

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

NEW DICTYOPHARIDAE FROM THE NEW WORLD
(HOMOPTERA: FULGOROIDEA).

BY R. G. FENNAH,

Entomologist, Food Crop Pests Investigation, Windward and Leeward
Islands.

In dividing up the Dictyopharine genera of the New World Melichar (1912) retained two which were far from compact, these being *Dictyophara* Germar and *Nersia* Stål. Recently a series of *Dictyophara europaea* L., three specimens of which bore Melichar's label, was examined by the writer at the U. S. National Museum, and it was found that this species (the genotype) is not congeneric with any of the American Dictyopharini. A scrutiny of some of the species placed here or in the genus *Nersia* by Melichar has shown that they include several compact and natural groups which are separated below as new genera.

In drawing up the definitions below appeal has been made to characters not hitherto used in Fulgoroid generic classification. These include the general pattern of the aedeagal structure, the venation of the wings, the shapes of the first and third valvulae of the ovipositor and the sclerotised pattern on the bursa copulatrix. The last varies both between species and in broader design between genera, and it is already clear that in many cases it can be used for rigorous separation of species.

Since Melichar wrote his monograph *Dictyophara orbiculata* Fowler has been transferred to the Tropiduchid genus *Rotunosa* Distant. A new name, *Melicharoptera*, has been proposed by Metcalf for *Dictyoptera* Melichar (preoccupied by *Dictyoptera* Latreille 1829). Muir has described two new genera, *Brachytaosa* and *Parahydriena*, which he placed in this family. The writer has seen the type of the latter and has found it to be a Tropiduchid very closely allied to *Cyphoceratops* Uhl. *Beloncharis* Uhler is currently recognized as a subgenus of *Scolops* Schaum. This genus and *Phylloscelis* Germar include macropterous species and have been included for general convenience in the key provided below.

These genera, which are closely allied, have strong affinities with the Orgeriini and would be better placed there than along with Dictyopharini or with the African Lyncidini.

In compiling the key presented below the writer has relied solely on literature for characters of the genera *Brachytaosa* Muir, *Sicorisia* Mel., *Megadictya* Mel., *Dorimargus* Mel. and *Parahasta* Mel.

A synoptical table is also provided to facilitate comparison of the new genera proposed in this paper with *Nersia* Stål. It has also been thought advisable to indicate the salient generic characters of *Dictyophara* Germar (s. s.) as evinced in the European genotype.

KEY TO THE DICTYOPHARINI AND MACROPTEROUS ORGERIINI OF THE NEW WORLD

- | | | |
|-----------|--|---------------------------------------|
| (1) (2) | Vertex usually wider than long, with a facet outside lateral margin apically..... | 3 |
| (2) (1) | Vertex usually longer than wide, conical or produced, devoid of a latero-apical facet..... | 11 |
| (3) (4) | Profemora compressed..... | 9 |
| (4) (3) | Profemora not compressed..... | 5 |
| (5) (6) | Facet closed completely, pronotum smooth..... | 7 |
| (6) (5) | Facet open ventrally, pronotum and frons pustulate..... | |
| | <i>Chondrodera</i> Mel. 1912:157. | |
| (7) (8) | A transverse carina at apex of vertex, three rows of areoles in membrane..... | <i>Taosa</i> Dist. 1906:355. |
| (8) (7) | No distinct carina at apex of vertex, numerous irregular areoles in membrane..... | <i>Brachytaosa</i> Muir 1931:475. |
| (9) (10) | Protibiae usually broadly expanded, vertex not produced..... | <i>Phylloscelis</i> Germ. 1839:191. |
| (10) (9) | Protibiae not widened, vertex distinctly produced before eyes..... | <i>Sicorisia</i> Mel. 1912:160. |
| (11) (12) | Tegmina with corium reticulate or with cross veins..... | 13 |
| (12) (11) | Tegmina with corium not reticulate, devoid of cross veins..... | 19 |
| (13) (14) | Clavus with transverse veins or reticulate..... | |
| | <i>Plegmatoptera</i> Spin. 1839:283. | |
| (14) (13) | Clavus devoid of cross veins..... | 15 |
| (15) (16) | Post-tibiae with seven spines, tegmina fully 20 mm. long..... | <i>Megadictya</i> Mel. 1912:64. |
| (16) (15) | Post-tibiae with four spines, tegmina smaller..... | 17 |
| (17) (18) | Vertex broadly conical, distal part of corium with irregular cross veins..... | <i>Pteroplegma</i> Melichar 1912:66. |
| (18) (17) | Vertex elongate cylindrical, almost whole of corium with cross veins..... | <i>Melicharoptera</i> Metc. 1938:335. |
| (19) (20) | Protibiae very long and slender in relation to femora..... | 21 |
| (20) (19) | Protibiae not especially long in relation to femora..... | 27 |
| (21) (22) | Cephalic process very short, peg-like, directed upward, or if absent, vertex hollowed out..... | 23 |

