

A REVISION OF THE TWO-WINGED FLIES OF THE GENUS PROCECIDOCHARES IN NORTH AMERICA, WITH AN ALLIED NEW GENUS

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Besides adding three new species and one variety to the genus, the present paper includes several rearing records, some of which have been awaiting publication for more than 40 years. It also corrects an erroneous record which has been a source of confusion for many years.

I am under obligation to Prof. H. B. Hungerford, of the University of Kansas, and Prof. R. L. Webster, of Washington State College, for the privilege of examining type material; and to Mr. Nathan Banks, of the Museum of Comparative Zoölogy, Cambridge, Mass., for careful notes on the types in that institution. Prof. A. L. Melander sent me his collection, which contained the only specimen I have seen of *Procecidochares penelope*. Dr. F. R. Cole sent his material for study, and Mr. E. P. Van Duzee sent that of the California Academy of Sciences. Dr. R. D. Glasgow sent for examination the specimens which Doctor Felt had recorded from Utah. The Vienna Natural History museum also sent for examination its only specimen of *Oedaspis multifasciata* Loew, for which I am especially indebted to custodian H. Zerny. Prof. Fr. Hendel kindly pointed out to me a series of differences between this species and our American forms.

Genus PROCECIDOCHARES Hendel

Procecidochares HENDEL, Wien. Ent. Zeitschr., vol. 33, 1914, (April 30), p. 91; Abh. Ber. Königl. Zool. Anthr.-Ethnog. Mus. Dresden, vol. 14, 1914 (June 15), pp. 41, 42.—BEZZI, Broteria, ser. zool., vol. 18, 1920, p. 7.—PHILLIPS, Journ. N. Y. Ent. Soc., vol. 33, 1923, pp. 122, 136.

The type species was designated by Hendel in the first paper above as *Trypeta atra* Loew, a North American species which has until recent years been referred to *Oedaspis*, the genotype of which is *Trypeta multifasciata* Loew, a rare European species. This has the antennae far apart, the front very wide and not narrowed anteriorly, and still other differences from the group herein considered. *Cecidochares*¹ is

¹ Bezzi, Boll. Lab. Zool. Portici, vol. 5, 1910, p. 20.

a South American genus nearly related, but having the third vein setulose; its type is *rufescens* Bezzi.

The principal characters of *Procecidochares* are the following: The postorbital bristles are flattened and pale in color; the front bears only one upper orbital and two or three lower; there is a pair of dorsocentral bristles immediately behind the transverse suture of the thorax; the scutellum is swollen, globose and polished, and bears two pairs of bristles; the tergite preceding the ovipositor in the female is not shorter than the one before it; first vein setulose, third bare; wing with characteristic and quite uniform pattern consisting of a basal spot and three crossbands, of which the first and second are united in front and the third is oblique, close to costa, and does not extend much behind the fourth vein in the tip of the wing. Wings are figured by Loew, Snow, Doane, and Phillips. The common North American genus *Rhagoletis* has much the same wing pattern, but is easily distinguished by having the postorbital bristles dark and very slender, and the scutellum not swollen.

There are so many peculiar characters in *Trypeta gibba* Loew that I make it the type of a new genus *Callachna*.

KEY TO NORTH AMERICAN SPECIES OF PROCECIDOCHARES

1. Legs wholly yellow.....2.
- Legs with femora black.....5.
2. Pleurae and abdomen reddish-yellow; one presutural dorsocentral.....*penelope* Osten Sacken.
- Pleurae and abdomen black; no presutural dorsocentral.....3.
3. Pleurae shining.....*polita* Loew.
- Pleurae pollinose.....4.
4. Front and cheeks wide; antennae small, reaching hardly more than halfway to oral margin.....*montana* Snow.
- Front and cheeks comparatively narrow; antennae longer, reaching nearly to oral margin.....*flavipes*, new species.
5. With one presutural dorsocentral.....6.
- With no presutural dorsocentral.....9.
6. The posterior hyaline spot reaching middle of wing is triangular, widening rapidly to hind margin.....8.
- The posterior hyaline spot hardly wider at hind edge of wing than at its middle.....7.
7. The mesonotal patch of pale hairs is bounded on each side behind the suture by the dorsocentral bristle.....*anthracina* Doane.
- The patch of hairs extends outside the bristle.....*grindeliae*, new species.
8. Acrostichal pale flattened hairs in a single or slightly double row anteriorly, which widens but little to the suture; abdominal segments with distinct black hair on posterior third.....*atra* Loew.
- Acrostichal hairs running into a large group before the suture, filling the space between the dorsocentrals; abdominal segments without noticeable black hairs.....*atra*, var. *australis*, new.
9. Pleurae pollinose except lower part of sternopleura.....*pleuralis*, new species.
- Pleurae shining.....*minuta* Snow.

