

Improved Tribal Delimitation of the Subfamily Dictyopharinae and Description of New Genera and New Species (Homoptera, Fulgoroidea, Dictyopharidae)

A. F. Emeljanov

Zoological Institute, Russian Academy of Sciences, St. Petersburg, 199034 Russia

Received December 29, 2010

Abstract—Ten new genera, five new subgenera, and five new species are described in the family Dictyopharidae. Three generic names are synonymized. A new name is proposed for the generic homonym. *Dictyophara kazeruna* Dlabola is transferred to the genus *Callodictya* Melichar. The genus *Sinodictya* Matsumura, with the type species *Sinodictya tukana* Matsumura, is redescribed. A new key to the tribes of the subfamily Dictyopharinae is given. The composition and characters of the tribes Taosini and Lappidini are revised. All the genera of the subfamily Dictyopharinae are listed according to their tribal position. New records are given for some interesting species.

DOI: 10.1134/S0013873811090053

The present paper is the second part of the study improving the generic classification of the subfamily Dictyopharinae, based on the morphological data (Emeljanov, 2008). This study is especially important in connection with the start of investigations of the Fulgoroidea phylogeny using molecular methods. In the paper, 10 new genera, 5 new subgenera, and 5 new species are described, and also an updated key to the tribes of the subfamily Dictyopharinae is given and provided with a specified and supplemented list of the genera of the World fauna.

The study is based on examination of the material from the Zoological Institute, the Russian Academy of Sciences, St. Petersburg (ZIN) and some foreign museums. The depositories of the material including holotypes and paratypes of the new species are indicated in the original descriptions. In the text, the following abbreviations of depository names are accepted.

BMNH, the Natural History Museum, London, UK; HNHM, Hungarian Natural History Museum, Budapest, Hungary; ISNB, Institut Royal de Sciences Naturelles de Belgique, Bruxelles, Belgique; MNHN, Muséum National d'Histoire Naturelle, Paris, France; ZIN, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

Improvement of the Classification of the Subfamily Dictyopharinae

The division of the subfamily Dictyopharinae into tribes, proposed by me (Emeljanov, 1983), requires

specification, first of all this concerns Taosini and Lappidini. In addition, the tribe Cladodipterini should be excluded from the subfamily, being a group characterized by the presence of a cross-vein on the clavus, i.e., as one belonging to the subfamily Dichopterinae sensu lato considered by me as a primitive part of the family Fulgoridae. The tribe Cladodipterini probably deserving the rank of a subfamily includes the genus *Protachilus* Fennah: the species of this genus possess a clavus with a cross-vein and a stylus with a dorsal hook. According to the molecular data (Urban and Cryan, 2009), the subfamily Zanninae, which has never been assigned to Dictyopharidae and which is characterized by the presence of a dorsal hook on the stylus, in contrast to other typical Fulgoridae (Emeljanov, 1979), may be closely related to Dichopterinae s. l. and even may be separated together with the latter into a family with the priority name Dichopteridae Melichar, 1912.

Notes on the Structure and Characteristic of the Tribes Taosini and Lappidini

The composition and characteristic of the tribe Taosini require a revision, as has become clear in the course of examination of a more vast material already after the description of this tribe. The secondarily elongate, piercing-cutting ovipositor was developed convergently in two lineages: in the species of the genus *Cuernavaca* Kirkaldy (described as a subgenus of the genus *Taosa* Distant) on the basis of the ovipositor of *Taosa*, and in the genera *Mitrops* Fennah

and *Rhynchomitra* Fennah on the basis of the ovipositor of the genera of the *Hyalodictyon* Fennah group (tribe Nersiini). *Taosa* and *Hyalodictyon* are characterized by a rounded raking-kneading ovipositor which has been developed in the common ancestor of the families Achilidae, Dictyopharidae, and Fulgoridae (Emeljanov, 1990). The genera *Hyalodictyon*, *Mitrops*, and *Rhynchomitra* are rather similar in the structure of the male genitalia: all are characterized by a short phallosome with large rounded bubbles (vesicles) bearing 1 or 2 pairs of long spicula. The genera *Taosa* and *Cuernavaca*, on the contrary, possess a long sclerotized tubular phallosome with elongate vesicles at the apex; the vesicles bear no spicula, but their apices are narrowed and sclerotized in the form of teeth. The genera *Mitrops* and *Rhynchomitra* should be transferred to the tribe Nersiini, but may deserve to be separated in a subtribe of this tribe. After exclusion of the genera *Mitrops* and *Rhynchomitra*, the tribe Taosini persists and receives another characteristic; now its main character is the presence of trigones on the head. This character was noted by Muir (1931) and Fennah (1945), and also by me (Emeljanov, 1997) during the description of the tribe Cleotychini. The monotypical tribe Cleotychini, as well as Taosini, is characterized by the presence of trigones, being a sister group of Taosini.

A Key to the Genera of the Tribe Taosini

- 1 (6). Cross-veins developed only on membrane.
 - 2 (5). Ovipositor rounded. Metope visible in dorsal view before coryphe.
 - 3 (4). Membrane with no more than 2 rows of cross-veins, not including nodal vein *Taosa* Dist.
 - 4 (3). Membrane with rather dense system of irregular cross-veins: 4–6 veins on each area beginning with nodal line *Netaosa* gen. n.
 - 5 (2). Ovipositor elongate. Metope not visible in dorsal view before coryphe *Cuernavaca* Kirk.
 - 6 (1). Cross-veins (system of veins) covering nearly entire corium.
 - 7 (8). Lateral carinae of pronotal disc absent. Apices of fore wings regularly slightly convex or flat *Brachytaosa* Muir.
 - 8 (7). Lateral carinae of disc present. Apices of fore wings (taken separately) obliquely longitudinally roof-like folded *Phormotegus* Em.
- The composition and characters of the tribe Lappidini also require a revision. The tribe is characterized by two distinct characters: venation of the fore-wing membrane and the pointed basal ovipositor plates frequently bearing a separated appendage at the posteromedial margin.
- The tribe includes the genera *Lappida* Amyot et Serville, 1843; *Hydriena* Melichar, 1912; *Igava* Melichar, 1912; *Toropa* Melichar, 1912; and *Neomiasa* Fennah, 1947.
- A Key to the Tribes of the Subfamily Dictyopharinae*
- 1 (14). Wings fully developed, membranous; fore wings projecting far beyond apex of abdomen; veins cariniform.
 - 2 (13). Eyes separated from pronotum by callus postocularis. Clavus closed. No carina separating apical and basal parts of lateral areas of metope (acrometope).
 - 3 (4). Trigones present *Taosini* Em.
 - 4 (3). Trigones absent.
 - 5 (10). *ScR* and *M* (on fore wings) originating from basal cell as common stem mostly not shorter than arculus; when these veins originating separately, than tegulae with carina, and clavus with secondary cross-veins.
 - 6 (7). Lower lobes of 3rd valvulae of ovipositor with filmy edging and without sensory appendage. Anal tube of female ventrally with setae sitting on high papilliform digitate socles .. *Hastini* Em.
 - 7 (6). Lower lobes of 3rd valvulae of ovipositor with sensory appendage and without filmy edging. Setae on anal tube with simple (flat) socles.
 - 8 (9). Basal plates of ovipositor with simple smoothed posteromedial angle. Veins, originating from discal cell, not branching near it (*MA* bifurcating before first *ir*, *MPI* and *MP2* bifurcating closer to first postnodal level of cross-veins) *Nersiini* Em.
 - 9 (8). Basal plates of ovipositor with pointed posteromedial angles or with separate appendage on them. Three bifurcations, *MA*, *MPI* and *MP2* (= *M3* and *M4*) situated near discal cell approximately at one level; as exception (in species of the genus *Igava*), *MPI* not branching up to postnodal row *Lappidini* Em.

- 10 (5). *ScR* and *M* originating from one point of basal cell or closely to each other, without stem.
- 11 (12). Lower vesicles of theca without spicula. Fore femur usually with ledge or tooth at posterior margin before apex. Apices of 1st and 2nd segments of fore and middle tarsi with no more than 2 acutellae, surface covered with simple setae *Orthopagini* Em.
- 12 (11). Lower vesicles of theca with spicula. Fore femur without ledge or tooth at posterior margin, but margin of apex sometimes serrate. Lower surfaces of fore and middle tarsi entirely covered with acutellae. Paranota of pronotum sometimes with pectoral carina *Dictyopharini* Spin.
- 13 (2). Large area from eyes to pronotum without callus postocularis. Clavus open *Aluntiini* Em.
- 14 (1). Fore wings not extending beyond apex of abdomen; insects submacropterous, i.e., with developed hind wings, and brachypterous.
- 15 (24). Elytra entirely covering abdomen.
- 16 (17). Fore femur strongly foliately widened *Phylloscelini* Em.
- 17 (16). Fore femur narrow or widened only slightly.
- 18 (19). Not quite closed trigones present *Taosini* Em. (*Sicorisia*).
- 19 (18). Trigones absent.
- 20 (21). Lateral areas of metope with distinct transverse carina before apex, or lateral carinae of metope disappearing at apex of head and most likely passing into intermediate carinae *Aluntiini* Em. (*Pippax*, *Arjuna*).
- 21 (20). Lateral areas of metope without transverse carina at apex of head, all carinae of metope separately reaching apical callus.
- 22 (23). Cephalic process without median carina of metope *Scoloptini* Em.
- 23 (22). Median carina of metope developed along entire length as far as apex of head *Orthopagini* Em. (*Macronaso*, *Ellipoma*, *Nesolyncides*).
- 24 (15). Elytra not covering posterior half of abdomen.
- 25 (26). Trigones present. Fore legs foliately widened. Teeth bearing platellae, weakened *Cleotychni* Em.

- 26 (25). Trigones absent. Legs linear. Teeth bearing platellae normally developed on 1st and 2nd metatarsomeres *Capenini* Em.

A List of the Genera of the Subfamily Dictyopharinae in Tribes

[an asterisk (*) marks the genera known to the author only from the literary data].

Tribe **NERSIINI**

Coronersia gen. n., *Crocodyctya* Em., *Deltoplana* gen. n., *Dictyopharoides* Fowl., *Digitocrista* Fenn., *Hyalodictyon* Fenn., *Malogava* Em., *Megadictya* Mel., *Melicharoptera* Metc., *Mitrops* Fenn., *Neoterpe* gen. n., *Nersia* Stål, *Nersiella* Em., *Notothropia* gen. n., *Parahasta* Mel., *Paralappida* Mel., *Paramisia* Mel., *Pharodictyon* Fenn., *Plegmatoptera* Spin., *Pteroplegma* Mel., *Retiala* Fenn., *Rhynchomitra* Fenn., *Trimedia* Fenn., *Trigava* O'Br., *Sicoris* Stål, *Xenochasma* gen. n.

Tribe **LAPPIDINI**

Hydriena Mel., *Igava* Mel., *Lappida* A. S., *Neomiasa* Fenn., *Toropa* Mel.

Tribe **HASTINI**

Anasta Em., *Articrius* Em., *Dorimargus* Mel., *Eudictya* Mel., *Hasta* Kirk., *Lucinda* Kirk., *Niculda* Kirk., *Thanatodictya* Kirk.

Tribe **TAOSINI**

Brachytaosa Muir*, *Cuernavaca* Kirk., *Netaosa* Em., *Phormotegus* gen. n., *Sicorisia* Mel., *Taractellus* Metc.

Tribe **ALUNTIINI**

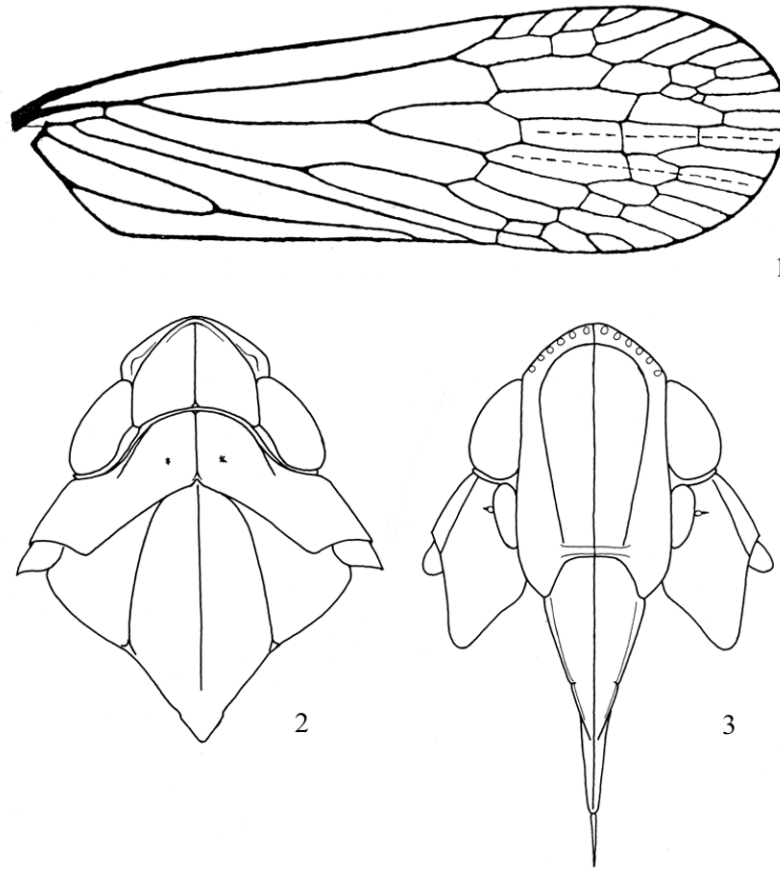
Aluntia Stål, *Arjuna* Muir, *Dictyomorpha* Mel., *Pippax* Em.

