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# A Revision of the North American Species OF THE Dipterous Genus *Diaphorus*.

M. C. VAN DUZEE

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In separating the genus *Diaphorus* from *Chrysotus* I have found no better method than that proposed by Prof. J. M. Aldrich in his paper on the Dolichopodidae of Grenada, Kansas University Science Bulletin, vol. i, p. 85, 1902. To place in *Chrysotus* all species in which the eyes of the male are approximated below the antennae and in *Diaphorus* all in which they are approximated above the antennae; where there is no approximation to refer to *Chrysotus* all in which the male have no large bristles at the tip of the abdomen. Nearly all the species falling in *Diaphorus* by these rules have the pulvilli of the fore and sometimes those of the middle and hind tarsi enlarged, and also have more or less distinct bristles at the tip of the abdomen; there are exceptions but one of these characters is always present to determine the position of the species. I do not know of any species that could be placed in *Chrysotus* by this method of separation that have bristles at the tip of the abdomen larger than those on the hind margins of the other segments, and only a few species in which the fore pulvilli are enlarged and then not conspicuously so, the group to which *Chrysotus discolor* Loew, belongs have the pulvilli enlarged as much as any I have seen in that genus. The *Diaphorus* are usually more slender and the abdomen more cylindrical than those of the *Chrysotus*. The third and fourth longitudinal veins are nearly straight and parallel beyond the posterior cross vein, except in *D. simplex* Ald. and *D. repandus* n.sp. where they are bent. (Fig. 14).

Prof. J. M. Aldrich has called my attention to the separation of the *Diaphorus* into two genera by Kowarz; the characters given in his table to separate them are "Wings oval, eyes of the male broadly separated on the front, *Melanostolus*; Wings wedge-

shaped, eyes of the male contiguous, Diaphorus." It seems to me very unsatisfactory to attempt to divide our species by the shape of their wings, and the separation of the eyes alone seems insufficient for the establishment of the genera.

The following key is based on males only except in one case, that of *D. antennatus* n. sp. where the first antennal joint is yellow and there is a yellow band at the base of the second abdominal segment; this female is so distinct from all others in the genus that I have ventured to describe it; all other species described in this paper are founded on the males only, in many cases it would be difficult to separate the females of allied species, and sometimes not easy to decide whether a female belonged to this genus or was a *Chrysotus*. Where I could find characters that seemed sufficient to be of any value I have given them after describing the male.

The characters used for separating the species are, the form of the third antennal joint, this is always of much importance; the general color is used but is subject to considerable variation, even the yellow on the venter and base of the abdomen varies in some species very much, in *D. lamellatus* Loew some specimens show scarcely a trace of yellow even on the venter while others have the venter and a narrow band on the dorsum of the second segment yellow; the color of the legs is more constant, but sometimes where species have yellow tibiae they become more or less brownish. The color of the pollen on the head and thorax never varies as far as I have observed. The cilia of the tegulae is subject to much variation in those species having pale cilia, mostly depending on the direction from which it is viewed. I think those species that are placed in the key under "Cilia black" never vary, but if a specimen has blackish cilia and cannot be placed under "cilia black" it should be taken through as "cilia pale" before deciding that it is undescribed. The length of the first vein is a good character used in separating some species. The appendages of the hypopygium are used in a few cases but care should be used not to give too much importance to the length and form of the central filament or penis as it varies greatly, in *D. sodalis* Loew, it is usually invisible but I have seen a specimen where it was very long, the same is true of *D. leucostoma* Loew, and others; in life they probably have the power of extending it at will. The width of the face and front is always important.

Specimens of this genus are not numerous in any collection, they are usually taken one at a time and many of the species are described from a single specimen.

I am indebted to Prof. J. M. Aldrich for the loan of his material, which contained many new species; to Prof. C. W. Johnson, Mr. Nathan Banks, Prof. J. S. Hine, and Mr. H. S. Harbeck for the loan of their material; to Dr. J. C. Bradley for the loan of the material in the Cornell University collection, and to Mr. E. T. Cresson, Jr., for the loan of the material of the American Entomological Society.

**Table of Species.**

- |   |                              |
|---|------------------------------|
| 1. Dorsum of the abdomen more or less yellow at base.   | 2.                           |
| Abdomen without yellow on the dorsum.   | 7.                           |
| 2. Fore and middle femora entirely yellow.  | 4.                           |
| Fore and middle femora partly black.  | 3.                           |
| 3. All femora black with the extreme tips yellow.   |                              |
|   | 1, <i>lamellatus</i> Loew.   |
| Fore and middle femora with the basal half black.   |                              |
|   | 2, <i>basalis</i> n.sp.      |
| 4. Cilia of the tegulae black, second and third segments of the abdomen yellow, antennae black. | 3, <i>dimidiatus</i> Ald.    |
| Cilia of the tegulae pale, at least in certain lights.  | 5.                           |
| 5. Antennae black.  | 6, <i>ventralis</i> , n.sp.  |
| Antennae yellowish brown, or with the first joint yellow.                                       | 6.                           |
| 6. Front and thorax with violet reflections, antennae yellowish brown.                          | 5, <i>satrapa</i> Wh.        |
| Front and thorax green, covered with yellowish pollen, first antennal joint yellow.             | 4, <i>antennatus</i> , n.sp. |
| 7. Femora green, black or brown, the tips may be yellow.  | 8.                           |
| Femora yellow.  | 36.                          |
| 8. Eyes of the male contiguous.   | 9.                           |
| Eyes not contiguous.  | 13.                          |
| 9. Color of the dorsum of the thorax opaque black or brown.                                     |                              |
|   | 10.                          |
| Color of dorsum more or less green.   | 12.                          |
| 10. Halteres and tegulae yellow.  | 7, <i>contiguous</i> Ald.    |
| Halteres and tegulae black.   | 11.                          |

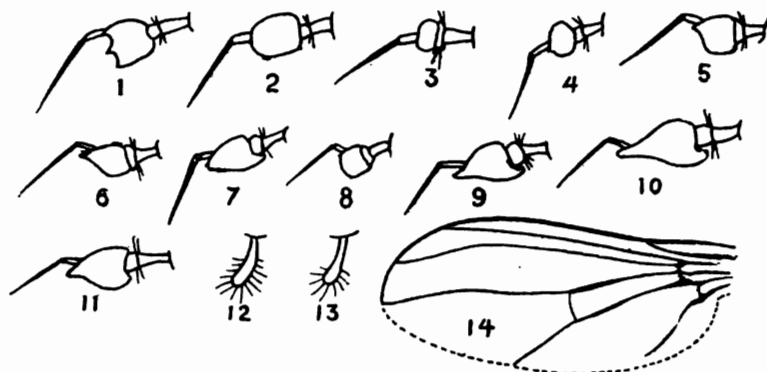
11. Eyes broadly contiguous, tibiae yellow, at most yellowish brown, (Eastern species). 8, *opacus* Loew.  
Eyes narrowly contiguous, legs altogether black. (Western species). 9, *adustus* n.sp.
12. Tegulae, their cilia and the halteres black, length 2 mm. 10, *gibbosus* n.sp.  
Tegulae and halteres yellowish, cilia of the tegulae black to pale yellow, length 3.5-4 mm. 12, *spectabilis* Loew.
13. Pulvilli of fore tarsi not or but slightly enlarged. 14.  
Pulvilli of fore tarsi distinctly enlarged. 17.
14. Pulvilli not at all enlarged; thorax with a violet vitta. 13, *caerulescens* Loew.  
Fore pulvilli slightly enlarged; thorax without violet. 15.
15. Hind metatarsi with a long erect bristle below. 15, *simplex* Ald.  
Hind metatarsi without such a bristle. 16.
16. Thorax with a coppery vitta. 14, *vittatus* n.sp.  
Thorax without a vitta. 16, *alienus* n.sp.
17. Palpi much enlarged. 18.  
Palpi normal. 19.
18. Palpi as long as the face; face not unusually wide; tibiae black. 32, *palpiger* Wh.  
Palpi about half as long as the face; face very wide; tibiae yellow. 33, *triangulatus* n.sp.
19. Cilia of the tegulae pale. 20.  
Cilia black. 32.
20. Face with yellow pollen. 21.  
Face with white pollen. 22.
21. Face with coarse pollen; third antennal joint large, kidney-shaped. 17, *rauterbergi* Wh.  
Face green with thin pollen along the sides; third antennal joint of moderate size. 18, *albiciliata* n.sp.
22. Third antennal joint subquadrate but may have a short point at upper corner. 31.  
Third joint rounded or with a point at tip. 23.

