grey-fuscous, with lower edge of that colour running along basal half of lower edge of cell, thence parallel but slightly above that edge, posterior edge along lower part of closing vein, on and below costa rectangularly prominent; posterior fifth of costa with a lighter grey-fuscous suffusion, mixed with a few white scales; a darker grey subterminal band from costa, becoming paler downwards to tornus, parallel to termen, but straight. Cilia concolorous.

Hind wing with a cubital pecten; broadly semioval, apex only slightly produced; creamy-fuscous, with a silky gloss. Cilia cream-coloured.

Female genitalia. — Eighth segment moderately sclerotic, its ventrite quadrate, irregularly bristled below its caudal edge. Ostium subsclerotic, a subspherical cup, narrower than ventrite, finely punctulate inside. Seventh segment extended so as to form a moderate subsclerotic sac densely and regularly aciculate throughout, so forming a short colliculum. Ductus bursae moderately broad, sparcely punctulate throughout, gradually dilated downwards to an oblong pear-shaped simple corpus bursae. Signa absent.

Distribution. — China, N. Yünnan, Yülingshan Range, 4000-5000 m.

Remarks. — A large, indistinctly marked species, the type with no trace left of the greenish tinge of the original description.

41. **Meridarchis trapeziella** Zeller
(fig. 8, 30A, 45B-E, 47A, 50E-F)

Meridarchis trapeziella Zeller, 1867: 408, pl. 2 fig. 5 (Assam, ♂).
Literature. — Meyrick, 1913b: 4. — 1922: 4. — 1938: 14 *(Scoparia stötzneri* Caradja syn.). — Diakonoff, 1950: 297. — 1977: 149 (Bhutan).
Scoparia stötzneri Caradja, 1927: 47.

Holotype of *trapeziella*. — ♂:/ Type H.T. (red-edged disc)/Zeller Coll., Walsingham Collection 1910-427/ Meridarchis trapeziella Z. E.Z. 1867 (black ink)/Type (black cadre, print)/abdomen missing (print, pale blue)/. BM(NH).
Holotype of *stötzneri*. — ♀:/Gen. no. 10913 A. Diak. (print & ink)/Li-kiang (China) Provinz Nord-Yuennan, 8.8.1934. H. Höhe (print)/38/ Scoparia stötzneri Car. ♀ (black ink)/Meridarchis trapeziella Z. (blue ink)/România, Muzeul Ist. Nat. "Gr. Antipa" (print). MGAB.
Secondary material. — India, Darjeeling, VII.1899, H.J. Elwes, Wals. Coll. 1910-427, 1 ♀, GS 10842. RMNH.
India, Sikkim, Moller Coll., 7000' (Elwes) 1899, 1♂, GS 15049 wing slide 15050. BMNH.
China, Provinz Nord Yuennan, 3.III.1914 (H. Höhe), 1 ♀ GS 10872. MGAB.

Description. — ♀, 26-33 mm. Head pale ochreous with a slight fulvous gloss. Antenna fuscous. Labial palpus porrected, 2½ times diameter of eye, light brown, apex of median segment pale ochreous, base of terminal darker brown. Thorax pale brownish-ochreous, tegula with dark brown suffusion along anterior edge, continued as an irregular streak before exterior edge. Abdomen greyish-white and ochreous.

Fore wing oblong-subtriangular, rather narrow, dilated and broadest at $^5/_6$, costa curved throughout, markedly so along basal third, apex obtusely pointed, termen considerably sinuate, little oblique. Ivory, densely suffused, except pale edges to markings, with light chestnut and coarsly dusted with dark brown. Markings dark coffee-brown. A dark triangular patch along less than $^1/_5$ of costa, rather beyond base of wing, edges serrate, top to beyond fold, not reaching dorsum, on costa followed by a brown spot; a large triangular patch of denser fuscous-brown suffusion, occupying more than median third of costa, with four oblong dark brown marginal spots; top of triangle formed by an inverted trapezoidal deep brown patch, filling out more than upper half of cell, connected with costal spots by pale fuscous suffusion; an approximated pair of costal spots before apex, ultimate one smaller; an inwards-oblique dark brown fasciate mark across middle of disc at ¼ from below upper edge of cell to vein 1b; a parallel short mark between triangular patch and fold; three dark markings, irregularly edged with creamy-white ground colour; penultimate costal spot emitting an irregular zigzag fascia of paler brown towards tornus; termen with a dark brown marginal line from below apex to tornus, dilated and scobinate in middle, with anterad teeth on ends of veins 5 and 6; a faint suffusion above $^2/_3$ of dorsum. Cilia glossy creamy, suffused with grey.

Hind wing with cubital pecten, veins 3 and 4 connate; pale creamy-fulvous with a strong golden gloss; vein 2A with light fulvous pencil of appressed cilia along its length. Cilia glossy creamy with pinkish reflections.

Male genitalia. — Tegumen broad, semiglobular, with a transverse depressed top and obliquely truncate shoulders; replicate folds long rounded and strongly prominent mesad at their caudal half, these prominent edges sclerotic and densly beset with black hair-like spinula. Uncus strong, acute awl-shaped,

its base flanked by small strips of parietal rather thin socii. Vinculum moderate, triangular, saccus moderately broad, as long as height of vinculum. Valva moderately long, narrowed, slightly curved upwards, subobtuse, top obliquely truncate; bristled throughout except at base; sacculus half as broad as valva, and half as long; its disc with obtuse oblique edge, armed with three transverse, sclerotic corrugated blades, surrounded by dense hairy bristles (the whole possibly representing a functional ampulla, i.e. a prehensile organ); a round, papillate wart at base of valva, above edge of base of sacculus. Aedeagus moderately long, clavus ⅓, with two suboval tops and two rather short combs of cornuti, stalk clavate. (Figured genitalia of a male topotype from India, Assam, Khasias Hills, (Doherty), 1898-9, Walsingham Collection, GS 24337. BM(NH)).

Female genitalia. — Eighth segment oblong, sclerotic, ventrite with fine regular papillation, each papilla with a minute apical bristle. Seventh segment membraneous, with robust walls. Ostium not modified, at once turning into a sclerotic rather thin-walled colliculum, hyaline, above, gradually attenuated, downwards, finely papillate throughout, markedly but nog abruptly turning into ductus bursae; this long, with papillation gradually becoming a reticulation. Corpus bursae oblong, ovoidal. Signa two, small, robust, with three short prongs.

Distribution. — India, Bhutan, China.

42. **Meridarchis xerostola** (Diakonoff) comb. nov.
(fig. 50D)

Metacosmesis xerostola Diakonoff, 1983: 280, fig. 71, pl. 2 figs 32A-C.

Holotype. — ♀: Gen. no. 10536 A. Diak. (print & ink)/SW-Arabien, Asirgebirge 2000 m, Wadi Marah, 26-27.IV.1979, Amsel leg. (print)/Holotype ♀, Metacosmesis xerostola A. Diakonoff 1982 (black cadre, print & ink)/. 2 paratypes, ♀, genit. slides 10535 and 10537. LNK, RMNH.

Description. — The following is the original description: "♀, 15 mm. Head whitish, vertex pale fuscous-white. Antenna white, ringed with pale fuscous. Palpus long, projecting beyond face slightly more than diameter of head; moderately angulate in middle; densely dusted with black, except pale fuscous, median segment, except more than posterior half of upper edge, densely dusted with black, upper edge with a moderately raised fringe of loose scales, slightly mixed with grey-fuscous; terminal segment short, pointed, whitish with a faint median grey ring. Thorax creamy, minutely dusted with grey-fuscous. Abdomen pale ochreous-fuscous, with a silvery gloss, anal tuft whitish.

Fore wing lanceolate, dilated, broadest beyond middle, costa gently curved throughout, apex pointed, termen hardly convex, strongly oblique. Whitish,

minutely dusted with grey-fuscous, this dusting very gradually becoming denser towards posterior costal half. Basal patch to $^1/_6$, slightly darker, on base of dorsum obliterate, except edge, this edge blackish-fuscous, inwards-oblique, slightly sinuate; a subparallel transverse streak at $^2/_6$, straight, less oblique, interrupted by upper and lower edges of cell; on costa sometines forming a wedge-shaped spot; posterior half of costa with five roundish dark fuscous dots; posterior half of cell filled out with blackish-fuscous dusting, with two dots on upper edge and two on lower edge, last of these over lower angle of cell; discoidal vein with a darker sinuate streak; dorsum beyond basal patch with a suffused blackish streak to beyond middle; termen with a row of round or wedge-shaped dots on ends of veins. Cilia pale ochreous-grey, with a pale ochreous basal line.

Hind wing pale silvery-grey, towards apex suffused with light golden ochreous. Cilia pale golden-ochreous.

A rather variable species: in one paratype dark markings suffusedly extended, another paratype dusted throughout with blackish grey.

Female genitalia. Eighth segment small, conical, semisclerotic. Ostium simple, wide; lamella postvaginalis indefinite, lamella antevaginalis band-like, moderately tumescent, passing right into a wide tubular ductus and this into the large corpus bursae; ostium, ductus and upper half of corpus bursae darkly sclerotic and with a fine reticulate surface; less than bottom half of corpus bursae membraneous. Signa absent.

Distribution. — Saudi Arabia.

Remarks. — After renewed study I prefer to place the present species in the genus *Meridarchis*, instead of in *Metacosmesis*; the absence of the male material makes its generic position somewhat dubious, but the wide and strong colliculum and the corpus bursae speak strongly for the present reassessement.

VIII. **Heterogymna** Meyrick
(fig. 9)

Heterogymna Meyrick, 1918: 73. Type-species, *H. zacentra* Meyrick, by original designation.

The genus, originally described from southern Asia, may be re-described as follows.

Head with closely appressed scales, on face directed downwards and smooth. Antenna strongly ciliated in male, ciliations 4-5, simple in female. Haustellum developed. Ocellus absent. Maxillary palpus vestigial, 3-segmented. Labial palpus moderate or rather long, equal in both sexes, often 1½ times diameter of head, not dilated, porrect, median segment gently curved down, apical segment moderate, exposed, obtuse and obliquely curv-

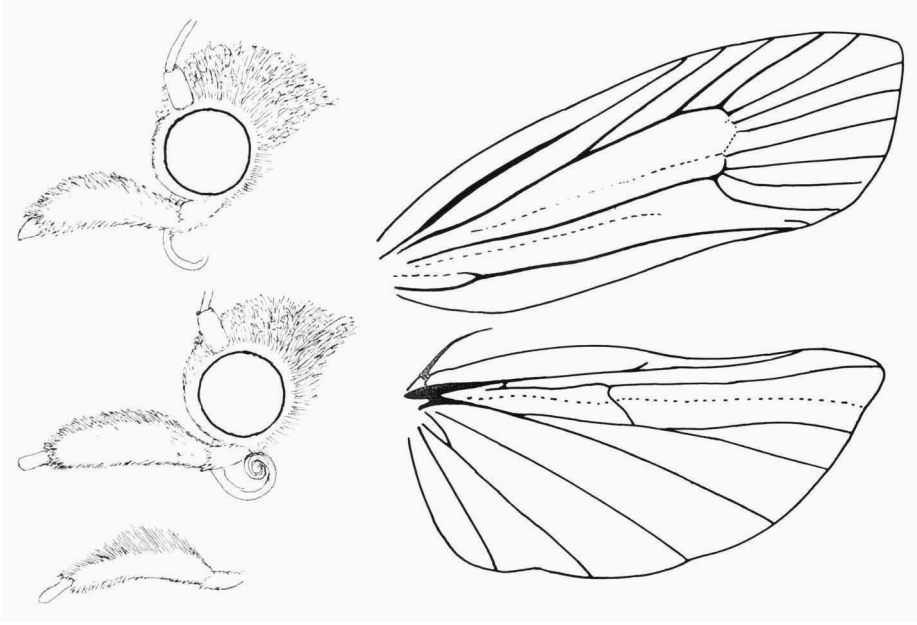

Fig. 9. *Heterogymna ochrogramma* Meyrick, sketch of wing venation and heads: above, *H. o. toxotes* subspec. nov. ♂; middle, the same, ♀; below, *H. o. coloba* subspec. nov. labial palpus ♀. (Venation after Clarke, 1963).

ing down, with short and smooth scales, in female this segment sometimes longer, slightly roughish along upper edge. Thorax smooth. Posterior tibia with short smooth scales, roughish along upper and lower edges.

Fore wing oblong, rounded-subtriangular, costa curved at ends, apex and termen rounded, termen moderately oblique; with raised scale-tufts, arranged inside and along edge of cell as follows: a ridge along edge of basal patch, one small tuft beyond this, a slightly outwards-obligue transverse pair at ¼ of wing, a pair along lower edge of cell, beyond its middle, a pair along closing vein and a single tuft before end of upper edge of cell. Vein 1b furcate at base, 2 from before angle of cell, 3 from angle, close to base of 4, 4 parallel, 7 free, to termen below apex, 8 free, 9 distant, 11 from well beyond $^2/_3$ of cell.

Hind wing without cubital pecten in male, present in female; vein 2 from before middle of cell, 3 and 4 stalked from angle, 5 absent, 6 usually developed outside the cell: from discoidal vein to before wing margin, gently diverging from 7, 7 to apex.

Male genitalia rather primitive. Tegumen high, broad and above middle distinctly narrowed, with replicate folds curved mesad, rounded and simple scobinate or papillate. Uncus long, sclerotic, sometimes with an apical spine.

Vinculum broad, rather short, rounded, without a saccus. Valvae not or slightly fused, long and narrow, gently curved, top rounded; sacculus ⅓, little modified, with an apical sclerotic thorn (ampulla) and above or beyond this an oblique sclerotic diversely shaped discal or costal harpe, shaped as a ridge, a hook, etc. Juxta small, distinct. Aedeagus short, flat and simply shaped, without cornuti.

Female genitalia even stronger simplified. Eighth segment sclerotic, rather elongate, with a few fine bristles all over, longer bristles around top; the basal part of this segment is membraneous and retractable into the seventh segment. Ostium unmodified, a wide membraneous sac, with a rather indistinctly defined membraneous central cone or a group of hyaline large papillae. Colliculum not defined. Ductus bursae a rather wide simple tube without structures, only lower half indistinctly tortuous. Corpus bursae pear-shaped, large, simple or with a single signum, being a moderate sclerotic oblong patch, in middle of a punctulate, less darkly sclerotic field.

Remarks. — The genus is considerably simplified and is characterized by the 3-segmented maxillary palpi, while several other features are absent: by the large, papillate tubular colliculum, the paired bicornute signa, the simplified neuration of the fore wings, etc. But the long palpi, the sexually dimorphous antennae and the neuration of the hind wings are typically carposinid. We are satisfied therefore that *Heterogymna* is the most primitive genus of the Palaearctic representatives of the present family. The single signum is resembling that in the genus *Peragrarchis* Diakonoff, but is not quite similar and must be a parallelism.

The distribution of the genus is chiefly Indo-Malayan, extending to Central Asia: China, and to Japan.

The species seem to be not rare. Their genitalia differ but slightly; subspecifically they differ by the shape and size of the sclerotic parts of the valva: the ampulla and the harpe.

43. **Heterogymna metarsia** spec. nov.
(figs. 30B, 49C-D)
metarsios = elevated

Holotype. — ♂, India, Sikkim, 7000 ft, VII.1985 (Pilcher)/. Walsingham Coll. BM 1910-427/ Heterogymna ochrogramma Meyr. AB July 1922 (blue ink, August Busck's hand)/GS 10901. USNM.

Description. — ♂, 25 mm. Head glossy, snow-white. Antenna light tawny, along basal half ringed with white. Labial palpus subascending close to face, exceeding diameter of eye, with dense short appressed scales, median segment roughish along upper edge of posterior half, terminal segment short, subob-

tuse, drooping; white, basal half black except along lower edge. Thorax white, shoulder broadly blackish-grey, except median edge of tegula. Abdomen silvery-white.

Fore wing rounded-triangular, little dilated, costa curved, apex rounded, termen rounded, moderately oblique. White, markings jet-black, blackish-grey and pale grey-fuscous. Base of wing with a small black fascia almost reaching dorsum, on costa connected with a large transverse black blotch reaching $^2/_3$ across wing, posterior edge convex and slightly suffused; an oblong-subtriangular spot at ⅓ of costa, reaching to upper edge of cell; slightly more than posterior half of costa with five dentoidal outwards-oblique spots, exactly similar but gradually decreasing in size posterad, blackish-grey, gradually becoming paler grey; ultimate of these fasciate, marginal, running into apex; area beyond first black patch between upper edge of cell and fold marbled with pale grey-fuscous; a fasciate blotch beneath second costal dot, preceded and followed by smaller blotches and a large subrectangular patch, filling out posterior fourth of cell, centred with a round black dot, and followed by a grey – tawny line along closing vein, originating from another round black dot, zigzagged below, ending with a faint suffusion at ¾ of dorsum; a large black rectangular patch from beyond cell to before termen, followed by four small black transverse dots. Cilia white, except in tornus with the basal half and a narrow apical band light grey-tawny.

Hind wing pale creamy-fulvous, white on dorsum, lower edge of cell and vein 1a as far as end of cell naked and tinged pinkish-orange. Cilia white, with basal half tinged pale grey-fuscous, more distinct around apex.

Male genitalia. — Tegumen broad, almost circular in contour, replicate folds moderate, with small aciculate papillae, edge broad, not sclerotic, without hair-scales. Uncus long, hooked, very slender. Vinculum with a blunt prominence. Valva slender, densely clothed with weak bristles; ampulla ill-defined, Y-shaped. harpe a sclerotic semioval broad fold. Aedeagus very short, clavus hyaline, broad, with a slight apical cusp.

Remarks. — A distinct species, judging from the male genitalia. Also the fore wing pattern is characteristic: with reduced black median spots in disc. The hind wing with two peculiar naked and orange-colored veins is also noticable.

44. **Heterogymna ochrogramma** Meyrick
(fig. 9, 48A)

Heterogymna ochrogramma Meyrick, 1913b: 74 (♂, Bhotan). Literature. — Meyrick, 1913a: 6. — 1922: 8. — 1935: 85. — 1938: 15. — Diakonoff, 1950; 295 (lectotype designated). — Issiki, 1957: 36, figs: 1973: 36, figs. — Inoue, 1954: 77. — Kuroko, 1957: 9. – Iconogr. 1958: 455, figs. – Okano, 1959: 269, figs. – Clarke, 1963: 50, figs. — Sattler, 1967: 140 *(Psecadia seriatopunctata*

Matsumura syn.). — Kawabe, 1982, 1: 290; 2: 216, figs.
Psecadia seriatopunctata Matsumura, 1931: 1085, fig. (Teste Sattler, 1967).

Lectotype of *ochrogramma*. — ♂/Type (red-edged disc)/Bhotan, P..07/British Museum genitalia slide No. 6733 J.F.G.C./. BMNH. (Designated by Diakonoff, 1950).

Description. — Male genitalia. Tegumen distinctly narrowed above middle, wall below this abruptly dilated, replicate folds moderate, rounded-triangular, with bases extending from slightly below dilatation of wall, to well below upper end of the narrowed part of tegumen. Uncus long and slender (but considerably foreshortened in the original slide, not being flattened out sufficiently), rather long, harpe long, projecting as far as a free, slightly mesad-curved tooth above disc; a second, shorter process distad-curved. Ampulla small, depressed.

The fore wing pattern consists of a series of moderate costal dots and a central, longitudinal band, formed by a series of four larger dots, with an alternating series above and another below of smaller dots; the large dots more or less white-edged, ending with a large black longitudinal subterminal blotch, with upper edge ill-defined, rather rounded at ends, with lower edge straight and distinct.

Distribution. — Bhutan.

Remarks. — Judging from the shape and size of the double dentoidal harpe, as well as the shape of the tegumen, I regard this unique specimen as being distinct from other material in my possession with name labels "ochrogramma", and prefer to characterize that other material as three new geographical subspecies and one new species.

44a. **Heterogymna ochrogramma seriatopunctata** Matsumura, status nov. (figs. 30C-D, 47C-F, 48B-C, 49E)

Psecadia seriatopunctata Matsumura, 1931: 1085.

Material. — Japan, Honsyû, Kinki, 7.VIII, ♂ GS 10900; 2 ♂, 8.VIII, 9.VIII; the same, Kinki, Iwawakisan, ♂ 3.VIII, 1951 (S. Issiki); Honsyû, Sinano, Simasinadani, 1 ♂, 21.VIII. 1955 (S. Moriuti). Issiki Collection. USNM. Kyûsyû, Hikosan, 4.VIII.1943 (K. Hukusima), ♂ (without head). Issiki Collection, USNM. Honsyû, Aichi Pref., Danto-Uradani, 14.VIII.1949 (R. Tanaka), ♂ GS 177 YA; Uradani, 900 m, Kitashigara-gun, 21.VIII.1975 (Y. Arita), 3 ♀, GS 10850; the same locality, (Y. Arita), 1 ♀, GS 10851. ZLMU. Honsyû, Nagano, Nakabusa (A, Kawabe) ♂, ♀, VIII.23, 1961. Simasinadani, Nagano Pref., 19.VIII.1956 (K. Fujisawa), 1 ♀. Kawabe Collection. Honsyû, Kamikoka, 7.IX (Suenson). 1 ♂. MGAB.

Description. — Male genitalia. Differ from those of the nominate subspecies by a triangular, not constricted tegumen with longer replicate folds, densely and regularly coverd with long, modified hair-scales and with a strong sclerotic mesal edge. Ampulla small, as in the typical form, but harpe with the

free end of parietal crescentic part shorter, not incurved posterad, with a stronger sclerotized slender pointed blade appressed against its base; that base is dilated and concave. Aedeagus slightly shorter, with a more slender stalk.

Female genitalia. — Ostium with a hyaline conical "stop" in centre of a deep cup, also hyaline and not easy to discern, with a large oval excision of both frontal and dorsal wall, so leaving a pair of slender lateral processes, resembling exagerrated horns of a crescent.

Distribution. — Japan.

44b. **Heterogymna ochrogramma toxotes** subspec. nov.

toxotes = archer

(figs. 9, 30G-H, 48D-F)

Holotype. — ♂, China, Province N Yunnan, Li-kiang (H. Höne), 30.VI.1935, GS 10843. The same, ♀, allotype, GS 10844. MGAB.

Secondary material. — The same locality, labels and collector, all paratypes: 17.VI.-11.x.1934-1935. The genitalia slides are as follows: 10807♂ (17.VII.1934); 10808♀ (7.VIII.1934); 10849♀ (4.VIII.1935). In total 29♂ and 10♀. MGAB. Upper Burma, Hpimaw fort, Nr. Myitkyina, 8000 ft, 14-18.VIII.1923 (Capt. A.E. Swann), 1 ♂, GS 10902/Heterogymna ochrogramma Meyr. A.B. July 1932 (ink, A. Busck's hand). USNM.