- (22) (21) Cephalic process long and slender, narrower than vertex..... 25
- (23) (24) Cephalic process short, peg-like or in a broad ridge, not longer than eye, directed upward.....
Igava Mel. 1912:47.
- (24) (23) Cephalic process absent, disc of vertex hollowed, margins raised, a shining black spot at base of lateral carinae of frons.....*Hydriena* Mel. 1912:50.
- (25) (26) Cephalic process square in section, of equal width throughout, apex truncate, directed obliquely upward.....*Toropa* Mel. 1912:80.
- (26) (25) Cephalic process cylindrical, widened near apex, directed forward horizontally.....
Lappida Am. & Serv. 1843:505.
- (27) (28) Cephalic process strongly laterally compressed, grooved dorsally.....*Dictyopharoides* Fowl. 1900:44.
- (28) (27) Cephalic process not as above..... 29
- (29) (30) Tegmina leathery, feebly transparent, post-tibiae with six or seven spines.....*Scolops* Schaum 1850:68.
- (30) (29) Tegmina hyaline, not leathery..... 31
- (31) (32) Pronotum in side view inclined obliquely upward at 30°, frons in profile concave.....*Sicoris* Stål 1866:151.
- (32) (31) Pronotum in side view not inclined, flat..... 33
- (33) (34) Margins of vertex sharply constricted before eyes, cephalic process widened distally.....
Paralappida Mel. 1912:89.
- (34) (33) Margins of vertex not sharply constricted before eyes, cephalic process rarely widened distally..... 35
- (35) (36) Tegmina rather small with parallel sides and numerous cross veins in membrane, insect parallel-sided when at rest, cephalic process long..... 37
- (36) (35) Tegmina not small, somewhat widened distally, insect elongate-triangular with wings closed..... 41
- (37) (38) Clypeus set deeply into frons, sides of frons lower than suture at middle.....*Eudictya* Mel. 1912:113.
- (38) (37) Clypeus not set deeply into frons..... 39
- (39) (40) Pronotum with lateral carinae distinct, cephalic process parallel-sided, sides of frons visible from above.....
Dorimargus Mel. 1912:90.
- (40) (39) Pronotum with lateral carinae obsolete basally, cephalic process elongate conical, sides of frons not visible from above.....*Parahasta* Mel. 1912:108.
- (41) (42) Tegulae distinctly carinate, vertex short, triangular.... 43
- (42) (41) Tegulae not carinate, vertex elongate-triangular, or obtusely angulate apically..... 47
- (43) (44) A white line laterally from apex of vertex to costa, post-tibiae four-spined, M 3-4 not forked before nodal line..... 45

- (44) (43) Such a line, if present, bright green; post-tibiae three-spined, M 3+4 forked before nodal line.....
Trimedia gen. nov.
- (45) (46) Third valvulae of ovipositor rather elongate, narrow, frons not or scarcely ampliate before suture, membrane with two or three rows of areoles, R three branched in wings.....*Retiala* gen. nov.
- (46) (45) Third valvulae of ovipositor subquadrate, broad, frons ampliate before suture; membrane with four or five rows of areoles, R four-branched in wings.....
Nersia Stål 1862: 63.
- (47) (48) Vertex elongate-triangular, or if not, then slender, pointed or rounded apically, not angulate..... 49
- (48) (47) Vertex pentagonal, even if elongated, apex always obtusely angulate, sides of head widely visible from above, six to eight rows of areoles, the apical series very short.....*Hyalodictyon* gen. nov.
- (49) (50) Six or seven areoles adjoining nodal line, latter distinct, pronotum notched but not deeply..... 51
- (50) (49) No regular areoles on nodal line, latter distorted by distal reticulation, pronotum with a deep narrow notch on hind margin basally.....*Rhynchomitra* gen. nov.
- (51) (52) Vertex elongate, as long as pro- and mesonotum together, frons distinctly widened before suture, pronotal lateral carinae strong at hind margin.....
Digitocrista gen. nov.
- (52) (51) Vertex not longer than mesonotum, or scarcely so, frons not or weakly ampliate before suture..... 53
- (53) (54) Vertex elongate-triangular, curved dorsad distally, post-tibiae four-spined.....*Mitrops* gen. nov.
- (54) (53) Vertex as broad as long, flat, carinate throughout, post-tibiae three-spined.....*Pharodictyon* gen. nov.

SYNOPSIS OF NEOTROPICAL GENERA HITHERTO GROUPED UNDER DICTYOPHARA GERM. AND NERSIA STAL.