23. Third antennal joint large with a rather sharp point, as long as the two basal joints together. (When viewed from the outer side). 24.  
 Third joint distinctly shorter than the two basal joints or rounded at tip. 28.
24. Hind tibiae yellow. 25.  
 Hind tibiae and all tarsi black or brown. 27.
25. Thorax with a coppery vitta. 14 *vittatus n.sp.*  
 Thorax without a vitta. 26.
26. Hind tibiae entirely and hind tarsi partly yellow. 19, *leucostoma* Loew.  
 Hind tibiae with the tip broadly and hind tarsi entirely black or brown. 20, *leucostoma* Loew. *var. infuscatus n. var.*
27. Point at tip of third antennal joint rather short (Fig. 11). 22, *occidentalis n.sp.*  
 Point at tip of third joint long. (Fig. 10). 21, *quadratus n.sp.*
28. Third antennal joint about as long as the first, as broad as long with a short but sharp point at center of apex (Fig. 1). 23, *parmatius n.sp.*  
 Third joint rounded at tip. 29.
29. Third antennal joint as long as the first two (Fig. 2); palpi small. 24, *remulus n.sp.*  
 Third joint shorter than the first; palpi as large as usual. 30.
30. Third antennal joint short, rather flattened at tip; arista apical; third vein bent. (Figs. 3 and 14). 25, *repandus n.sp.*  
 Third joint small, slightly pointed at tip; arista subapical (Fig. 4); third vein nearly straight. 26, *usitatus n.sp.*
31. Color blue-green; last section of fourth vein considerably bent. 27, *aldrichi n.sp.*  
 Color green, inclined to golden; last section of fourth vein nearly straight. .. 28, *similis n.sp.*
32. Outer appendages of the hypopygium are large spatulate lamellae. 1, *lamellatus* Loew.  
 Appendages small, not lamellaform. 33.

33. Hypopygium large and conspicuous. *11, nigrescens* Ald.  
Hypopygium normal. 34.
34. Fore coxae with a few minute pale hairs and black bristles.  
29, *sodalis* Loew.  
Fore coxae with black hairs and bristles. 35.
35. Middle tibiae with two prominent bristles on the front  
side, one near the base and one at the middle; thorax vit-  
tate. 30, *trivittatus* n.sp.  
Middle tibiae with only one bristle which is near the base;  
thorax not vittate. 31, *dubius* Ald.
36. Male with very large, pendant, white palpi.  
34, *amoenus* Ald.  
Male with the palpi normal. 37.
37. Eyes of the male not contiguous. 38.  
Eyes of male contiguous. 42.
38. Front and thorax with little pollen; tip of abdomen of male  
without stout bristles. 35, *parvulus* Ald.  
Front with considerable pollen; tip of abdomen with dis-  
tinct bristles. 39.
39. Face narrower than the front; thorax with or without a  
bronze vitta. 36, *variabilis* n.sp.  
Face wider than the front. 40.
40. Fore coxae black. 41, *femoratus* n.sp.  
Fore coxae yellow. 41.
41. Venter yellow. 6, *ventralis* n.sp.  
Venter not yellow. 37, *subsejunctus* Loew.
42. Middle and hind coxae infuscated for half their length;  
antennae black. 40, *deceptivus* Ald.  
Fore and hind coxae altogether yellow, middle coxae dark-  
ened at base; antennae partly yellowish. 43.
43. Thorax with but little pollen; abdomen without stout bris-  
tles at tip. 38, *flavipes* Ald.  
Thorax with thick yellowish pollen; bristles at tip of ab-  
domen short but distinct. 39, *mundus* Loew.

### Explanation of Figures.

1-11 antennae of *Diaphorus*. 1 *D. parmatus* n. sp. 2 *remulus* n.sp.; 3 *repandus* n.sp.; 4 *usitatus* n.sp.; 5 *aldrichi* n.sp.; 6 *similis* n.sp.; 7 *triangulatus* n.sp.; 8 *alienus* n.sp.; 9 *leucostoma* Loew; 10 *quadratus* n.sp.; 11 *occidentalis* n.sp.; 12 lamella of the hypopygium of *D. lamellatus* Loew; 13 lamella of the hypopygium of *D. basalis* n.sp.; 14 Wing of *D. repandus* n.sp.



### 1 *Diaphorus lamellatus* Loew.

*Diaphorus Lamellatus* Loew, Mon. N. A. Dipt, ii, 165.

Male: Length 2.6-4 mm. Eyes narrowly separated by the front; antennae small, black; arista subapical. Thorax and abdomen metallic green, the former with brownish yellow dust; bristles at the tip of the abdomen remarkably strong; outer appendages of the hypopygium elongated, spatulate lamellae (Fig. 12). Coxae and feet black, basal half of the four anterior tibiae yellowish; pulvilli of fore tarsi much elongated. Halteres and tegulae yellow, the latter with black cilia. Wings grayish hyaline; the first vein reaching about two-fifths the distance to the tip of the second vein.

The venter is usually yellowish at the base of the abdomen, and in some specimens the yellowish color forms a narrow band on the dorsum at the base of the second segment.

Middle States Loew; I have seen specimens from N. Y., Pa. and Va.



## 2 *Diaphorus basalis* n. sp.

Male: Length 3.75 mm. Face subquadrate and rather deeply depressed, black with thin white pollen; proboscis black; palpi yellowish; eyes touching or nearly so on the center of the front, leaving a small triangle above the antennae; antennae small, black, third joint very small, rounded with a dorsal arista; lateral and inferior orbital cilia white. Thorax metallic green dulled with gray pollen; pleurae greenish black with white pollen. Abdomen dark metallic bronze with the second and part of the third segment yellow, still a narrow hind margin of the second dark; hairs of the abdomen black, tip with six or seven strong bristles; hypopygium conspicuous with long spatulate lamellae (Fig. 13), which are brown with the tip more blackish and fringed with long brown hairs. Coxae and femora black; the tips of the fore coxae, their trochanters, and the apical half of the fore and middle femora yellow; all tibiae and fore and middle tarsi yellow, these tarsi brownish towards the tips; extreme tips of hind tibiae and their tarsi brown; all femora ciliate below with long brown hairs, those on the middle pair shorter and more bristle-like, hind femora also with rather long hairs above; fore tibiae with long hairs; middle tibiae with a bristle near the knee on the front side and two or three small ones below; hind tibiae with one bristle near the base on the outer-upper edge and a row of bristle-like hairs and several larger bristles on the upper-inner edge; fore tarsi about one and a half times as long as their tibiae and with their pulvilli much enlarged and lengthened, being fully as long as the fifth joint, there are a few long hairs at the tip of the fifth joint; pulvilli of the middle and hind tarsi but little enlarged; middle tarsi a little longer, and the hind tarsi scarcely as long as their tibiae. Halteres and tegulae yellow, the latter with black cilia. Wings tinged with brown; first vein reaching about one half the distance to the tip of the second vein.

Described from one male taken by Mr. Nathan Banks, at Glencarlyn, Va. Type in Mr. Banks' collection.

This species is closely related to *D. oculatus* Fall. from Europe, the third joint of the antenna is the same, as is the general color, but it differs in having no bristles on the fore tibiae and in the arrangement of the bristles of the other legs. The lamellae of the hypopygium are much like those of *D. lamellatus* but much more slender.

### 3 *Diaphorus dimidiatus* Ald.

*Diaphorus dimidiatus* Ald., Trans. Ent. Soc. London, 1896, pt. iii, p. 322.

Male: Length 2 mm. Eyes separated by the front; antennae black, the third joint very short; arista dorsal. Thorax light green, bluish, white dusted. Abdomen with second and third segments yellow; apical segments green, a little coppery; four apical bristles large. Fore coxae black with a row of three long black bristles; middle coxae black with yellow tips; hind coxae yellowish brown; femora, tibiae and tarsi yellow; tarsi infuscated at tips; fore pulvilli as long as the third joint of fore tarsi, middle pulvilli nearly as large as those of the fore tarsi. Halteres and tegulae yellow, the latter with black cilia. Wings subhyaline.