Description. — ♂, 27 mm. Head, thorax and abdomen as in the nominate subspecies. Fore wing white, strewn with black scales, markings black, slightly differing from those in *H. o. ochrogramma* as follows: basal patch to $^1/_5$ of wing, below limited by fold, including an erect-oval spot of ground colour just beyond the base of wing and in centre slightly mixed with white scales; outer edge of patch strongly convex; second costal spot semioval, transverse; the following spot semioval, oblong along margin, fifth to seventh spots narrower, marginal, last connected in apex with the large first terminal spot; discal markings thus: three larger spots, with preterminal blotch parted in two; upper row of smaller dots having two, lower row four spots, two anterior of these just below fold. Cilia white.

Male genitalia. — Tegumen moderately broad, replicate folds long, almost from base of uncus, edge concave above, rounded below, hyaline; surface with long hair-scales. Vinculum robust. Valva moderate, ampulla large, oblong, with extended base, thorn distinct. Harpe a strongly curved thin ridge, ending in a recurving arrowhead-shaped sclerotic part.

Female genitalia. — Ostium with a large conical and well defined median papilla, flanked by two hyaline, wing-like tumescences. Signa absent.

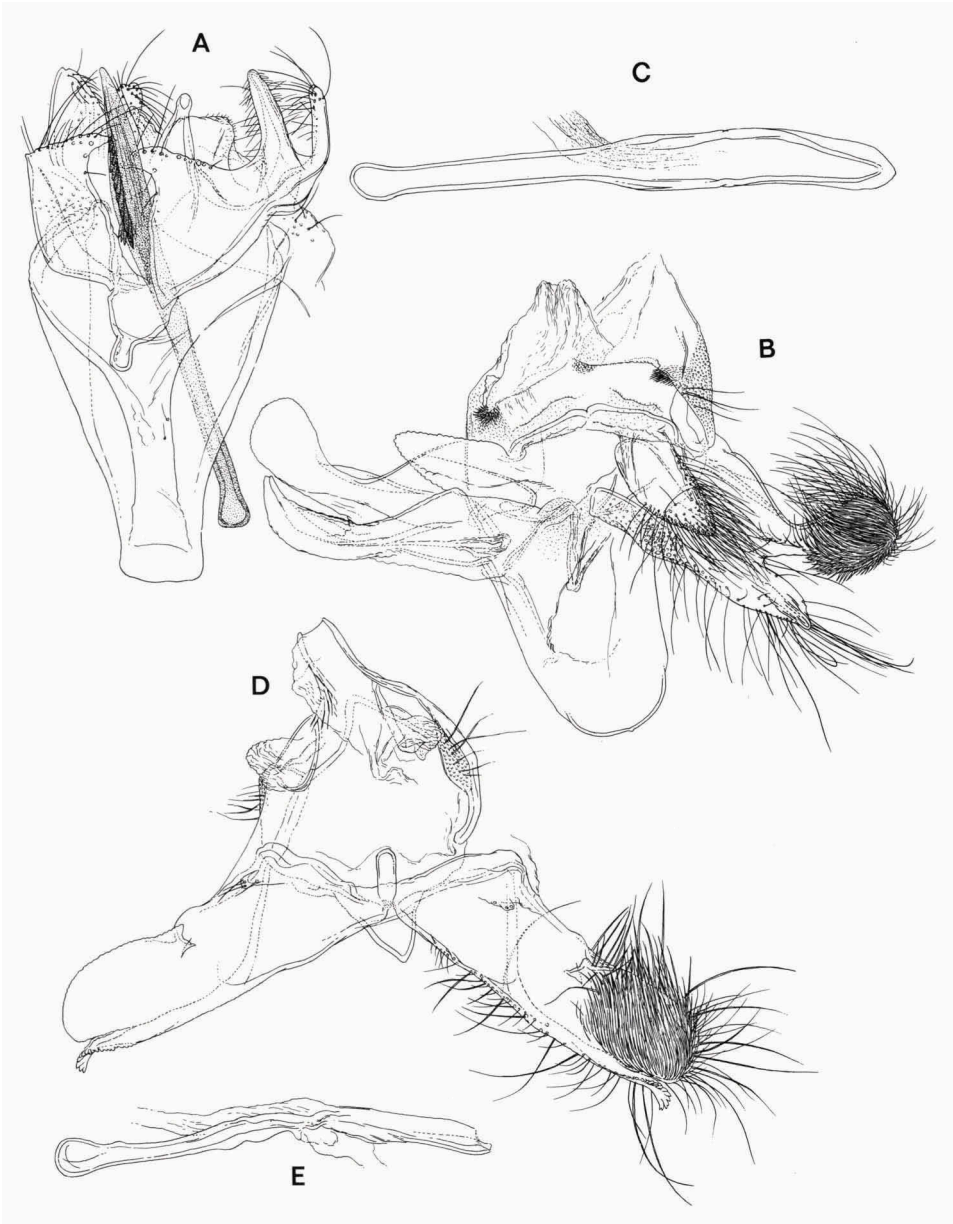

Fig. 10. Male genitalia of Carposinidae. A. *Commatarcha palaeosema* Meyrick, GS 10806; B. *Alexotypa japonica* (Walsingham), GS 10845; C. The same, aedeagus; D. *Archostola ocytoma* (Meyrick) comb. nov. GS 10773; E. The same, aedeagus.

44c. **Heterogymna ochrogramma coloba** subspec. nov.

kolobos = stunted

(figs. 9, 30E-F, 49A-B, 50A-B)

Holotype. — ♂, China, Province Chekiang, West Tien-mu-Shan, 1600 m, 25.VII.1932 (H. Höne), GS 10880. The same, ♀, allotype, GS 10881. MGAB.
Secondary material. — The same locality and collector, 23.VII.1932, 1 ♂, paratype. MBSM. China, A-tun-tse (Nord Yuennan), mittlere Höhe (ca. 4000 m), ♀, paratype, 23.VII.1936, (H. Höne), GS 10916; 5 ♀, paratypes, 17.VII-11.VIII.1936 (H. Höne); obere Höhe (ca. 4500 m), 1 ♀, paratype, 24.VII.1936 (H. Höne). MGAB.

Description. — ♂, 35 mm; ♀, 36 mm. Head, thorax and abdomen white. Labial palpus rather long and slender, with smooth edges; porrected, slightly bent in middle, terminal segment obtuse.

Fore wing with lower half of base white, narrowly projecting upwards, so as to separate a black spot at extreme base of costa, hardly connected on costa with the actual basal patch that is large, subrectangular, limited by fold below, with anterior edge concave, posterior with a rounded projection below costa; second costal spot only slightly larger than the following three that are equidistant and of the same size; following two costal and the apical spots smaller, more depressed, four terminal dots smaller again; the middiscal markings as in the nominate subspecies, but the preterminal black blotch not quite parted, the posterior half extending downward, and connected with the two lower terminal dots.

Hind wing light grey as far as vein 2, towards apex getting blackish; dorsum white; lower edge of cell throughout forming a dull ochreous streak, broader than the cubital vein, markedly dull upon the glossy silvery-grey ground colour.

Male genitalia. — Similar to those of the preceding subspecies, but replicate sides of tegumen with long hair-scales (in the mount only their papillate scars ramain), larger, almost contiguous in middle. Ampulla larger, with a broad thorn; harpe curved, but with anterior end longer, rising (not recurved), and truncate at the top. Valvae slightly broader.

Female genitalia. — With longer and more cylindrical (instead of conical) eighth segment. Ostium with a large, thicker hyaline cone, flanking "wings" ill-defined, less pointed. Signa absent.

Remarks. — A large subspecies with rather darkened median area of the disc due to slight extension of blackish blotches between round spots of the middle series.

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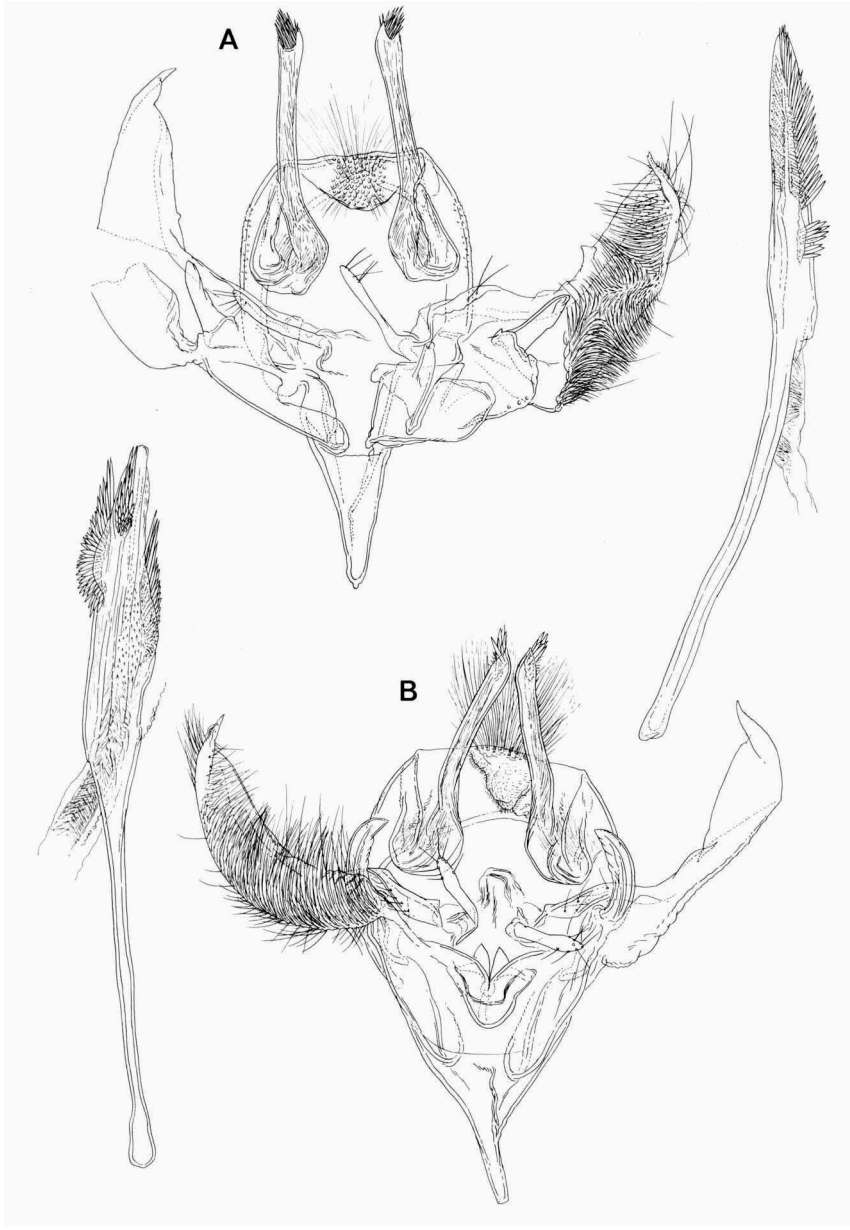

Fig. 11. Male genitalia of *Carposina*. A. *C. ekbatana* Amsel, holotype, with right, aedeagus; B. *C. roesleri* Amsel, holotype, with left aedeagus.

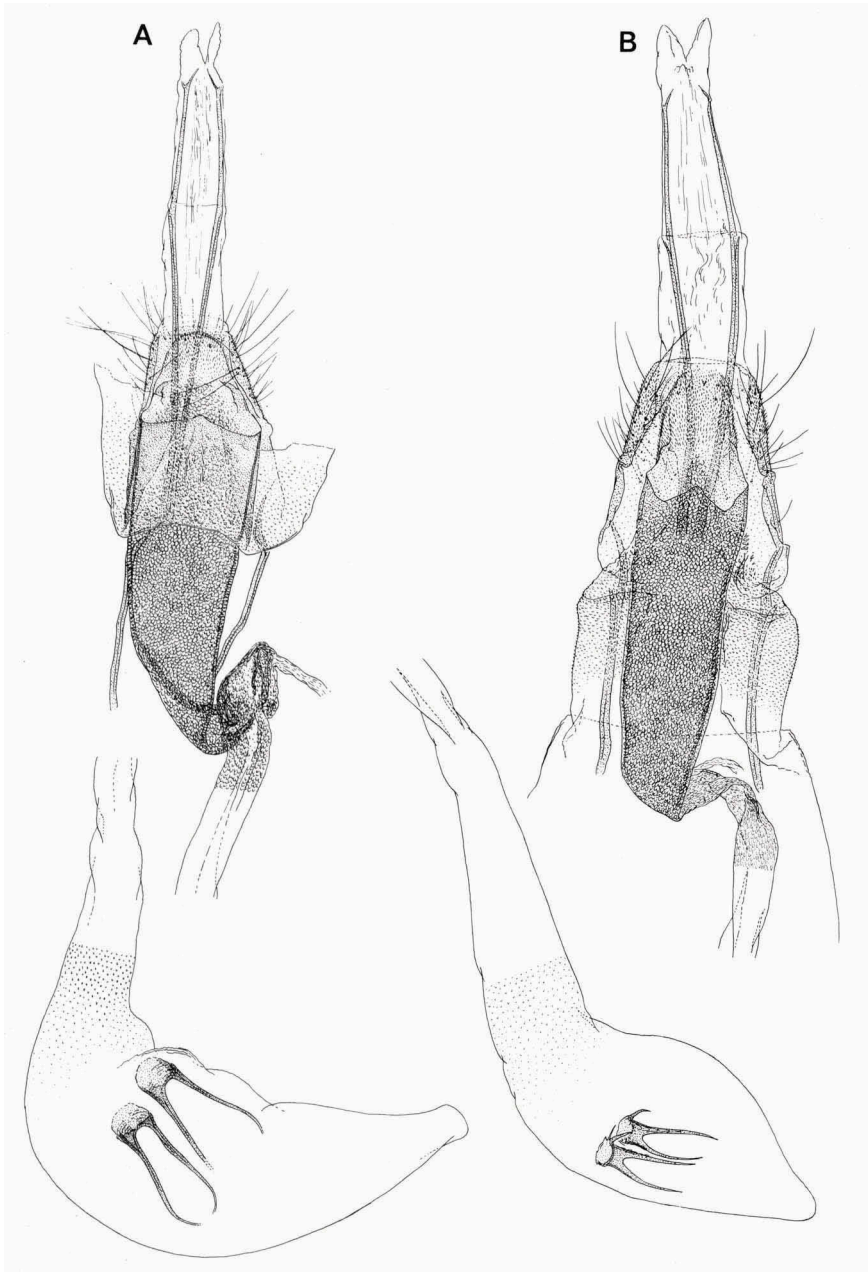

Fig. 12. Female genitalia of *Carposina*. A. *C. roesleri* Amsel, allotype. B. *C. rosella* Kuznetsov, with below, bursa.

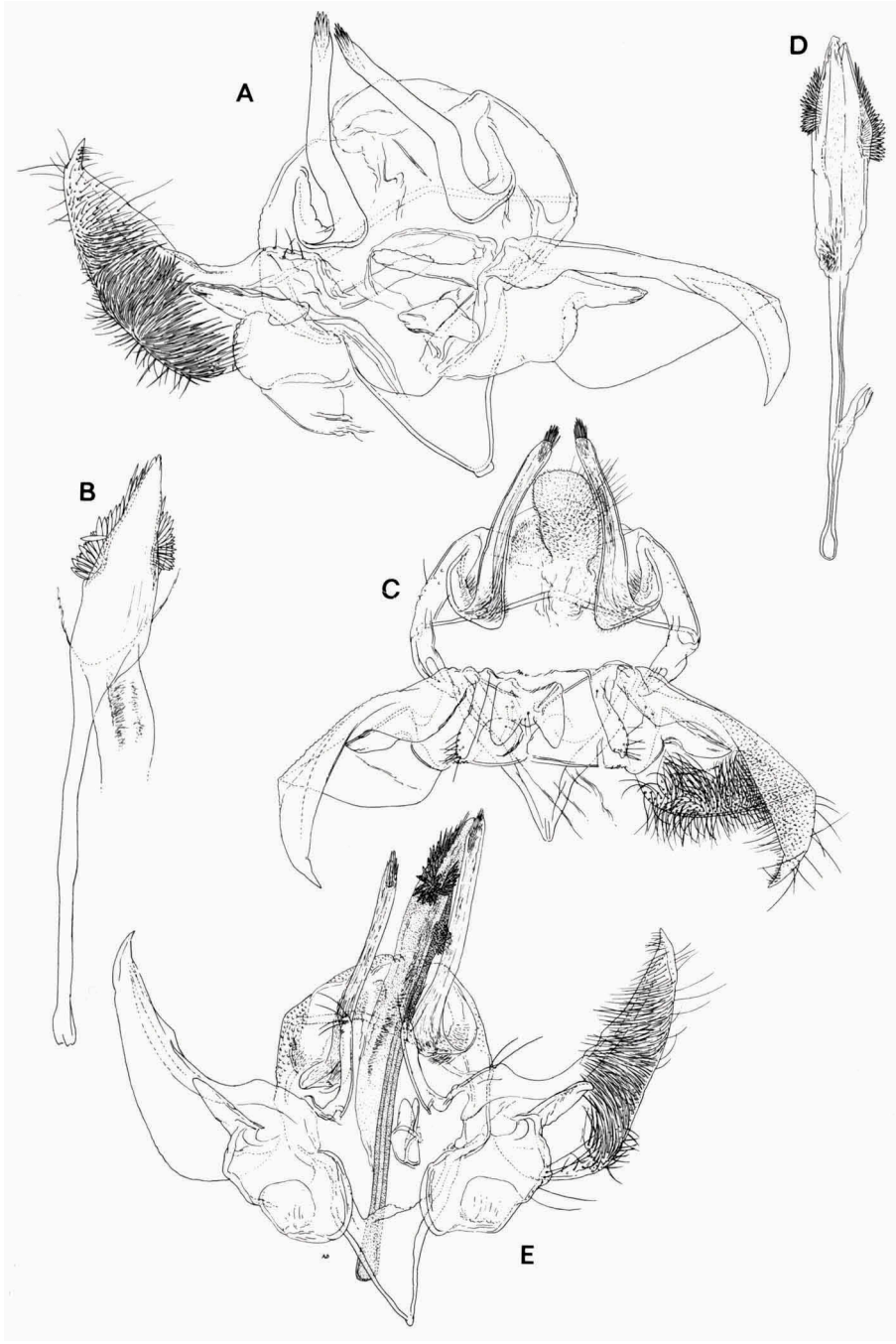

Fig. 13. Male genitalia of *Carposina*. A. *C. tetratoma* spec. nov., paratype, GS 10759; B. The same, aedeagus; C. The same species, holotype; D. The same, aedeagus; E. *C. rosella* Kuznetsov, holotype.

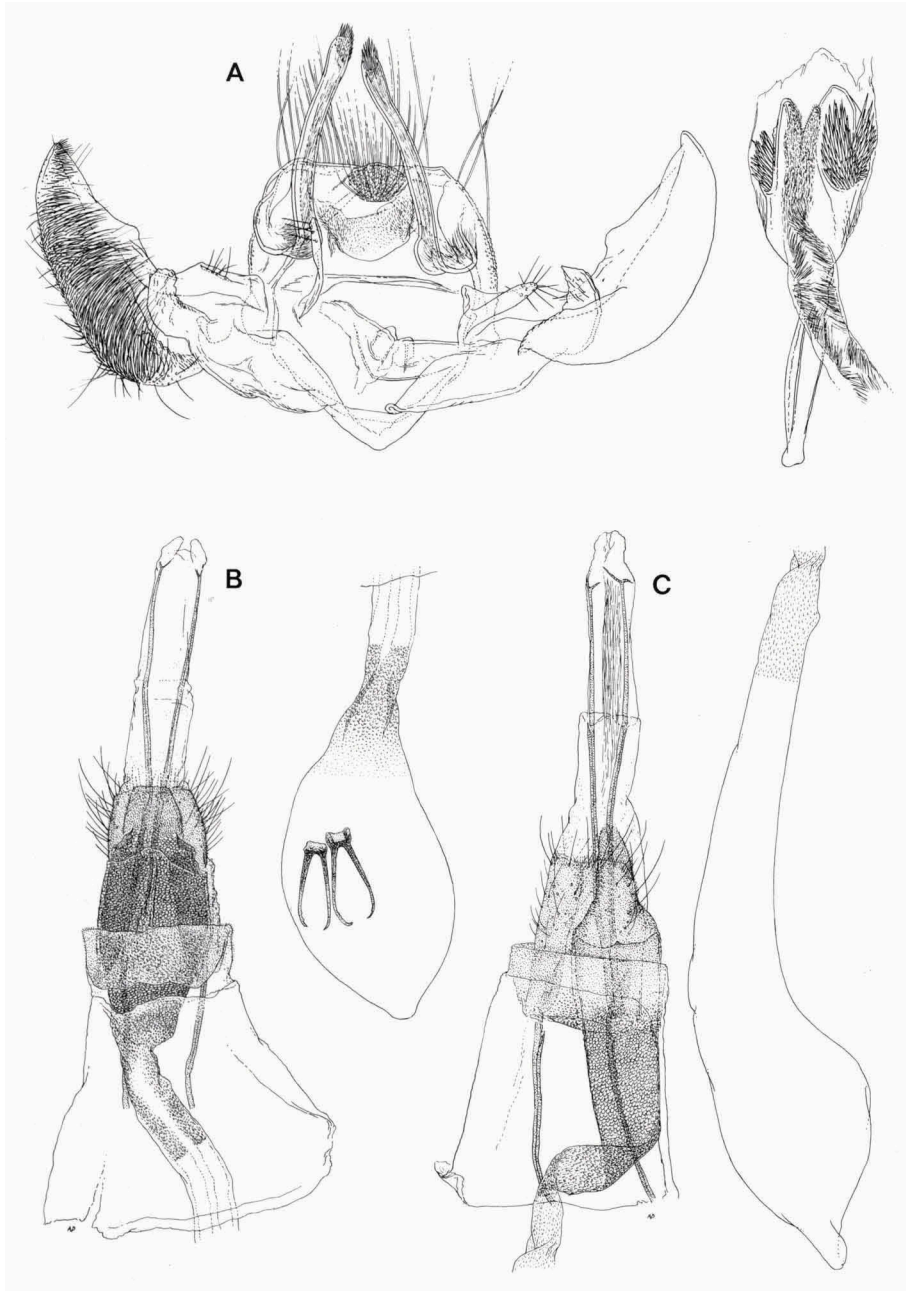

Fig. 14. Genitalia of *Carposina*. A. *C. sasakii* Matsumura ♂, GS 10770, with right, aedeagus; B. *C. sasakii* f. *viduana* Caradja, holotype ♀, with right, bursa; C. *C. tetratoma* spec. nov. ♀ allotype, with right, bursa.