Genus	Vertex longer than wide; generally	Vertex medially carinate	Median carina of vertex	Vertex	Apex of vertex	Frons ampliate before suture	Shape of basal union of frontal lateral carinae	Lateral carinae of pronotum reaching hind margin
<i>Taosa</i>			basal	short	straight, rounded	strongly	semicircular	Yes
<i>Mitrops</i>	conical		basal	long	pointed	weakly	lanceolate	Yes
<i>Retiala</i>	conical	Yes	complete	short	pointed		mitrate	
<i>Digitocrisia</i>	cylindrical	Yes	complete	long	rounded	moderately	semicircular	Yes
<i>Rhynchomitra</i>	conical	Yes	basal	long	pointed	moderately	lanceolate	Yes
<i>Hyalodictyon</i>	cylindrical	Yes	complete	varied	obtusely angulate	distinctly	semicircular or obtusely angulate	
<i>Trimedius</i>	conical	Yes	complete	short	pointed	moderately	semicircular	
<i>Pharodictyon</i>	conical	Yes	complete	short	rounded	widened at level of sutures	semicircular	
<i>Nersia</i>	conical	Yes	basal	short	pointed	moderately	mitrate	
<i>Dictyophara europaea</i>	conical	Yes	basal	moderately long	pointed	weakly	lanceolate	Yes, weakly

Genus	Tegulae distinctly carinate	White line from apex of vertex to tegula	No. of spines on post-fibiae	Tegmina with M 3+4 forked be- fore nodal line	No. rows areoles in membrane	No. rows areoles along nodal line
<i>Tausa</i>.....	.....	.....	4	.....	3	7
<i>Mitrops</i>.....	.....	.....	4	.....	3	7
<i>Retiala</i>	Yes	Yes	4	.....	2-3	7
<i>Digitocrista</i>.....	.....	.....	4	.....	3	7
<i>Rhynchomitra</i>.....	.....	.....	4	Yes	Many	Many
<i>Hyalodictyon</i>	Yes	.....	4	.....	6-8	8
<i>Trimedia</i>.....	.....	.....	4	.....	3	8
<i>Pharodictyon</i>.....	.....	.....	3	.....	3-4	6
<i>Nersia</i>	Yes	Yes	4	.....	4-5	8
<i>Dictyophara europaea</i>.....	.....	.....	6-7	.....	2-3	6

Genus	Tegmina with apical areoles Longer than broad	As broad as long	No. rows of areoles embraced by M	No. of branches of R in wing	Aedeagus with basal part of spines	No. teeth 1st valv- ulae of ori- positor	Shape of 3rd valvulae
<i>Tausa</i>	Yes	.....	3	4	.....	about 12	rather elongate
<i>Mitrops</i>	Yes	.....	3	4	Yes	11	elongate
<i>Retiala</i>	Yes	.....	3	3	.....	6	rather elongate
<i>Digitocrista</i>	Yes	.....	3	4	.....	6	elongate
<i>Rhynchomitra</i>	Yes	.....	4	4	Yes	about 12	elongate
<i>Hyalodictyon</i>.....	.....	Yes	2	4-5	Yes	6	stout, subquadrate
<i>Trimedia</i>	Yes	.....	3	3	.....	6	subquadrate
<i>Pharodichyo n.</i>	Yes	.....	3	3	.....	6	subquadrate
<i>Nersia</i>.....	.....	Yes	3	4-5	.....	6	subquadrate
<i>Dictyophara europaea</i>	Yes	.....	3	3	.....	6	subquadrate

MITROPS gen. nov.

Vertex fully twice as long as broad across base, elongate-triangular, curved evenly upward distally, lateral margins converging to apex with a small but distinct notch before eyes, margins raised, horizontal in profile, disc flat, anteriorly concave, devoid of median carina distally, if not entirely, posterior margin transverse; frons elongate, margins feebly sinuate, only a little widened before clypeus, median carina present only at middle, lateral carinae strongly developed, meeting basally in an acute point, slightly converging in distal two-thirds reaching near to clypeal suture; genae slightly tumid before eyes, not ridged. Pronotum in middle line one quarter length of vertex, anteriorly convex, median carina strong, an impression near its base on each side, lateral carinae not reaching hind margin, carinae behind eyes of equal thickness. Protibiae not exceptionally long, post-tibiae with four spines. Tegmina with R simple to nodal line, M widely forked towards apex in corium, Cu forked basad of M fork, an apical and subapical row of transverse veins, in addition to nodal line, stigma with four cells. Wings with R four-branched, M four-branched at margin.

Aedeagus with a pair of basal spines on periandrium, a pair of straight spines at middle, and a pair distally on membranous sacs, penis ending in two long curved membranous limbs with a spine at apex of each. Ovipositor with first valvulae beset dorsally with a row of about ten teeth, a longer oblique tooth at apex, third valvulae elongate, six times as long as wide. Bursa copulatrix ornamented with sclerotised rings each bearing three sclerotised beadlets subequally spaced on ring.

Genotype *Fulgora noctivida* L. (1767) Syst. Nat. II: 750.

Vertex basally not carinate, strongly curved upward distally, basal spines of aedeagus three times as long as broad across base....

noctivida L.