Tribe **CLEOTYCHINI**

Cleotyche Em.

Tribe **ORTHOPAGINI**

Centromeria Stål, *Centromeriana* Mel., *Dictyopharina* Mel., *Ellipoma* Em., *Fernandea* Mel., *Glochina* gen. n., *Leprota* Mel., *Litocras* Em., *Macronaso* Syn., *Medeusa* gen. n., *Metaurus* Stål, *Miasa* Dist., *Nesolyncides* Fenn., *Orthopagus* Uhl., *Phaeno-*



Figs. 1–3. *Coronersia sertata* (Jacobi): (1) fore wing; (2) anterior part of body, dorsal view; (3) head and pronotum, anteroventral view.

dictyon Fenn., *Piela* Lall., *Protolepta* Mel., *Saigona* Mats., *Tenguna* Mats.

Tribe **DICTYOPHARINI**

Aethiocera Em., *Afronersia* Fenn., *Aselgeia* Walk., *Avephora* Bierm., *Callodictya* Mel., *Carphotoma* Em., *Chiltana* Mushtaq et Akbar*, *Cormophana* gen. n., *Daploce* Em., *Dictyophara* Germ., *Doryphorina* Mel., *Engela* Dist., *Gilgitia* Mushtaq, *Indrival* Fenn.*, *Mathetris* gen. n., *Neodictya* Syn., *Paradictya* Mel., *Paranagnia* Mel., *Philotheria* Mel., *Pseudophanella* Fenn., *Putala* Mel., *Raivuna* Fenn., *Raphiophora* Schaum., *Rhaba* Dist., *Sinodictya* Mats., *Tenguella* Mats.*, *Tylacra* Em., *Zaputala* Em., *Zedochir* Fenn.

Tribe **CAPENINI**

Capena Stål, *Diasphax* Fenn., *Menenches* Fenn.

Tribe **SCOLOPTINI**

Scolops Schaum.

Tribe **PHYLLOSCELINI**

Phylloscelis Germ.

GENERA INCERTAE SEDIS

Chondrodire Em.*, *Viridophara* Mushtaq, Mahmood et Ahmad*.

Tribe **NERSIINI**

Genus *Coronersia* Emeljanov, gen. n.

Type species *Nersia sertata* Jacobi (Figs. 1–3).

Description. *Nersia sertata* is similar to species of the genus *Neodictya* Syn. of the tribe Dictyopharini (Africa). Head rather large, short; metope wide and relatively short. Coryphe flat, pentagonal, with rounded anterolateral angles, as long as wide, or slightly longer than wide; lateral margins weakly converging forwards, nearly half as long as anterolateral margins converging towards apex at right or slightly obtuse angle. Posterior margin of coryphe in form of low arc, bounded with fine carina; median carina fully

developed. In dorsal view, cuneiform areas (paired) visible before coryphe; these areas corresponding to trigones but not separated distinctly from preocular areas, their sharp apices meeting apex of coryphe, their anterior margins also forming obtuse (but wider) angle. Metope flat, approximately twice as long along median line as wide, slightly narrowed between eyes, slightly widened above and below eyes, more strongly widened opposite eyes and below antennae. Intermediate carinae in upper half of metope (approximately from middle of eyes) forming subsemicircular arc, running subparallel to margins of metope and closely to them; below, carinae straightly converging to such extent that distance between their ends at margin of clypeus only slightly exceeding width of lateral areas. Median carina fully developed, clypeal margin of metope rather deeply emarginate; emargination medially almost reaching level of lower margins of eyes. Postclypeus lying in one plane with metope. Clypeal carinae sharp, lateral carinae of anteclypeus approaching median carina before middle of anteclypeus, strongly smoothed there, forming characteristic bracket-shaped bend. Antennae medium-sized; 2nd segment oviform, projecting upwards from junction with 1st segment. Rostrum long, its part projecting beyond hind coxae half as long as apical segment, apical segment slightly shorter than preapical one. Pronotum obtuse-angularly emarginate posteriorly; median carina sharp; lateral carinae of disc developed only anteriorly, their posterior ends deflected outwards, but without postocular carinae continuing them; anterior margin of disc gently convex. Lateral carina of pronotum sharper than collateral one, paranota forming one plane beginning with lateral (gabarit) carina. Tegulae with carina. Venation of fore wings as that in species of the genus *Nersia* Stål, stem of *ScRM* less than half as long as basal cell. Hind tibia with 5 lateral teeth.

Comparison. The genus differs from *Nersia* in the following characters. Head wide and short. Coryphe not longer than wide. Metope wide; intermediate carinae passing into each other in form of smooth arc (not lancet-shaped); before apex, distance from intermediate carinae to median carina no less than 3 times as long as that to lateral carina (in *Nersia*, only 1.5–2.0 times). Near clypeus, intermediate carinae connected by keel-shaped carina, ends of carinae only slightly closer to median carina than to lateral ones; widest part of metope shifted from level of antennae to clypeus and not forming distinct lobe characteristic of

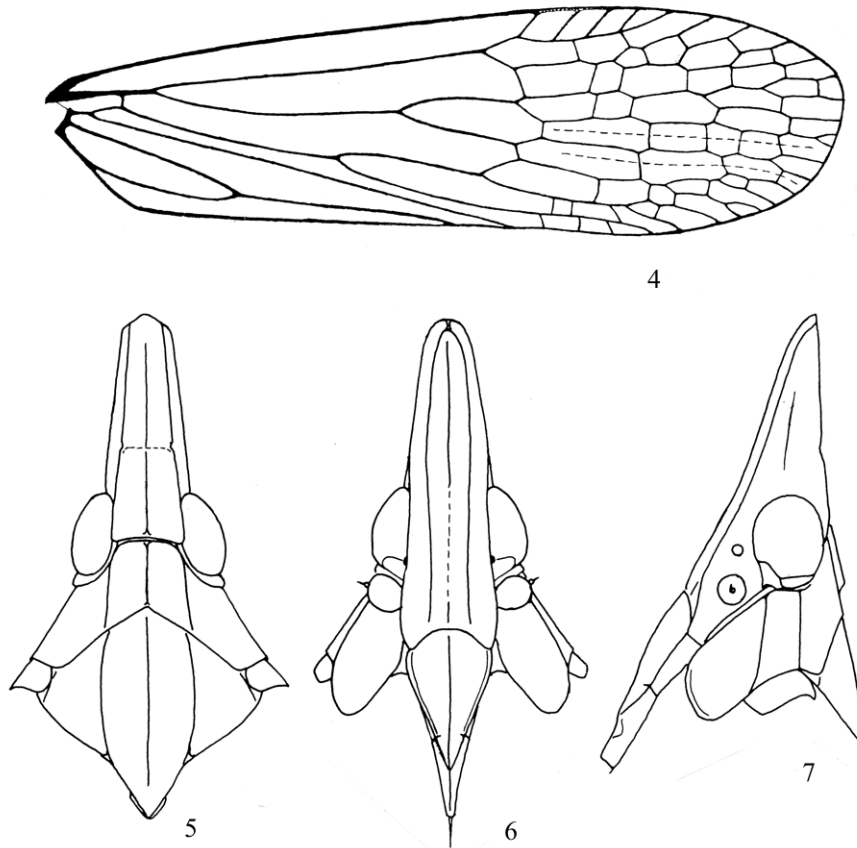
Nersia and some other genera. Pronotal disc also wider and shorter, without traces of posterodiscal carinae.

Species included. The genus includes only the type species.

Genus *Notostrophia* Emeljanov, gen. n.

Type species *Dictyophara nigrosuturalis* Melichar (Figs. 4–7).

Description. The genus is similar to *Hyalodictyon* Fennah, but differs in the narrowly rounded apex of the head (instead of the truncate apex in *Hyalodictyon*). Head rather strongly elongate; part of coryphe before eyes approximately 4 times as long as interocular part. Coryphe narrowed towards narrowly roundly truncate apex, appearing constricted laterally because of sharp angular depressions of lateral carinae before eyes at distance equal to longitudinal diameter of eye, part of coryphe before constriction frequently slightly bend upwards. Median carina of coryphe weakened towards apex before constriction, almost disappearing. Surface of coryphe depressed. Metope narrow, narrowed towards apex of head before eyes, with weak obtuse-angled projections opposite. Intermediate carinae sharp, more widely spaced in median part, with gentle bend, lancet-like converging at apex of head (not arcuately converging, as those in *Hyalodictyon*); median carina considerably weakened in lower half. Postclypeus about as wide as metope, with 3 sharp carinae; its lateral margins (carinae) convex along most of length beginning with metope, slightly convex before anteclypeus. Lateral carinae of postclypeus passing onto anteclypeus, converging at its middle, and disappearing; median carina reaching truncate apex. Rostrum projecting slightly beyond hind coxae. Pronotal disc with sharp lateral carinae running as far as posterior margin. Mesoscutum large, with 3 distinct carinae; lateral carinae stronger, subparallel, anteriorly not lancet-like deflected inwards and with not fused anterior ends, in contrast to those in *Hyalodictyon* and in most of other Neotropical representatives of this family. More precisely, posterior margin of pronotum concealing transverse carina fused with anterior ends of lateral carinae at distinct obtuse angle. Tegulae without carinae. Fore wings without marked peculiarities, pterostigma narrow, anterior branch of *CuA* bifurcating before or after nodal cross-vein *mcu*. Membrane with folds: *im* and *mcu*. Legs with median proportions, not elongate. Hind tibia with 4 lateral teeth and with



Figs. 4–7. *Notothropia nigrosuturalis* (Melichar): (4) fore wing; (5) anterior part of body, dorsal view; (6) head and pronotum, anteroventral view; (7) anterior part of body, view from the left.

8 teeth at apex. 1st and 2nd metatarsomeres widened apically, each with about 18–20 teeth.

Comparison. The new genus most clearly differs from *Hyalodictyon* in the non-truncate apex of the head and in the straight, not converging lateral carinae of the mesoscutum.

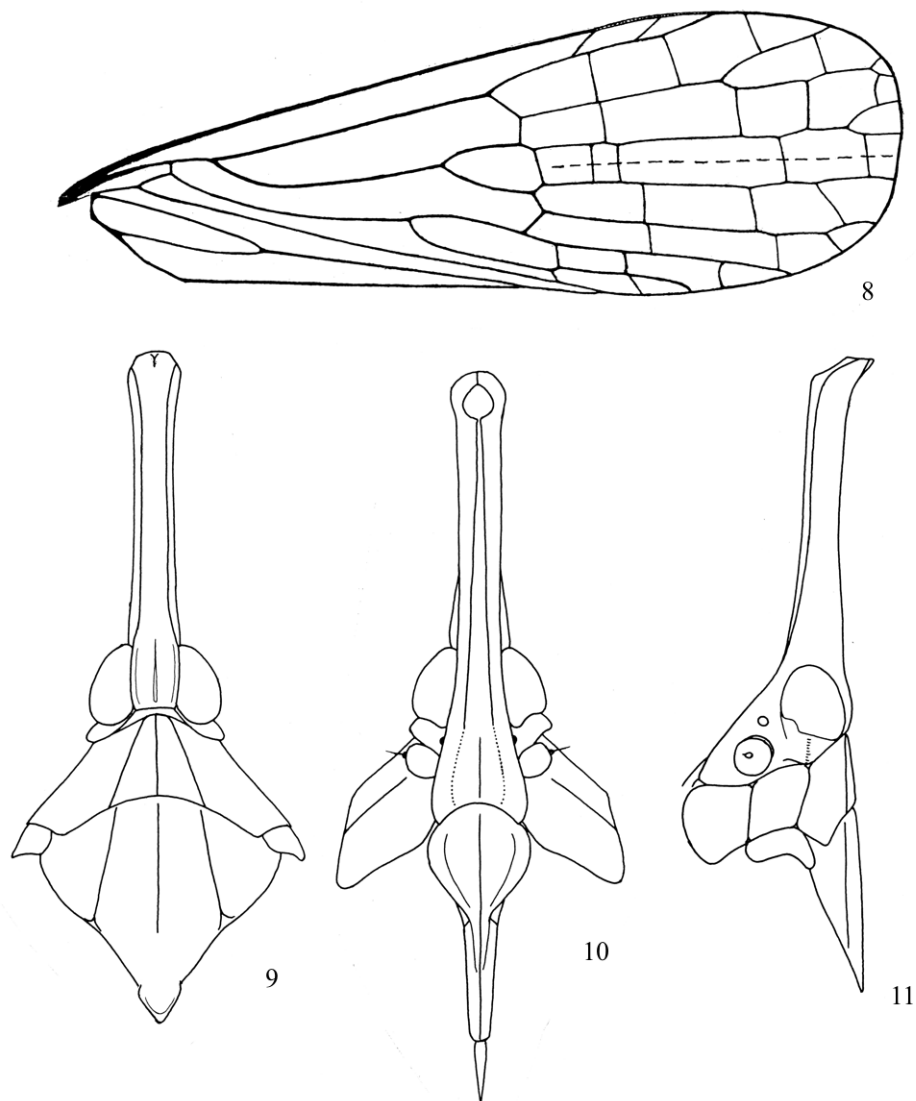
Species included. The genus is monotypical.