W. I.

### 4 *Diaphorus antennatus* n. sp.

Female: Length 4 mm. Face wide, thickly covered with silvery white pollen which is more abundant below the suture; palpi yellowish with white pollen and coarse black hairs; proboscis black; antennae with the first joint yellow, second and third black, third joint short, rounded, flattened in outline at the tip; arista apical, black, as long as the height of the eye; front green covered with yellowish gray pollen. Thorax green, dorsum thickly covered with yellowish pollen; pleurae with white pollen; scutellum blue-green. Abdomen green, in one specimen with golden reflections, in the other blue-green; venter, sides of the second and third, and a band at the base of the second segment above yellow; the bristles on the hind margins of the segments large and conspicuous. Legs and fore coxae yellow; tarsi becoming dark brown from the tip of the second joint; middle and hind coxae black with yellow tips and a large bristle on the outer surface; fore coxae with thin silvery pollen and minute pale hairs on the front surface and with black bristles at tip; middle and hind trochanters with a black bristle above; fore tibiae with a prominent bristle near the base on the upper side; middle tibiae with a long stout bristle near the base on the front side, and also several minute bristles; hind tibiae with two bristles at basal fourth, two beyond the middle above

and several smaller ones. Tegulae and halteres pale yellow, the cilia of the former yellow but appearing blackish in certain lights. Wings grayish hyaline, veins brown, yellow at the root of the wing; first vein reaching only about one-third of the distance to the tip of the second vein.

Described from two females from Vera Cruz and Cordoba, Mex. (Crawford), in the J. M. Aldrich collection and presented to him by Prof. Charles Fuller Baker. Type in the collection of J. M. Aldrich.

Easily distinguished by the yellow band at the base of the second segment of the abdomen, and the first antennal joint and the legs being yellow.

### **5 *Diaphorus satrapa* Wheeler.**

*Diaphorus satrapa* Wheeler, Psyche, June, 1890, p. 359.

Male: Length 2 mm. Antennae yellowish brown with the third joint pointed; front bronze black with violet reflections. Dorsum of the thorax blackish bronze with a shining violet patch bordered on each side by a broad, poorly defined, cupreous band. Abdomen with the first segment bronze-green, second and third mostly yellow, posterior segments blackish-bronze. Coxae and feet pale yellow; apical half of hind femora brown on the upper surface; tibiae brownish. Halteres and tegulae yellowish, cilia of the latter white.

Saline Co., Nebr.

### **6 *Diaphorus ventralis* n. sp.**

Male: Length 3.5 mm. Face a little longer than wide, covered with white pollen; palpi small, whitish; front narrow, not much more than half the width of the face, green, in certain lights completely covered with gray pollen; antennae small, black, third joint very small, rounded; arista dorsal; orbital cilia white except above. Dorsum of the thorax light green with considerable yellowish pollen, which is thickest on the front and sides; pleurae with gray pollen. Abdomen coppery or bronze colored, more green at tip; venter and more or less of the sides of the second and third segments yellow; venter with a few long hairs on the hind margins of the segments; bristles at the tip of the abdomen of moderate size; hypopygium small, without

visible appendages. Fore coxae yellow with black bristles at tip; middle and hind coxae black; legs yellow, tarsi only slightly darker towards the tips; middle tibiae with the usual bristle near the base rather large; fore and middle femora with a few bristle-like hairs near the tip on the lower outer edge; pulvilli of the fore tarsi distinctly enlarged. Tegulae and halteres yellow, the cilia of the former appears yellow in most lights, but in a certain direction it appears nearly black. Wings hyaline; first vein scarcely reaching one third of the distance to the tip of the second vein.

Two females from the same location seem to belong here; they agree with the males in the color of the legs, cilia of the tegulae, face and front, the two latter being of about equal width; the thorax is more blue-green and the abdomen pure green, the venter being yellow but this color does not extend up on the sides as in the male. Length 3 mm.

Described from two males and two females labeled (Belize; Johnson), in the collection of Prof. J. M. Aldrich and presented to him by Charles Fuller Baker. Type in the collection of J. M. Aldrich.

Specimens of this species will be likely to be found with the yellow of the venter extending more or less onto the dorsum as it does sometimes in *D. lamellatus* Loew.

### 7 *Diaphorus contiguus* Ald.

*Diaphorus contiguus* Ald. Trans. Ent. Soc. London, 1896, pt. iii, p. 323.

Male: Length 2 mm. Eyes contiguous; antennae very short; arista subapical; cilia of the inferior orbits blackish; dorsum of the thorax and abdomen black, opaque, the former with pale brown dust; bristles at the tip of the abdomen large. Coxae and femora black, tips of the femora, tibiae and base of tarsi yellow; fore pulvilli large. Halteres and tegulae yellow, the latter with black cilia.

St. Vincent, W. I.; Grenada.

### 8 *Diaphorus opacus* Loew.

*Diaphorus opacus* Loew, Neue Beit., viii, p. 56; Mon. N. A. Dipt., pt. ii, p. 160.

Male: Length 2.5-3 mm. Eyes contiguous; antennae black, third joint small, rounded at tip; arista subapical, or perhaps better described as dorsal. Thorax black, dorsum covered with brown pollen, opaque. Abdomen shining, black, bristles at tip large. Coxae and femora black; tibiae yellow, sometimes yellowish brown; tarsi yellow at base, brown at tip; fore pulvilli but little enlarged. Tegulae, their cilia and the halteres black. Wings tinged with brown; first vein reaching about two-fifths of the distance to the tip of the second vein, (Loew states that the first vein reaches nearly to the middle of the front margin, but in all the specimens I have seen which answer his description of *opacus* it does not reach so far). I have seen specimens from Vt., N. Y., Pa., and Toronto, Ont.

### 9 *Diaphorus adustus* n. sp.

Male: Length 2.5 mm. Altogether black except that the thorax has a very slight greenish tint, and the knees are very narrowly yellowish, body and legs somewhat shining; face and thorax with brown pollen; pleurae with gray pollen; eyes narrowly contiguous, or scarcely touching on the front; antennae black, third joint very small; arista dorsal; bristles at the tip of the abdomen strong. Middle tibiae with the bristle near the knee rather small; hind tibiae with four or five small bristles on the upper surface; pulvilli of fore tarsi enlarged, yellowish brown. Wings tinted with brownish; first vein reaching about two-fifths of the distance to the tip of the second vein; costa scarcely enlarged beyond the tip of the first vein.

Described from three males from Idaho and Nev., the latter taken July 12th. Type in J. M. Aldrich collection.

The relation of this species to *opacus* Loew is very close, but it is separated from that species by the altogether black legs, and the more shining thorax with its slight greenish tint, in *opacus* the tibiae are yellow or brownish yellow, if the tibiae are brown in *adustus* they are of the same shade as the femora and are not yellowish brown; from *D. gibbosus* it is more widely separated by the longer first vein, more thickened costa, and more arched thorax of *gibbosus* n.sp.

**10 *Diaphorus gibbosus* n. sp.**

Male: Length 3 mm. Face, palpi and proboscis black; face with gray pollen; antennae small, black, third joint very small; arista dorsal; eyes contiguous, leaving only a very small black triangle above the antennae; occalii not so prominent as in most species that have the eyes contiguous; cilia of the interior orbit dark brown. Dorsum of the thorax prominently elevated and including the scutellum dark green, somewhat shining; in front and along the lateral sides more blackish and opaque being covered with thick brown pollen, which in most specimens forms two indistinct vittae on the front of the dorsum; pleurae black with dark brown pollen. Abdomen dark brown or black, almost opaque still with slight greenish reflections, and with quite abundant, rather long brown hairs; bristles at the tip of the abdomen not very long but prominent; appendages of the hypopygium very small, black. Halteres black; tegulae brown with narrow black border and black cilia. Coxae and femora black; tibiae and first joint of tarsi yellowish brown, tarsi from the tip of the first joint darker; pulvilli of the fore tarsi moderately enlarged, those of the middle tarsi less so, and those of the hind tarsi scarcely enlarged; fore femora with long hairs on the lower outer edge, these hairs as long as the thickness of the femora; middle and hind femora with hairs similarly placed but the hairs are much shorter on the basal half; all tibiae with long hair but without bristles except a small slender one on the middle and hind pair near the knee and several very minute ones on the hind pair. Wings strongly tinged with brownish; first vein reaches about half way to the tip of the second vein; veins black; costa somewhat enlarged from just before the tip of the first vein to the tip of the second vein or beyond.