PROCECIDOCHARES PENELOPE Osten Sacken

Trypeta (Oedaspis) penelope OSTEN SACKEN, Western Diptera, 1877, p. 346.

Procecidochares penelope PHILLIPS, Journ. N. Y. Ent. Soc., vol. 31, 1923, p. 137, fig. 29.—JOHNSON, List Dipt. New Eng., 1925, p. 262.—WEST, List Ins. New York, 1928, p. 852.

Osten Sacken described the species from a male and female taken at Manlius, N. Y., which he attributes to J. H. Comstock. Mrs. Phillips figured the wing and partially described the species from a single specimen now in the Cornell collection, which is evidently one of the type lot, as it is labeled Manlius, N. Y., and the records of the collection show that it was collected by H. H. Smith and was in Osten Sacken's possession back in the seventies. At least one type is in the Museum of Comparative Zoölogy, and Mr. Banks gave me some notes on it. Johnson recorded the species from Chester and Westfield, Mass. West mentioned the original locality.

The only specimen I have seen is a male received for examination from Professor Melander, who collected it at Cold Springs Harbor, Long Island, in August. The species is unmistakable, all the bristles being reddish-yellow and the head, pleurae, legs, and abdomen yellow.

PROCECIDOCHARES POLITA Loew

Trypeta polita LOEW, Mon. N. A. Dipt., vol. 1, 1862, p. 77, pl. 2, fig. 12.

Trypeta (Oedaspis) polita LOEW, Mon. N. A. Dipt., vol. 3, 1873, p. 257, pl. 10, fig. 12.

Oedaspis polita JOHNSON, Cat. Ins. N. J., 1899 and 1909; Dipt. Florida, 1913, p. 83; List Dipt. New Engl., 1925, p. 262.—BRITTON, Check-list Dipt. Conn., 1920, p. 204.—PHILLIPS, Journ. N. Y. Ent. Soc., vol. 31, 1923, p. 137, fig. 28.—WEST, List Ins. New York, 1928, p. 852.

The type specimens, now in the Museum of Comparative Zoölogy, were from Mississippi and Washington, D. C.; other records in the works cited above are New Jersey, Florida, Connecticut, New York, Pennsylvania, Kansas, Georgia, Massachusetts, and Rhode Island. Unfortunately the species has been much misidentified, and I do not know from the literature which records are correct. The confusion began with Osten Sacken, who recorded the species as reared from galls on goldenrod. Mr. Banks writes me that all of the Osten Sacken reared material in the Museum of Comparative Zoölogy is *atra*, and there can be no doubt that Osten Sacken made the mistake of writing *polita* when he should have written *atra*. I have therefore transferred to *atra* all the records which appear to have been based wholly or in part on rearings. The two species are widely different, *atra* having black femora and *polita* yellow ones, etc.

Aside from the types, which I have not seen, the only specimens which I am certain belong to *polita* (although presumably many others do in the literature) are two males and two females collected by Banks at Falls Church, Va. He very kindly donated one of each sex to the

National Museum, and these are the only ones I have seen, as the species was not represented in the collection before. These have also been compared with the types by Mr. Banks.

The character used by Mrs. Phillips in the very beginning of her key to *Cecidochares*, of the lower frontal bristles being remote from the edge of the eye, does not apply to the specimens received from Banks; the whole paragraph leading to *polita* in this key applies to *gibba* more than to any other species known to me, and this I have placed in a new genus.