Vertex basally carinate, not strongly curved upward distally, basal spines only as long as broad across base.....*curviceps* Stål.

RETIALA gen. nov.

Vertex longer than broad (less than 2 to 1), acutely triangular, flat or slightly curved dorsad at apex, disc flat, median carina distinct at base, much weaker distally, apex of vertex pointed, tip of frons and sides of head visible from above; frons elongated, scarcely three times as long as broad, lateral margins parallel, not ampliate before suture, disc flat, median and lateral carinae strong, lateral carinae diverging before uniting in a point at base, forming a mitrate outline, apically reaching transverse ridge near suture, median carina percurrent; clypeus medially carinate. Pronotum anteriorly roundly produced, posteriorly emarginate in an obtuse angle, median carina strong, with an impression on each side, lateral carinae of disc not attaining posterior margin, lateral marginal carinae of each side unequal, the dorsal carina being thickened, lateral fields devoid of an oblique carina; mesonotum about as long as broad, tricarinate; tegulae distinctly carinate. A white line laterally from

apex of head to costa. Protibiae not exceptionally long in relation to femora; post-tibiae with four spines. Tegmina with R branched near stigma, M forked once before nodal line, Cu forked slightly basad of M, cell M 1+2 in corium more than twice as long as wide, nodal and sub-apical lines of cross veins distinct, apical line very incomplete, so that only two rows of areoles lie between nodal line and margin for most part, seven areoles adjoining nodal line, areoles of apical series more than twice as long as broad. Wings with R three-branched, M four-branched.

Aedeagus devoid of basal spines.

Ovipositor with third valvulae elongate, slightly curved.

Genotype, *R. proxima* n. sp.

***Retiala proxima* n. sp.**

Male.—Length, 5.5 mm.; tegmen 8.2 mm. *Female*. Length, 7.0 mm.; tegmen, 8.9 mm.

Green; base of lateral margins of frons piceous, a spot at apex of vertex, a line on each side before eye, along upper lateral marginal carina and along costa pallid, lower surface of costa pale.

Aedeagus with periandrium distally in form of a pair of membranous sacs devoid of spines, each sac produced dorsolaterally in a small wing-like lobe and ventrolaterally in a large conical lobe, the latter lobes diverging obliquely from each other when inflated at an angle of a hundred and ten degrees, the sacs appearing X-shaped in posterior view; medially two sclerotised blade-like processes, expanded membranously dorsally and ventrally; medio-dorsally a pair of spines directed posteriorly, overlain by a pellucid membranous hood.

Ovipositor with first valvulae beset with four small dorsal spines and two curved spines at apex, second valvulae blade-like, pointed distally, apical margin very oblique; third valvulae elongate, about three times as long as broad. Bursa copulatrix ornamented with sclerotised beadlets in round clusters of five or seven.

Described from three males and one female collected at Medellin, State of Vera Cruz, Mexico by C. F. Baker (1895). Type in U. S. N. M. It is possible that *Nersia pudibunda* Stål is a member of this genus.

DIGITOCRISTA gen. nov.

Vertex long, cylindrical, subtruncate but not angled at apex, a minute notch on lateral margins before eyes, sides of frons visible from above, lateral margins of vertex tapering for a short distance before eyes then parallel to apex, sides of head with a blunt ridge before eyes; frons elongate, median carina weak or obsolete at middle, lateral carinae strongly developed terminating just before suture, meeting at base in a curve, not a point; disc grooved in basal two-thirds, a groove between lateral carinae and lateral margins, deepening to sagittal carina at base of frons medially; lateral margins parallel, angulate or angulately bent forward before clypeal suture. Pronotum with lateral carinae of disc reaching hind margin, carinae of lateral margin prominent, of equal

thickness. Tegulae devoid of carina. Protibiae not exceptionally long; post-tibiae with four spines. Tegmina with R forked close to stigma, M once forked just distad of Cu fork, Cu forked in middle of corium, nodal, subapical and apical lines of cross veins only present, seven rows of areoles adjoining nodal line, M embracing three, a groove along middle areole, areoles on apical margin moderately long; stigma with three or four cells. Wings with four or five branches of R at apical margin, two, three or four branches of M.

Aedeagus devoid of a pair of basal spines, a pair of slender spines dorsally, and a pair of long curved membranous tubes each ending in a sclerotised point; membranous portion of periandrium when inflated forming a large curved sac bordered on each side by a smaller sac with a sclerotised patch at apex.

Anal segment of female short. Ovipositor with first valvulae beset dorsally with four teeth, apically a pair of curved spines; second valvulae slender, blade-like, parallel-sided, third valvulae somewhat elongate, three times as long as broad in middle. Bursa copulatrix ornamented with minute sclerotised beadlets arranged in an elongate oval.

Genotype *Nersia bubala* Stal (1862) Rio Jan. Hem. II: 63.