Described from twelve males; two taken at Little Valley, N. Y., June 10th; three from Colden, N. Y., May 31st; one from Ft. Erie, Ont., June 20th, this one has the thorax more purple than green; one from Castle Rock, Pa., May 21st, and one marked "June," sent by E. T. Cresson, Jr.; two from Auburn-dale, Mass., July 12th and June 4th, one from Manchester, Vt., June 8th, and one from Johnsbury, Vt., June 27th, sent by C. W. Johnson; one from Monmouth, Me., June 27th (C. A. Frost). Type in the author's collection.

Specimens from St. Vincent sent me by Prof. J. M. Aldrich seem to belong here, although the costa is not thickened and they are somewhat smaller.

## 11 *Diaphorus nigrescens* Ald.

*Diaphorus nigrescens* Aldrich, *Biologia Diptera*, i, p. 346.

Male: Length 3.1 mm. Eyes separated by the front but not widely so; antennae small, black; arista apical; thorax opaque black, a little shining behind; abdomen blackish-green, shining, apical bristles distinct; hypopygium large; legs opaque black, all the knees yellow; pulvilli white, moderately enlarged. Wings uniformly infuscated, not very dark. Halteres yellow; cilia of the tegulae black, that of the inferior orbits yellowish.

Mexico.

## 12 *Diaphorus spectabilis* Loew.

*Diaphorus spectabilis* Loew, *Neue Beitr.*, viii, p. 57; *Mon. N. A. Diptera*, ii, p. 162.

*D. approximatus* Aldrich, *Trans. Ent. Soc. of London*, 1896, pt. iii, p. 321.

Male: Length 3.5-4.25 mm. Eyes contiguous; antennae small, black; arista almost apical; thorax and abdomen bronze green, the former with yellowish brown dust, but quite shining; bristles at the tip of the abdomen rather striking. Coxae and femora black; tibiae brownish yellow; fore pulvilli very much enlarged. Halteres yellow with the tips of their knobs sometimes infuscated; tegulae yellow with blackish cilia which has a yellowish reflection in some lights. Wings tinged with gray.

Prof. Aldrich states that the eyes are narrowly separated in some specimens. He described this form under the name of *D. approximatus*. I have not seen any, where the eyes did not touch on the front.

I have seen specimens from Mo., Ill., Tenn., N. J., D. C., Va., N. C., Ga., Ia. Prof. Aldrich reports it from W. I. and Mex.

### 13 *Diaphorus caerulescens* Loew.

*Diaphorus caerulescens* Loew, Wien. Ent. Monatsch., i, p. 39; Neue Beitr. viii, p. 60; Mon. N. A. Diptera, ii, p. 170 (all *Lyronneurus*).

Male: Length 3-4 mm. Eyes widely separated by the front; antennae small, black. Thorax pale green with the hind part and a central line blue or violet and with rather thick brownish dust. Abdomen metallic green, blue or violet from the middle of the second segment, tip with four strong bristles. Coxae black with a more or less greenish tint, femora green; tips of femora and all tibiae brownish yellow; pulvilli of fore tarsi not enlarged; tegulae pale yellow with dark brown cilia. Wings grayish hyaline.

Mex.

### 14 *Diaphorus vittatas* n. sp.

Male: Length 2 mm. Face wide and short, covered with silvery white pollen, but black in certain lights; front nearly as wide as the face, bright green with very little pollen; antennae black, first joint long and slender, third joint large, pointed with the arista inserted near the tip of this point; palpi rather large, white. Thorax and scutellum bright green with slight golden reflections and almost without pollen, a not very sharply defined, coppery vitta extends from the front of the thorax to the scutellum; pleurae and coxae black, without much pollen, the former with greenish reflections. Abdomen metallic coppery, more golden on the sides; bristles at the tip very short; hypopygium small, its appendages small, black. Femora shining green; trochanters and tibiae sordid yellow; fore and middle tarsi becoming brown from the tip of the first joint; tip of hind tibiae and the hind tarsi brown; the row of hairs on the lower outer edge of the fore femora long; the lateral bristle at the base of the middle tibiae small; pulvilli of fore and middle tarsi a little enlarged. Tegulae, their cilia and the halteres yellow. Wings grayish hyaline; veins black; first vein reaches nearly half the distance to the tip of the second vein.

Described from one male taken at Falls Church, Va., by Mr. Nathan Banks in April. Type in Mr. Banks' collection.



This is one of the species that are difficult to place, but the bristles at the tip of the abdomen although they are small and the enlargement of the pulvilli seem to place it in this genus.

The form of the antennae and general color would place it near *D. leucostoma* Loew but it differs from that species, in having a central vitta on the thorax.

### 15 *Diaphorus simplex* Ald.

*Lyronneurus simplex* Aldrich, Trans. Ent. Soc. of London, 1896, pt. iii, p. 333.

Male: Length 3.5-5.5 mm. Eyes widely separated by the front; antennae small, black, third joint crescent-shaped with long, slender, subapical arista. Thorax and abdomen green with considerable brown dust; acrostichal bristles in a single row; bristles at the tip of the abdomen rather long. Tegulae, their cilia, and the halteres yellow. Fore coxae green at base becoming yellow at tip; all femora dark green; trochanters, tips of femora, tibiae and base of front and middle tarsi yellow; pulvilli of fore tarsi a little enlarged. Wings yellow at apex in front of the third vein.

W. I., Mex.

### 16 *Diaphorus alienus* n. sp.

Male: Length 1.7 mm. Face broad with silvery pollen, but appearing black in certain lights; palpi yellowish, of moderate size; front broad with whitish pollen, which almost conceals the green ground color; antennae black, third joint rather large, somewhat subquadrate, nearly as long as wide; arista inserted just above the upper corner (Fig. 8). Thorax bright green; pleurae more blackish with white pollen. Abdomen green with coppery reflections and without bristles at tip; hypopygium large, partly disengaged, with a curved central filament, black and somewhat shining. Coxae black, the fore pair with yellow tips and with white hairs on the front surface; trochanters yellowish; femora greenish black; tips of femora and tibiae yellow; tips of hind tibiae and the tarsi brownish; pulvilli of front tarsi but slightly enlarged. Tegulae, their cilia and the halteres pale yellow. Wings hyaline; first vein reaching a little more than one-third of the distance to the tip of the second vein.

Described from one male from Hood River, Ore. (J. M. Aldrich).

This species is distinguished by its small size, the large third antennal joint, and the partly disengaged hypopygium. Type in the J. M. Aldrich collection.

This might be placed in *Chrysotus* but seems to fit into this genus better, as the pulvilli of the fore tarsi are somewhat enlarged, the form is rather slender, and the third antennal joint is formed somewhat the same as that of several other species of this genus.

### 17 *Diaphorus rauterbergi* Wheeler.

*Diaphorus rauterbergi* Wheeler, Psyche, June, 1890, p. 360.

Male: Length 3 mm. Face with coarse yellow pollen; eyes widely separated; antennae black, third joint large, kidney-shaped; arista apical. Thorax and abdomen metallic green with coarse yellow pollen which is very thick on the thorax. Halteres and tegulae yellow, the latter with yellow cilia. Coxae black; femora green with broadly yellow tips; tibiae and tarsi yellow, the latter with enlarged pulvilli on all feet. Wings grayish hyaline.

Saline Co., Nebr.

### 18 *Diaphorus albiciliatus* n. sp.

Male: Length 2.1 mm. Face narrower than the front, a little narrowed in the middle, dark green with thin yellow pollen which is more visible when viewed from the side; palpi small yellowish; antennae black, third joint of moderate size, rounded at tip, with rather long pubescens; arista subapical; front dark green with scarcely a trace of yellow pollen. Thorax and scutellum bright green with slight golden reflections and a central coppery vitta, (this vitta may not be found in all specimens, although sharply defined in the type); thorax with very thin gray pollen; pleurae and coxae blackish with gray pollen and green reflections; there is a small white bristle above the fore coxae. Abdomen darker green than the thorax, somewhat coppery towards the tip; hypopygium small with concealed appendages; bristles at the tip of the abdomen very small. Fore coxae green with white hairs on the front surface and with the extreme tips and the trochanters yellow; femora green; tips

[6]

of the femora, tibiae and tarsi yellow, the latter slightly brownish towards their tips; pulvilli of all tarsi distinctly enlarged; fore femora with the usual row of hairs on the lower hind edge; middle and hind femora with a few bristle-like hairs near the tip. Halteres yellow; tegulae and their cilia white. Wings grayish hyaline, slightly tinged with brown along the veins; first vein reaching about one third the distance to the tip of the second vein.