The Banks specimens of *polita* have yellow legs, head yellow except the upper back part; no anterior dorsocentral; the pale flattened hairs of the mesonotum leave two rounded bare polished black spots on each side, before and behind the suture; the pleurae are shining black anteriorly and below, but with a delicate pruinosity extending back from the middle of the pteropleura and covering the metanotum more densely. The middle of the mesonotum is slightly pruinose from front to back, with two rows of acrostichal pale hairs in front, separated from a single row in line with the dorsocentrals. The brown pattern of the wing is tinged with yellow except on its borders and the whole of the basal spot.

PROCECIDOCHARES MONTANA Snow

Oedaspis montana SNOW, Kansas Univ. Quart., vol. 2, 1894, p. 163, pl. 6, fig. 5.

The only specimen heretofore recorded is the single male type, from Montana, which I am permitted to redescribe. The species is not represented in the National Museum. It is like *polita* and *penelope* in having the femora yellow, but separates readily by the characters of the key. It differs from both in having a smaller eye, the cheek being three-tenths of the eye height; in *polita* it is two-sevenths, and in *penelope* it is three-sixteenths. The vertex in *montana* is 0.50 of the head width, and in *penelope* 0.40; while the available specimens of *polita* being a little shrunken are not in condition to measure. The parafacials in *montana* are obviously wider than in either of the others, but difficult to measure.

Head yellow except for upper occiput. Thorax and abdomen black in ground color, the former with a distinct scar of the presutural dorsocentral on one side, the other side too much damaged to show it. Mesonotum considerably rubbed, but apparently with fewer pale flattened hairs than in most of the species; the roundish polished spots very shining, a pair before and a pair behind the suture. Scutellum badly damaged. Pleurae distinctly pollinose over their whole surface, a good mark. Abdomen also opaque, covered with white hairs, no black ones at all. Wings with yellowish pattern of three bands and a basal spot, as usual, but the apical band is short and oblique, and connects with the preceding between the second and third veins

and slightly again before the second vein; while the subhyaline area between the second and third bands widens rapidly from the third vein to the hind margin.

Length, 3.2 mm.

The specimen is in the University of Kansas collection.

PROCECIDOCHARES FLAVIPES, new species

Female.—Front at vertex 0.43 of head width, narrowing to antennae, where it is 0.34. Cheek one-seventh of eye height. These measurements indicate a much larger eye than in most of the species. Head yellow in ground color except the occipital region, wholly yellow below; palpi and antennae yellow; three pairs lower frontals; the usual pale bristles behind the eye and one black next the mouth at the side.

Thorax black, the scutellum and the two pairs of mesonotal bare spots highly polished; median region of thorax opaque and bearing the usual pale flattened hairs, it is strongly narrowed posteriorly, at the prescutellars being narrower than the space between them, then suddenly widening to border the base of the scutellum, where the flattened hairs are crowded and conspicuous. No presutural dorso-central bristle. Anterior acrostichal pale hairs in a single row nearly to the suture. Pleurae wholly pale pollinose except a small, distinct black spot on the mesopleura in front of the wing and below the posterior notopleural bristle. Postscutellum opaque black, metanotum pale pollinose elsewhere. Halteres yellow. Abdomen black, shining on third to fifth segments, which are bare on apical half; hairs of abdomen pale. Ovipositor rather short, not equaling the three preceding segments. Wing with usual pattern which is not very dark, especially in the middle of the bands; apical band widely separated from the second, not quite touching the costa except behind the third vein; hyaline interval between first and second bands not at all widened toward hind margin of wing. Legs yellow.

Length, 3.2 mm., with ovipositor.

Described from one female, collected by H. H. Kiefer on Socorro Island, Gulf of California, May 9, 1925. Altitude, 2,000 feet. In the California Academy of Sciences.

PROCECIDOCHARES ANTHRACINA Doane

Oedaspis anthracina DOANE, Journ. N. Y. Ent. Soc., vol. 7, 1899, p. 180, pl. 3, fig. 3.

