

THE CLEPTINAE OF THE WESTERN HEMISPHERE (CHRYSIDIDAE: HYMENOPTERA)

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Abstract.—The Cleptinae of the Western Hemisphere are reviewed. Keys to species and redescriptions of species are presented for the genera *Cleptes* and *Cleptidea*, found in this region. Three new species, *fritzi*, *rufifemur*, and *rufigaster*, and a new subgenus *Neocleptes*, of *Cleptes* are described.

Cleptinae are the most primitive group in the Chrysididae. Members of this subfamily form a close link with the Bethylidae. There are only two genera, *Cleptes* and *Cleptidea*, in the Cleptinae and they share the following primitive characteristics: dentate tarsal claws, males with five visible abdominal segments, females with four, females with an unspecialized ovipositor tube consisting of segments V–VIII, and male genitalia with a pincerlike volsella. Cleptinae differ from bethylids by the lack of a true sting and two fewer visible abdominal segments.

This subfamily is often treated as a distinct family, Cleptidae. However, there are many characteristics which form close links to the rest of the Chrysididae. Cleptines have no true sting, only a tubular ovipositor, which characterizes chrysidids. The reduced wing venation and dentate tarsal claws are found also in the chrysidid subfamilies Elampinae, Amiseginae, and Loboscelidiinae, and the number of visible abdominal segments is the same in the latter two.

Cleptines can be distinguished by the medial facial groove, transverse pronotal groove, reduced wing venation: forewing with a short radial sector (RS stub) and weakly sclerotized cubital cell, tarsal claws with one subsidiary tooth, the abdomen ventrally convex with four external segments in the females and five in the males, an unspecialized robust ovipositor, and male genitalia with digitus forming an opposable lobe on the cuspis.

There is little recent literature on Cleptinae in the western hemisphere. Móczár (1962) discussed the placement of American *Cleptes* in various subgenera. In contrast *Cleptidea*, originally described by Mocsáry (1904), was most recently discussed by Ducke (1907).

The genus *Cleptes* is predominantly holarctic, whereas *Cleptidea* is neotropical. There is apparently no geographic overlap between these two genera. However, I have recently seen two male *Cleptes* from Argentina sent to me by Manfredo Fritz. These specimens are unlike any of the North American species and belong to the new subgenus *Neocleptes* described below.

For the sake of brevity the following abbreviations are used: MOD = midocellus diameter; F = flagellomere, as in F-I; T = tergum, as in T-I the first segment of the apparent abdomen.

Cleptidea Mocsáry, 1904

Type-species.—*Cleptes aurora* Smith.

Generic diagnosis.—Head much wider than long; eyes large and bulging (Fig. 7); midocellus as wide or wider than antennal socket; malar space about 1.0 MOD; pronotum with medial groove joining posterior foveate groove (Fig. 3); scutellum and metanotum strongly convex or produced in profile; propodeal teeth elongate and spinelike, three to four times as long as broad (Fig. 1); tarsal claws with subparallel tooth on apical half (Fig. 5); body with extensive white markings.

Discussion.—The large size of the ocelli suggests that *Cleptidea* may be primarily nocturnal or crepuscular. No host is known for any member of this genus but they may be parasitic on tenthredinoid sawflies as in *Cleptes*. The hosts may in fact be argid sawflies which are much commoner in the neotropics than tenthredinids.

Key to the Species of *Cleptidea*

1. Head and abdomen without whitish markings 2
- Head and abdomen with whitish markings 3
2. Propodeum blackish; forewing slightly tinted between two brown bands *fasciata* (Dalman)
- Propodeum orange; forewing yellow with one brown band on apical half *xanthomelas* (Mocsáry)
3. Metanotum longer than broad apicomediaally; body metallic green, blue, purple or blackish with whitish markings, and red if any restricted to scutellum 4
- Metanotum shorter than broad apicomediaally; body blackish or brown and extensively red on thorax; with whitish markings 5
4. Scutellum red *aurora* (Smith)
- Scutellum blue to black *magnifica* (Ducke)
5. Metanotum convex in posterior view; F-II longer than wide and more than half as long as F-I; coxae bluish black without white markings; pronotum blackish *mutilloides* (Ducke)
- Metanotum emarginate in posterior view; F-II wider than long and less than one third as long as F-I; coxae with extensive whitish markings; pronotum reddish *buyssoni* (Ducke)

Cleptidea aurora (Smith)

Figs. 1, 3, 5, 7, 9

Cleptes aurora Smith, 1874:452. Holotype ♀; "Ega, Brazil" (BMNH).

Diagnosis.—Head metallic blue, except face with two large whitish marks along lower two thirds of ocular margins; thorax blue, except scutellum reddish and propodeal teeth apically whitish; coxae and femora whitish beneath and blue above; wings hyaline between two brown bands; T-I anteriorly whitish and posteriorly purple; rest of abdomen purple. Male pedicel over twice as long as wide; F-I about 2.5 times as long as wide; F-II about as long as wide or wider. Female pedicel 2.0–2.5 times as long as wide; F-I about 3.5 times as long as wide; F-II about as long as wide. Malar space about 1.5 MOD long; metanotal projection longer than wide and apical margin weakly emarginate (Fig. 3). Male genitalia (Fig. 9); cuspis foliaceous, outer surface covered with fine short setae; digitus smooth; paramere broadly lobate apically, ventral surface covered with fine short setae; aedeagus with subapical teeth and medial tuft of setae.