Female: Four females taken with the male described above have the face black with white pollen; front with thick gray pollen. Thorax dull green with thick gray pollen and a trace of the coppery vitta. Abdomen dark green with gray pollen; femora almost black. Tegulae and their cilia white; wings hyaline slightly tinged with grayish; third vein reaching more than one-third of the distance to the tip of the second; costa rather stout beyond the tip of the first vein.

Described from one male and four females taken at Gualan, Guatemala, Feb. 15th. Type in the collection of Prof. J. S. Hine.

The following combination of characters serve to separate this species. Tegulae and their cilia pale, antennae of moderate size with the third joint rounded at tip, face green with yellow pollen, first vein one-third as long as second.

### 19 *Diaphorus leucostomos* Loew.

*Diaphorus leucostoma* Loew, Neue Beitr., viii, p. 58; N. A. Diptera, ii, p. 166.

Male: Length 2.5-3 mm. Eyes widely separated by the front; antennae black, third joint large and with a rather long point (Fig. 9); arista inserted before the tip of this point. Thorax and abdomen bright green, the former with thin grayish dust; bristles at the tip of the abdomen rather long. Coxae black; femora green; tibiae, tips of femora and tarsi yellow, tarsi infuscated towards the tips; pulvilli of all tarsi enlarged. Tegulae, their cilia and the halteres yellow. Wings hyaline slightly tinged with gray.

I have seen specimens from Canada, N. Y., N. J., Md., D. C., Ga., La., Ohio, Mich., Mo., and Guatemala. Prof. Johnson reports it from Fla.

## 20 *Diaphorus leucostoma* var. *infuscatus* n. var.

Male: Very much like *D. leucostoma*. Length 3.3 mm. Hind tibiae have their tips blackish, hind tarsi entirely blackish; the third vein is bent backward slightly more than in *leucostoma* and the second vein extends somewhat further towards the apex of the wing.

Two males Washington, D. C. and N. J.

The three species belonging to the *leucostoma* group, which have the eyes widely separated by the front, the cilia of the tegulae pale, the third joint of the antennae as long as the two basal joints and with a pointed tip are separated as follows; *leucostoma* has the face distinctly longer than wide, the hind tibiae yellow, the fore femora with rather short hairs on the lower side, and the thorax green with more or less coppery or golden reflections. The other two have the thorax bluish, the face nearly or quite as wide as long, and the hind tibiae brownish or blackish. In *quadratus* the hind femora have rather long hairs on top and only short hairs below, the face almost square, and the third joint of the antennae with a rather sharp point; while in *occidentalis* the face is slightly longer than wide, there are long bristly hairs on the lower outer edge of all femora, and the hairs on the top of the hind femora are no longer than on the sides.

## 21 *Diaphorus quadratus* n. sp.

Male: Length 3 mm. Face very wide, nearly square, so thickly covered with silvery white pollen as to conceal the ground color, rather flat with a depressed line in the center, deepest near the antennae and not reaching the oral margin; palpi small, brownish with pale edges and white pollen; front as wide as the face with nearly parallel sides, bluish green, with white pollen which is thickest near the antennae; antennae black, third joint large with a long point (Fig. 10), arista inserted before the tip of this point; lower and lateral orbital cilia white and rather long. Thorax blue-green, dulled with gray pollen; pleurae green with blue reflections in front of the middle coxae. Scutellum and abdomen bright green, shining, abdomen depressed, the hairs on the sides and venter yellowish, stiff as are also the black hairs on the dorsum, the bristles on the posterior margins of the

segments long, those at the tip a little longer and stouter; hypopygium small and its appendages concealed. Coxae black, the fore pair somewhat greenish, with yellow tips and trochanters and long white hairs on the front surface; middle and hind pairs with white pollen; femora bright green with the extreme tips yellow; fore and middle pairs with long, black, bristle-like hairs on the lower-front edge; hind pair with rather long hairs above and shorter hairs below; fore and middle tibiae yellow; hind tibiae brownish black; fore and middle tibiae without bristles except the usual one near the base of the middle ones; hind tibiae with a number of bristles on the top, five or six of which are longer than the rest, and one bristle near the base on the outer side; fore and middle tarsi brown and about equal to their tibiae in length; hind tarsi black and about three-fourths as long as their tibiae; pulvilli of the fore tarsi only a little enlarged, those of the middle and hind tarsi not at all enlarged. Halteres and the tegulae and their cilia pale yellow. Wings broad; hyaline, scarcely tinged with gray; veins black; first vein reaches scarcely one-third of the distance to the tip of the second vein.

Described from a single male which I took at Fort Erie, Ont., May 30th, 1911. Type in author's collection.

## 22 *Diaphorus occidentalis* n. sp.

Male: Length 3-3.2 mm. Face wide, a little longer than wide with silvery white pollen; palpi brown when viewed from the side, white when seen from the front; antennae black, third joint large with a short point, about as broad at the widest part as long, nearly as long as the two basal joints together (Fig. 11); front bluish green with white pollen which is thickest below, about as wide as the face; lateral and inferior orbital cilia white, the white beard below the mouth long and bushy. Thorax blue-green on the dorsum with white pollen; pleurae more blackish and covered with gray pollen. Abdomen green with long white hairs on the sides at base and on the venter; bristles at the tip rather long; hypopygium small, appendages concealed except the central filament which in the described specimens is rather long and directed downward. Coxae black; the fore pair greenish with white pollen and long white hairs on the front surface, their tips and trochanters yellow; femora metallic green with yellow tips and long dark hairs on the lower-

front edges; fore and middle tibiae and the base of their tarsi yellow, the tarsi becoming brownish towards their tips; hind tibiae and tarsi yellowish brown; bristle at the base of the middle tibiae rather slender; bristles of hind tibiae long; pulvilli of all tarsi distinctly, though moderately enlarged. Tegulae, their cilia and the halteres pale yellow. Wings hyaline, scarcely tinged with gray; first vein not reaching quite half the distance to the tip of the second.

Described from three males from Hood River, Ore. Type in the collection of J. M. Aldrich.

A female from the same location may belong with these males but the thorax is green and more shining, and the middle tibiae have two large bristles on the fore surface; this last character makes it doubtful whether they belong to the same species.

This species is very much like *quadratus* but the face is hardly as long as wide, the hind femora have long bristle-like hairs below which are not found in *quadratus*, while that species has noticeably long hairs above and this species has not; this species has a shorter point at tip of the third antennal joint, which is placed nearer the top of the joint than in *quadratus*.

### 23 *Diaphorus parmatus* n. sp.

Male: Length 3 mm. Face very wide, a little longer than wide with silvery pollen, but appearing blackish when viewed from in front; palpi brownish when seen from the side, more whitish when viewed from in front; antennae black, third joint nearly as long as the first with a short but sharp point at the center of the tip (Fig. 1); (Arista missing in the described specimen, in the drawing it is placed as it is supposed to belong, the specimen showing where it has been broken off); front blue with thick white pollen which conceals the ground color in certain lights; lateral and inferior orbital cilia white, the long hairs on the lower part of the orbit white and bushy. Thorax metallic green, the hind part and the scutellum more bluish; dorsum dulled with white pollen, pleurae covered with thick white pollen. Abdomen green with long white hairs on the sides at base and on the venter, and with six stout bristles at tip; hypopygium completely concealed. Coxae black; fore pair greenish and covered with white pollen, with long, coarse, white

hairs on the front surface; femora metallic green with yellow tips; fore and middle tibiae yellow; hind tibiae and tarsi brown; fore and middle tarsi brownish almost from the base and with their pulvilli considerably enlarged, those of the fore tarsi largest; all femora with bristly hairs on the lower front edge; middle tibiae with the usual bristle near the base; hind tibiae with long brownish hairs and rather long bristles; hind tarsi also hairy and with the first joint nearly as long as the two following joints. Halteres and tegulae pale yellow, the cilia of the latter white, however in certain lights against a white background they may appear brown. Wings hyaline; first vein reaches about two-fifths of the distance to the tip of the second. (The costa in the described specimen is bent at the tip of the first vein in both wings but this may be accidental).