In the genotype the bursa copulatrix has the sclerotised beadlets arranged in an elongated oval of twenty, with two or three in the middle, these numbers being counted on the dorsal surface of the organ where the ornamentation is most fully developed.

RHYNCHOMITRA gen. nov.

Vertex elongate or conical, slightly curved upward distally, lateral margins tapering evenly to apex, median carina distinct basally, obsolete at apex. Frons elongate, margins almost parallel, slightly widened before suture, median and lateral carinae strong, all reaching suture, lateral carinae meeting basally in an acute point. Pronotum with anterior margin strongly convex between eyes, posterior margin rectangularly excavate, a deep-parallel sided notch at middle, lateral carinae of disc reaching hind margin. Protibiae not remarkably long; post-tibiae with four spines. Tegmina with R forked near stigma, M forked distad of Cu fork, Cu forked at middle of corium, membrane reticulate with ten or twelve rows of areoles, stigma approximately five-celled. Wings with four branches of R and four of M at apical margin.

Aedeagus with a pair of spines ventro-basally, a longer pair dorso-laterally, a minute spine on apical membranous sac of each side; penial spines long, curved, fleshy, with a sclerotised spine at tip. Ovipositor with first valvulae beset dorsally with a row of about ten teeth, a longer curved spine at apex; third valvulae elongate, about three times as long as broad at middle. Ornamentation on bursa copulatrix elongate-oval, three celled, with a beadlet on each dissepiment and two beadlets between each.

Genotype, *Dictyophara microrhina* Wlk. 1851 List. Hom. II: 315.

Rhynchomitra mexicana n. sp.

Male. Length 7.0 mm.; tegmen, 7.5 mm.

Vertex longer than broad (3:1), medially carinate in basal fifth, slightly turned upward distally; frons with median carina obscure just before apex. Tegmina with reticulation beginning at fork of R, basad of stigma by three quarters of its length.

Green; apical portion of tibiae and tarsi tinged reddish-brown. Tegmina and wings hyaline.

Aedeagus with ventrobasal spines very short, scarcely longer than broad across base, not visible from above, directed laterad; a pair of medio lateral spines curved anteriorly with sacs inflated, latero-apical sacs with a sclerotised patch apically; penial processes long, recurved, sclerotised in a point distally.

Described from a single male taken at Vera Cruz, Mexico by P. R. Uhler ("3.10").

This species differs from *microrhina* in having the vertex relatively broader, though not as broad or as short as in *recurva* Metc., and in the more pronounced upward tilt at the apex. The reticulation of the membrane near the fork of the radius is generally different from that of either of these species, while the basal spines of the aedeagus are so much shorter than in *microrhina* that the two can be reliably separated on this character alone. *Dictyophara lingua* V. D. also belongs to this genus.

HYALODICTYON gen. nov.

Vertex slightly or distinctly produced before eyes, lateral margins slightly converging distally, rarely parallel, apical margin transverse or obtusely angulate, often with subparallel base of frontal carinae projecting beyond it; median carina distinct, percurrent, sometimes a slight transverse mark or ridge across vertex a little distad of eyes, most visible at margins, sides of head before eyes visible from above; frons relatively broad, flat, lateral margins subparallel distinctly angulately or roundly widened before suture, median carina percurrent, lateral carinae not always reaching suture, united basally to form a semicircle or an obtuse angle. Pronotum anteriorly convex, posteriorly angularly emarginate, median notch on posterior margin not deep, pronotal disc tricarinate, lateral carinae obliquely interrupted at middle, not reaching posterior margin, lateral marginal carinae equally strong. Tegulae not carinate. Protibiae not relatively long and slender, post-tibiae armed with four spines. Tegmina with R forked near stigma, M forked once before nodal line, cell M 1+2 elongate, Cu forking basad of M, stigma with three to six cells, eight areoles adjoining nodal line, M embracing two or three, nodal areoles long, six to eight rows of apical areoles, those at margin short, not twice as long as broad, or scarcely so. Wings with R four or five-branched at margin, M four-branched.

Aedeagus with a pair of basal spines.

Ovipositor with first valvulae with a dorso-mesal ridge with three short oblique spines, and a ventro-lateral ridge bearing three blunt curved

teeth which project distally, third valvulae subquadrate, somewhat angulately rounded at apical margin. Ornamentation of bursa copulatrix in form of sclerotised rings each studded with two or three beadlets.

Genotype, *Dictyophara nodivena* Wlk. 1858 Ins. Saund.: 37.

The members of this genus are all large and differ considerably in the shape of the head but in all it is stoutly built and angulate at the apex of the vertex. The following species of *Dictyophara* (*sensu lato*), *taurina* Stål, *fusiformis* Wlk., *brachyrhina* Walk., *truncata* Wlk., *obtusifrons* Wlk., and *apicata* Mel., are apparently congeneric.