Distribution.—COLOMBIA: Putumayo, Mocoa; ECUADOR; BOLIVIA: Mapiro; BRAZIL: Pará; Faro and Obidos, Amazonas; Rio Tapura. Collection months were August, September, December and February. Seven males and five females were seen including the type.

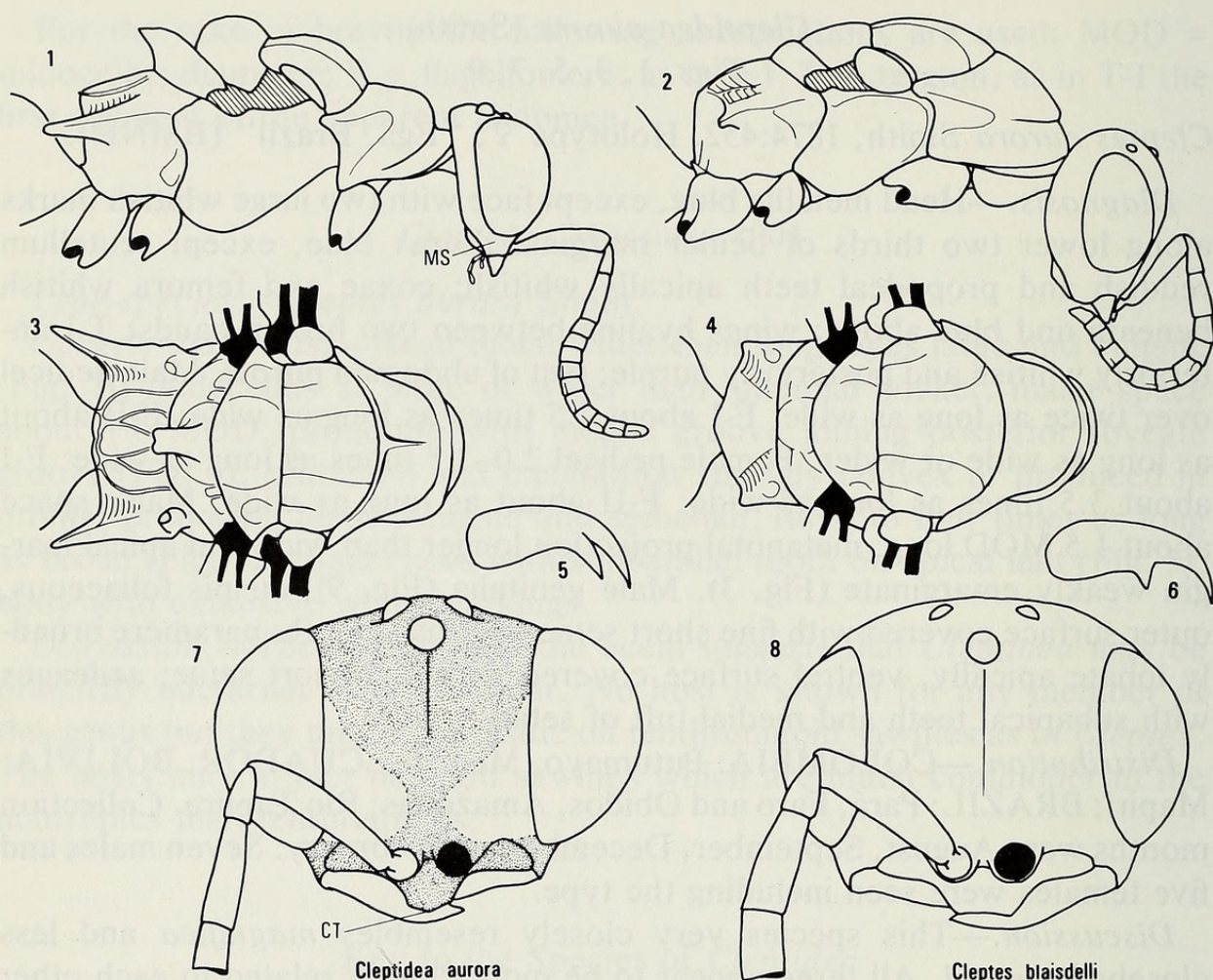
Discussion.—This species very closely resembles *magnifica* and less closely *buyssoni*. All three appear to be more closely related to each other than to the other species in this genus, based on the strongly elevated scutum, scutellum and metanotum, and extensive blue and white maculation. *C. aurora* can be distinguished from *magnifica* by the red scutellum and from *buyssoni* by the metanotal process which is longer than wide.

Cleptidea buyssoni (Ducke)

Fig. 10

Cleptes buyssoni Ducke, 1905:100. Holotype ♂, "Oyapook" (Paris).

Diagnosis.—Head metallic blue, except face with two large whitish marks along lower two thirds of ocular margins; pronotum blue with whitish anterior rim and posterior fourth; scutum purplish; mesopleuron blue; scutellum and metanotum red; propodeum black, except apical half of teeth white; coxae and femora blue dorsally and whitish ventrally or basally; wings hyaline between two brown bands; T-I anteriorly whitish, posteriorly bluish black; T-II–III blackish with lateral white spot; T-IV (♀) or IV-V (♂) bluish black. Male pedicel less than twice as long as wide; F-I slightly less than three times as long as wide; T-II about 1.5 times longer than wide. Female pedicel twice as long as wide; F-I about three times as long as wide; F-II



Figs. 1-8. External morphology of cleptine genera, clypeal truncation (CT), malar space (MS). Figs. 1-2. Lateral view of thorax. Figs. 3-4. Thoracic dorsum. Figs. 5-6. Hindtarsal claw. Figs. 7-8. Front view of head.

slightly longer than wide. Malar space about 1.0 MOD long; metanotal projection posteriorly truncate, wider than long. Male genitalia (Fig. 10); cuspis foliaceous with basal patch of short curled setae; digitus covered with large dome-shaped sensillae; paramere curved and broad, almost reaching aedeagus in dorsal view; aedeagus capitate with a subapical cluster of teeth.