Described from one male labeled "Calif.' Coquillette." Type in the collection of Prof. J. M. Aldrich.

Separated from related species by the shield-shaped third antennal joint.

### **24 *Diaphorus remulus* n. sp.**

Male: Length 2.7 mm. Face wide with silvery pollen but appearing black when viewed from in front; palpi rather small with the extreme base brown; front green with white pollen on the lower part, a little wider than the face; antennae black, third joint a little longer than the first, widest near the base, broadly rounded at tip (Fig. 2); arista subapical; lateral orbital cilia whitish. Dorsum of the thorax green, dulled with gray pollen; pleurae and scutellum more blue-green, the former with white pollen. Abdomen green with whitish pollen which leaves a darker central line when viewed from behind; hairs of the abdomen rather long, black above, white below; bristles at the tip rather long; hypopygium small with its appendages scarcely visible. Coxae black, the fore pair greenish with white pollen and long white hair on the front surface, their tips and trochanters pale yellow; femora metallic green with yellow tips and with a row of delicate hairs on the lower front edge, those on the hind pair stouter; tibiae and fore and middle metatarsi yellow; fore and middle tarsi brown from the tip of the first joint; tips of hind tibiae and hind tarsi brownish; the usual bristle near the

knee on the middle tibiae; bristles of the hind tibiae large. Halteres and tegulae pale yellow, the cilia of the latter white but in certain lights almost black. Wings hyaline, scarcely tinged with gray; first vein reaching two-thirds the distance to the tip of the second.

Female: Differs from the male in having the palpi larger; the face with a transverse suture below the middle, third joint of the antennae small and the color of the pleurae and scutellum green, without a trace of blue.

Described from one male from Brookings, S. D. Type in the collection of Prof. J. M. Aldrich.

Separated from related species by the peculiar paddle-shaped antennae.

### 25 *Diaphorus repandus* n. sp.

Male: Length 3.5 mm. Face wide, covered with white pollen, the green ground color showing through in most lights; palpi yellowish brown with white pollen which gives them the appearance of being white towards their edges; front bluish green with thin yellowish pollen; antennae black, the third joint very short, slightly flattened at tip (Fig. 3); arista apical; cilia of the lateral and inferior orbit white; hairs on the lower part of the head rather long. Dorsum of the thorax green with yellowish pollen; pleurae and scutellum more blue-green, the former with white pollen. Abdomen green with slight coppery reflections and with considerable white pollen; when viewed in the right light it shows a dark central line; bristles at the tip of the abdomen small; hypopygium small, its appendages scarcely visible. Coxae black with their tips and trochanters yellow, covered with white pollen; fore coxae with short white hairs on the front surface and black bristles at tip; femora dark green, fore and middle pairs broadly and hind pair narrowly yellow at tip; tibiae and base of fore and middle tarsi yellow; fore and middle tarsi brown from the tip of the first joint and the hind tarsi brown from the base; pulvilli of fore tarsi only slightly enlarged; fore and middle femora with a few bristle-like hairs at tip; fore and middle tibiae with a bristle near the knee on the front side; hind tibiae with a bristle at first and another at second, third on the outside, and three smaller ones on the upper side; fore and mid-



dle tarsi longer than their tibiae, the first joint being about as long as the three following together; hind tarsi much shorter than their tibiae. Tegulae, their cilia and the halteres pale yellow. Wings grayish hyaline; the first vein reaching about one-third of the distance to the tip of the second vein; third vein bent backwards towards the tip somewhat as in *D. simplex* Ald. (Fig. 14); veins brown, yellow at the root of the wing.

Described from two males from California, one labeled "Claremont, Cal., Baker;" the other "Three Rivers, Calif., Clbrtson," both from the Aldrich collection, and presented to him by Prof. C. Fuller Baker. Type in the collection of Prof. J. M. Aldrich.

### 26 *Diaphorus usitatus* n. sp.

Male: Length 2.1 mm. Face wide with the sides parallel, covered with silvery pollen; palpi rather large, as long as the proboscis, yellowish white, brownish at base; front metallic green with very thin white pollen, a little wider than the face; antennae black, third joint a little shorter than the first, slightly pointed at tip (Fig. 4); arista inserted just above this point; cilia of the lateral and inferior orbits white; the hairs on the lower part of the orbits rather long and abundant. Thorax and scutellum metallic green with golden reflections and considerable white pollen on the dorsum; pleurae dulled with white pollen. Abdomen metallic green with a little white pollen along the sides and rather long white hairs on the venter and lower part of the sides, bristles at tip very short but stout as if broken off; hypopygium small, concealed, with a long stout, dark brown filament inserted at base below and directed forward, nearly as long as the diameter of the hypopygium (this may not be found in all specimens.) Coxae black the fore pair slightly greenish, tipped with yellow, with white hairs on the front surface; middle pair with a few white hairs; hind pair with the usual black bristle on the outside; fore trochanters yellow; femora metallic green with yellow tips; tibiae and base of tarsi yellow still the tibiae slightly brownish at tip; hind tarsi brown almost from the base; fore and middle tarsi becoming brownish from the tip of the first joint; middle tibiae with the usual bristle near the knee rather large; bristles of the hind tibiae small; hind femora with a few bristle-like hairs close to the tip on the outside; pul-

villi of the fore tarsi a little enlarged; fore and middle tarsi a little longer than their tibiae, the first joint about as long as the three following; hind tarsi shorter than their tibiae, the first joint longer than the second. Tegulae, their cilia and the halteres pale yellowish white. Wings hyaline; veins brownish, yellow at the root of the wing; first vein reaching two-fifths of the distance to the tip of the second.

Described from one male from Hood River, Ore.; and one male from Lewiston, Idaho. Type in the collection of Prof. J. M. Aldrich.

The specimen from Idaho has the tips of the hind tibiae and the hind tarsi brown, and the hair on the venter somewhat shorter.

### 27 *Diaphorus aldrichi*, n. sp.

Male: Length 2.75-3 mm. Face broad, a little longer than wide, when viewed from in front black, from the side or above silvery white; palpi small, black with stiff black hairs; antennae black, third joint rather large, subquadrate, scarcely as long as broad (Fig. 5); arista dorsal; front and occiput blue-green, the pollen of the face extending somewhat above the antennae; cilia of the inferior orbits white. Thorax and abdomen bright blue-green, the former with thin whitish pollen around the edges of the dorsum; pleurae more thickly white pollenose; abdomen with rather long white hair on the lower lateral sides and on the venter; hypopygium concealed; bristles at tip rather long. Coxae and femora blue-green; femora with a row of stiff hairs on the lower front edge; fore coxae with long white hairs on the front surface; extreme tips of fore and middle femora and their tibiae yellow; hind tibiae and all the tarsi blackish; middle tibiae with a bristle on the front side near the knee; hind tibiae with a row of bristles above. Tegulae, their cilia and the halteres yellow. Wings hyaline; second section of the costa one and a half times as long as the first; costa scarcely thickened beyond the tip of the first vein; third vein distinctly arched so as to run closer to the second vein than in most species; the fourth vein also bent beyond the cross vein but nearly parallel with the third towards the tip.

Described from two males taken at Boise, Idaho. Type in the collection of J. M. Aldrich.