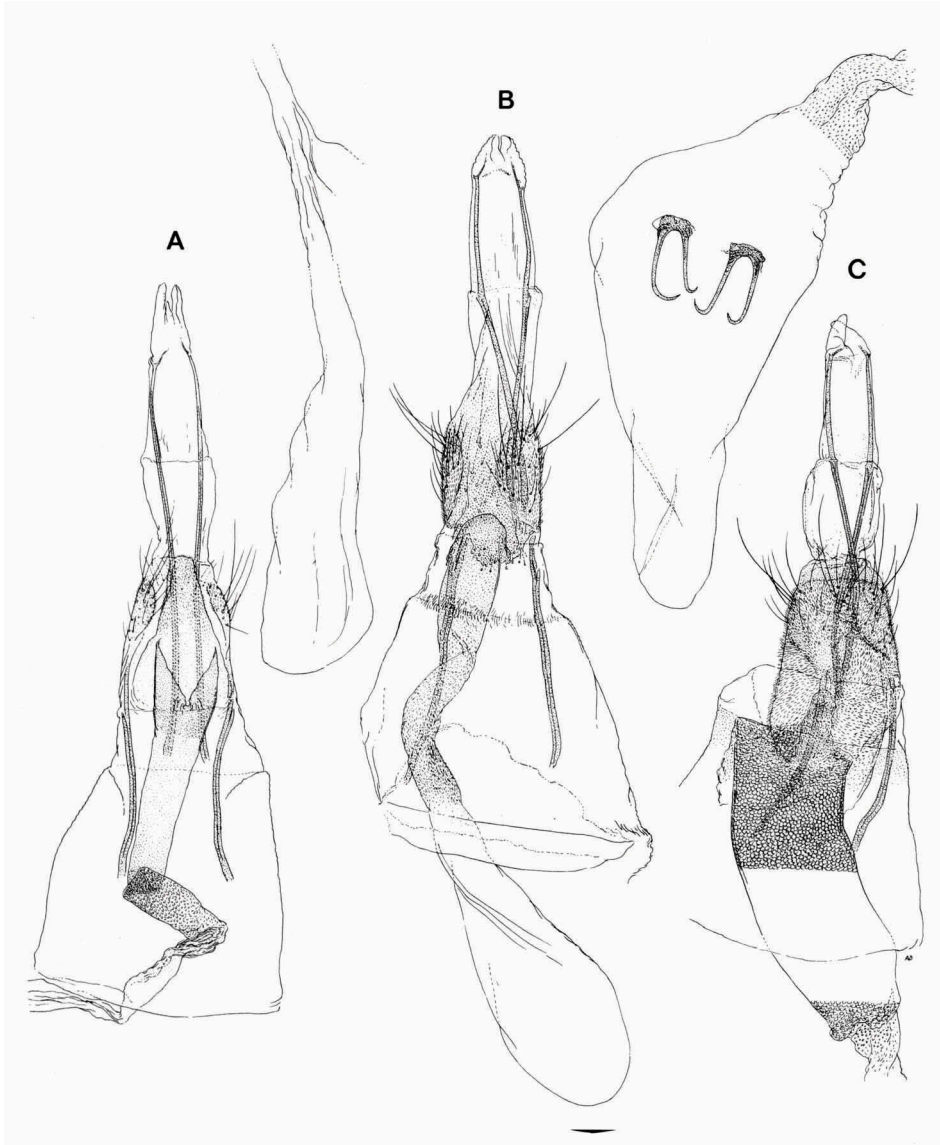

Fig. 15. Female genitalia of Carposinidae. A. *Carposina atlanticella* Rebel, lectotype, with above right, bursa. B. *Alexotypa japonica* (Walsingham); C. *Meridarchis isodina* spec. nov., allotype, with above left, bursa.

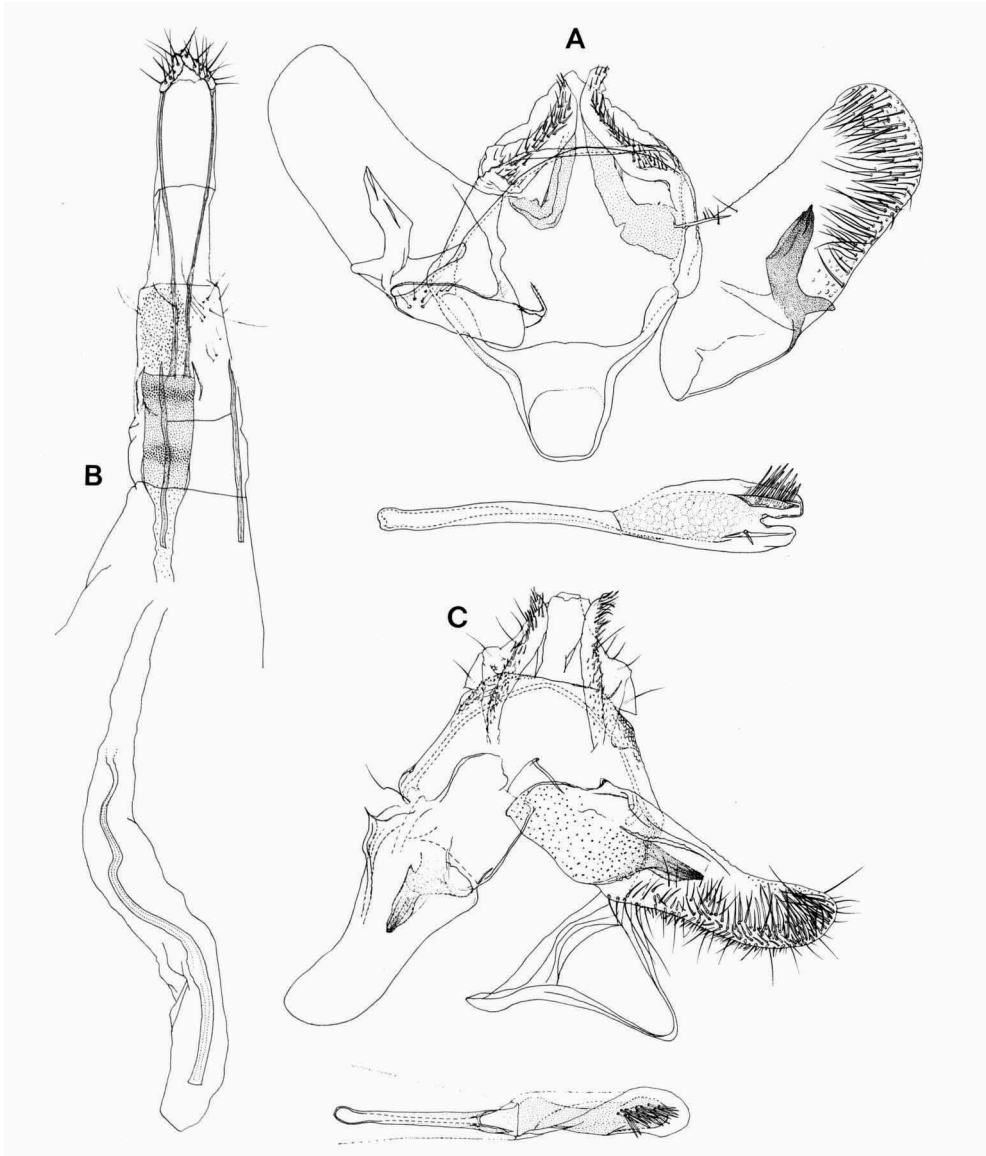

Fig. 16. Genitalia of *Carposina*. A. *C. sublucida* Diakonoff ♂, holotype, with below, aedeagus; B. The same, ♀, allotype; C. *C. cinderella* Diakonoff, ♂, holotype, with below, aedeagus. (After Diakonoff, 1988).

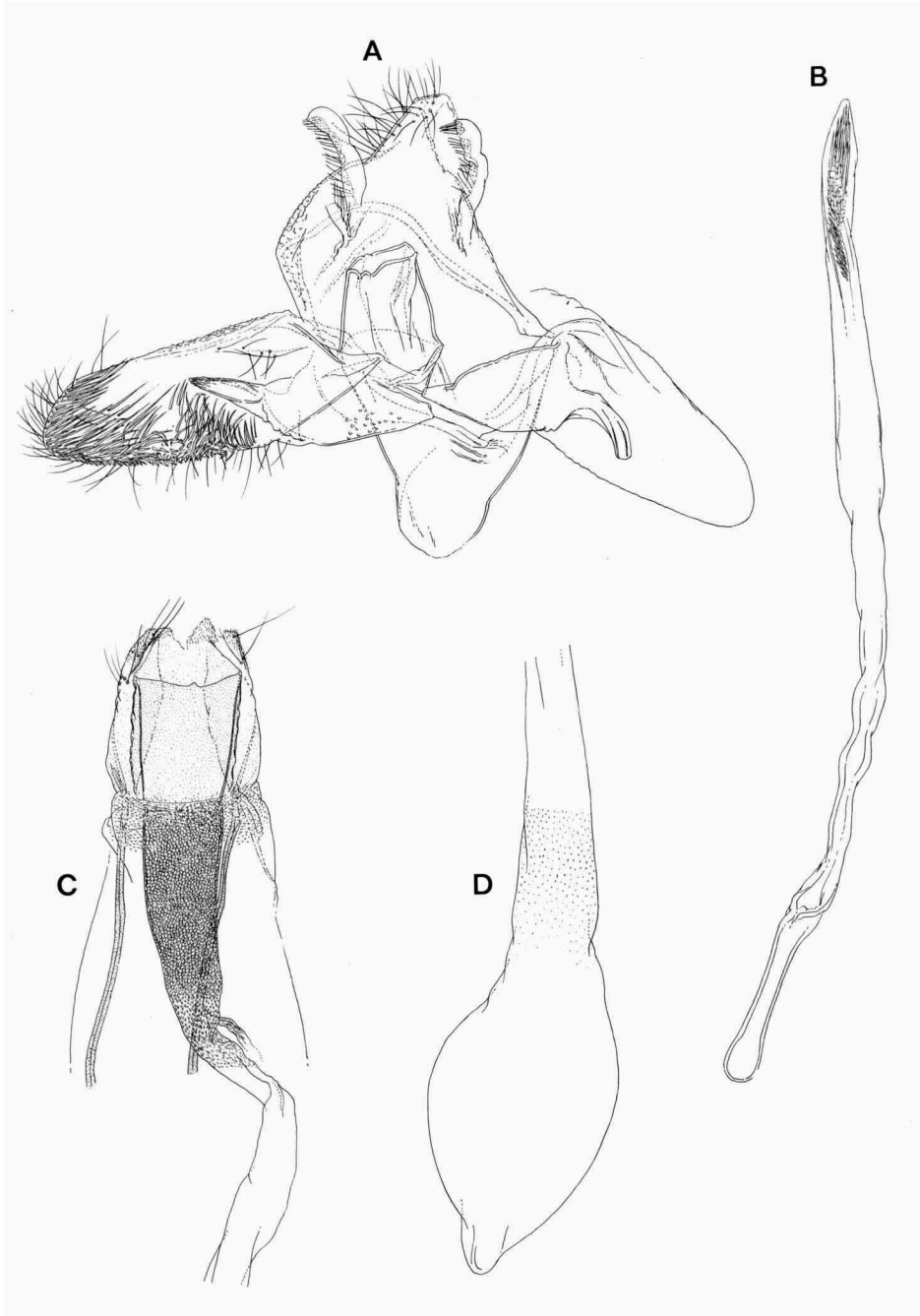

Fig. 17. Genitalia of *Carposina anopta* Diakonoff. A., ♂, holotype; B. aedeagus of the same; C. ♀, allotype (ovipositor missing); D. the same, bursa. (After Diakonoff, 1988).

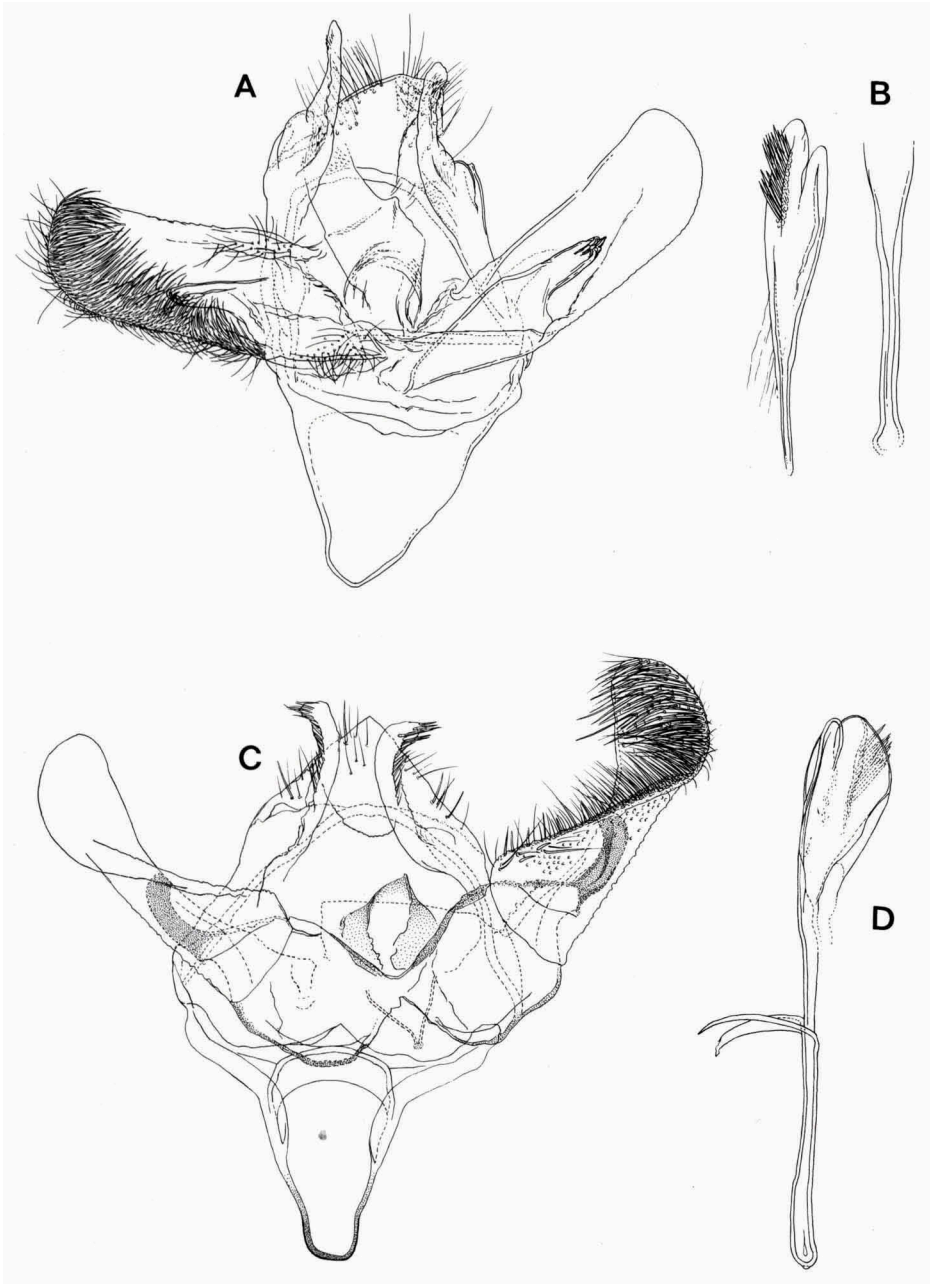

Fig. 18. Male genitalia of *Carposina*. A. *C. gigantella* Rebel. ♂, GS 10751; B. the same, aedeagus, with right, its stalk; C. The same species, ♂, GS 10037; D. The same, aedeagus. (After Diakonoff, 1988).

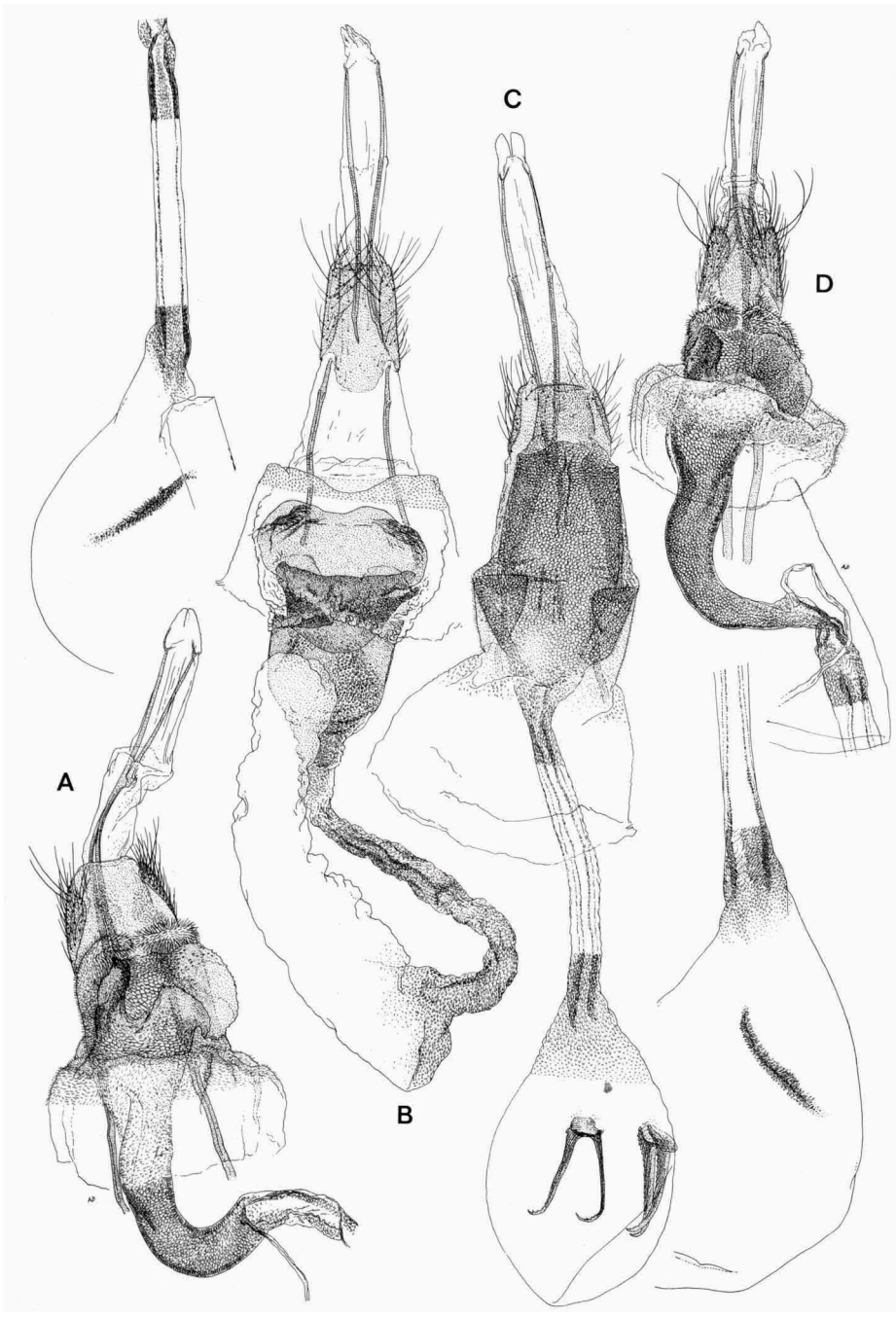

Fig. 19. Female genitalia of Carposinidae. A. *Peragrarchis syncolleta* (Meyrick), GS 10847, with above, distal end of ductus bursae with bursa and signum; B. *Metacosmesis laxeuta* (Meyrick) comb. nov., GS 474 YA; C. *Carposina sasakii* Matsumura, GS 10846; D. *P. syncolleta* (Meyrick), GS 10814, with bursa and signum.

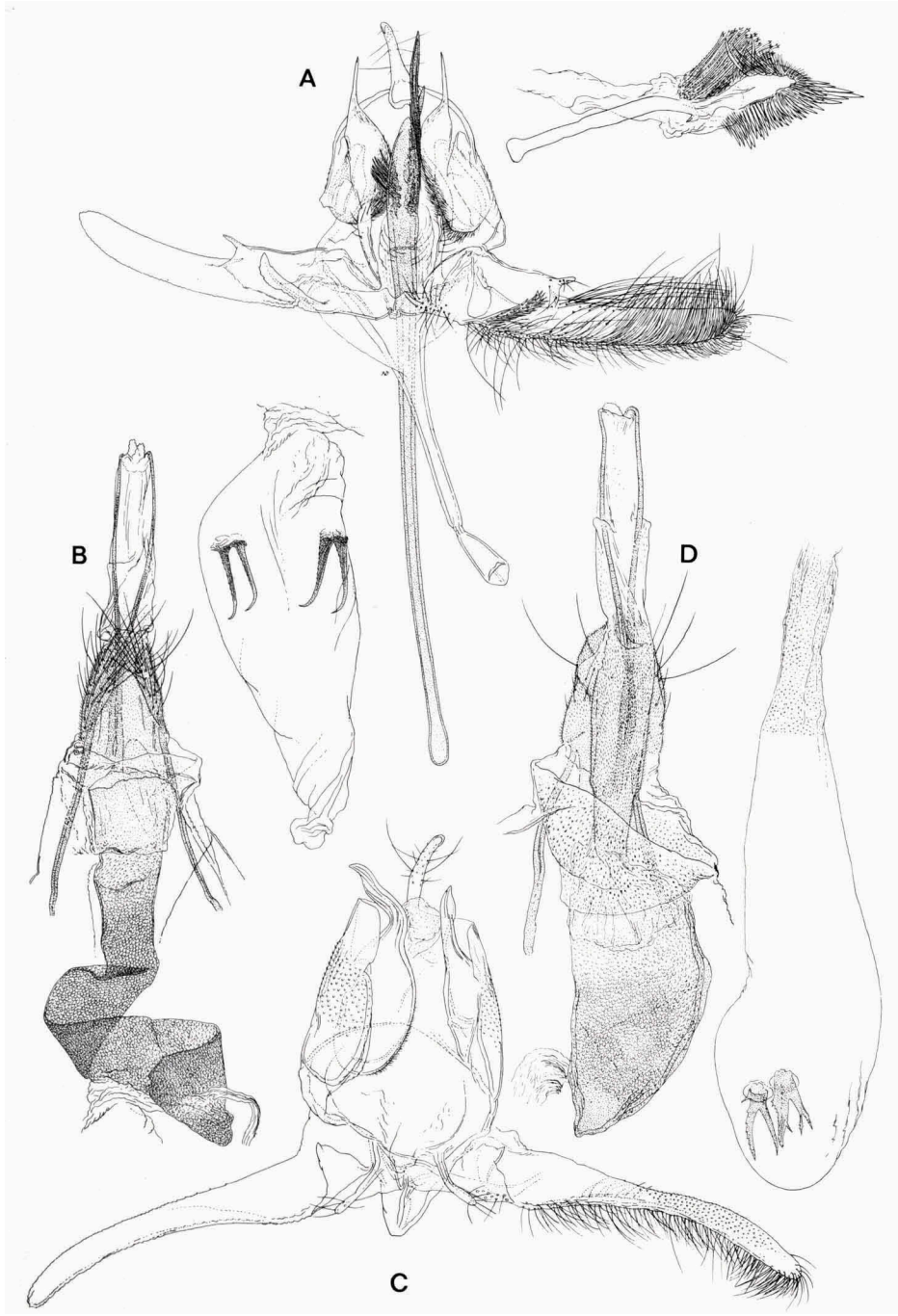

Fig. 20. Genitalia of Carposinidae. A. *Meridarchis jamboa* Kawabe, ♂, holotype, with right, aedeagus; B. The same, ♀, GS 10815, with right, bursa; C. *M. crotalus* spec. nov. ♂ holotype; D. The same, ♀, allotype, with right, bursa.