Distribution.—PANAMA: Canal Zone, Barro Colorado Island in June (R. Silberglied and A. Aiello) and July (L. S. Kimsey) and Balboa in April (M. L. Siri); BRAZIL: Pará, Oyapook in June (A. Ducke). Two males and four females were seen, including the type.

Discussion.—Closely related to *magnifica* and *aurora*, *buyssoni* can be distinguished by the extensive blue and white coloration and relatively low metanotal projection which is shorter than wide. The male genitalia of *buyssoni* resembles that of *aurora*, although it differs in having large domelike sensillae on the digitus, much shorter wavy setae on the cuspis, and no fine short setae covering the ventral surface of the paramere and cuspis.

Cleptidea fasciata (Dalman)

Cleptes fasciata Dalman, 1823:90. Holotype ♀; "Brasilia," (Stockholm?).

Diagnosis.—Head reddish, except face and mandibles black; thorax reddish, except propodeum black; coxae and femora orange; wings hyaline between two brown bands, one subbasal and one subapical; T-I yellowish to whitish; T-II blackish with large lateral whitish spot; T-III black, usually with small basolateral whitish spot; T-IV (♀) or IV-V (♂) blackish. Male pedicel twice as long as wide; F-I slightly more than three times as long as wide; F-II about 1.5 times as long as wide. Female F-I length about three times width; F-II slightly longer than wide. Malar space about 1 MOD long; metanotal process posteriorly truncate and shorter than wide.

Distribution.—GUATEMALA: Yepocapa (June); PANAMA: Canal Zone, Balboa (June), Barro Colorado Island (July); PERU: Yurac 67 mi E Tingo Maria (December), Colonia Perene (Rio Perene) 18 m NE La Merced, Junin (January); BRAZIL: Santa Catarina, Nova Teutonia (October through March), Santerem; ARGENTINA: Horco Molle near Tucumán (April). Two males and 25 females were seen.

Discussion.—Although I have been unable to locate the type of *fasciata* the coloration as described by Dalman (1823) and Ducke (1907) is sufficient to distinguish it from other species of *Cleptidea*. This species is most closely related to *mutilloides* and *xanthomelas*, which are characterized by a relatively low metanotal projection and red and black coloration. *C. fasciata* can be distinguished from these two species by the black propodeum, two banded wings, and F-II longer than wide. All of the species of *Cleptidea* are relatively rare, but *fasciata* is the most commonly collected. Unfortunately neither of the males examined had intact genitalia.

Cleptidea magnifica (Ducke)

Fig. 11

Cleptes magnifica Ducke, 1905:99. Holotype ♂, "Oyapook" (Paris).

Diagnosis.—Head metallic blue, except face with two large whitish marks along lower two thirds of ocular margins; entire thorax blue, except apical half of propodeal teeth whitish; coxae blue dorsally, white ventrally; femora blue; wings hyaline between two brown bands; T-I anteriorly whitish, posteriorly purplish blue; rest of abdomen purplish blue. Male pedicel twice as long as broad; F-I three times as long as wide; F-II almost twice as long as broad; malar space over 1.5 MOD long; pronotum strongly bilobate; metanotal process. Female pedicel twice as long as wide, F-I length three times width, F-II 1.5 times as long as wide. Male genitalia (Fig. 11); cuspis apically capitate; digitus with long pointed lateral process; paramere apically ex-

panded with weakly sclerotized lobe, not reaching aedeagus; aedeagus with single, elongate, subapical pointed lobe.

Distribution.—BRAZIL: Pará; Obidos in December (A. Ducke), Oyapook in June (A. Ducke); Amazonas; Tabatinga in October (A. Ducke). Two males and one female were seen, including the type.

Discussion.—A striking species, *magnifica* can be easily confused with *aurora*. These two species are readily separated by the all blue scutellum of *magnifica* versus the all red one of *aurora*. The genitalia of this species is unique in *Cleptidea*; the paramere and cuspis are somewhat capitate apically and the digitus has an elongate basomedial projection.

Cleptidea mutilloides (Ducke)

Fig. 12

Cleptes mutilloides Ducke, 1902:91. Lectotype ♂; Pará, Brazil (Paris), new designation.

Diagnosis.—Head bluish, except face with two large white marks along lower two thirds of ocular margins; pronotum blackish, except lobes yellowish; meso- and metathorax reddish orange dorsally and blackish ventrally; propodeum blackish, except apical half of teeth whitish; coxae brownish with blue highlights; femora bluish; wings clear with one submedial band. Male pedicel 1.5 times as long as wide; F-I three times as long as wide; F-II 1.5 times longer than wide. Malar space 1.0 MOD long; metanotal process weakly elevated, much wider than long. Male genitalia (Fig. 12); cuspis foliaceous with basal tuft of short setae; digitus covered with large dome-shaped sensillae; paramere broad, almost reaching aedeagus in dorsal view; aedeagus apically rounded with four to five stout apical spines.