**28 *Diaphorus similis* n. sp.**

Male: Length 3 mm. Face and the rather large triangular palpi silvery white; antennae black, third joint subquadrate, with a short point at the upper corner, about as long as broad (Fig. 6); arista inserted just above the point on the upper edge; front green with the pollen of the face extending up onto the lower part; lateral and inferior orbital cilia white. Dorsum of the thorax bright metallic green with a very little white pollen which forms a spot on each side in the sutural depression; pleurae more blackish, covered with white pollen. Abdomen metallic green with coppery reflections, hairs on the dorsum short, black; venter with a little pale hair; hypopygium small, with a slender, black organ extending backward along its ventral surface from the base to beyond its tip. Coxae and femora black; tip of fore coxae and all trochanters yellow; fore coxae with white hairs on the front surface; extreme tips of the femora, the tibiae and most of the tarsi yellow; tips of the fore and middle tarsi and most of the hind tarsi infuscated; middle tibiae with the usual bristle near the knee; hind tibiae with several on the upper side and one larger one on the outer side near the knee; pulvilli of fore and middle tarsi considerably enlarged; femora with the usual hairs on the lower side. Tegulae, their cilia and the halteres yellow. Wings hyaline; first vein does not reach quite half way to the tip of the second vein; third and fourth veins nearly straight and parallel beyond the cross-vein.

Described from one male from Delaware Co., Pa., May 21st. (taken by E. T. Cresson, Jr.)

Type in the collection of the American Entomological Society. Type No. 6070.

Two females that seem to belong with this male have the palpi and antennae smaller, and the pollen of the face more grayish, the pollen of the thorax thicker and the thorax with coppery reflections. Taken on the same date and at the same place as the male.

This species is very much like *aldrichi*, but the color is a pure green, the face appears white in all directions and the third and fourth veins are not bent as in that species.

### 29 *Diaphorus sodalis* Loew.

*Diaphorus sodalis* Loew, Neue Beitr., viii, p. 57; Mon. N. Am. Diptera, ii, p. 163.

Male: Length 4 mm. Eyes widely separated by the front; antennae small, black, arista apical. Thorax and abdomen dark metallic green; thorax distinctly pollenose; bristles at the tip of the abdomen conspicuous. Coxae and femora black; tips of the fore and middle femora and all tibiae yellow; pulvilli of fore tarsi moderately enlarged. Halteres and tegulae pale yellow, the latter with black cilia. Wings tinged with gray.

I have seen four specimens of this species; one sent by Prof. J. M. Aldrich, taken in Polk County, Wis., which was presented to him by Prof. C. Fuller Baker; one from Mr. Harbeck which he took at Roxboro, Pa.; one in the Cornell University collection from Black Rock Mountains, Ga.; and one that I took at Springville, Erie County, N. Y., June 7, 1914; this last specimen has the cilia of the tegulae more brownish when viewed from behind.

### 30 *Diaphorus trivittatus* n. sp.

Male: Length 2.5 mm. Face about as broad as long, thickly covered with gray pollen; front about as broad as the face and as thickly covered with gray pollen; antennae small, black, inserted at or below the middle of the eyes, third joint very small; arista dorsal; palpi rather large, yellow, brownish at base. Dorsum of the thorax green, the gray pollen in some specimens quite thick, in others scarcely apparent; dorsum with three coppery vittae, one well defined central vitta, and a wider, poorly defined vitta on either side, these vittae do not reach the scutellum; pleurae black with dark brown pollen which is not very noticeable; bristles of the thorax large. Abdomen greenish black, rather short and thick for this genus; bristles at the tip of moderate size; hypopygium small, its appendages scarcely visible. Coxae and femora black, trochanters, extreme tips of femora, tibiae and tarsi brownish yellow to brown; tarsi rather darker brown than the tibiae; in one male the hind tibiae are almost black; fore and middle coxae with long black bristle-like hairs on the front surface; fore tibiae with a small bristle near the base on the front side; middle tibiae with two large bristles on the front surface, one near the base and one at the middle; fore femora with a few

bristle-like hairs near the tip; middle and hind femora with only delicate hairs below; pulvilli of fore tarsi considerably enlarged, those of middle and hind tarsi not enlarged. Halteres and tegulae pale yellow, cilia of the latter black. Wings grayish hyaline, a little darker in front of the third vein; veins black; first vein reaches about two-fifths the distance to the tip of the second.

Female: Agrees with the male in color, and in the arrangement of the hairs and bristles, but the fore pulvilli are not enlarged.

Described from four males and four females which I took at Bradentown, Fla., in March. Type in the author's collection.

### 31 *Diaphorus dubius* Ald.

*Diaphorus dubius* Aldrich, Trans. Ent. Soc. of London, Pt. iii, p. 324.

Male: Length 2.4-2.7 mm. Face and front green, of about equal width, and thickly covered with pollen, but the ground color showing through when viewed from in front; antennae black, small, third joint very short, rounded at tip; arista apical. Thorax bronze green, the posterior end and the scutellum pure green; dorsum with a trace of a coppery vitta in the center. Abdomen metallic coppery, the bristles at the tip distinct in some specimens and not so in others; hypopygium small, its appendages scarcely visible. Coxae and femora black; trochanters and tips of fore and middle femora broadly and hind femora narrowly reddish yellow; tibiae and the first joint of the tarsi yellow; tarsi brown from the tip of the first joint; fore tibiae with a minute bristle on top near the base; middle tibiae with a large bristle near the base on the front side; hind tibiae with a few small bristles on the upper surface; fore and middle tarsi longer than their tibiae; hind tarsi a little shorter than their tibiae and with the second joint only a little shorter than the first. Halteres and tegulae yellow, the latter with black cilia. Wings grayish hyaline; first vein reaching about one-third the distance to the tip of the second.

The above characters are taken partly from the original description and partly from a type specimen kindly loaned me by Prof. J. M. Aldrich.

St. Vincent, W. I., and also from Grenada.

### 32 *Diaphorus palpiger* Wheeler.

*Diaphorus palpiger* Wheeler, Psyche, June, 1890, p. 360.

Male: Length 2.75 mm. Eyes widely separated by the front; palpi as long as the face, glistening white with golden yellow bases; antennae small, black; arista subapical. Thorax and abdomen golden green; abdomen less golden than the thorax which has a thick layer of yellow dust (in the specimens I have seen the dust is more gray than yellow). Coxae and tarsi black; femora and tibiae greenish black, shining; knees yellow. Halteres and tegulae yellow, the latter with yellow cilia. Wings grayish hyaline; first vein reaching more than one-third of the distance to the tip of the second vein.

Described from Milwaukee County, Wis.; I took a specimen at Toronto, Ont., August 8th, and another at Lewiston, N. Y., May 30th; Prof. J. M. Aldrich sent specimens from Viola, Idaho, and Wells, Nev.; there were three specimens in the Cornell University collection material, one taken at Fulton, Cal., May 15th; one from Revelstake, Colo., July 1st, taken by J. C. Bradley; and one without locality label which has a coppery vitta on the dorsum of the thorax. I cannot detect any difference in these western specimens except that the palpi are less yellow at base and the pollen on the thorax is more gray.

### 33 *Diaphorus triangulatus* n. sp.

Male: Length 2.5 mm. Face broad, longer than wide, covered with silvery pollen; palpi large, fully one-half as long as the face, nearly oval, about as wide as long, somewhat pointed at tip, pale yellow with silvery pollen; front bright green with the pollen of the face extending a little above the antennae on the sides; antennae black, third joint large, somewhat triangular, as long as the two basal joints (Fig. 7); arista inserted above the point of the third joint; cilia of the lateral and lower orbits white. Thorax and abdomen metallic green, sometimes with coppery reflections, the former with a little gray pollen along the front and sides of the dorsum; hairs of the abdomen brown on the dorsum and white on the venter, bristles at the tip small, scarcely noticeable; hypopygium small, its appendages also small. Coxae black, fore pair with white hairs on the front surface; femora metallic green with yellow tips, the usual row of hairs on the lower outer edge

very short, those on the fore femora longest; tibiae and tarsi yellow, in one specimen the tarsi are scarcely darker towards their tips, in the other the distal third of hind tibiae and their tarsi are brownish; the bristle on the front side of the middle tibiae near the base is rather large; bristles of the hind tibiae small; pulvilli of the fore tarsi a little enlarged. Tegulae, their cilia and the halteres yellow. Wings hyaline; the first vein does not reach quite half the distance to the tip of the second vein.

Two females that appear to belong here have the palpi normal but still rather large, yellowish with thinner white pollen; the face is black when viewed from in front and has a transvers suture below the middle; third antennal joint small; front and thorax more coppery than in the male; wings with the first vein shorter than in the male (this is often the case in this genus).

Described from two males and two females from Lewiston, Idaho. Type in the collection of Prof. J. M. Aldrich.