Genus *Neoterpe* Emeljanov, gen. n.

Type species *Neoterpe elegantissima* sp. n. (Figs. 8–11).

Description. Insects of feeble constitution, with long narrow cephalic process, small (rather narrow) head, and long legs. Wings rather flatly folded, their costal margins considerably diverging backwards. Width of coryphe between eyes slightly less than diameter of eye (in dorsal view). Cephalic process prismatic, parallel-sided, straight, with apex slightly deflected upwards. Coryphe slightly narrowed before eyes, then parallel-sided as far as apex, and then slightly widened. Median carina of coryphe developed

only between eyes, then coryphe shallowly sulciform concave, obtuse-angularly truncate apically. Metope rather steeply obtuse-angularly bent before eyes in lateral view, preocular areas parallel-sided before bend, obliquely truncate apically, making apical part of metope turned forwards and downwards. Metope cuneiformly narrowed (more than twice as wide at clypeus as about level of anterior margins of eyes), then parallel-sided. Cuneiform part weakly transversely concave, without carinae (except for marginal ones); median carina absent; intermediate carinae beginning with level of anterior margins of eyes, sharp, gradually converging towards apex, bounding fovea lying between them, roundly loop-like diverging on apical slanting part and then passing into each other, connected there with apex of coryphe by rather long apical carina. Lateral carinae of metope slightly weakened before eyes, and its lateral areas turned sideways. Clypeal margin of metope arcuately emarginate, arc varying from 1/4 (in female) to 1/3 (in male) of circle. Margins of metope deflected inwards to clypeus. Post-clypeus with lateral carinae lobiformly widened and



Figs. 8–11. *Neoterpe elegantissima* gen. et sp. n.: (8) fore wing; (9) anterior part of body, dorsal view; (10) head and pronotum, antero-ventral view; (11) anterior part of body, view from the left.

deflected sideways; foveae, separating body of postclypeus from lateral carinae, converging towards apex; disc weakly convex in transverse direction, median carina distinct, spread lobes of carinae arranged more widely than maximum width of metope (below antennae, near clypeus). Postclypeus relatively short; anteclypeus longer than postclypeus, truncate apically; labrum large and long. Median carina of anteclypeus sharp, continuing carina of postclypeus; lateral carinae normally developed in basal 1/3, not hypertrophied, approaching median carina, then weakened and running in parallel at sides of median carina. Eyes small; calli postoculares large, roundly tuberculiform projecting sideways; facet margin of eye with ventral emargination. Antennae rather large, with spherical 2nd seg-

ments projecting sideways slightly beyond margins of eyes. Rostrum long, preapical segment longer than apical one, reaching posterior margin of hind coxa. Pronotum wide; its lateral margins situated about at right angle to each other; posterior margin obtuse-angularly marginate, with small incision medially. Length of pronotum along median carina subequal to that of eye; disc elongate, its anterior and lateral carinae together forming parabolic arc; lateral carinae diverging backwards, weakened at posterior margin; median carina sharp; lateral and collateral carinae sharp; collateral carina strongly shifted downwards; humeral area wide, about 0.7 times as wide as pectoral area; lower margin of paranotal lobes deflected outwards. Mesoscutum with obtuse-angled (visible) ante-

rior margin and acute-angled posterior margin; all 3 carinae distinct; lateral carinae subparallel, their anterior ends deflected inwards at margin of pronotum. Tegulae with unsharp carina lying on line situated approximately in middle between ends of lateral and collateral carinae of pronotum. Fore wing with corium widened towards nodal line; rounded membrane with posterior margin slightly slanting backwards. Costal carina widened to form rather wide lobe at base. *ScR* and *M* originating as common stem which only slightly shorter than basal cell. First bifurcations of corium veins situated in usual manner. Pterostigma narrow and rather short, crossed by one oblique vein. Cross-veins forming even nodal row *rm*, *im*, and *mcu* together with abscissas of longitudinal veins, this row shifted basally, followed by postnodal row forming nearly regular transverse line extending from base of stigma to apex of clavus. Two or three cross-veins situated distally from postnodal row in each entire area, these veins arranged alternately (rustics-like) in neighboring areas. Legs very long (especially fore legs), tibiae and femora elongate, tibiae 1.25 times as long as femora. Fore femur, when stretched forwards, reaching apex of cephalic process. Fore and middle femora slender, slightly widened before apices; tibiae slender, slightly widened apically. Hind leg with long tibia; hind femur slightly shorter than middle one; hind tibia more than twice as long as femur, bearing 2 or 3 lateral teeth: 2 in distal half and 1 (when present) near middle; genual tooth weak. Apex of hind tibia with 8 or 9 teeth (3 + 5 or 6); 2 teeth in large group obliquely shifted into inner row. 1st metatarsomere with approximately 13 teeth, 2nd one with 11 teeth. Female genitalia moderately elongate, lower lobes of 3rd valvulae of ovipositor approximately twice as long as wide. Male genitalia with characteristic, dorso-apically slanting styli; pygophore without projections at sides, with simple anal tube rounded at apex.

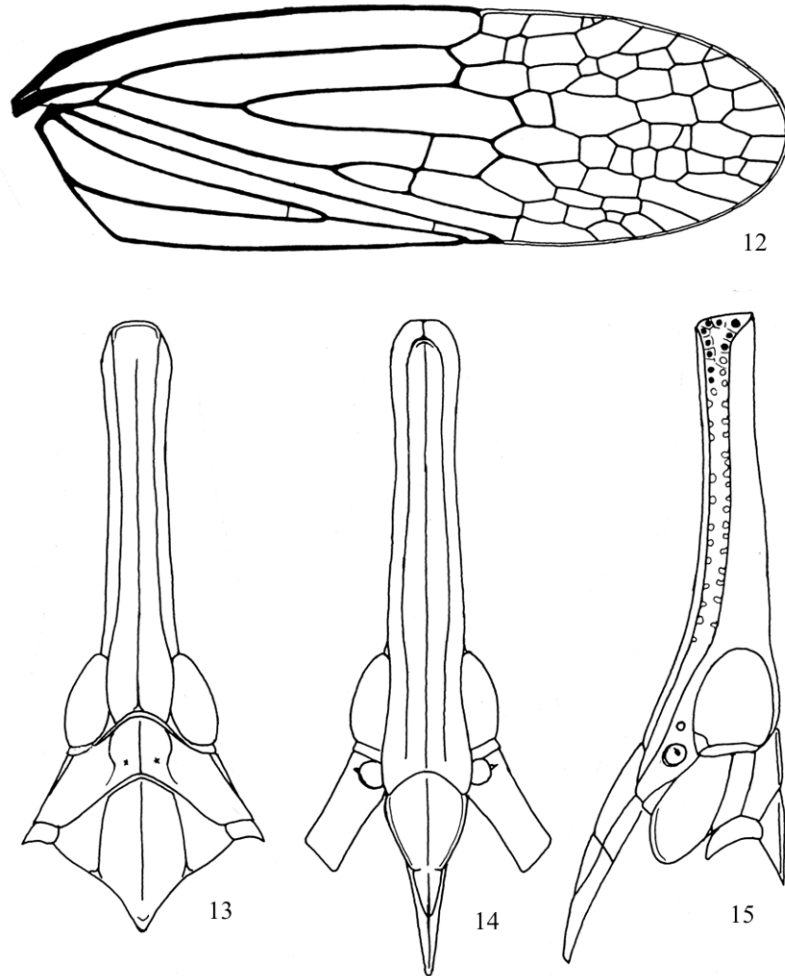
Comparison. The new genus demonstrates a number of peculiar characters: slanting rounded (or heart-shaped) dilation of connected intermediate areas at apex; spread lateral carinae of postclypeus; widely spaced lateral and collateral carinae of pronotum; lower margins of paranotal lobes deflected outwards; distinct lobe at base of costal vein; 2 rows of cross-veins (prenodal and nodal) forming almost regular line; long hind tibia with few lateral teeth. *Neoterpe* gen. n. is similar to the genus *Neomiasa* Fennah, but clearly differs in the structure of the pronotum, the fore-wing venation, the position of the cephalic

process directed forwards, and the flatly folded wings.

Species included. The genus includes only the type species.

Neoterpe elegantissima Emeljanov, sp. n. (Figs. 8–11)

Description. Body mostly pale brown, ochreous, greenish in places. Coryphe pale brown, greenish before apex; preocular area whitish with greenish tint in upper half of process, ochreous in lower half, its area before eyes and genae greenish white, callus postocularis greenish white dorsally, ochreous ventrally: these spots continuing corresponding stripes on process. Lateral parts of metope greenish white from clypeus to narrow part of process (beginning before eyes, at distance equal to their diameter), median part reddish ochreous there; distally metope entirely ochreous, gradually darkened to dark brown towards apex. Postclypeus reddish brown, with greenish white spread lateral carinae. Antennae black. Anteclypeus and rostrum greenish or brownish; in female, anteclypeus darkened between carinae. Pronotum ochreous; median carina of disc, lateral carinae of dorsal side, and collateral carina greenish white; paranotal lobes reddish ochreous in upper half, greenish white in lower half. Scutellum ochreous, reddish ochreous on disc; carinae indistinctly paler, to greenish whitish. Tegulae ochreous. Fore wing hyaline, with ochreous veins becoming infuscate towards membrane; cross-veins with ochreous-brown edging, costal vein greenish white in basal part; precostal lobe (carina) ochreous-brown. Mesonotum pale, ochreous, with greenish carinae. Metasternum greenish, dorsolateral parts with ochreous tint. Fore coxa with poorly visible ochreous spots between greenish white carinae, trochanter nearly black; femur nearly black ventrally and posteriorly, pale brown dorsally and anteriorly, with apex blackened on every side; tibia and tarsus dark brown. Middle coxa pale green, trochanter and femur colored similarly to fore ones, tibia blackened at base on every side, then brown, darkened towards apex, paler (greenish) dorsally and posteriorly; apices of tibia and tarsus darkened. Hind coxa and trochanter pale green; tibia also becoming more ochreous in direction from base to apex, apex blackened (knee tendons remaining pale). Hind tibia pale brown, blackened at base (in shape of ring) and with greenish tint; tarsus also darkened and greenish. Abdomen pale, yellowish or greenish ventrally, ochreous dorsally.



Figs. 12–15. *Xenochasma rectirostris* (Spinola): (12) fore wing; (13) anterior part of body, dorsal view; (14) head and pronotum, antero-ventral view; (15) anterior part of body, view from the left.

Body length: 12.5 mm in male, 14.0 mm in female.

Material. Peru: 8 km NE of Puerte Ocopo, 1–7.II.2008 (O.A. Mosolov), 1 ♂—holotype, 1 ♀ (ZIN).

Genus *Xenochasma* Emeljanov, gen. n.

Type species *Dictyophara rectirostris* Spinola (Figs. 12–15).

Description. Submacropterous insects with slightly harder fore wings and strongly elongate head. Coryphe slightly convex in lateral view; metope concave, more sharply concave from clypeus to anterior margins of eyes. Coryphe slightly narrowed before eyes, then subparallel-sided, but slightly widened before apex, transversely truncate apically. Preocular areas visible in dorsal view at sides of coryphe, since metope wider than coryphe. Cephalic process in cross-section slightly higher than wide, sharply truncate at apex; apical margin formed by high (long) apical carina

(homolog of apical callus). Metope widest below eyes before clypeus, with lateral margins convexly projecting sideways there; metope narrowed between eyes, with widely concave lateral carinae, wider before eyes than between eyes, parallel-sided along intermediate carinae, slightly narrowed towards apex along lateral carinae because of lateral lobes of metope gradually turned towards lateral sides. Apex of median areas of metope semi-elliptically rounded. Clypeal margin of metope arcuately emarginate. Postclypeus slightly narrower than lower part of metope, slightly convex, with 3 sharp carinae; lateral carinae roundly projecting sideways. Lateral carinae of postclypeus continuing onto anteclypeus and cuneiformly converging before middle of its length, median carina extending as far as sharply truncate apex. Lateral areas of metope with 2 rows of pale granules at places of larval sensory pits. Rostrum with long preapical segment; apical segment relatively short, about half as long as preapical one,

reaching posterior margin (condyles) of hind coxa. Pronotal disc semicircular anteriorly, with subparallel lateral carinae posteriorly; carinae slightly concave, slightly not reaching posterior margin of pronotum. Median, lateral, and collateral carinae sharp. Scutellum with 3 sharp carinae; lateral carinae slightly converging forwards and slightly deflected inwards at anterior margin, not fused. Fore wings slightly harder, submacropterous, with thickened veins and hyaline cells; membrane with additional, not quite regular cross-veins and, respectively, with cells of unequal length. Apices of fore wings deflected downwards towards abdomen, without overlapping. Arculus oblique; stems of *ScR* and *M* originating from one point in basal cell; first branching of *ScR* closed to pterostigma; first branching of *M*, in contrast, strongly shifted towards base of wing, lying closer to base than to nodal line. Bifurcation of *CuA* lying approximately at one level with claval bifurcation, distance between knot and base of claval bifurcation equal to 2/3 of length of clavus. First cross-vein of *mcu* situated more proximally than similar vein of *rm*, branches of *CuA* also connected by cross-vein near *mcu*. Pterostigma narrower than costal area, with 1–4 cross-veins (usually with 2); *RP* and *MA* with bifurcate apices; *MP* with 6 apices: 3 in each half; *CuA* with 3 apices; post-claval cell without cross-veins. Clavus sometimes with weak cross-veins in 1st and 2nd areas. Area *cua* without fold. Two features not corresponding to characteristic of tribe Nersiini: absence of stem of *ScRM* and early bifurcation of *M*. Legs with medium proportions. Hind tibia with 4 lateral teeth and 8 apical teeth. 1st and 2nd metatarsomeres with approximately 20 teeth each.

