A CONTRIBUTION TOWARDS THE TAXONOMY OF THE *DELPHACIDÆ*.

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DELPHACINI.

1 (6) Mesonotum with five carinæ.

2 (3) Two medio-longitudinal frontal carinæ, meeting together at base and apex { *Micromasoria.* / *Livatis**.

3 (2) One medio-longitudinal frontal carina.

4 (5) In profile head semicircular; antennæ terete..... *Paranda.*

5 (4) In profile head not semicircular; first joint of antennæ compressed and dilated, obliquely triangular, second slightly longer than first..... *Eodelphax.*

6 (1) Mesonotum with three carinæ or less.

7 (20) Antennæ with one or both segments distinctly flattened.

8 (9) Two medio-longitudinal frontal carinæ, distinct throughout or approximate at one or both ends.. *Pseudaræopus.*

9 (8) One medio-longitudinal frontal carina, simple or furcate.

10 (13) First antennal joint long, subparallel sided, semi-foliaceous, antennæ as long as face and clypeus together.

11 (12) Head as wide, or nearly as wide, as pronotum.... *Delphax.*

12 (11) Head narrower than pronotum..... *Sparnia.*

13 (10) First joint of antennæ subtriangular or sagittate, antennæ not as long as face and clypeus together.

14 (15) Length of face equal to width between eyes; clypeus angled in middle, the median carina forming deep keel at bend..... *Bostæra.*

15 (14) Length of face considerably greater than width.

16 (17) First joint of antennæ sagittate, antennæ not as long as face; medio-longitudinal carina of face furcate at extreme base; sides of face slightly arcuate; clypeus bent nearly at right angle in middle..... *Belocera.*

17 (16) First joint of antennæ triangular, but not sagittate; clypeus not angular in middle.

*I can find no distinctions between these two genera from the descriptions.

18 (19) Medio-longitudinal carina of face furcate near lower margin of eyes, base of face narrower than apex, lateral margins slightly arcuate; lateral carinæ of pronotum divergingly curved posteriorly, not reaching hind margin ..... *Perkinsiella.*

19 (18) Medio-longitudinal carina of face furcate at extreme base, lateral margins subparallel, lateral pronotal carinæ at first sharply diverging, then converging, reaching hind margin (in some species the posterior portion from bend is obsolete)..... *Stobæra.*

20 (7) Antennæ terete or but very little flattened.

21 (24) Face and notum with numerous "pits."

22 (23) Face with two medio-longitudinal carinæ..... *Achortile.*

23 (22) Face with one medio-longitudinal carina..... *Laccocera.*

24 (21) Face and notum without "pits."

25 (26) Anterior and intermediate femora and tibiæ compressed and foliaceous { *Phyllodinus**. / *Platybrachus.*

26 (25) Legs simple, not foliaceous.

27 (30) Only one carina (median) on pronotum (all carinæ on head very faint; one medio-longitudinal carina on face).

28 (29) Antennæ very short, first joint not longer than second ..... *Upachara.*

29 (28) Antennæ long, first joint much longer than second ..... *Hapalomelus.*

30 (27) Two or three carinæ on pronotum.

31 (32) Lateral edges of pronotum carinate; **a single medio-longitudinal carina on vertex † ..... *Pundaluoya.*

32 (31) Lateral edges of pronotum not carinate.

33 (34) Vertex with a transverse ridge between eyes..... *Toya.*

34 (33) Vertex without a transverse ridge between eyes.

35 (40) Carinæ of head very indistinct, vertex little broader than long.

*Some species of *Phyllodinus* have obscure pits and some *Achortile* have slightly flattened legs, but in species I am acquainted with the latter has an angular emarginated posterior margin to the pronotum and in the former it is not angularly emarginated.

**According to Distant's figure and description.

†According to Melichar's figure.

36 (37) Antennæ long, reaching nearly to end of clypeus, first joint distinctly more than half the length of second; spur with a few distinct teeth on hind margin ..... *Kormus.*

37 (36) Antennæ not so long, reaching about end of face, second joint about double as long as first.

38 (39) First joint of hind tarsus longer than the other two together, spur with many fine teeth on hind margin ..... *Anectopia.*

39 (38) First joint of hind tarsus not so long as the other two together, spur with minute tooth at apex, but none on hind margin, or very minute hair-like ones ..... *Eurysa.*

40 (35) Carinæ of head distinct.

41 (52) Face with two medio-longitudinal carinæ.

42 (45) Vertex distinctly broader than long.

43 (44) Face angular, as wide as long..... *Amblycotis.*

44 (43) Face longer than wide; carinæ on face indistinct, especially at base and over vertex..... *Eurybregma.*

45 (42) Vertex much narrower in proportion to length.

46 (49) Apex of vertex subangular, making vertex somewhat 5-sided or apex broadly conical.