Distribution.—BRAZIL: Pará in February, March, May and October (A. Ducke), Faro in February (A. Ducke); ARGENTINA: Horco Molle near Tucumán in April (L. Stange). Seven males and ten females were seen, including the type.

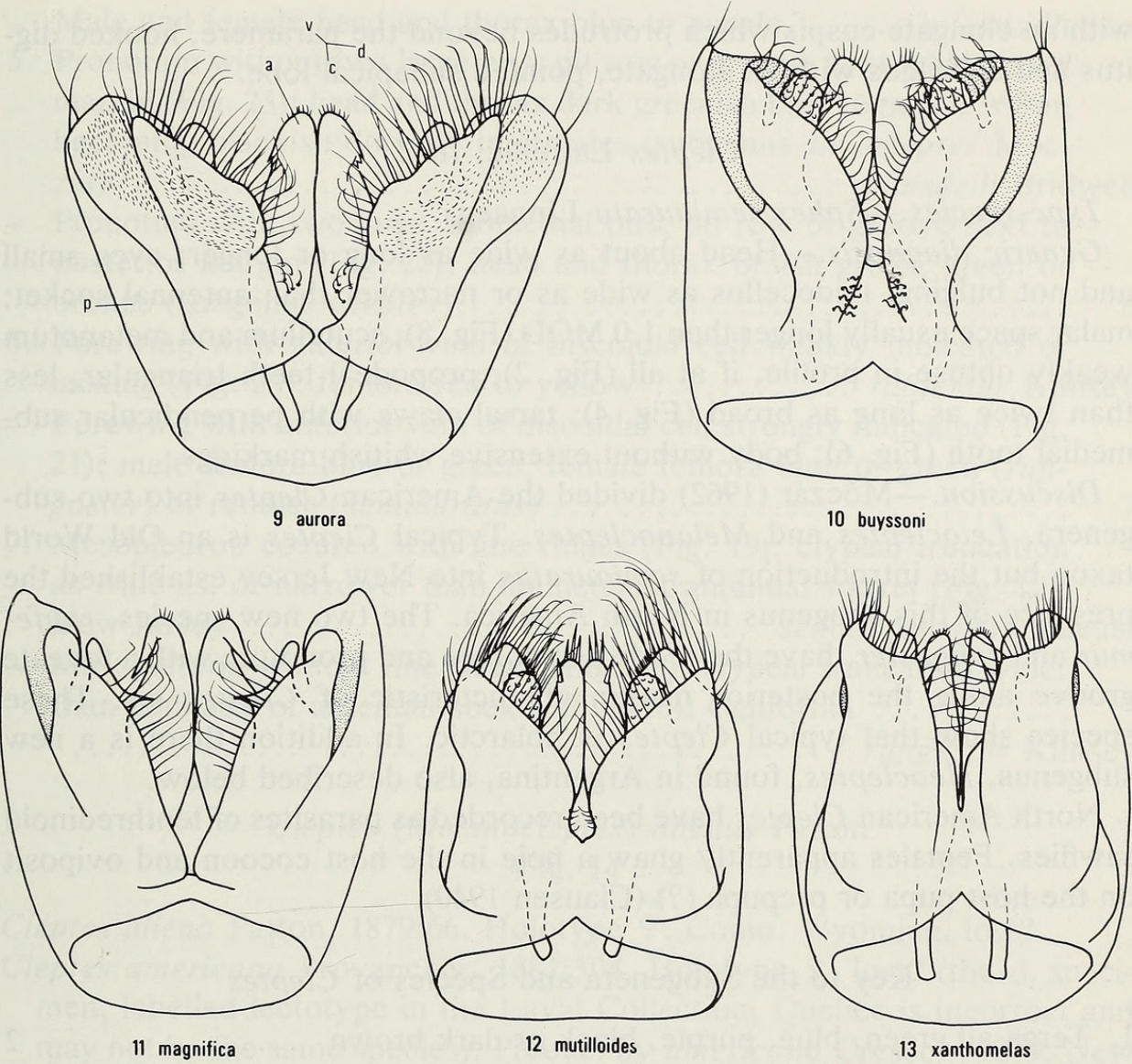
Discussion.—*Cleptidea mutilloides* can be distinguished by the white marks on the face and abdomen, metanotal projection apically truncate and wider than long, and thorax red, except black pronotum. The genitalia is distinctive, the aedeagus has about four apical spines with no subapical teeth or lobe, and the digitus is covered with large domelike sensillae.

Cleptidea xanthomelas (Mocsáry)

Fig. 13

Cleptes xanthomelas Mocsáry, 1889:36. Lectotype ♀; Blumenau, Brazil (HMN), new designation.

Diagnosis.—Head black; entire thorax, except scutum black; coxae orange wings yellow with one, subapical brown band; T-I–IV or V reddish



Figs. 9–13. *Cleptidea*, male genital capsules; aedeagus (a), paramere (p), volsella (v), cuspis (c), digitus (d).

orange. Male pedicel 1.5 times as long as wide; F-I three times as long as wide; F-II as long as wide. Female pedicel twice as long as wide. F-I length three times width; F-II slightly longer than wide. Malar space 1.0 MOD long; metanotal process weakly produced, wider than long. Male genitalia (Fig. 13); cuspis strongly curved apically with obtuse angle near digitus; digitus subapically lobate; paramere apically curved and rounded, not reaching aedeagus; aedeagus with single, elongate, subapical pointed lobe.