Procecidochares atra (part) PHILLIPS, Journ. N. Y. Ent. Soc., vol. 31, 1923, p. 137.

Doane described the species from two female specimens, one being from Collins, Idaho, July 27, 1928, collected by himself, the other from Battle Creek, Mich., collected by me in 1897. Mrs. Phillips placed his species as a synonym of *atra*.

The two species are before me, and I readily agree that the Battle Creek specimen is *atra*. The other, of which Doane figured the wing, and to which I restrict the species, seems to me to be distinct. I have several western specimens agreeing with the type, and I have seen no specimens of typical *atra* from farther west than the Michigan one noted as a cotype of *anthracina*. The differences are slight but seem constant in western material.

Briefly stated, the hyaline interval between the first and second wing bands is wide behind in *atra*, narrow in *anthracina*, and the mesonotum has more of the flattened white hairs in the latter. In *atra* there is a single transverse row of hairs in front of the suture, separating the anterior and posterior lateral polished mesonotal areas; while in *anthracina* there are two more or less distinct rows; the central area behind the suture, usually spoiled by the pin, has only about four rows of hairs in *atra*, about six in *anthracina*, which spread laterally in front of the scutellum in a dense or double row, where *atra* has only a thin single row. The National Museum has the following: Three females, Tennessee Pass, Colo., July 25, 1917 (Aldrich); one male, Colorado; one female, Rabbit Ear Pass, Colo., July. All the preceding agree with the type very closely.

The types are in the collection of the Washington State College, Pullman, Wash.

PROCECIDOCHARES GRINDELIAE, new species

Male and *female*.—Like *atra*, but differing in having the middle region of the mesonotum from near the front to the scutellum practically covered with appressed pale yellow hair not in distinct rows, and extending outside the dorsocentral bristle. The usual rounded polished spot on each side above the root of the wing is divided by the extension of these hairs from before more than halfway to the scutellum. While these hairs are stout enough to be conspicuous, they are not distinctly flattened. The wing pattern is like that of *anthracina*, the pale area between the first and second dark bands being narrow at the hind margin, and not widening rapidly as in *atra*.

Length, male 3 mm., female 5 mm.

Described from nine specimens of both sexes, reared at Alameda, Calif., from *Grindelia robusta*, presumably by Koebele many years ago. No record is obtainable as to the nature of the gall, but the plant is named on the label and several puparia are connected with the specimens. Another female was taken by Cockerell at Halfway House, Pike's Peak Trail, Colo., September.

Type.—Male, Cat. No. 41491, U.S.N.M. One paratype is placed in the California Academy of Sciences.

PROCECIDOCHARES ATRA Loew²

Trypeta atra LOEW, Centuries, pt. 2, No. 74, 1862.

Oedaspis atra LOEW, Mon. N. A. Dipt., vol. 3, 1873, p. 257. pl. 11, fig. 17.—PATTON, Canad. Ent. vol. 29, 1897, p. 247.—JOHNSON, List. Ins. N. J., 1899, p. 687.—VAN DER WULF, Biologia, Dipt., vol. 2, 1899, p. 408, pl. 11, fig. 29.—SNOW, Kans. Univ. Quart., vol. 2, 1903, p. 219.—WASHBURN, Dipt. of Minn., 1905, p. 118.—JOHNSON, List. Ins. N. J., ed. 2, 1909, p. 801.—STEBBINS, Ins. Galls Springfield, Mass., 1910, p. 52.—HENDEL, Abhandl. . . . Mus. Dresden, vol. 14, 1914, pp. 40, 42.—STURTEVANT, Journ. N. Y. Ent. Soc., vol. 26, 1918, p. 36.—BRITTON, Checklist Ins. Connecticut, 1920, p. 204.—COLE and LOVETT, List. Dipt. Oregon, 1921, p. 325.