TRIMEDIA gen. nov.

Vertex flat, as long as broad or a little longer, approximately triangular but actually seven-sided, lateral margins converging distally, apical margin obtusely angulate, posterior margin transverse or very slightly excavate, median carina distinct basally, weakly percurrent, sides of frons visible from above; frons flat, lateral margins subparallel in basal half, ampliate before clypeus, median and lateral carinae equally strongly developed, latter slightly converging distally, reaching clypeus or abruptly ending very near to it, basally uniting to form a wide curve somewhat pointed at apex. Pronotum two-thirds as long as vertex, median carina distinct, lateral carinae obsolete, the upper carina of each lateral marginal pair thickened. Tegulae distinctly carinate. A white line laterally from apex of head to costa. Protibiae not exceptionally long, post-tibiae with four spines. Tegmina with R forked near stigma, M forked at middle of corium and branch M 3+4 forked in apical third of corium, Cu forked basad of first fork of media, nodal, subapical and apical lines present, eight arcoles adjoining nodal line, M embracing three, two of these being grooved, areoles at apical margin usually more than twice as long as broad. Wings with R three-branched, M four-branched at margin.

Ovipositor with first valvulae with three spines on dorsal margin and two curved spines distally, third valvulae subquadrate. Bursa copulatrix ornamented with non-sclerotised rings closely set with about twenty beadlets.

Genotype *Nersia viridata* Stål 1862 Rio Jan. Hem. II: 64.

Two females were seen from Cordova, Mexico (coll. P. R. Uhler) and one from Peru (coll. Dr. P. Weiss).

PHARODICTYON gen. nov.

Vertex as long as broad at base, flat lateral margins converging to near apex then parallel, median carina percurrent; frons with sides subparallel, margins a little raised but not ampliate or angulate before suture, sometimes expanded at level of junction with clypeus, lateral carinae prominent, ovately united at base, most widely separated one quarter from

base, reaching almost to suture, median carina distinct basally, becoming obsolete distally; clypeus peculiar in having a broad distinct trough, curved in section, inside each lateral margin, median carina very prominent. Pronotum much wider than head, anteriorly moderately convex, posteriorly angularly excavate, median notch small, median carina distinct, lateral carinae obsolete, marginal carinae of equal thickness, slightly angularly bent. Tegulae without a distinct carina. Mesonotum broad, feebly tricarinate, a space between point of junction anteriorly of carinae and hind margin of pronotum. Protibiae not exceptionally long, post-tibiae trispinose. Tegmina broad, R forking beyond of stigma by half length of latter, M forking at middle of tegmen, M 3+4 forking before M 1+2, transverse veins R-M, M-Cu basad of nodal line, Cu forked at basal quarter of tegmen, stigma with four cells, a series of six areoles adjoining nodal line, subapical and apical lines distinct and regular. Wings with R three-branched at margin, M four-branched.

Pygofer with lateral angle peculiar in being produced in a process. Aedeagus devoid of a basal pair of spines.

Ovipositor with first valvulae dorsally beset with three spines, two large curved spines at apex; third valvulae broadly subquadrate. Bursa copulatrix ornamented with large delicate rings each bearing about twelve beadlets.

Genotype, *P. latum* n. sp.

***Pharodictyon latum* n. sp.**

Male.—Length, 6.0 mm.; tegmen 8.7 mm. Female.—Length, 6.2 mm.; tegmen, 9.0 mm.

Width of tegmen of above female 4.0 mm. at widest part.

Green; pro- and mesotarsi reddish brown, post-tibiae spines black; tegmina and wings hyaline.

Pygofer with lateral angles produced posteriorly in an elongate lobe, slightly narrowed at base. Aedeagus cylindrical basally, distally swollen into a membranous sac on each side; a stout spine ventrolaterally on each sac directed outward, a similar but shorter spine more distally directed obliquely mesad; dorsally two pair of slender, parallel processes blade-like and closely apposed.

Bursa copulatrix ornamented with large, well-spaced thin-margined circles each studded regularly along margin with about twelve beadlets.

Described from one male from Rurrenabaque, Beni (November) and one female from Huachi, Beni, Bolivia (September) taken by W. M. Mann, one female from the mouth of the Rio Mapiti, taken possibly by the same collector on the Mulford Biological Expedition (1921-22) and a third female from Yunges de la Paz, Bolivia, collector unknown. This genus is well distinguished by the broad tegmina, the shape of the vertex and pronotum, and the lobate pygofer. Type in U. S. N. M.

NERSIA Stål.

Stål 1862 Rio Jan. Hem. II: 63.

Genotype, *N. haedina* Stål, Melichar 1912 Abh. Zool.-Bot. Ges. Wien vii, 1: 68.