47 (48) Face broad, about as broad as long, medio-longitudinal carinæ very faint, especially at base, dividing face into three subequal parts..... *Metropis.*

48 (47) Face much narrower, decidedly longer than broad; median carinæ not so faint, contiguous or very approximate at base and apex; median portion of face narrower than lateral portions..... *Jessidæus.*

49 (46) Apex of vertex truncate or but little rounded, vertex square or little longer than wide, not 5-sided.

50 (51) Lateral carinæ of pronotum divergingly curved, not reaching hind margin..... *Criomorphus.*

51 (50) Lateral carinæ of pronotum straight, reaching hind margin ..... *Macrotomello.*

52 (41) Face with one medio-longitudinal carina, simple or furcate.

53 (54) Medio-longitudinal carina of vertex with small areolet in middle; no transverse or medio-lateral carinæ ..... *Liburniella.*

54 (53) Medio-longitudinal carinæ without small areolet, transverse or medio-lateral carinæ present.

55 (74) Medio-lateral carinæ of vertex converging apically, but not meeting on vertex, continued separate on to face, where they meet (frontal carina furcate).

56 (63) Lateral carinæ of pronotum straight or convergingly curved posteriorly, reaching hind margin, or all but doing so.

57 (58) First joint of antennæ more than half the length of second ..... *Megamelus.*

58 (57) First joint of antennæ less than half the length of second.

59 (60) Head and thorax (to end of mesonotum) twice or more the width of head, including eyes; length of face three times the breadth; spur with many (about 12-15) small teeth ..... *Stenocranus.*

60 (59) Less slender forms. Head and thorax about one and a half times the width of head, including eyes; length of face 2 or 2½ times the breadth.

61 (62) Vertex perceptibly longer than broad, apex narrower than base; spur with few (about 8) large teeth..... *Kelsia.*

62 (61) Vertex square; spur with numerous minute teeth ..... *Peregrinus.*

63 (56) Lateral keels of pronotum divergingly curved posteriorly, not reaching hind margin.

64 (65) Medio-lateral carinæ of vertex not meeting lateral carinæ till base, forming two 4-sided areas; face considerably broadened in middle, furcation of median frontal carina very near base..... *Conomelus.*

65 (64) Medio-lateral carinæ of vertex meeting lateral carinæ before base, forming two 5-sided areas; face not so broad in middle.

66 (69) Vertex longer than broad.

67 (68) Vertex double the length of pro- and mesonotum together ..... *Embolophora*[1]

68 (67) Vertex only slightly longer than wide[2]..... *Euidella*.

69 (66) Vertex not longer than wide.

70 (71) Face almost circular ..... *Bakerella*[3]

71. (70) Face with sides nearly straight, subparallel.

72 (73) Median frontal carinæ forked near base..... *Liburnia*.

73 (72) Median frontal carinæ forked near middle ..... *Dicranotropis*.

a Median frontal carinæ forked near apex..... *Leimonodite*.

74 (55) Medio-lateral carinæ of vertex meeting together on vertex (meeting sometimes obscure) continued on to face as single carina.

75 (92) Lateral pronotal carinæ straight or convergingly curved posteriorly, reaching hind margin or exceeding near it.

76 (77) Medio-lateral carinæ of vertex meeting together some distance before apex, vertex long and narrow, produced well beyond eyes, slightly narrowed in middle; Y-shaped carina obsolete..... *Saccharosydne*.

77 (76) Medio-lateral carinæ of vertex meeting at apex.

78 (79) Head, including eyes, distinctly wider than pronotum, hind edge of eyes nearly reaching to posterior angle of pronotum; vertex apically truncate, produced but slightly beyond eyes ..... *Smicrotodelphax*.

79 (78) Head, including eyes, not wider than pronotum; hind edges of eyes not reaching near to posterior angle of pronotum.

80 (81) Head in profile semicircular..... *Prokelisia*.

1. I place this genus here on the strength of Stal having separated it from *Liburnia* by the length of head.

2. I have not seen *Euidella Speciosa* or *Diacranatropis hamata* so I must let them stand as above for the present. *Nilaparvarta* may come next to *Euidella*.

3. It is possible that this genus will be more appropriately placed in Section B.

81 (80) Head in profile more or less angular at apex of vertex, face flattened.

82 (83) Vertex twice as long as wide..... *Zuleika*.

83 (82) Vertex considerably less than twice the width.

84 (87) First joint of antennæ more than half the length of second.

85 (86) Broad forms. In dorsal view width of head (including eyes) nearly twice the length; pronotal carinæ in some species not quite reaching hind margin, but not divergingly curved ..... *Pissonotus*.

86 (85) More slender forms. In dorsal view width of head (including eyes) less than 1½ times the length; pronotal lateral carinæ reaching hind margin. } *Megamelus* *Gelastodelphax*

87 (84) First joint of antennæ less than half the length of second.