Distribution.—COLOMBIA: Putamayo, Mocoa, August (M. Cooper); EC-UADOR; BRAZIL (lectotype); BOLIVIA: Mapiri; MEXICO: Veracruz, Fortin de las Flores, July (Wasbauer and Slansky). One male and ten females were seen.

Discussion.—*C. xanthomelas* is the reddest species in the group containing *mutilloides* and *fasciata*. Additional diagnostic characteristics for this species are the yellow wings with a single brown band, and male genitalia

with an elongate cuspis which protrudes beyond the paramere, hooked digitus and aedeagus with an elongate, pointed subapical lobe.

Cleptes Latreille, 1802

Type-species.—*Sphex semiaurata* Linnaeus.

Generic diagnosis.—Head about as wide as long or longer; eyes small and not bulging; midocellus as wide as or narrower than antennal socket; malar space usually longer than 1.0 MOD (Fig. 8); scutellum and metanotum weakly obtuse in profile, if at all (Fig. 2); propodeal teeth triangular, less than twice as long as broad (Fig. 4); tarsal claws with perpendicular sub-medial tooth (Fig. 6); body without extensive whitish markings.

Discussion.—Móczár (1962) divided the American *Cleptes* into two subgenera, *Leiocleptes* and *Melanocleptes*. Typical *Cleptes* is an Old World taxon but the introduction of *semiauratus* into New Jersey established the presence of this subgenus in North America. The two new species, *rufifemur* and *rufigaster*, have the reddish abdomen and pronotum with a foveate groove along the posterior margin characteristic of *Cleptes* s.s. These species show that typical *Cleptes* is holarctic. In addition there is a new subgenus, *Neocleptes*, found in Argentina, also described below.

North American *Cleptes* have been recorded as parasites of tenthredinoid sawflies. Females apparently gnaw a hole in the host cocoon and oviposit on the host pupa or prepupa (?) (Clausen 1940).

Key to the Subgenera and Species of *Cleptes*

1. Terga all green, blue, purple, black or dark brown 2
- Two or more terga reddish orange to yellow 5
2. Pronotum with elongate medial depression or groove along posterior margin (as in Fig. 22); head and thorax coarsely punctured, dorsum with punctures less than one puncture diameter apart (subgenus *Neocleptes* Kimsey) *fritzi* Kimsey
- Pronotum without elongate medial depression or groove along posterior margin; head and thorax sparsely punctured, dorsum with punctures usually over two puncture diameters apart (subgenus *Melanocleptes* Móczár) 3
3. Head, thorax, and abdomen concolorous, abdomen entirely purple to blue; malar space shorter than or as long as 1.0 MOD *purpuratus* Cresson
- Head and thorax concolorous, at least T-I–II black or dark brown with some green or blue highlights along lateral margins in some specimens; malar space longer than 1 MOD 4
4. Male head and thorax bright green; female head and thorax bronze or copper with gold and green highlights *speciosus* Aaron

- Male and female head and thorax blue to purple *alienus* Patton
- 5. Pronotum without two large pits, pit row or groove next to posterior margin (Fig. 23); head and thorax dark greenish blue to purple, often becoming blackish dorsally in females (subgenus *Leiocleptes* Móczár) *blaisdelli* Bridwell
- Pronotum with two large submedial pits, pit row or groove next to posterior margin (Fig. 22); head and thorax bluish green, green or bronze (subgenus *Cleptes*) 6
- 6. Forewing with anterior vein of discoidal cell weakly indicated or lacking (Fig. 20); femora red to yellow *rufifemur* Kimsey
- Forewing with anterior vein of discoidal cell strongly indicated (Fig. 21); male femora blue or green, female femora blue or green (*rufigaster*) or reddish (*semiauratus*) 7
- 7. Mesopleuron covered with fine ridges (Fig. 19); clypeal truncation as wide as, or narrower than diameter of antennal socket (Fig. 17); New Jersey *semiauratus* (Linnaeus)
- Mesopleuron without fine ridges (Fig. 18); clypeal truncation wider than diameter of antennal socket (Fig. 16); California *rufigaster* Kimsey

Cleptes (Melanocleptes) alienus Patton

Fig. 14

Cleptes aliena Patton, 1879:66. Holotype ♀; Como, Wyoming, lost?