Oedaspis polita OSTEN SACKEN, Trans. Amer. Ent. Soc., vol. 2, 1869, p. 301. Mon. N. A. Dipt., vol. 3, 1873, p. 256, footnote.—JOHNSON, List. Ins. N. J., 1899, p. 687.—BEUTENMÜLLER, Ins. Galls in Vicinity of New York, 1904, p. 33, fig.—JARVIS, Rept. Ent. Soc. Ont. for 1908 (1909), p. 81.—JOHNSON, List. Ins. N. J., ed. 2, 1909, p. 801.—GIRAULT, Ent. News, vol. 24, 1913, p. 340.—STEBBINS, Ins. Galls Springfield, Mass. 1910, p. 52.

Oedaspis setigera COQUILLET, Journ. N. Y. Ent. Soc. vol. 7, 1899, p. 262.—WASHBURN, Suppl. List Dipt. of Minn., 1906, p. 82.—JOHNSON, List Diptera of Florida, 1913, p. 83.

Procecidochares atra PHILLIPS, Journ. N. Y. Ent. Soc., vol. 31, 1923, p. 138, fig. 31.—JOHNSON, List Dipt. New Eng., 1925, p. 262.—WEST, List Ins. N. Y. State, 1928, p. 852.

Procecidochares setigera PHILLIPS, Journ. N. Y. Ent. Soc., vol. 31, 1923, pp. 137, 138.—JOHNSON, List Dipt. New Eng., 1925, p. 262.

Male.—Shining black in ground color, including femora; the antennae, palpi, tibiae, tarsi, and most of the head yellow. Front much narrower than in *Callachna*, measuring at anterior ocellus 0.46 head width, narrowing considerably at the attachment of the antennae. Two pairs of vertical bristles, a large pair of proclinate and slightly divergent ocellars standing rather far apart, one reclinate upper orbital and two or three convergent lower ones, back of head with a row of stout pale hairs, beginning about the middle of the eye, slightly interrupted across the occiput; front with a few small pale hairs close to the eye and a few very small ones mixed with darker above the mouth and just inside the suture. Upper part of head blackish behind and on vertex, the front mostly yellow; lunule pale yellow, of good size when not abnormally retracted. Third antennal joint about twice the second, arista black, enlarged at the extreme base; palpi decidedly flattened and rather elongate. Cheek about one-fifth of eye height, dark immediately below the eye; back of head with rather short pale hair below.

²As mentioned under *polita*, I have assumed that references to that species which appear to be based on rearings from *Solidago* galls really refer to *atra*. It seems probable that misidentifications have arisen from Osten Sacken's mistake. Felt, in his Key to Galls, (p. 198), and in 34th New York Report, for 1922. (p. 76), reports *atra* reared from galls on *Chrysothamnus* at Manti, Utah, but the species was really *minuta*.

Thorax black, with a round polished area on each side between the dorsocentral bristle and the notopleura surrounded by one or two rows of white flattened hairs; another polished area on each side, behind the first mentioned, separated by the suture and a few of the same white hairs; the anterior middle part of the thorax is slightly pollinose and has two rows of acrostichal hairs which are white and slightly flattened; behind the suture this middle region is a little more pollinose and has more of the hairs. There is one very distinct dorsocentral bristle well before the suture and another slightly behind it; one farther back is regarded by Hendel as being acrostichal (pre-sutural), although in this species it seems to be almost exactly in line with the dorsocentrals; the scutellum is globose, polished, and has two pairs of black bristles; postscutellum as in *gibba*. Halteres dark yellow with brownish knob.

Abdomen black; anterior portion of segments two, three, and four a little pollinose and bearing white hairs, the posterior portion more shining and bearing black hairs which form a rather distinct band on the second and third segments; the fourth segment is almost as long as the preceding two. On the ventral side the abdomen shows a wide space of membrane and very narrow sternites; the membrane, however, is not swollen and not visible from above.

Wings rather milky with four brown bands, the two middle ones connect anteriorly and the space between them widens rapidly to the hind border, the fourth band is entirely separated from the third and does not quite touch the costa except behind the fourth vein.

Female.—Ovipositor shining black with rather numerous black hairs, as long as the three preceding segments, tapering rather rapidly.

Length, male 3–3.4 mm., female 4.4–6 mm.