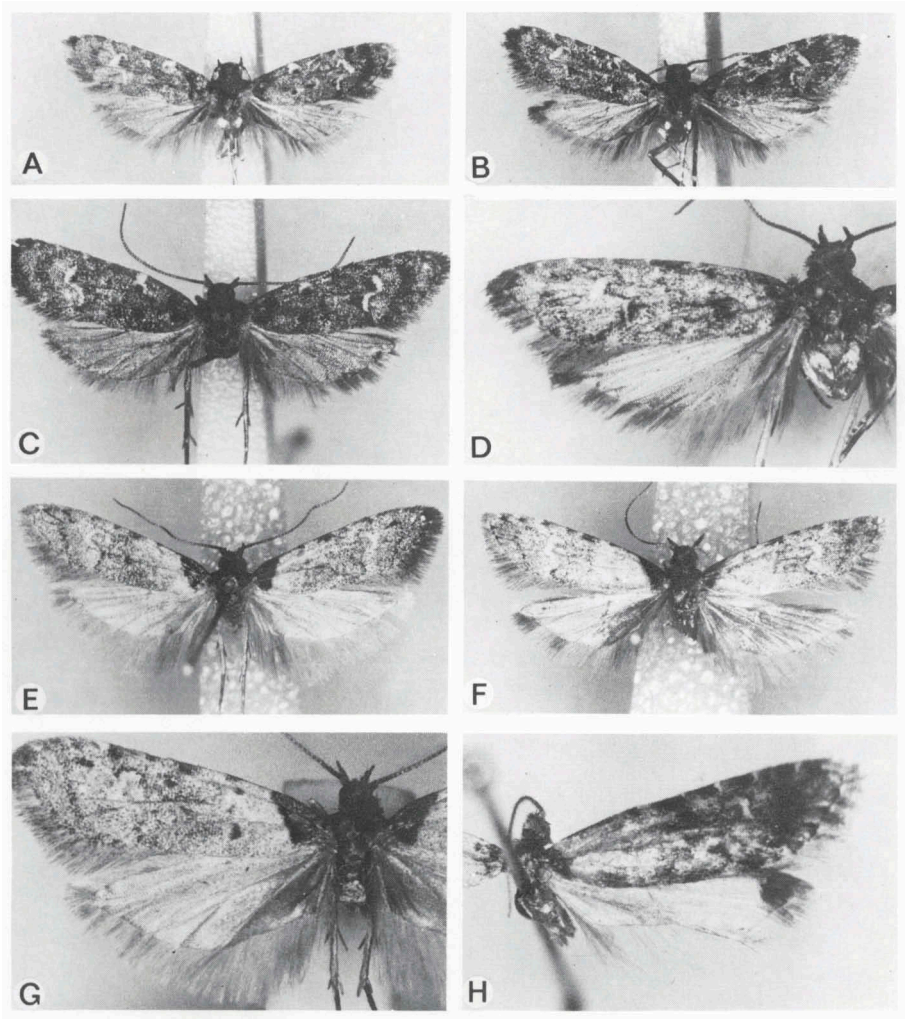

Fig. 21. A. *Commatarcha palaeosema* Meyrick, ♂ GS 10835; B. The same, ♀, GS 10837: C. *C. vaga* spec. nov., ♀, holotype: D. *C. quaestrix* (Meyrick) comb. nov., ♀, lectotype, GS 10869: E. *C. oresbia* spec. nov., ♂, holotype: F. The same, ♀, allotype: G. *C. characterias* (Meyrick) comb. nov. ♂, holotype; H. *C. chrysanches* (Meyrick) comb. nov., ♂, holotype.

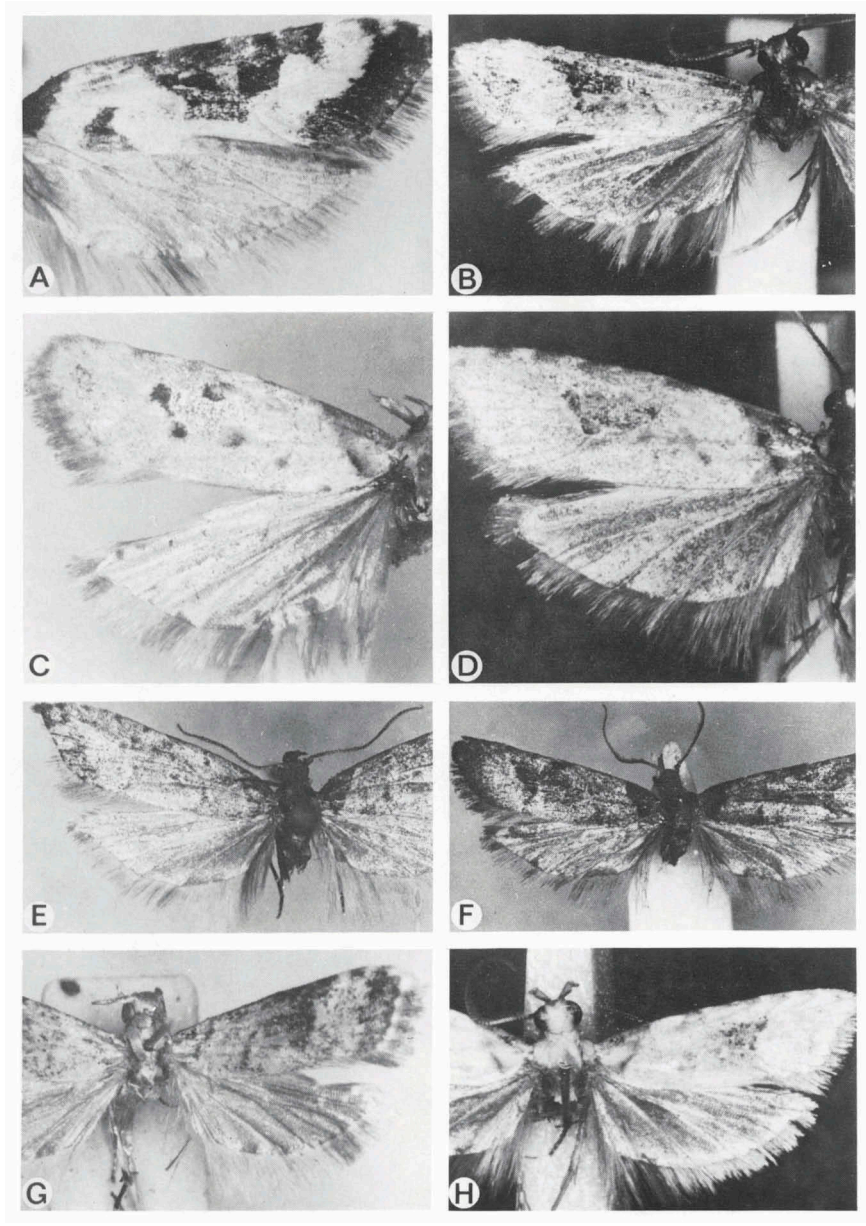

Fig. 22. A. *Commatarcha citrogramma* (Meyrick) comb. nov., ♂, holotype; B. *Alexotypa vitiata* (Meyrick) comb. nov., ♂, holotype; C. *A. japonica* (Walsingham) comb. nov., ♀, holotype; D. The same species, ♂, metallotype.; E. *C. acidodes* spec. nov., ♂, holotype; F. The same species, ♀, allotype: G. *A. caradjai* spec. nov., ♂, holotype; H. *A. japonica* (Walingham) ♂, GS 10845.

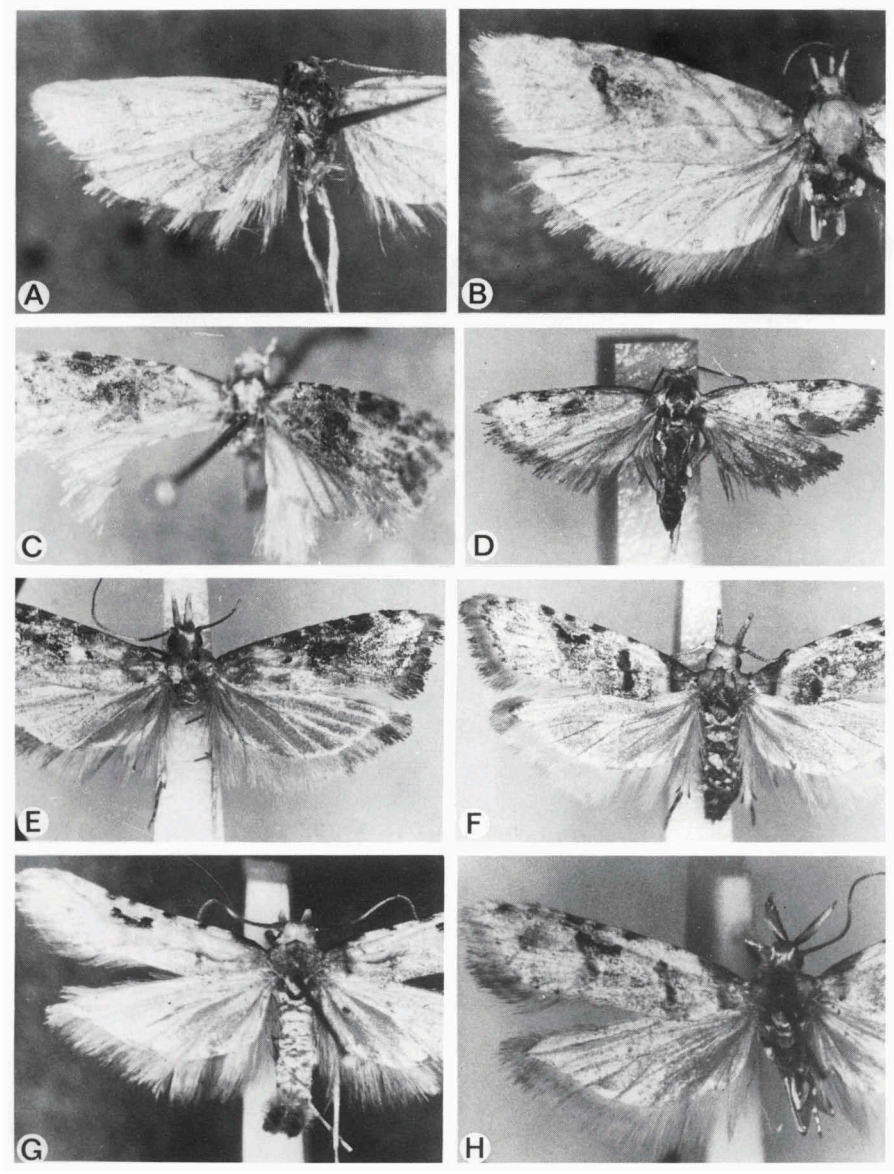

Fig. 23. A. *Alexotypa japonica* (Walsingham) ♂, GS 5236; B. The same, ♀, GS 1084; C. *Peragrarchis emmilta* spec. nov., ♂, holotype; D. *P. syncolleta* (Meyrick) comb. nov. ♂, Yakushima; E. The same, GS 10814; F. *Metacosmesis laxeuta* (Meyrick) comb. nov., ♀, Japan, Satamisaki; G. The same species, Sata, 16.X.1958 (T. Yasuda); H. The same species, ♀.

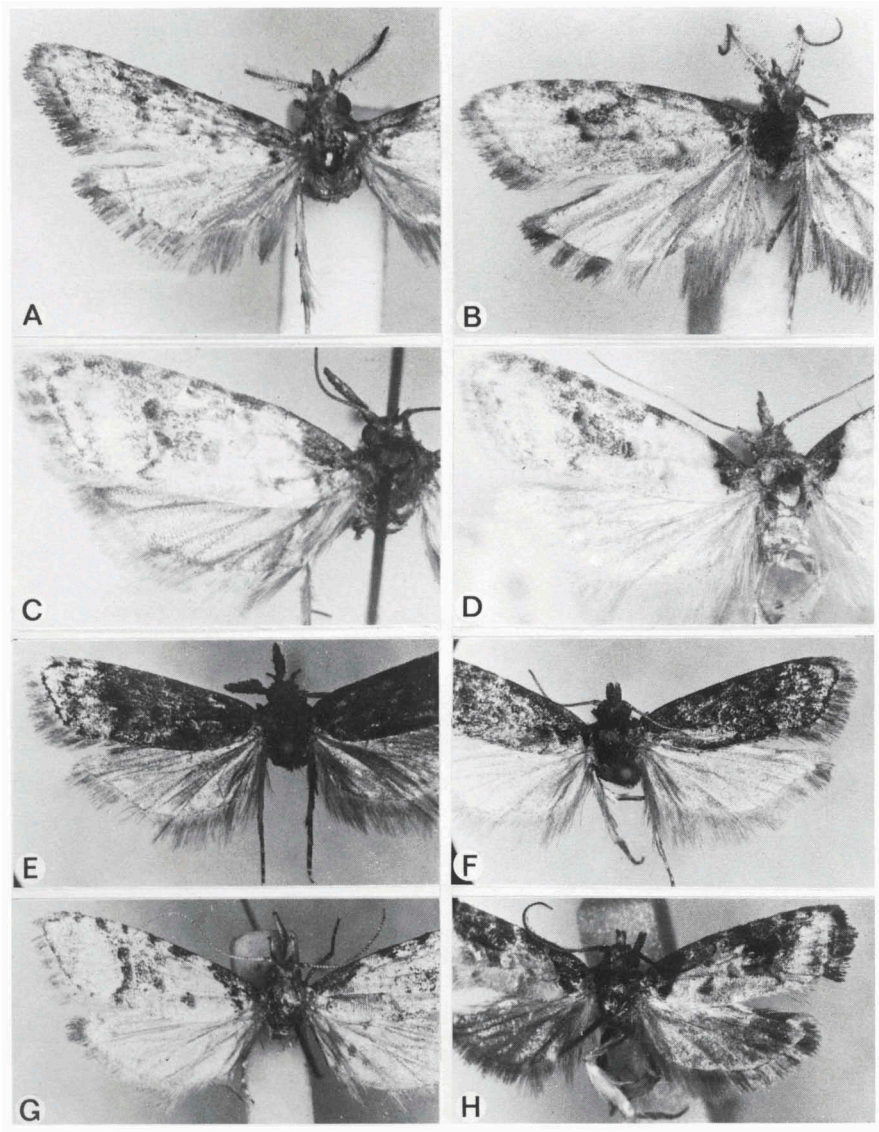

Fig. 24. A. *Carposina zymota* (Meyrick) comb. nov., ♂ holotype; B. *C. niponensis* Walsingham, ♂, holotype; C. *C. scirrhosella* Herrich-Schäffer, ♂, GS 10761. D. The same, ♀, GS 10756. E. *C. roesleri* Amsel, ♂, holotype; F. The same, ♀, allotype; G. *C. ekbatana* Amsel, ♂, holotype; H. *C. sasakii* Matsumura, ♂, GS 10771.

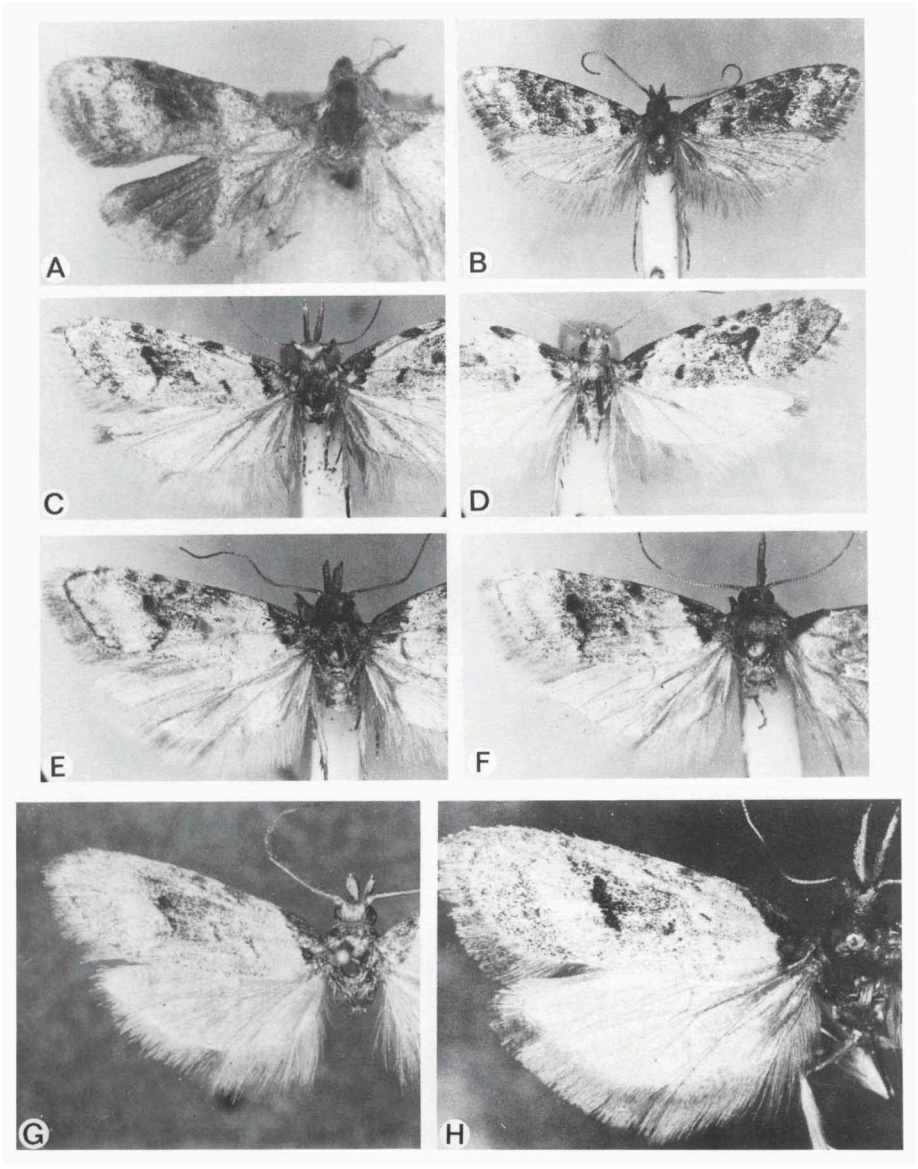

Fig. 25. A. *Carposina sasakii* Matsumura, ♀, lectotype. B. *C. berberidella* Herrich-Schäffer, aberration, Asia Minor, ♂, GS 10787. C. *C. tetratoma* spec. nov., ♂, holotype. D. The same, ♀, allotype. E. *C. diampyx* spec. nov., ♂, holotype; F. The same species, ♀, allotype. G. *C. rosella* Kuznetsov, ♂, holotype; H. The same species, ♀, GS 10764.

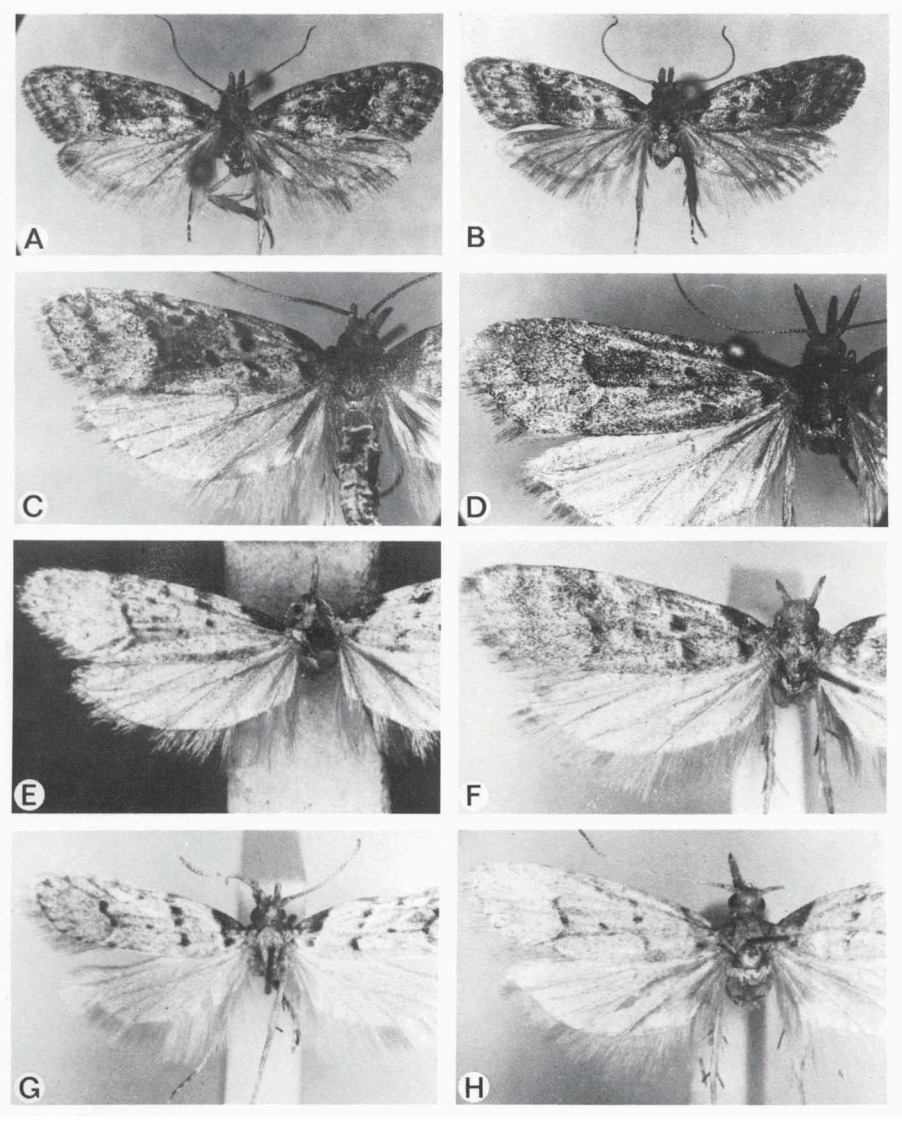

Fig. 26. A. *Carposina berberidella* Herrich-Schäffer, ♂, GS 10776; B. The same, ♀, GS 10777. C. *C. gigantella* Rebel, ♂. Tenerife, Guimar, 30-III.1965 (J. Klimesch); D. The same, ♀ GS 10786; E. *C. atlanticella* Rebel, ♀, GS lectotype. F. *C. cinderella* Diakonoff, ♂, holotype: G. *C. sublucida* Diakonoff, ♂, holotype: H. The same, ♀, allotype.