88 (89) Head and thorax (to end of mesonotum) twice or more the width of head, including eyes..... *Stenocranus*.

89 (88) Less slender forms. Head and thorax about 1½ times the width of head, including eyes.

90 (91) Lateral margins of face straight, face broadest at apex, base truncate ..... *Sogata*.

91 (90) Sides of face slightly arcuate, apex narrower than middle, base curved or subconical.

a Junction of vertex and face angular in profile, a faint carina dividing them..... *Haplodelphax*.

b Junction of vertex and face more rounded in profile ..... *Kelisia**

92 (75) Lateral carinæ of pronotum divergingly curved posteriorly, not reaching hind margin.

93 (94) Medio-lateral carinæ of vertex meeting together before apex, vertex well produced beyond eyes (Y-shaped carina faint) ..... *Sardia*.

*_Conomelus_ and _Eurysa_ can be distinguished from this genus by the broader vertices if the furcation of the frontal carinæ are obscure. _Megamelanus_ appears to be near this genus.

94 (93) Medio-lateral carinæ of vertex meeting at apex.

95 (96) Apical margin of vertex conically or roundly produced; face distinctly longer than wide ..... *Delphacinus*†

96 (95) Apical margin of vertex not conically or roundly produced, but truncate or slightly curved.

97 (100) Vertex distinctly longer than wide, apex narrower than base.

98 (99) First joint of hind tarsus distinctly longer than the other two together; antennæ reaching beyond apex of face ..... *Chloriona.*

99 (98) First joint of hind tarsus hardly as long as the other two together; antennæ not reaching to apex of face ..... *Chlorionidea.*

100 (97) Vertex not, or slightly, longer than broad.

101 (102) Face nearly as broad as long..... *Eoeurysa**

102 (101) Face much longer than broad..... } *Kalpa*
103 (104) Face very long and slender..... } *Nilaparvata* **

104 (103) Face longer than broad, but not greatly so.

105 (106) Face with lateral edges nearly parallel (first segment of antennæ nearly as long as second; two basal areas of vertex 5-sided; two median sectors, first touching cubitus for short distance, characters not strictly reliable ..... *Liburnia.*

106 (105) Face with lateral edges more arcuate (first segment of antennæ much shorter than second; two basal areas of vertex 4-sided; one median sector which amalgamates with first cubitus to apex or near apex) ..... *Conomelus*

†Megamelanus is separated from this genus chiefly by the straight lateral pronotal carinæ reaching the hind margin.

*This may prove to be *Eumetopina.*

**In the Fauna of India *Nilaparvata* is separated from *Kalpa* by furcation of median frontal carina at base, but in the description of the genus the medio-lateral carinæ of vertex are described as meeting before apex.

(To be continued.)

THE 1914 RECORD OF CATOCALÆ AND OTHER LEPIDOPTERA.

BY R. R. ROWLEY AND L. BERRY, LOUISIANA, MO.

This record has to do with Missouri and contiguous territory only and is mainly the story of the best Catocala year since 1900.

The season was not unlike that of 1913, being very hot and dry, and both were duplicates of 1900 and 1901. The winter of 1913-14 was mild up to Christmas, dandelions blooming along the streets of Louisiana to the 23rd of December.

On the 28th of November, the day after Thanksgiving, the senior author collected from black mustard seven larvæ of *Pieris rapæ*, one third of an inch long, securing the first pupa on the 30th of the same month, and the first imago on the 15th of December. This imago was fed on sweet liquids and lived ten days.

Chrysalids of *Smerinthus ophthalmicus*, from larvæ fed the summer before, began giving moths April 18th and up to May 23rd, but only two perfect females out of sixteen were secured. Most of the seven males were perfect. A fine male of this moth that came from the chrysalis at 6 p.m. on the 3rd of May remained motionless, in a box, till 2.30 the next morning, when it began a noisy fluttering. An imago of *Papilio philenor* came from a chrysalis on the 21st of April.

Eggs of *Catocala cerogama* began hatching April 26th, those of *C. coccinata* on the 29th, and of *C. lacrymosa* on the 8th of May. A pair of *Samia columbia* moths from cocoons, furnished the senior author by Mrs. DeCoster of Buckfield, Maine, emerged April 27th.

Ten half-grown larvæ of *Catocala illecta* were collected from honey locust sprouts, April 29th, others on the 1st and 3rd of May.

The first *Samia gloveri*, a fine female, May 1st came from a cocoon furnished by the junior author, but collected by Tom Spaulding of Utah.

The first larva of *Catocala innubens* was found on the 3rd of May, and the first *illecta* began spinning on the 6th of the same month.

Eggs of several species of hickory-feeding Catocalæ began hatching May 5th.

A *Papilio troilus*, ex-pupa, on the same date.

Eggs of *Catocala lacrymosa* began hatching on the 8th of May.