Comparison. The genus differs from *Chondrodire* nom. n. (= *Chondrodera* Mel. nec Karsch) in the absence of granules on the pronotum. A unique character of the genus is a very high apex of the cephalic process with a very long apical carina.

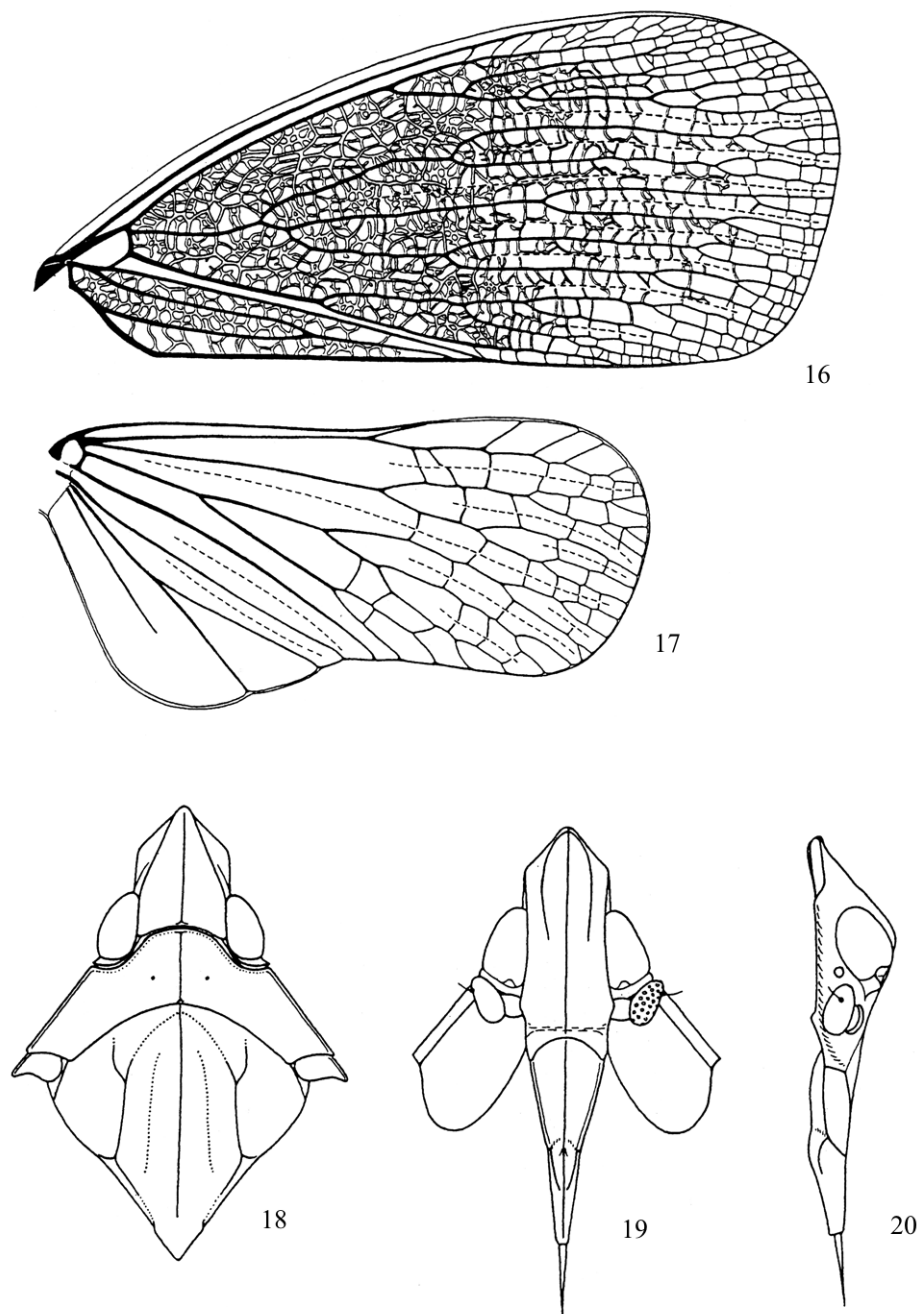
Species included. The genus includes only the type species.

Genus *Deltoplana* Emeljanov, gen. n.

Type species *Deltoplana triplicata* sp. n. (Figs. 16–20).

Description. Head acute-angularly projecting anteriorly in lateral view; lateral margins of metope visible at sides of coryphe, curved at distinctly obtuse angle. Coryphe lancet-shaped, with fully developed median

carina. Surface of metope on whole gently concave, each of its areas below and between eyes as long as wide. Intermediate carinae extending from apex of head approximately to level of middle of eyes, invisible below, converging at apex of head at acute angle (forming common regular arc in *Plegmatoptera*); apical callus not thickened, narrowly cariniform; distance from intermediate carinae to median carina subequal to that to lateral carinae; middle areas no more than 1.5 times as wide as lateral ones (more than twice in *Plegmatoptera*); lateral carinae prominently twice curved before eyes in lateral view. Calli postoculares wide, with keel-shaped projection lying on continuation of lateral carina of pronotum. 2nd antennal segment with better developed dorsal part. Anteclypeus without distinct lateral carinae. Rostrum moderately long, its preapical segment about 1.3 times as long as apical one, reaching apices (condyles) of hind coxae. Pronotum with distinct anterodiscal carinae; posterodiscal carinae absent, but weak longitudinal excess or carina running inwards from their extrapolated position, extending onto disc forwards from posterior ends of anterodiscal carinae. Disc with usual pair of punctiform depressions. Mesoscutum with 3 basal carinae; lateral carinae lancet-like converging at anterior margin, but additional pair of carinae frequently present between middle lateral carinae, e.g., in species of the tribe Pentastirini, family Cixiidae. Lateral carinae anteriorly with distinct bifurcation less clearly pronounced laterally. Tegulae with sharp longitudinal carina lying between lateral carina of pronotum and costal carina of fore wings (in rest); 2nd distinct carina, characteristic of *Plegmatoptera*, absent. Fore wing rather strongly widened from base to truncate apex, with rounded angles similar to those in *Plegmatoptera*. Basal cell large, wide; stems of *ScR* and *M* separately originating from this cell (similarly to those in *Plegmatoptera*), which distinguishing new genus and *Plegmatoptera* from all other representatives of the family Dictyopharidae. Costal area only with 1 or 2 widely spaced cross-veins before pterostigma; posterior margin of pterostigma lying on one line with common stem of *ScRA* and making it thickened as compared with finer branches of *RP* which extending obliquely backwards; bifurcation situated in median part of wing length. Median vein branching very early; *MP* branching earlier than *MA*, however this character unstable and pattern sometimes opposite. Anterocubital vein branching farther than medial one, only anterior primary section of *Cua* branching even farther. Anterocubital area without cross-veins before suture

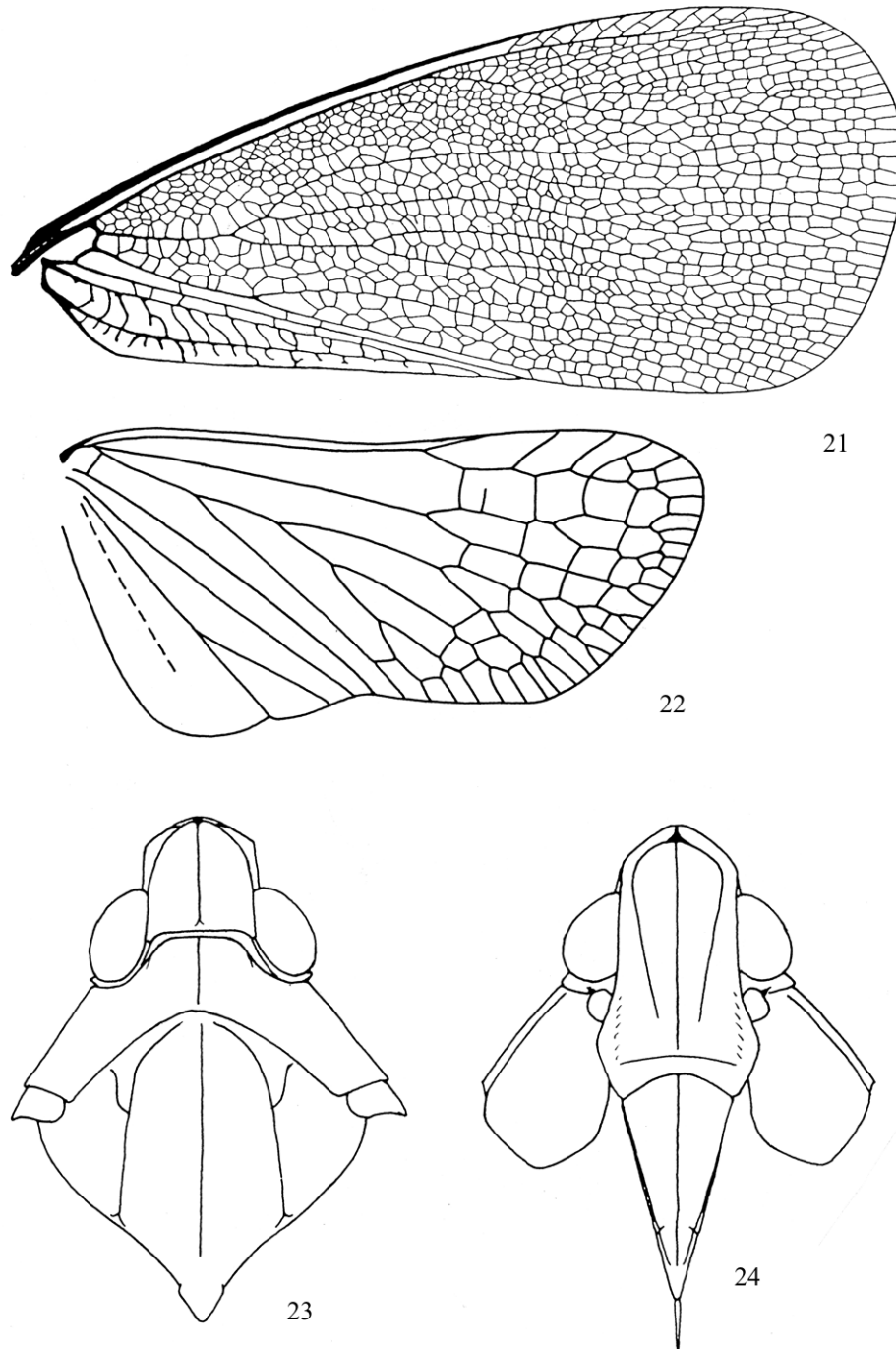


Figs. 16–20. *Deltoplana triplicata* gen. et sp. n.: (16) fore wing; (17) hind wing; (18) anterior part of body, dorsal view; (19) head and pronotum, anteroventral view; (20) head, view from the left.

of clavus. Longitudinal folds lying between apical branches of longitudinal veins (in area of *rm*, in three areas of *M*, in area of *mcu*, and between branches of *CuA*); in *Pteroplegma*, folds absent, and fine vein reticulation remaining dense as far as terminal margin. Hind wing with rather dense venation of remigium in terminal half and also with numerous (up to 7) longitudinal folds beginning with area of *rm* and terminating in areas of *cua*₁. Legs slender; fore femur long, its

length no more than 2/3 of length of tibia. Hind tibia with 6 lateral and 8 rather closely approximate apical teeth; tarsus also with narrow apex, with 9 or 10 teeth on 1st and 2nd segments.