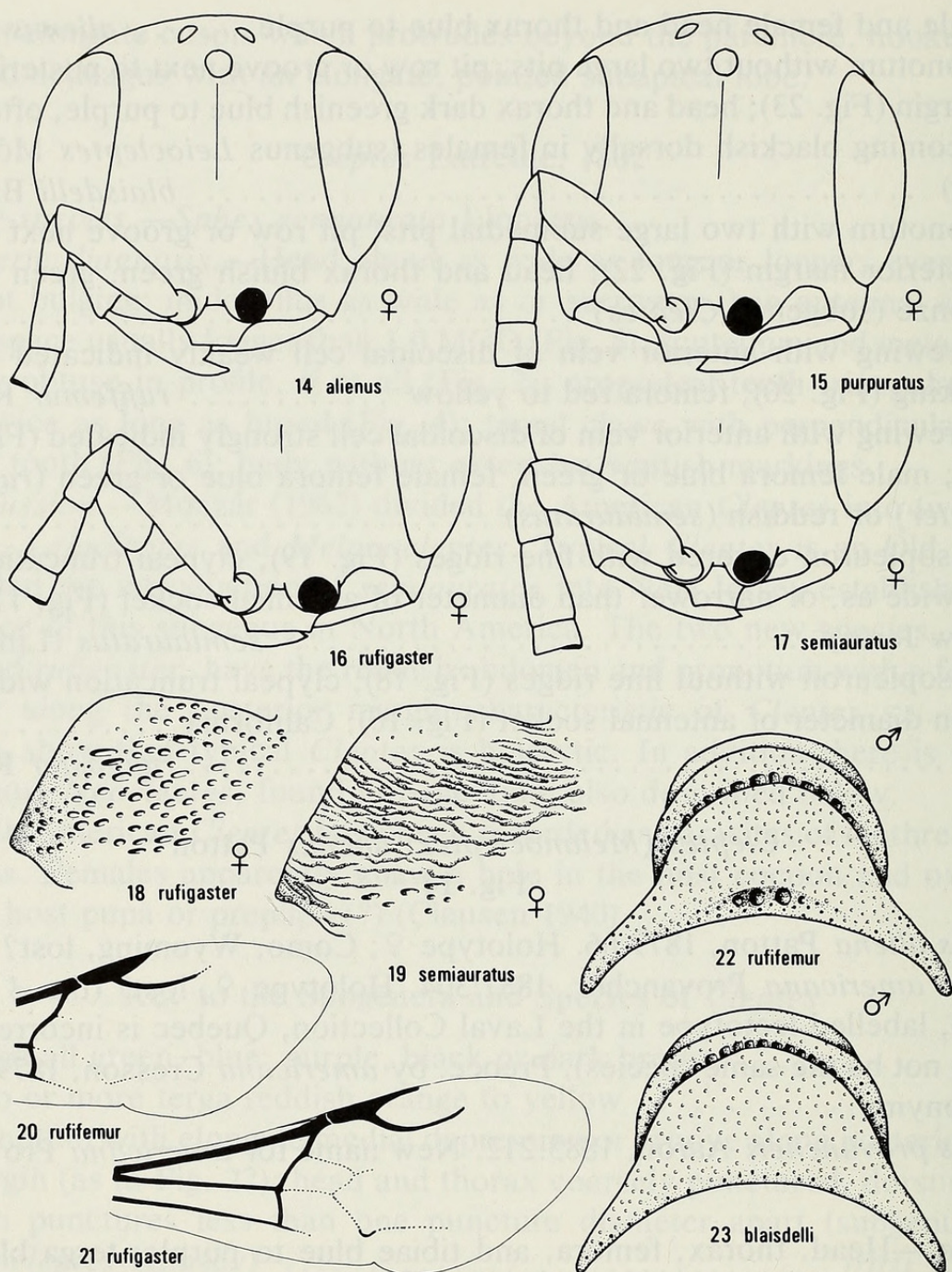
Cleptes americana Provancher, 1881:304. Holotype ♀, lost? (the ♂ specimen, labelled lectotype in the Laval Collection, Quebec is incorrect and may not be the same species). Preocc. by *americana* Cresson, 1879. New synonymy.

Cleptes provancheri Aaron, 1885:212. New name for *americana* Provancher.

Male.—Head, thorax, femora, and tibiae blue to purple; terga black to dark brown, with bluish highlights along lateral margin or on apical segments in some specimens. Pedicel slightly longer than wide; F-I 2.5 times as long as wide; F-II length 1.6 times width; malar space 2.0 MOD long; pronotum evenly convex, punctures about two puncture diameters apart; forewing discoidal cell strongly indicated. Genitalia as in Fig. 26.

Female.—Pedicel 2.0 to 3.0 times as long as wide; F-I twice as long as wide; F-II longer than wide (Fig. 14).

Distribution.—CALIFORNIA: Plumas, Sierra, Nevada, Tuolumne, Modoc, Alpine and Kern Counties; NEVADA: Washoe, Elko Counties; UTAH: Box Elder and Cache Counties; OREGON: Klamath and Lake Counties; IDAHO: Valley and Butte Counties; WYOMING: Teton and Carbon Counties; COLORADO: Boulder County; GEORGIA: Colquitt County; ALBER-



Figs. 14–23. Details of *Cleptes* species. Figs. 14–17. Front view of head. Figs. 18–19. Detail of mesopleural face. Figs. 20–21. Forewing. Figs. 22–23. Pronotum, dorsal view.

TA: Lethbridge. Collection dates were April and June through August for 21 males and 16 females.

Discussion.—The taxonomy of species in *Melanocleptes* is difficult and historically confused. Several critical types are apparently lost, including those of *alienus* and *americana*. Because of this the new synonymy given here is based on examination of original descriptions, and redescrptions by Aaron (1885) and Provancher (1881). More detailed work on this group may reveal that *alienus*, *purpuratus*, and *speciosus* are synonymous, with sev-

eral color morphs, especially in females. Krombein (1979) gave a substantially different arrangement of species in *Leiocleptes* and *Melanocleptes*, placing *alienus* in the former. According to the subgeneric divisions presented by Móczár (1962) *alienus*, based on Patton's description, actually belongs in *Melanocleptes*, due to the darkly colored abdomen with some metallic highlights. The description of *americana* agrees with that of *alienus*, which has priority. There are no series of specimens that could be referred to *americana*. In fact, except for coloration, the American *Melanocleptes* are virtually inseparable, even the male genitalia are essentially the same. Hosts reported for *alienus* are several species of *Neodiprion* (Diprionidae) (from collection labels, and Smith, 1962).

Cleptes (Melanocleptes) purpuratus Cresson

Figs. 15, 26

Cleptes purpurata Cresson, 1879:x. Holotype ♀, Vancouver (ANSP).