Vertex longer than broad, rarely broader than long, triangular, lateral margins converging apically, not quite meeting at apex, median carina distinct at base, lateral margins of frons visible from above; frons scarcely more than twice as long as broad in middle, sometimes less than this, lateral margins parallel in basal half, ampliate before suture, median carina percurrent, sometimes feeble in basal half, lateral carinae distinct, roundly united above, obsolete in apical third. Pronotum anteriorly convex, disc produced, posteriorly obtusely excavate, median notch small, not deep, median carina distinct, lateral carinae weak, not reaching posterior margin, upper marginal carina thickened; mesonotum tricarinate. A white line from apex of head to costa, costa piceous below. Protibiae not exceptionally long, rather slender, post-tibiae with four spines. Tegmina with R forked basad of stigma by a third of its length, M forked once near middle of tegmen, Cu forked a little basad of M fork, stigma with three cells, eight areoles adjoining nodal line, four or five rows of areoles in membrane, apical areoles usually not twice as long as wide. Wings with R four or five-branched at margin.

Aedeagus devoid of a pair of basal spines.

Ovipositor with first valvulae beset dorsally with three spines, a second row of three spines on ventral margin distally, third valvulae subquadrate, bluntly pointed on apical margin. Bursa copulatrix ornamented with sclerotised circles or ovals each bearing two or three club-like processes directed medially, pustulate at apex.

Nersia florida n. sp.

Male.—Length 8.1 mm.; tegmen, 9.3 mm. Female.—Length, 8.1 mm.; tegmen, 9.9 mm.

Vertex longer than broad (1.25 to 1), tapering to apex.

Green; tegmina and wings hyaline.

Aedeagus with periandrium tubular, sclerotised and cylindrical in basal half, distal half membranous with a lateral sac obliquely directed upward and posteriorly on each side and an elongate sac similarly curved ventrally in middle line, with a pair of minute plates each minutely crenulate on distal border asymmetrically placed on each side at its apex; penial spines sclerotised curved at apex to point anteriorly, then strongly deflexed to point ventrally.

Bursa copulatrix ornamented with simple sclerotised rings each bearing a short peg-like process directed towards middle, and bearing at its tip four or five beadlets.

Described from two males and a female collected by E. D. Ball at Sanford, Fla., U. S. A. (7.7.'26 and 18.7.'27). This species differs from

specimens from Mexico which the writer assigns to *florens* Stål in the shape of the penial spines on the aedeagus. Type in U. S. N. M.

The writer considers that *seriata* Jacobi, *aridella* Mel., *chlorophana* Mel., and *virescens* Spin. (as identified from specimens from the various type localities that agree with Melichar's descriptions) are probably congeneric with *haedina* Stål.

DICTYOPHARA Germar.

Germar 1833 Silb. Rev. Ent. 1:175. Logotype, *Fulgora europaea* L.
Distant, F. B. I. III:241
(1906).

Dictyophara europaea L.

Linnaeus 1767 Syst. Nat. II:704, 9.

In addition to the characters of this species given in the synopsis which are considered typical of its genus the following are also distinctive. Pronotum with an oblique carina on each side below pair of lateral marginal carinae. Tegmina with transverse veins R-M, M-Cu situated distinctly basad of transverse veins at apex of cell M 1+2.

Aedeagus devoid of spines at base, distal paired sacs of periandrium each bearing spines (thirteen in *europaea* L.); penis with paired processes angularly recurved at apex.

Bursa copulatrix ornamented with groups of bead-like processes arranged in a circle, each process minutely pustulate distally [in *europaea* L. five or six processes are arranged in a circle, each with five pustules distally].

Subfamily ORGERIINI.

ORGERIUS Stål.

Stål 1859 Freg. Eugen. Resa. Ins. 273 Genotype *O. rhyparus* Stål
loc. cit.:274.

The chief characters of this Western North American genus are as follows.

Vertex triangular, longer than broad, lateral margins somewhat raised; frons about two and a half times as long as broad, median carina strong, percurrent, disc of frons much elevated, portions laterad of disc turned obliquely outward, almost in same plane as genae; eyes rounded posteriorly. Pronotum with disc subquadrate, projected anteriorly, arcuately emarginate on posterior margin, pronotal carinae strongly developed; mesonotum with lateral carinae strong. Tegmina with reticulate venation strongly standing out from corial surface. Anal segment of male elongate, distinctly longer than broad.

A European species assigned to this genus, which the writer has examined, has proved to be quite distinct on generic characters. The writer therefore places it in a new genus *Palaeorgerius*.

PALAEORGERIUS gen. nov.

Genotype, *Orgerius montandoni* Horvath, 1911 Ann. Mus. Nat. Hung. ix: 609.

The salient characters of this genus, as compared with *Orgerius* Stål are given below.

Vertex arcuate-triangular, broader than long, lateral and apical margins devoid of carinae, not raised; frons not twice as long as broad, disc flattened, median carina not raised, portions of frons laterad of lateral carinae in same plane as disc of frons, not at all turned outward; eyes shallowly excavate posteriorly.