Comparison. *Deltoplana* is closely related to the genus *Plegmatoptera* Spinola (with the type species *Plegmatoptera prasina* Spinola, Figs. 21–24); *Deltoplana triplicata* sp. n. is similar to *P. prasina* and,



Figs. 21–24. *Plegmatoptera prasina* Spinola: (21) fore wing; (22) hind wing; (23) anterior part of body, dorsal view; (24) head and pronotum, anteroventral view.

according to Melichar's key (1912), can be identified as a representative of the genus *Plegmatoptera*. These two genera are similar in the following characters: the presence of transverse carina on the metope near the clypeus, the dense system of additional veins reaching the base of the fore wing, and the presence of an additional carina forming a bifurcation with the basal lateral carina of the mesoscutum. *Deltoplana* differs from

Plegmatoptera in the following features: the apex of its head is pointed; the metope is narrower; numerous longitudinal folds are present in the distal part of the fore wing, where cross-veins are less numerous; and the lateral margin of the metope forms a ledge-shaped bend (visible in lateral view) before the eyes.

Species included. The genus includes one species.

Deltoplana triplicata Emeljanov, sp. n. (Figs. 16–20)

Description. Ground coloration green (like spring onions), passing into brownish yellow on some areas of body. Head yellowish green, metope sometimes with weak brown darkening. Apex of rostrum blackened. Pronotum with brighter ochreous tint. Scutellum greenish. Fore wing with hyaline cells and greenish or brownish yellow veins, costal vein and posterior margin of clavus brighter. Lateral carina of pronotum, carina of tegula, and costal margin forming regular ochreous lateral line. Apices of tibiae with pair of small black spots at sides, dorsal part of upper margins of tibiae sometimes darkened.

This species is characterized by a two-level system of additional veins: the cells are formed by stronger (thick) secondary first-order veins but filled with finer, also branching second-order veins; in species of the closely related genus *Plegmatoptera*, the system of additional veins is uniform, without division into orders.

Body length 23 mm in male, 22–25 mm in female; length of fore wing 18–20 mm.

Material. Holotype, ♂: French Guiana, “Guyane Française // pi Corrèze pK 0,1 // piège lumineux // 02.XII.1997, P. Kindl rec.” // MNHN (EH), 16455 (MNHN). Paratypes. French Guiana: “Guyane French NW // 25 km S of St. Laurent // du Maroni, rout de // Paul Isnard, 17-I-2007 I. G. 31.175 / leg. Snižek,” 1 ♂, 2 ♀ (ISNB); “Environs de Cayenne, Piste de Kaw // Pk 38 // 1–5–1989 // H. de Toulgoët, J. Navatte, B. et J. Lalanne-Cassou,” 1 ♀ (MNHN); “Cayenne, 1 ♀ (dissected abdomen in microtest tube) (MNHN); Regina RN 2.pk 79 // 4 °25 NX, 52°48 W // 20-XII-1993 L. and A. Sénécaux; P. Thiaucourt don [...] H. de Toulgoët,” 1 ♀ (MNHN); “Route de Régina // PK 79 5.I.1994 L. and A. Sénécaux // don[...] H. de Toulgoët,” 1 ♀ (MNHN); “Mission Balachowsky-Gruner oct.-nov., 1969 Alicoto-Oyapock 14 nov., 1969 ,” 1 ♀ (MNHN); without geographical label, 1 ♀ (MNHN); // “Guyane Française, Rte Régina PK 62 26-XI-1994 H. de Toulgoët and J. Navatte rec.,” 1 ♀ (ZIN); “Guyane Française // degrade Corrèze PK 02. 28.XI.1992 P. Kindl rec., Piège lumineux,” 1 ♀ (ZIN); “Guyane Française, Patawa // PL. 25.III.1995,” 1 ♀ (ZIN).

Plegmatoptera prasina Spinola, 1839

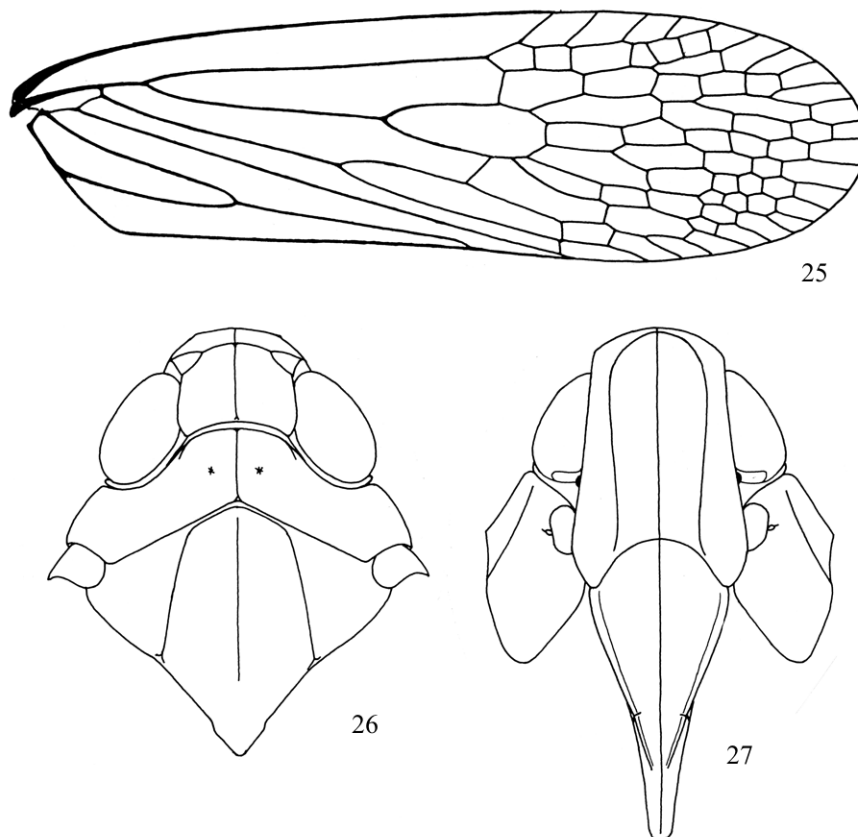
A new record. French Guiana: “Guyane French NE Rout de Kaw // Caiman Camp env. I. G. 31.175 // Lgt. M. Snižek,” 1 ♀ (ISNB).

Tribe TAOSINI

Genus *Netaosa* Emeljanov, gen. n.

Type species *Netaosa dmitrievi* sp. n. (Figs. 25–27).

Description. *Netaosa* similar to *Brachytaosa* Muir, but differing in reticulate venation of fore wing developed only on membrane, in contrast to that occupying entire wing (nearly as far as base) in *Brachytaosa*. Coryphe rather wide, wider than long, with well-developed median carina; anterior margin (carina) obtuse-angled; carina anteriorly bounding trigones lying on one transverse line with median part of anterior margin of coryphe; most surface of parts of coryphe occupied by large, gently sloping tubercles making it as though swollen. Lateral margins of coryphe convex at posterior margin, anteriorly mainly converging slightly forwards; posterior margin with shallow emargination or nearly straight. Dorsal part of metope (adjoining to coryphe) forming convex apical part of head; anterior margin of head in dorsal view formed by dorsal part of metope; area of metope visible in dorsal view 1/3 or 1/4 shorter than coryphe. Facial part of metope approximately twice as long as wide between eyes, wider below eyes, arcuately projecting sideways, and narrowed again towards clypeus; clypeal border arcuately bent; clypeus introduced into metope up to level of antennae. Carinae of metope wide and flat; intermediate carinae dorsally arcuately passing into each other at distance from margin of coryphe, connected with coryphe by rather flat apical carina. Postclypeus convex, with well-developed carinae; lateral carinae of anteclypeus approximate with median carina at its middle, broken off at lateral depression. Anteclypeus in lateral view smoothly declining towards labrum. Rostrum long; longer preapical segment reaching middle of hind coxae, apical segment almost entirely extending beyond them (not reaching hind coxae in *Taosa* and *Cuernavaca*). 2nd antennal segment higher than long, its dorsal part more strongly developed and projecting upwards. Pronotum posteriorly shallowly (obtuse-angularly or arcuately) concave, disc with inconspicuous lateral carinae at its anterior margin, punctiform depressions well defined. Lateral and collateral carinae distinct. Mesoscutum with 3 distinct carinae, lateral carinae slightly converging forwards, connected along posterior margin of pronotum by obtuse-angularly curved anterior carina. Fore wings normally developed (in type species) or submacropterous, nearly reaching apex of abdomen (in *Netaosa cellulosa* sp. n.). Membrane covered with



Figs. 25–27. *Netaosa dmitrievi* gen. et sp. n.: (25) fore wing; (26) anterior part of body, dorsal view; (27) head and pronotum, anteroventral view.

system of additional cross-veins; when wing fully developed, each area with 4 or 5 cross-veins arranged irregularly or in nearly staggered rows in neighboring areas. Lower lobes of valvulae of ovipositor moderately elongate, lower and upper margins subparallel, posterior margin obliquely roundly truncate. Legs moderately slender, hind tibia usually with 5 lateral teeth and 8 apical teeth; 1st and 2nd metatarsomeres widened apically, each bearing up to 18 teeth.

Comparison. The new genus differs from the other representatives of the tribe Taosini in the following characters: fore wings with additional veins on membrane and without cross-veins on corium; penultimate segment of rostrum reaching middle of hind coxae; ovipositor of raking-kneading type, with moderately elongate lower lobes of the 3rd valvulae (gonoplasts).

Species included. Two species are known in the genus.

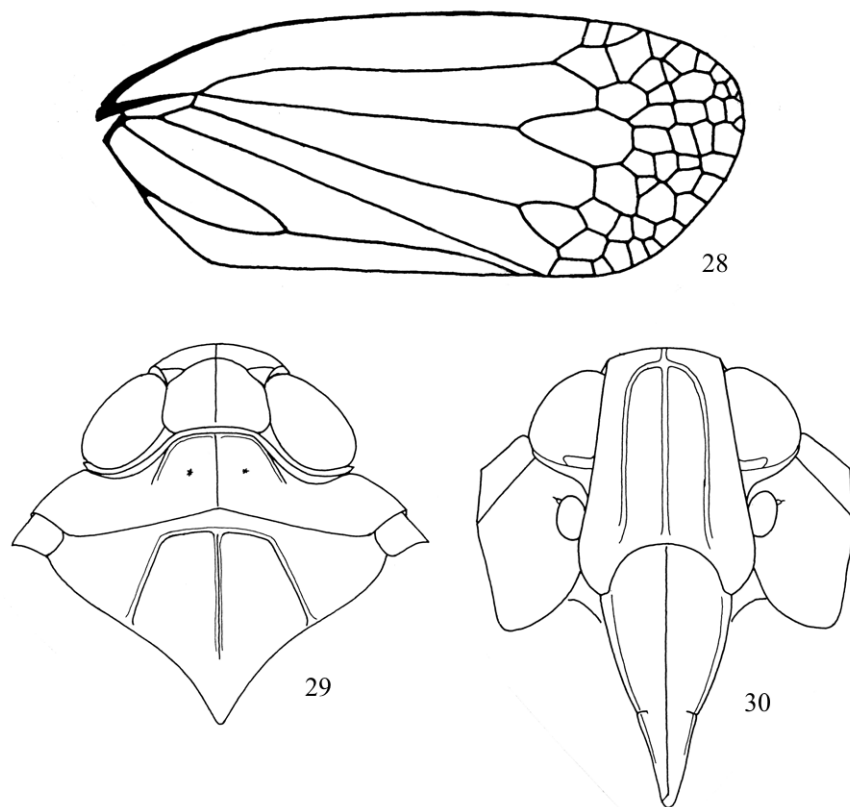
Netaosa dmitrievi Emeljanov, sp. n. (Figs. 25–27)

Description. Grassy-green, pale ochreous in some places, with numerous small black spots. Tubercles on

coryphe and spots on metope slightly ochreous; post-clypeus brighter, pale ochreous, except for green carinae. Rostrum becoming brownish towards apex, blackened at apex. Ocelli nearly black. Pronotum sometimes with traces of ochreous coloration; mesoscutum mainly ochreous, including lateral carinae. Fore wing hyaline, with greenish and pale yellowish veins; pterostigma brownish yellowish, opaque. Ventral side of body pale green. Fore leg with brownish or greenish femur and brownish tibia; apex of femur with pair of black dots laterally; base of tibia with dark spot or with larger darkened area, its apex darkened along considerable part of length. Middle leg colored similarly to fore leg, but green areas larger and prevailing over ochreous areas. Hind femur and tibia greenish, except for brownish ochreous apex of tibia similarly to tarsus. Apex of femur and base of tibia with black spots similar to those on middle leg.

Body length 10.0–10.5 mm in male, 10.8–11.5 mm in female.

Material. Argentina, Buenos Aires Province, “10 km S of Campana Otamendi Nat. Res., grassland,



Figs. 28–30. *Netaosa cellulosa* gen. et sp. n.: (28) fore wing; (29) anterior part of body, dorsal view; (30) head and pronotum, anteroventral view.

34.23218 ° S, 58.89946 ° W, 24.01.2008 (D.A. Dmitriev),” holotype (♂) and paratypes (3 ♂, 6 ♀) (ZIN).