Redescribed from numerous specimens. Twenty-nine specimens were reared from galls on *Solidago* at Great Falls, Va., by C. T. Greene (Hopkins No. 14819a); the types of *setigera* include the following lots: Four specimens from Kirkwood, Mo., reared in 1884 by Miss Mary E. Murtfeldt "from leafy rosulate galls on *Solidago nemoralis*"; three specimens reared in Virginia, near Washington by Theo. Pergande from galls on *Aster* which deform the stem and dwarf the plant; other unreared types of *setigera* are from Bristol, R. I. (Burgess), southern Georgia (Morrison), Baldwin, Kans. (Bridwell); additional unreared specimens of *atra* are from La Fayette, Ind. (Aldrich), French Creek, W. Va. (F. E. Brooks), Cherryfield, Me. (F. H. Lathrop), Smiths Cove, Nova Scotia (C. A. Good), and several specimens collected in the neighborhood of Washington, D. C., by Shannon, Walton, Bridwell, and Kraus.

The type was in the Winthem collection and is now in the Vienna Natural History Museum; Hendel gave some notes on it in 1914.

In 1873 Loew erroneously said that the Winthem material was from Mexico; the Mexican specimen there mentioned was not included in the original publication, hence is not a type.

See *minuta* for Felt's specimens reared from *Chrysothamnus* in Utah.

PROCECIDOCHARES ATRA, variety AUSTRALIS, new variety

Differs from the typical form by the characters mentioned in the key. The second and third wing bands are slightly connected at the third vein.

Described from three specimens. The type, a female, was reared at Waco, Tex., by W. Dwight Pierce, from head of *Heterotheca subaxillaris*; it emerged October 3, 1906. One male was collected at Llano, Tex., on October 23, 1905, by A. W. Morrill; the other was taken by sweeping at Orlando, Fla., on February 28, 1918, by G. G. Ainslie (Aldrich collection).

Type.—Female, Cat. No. 41762 U.S.N.M.

PROCECIDOCHARES PLEURALIS, new species

Female.—Head yellow, the occiput black down to the neck and narrowly below; eye small and narrow, the cheek equal to almost one-third its height (0.32); front at vertex 0.51 of head width. Parafacial wider than usual, nearly as wide as third antennal joint; cheek with a few black hairs extending almost up to the eye, and behind these rather bushy pale ones. Thorax, abdomen, coxae, and basal two-thirds of femora black; middle half of mesonotum pollinose except for two narrow shining stripes in front, and with irregularly placed flattened pale hairs, which are numerous and leave only two narrow submedian bare stripes; the anterior lateral polished area is smaller than usual; scutellum polished, the postscutellum opaque above, but highly polished on lower half except laterally; metanotum white pollinose except close to junction of abdomen. Knob of halteres brown to blackish. Pleurae pollinose when viewed from in front except middle and hind part of sternopleura, when viewed from behind more shining on posterior half; no black bristles, only bristly pale hairs, on pleura. Abdomen opaque, shining only on last segment before ovipositor, the latter shining black and very long, usually longer than preceding part of abdomen without including the telescopic portion. Hairs of abdomen wholly whitish. Femora broadly yellow on apices. Wing as in Plate 18, Figure 30, of Mrs. Phillips's paper (her *setigera*).

Male.—Front at vertex 0.50 of head width; all details as in female, abdomen with only pale hairs.

Length, male 4 mm., female with ovipositor 5 mm.

Described from 16 specimens of both sexes, reared "from gall on sunflower stem," by H. K. Morrison, at Fort Huachuca, Ariz. Emerged June 9 to July 18, 1883.

Type.—Female, Cat. No. 41761, U.S.N.M.

PROCECIDOCHARES MINUTA Snow.

Oedaspis minuta SNOW, Kansas Univ. Quart., vol. 2, 1894, p. 164, pl. 6, fig. 2.—COLE, Proc. Cal. Acad. Sci., vol. 12, 1923, p. 472.

Rhagoletis minuta ALDRICH, Ent. News, vol. 24, 1913, p. 220.

Oedaspis atra FELT, Key to N. Amer. Ins. Galls, 1919, p. 198; 34th N. Y. Rept., 1918 (1922), p. 76.