Pronotum with disc three times as broad as long, posterior margin transverse or very shallowly concave, pronotal carinae weak, lateral carinae of disc obsolete; mesonotum with lateral carinae obsolete. Tegmina with veins, except costa, very weak, not raised above corial surface. Anal segment of male wider than long, or as wide as long.

REFERENCES

- AMYOT, C. J. B. and SERVILLE, J. G. A., 1843, Histoire Naturelle des Insectes. Hémiptères: 1-lxxvi.
DISTANT, W. L., 1906, *Ann. Mag. Nat. Hist.* 7, xviii, 349-356.
FOWLER, W. W., 1900, Biol. Centr.-Amer. Rhynchota: Homoptera I: 44-48.
GERMAR, E. F., 1839. Drei neue Gattungen der Cicadinen. *Zeits. Ent.* 1: 187-192.
MELICHAR, L., 1912, Monographie der Dictyophorinen (Homoptera). *Abh. Zool. Bot. Ges. Wien* 7 (1): 1-221.
METCALF, Z. P., 1938, Fulgorina of Barro Colorado. *Bull. Mus. Comp. Zool.* LXXXII, 5.
MUIR, F. A. G., 1931, New and Little-known Fulgoroidea from South America. *Proc. Haw. Ent. Soc.* vii, 3: 469-480.
SPINOLA, M. M., 1839, Essai sur les Fulgorelles. *Ann. Soc. Ent. France*, 8: 133-137.
SCHAUM, H. R., 1850, Fulgorellae. *Encyklopadie der Wissenschaften und Kunste* 51: 58-73.
STAL, C., 1862. Bidrag till Rio Janeiro-traktens Hemipter-fauna II *K. Svenska Vet. Akad. Handl.* 3 (6): 1-75.
STAL, C., 1866. Hemiptera Africana iv: 1-275.

EXPLANATION OF PLATES.

PLATE I.

1. *Retiala proxima* Fenn., aedeagus, posterior view.
2. Idem, aedeagus, right side.
3. Idem, apex of head in profile.
4. Idem, head, pronotum and tegula, dorsal view.
5. *Mitrops noctivida* L., anal segment of female.
6. Idem, third valvula of ovipositor, left side.

7. Idem, second valvulae of ovipositor (a) ventral view, (b) side view.
8. Idem, first valvula, left side.
9. Idem, portion of ornamentation on bursa copulatrix.
10. Idem, aedeagus, ventral view.
11. Idem, aedeagus, lateral view.
12. *Mitrops curviceps* Stål, aedeagus, right side.
13. Idem, aedeagus, ventral view.
14. *Nersia florens* Stål, aedeagus, posterior view.
15. Idem, aedeagus, left side.
16. *Nersia florida* Fenn., aedeagus, right side.
17. *Rhynchomitra mexicana* Fenn., aedeagus, dorsal view.
18. *Rhynchomitra microrrhina* Wlk., aedeagus, dorsal view.
19. *Pharodictyon latum* Fenn., pygofer, left side.
20. Idem, aedeagus, ventral view.
21. Idem, aedeagus, left side.
22. *Nersia aridella* Mel., portion of ornamentation on bursa copulatrix.

PLATE II.

23. *Mitrops noctivida* L. head, in profile.
24. Idem, dorsal view.
25. *Rhynchomitra mexicana* Fenn., head in profile.
26. *Rhynchomitra microrrhina* Wlk., head in profile.
27. Idem, head, dorsal view.
28. *Rhynchomitra mexicana*, Fenn., head, dorsal view.
29. *Hyalodictyon nodivena* Wlk., aedeagus, ventral view.
30. Idem, aedeagus, right side.
31. Idem, portion of ornamentation on bursa copulatrix.
32. Idem, first valvula of ovipositor, left side.
33. Idem, third valvula of ovipositor, right side.
34. *Digitocrista bubala* Stål, third valvula of ovipositor, right side.
35. Idem, second valvula, right side, apical portion only.
36. *Dictyophara europaea* L., first valvula of ovipositor, left side.
37. Idem, second valvula of ovipositor, left side.
38. Idem, aedeagus, ventral view, right side incomplete distally.
39. *Pharodictyon latum* Fenn., head and pronotum, dorsal view.
40. *Nersia sertata* Jacobi, aedeagus, dorsal view.
41. Idem, aedeagus, right side.
42. *Digitocrista bubala* Stål, aedeagus, left side.
43. *Trimedia viridata* Fenn., portion of ornamentation on bursa copulatrix.
44. *Rhynchomitra microrrhina* Wlk., ditto.
45. *Taosa herbida* Wlk., ditto.
46. *Nersia florida* Fenn., ditto.
47. *Nersia sertata* Jacobi, ditto.
48. *Digitocrista bubala* Stål, ditto.
49. *Orgerius rhyparus* Stål, anal segment of male.