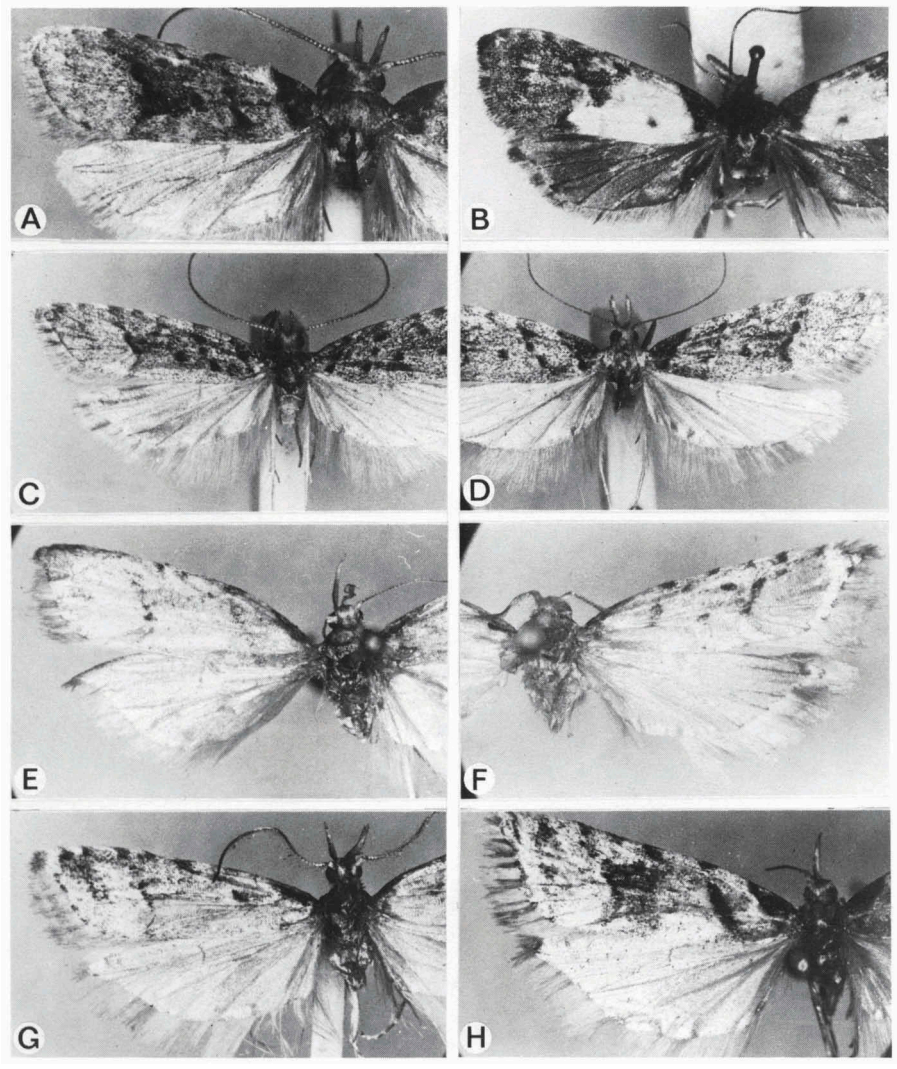

Fig. 27. A. *Carposina gigantella* Rebel, ♂, GS 10751; B. *C. sasakii* f. *viduanna* Caradja, ♀, GS 10766; C. *C. anopta* Diakonoff, ♂, holotype; D. The same, ♀, allotype. E. *Archostola niphauge* spec. nov. ♂, holotype; F. The same, ♀, allotype. G. *A. ocytoma* (Meyrick) comb. nov., ♂, GS 10792. H. The same, ♀, allotype.

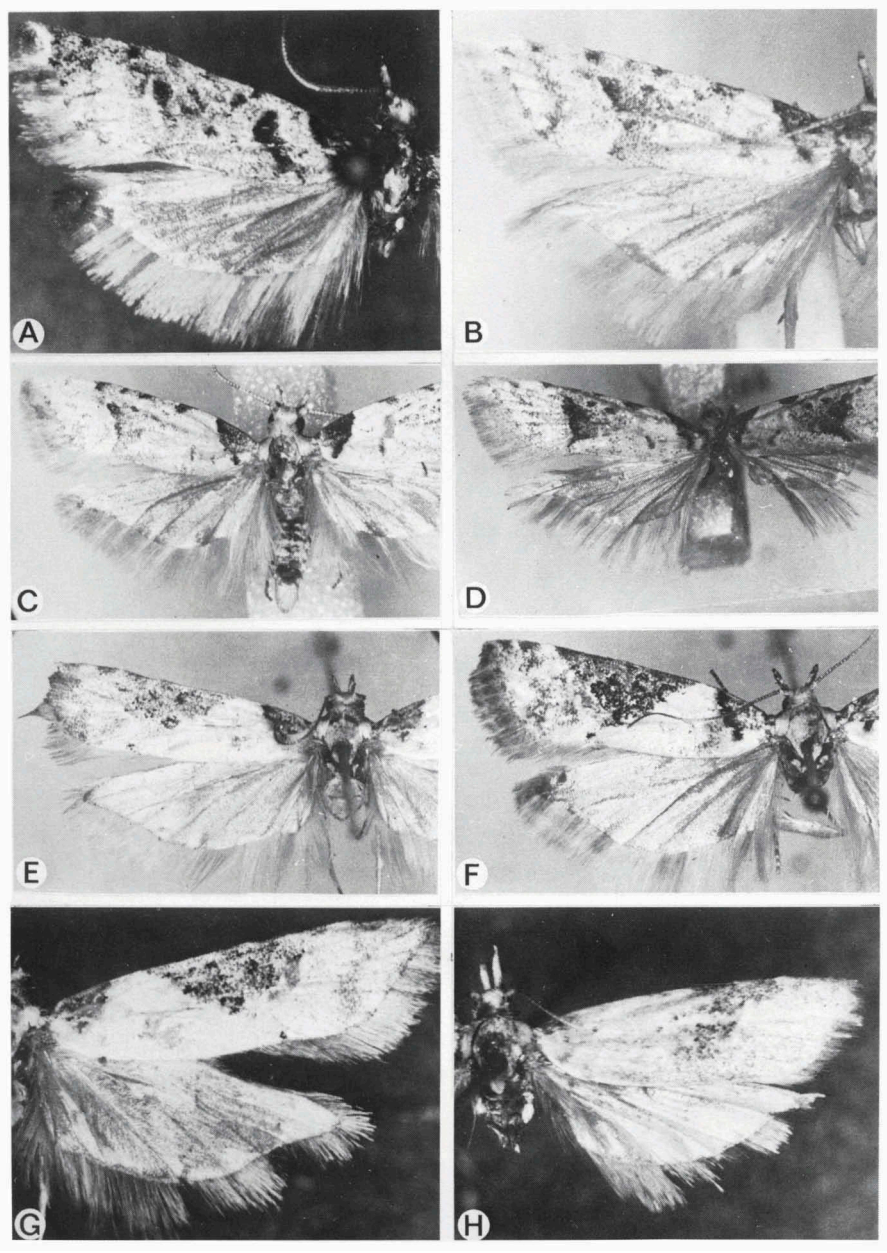

Fig. 28. A. *Archostola amblystoma* spec. nov., ♂ holotype; B. *Meridarchis excisa* (Walsingham), ♀, holotype; C. The same, ♂, Japan, Uradani, 31.V.1975; D. *Carposina askoldana* spec. nov. ♀, holotype; E. *M. jamboa* Kawabe, ♂, holotype, left pair of wings; F. The same species, ♀, GS 10815; G. The same species, holotype, right pair of wings, slightly more magnified;. H. *Archostola martyr* spec. nov., ♂, holotype.

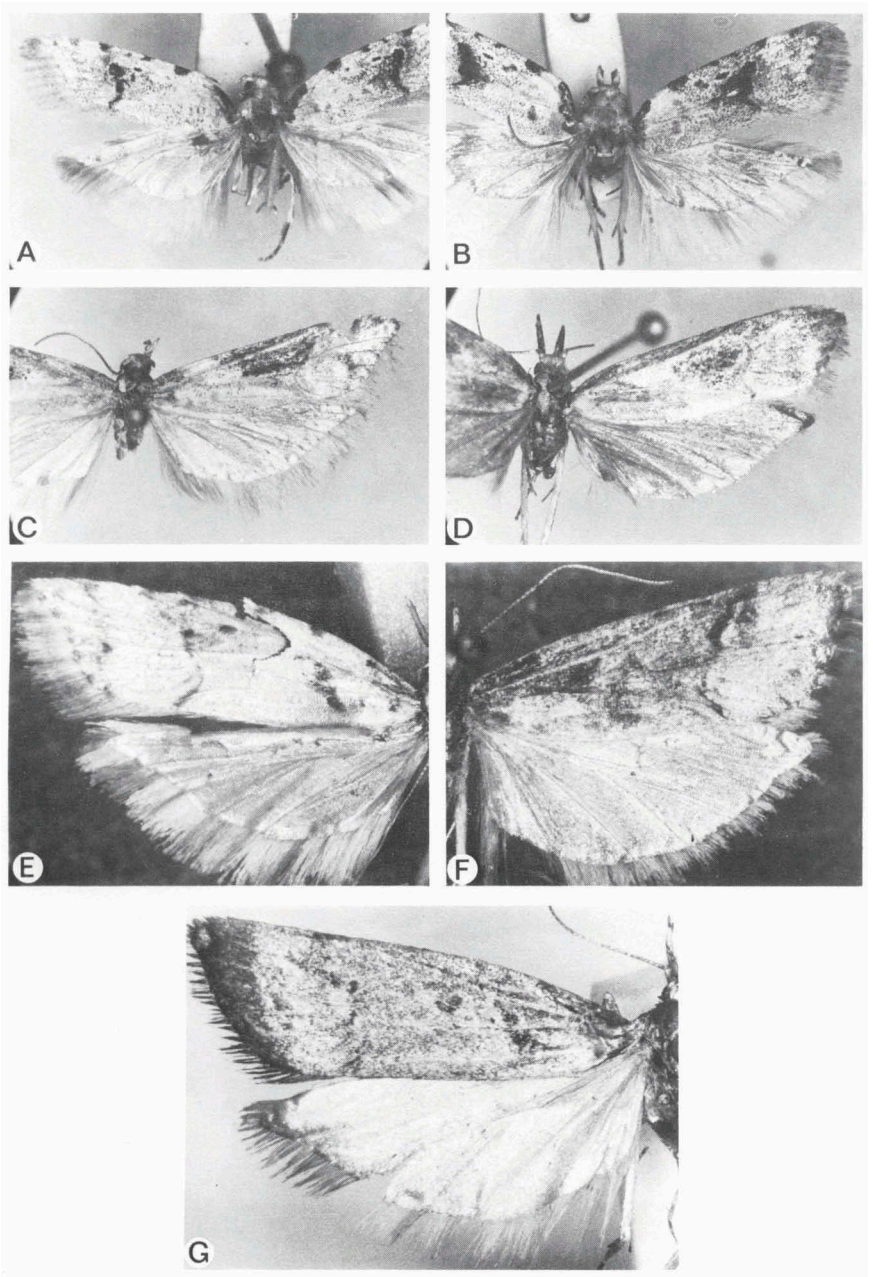

Fig. 29. A. *Meridarchis crotalus* spec. nov. ♂ holotype; B. The same species, ♀, allotype. C. *M. isodina* spec. nov. ♂, holotype; D. The same. ♀ allotype; E. *M. ensifera* Diakonoff, ♀, holotype; F. *M. bryonephela* Meyrick, ♀, holotype; G. *M. longirostris* Hampson, ♀, holotype.

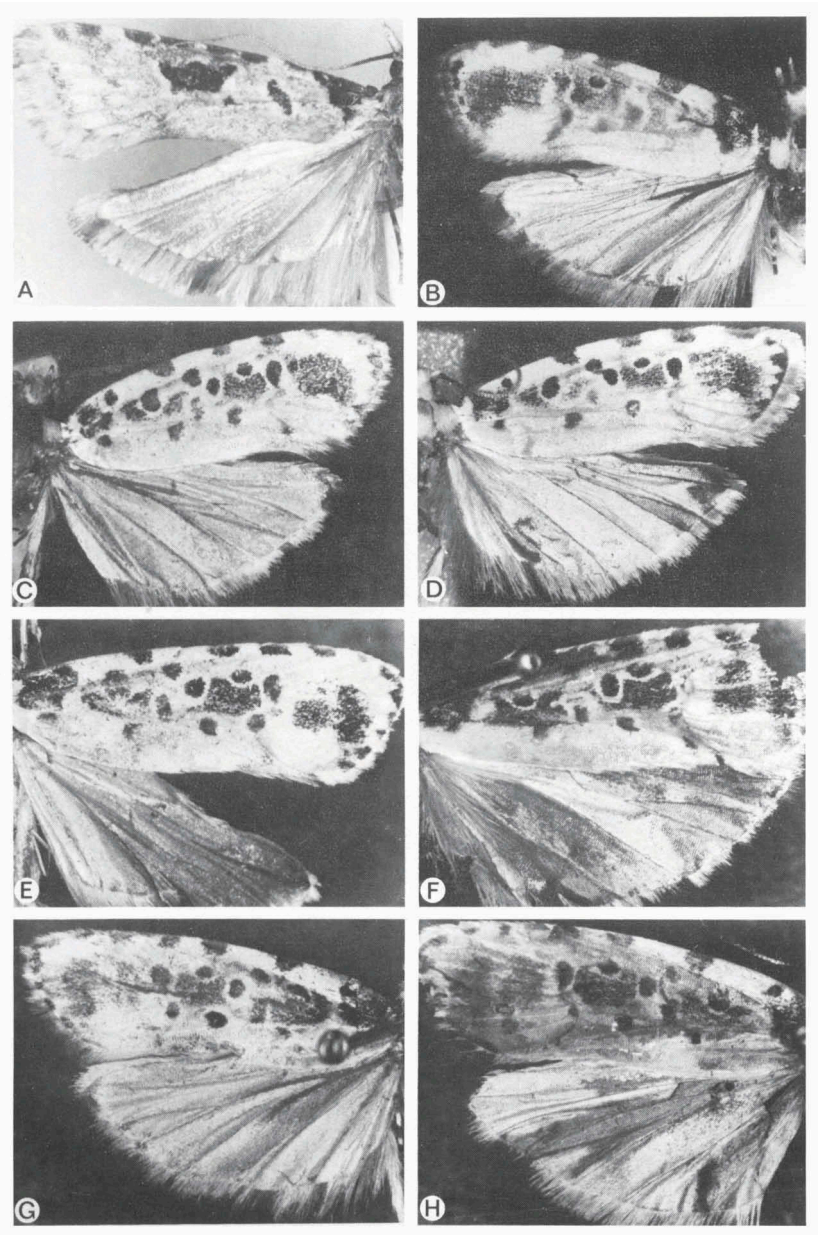

Fig. 30. A. *Meridarchis trapeziella* Zeller, ♂, holotype; B. *Heterogymna metarsia* spec. nov., ♂, holotype; C. *H. ochrogramma seriatopunctata* Matsumura, stat. nov., ♀, GS 10900. D. The same, ♀ GS 10851; E. *H. o. coloba* subspec. nov., ♂, holotype. F. The same, ♀ allotype. G. *H. o. toxotes* subspec. nov., ♂, holotype; H. The same, ♀ allotype.

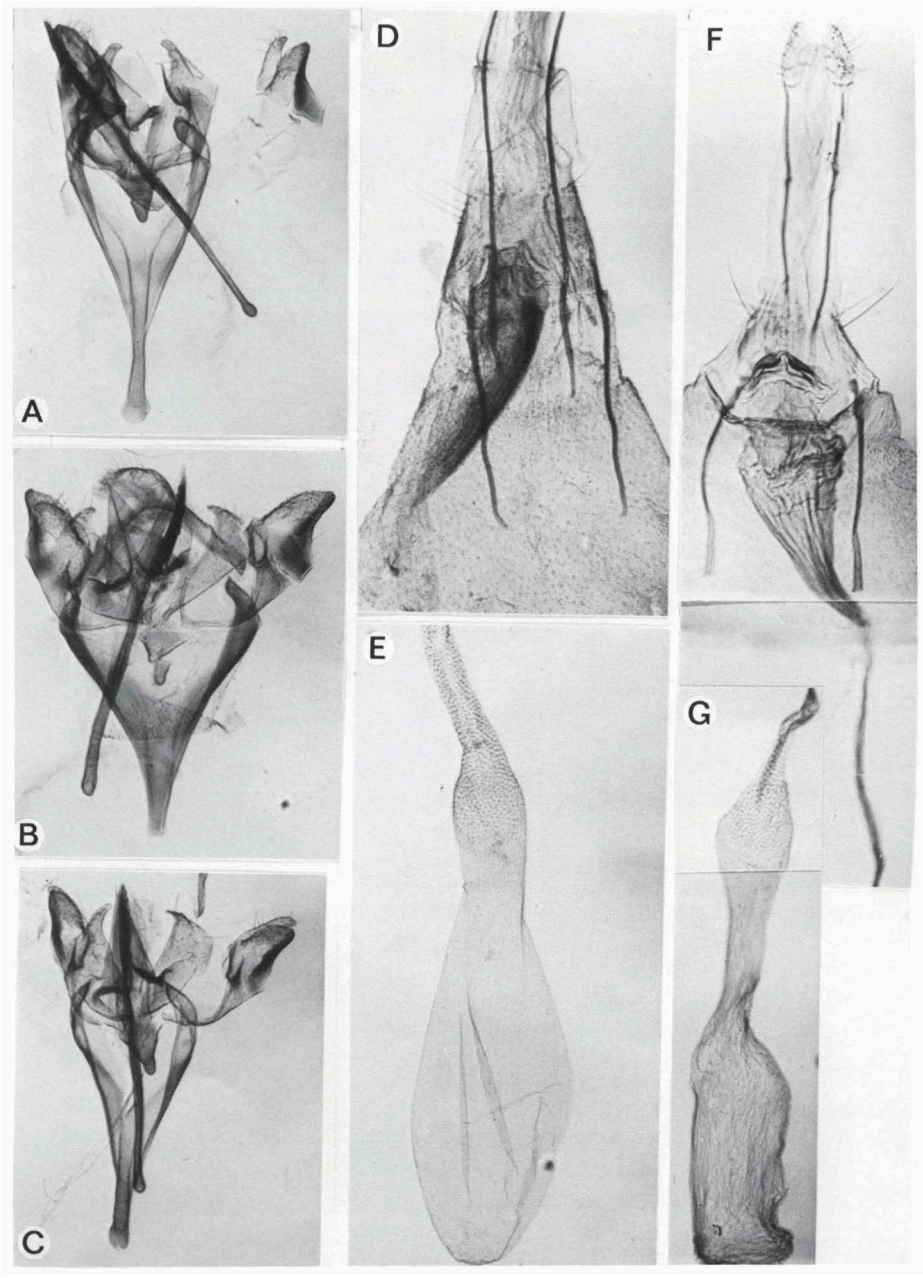

Fig. 31. Genitalia of *Commatarcha* spp. A. *C. palaeosema* Meyrick, ♂, GS 10835, top of right valva severed: at the right; B. The same species, GS 10834. C. The same, GS 10836; D. *C. vaga* spec. nov., ♀, holotype; E. The same, bursa; F. *C. palaeosema* Meyrick, ♀, 10837. G. The same, bursa.