Muir (1931), according to his description and figures, misidentified *Netaosa dmitrievi* sp. n. as *Taosa sororcula* Berg. However, in the collection of the Zoological Institute, Russian Academy of Sciences, there is a specimen received from Berg and labeled as “cum typo comparavit,” which is similar or identical to the species described later as *Nersia sertata* Jacobi.

Netaosa cellulosa Emeljanov, sp. n. (Figs. 28–30)

Description. Female. Submacropterous species; fore wings nearly reaching apex of abdomen, obliquely truncate apically, with rounded angles.

Body pale ochreous, rather uniformly colored; darkened spots and areas present only on fore wings and legs. Fore wing hyaline, veins pale, 1st claval area with brown stripe, darkening of cells of membrane beginning with terminal margin (cells nearly black there) and gradually weakening down to total disappearance approximately at nodal line. Apex of rostrum blackened, apices of femora and bases of tibiae with small

black spots, apices of fore and middle tibiae and entire tarsi strongly darkened, hind leg with apices of 1st and 2nd segments and entire 3rd segment darkened.

Body length 8.0 mm.

Male unknown.

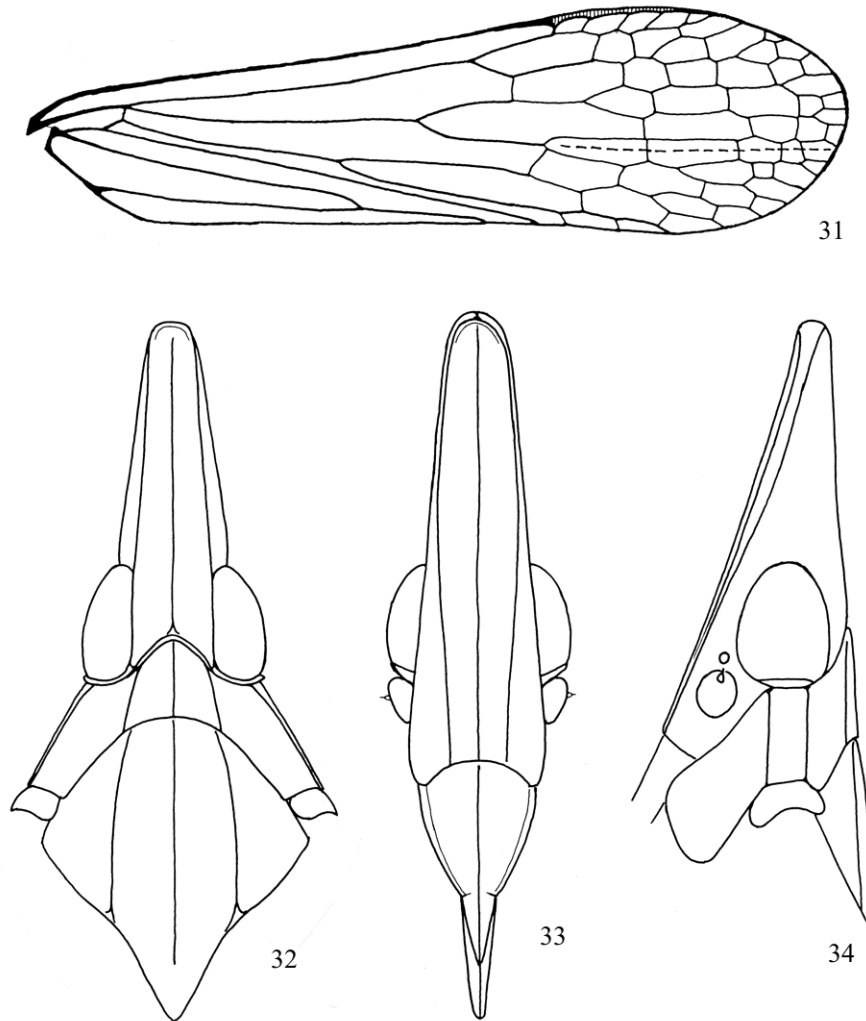
Material. Holotype, ♀: Argentina: “Argentina, Salta G[Jernes II.1944. Museum Paris // Coll. Duret 788/93” (MNHN).

Tribe **CLEOTYCHINI**

Genus ***Cleotyche*** Emeljanov, 1997

Cleotyche blanda Emeljanov, sp. n.

This species is rather similar to *Cleotyche mariae* Emeljanov, 1997 in the main morphological characters, differs in the more slender body, narrower abdomen, and shorter legs. Its coryphe is more obtusely rounded anteriorly; the length of its part projecting beyond the eyes is no less than 1/4 of the coryphe width. The metope is shorter and wider. The elytra retain traces of a subcostal carina. The anal tube is narrower and smaller than that of *C. mariae*.



Figs. 31–34. *Medeusa speicarina* (Walker): (31) fore wing; (32) anterior part of body, dorsal view; (33) head, anteroventral view; (34) anterior part of body, view from the left.

Description. Ground coloration pale gray. Whitish stripe with unsharp margins running through metope and genae below antennae, continuing through lower part of paranotal lobes of pronotum, costal areas of elytra, and lateral parts of abdominal tergites, becoming less distinct and grayish on abdomen. Clypeus, fore and middle coxae, and lower part of thorax dark brown; legs brownish gray. Abdomen dorsally with dark small spots at places of larval sensory pits; one of pits large, lying before standard row closer to lateral pale stripe; abdomen ventrally brown.

Length of body of female 4.3 mm.

Material. Holotype, ♀: Australia, “W. A., White Gum Flat, Stirling Range N[ational] P[ark] // No. 1514, 25.I.1979–6.III.1979, pit trap” (HNHM).

Comparison. Clearly differs from *C. mariae* in the pale coloration: in *C. mariae*, the dark reddish brown

coloration prevails, and a sharp white band runs along the posterior margin of the elytra; for other differences, see the description.

Tribe **ORTHOPAGINI**

Genus *Medeusa* Emeljanov, gen. n.

Type species *Dictyophara speicarina* Walker (Figs. 31–34).

Description. Type species similar to species of the genus *Dictyophara* Germ., e.g., *D. lindbergi* Metc. Cephalic process elongate-pyramidal, with rather widely truncated apex; length of its part projecting beyond eyes is about 3.5 times of its longitudinal diameter (in dorsal view). Lateral carinae of coryphe nearly straight, gradually converging to rather widely rounded apex; coryphe straight in lateral view; median carina of coryphe developed only posteriorly, project-

ing slightly forwards from anterior margin of eyes as far as level where lateral carinae forming weak constriction; anterior part of coryphe transversely striate. Metope narrow, elongate, cuneiformly narrowed before eyes towards rather widely truncate apex, weakly bent before eyes in lateral view, straight or slightly convex opposite eyes, similarly to clypeus. Apex of head narrow in lateral view, truncately cuneiform. Intermediate carinae of metope developed along entire length, equally distant near clypeus from margins and median carina, approximate to lateral margins in upper part, turned sideways above level of anterior margins of eyes, invisible in upper half of preocular part ventrally (nearly in front view). Clypeal margin of metope gently arcuately bent. Postocular carina narrow. Antennae small. Postclypeus rather flat, nearly cuneiform—narrowed towards anteclypeus; all carinae sharp. Anteclypeus with distinct lateral carinae approaching median carina near middle of anteclypeus, then deviating from it, and disappearing. Pronotum rather narrow, its lateral margins (carinae) forming acute angle, posterior margin rather deeply parabolically bent. Carinae of pronotal disc and its lateral carinae sharp, lateral carinae of disc reaching its posterior margin, pectoral carinae absent. Mesoscutum rather long, its posterolateral margins converging at acute angle. Fore wing rather narrow, elongate, parallel-sided; membrane occupying no more than 1/3 of total length of wing, its posterior margin obliquely rounded, apex situated between 2nd and 3rd anterior branches of median vein. *ScR* and *m* originating from basal cell as very short common stem. Pterostigma narrow, elongate, crossed by 3 or 4 oblique cross-veins. Membrane with 2 or 3 partly incomplete, widely spaced postnodal rows of cross-veins, and also with 2 weak converging rows at terminal margin. Claval veins fused behind middle of clavus. Legs slender, with medium proportions; fore tibia no more than 1.3 times as long as femur; femur without tooth before apex. Hind tibia with 5 or 6 lateral teeth, its apex with 7 or 8 (3 + 4, 3 + 5) weakly widened teeth. 2nd and 3rd metatarsomeres with 7 or 8 teeth, 1st metatarsomere longer than two others combined.

Comparison. The new genus differs from the genus *Centromeria* in the straight cephalic process, fully developed lateral carinae of the pronotal disc, medium proportions of the fore and middle legs, and shorter membrane of the fore wings.

Species included. The genus includes *Medeusa speicarina* (Walk.), comb. n. and *Medeusa sumatrana*

(Lall.), comb. n. I have found no distinctions between these species, except for their size: *M. sumatrana* is larger. The type of *M. sumatrana* consists of three glued parts: head, pronotum, and rest of the body (all beyond doubt belong to one individual); the cephalic process is slightly damaged; the fore femora and tibiae, and also the hind tibiae and tarsi have been lost.

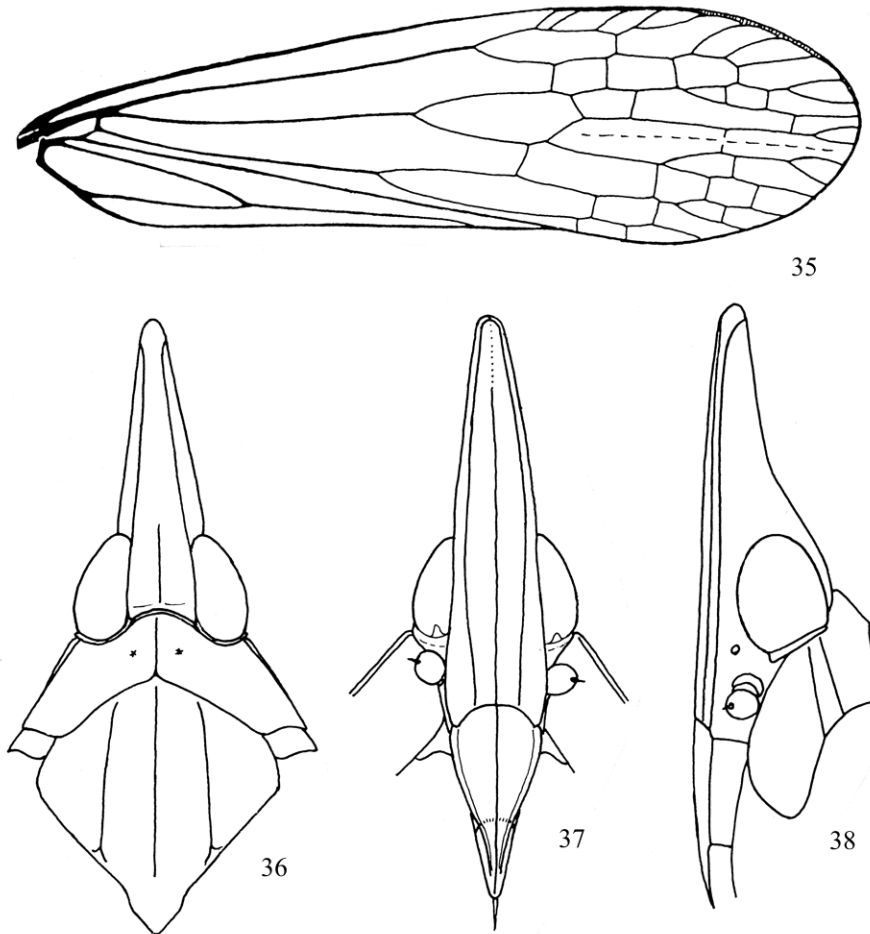
Medeusa speicarina (Walker, 1857)

New records. Malaysia, Kalimantan Island: Sabah, Trus Madi Mt., ~, 1000 m, 13–25.V.2007 (A. Gorochov), 2 ♀ (ZIN); Cameron highland [Takau Range?], 22.IX.2008, 1 ♀ (collector unknown).

Genus *Glochina* Emeljanov, gen. n.

Type species *Dictyophara dixonii* Distant (Figs. 35–38).

Description. Habitus as that in species of the genus *Dictyophara* Germ. with elongate cuneiform head. Cephalic process almost regularly elongate-pyramidal, only surface of coryphe widely concave longitudinally. Lateral and intermediate carinae of metope straight before eyes, apex of head narrowly rounded. Median carina of coryphe absent before eyes, median carina of metope weakened before apex, intermediate carinae slightly smoothed below level of antennae. Clypeal margin of metope widely concave. Postclypeus rather short, narrowed towards anteclypeus, its lateral margins weakly convex, lateral and median carinae sharp. Lateral carinae of postclypeus continuing onto anteclypeus, approximating to median carina, but broken in apical 1/3, not fused with median carina. Pronotum rather long; disc with distinct median carina, without lateral carinae, with pair of punctiform depressions; lateral carinae of pronotum (lateral and collateral) well developed, pectoral carina absent. Mesoscutum obtuse-angularly projecting anteriorly, acute-angularly projecting posteriorly, not strongly deviating from right angle in both cases; carinae of scutellum distinct, lateral carinae slightly diverging in anterior part, parallel in middle and posterior parts. Tegulae simple, without carina. Fore wing rather elongate, slightly widened towards membrane; costal margin straight almost from its base. Stigma narrow, with 3 or 4 cross-veins. Stem of *ScRM* distally of arculus not longer than arculus, vein *RP* with 3 or 4 apices; only one vein *ir* and 4 veins *rm* present. *MA* with 3 apices, *MP* with 5 or 6 apices. Longitudinal fold in 1st area of *RP* distinct. Anterior branch of *CuA* with 2 or 3 apices, pos-



Figs. 35–38. *Glochina dixoni* (Distant): (35) fore wing; (36) anterior part of body, dorsal view; (37) head, anteroventral view; (38) head and pronotum laterally, view from the left.

terior branch connected with margin of membrane by 2 cross-veins. On whole, cross-veins on membrane forming no rows, arranged in not quite regular staggered rows in neighboring areas.