Cleptes americana Cresson, 1879:x. Lectotype ♀, Nevada (ANSP).

Cleptes insperata Aaron, 1885:212. Holotype ♀, Montana (ANSP). New synonymy.

Male.—Head, thorax, and abdomen purple to bluish; femora and tibiae purple or blue; wings brown stained. Clypeal truncation much wider than antennal socket diameter; pedicel about 1.5 times as long as wide; F-I 2.3 to 2.7 times as long as wide; F-II slightly less than twice as long as wide; malar space 1.0 MOD long (Fig. 15); pronotal punctures one puncture diameter apart; mesopleural punctures circular, about one puncture diameter apart; forewing discoidal cell faintly stained. Genitalia (Fig. 26); paramere apically rounded, inner margin strongly convex with large transparent lobe; cuspis short and broadly rounded apically; digitus apex rounded and almost reaching cuspis apex in length; aedeagus with long slender subapical projection.

Female.—Pedicel about twice as long as wide; F-II 1.0 to 1.5 times as long as wide.

Distribution.—CALIFORNIA: Yolo, Nevada, Tuolumne, Sacramento, Alpine, Monterey, Lake, Inyo, Sierra and Modoc Counties; NEVADA: Washoe and Douglas Counties; UTAH: Juab County. Specimens were collected in April through August and the total specimens examined were 354 males and 30 females. The types of *purpurata* and *insperata* were seen.

Discussion.—As stated previously under *alienus* the three species in *Melanocleptes* are difficult to separate. Characteristically both sexes in *purpuratus* have an all purple or blue abdomen. This species also tends to be larger than the other two but there is a great deal of size overlap among the three. Krombein (1979) placed *insperatus* in *Leiocleptes*, but examination of the types of *insperatus* and *purpuratus* indicated that they were conspe-

cific and belong in *Melanocleptes*. Dahlsten (1961, 1967) reported *purpuratus* as a parasite of *Neodiprion* sp.

Cleptes (Melanocleptes) speciosus Aaron

Cleptes speciosa Aaron 1885:212. Holotype ♀; Montana (ANSP).

Male.—Head and thorax bright green to bluish green; femora and tibiae green; wings brown stained; abdomen dark brown to black, except lateral margins may be green or blue. Clypeal apex wider than antennal socket diameter; pedicel about 1.5 times as long as wide; F-I 2.0 to 2.25 times as long as wide; F-II 1.5 to almost 2.0 times as long as wide; malar space longer than 1.0 MOD; pronotal punctures about one puncture diameter apart; forewing discoidal cell faintly indicated; mesopleural punctures elongate at least anteriorly and one puncture diameter apart. Male genitalia like Fig. 26; paramere apically rounded with gently emarginate inner margin; cuspis short and broadly rounded apically; digitus slender and digitate.

Female.—Head and thorax bronze to copper with green and gold highlights; abdomen dark brown. Pedicel slightly less than twice as long as wide; F-I almost twice as long as wide; F-II as long as wide; pronotal punctures two puncture diameters apart; mesopleuron with some striae, punctures elongate and about one puncture diameter apart.

Distribution.—CALIFORNIA: Yolo, San Luis Obispo, Tuolumne, Orange, Los Angeles, Napa, Monterey, Lassen, Modoc, Nevada, Alameda and Placer Counties; NEVADA: Ormsby County; UTAH; COLORADO; WASHINGTON; OREGON; IDAHO; NORTH DAKOTA; SOUTH DAKOTA; ALBERTA; BRITISH COLOMBIA; SASKATCHEWAN. The collection dates were May through September. A total of 98 males and 74 females were examined, including the type.