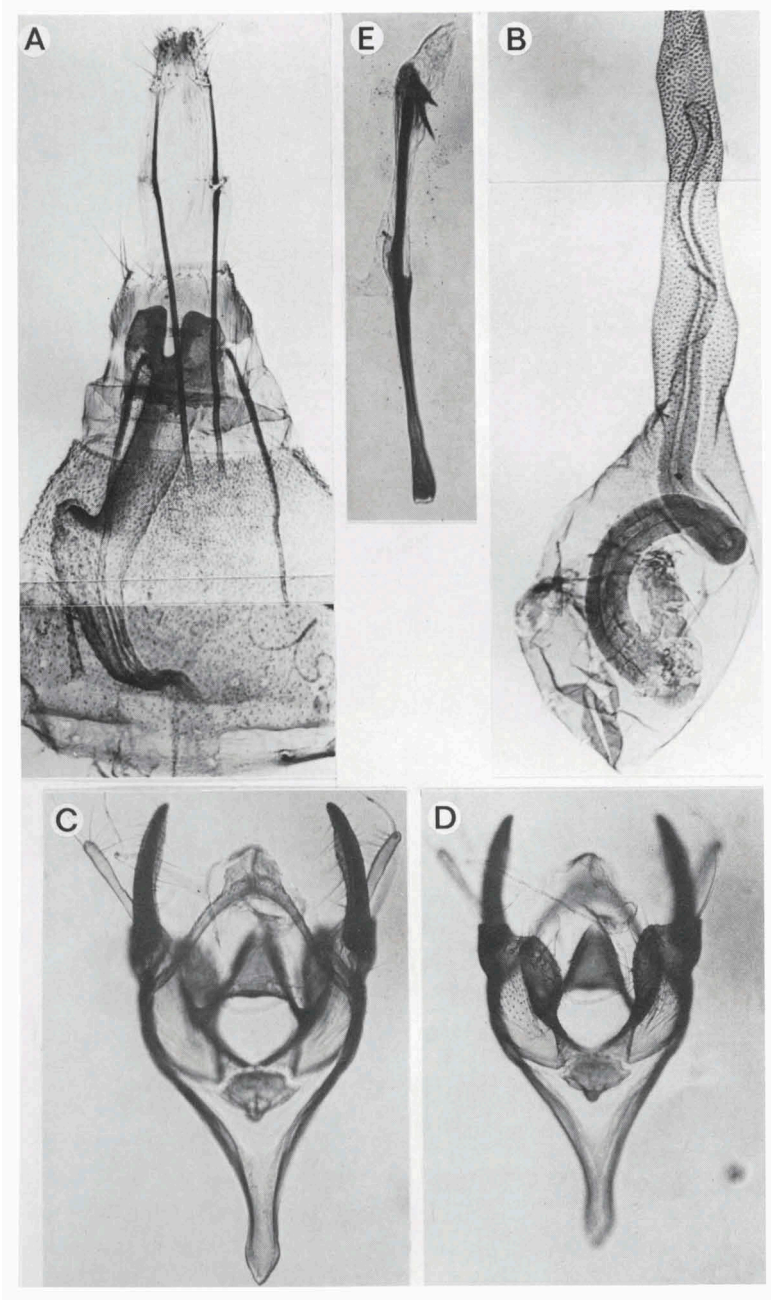

Fig. 32. Genitalia of *Commatarcha* spp. A. *C. quaestrix* (Meyrick), ♀, lectotype. B. The same, bursa; C. *C. characterias* (Meyrick), ♂, holotype, focused on tegumen, vinculum and top of valva; D. The same, focused on sacculi. E. The same, aedeagus.

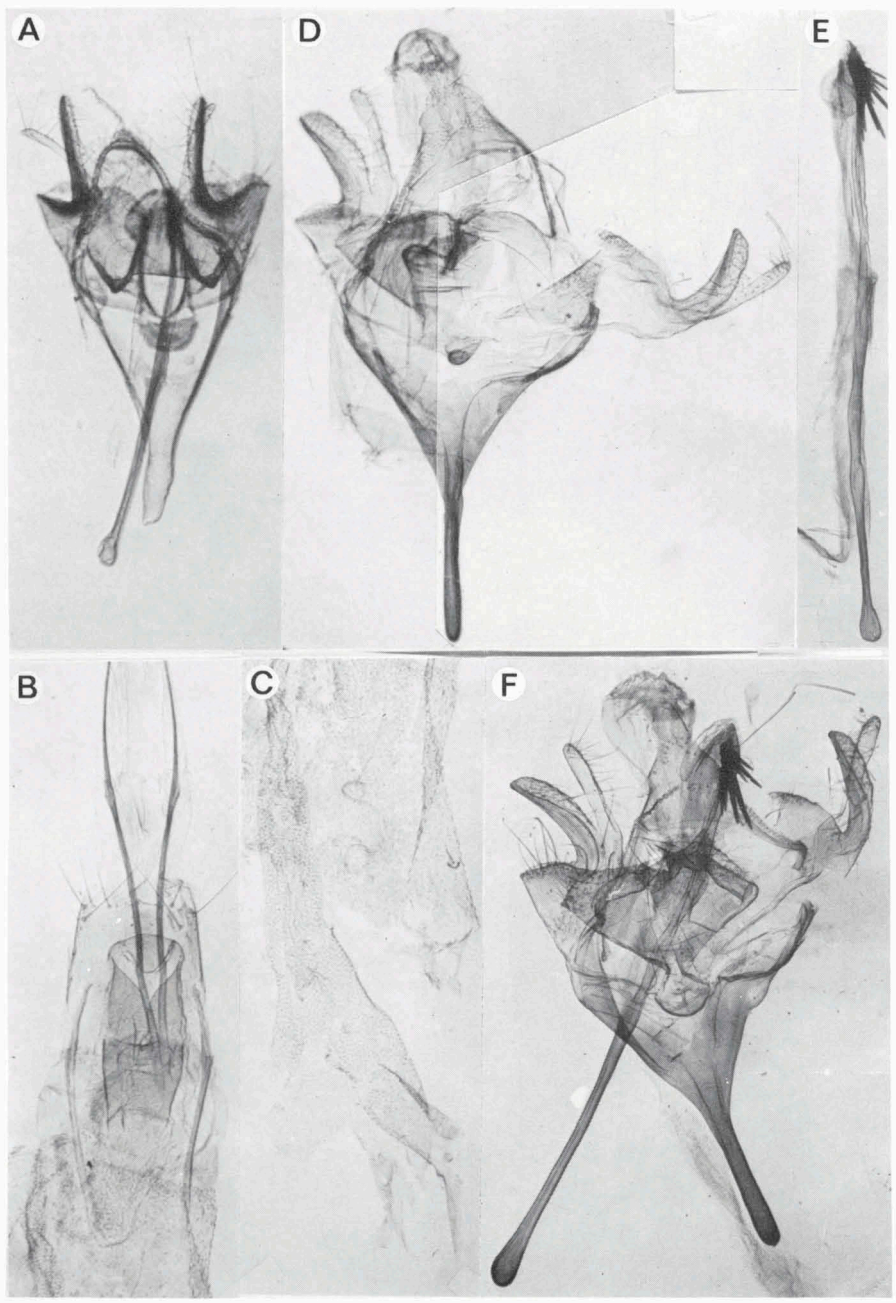

Fig. 33. Genitalia of *Commatarcha* spp. A. *C. oresbia* spec. nov., ♂ holotype B. The same, ♀, allotype C. The same specimen, bursa; D. *C. acidodes* spec. nov., ♂, paratype, GS 10801. E. The same specimen, aedeagus. F. The same species, ♂, holotype.

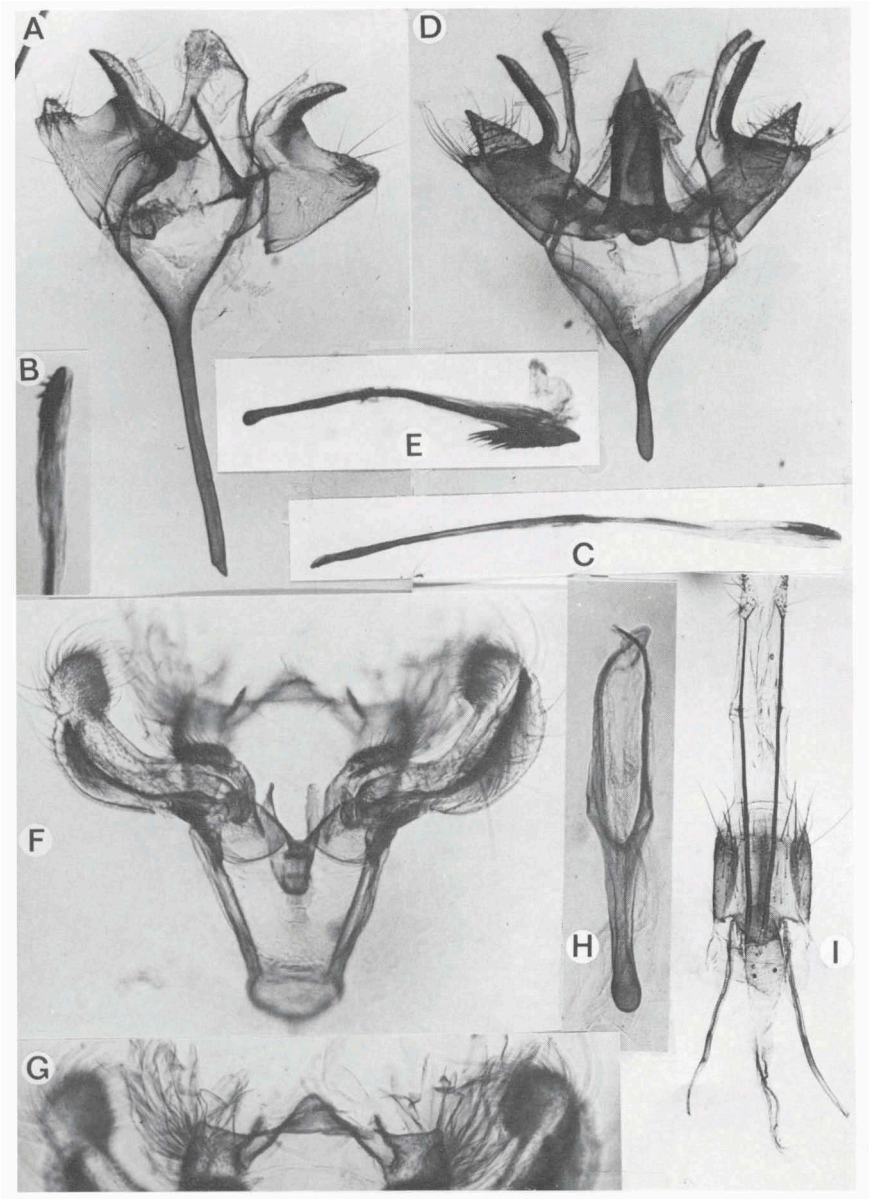

Fig. 34. Genitalia of *Commatarcha* and *Alexotypa*. A. *C. chrysanches* (Meyrick) comb. nov., ♂ holotype. B. The same, top of aedeagus; C. The same, entire aedeagus, less magnified; D. *C. citrogramma* (Meyrick) comb. nov., ♂, holotype; E. The same, aedeagus. F. *A. vitiata* (Meyrick) comb. nov., ♂, holotype, focused on juxta; G. The same, focused on uncus; H. The same specimen, aedeagus. I. *A. japonica* (Walsingham) comb. nov., ♀, holotype, ovipositor and 8th segment (bursa missing).

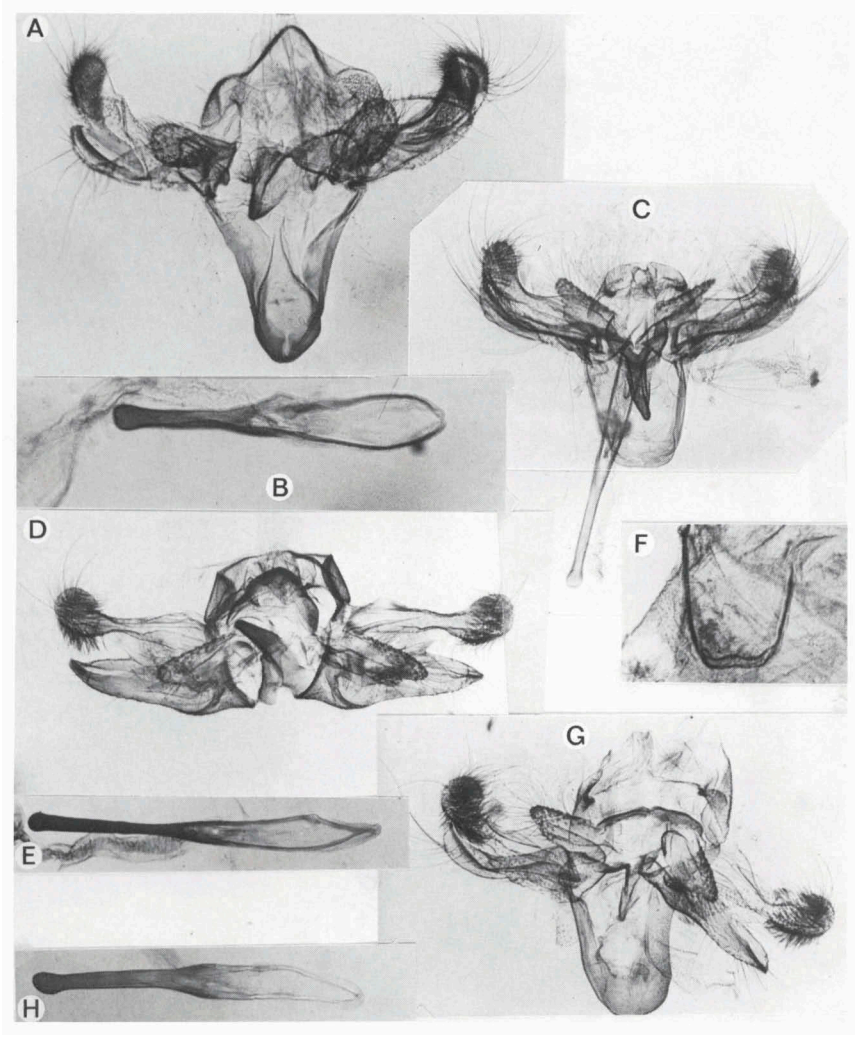

Fig. 35. Genitalia of *Alexotypa*, males. A. *A. caradjai* spec. nov., holotype; B. The same, aedeagus; C. *A. japonica* (Walsingham), GS 5236 AK. D. *A. japonica* (Walsingham), GS 10813, E. The same, aedeagus: F. The same, vinculum: G. *A. japonica* (Walsingham) comb. nov., metallotype, GS 10892; H. The same, aedeagus.

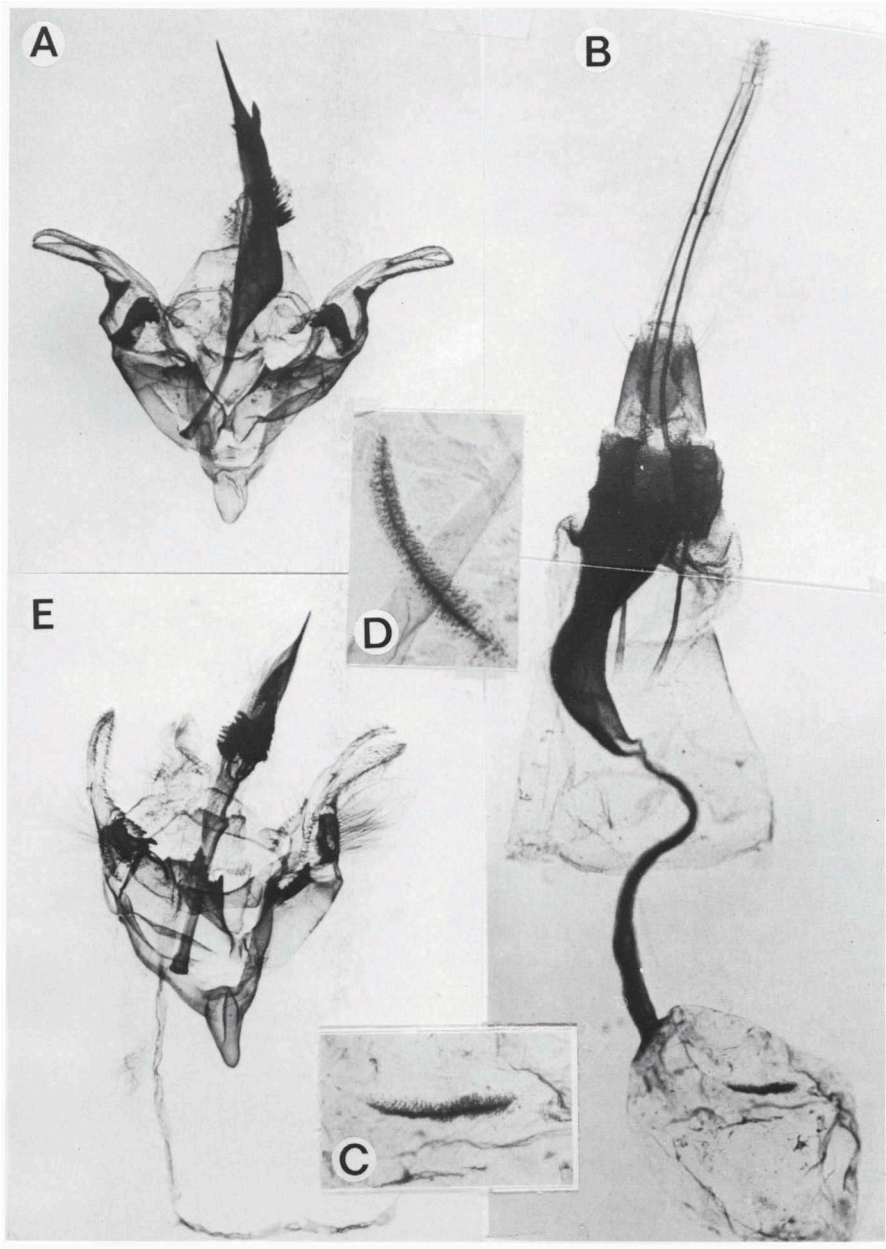

Fig. 36. Genitalia of *Peragrarchis* spp. A. *P. syncolleta* (Meyrick) comb. nov. ♂, GS 5229 AK. B. The same, ♀, GS 476 YA. C. The same specimen, signum, more magnified; D. The same species, ♀, GS 10814, signum more magnified. E. *P. emmilta* spec. nov. ♂, holotype.

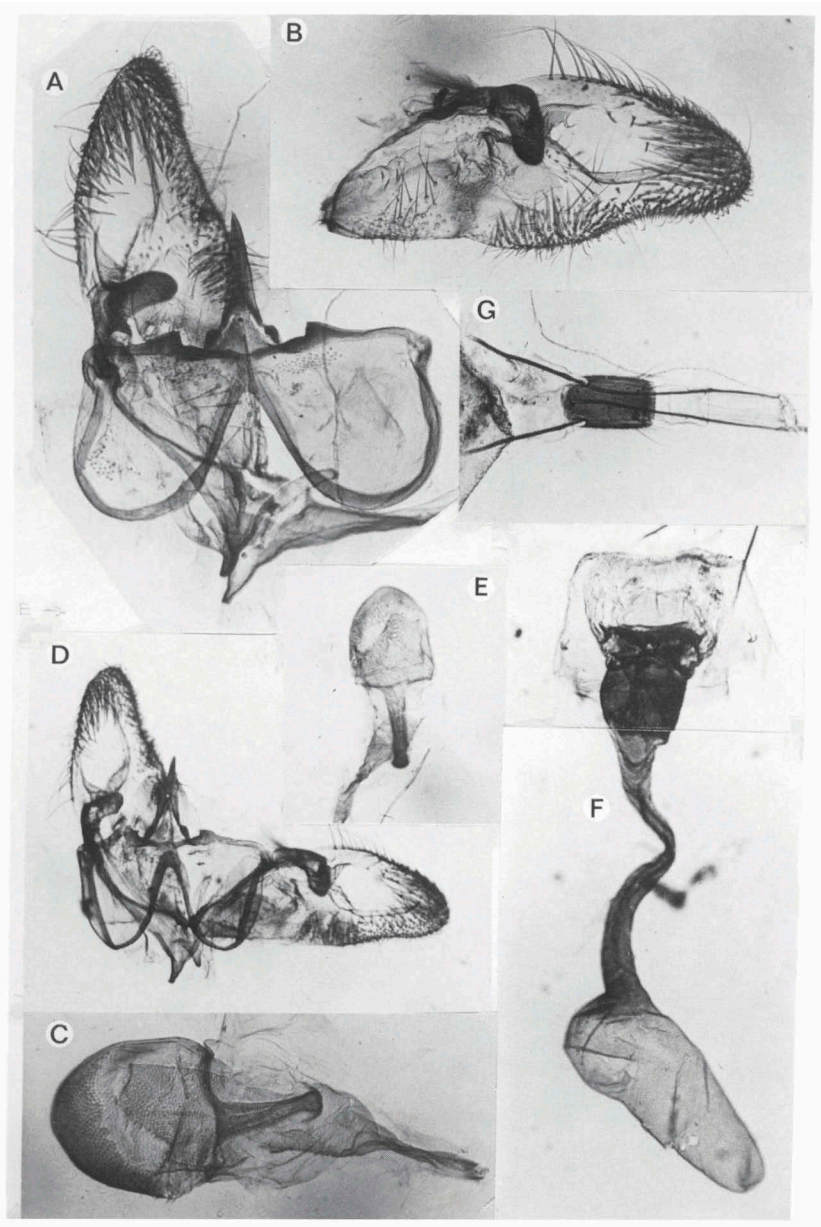

Fig. 37. Genitalia of *Metacosmesis laxeuta* (Meyrick). A. ♂, GS 10862 dorsal aspect. B. The same, right valva, ventral aspect. C. The same, aedeagus. D. The same, ♂, GS 10874. E. The same species, ♀, GS 10863. F. The same, distal part.

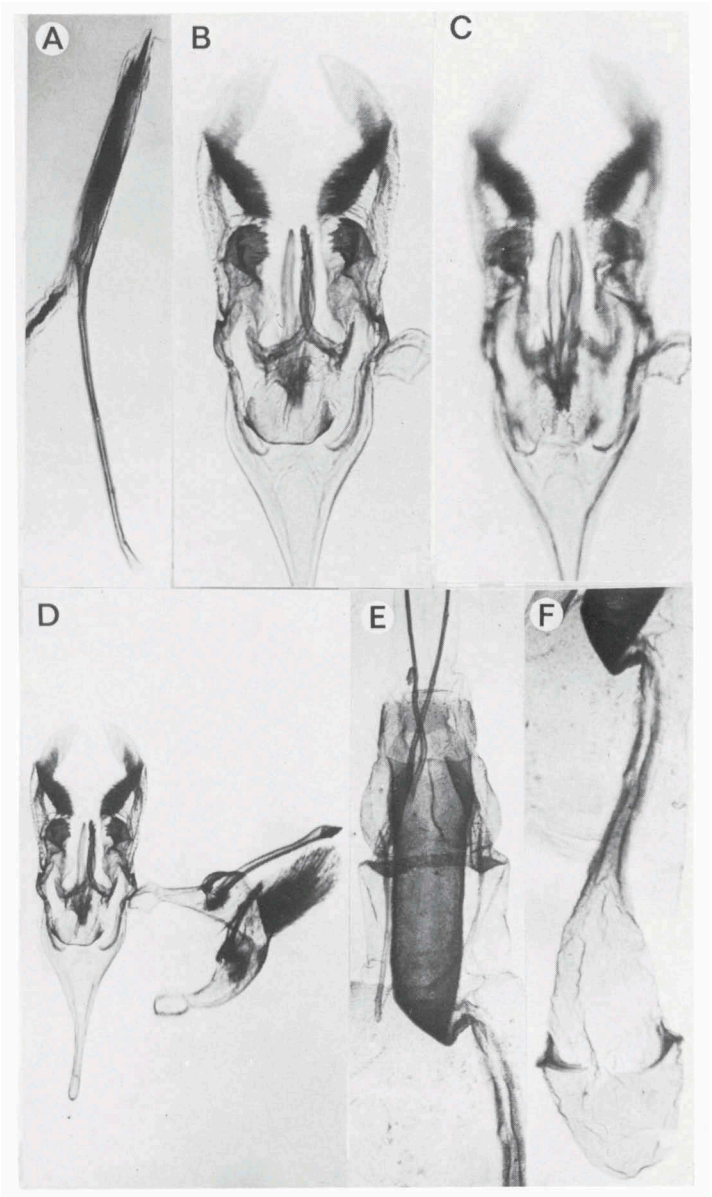

Fig. 38. Genitalia of *Carposina*. A. *C. niponensis* Walsingham, ♂ holotype. aedeagus. B. The same, dorsal aspect, focussed at anellus lobes. C. The same focussed at juxta lobes; D. As B, but with tegumen less magnified. E. *C. scirrhosella* Herrich-Schäffer, ♀, GS 10755. F. The same, bursa.