Comparison. *Glochina* gen. n. is similar to the genus *Centromeria* Stål, but clearly differs in the regularly elongate-pyramidal head.

Tribe **DICTYOPHARINI**

Genus *Cormophana* Emeljanov, gen. n.

Type species *Phaenodictyon nigropictum* Fennah.

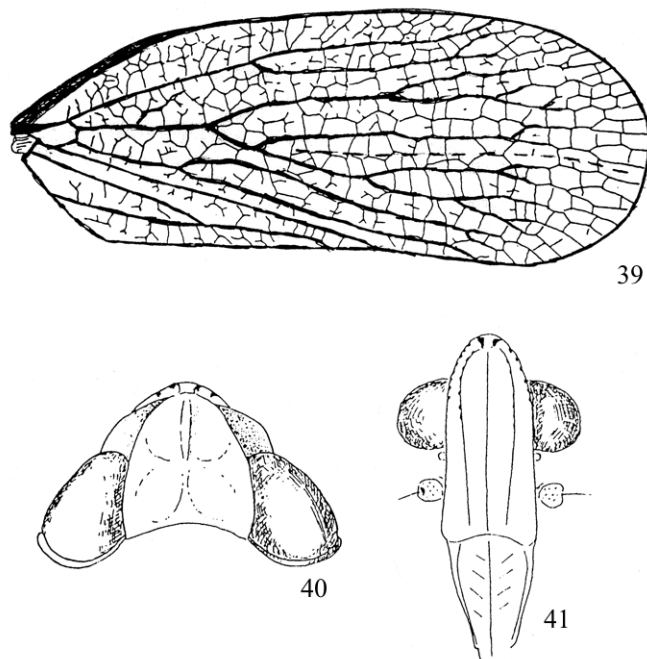
Though *Phaenodictyon nigropictum* has been described in the genus *Phaenodictyon* Fennah, it clearly differs from the typical representatives of this genus similar to each other (*Phaenodictyon theonoe* Fenn. and *Phaenodictyon ellipticum* Walker): cephalic process much longer, its preocular part more than 3 times

as long as interocular part (no more than twice in *Phaenodictyon*), anterior margin of coryphe nearly straightly truncate (obtuse-angled in *Phaenodictyon*), apical callus thickened (keel-shaped in *Phaenodictyon*), metope also truncate at apex of head, intermediate carinae curved there at about right angle (lancet-like converging in *Phaenodictyon*), preocular areas without weak arcuate additional carina developed in *Phaenodictyon*.

The structure of the genitalia of the new genus differs in the penis bearing sticking out hooks deflected backwards (no hooks in *Phaenodictyon*), and in the presence of teeth on the lower vesicle of the theca, which indicates that the new genus belongs to the tribe Dictyopharini.

Genus *Mathetris* Emeljanov, gen. n.

Type species *Aselgeia rhodesiana* Synave (Figs. 39–41).



Figs. 39–41. *Mathetris rhodesiana* Synave: (39) fore wing; (40) head, dorsal view; (41) head, anteroventral view. After Synave, 1965; Fig. 39 modified.

The new genus is similar to the genus *Astelgeia* Walker, but differs in such essential characters as the shape of the metope and postclypeus and the venation and sculpture of the fore wings. In *Mathetris rhodesiana*, metope parallel-sided, and postclypeus rather narrow, similarly to those in *Afronersia* Fenn. and *Neodictya* Syn., whereas in *Astelgeia*, metope widened in lower part opposite antennae before clypeus, and postclypeus also widened, with convex lateral margins. Fore wings of *Mathetris* hyaline, entirely covered with system of additional cross-veins; corium with irregular double rows between basal veins in some areas, and some cells with blind branches mainly simple but sometimes furcate; membrane with simple cross-veins, cells without blind branches. In *Astelgeia*, in contrast, fore wings slightly opaque, their surface sinuously-pitted, and nearly all cells with blind branching additional veins inside. Among system of cells in *Mathetris*, basal stems clearly visible (Fig. 39). First branchings of stems of *ScR*, *M*, and *CuA* shifted towards base of wing, but retaining typical position relatively to each other: radial bifurcation situated closer to apex of wing, cubital one, significantly more proximal, and median one occupying intermediate position, making all points of branching lying along one line which obliquely crossing wing. Characteristic longitudinal fold originating between first branches;

one more character of this genus is separate origination of *ScR* and *M* from basal cell.

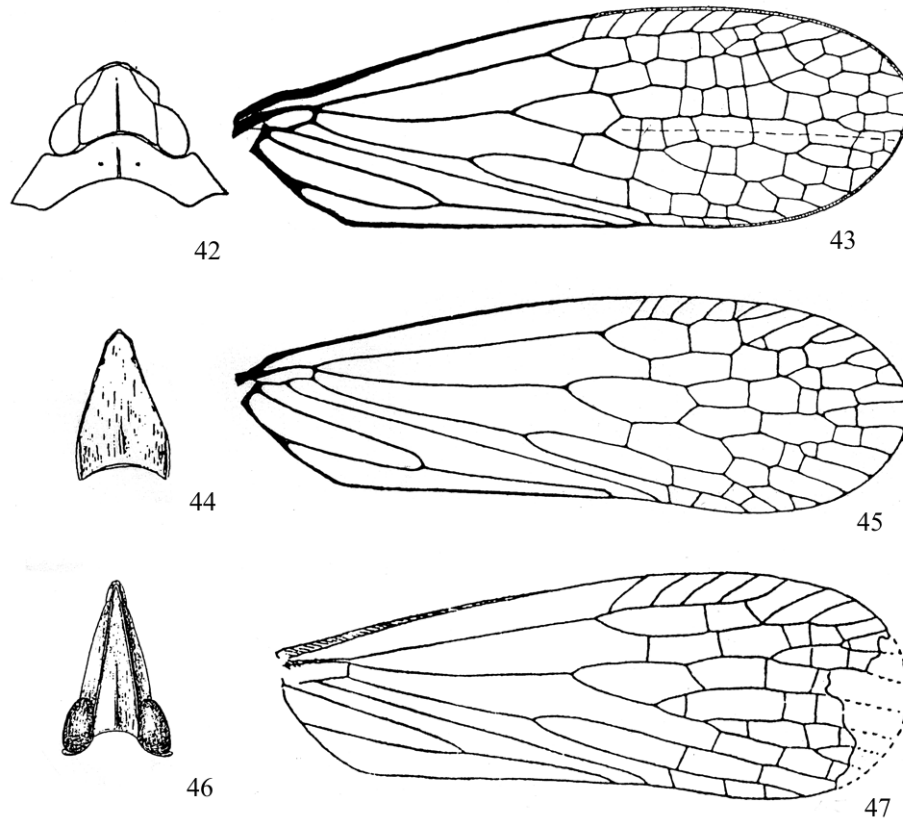
Species included. The genus is monotypical.

Mathetris rhodesiana (Synave, 1979)

New record. Zambia: fl. Mulungushe et Lunsefwa, Rhodes[ia], M. Burr, 04–VI.1928, 1 ♀ (ZIN).

*The Structure and Characteristics
of the Genera Afronersia Fennah
and Pseudophanella Fennah*

Improving the generic classification of the African Dictyopharinae, Fennah (1958) used the presence of carinae on the tegulae only to distinguish *Afronersia* from *Paradictya* Mel. (s. lato, including *Neodictya* Syn.), the most closely related genus according to his key, but he attached significance to this character, which follows from the fact that he included in *Afronersia* two species clearly differing from the others, namely *A. katangana* Fenn. and *A. monacha* Fenn. Both species, especially the former, are more similar in the shape of the head to representatives of the genus *Pseudophanella* (also established by Fennah) in which he placed only several species with the tegulae lacking carina: *Pseudophanella regina* Fenn., the type species *Ps. casta* Stål, *Ps. cliduchus* Fenn., and *Ps. crantor*



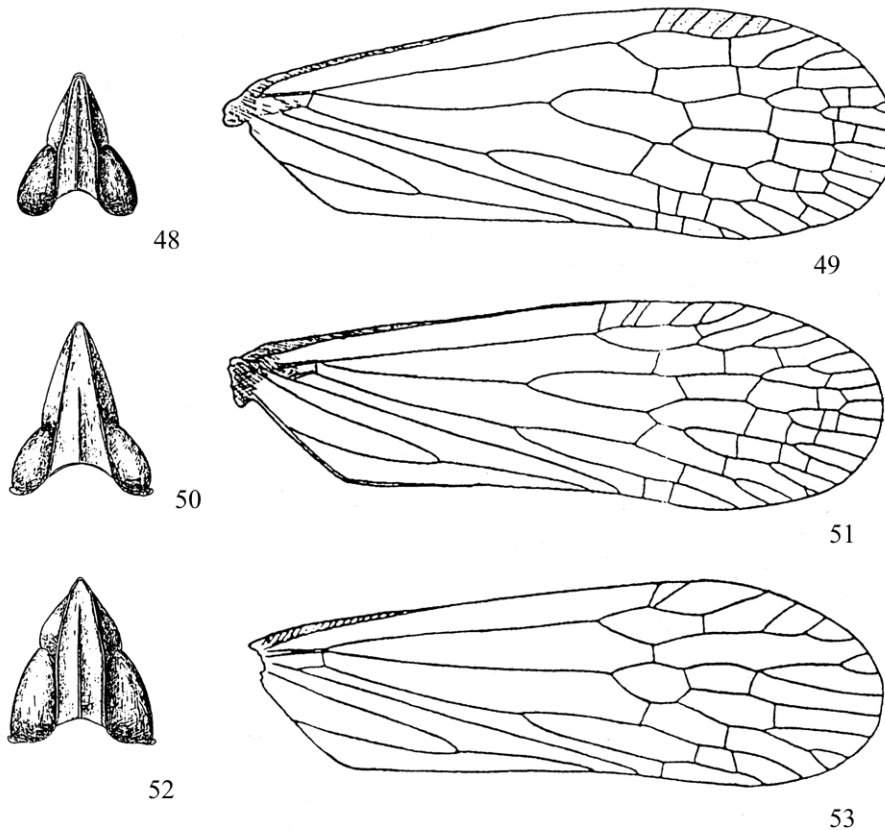
Figs. 42–47. *Afronersia* Fennah: (42, 43) *A. dionaea* Fenn. [(42) head and pronotum, dorsal view; (43) fore wing]; (44, 45) *A. monacha* Fenn., [(44) head and pronotum, dorsal view; (45) fore wing]; (46, 47) *A. ripuaris* Lallemand [(46) head and pronotum, dorsal view; (47) fore wing]. Fig. 42 after: Fennah, 1958; Figs. 44, 46, 47 after: Synave, 1965.

Fenn. Synave (1965), without rejecting the inclusion of *A. katangana* and *A. monacha* in the genus *Afronersia*, placed in the genus *Pseudophanella* a number of species which possessed the carinate tegulae (*Ps. ripuaris* Lall., *Ps. somaliana* Lall., and *Ps. devincta* Bergroth) and were rather similar to *A. katangana* and *A. monacha*, but not to the typical short-headed *Afronersia*. Depicting the genitalia of Dictyopharidae, neither Fennah nor Synave attached great importance to their characters. However, all these habitually atypical species differ in the structure of the genitalia too. In addition to *Afronersia* s. str., three more groups of species with the carinate tegulae should be distinguished: *Oxyphanella* subgen. n. for *A. katangana*, *Cryptophanella* subgen. n. for *Ps. ripuaris*, and *Ps. somaliana*, *Ps. devincta*, and *Mesophanella* subgen. n. for *A. monacha* Fenn. Among the species of the genus *Pseudophanella* (in the narrow sense), the structure of the genitalia is clearly different in *Ps. turbata* which should be isolated in a subgenus *Cliduchus* subgen. n. The subgenera *Cryptophanella* and *Cliduchus* are characterized by the penis without sticking

out hooks, but considerably differ in the other features of the penis structure. An isolated position of *Pseudophanella astigmatica* Bergroth in this respect was noted already by Synave (l. c.). Based on the assumption that the carinate tegulae is a more stable character which most likely has arisen only once during the evolution of the African Dictyopharini—i.e., it is a true synapomorphy of its holders, I place in the genus *Afronersia* all the African species with the carinate tegulae and group them in subgenera according to more labile characters of the genital structure, wing venation, and shape of the head, and leave the species with the simple tegulae in the genus *Pseudophanella* Fennah.