Snow described the species from a single male in poor condition, collected in Montana. I reported a specimen under the name of a similar genus, from Olancha, Owen Valley, Calif. Cole reported the species from Puerto Ballandra, Mex., on the Gulf of California.

Snow said that the type was considerably damaged. It is before me, and apparently has not suffered since 1894. I would be at a loss to describe the species from it, but fortunately have a well-preserved specimen from Colorado correctly identified by Coquillet, which agrees with it so perfectly that it may be safely taken as the same species; other specimens cited below agree sufficiently. My description is in some details drawn from the Colorado specimen.

Head pale yellow, the black of the occiput extending to the mouth behind, but behind the lower part of the eye to the mouth the color is white and the region seems slightly inflated. Front pale yellow, the color extending back on each side of the ocellar triangle, which with the sides of the vertex is dull black; one upper and two lower orbitals; face nearly white, parafacials narrow, cheek one-seventh of eye height; antennae and palpi yellow. Thorax black, middle third slightly pruinose; no anterior dorsocentral; the flattened white acrostichal hairs in a single row at the extreme front, but increasing to several before the suture; lateral anterior shining spot very large, the posterior divided by a row of white hairs; pleura shining, the sternopleura with no black bristle (type); a white pollinose streak extending from behind the wing to the middle of the metanotum below the opaque black postscutellum. Abdomen black, subshining, with white hairs and no black ones at all. Legs yellow, the coxae and femora black. Wing as figured by Snow, the apical band connected with the second or subapical in front of the third vein (in the Colorado specimen not extending much behind the third vein at its tip). Length, 2.2 mm. (type, the Colorado specimen 2.4 mm.)

Other material which I assign to the species is as follows: Three males, two females, Manti, Utah, June 24 to July 3, reared by H. R. Hagan from ovate woolly lateral bud gall on *Chrysothamnus graveolens* (Felt's record, as *atra*); one male, one female, Colorado (Baker No. 1569); one male, three females, Claremont, Calif. (Baker); three males, Los Angeles; one female, four males, Williams, Ariz. (Barber); one male, Olancha, Calif., on *Chrysothamnus* (Aldrich); one female, Colorado Canyon, Ariz. (Barber); three males, Tucson, Ariz. (Aldrich); one female, Arizona, no collector. The females often have a blackish or quite black bristle on the sternopleura, and some

of them have three or four blackish bristles at the base of the ovipositor, not very striking. In some specimens the apical band is not connected on the third vein with the second one.

CALLACHNA, new genus

Allied to *Procecidochares*, but differs chiefly as follows: (a) The second vein has an erect branch on the front side near the apex, reaching the costa; (b) the single reclinate upper orbital bristle occurring in most Trypetidae is here replaced by a group of from three to five; (c) the parafacial bears a row of hairs, pale and somewhat flattened, near its anterior edge; (d) inside the ptilinal suture at its lower end, on what would be the base of the facial ridge if it were better developed, is a group of very noticeable stout, white hairs, which are much larger than in any species of *Prececidochares*; (e) the male has a singular swelling and expansion of the lateral abdominal membrane connecting the tergites and sternites.

Genotype.—*Trypeta gibba* Loew.

CALLACHNA GIBBA Loew

Trypeta (Oedaspis) gibba LOEW, Mon. N. A. Dipt., vol. 3, 1873, p. 260.

Oedaspis gibba SNOW, Kans. Univ. Sci. Bull., vol. 2, 1903, p. 219.

Procecidochares atra (part) PHILLIPS, Journ. New York Ent. Soc., vol. 31, 1923, p. 137.

Loew described the female, from Texas; Snow reported the species from Douglas County, Kans.; while Mrs. Phillips thought it a synonym or a "freak" of *atra*, and did not give a definite locality. The type is in the Museum of Comparative Zoölogy at Cambridge, Mass., and was recently examined for me by Mr. Nathan Banks, who confirmed my determination.