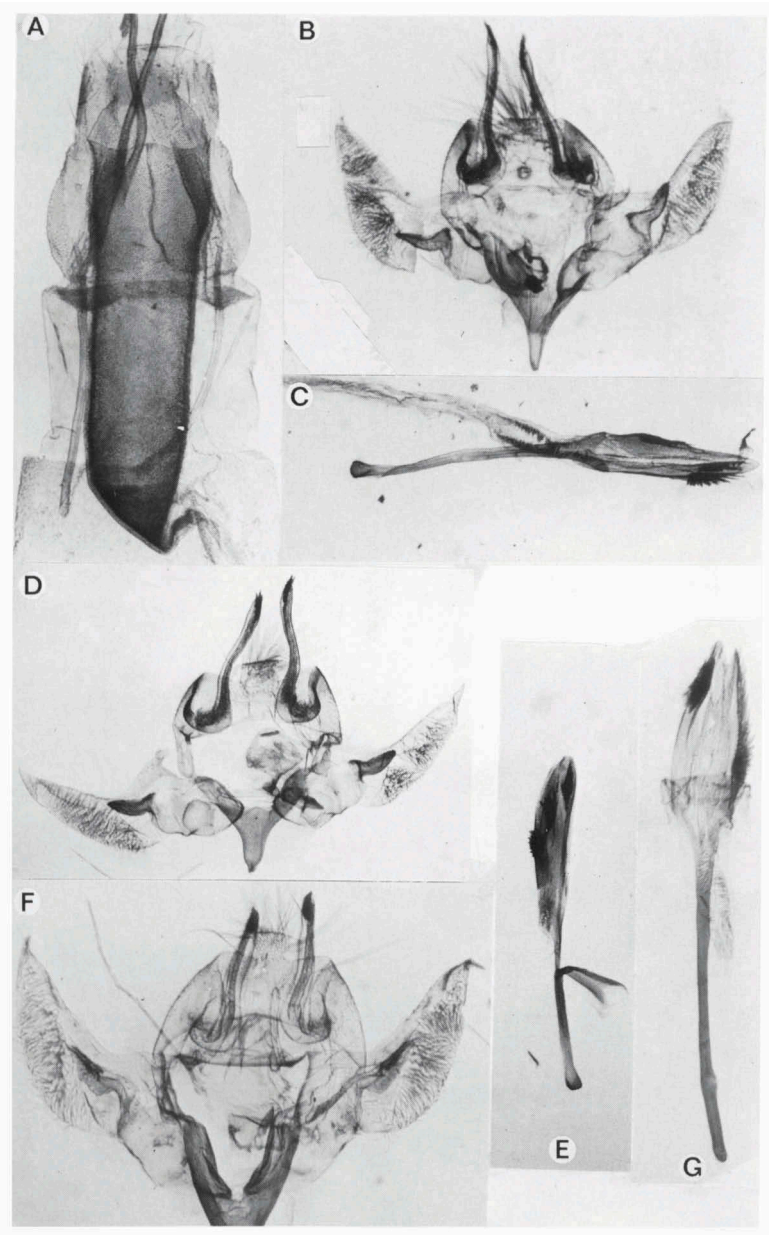

Fig. 39. Genitalia of *Carposina* spp. A. *C. scirrhosella* Herrich-Schäffer, ♀ GS 10755, ostium and colliculum; B. The same species, ♂, GS 10753. C. The same, aedeagus; D. *C. diampyx* spec. nov., ♂, holotype: E. The same, aedeagus; F. *C. berberidella* (Herrich-Schäffer), ♂, GS 10776: G. The same, aedeagus.

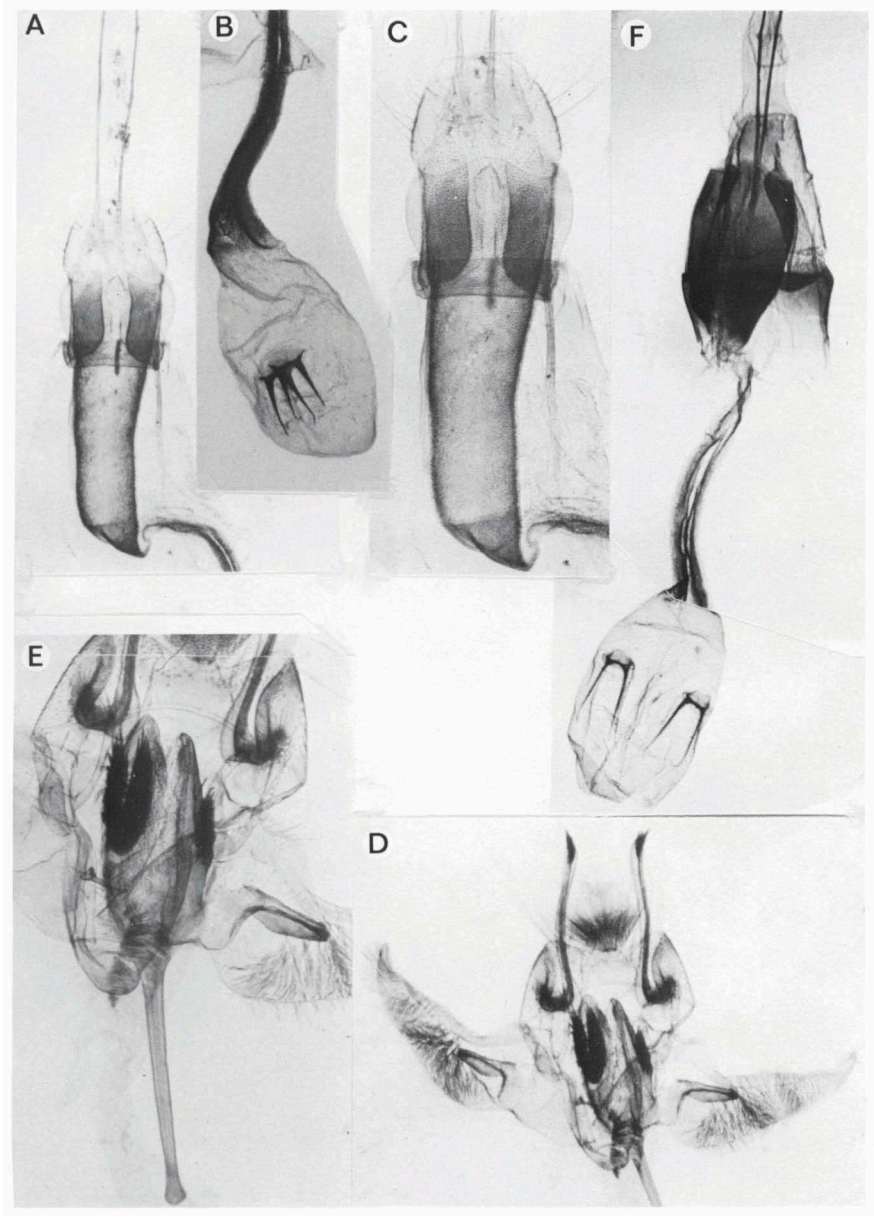

Fig. 40. Female genitalia of *Carposina*. A. *C. berberidella* Herrich-Schäffer, ♀, GS 10777. B. The same, bursa; C. The same, ostium and colliculum, more magnified; D. *C. S. sasakii* Matsumura, ♂, GS 10770. E. The same, central part, more magnified; F. The same species, ♀, GS 10679.

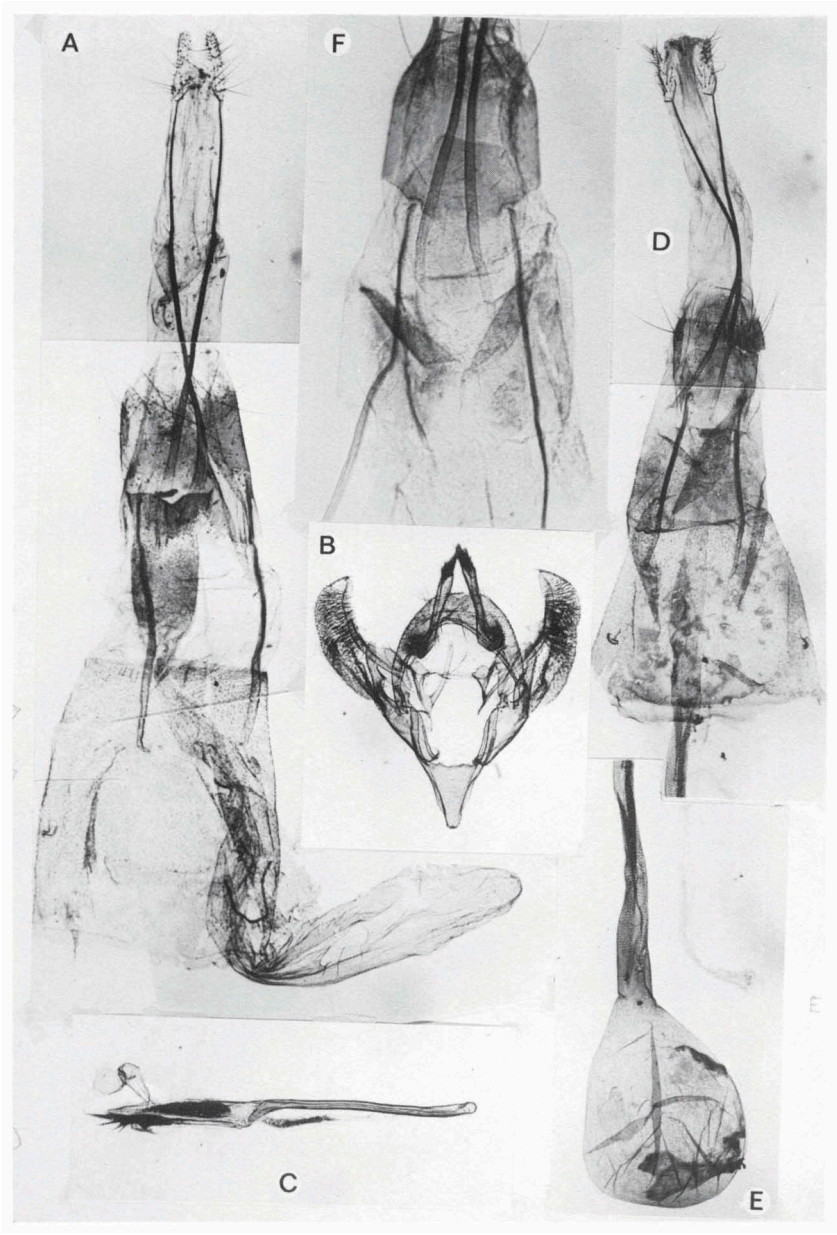

Fig. 41. Genitalia of *Carposina* and *Archostola*. A. *C. gigantella* Rebel ♀, GS 10786. B. *C. zymota* (Meyrick), ♂, holotype. C. The same, aedeagus. D. *A. ocytoma* (Meyrick), ♀, metallotype with below, bursa; F. The same species, ♀, GS 10879 more magnified.

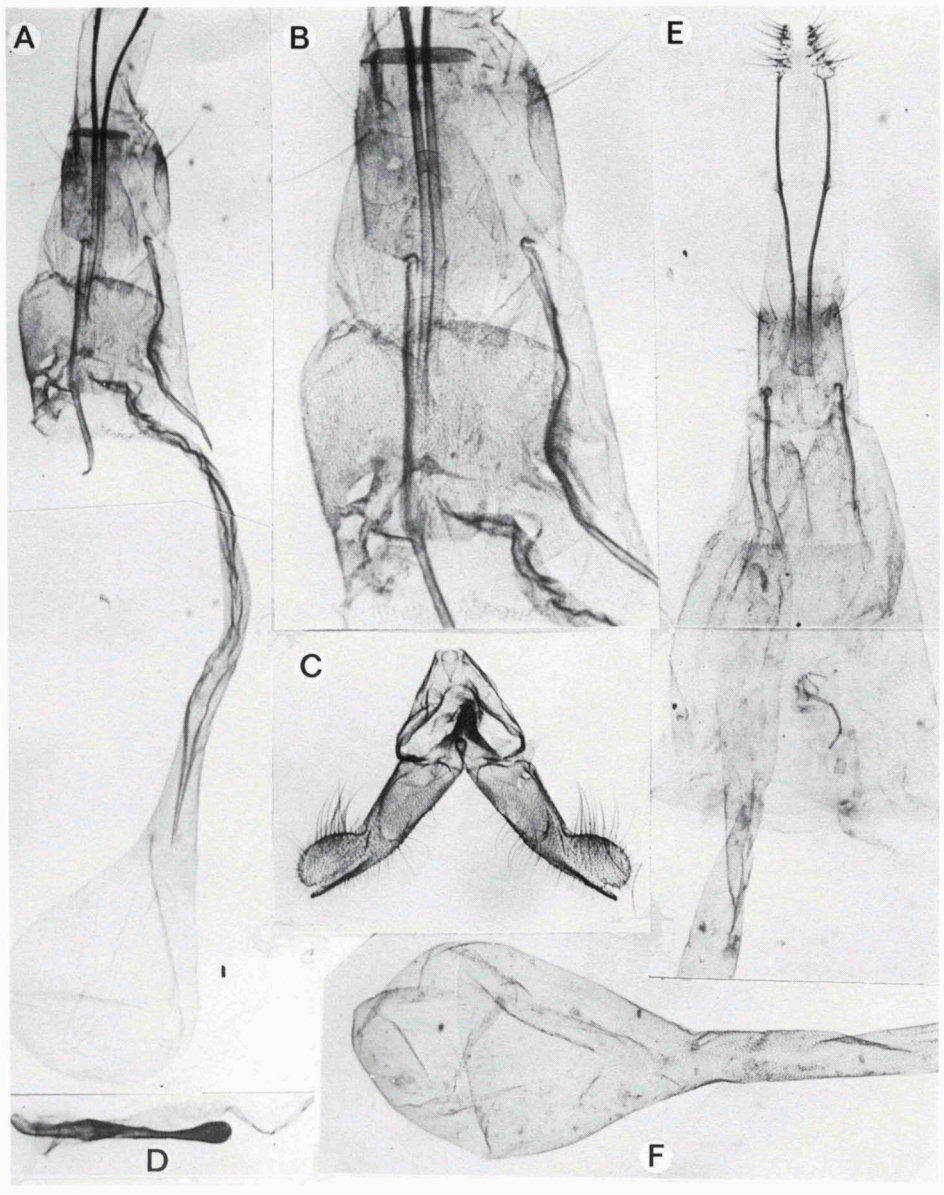

Fig. 42. Genitalia of *Archostola* spp. *A. niphauge* spec. nov., ♀, allotype; B. The same, ostium and colliculum, more magnified. C. *A. amblystoma* spec. nov., ♂, GS 10878. D. The same, aedeagus; E. The same, ♀, allotype; F. The same, bursa.

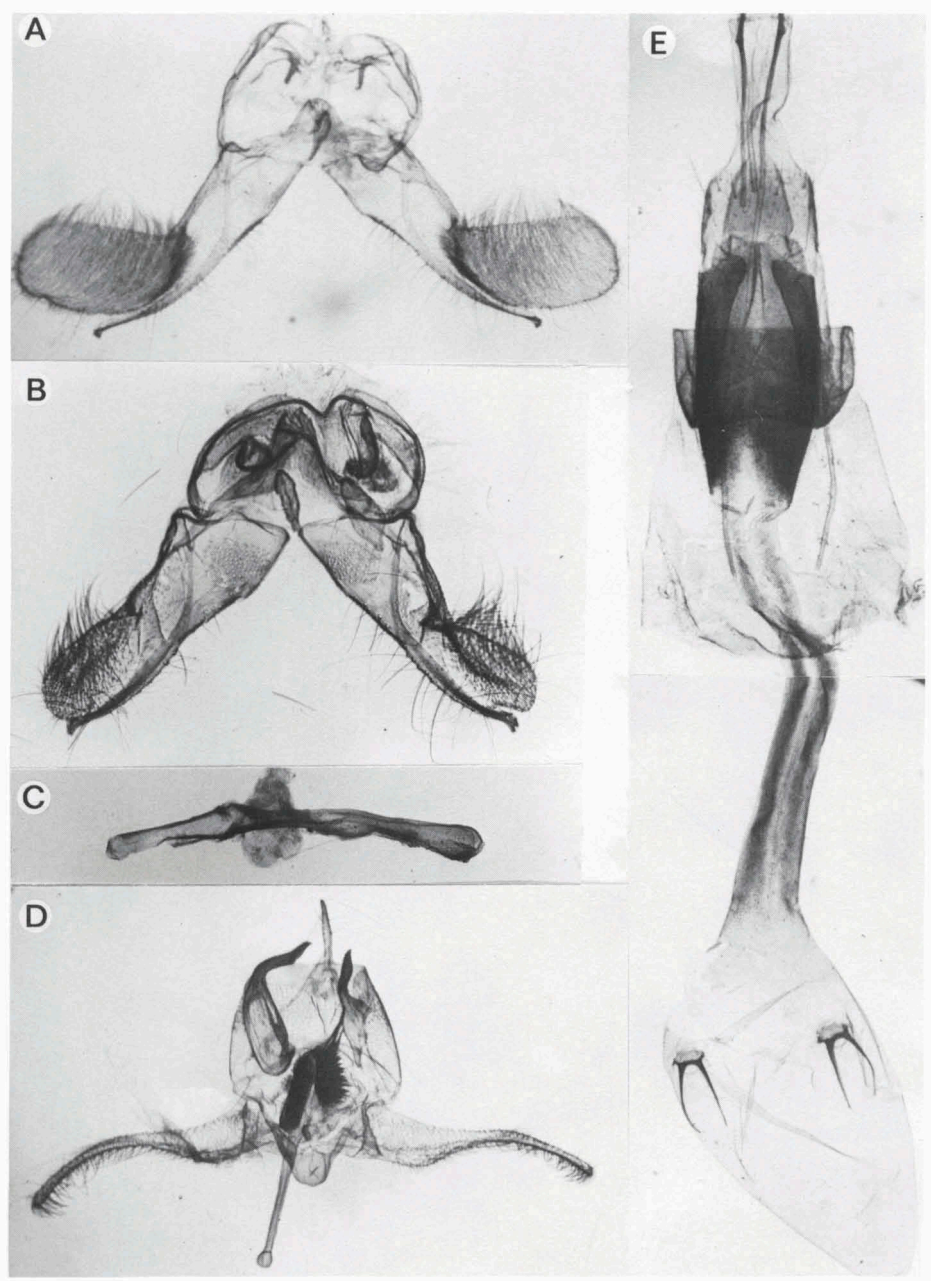

Fig. 43. Genitalia of *Archostola* and *Meridarchis* spp. A. *A. niphauge* spec. nov., ♂, holotype: B. *A. martyr* spec. nov., ♂ holotype; C. The same, aedeagus; D. *M. excisa* (Walsingham), ♂, GS 10809; E. *M. askoldana* spec. nov., ♀, holotype.

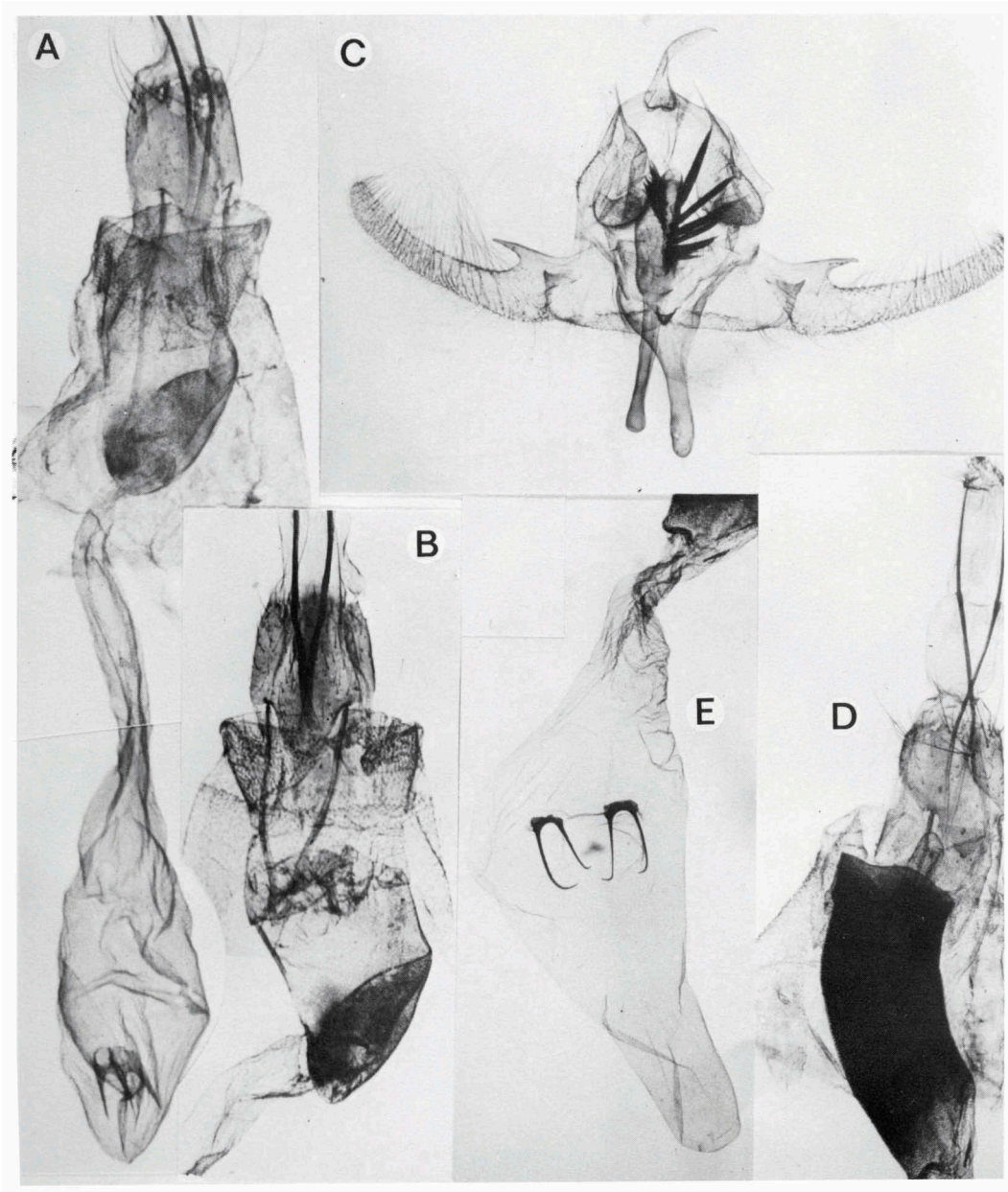

Fig. 44. Genitalia of *Meridarchis* A. *M. excisa* (Walsingham), ♀, GS 10810; B. The same species, ♀, holotype. C. *M. inodina* spec. nov., ♂, holotype; D. The same, ♀, allotype; E. The same, bursa.