### 34 *Diaphorus amoenus* Ald.

*Diaphorus amoenus* Aldrich, Kans. Univ. Sci. Bull., vol. i, p. 86.

Male: Length 2.5 mm. Eyes widely separated by the front; pollen of the face yellowish; antennae black, third joint pointed; arista apical; palpi yellowish white, very large, about a third as long as the height of the head and two-thirds as wide as long. Thorax and abdomen bright green, somewhat golden, the former a little dusted; bristles at the tip of the abdomen distinct. Halteres and cilia of the tegulae yellowish. Fore coxae, femora and tibiae yellow; middle and hind coxae brown; pulvilli of fore tarsi elongated. Wings tinged with gray.

Grenada, W. I.

### 35 *Diaphorus parvulus* Ald.

*Diaphorus parvulus* Aldrich, Trans. Ent. Soc. of Ludon, pt. iii, p. 321.

Male: Eyes widely separated by the front; antennae black, third joint rather large; arista subapical. Thorax shining green. Abdomen bronze green, venter yellowish, without stout bristles at tip. Fore coxae, apical part of middle coxae, femora, tibiae and

base of tarsi yellow; fore pulvilli enlarged; bristle at base of middle tibiae very large. Wings tinged with yellowish.

St. Vincent, W. I.

### **36 *Diaphorus variabilis* n. sp.**

Male: Length 2.75-3.2 mm. Face not very wide, covered with white pollen; palpi yellow; proboscis black; front fully as wide as the face, green, thickly covered with white pollen, which is thinner towards the vertex; antennae black, third joint of moderate size, rounded at tip; the long arista almost apical. Thorax metallic green with gray pollen, which is thickest along the front and sides of the dorsum and on the edges of the scutellum; pleurae green with white pollen. Abdomen concolorous with the thorax but with slight bronze reflections, especially along the anterior and posterior edges of the second segment; hairs of the abdomen black; bristles at tip distinct; venter slightly yellowish; hypopygium very small, almost concealed, the only visible appendage is a rather long central filament. Fore coxae with silvery pollen and short yellow hairs on the front surface and black bristles at tip; middle and hind coxae black with yellow tips; femora and tibiae yellow; fore femora with a few bristle-like hairs near the tip of the lower outer edge; middle femora with about four hairs on the front at tip; hind femora with a few longer hairs near the tip and a preapical bristle, which is not very conspicuous, close to the tip on the outside; fore tibiae without bristles except a very small one on top near the base; middle tibiae with two bristles, one long slender one near the base on the front and a very minute one near the middle on top; hind tibiae with several bristles on the upper surface; all tarsi blackened from the tip of the first joint; front tarsi fully one and one-half times as long as their tibiae and with their pulvilli enlarged; pulvilli of middle and hind tarsi only slightly enlarged. Halteres and tegulae pale yellow, the latter with yellow cilia. Wings rather long and not very wide, grayish hyaline, veins brown, yellow at the root of the wings; first vein reaching a little more than one-third of the distance to the tip of the second.

Female: Two females that seem to belong here do not differ from the male except that the middle coxae are nearly half yellow.



Described from one male and two females taken at Bradentown, Fla., in March; one male taken by Dr. J. C. Bradley at Lavender, Floyd County, Ga., August 23d, has slight indications of a central vitta on the dorsum of the thorax; while one taken by Mr. Nathan Banks at Chain Bridge, Va., on September 17th, has a sharply defined vitta; one male which I took at North Evans, Erie County, N. Y., August 16th, differs from the others in having the pulvilli slightly more developed. Type in the author's collection.

### 37 *Diaphorus subsejunctus* Loew.

*Diaphorus subsejunctus* Loew, Cent., vi, p. 83.

Male: Length 2.5-3 mm. Eyes narrowly separated by the front; antennae small, black. Thorax and abdomen green, the latter with golden reflections, and the former with thin white dust. Fore coxae and feet yellow; middle and hind coxae black, cilia of the tegulae pale. Wings cinerous.

Cuba, W.I.

I do not think this species has been recognized since described; it differs from *variabilis* n.sp. by having the eyes narrowly separated.

### 38 *Diaphorus flavipes* Ald.

*Diaphorus flavipes* Aldrich, Trans. Ent. Soc. of London, pt. iii, p. 323.

Male: Length 2-2.4 mm. Eyes contiguous on the front; antennae small, brownish; arista almost apical. Thorax green, little dusted, smaller bristles and tips of larger ones rusty reddish. Abdomen shining bronze green, venter yellowish, hairs of the abdomen yellowish, apical bristles absent. Coxae, femora, tibiae and tarsi yellow; middle coxae black at base; fore pulvilli enlarged. Halteres large, sulphur yellow; tegulae brownish yellow with yellow cilia. Wings yellowish, with yellow veins; first vein reaching slightly more than one-third of the distance to the tip of the second and somewhat distant from the costa.

W. I.

### 39 *Diaphorus mundus* Loew.

*Diaphorus mundus* Loew, Neue Beitr., viii, p. 57; Mon. N. A. Diptera, ii, p. 161.

Male: Length 3 mm. Eyes contiguous on the front; antennae yellowish with the third joint small; arista nearly apical. Thorax and abdomen light metallic green, the former with thick ochre yellow dust. Coxae and feet yellow; pulvilli of fore and middle tarsi considerably enlarged. Halteres and tegulae yellow, the latter with black cilia. Wings grayish hyaline.

Type location Pa.; N. J. (Smith Cat.); Charlotte Harbor, Fla., (Johnson); Drayton, Idaho (Aldrich Cat.); I found this the most abundant species of the genus at Bradentown, Fla., in March, 1913, taking twenty specimens during the month.

### 40 *Diaphorus deceptivus* Ald.

*Diaphorus deceptivus* Aldrich, Biologia, Diptera i, p. 346.

Male: Length 2.7-3 mm. Eyes narrowly contiguous on the front; arista almost apical; face blackish; antennae small, black. Thorax globose, bright green; abdomen dark golden green, apical bristles scarcely perceptible; hypopygium very small. Legs yellow; middle and hind coxae infuscated for half their length; fore pulvilli rather large, hind ones smallest; tarsi scarcely infuscated towards their tips. Halteres yellow; tegulae infuscated, their cilia blackish but appearing yellowish in certain lights. Wings yellowish.

Mex.

Prof. Aldrich says in the Biologia "*D. deceptivus* seems to be related to *D. subsejunctus*, Loew, of Cuba; but differs in having the front of the male obliterated by the contiguity of the eyes, the cilia of the tegulae darker and the posterior tarsi more infuscated." He was somewhat doubtful of the validity of his species, but only a comparison of a series of both species would establish their identity; until such a comparison can be made they must be considered distinct.

[7]

*australis*  
**41 *Diaphorus femoratus* n. sp.**

Male: Length 3.2 mm. Face broad, longer than wide, covered with silvery pollen, but appearing black in certain lights; palpi small, yellowish, brown at base (antennae missing) front narrow, not more than one-fourth the width of the face, ground color green but so thickly covered with whitish pollen as to be almost concealed except at the vertex; orbital cilia white except a few of the uppermost. Thorax green with thin gray pollen on the dorsum; pleurae more thickly covered with pollen, and with two or three white bristle-like hairs above the fore coxae. Abdomen bronze green, or more bronze black, with long pale hairs on the sides below; hypopygium small with minute appendages (in the described specimen there are only two short bristles at tip). All coxae and the middle and hind trochanters black; fore coxae with minute white hairs on the front surface; middle coxae with several long yellowish hairs on the front surface, these hairs about as long as the coxae; femora, tibiae and tarsi yellow; the tarsi brownish towards their tips; hind tarsi darkest; pulvilli of fore and middle tarsi considerably enlarged; hind femora with a poorly defined brown band before the tip, the apex being broadly yellow. Tegulae, their cilia and the halteres pale yellow, the cilia however appears brownish in certain lights. Wings grayish hyaline; the first vein reaches a little less than half way to the tip of the second, costa slightly thickened beyond the tip of the first vein.

Described from one male taken at Opelousas, La., April. Type in the collection of Prof. J. M. Aldrich.

Easily recognized by the narrow front, yellow femora and the brown band on the hind femora.

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### Change of Preoccupied Name.

On page 166 in key under 40 for femoratus read australis.  
 On page 194 top line for femoratus read australis.