Male.—Ground color black; legs, antennae, and palpi dark yellow; front and most of pleurae yellowish brown; eyes small and narrow; front very wide, 0.61–0.66 of head width. The stout, postorbital pale hairs from the middle of the eye upward about five in number to occipital region where they are widely interrupted, only one pair in the middle behind the ocelli. Inner and outer vertical bristles black, a small tuft of black bristles on each side of front above, considerably distant from the eye as mentioned in generic characters, only two black frontals below these. A few small white, stubby hairs irregularly placed above the lunule and at the sides close to eye. Parafacial fully as wide as third antennal joint, whitish with a dark streak extending downward from the eye; face, including lunule, rather white with a large cluster of distinct white hairs below, as mentioned in generic characters. Third antennal joint more dark brown than the basal ones; arista bare, the two basal joints distinct but short; edge of mouth rounded, not projecting; cheek about four-fifths the eye height, with a few dark hairs along the dark streak which extends

down from the eye, behind this the ground color is whitish and the hairs are conspicuous and white. Dorsum of thorax shining black with a large polished, bare space encircled by yellowish hairs in front of the suture on each side, another directly behind the suture which is divided by a fine line of yellow hairs; the middle of the thorax in front is also bare and polished; the central part of the thorax is rather densely covered with yellowish hairs and also pollinose in ground color; these hairs extend on the scutellum close to the side, leaving the large, globose, polished, central portion bare except for two pairs of black bristles and a very few yellow hairs which are perhaps absent in some specimens. All the yellow hairs of the dorsum are quite stout; the dorsocentral bristles are quite black and somewhat irregular in number, but there is always at least one before the suture; in most of the Sioux City specimens some of the hairs in the middle region before the suture are distinctly black. Pleurae yellowish brown in ground color, covered with pale pollen and with longer whitish hairs, some of which are on the pteropleura and upper edge of sternopleura; the lower and hind portion of the sternopleura is bare and shining. Halteres yellow; calypters whitish; postscutellum with an opaque blackish ridge above, immediately under the scutellum, below this covered with pale pollen except close to the junction of the abdomen.

Abdomen black in ground color, the hairs entirely white except a few at the hind edge, the second to fourth tergites are short, not reaching the sides of the abdomen which are covered with a swollen expansion of the soft membrane usually connecting the tergites and sternites. This membrane is remarkably enlarged, occupying the entire lateral portions of the abdomen and apparently replacing most of the area of the sternites below as well as invading the dorsal side of the abdomen to a considerable extent. It has several deep longitudinal grooves visible from the side, giving much the appearance of the abdomen of a female distended with eggs.

Legs dark yellow, the front femora with conspicuous pale hairs on the basal three-fifths, the apical remaining part with black hairs.

Wing with diagonal apical mark not quite filling the space to the costa in front of the tips of the second and third veins and entirely separated from the large oblique band on the middle of the wing which is broadly joined toward the costa with the subbasal band as usual. Base of the wing quite blackish a little farther than the humeral crossvein; the apical and subapical dark bands have a decided yellowish tinge between the second and fourth veins.

Female.—Abdomen entirely normal without any trace of the soft lateral membranes, the sternites and tergites occupying the usual position. Ovipositor large, its main segment almost as long as the remaining part of the abdomen, shining brown to black in color. The palpi and third antennal joint are dark brown in one specimen.

Length, male, 4 mm.; female with ovipositor, about 5 mm.

Redescribed from four males and two females reared in April, 1889, at Lafayette, Ind., by F. M. Webster, from galls on *Ambrosia artemisiaefolia*; two males and two females reared at Kirkwood, Mo., April, 1887, "from aggregated gall on *Ambrosia*" by Miss Mary E. Murtfeldt; 14 specimens of both sexes reared at Sioux City, Iowa, April, 1922, from "polythalamous gall on weed"; three males from Tallulah, La., bred in April, 1910, from a gall (Hunter No. 1944); two males from Lafayette, Ind., July 17, 1915, and August 1, 1917 (J. M. Aldrich). The larval habit of this species has not been hitherto reported, although some of this material was reared more than 40 years ago.

Nathan Banks informed me that he found two other specimens in the Johnson collection; one is from Wellington, Kans., the other from Philadelphia, Pa. Both were labeled *polita*.