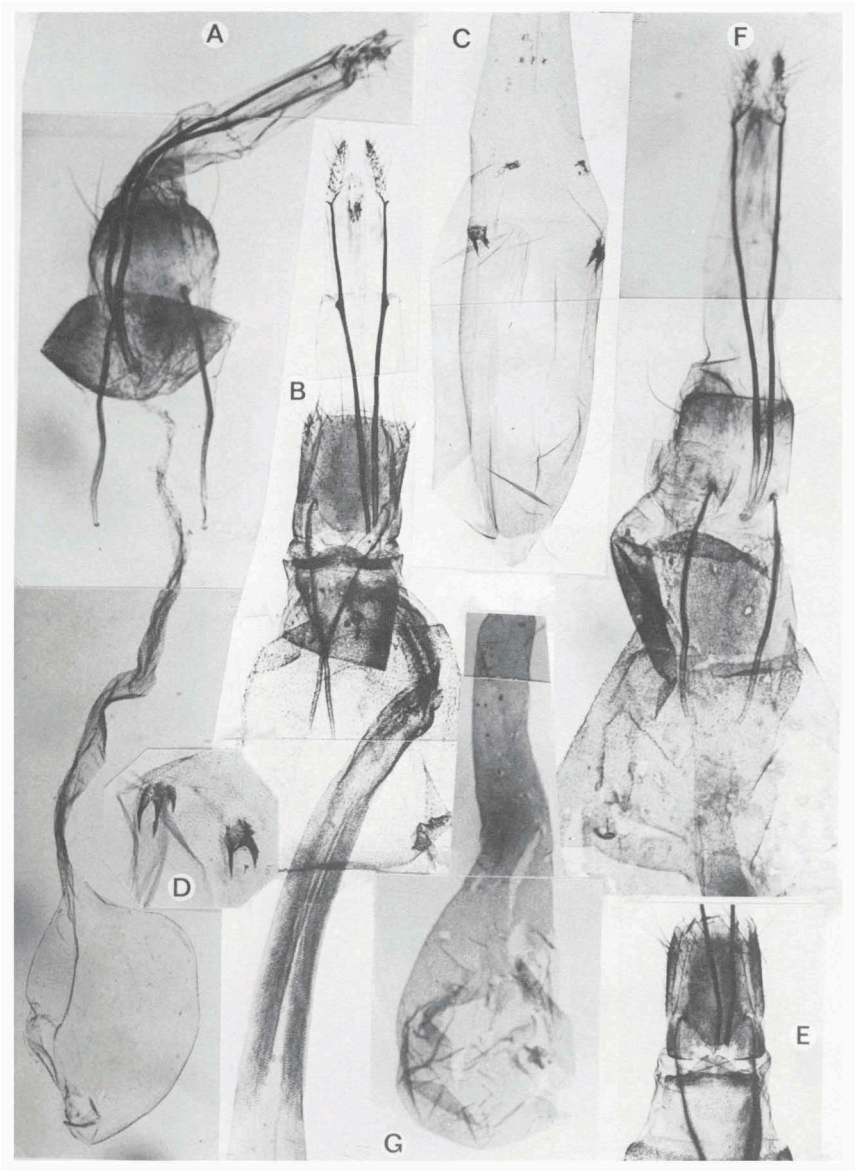

Fig. 45. Genitalia of *Meridarchis*. A. *M. longirostris* (Hampson), ♀, holotype. B. *M. trapeziella* Zeller, ♀, GS 10872; C. The same, bursa; D. The same, ♀, GS 10842, signa, strongly magnified. E. The same, ♀, GS. 10872, eighth segment and ostium; F. *M. bryonephela* Meyrick, ♀, holotype; G. The same, bursa.

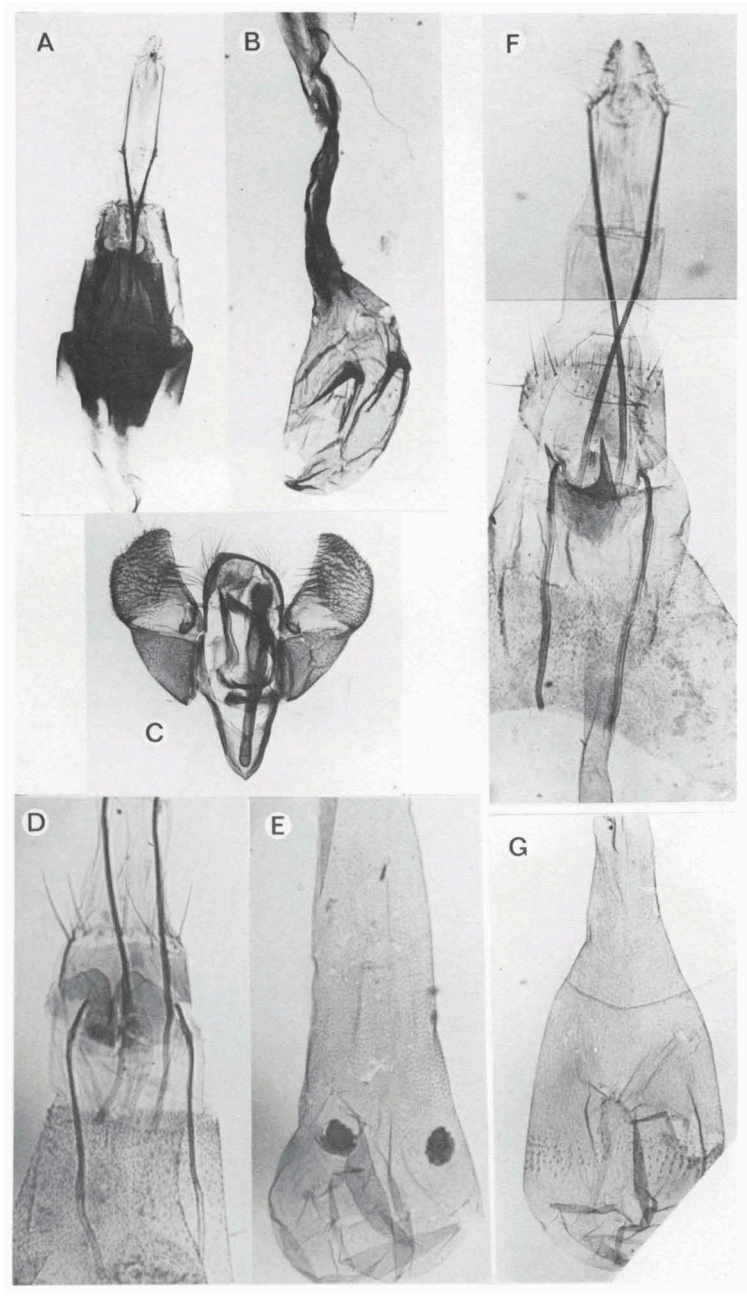

Fig. 46. Genitalia of Carposinidae. A. *Carposina s. sasakii* Matsumura, ♀, lectotype: B. The same, bursa; C. *Bondia nigella* Newman, ♂, GS 24058 BM; D. The same, ♀, 24086; E. The same, bursa; F. *Meridarchis merga* spec. nov., ♀, holotype. G. The same, bursa.

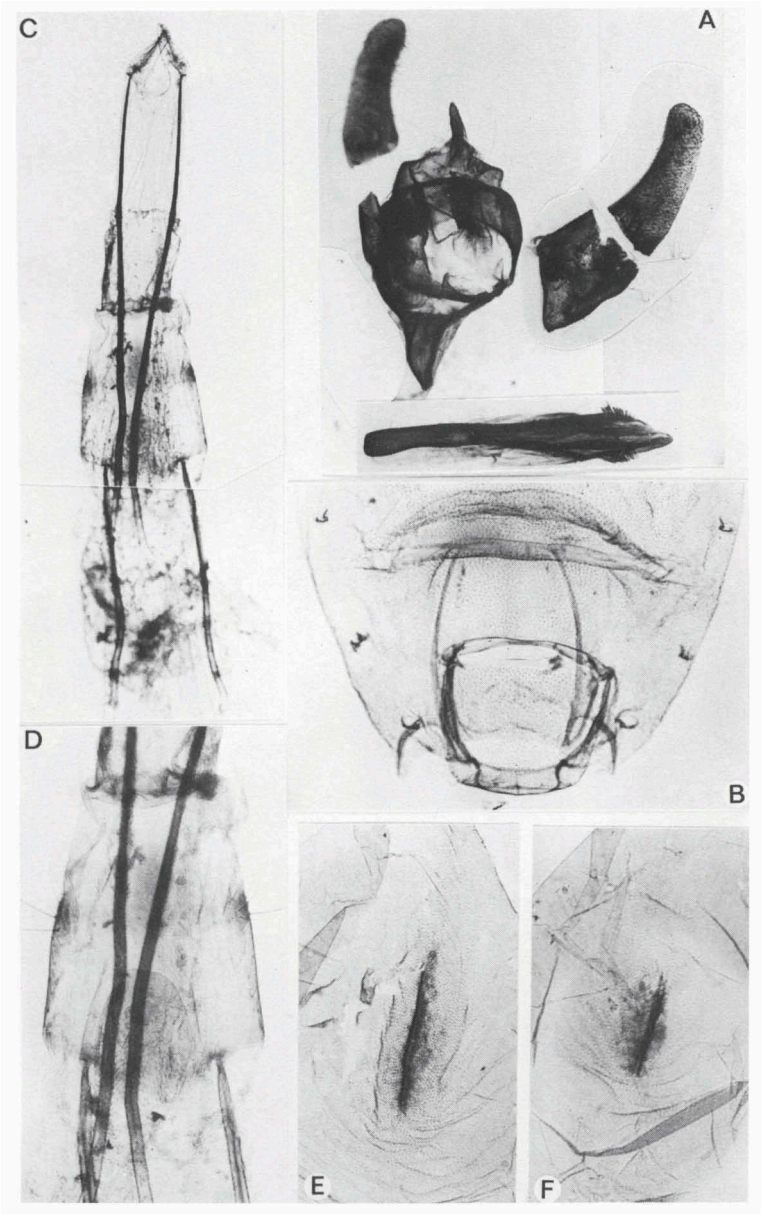

Fig. 47. Genitalia of Carposinidae. A. *Meridarchis trapeziella* Zeller, ♂ holotype, with below aedeagus: B. *Alexotypa japonica* (Walsingham), ♀, holotype, base of abdomen, ventral aspect; C. *Meridarchis ensifera* Diakonoff, ♀, holotype (without bursa); D. The same, ostium, more magnified. E. *Heterogymna ochrogramma seriatopunctata* Matsumura, signum, strongly magnified, GS 10850; F. The same of species GS 10871.

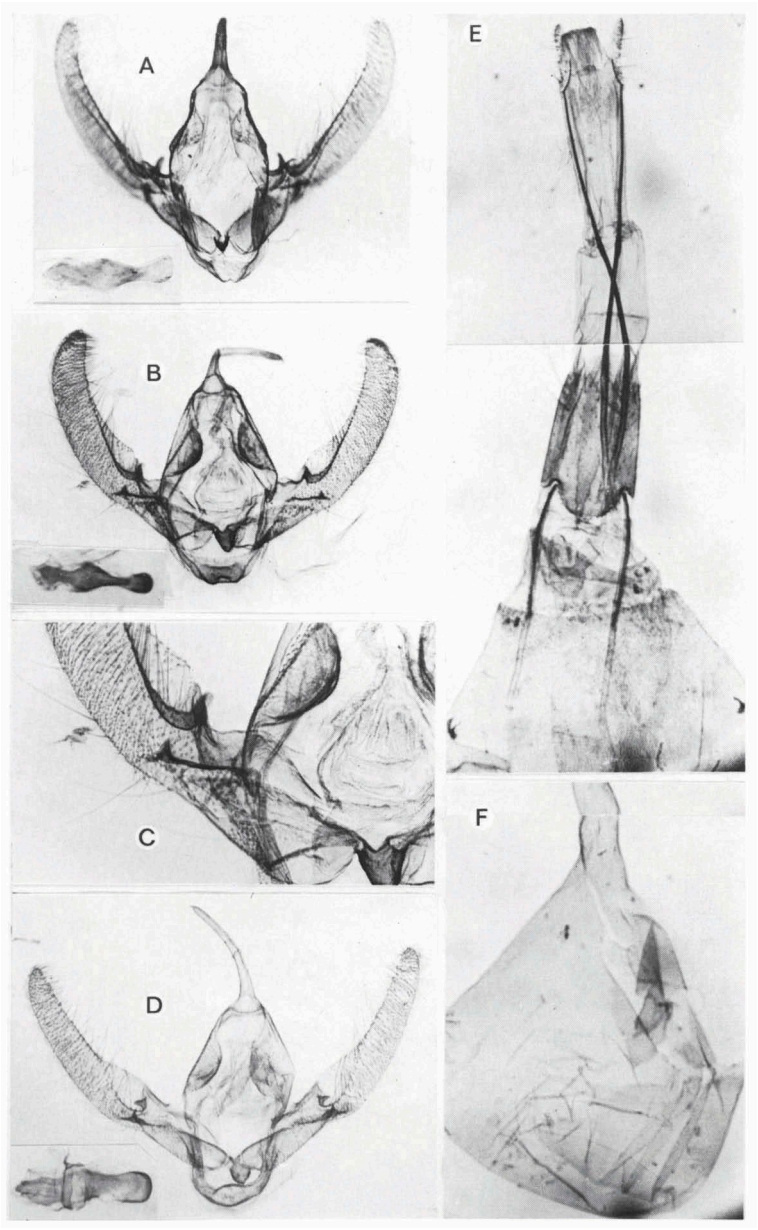

Fig. 48. Genitalia of *Heterogymna*. A. *H. ochrogramma ochrogramma* Meyrick ♀, holotype, with below aedeagus; B. *H. o. seriatopunctata* Matsumura, stat. nov. GS 10900, with below aedeagus; C. The same, base of left valva, more magnified; D. *H. o. toxotes* subspec. nov., ♂ holotype, with below, aedeagus; E. The same, ♀, allotype. F. The same bursa.

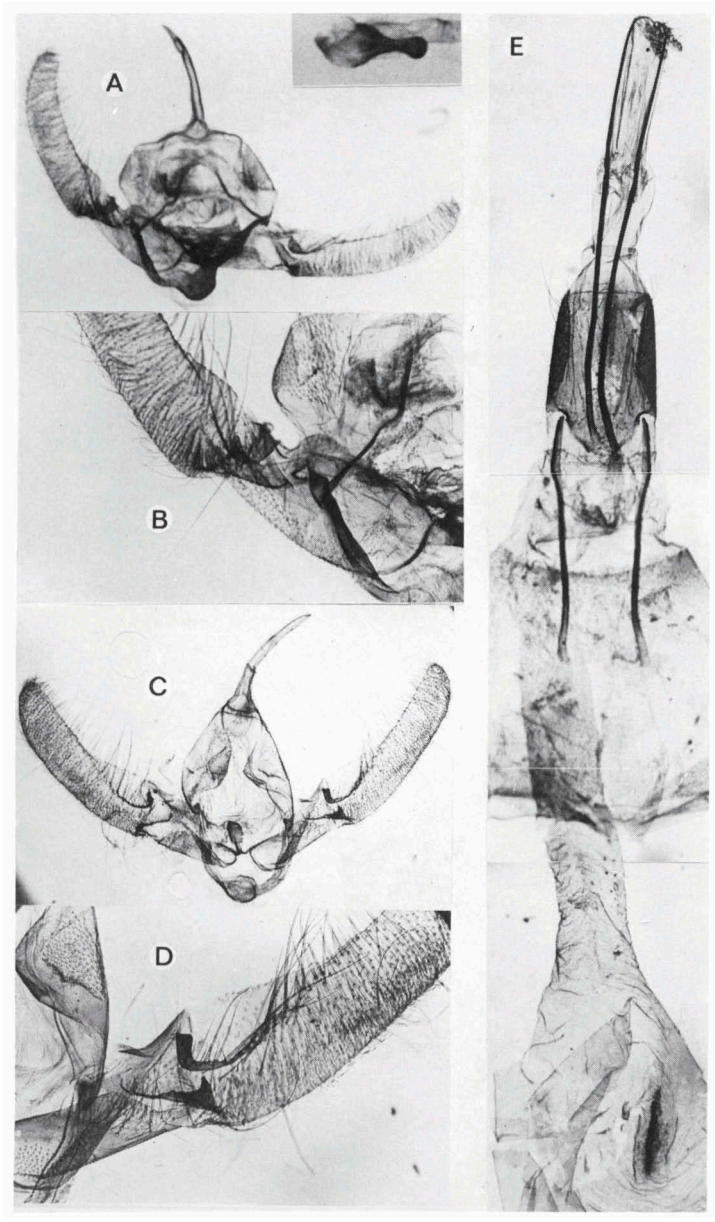

Fig. 49. Genitalia of *Heterogymna*. A. *H. o. coloba* subspec. nov., ♂, holotype, with above right, aedeagus; B. The same, base of left valva, more magnified; C. *H. metarsia* spec. nov., ♂, holotype; D. The same, base of left valva, more magnified; E. *H. o. seriatopunctata* Matsumura, ♀, GS 10850.

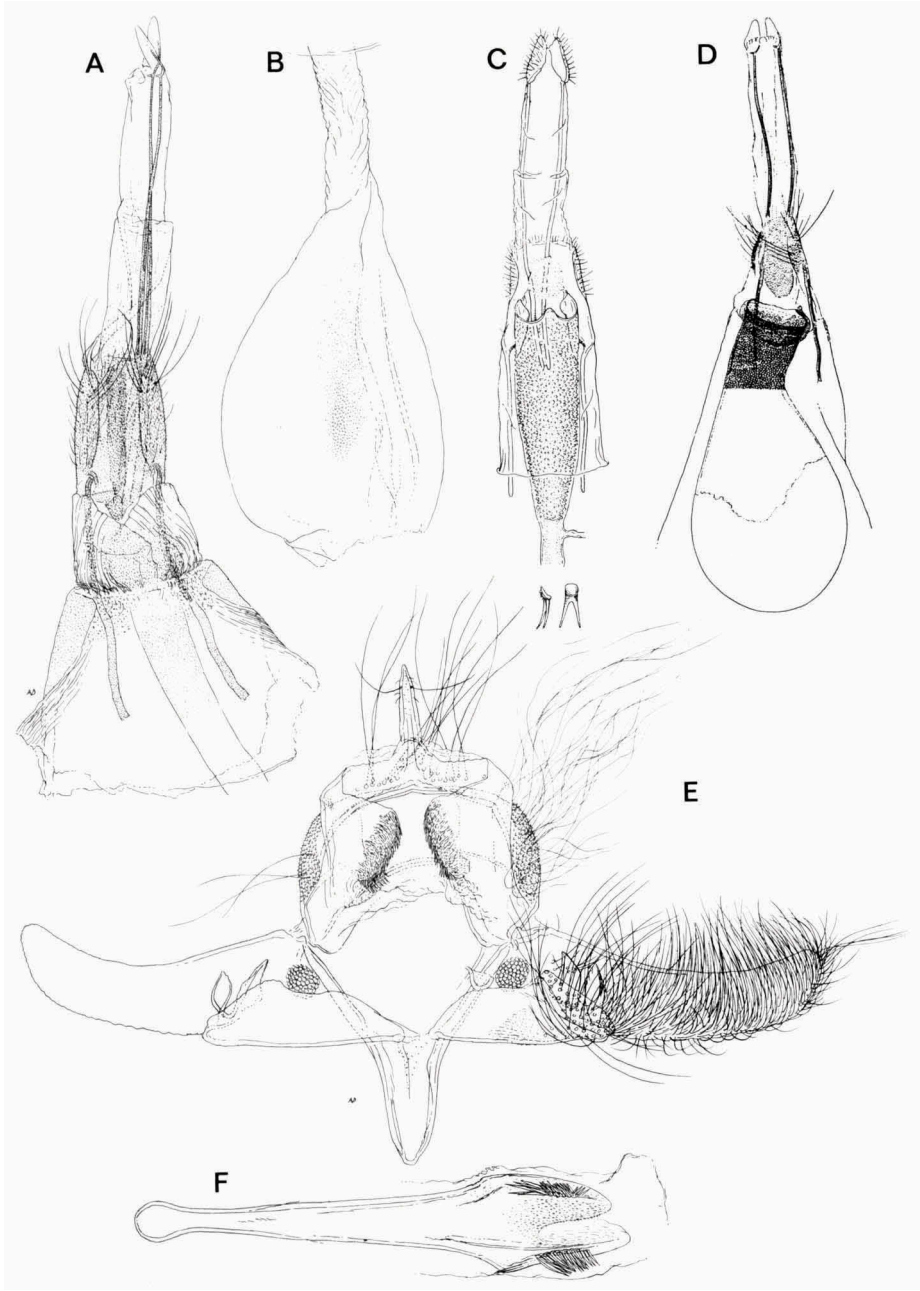

Fig. 50. Genitalia of Carposinidae. A. *Heterogymna ochrogramma coloba* subspec. nov., ♀, allotype.; B. The same, bursa; C. *Carposina rosella* Kuznetsov, ♀ (After Kuznetsov, 1986; without bursa), below signa; D. *Meridarchis xerostola* (Diakonoff), comb. nov., ♀, holotype (After Diakonoff, 1983); E. *M. trapeziella* Zeller, ♂, GS 24337 BM; F. The same, aedeagus.