

SOME SYSTEMATIC NOTES ON THE LIBYTHEIDAE
 (LEPIDOPTERA)

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The American species of Libytheidae have frequently been placed in the genus *Libythea* Fabricius. As pointed out by Scudder (1889, Butterflies of Eastern United States and Canada, I, p. 755) and others, however, they are abundantly distinct from the Old World *Libythea*, with which they have been placed. As has been shown by Hemming (1934, The Generic Names of the Holarctic Butterflies, I, p. 96), the name *Hypatus* Hübner used by Scudder for the American forms has been misapplied. Its genotype is the European *Papilio celtis* Fuessly, which is also the genotype of every other generic name proposed in the family except *Dichora* Scudder which includes the African species. A new generic name is therefore necessary for the American species. The outstanding characters which distinguish the species of the Eastern and Western Hemispheres are indicated below.

LIBYTHEA FABRICIUS

Libythea FABRICIUS, 1807, Syst. Gloss., p. xi.

Hecaërge OCHSENHEIMER, 1816, Schmett. Europa, IV, p. 32.

Chilea BILLBERG, 1820, Enum. Ins. Mus. Blbg., p. 79.

Hypatus HÜBNER, 1822, Syst. Alph. Verz., p. 3.

Libythæus BOITARD, 1828, Manuel. Ent., II, p. 299.

Dichora SCUDDER, 1889, Eighth Rept. U. S. Geol. Survey, I, p. 470.

GENOTYPE.—*Papilio celtis* Fuessly, designation of Latreille, 1810, Consid. Génér., p. 440.

Labial palpi shorter than thorax; vein R_3 of forewing with base nearer fork in $R_4 + 5$ than discal cell; eighth abdominal tergum of male very large with a deep median emargination, on each side of which is a long process; harpés slender, upturned, pointed apically and usually serrate or toothed.

This genus includes all Old World Liby-

theidae. It seems very doubtful if *Dichora* is worthy of recognition as a subgenus.

LIBYTHEANA, NEW GENUS

GENOTYPE.—*Libythea bachmanii* Kirtland.

Labial palpi longer than the thorax; vein R_3 of forewing with base about midway between apex of discal cell and fork of $R_4 + 5$; eighth abdominal tergum of male with a median apical process armed at tip with a group of black setae directed upward; harpés broadly rounded, un-toothed.

This genus includes, in addition to the genotype, *carinenta* (Cramer), *terena* (Godart), *motya* (Hübner) and *fulvescens* (Lathy).

***Libytheana carinenta mexicana*,**
 new subspecies

This is the Mexican and Central American subspecies of *Libytheana carinenta* (Cramer). It differs from the typical *carinenta* in the more extensive brown and white areas.

Transverse white spot beyond end of discal cell extending anteriorly to vein M_2 on upper surface (rarely so in typical *carinenta*), this spot separated from white spot in cells Sc and R_1 by less than length of latter (separated by at least length of latter in *carinenta*). Brown areas averaging deeper orange and larger than in *carinenta*.

HOLOTYPE.—Male, Jalapa, Mexico (Hy. Edwards collection).

ALLOTYPE.—Female, Colima, Mexico (Frank Johnson collection).

PARATYPES.—One, Colima, Mexico (Frank Johnson collection); eight, Jalapa, Mexico.

Additional specimens are from Costa Rica, Guatemala, British Honduras (A. S. Pinkus), and Iguala and Cordola, Mexico.

The continental American forms of *Libytheana* may be arranged in order of increasing area and brilliance of orange markings, increasing area of white markings, in-

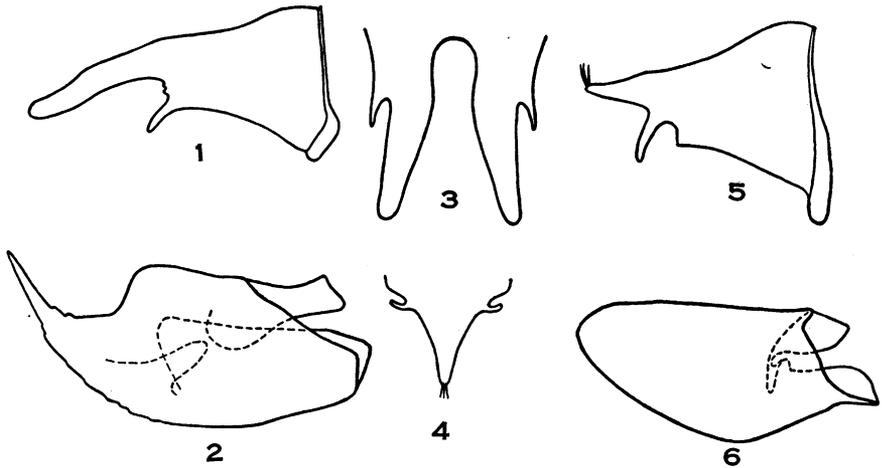


Fig. 1. Lateral view of eighth abdominal tergum of *Libythea celtis* (Fuessly).
 Fig. 2. Harpé of same.
 Fig. 3. Dorsal view of apex of eighth abdominal tergum of same.
 Fig. 4. Dorsal view of apex of eighth abdominal tergum of *Libytheana bachmanii* (Kirtland).
 Fig. 5. Lateral view of eighth abdominal tergum of same.
 Fig. 6. Harpé of same.

creasing proximity of the white spot in cells Sc and R_1 to the transverse white spot beyond the apex of the discal cell, decreasing acuity of the tornus, increasing acuity of the angle at the apex of vein M_2 of the forewing, increasing undulation of the outer margin of the hind wing and decreasing size as follows: *carinenta* (Cramer), South America; *mexicana* Michener, Central America, Mexico; *larvata* (Strecker), southwestern United States; and *bachmanii* (Kirtland), eastern United States. As this is the arrangement of the populations from south to north, it might appear that there is a clinal series of subspecies of a single species. However, the shape of the median apical process of the eighth abdominal tergum of the male (robust and

blunt in *carinenta* and *mexicana*, slender and tapering in *larvata* and *bachmanii*) seems to offer a basis for dividing the four populations into two separate species, *carinenta* (including *mexicana*) and *bachmanii* (including *larvata*). This conclusion was reached by Field (1938, Kansas Ent. Soc., XI, pp. 124-133).

Additional material from northern Mexico may show intergradation between *larvata* and *mexicana*. A male specimen having the characters of *larvata* is before me from Jalapa, Mexico, the type locality of *mexicana*, and specimens presumed to be *mexicana* have been recorded under the name *carinenta* from Texas. Thus it appears from meager material that the two species overlap without intergradation.