*A Key to the Subgenera
of the Genus Afronersia Fennah*

- 1 (2). Coryphe rather short, lateral preocular areas of its margin slightly concave. Fore wing with reticulate apical area occupying more than half of wing length. Median fold on fore wing crossing about 8 cross-veins. Hooks of penis with



Figs. 48–53. *Pseudophanella* Fennah: (48, 49) *Ps. regina* Fennah [(48) head, dorsal view; (49) fore wing]; (50, 51) *Ps. turbata* Lallemand [(50) head, dorsal view; (51) fore wing]; (52, 53) *Ps. astigmatica* Bergroth [(52) head, dorsal view; (53) fore wing]. After: Synave, 1965.

rounded obtuse apices turned backwards
 *Afronersia* s. str.

2 (1). Coryphe longer, mostly triangular; its margins without distinct obtuse angle before eyes, sometimes narrowly obtuse-angularly emarginate there. Preocular part straight or slightly convex. Apical reticulate area of fore wing occupying less than half of wing length. Median fold on fore wing crossing no more than 4 crossveins. Hooks of penis pointed apically or absent.

3 (6). Hooks of penis projecting beyond theca. Apex of stylus elongate, narrow.

4 (5). Hooks of penis directed backwards. Lateral process shorter, with rounded apex
 *Mesophanella* subgen. n.

5 (4). Hooks of penis deflected forwards, with apices directed downwards (ventrally). Lateral process

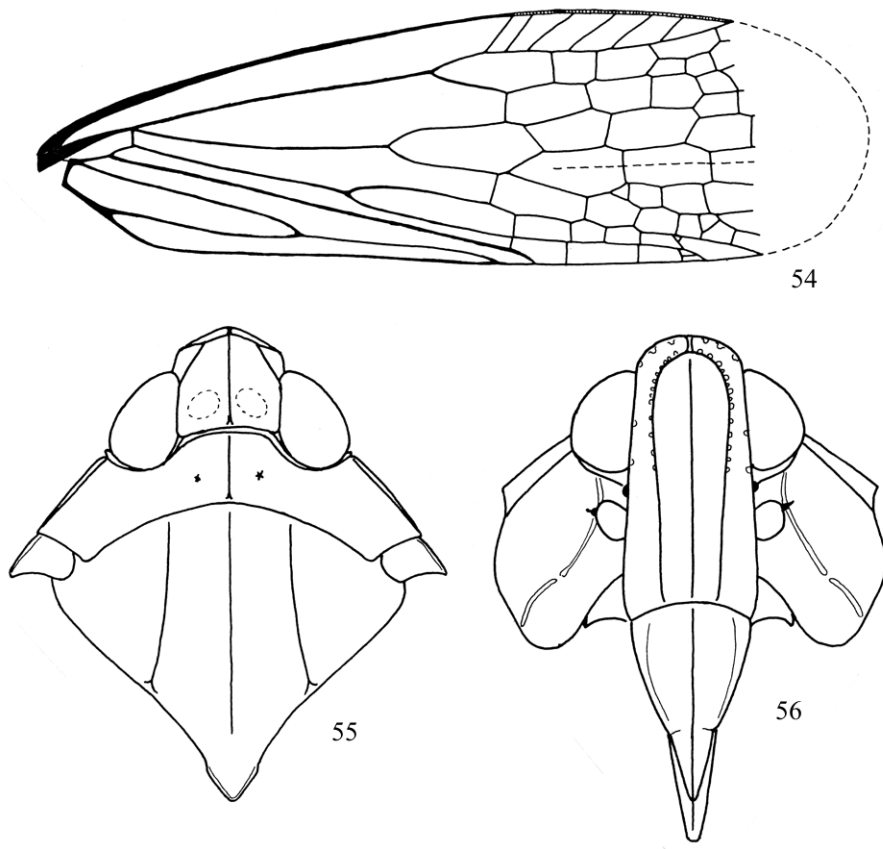
of pygophore elongate, pointed
 *Oxyphanella* subgen. n.

6 (3). Hooks of penis not projecting beyond theca (hooks absent). Apex of stylus short, widely rounded
 *Cryptophanella* subgen. n.

The Composition of the Subgenera of the Genus Afronersia Fennah

Subgenus *Afronersia* s. str. Type species *Afronersia dionaea* Fennah (Figs. 42, 43). Species included: *A. clymene* Linn., *A. coronis* Fenn., *A. datis* Fenn., *A. dionaea* Fenn., *A. discrepans* Fenn. (= *A. juba* Fenn., *A. praclivis* Fenn.), *A. impicta* Fenn. (= *A. comes* Fenn., *A. junix* Fenn.), *A. lacustris* Jacobi, *A. liriopae* Fenn., *A. lysis* Fenn., *A. orbata* Mel., *A. scyllax* Fenn., *A. serena* Stål.

Subgenus *Mesophanella* Emeljanov, subgen. n. Type species *Afronersia monacha* Fennah (Figs. 44, 45); in addition, *Dictyophara melichariana* Metcalf



Figs. 54–56. *Sinodietya tukana* Matsumura: (54) fore wing; (55) anterior part of body, dorsal view; (56) head and pronotum, anteroventral view.

(= *Afronersia melichariana*) belongs to this subgenus.

Subgenus ***Oxyphanella*** Emeljanov, subgen. n. Type species *Afronersia katangana* Fennah. A monotypical subgenus.

Subgenus ***Cryptophanella*** Emeljanov, subgen. n. Type species *Dictyophara ripuaris* Lallemand (Figs. 46, 47). Species included: *A. ripuaris* Lall., *A. somaliana* Lall., *A. divincta* Lall.

A Key to the Subgenera of the Genus Pseudophanella Fennah

- 1 (2). Hooks of penis projecting beyond theca. Median fold on fore wing usually crossing 2 cross-veins *Pseudophanella* s. str.
- 2 (1). Hooks of penis not projecting beyond theca. Median fold crossing only 1 or 3 cross-veins.

- 3 (4). Coryphe triangular (cuneiform), with straight lateral margins. Theca with inflated membranous areas (vesicles) bearing spicula. Median fold on fore wing crossing 3 cross-veins *Cliduchus* subgen. n.
- 4 (3). Coryphe lance-shaped, parallel-sided along entire length between eyes, with lateral margins convex in apical part. Theca narrow, elongate, without vesicles and spicula, with pair of dorsal sclerotized projections at apex. Median fold crossing only 1 cross-vein. Bifurcation of *MP* shifted distad *Orthophanella* subgen. n.

The Composition of the Subgenera of the Genus Pseudophanella Fennah

Subgenus ***Pseudophanella*** s. str. Type species *Pseudophanella regina* Fennah (Figs. 48, 49). Species included: *Ps. casta* Stål, *Ps. crantor* Fenn., *Ps. fron-*

tata Haglund, *Ps. montana* Lall., *Ps. regina* Fenn., *Ps. saegeri* Syn.

Subgenus *Cliduchus* Emeljanov, subgen. n. Type species *Dictyophara turbata* Lallemand (Figs. 50, 51). A monotypical subgenus.

Subgenus *Orthophanella* Emeljanov, subgen. n. Type species *Dictyophara astigmatica* Bergroth (Figs. 52, 53). A monotypical subgenus.

Genus *Sinodictya* Matsumura, 1940

Type species *Sinodictya tukana* Matsumura, 1940 (Figs. 54–56).

The genus *Sinodictya* has never been mentioned in publications since the original description. Its status, called in question because of the insufficiently detailed original description, is corroborated by a peculiar character—the carinate tegulae, which are characteristic of none of the known representatives of the Oriental and Palaearctic faunas. Examination of one specimen of *S. tukana* from the collection of Paris Muséum national d'histoire naturelle has allowed me to specify the characteristic of the genus, to compare it with similar genera, and to confirm its status. This specimen is a female with broken apices of wings (without distal half of the membrane), labeled as “Muséum Paris, Indochine Française (vitalis de salvaza), Mme A. Vuillet, 1920” (MNHN).

The genus is very similar to *Neodictya* Synave, 1965, and the name *Sinodictya* may be a senior synonym of *Neodictya*. The Indochinese species *S. tukana* is similar to the type species of the genus *Neodictya*, *Neodictya izzardii* Syn., but differs in the small post-vaginal plate about half as wide as that in *N. izzardii* Syn.

Taxonomic Changes

The following new synonyms were established in the course of the study of the descriptions.

Avephora Biernam, 1910 (= *Indagnia* Emeljanov, 2008), syn. n.

Leprotia Melichar, 1912 (= *Orodiclyta* Kirkaldy, 1913), syn. n.

Dictyomorpha Melichar, 1912 (= *Amboina* Kirkaldy, 1913), syn. n.

Dictyopharina Melichar, 1903 (= *Tropidophara* Bierman, 1910), syn. n.

Two replacing names are proposed.

Chondrodire Emeljanov, nom. n. for *Chondrodera* Melichar, 1912 (type species *Ch. granicollis* Melichar, 1912), nec *Chondrodera* Karsch, 1890.

Taractellus Metcalf, 1948 [= *Taracticus* Berg, 1881 (type species *Cixius chilensis* Spinola, 1852)], nom. praeocc. and *Chondrodera* Melichar, 1912, nom. praeocc. are not objective synonyms because of being based on different type species; moreover, *Chondrodera* is most likely not a subjective synonym of the genus *Taractellus*, but a separate genus.

The following new combinations are formed: *Calodictya kazeruna* (Dlabola, 1986), comb. n. (= *Dictyophara kazeruna* Dlabola) and *Avephora maculata* (Distant, 1906), comb. nov. (= *Putala maculata* Distant).

ACKNOWLEDGMENTS

The author is grateful to Prof. Dr. T. Bourgoïn (MNHN), Mr. M. Webb (BMNH), to Mr. J. Constant (ISNB), Mr. A. Orosz (HNHM), D.A. Dmitriev (Shampen, USA), and O.A. Mosolov (Moscow) for the material supplied and to Dr. L. Picciau (Museo Regionale di Scienze Naturali, Torino, Italy) for the photographs of the type specimen of *Plegmatoptera prasina* Spinola. I also thank my colleagues V.M. Gnezdilov, D.A. Gapon, and A.L. Lobanov (ZIN) for their help in preparation of the paper. The study was supported by the program of the Presidium of the Russian Academy of Sciences “The Origin of Biosphere and the Evolution of the Geobiological Systems.”

REFERENCES

1. Emeljanov, A.F., “The Problem of Differentiation of the Families Fulgoridae and Dictyopharidae (Homoptera, Auchenorrhyncha),” *Trudy Zool. Inst. Akad. Nauk SSSR* **82**, 3–22 (1979).
2. Emeljanov, A.F., “A Species of Dictyopharidae from the Cretaceous of the Taimyr Peninsula (Insecta, Homoptera),” *Paleontol. Zh.*, No. 3, 79–85 (1983).
3. Emeljanov, A.F., “An Attempt of Construction of the Phylogenetic Tree of Fulgoroidea (Homoptera, Cicadina),” *Entomol. Obozr.* **69** (2), 353–356 (1990).
4. Emeljanov, A.F., “New Genera and Species of the Family Dictyopharidae (Homoptera) with Notes on the Systematics of the Subfamily Dictyopharinae,” *Entomol.*

- Obozr. **87** (2), 360–396 (2008) [Entomol. Rev. **88** (3), 296–328 (2008)].
5. Emeljanov, A.F., “A New Genus and Species of the Dictyopharidae from Australia Belonging to a New Tribe (Homoptera, Cicadina),” *Zoosyst. Ross.* **6** (1/2), 77–82 (1997).
 6. Fennah, R.G., “New Dictyopharidae from the New World (Homoptera–Fulgoroidea),” *Proc. Biol. Soc. Wash.* **57**, 77–94 (1944).
 7. Fennah, R.G., “Fulgoroidea from the Belgian Congo,” *Ann. Mus. Congo Belge.* **59**, 1–206 (1958a).
 8. Fennah, R.G., “Fulgoroidea from West Africa,” *Bull. IFAN* **20** (A), Ser. A, No. 2, 460–538 (1958b).
 9. Melichar, L., “Monographie der Dictyophorinen (Homoptera),” *Abhandl. k.-k. zool. bot. Ges. Wien* **7** (1) (1912).
 10. Muir, F., “New and Little Known Fulgoroidea from South America,” *Proc. Hawaiian Entomol. Soc.* **7** (3), 469–480 (1931).
 11. Synave, H., “Dictyopharidae (Homoptera Fulgoroidea),” in *Exploration du Parc National de la Garamba* (Bruxelles, 1965), Issue 47, pp. 1–63.
 12. Urban, J.M. and Cryan, J.R., “Entomologically Famous, Evolutionarily Unexplored: the first Phylogeny of the Lanternfly Family Fulgoridae (Insecta: Hemiptera: Fulgoroidea),” *Molecular Phylogenetic and Evolution* **50**, 471–484 (2009).