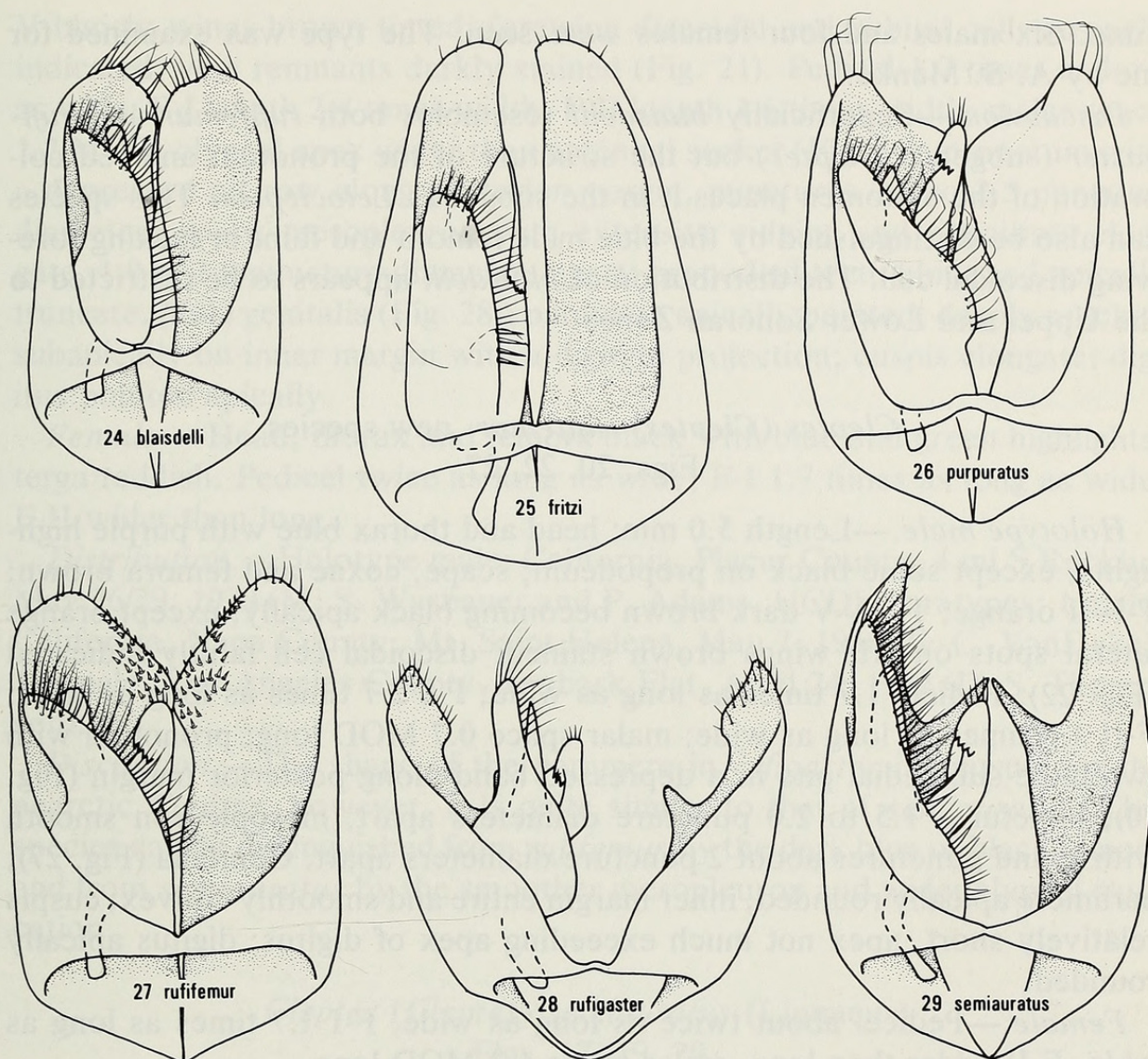
Discussion.—The female of *speciosus* is relatively easy to recognize, because of its bronze coloration. Although there are no structural features that separate female *speciosus* from female *alienus*, I am restricting the concept of *speciosus* to coppery or bronze colored females and associated males. The male of this species is easily confused with male *alienus*. Unless more reliable external characteristics can be found, separating males of these two species may only be possible with female associations. *Cleptes speciosus* does appear to be restricted to states west of the 100th meridian.

Cleptes (Leiocleptes) blaisdelli Bridwell

Figs. 2, 4, 6, 8, 23, 24

Cleptes blaisdelli Bridwell, 1919:x. Holotype ♂; Poway, California (USNM).

Male.—Head and thorax blue to purple; femora blue; abdomen reddish orange or with apical segments black with some blue highlights. Pedicel 1.5



Figs. 24–29. *Cleptes*, male genital capsules.

times as long as wide; F-I 2.5 times as long as wide; F-II slightly longer than wide; malar space 1.2 to 2.0 MOD long (Fig. 6); pronotum evenly convex (Figs. 2, 4), punctures 3 to 4 puncture diameters apart or more; forewing discoidal cell lacking or with faintly stained remnants. Genitalia (Fig. 24); paramere broadly rounded apically, with small medial lobe, inner margin of paramere strongly rounded along a broad weakly sclerotized lobe; cuspis apically tapered but blunt; digitus apically rounded.

Female.—Femora brown; abdomen red, some specimens with apical segments brown. Pedicel twice as long as wide; F-I slightly more than twice as long as wide.

Distribution.—CALIFORNIA, Riverside County: Box Springs Mountains, Riverside (F. G. Andrews), San Jacinto Mountains: Herkey Creek and Keen Camp (E. S. Ross); San Diego County: (E. P. Van Duzee), Borrego (J. W. MacSwain); Tulare County: Wood Lake (N. W. Frazier); Santa Barbara County: Santa Ynez (B. Jarvis); in the months of March through

June. Six males and four females were seen. The type was examined for me by A. S. Menke.

Discussion.—Superficially *blaisdelli* resembles both *rufifemur* and *rufigaster* (subgenus *Cleptes*) but the structure of the pronotum and red coloration of the abdomen places it in the subgenus *Leiocleptes*. This species can also be distinguished by the blue male femora and faint or lacking forewing discoidal cell. The distribution of *blaisdelli* appears to be restricted to the Upper and Lower Sonoran Zones.

Cleptes (Cleptes) rufifemur, new species

Figs. 20, 22, 27

Holotype male.—Length 5.0 mm; head and thorax blue with purple highlights, except some black on propodeum; scape, coxae and femora brown; T-I–II orange; T-III–V dark brown becoming black apically, except orange lateral spots on III; wings brown stained; discoidal cell faintly indicated (Fig. 22). Pedicel 1.7 times as long as wide; F-I 2.7 times as long as wide; F-II 1.6 times as long as wide; malar space 0.7 MOD long; pronotum with two large submedial pits in a depressed band along posterior margin (Fig. 20), punctures 1.5 to 2.0 puncture diameters apart; mesopleuron smooth with round punctures about 2 puncture diameters apart. Genitalia (Fig. 27); paramere apically rounded, inner margin entire and smoothly convex; cuspis relatively short, apex not much exceeding apex of digitus; digitus apically rounded.

Female.—Pedicel about twice as long as wide, F-I 1.7 times as long as wide, F-II wider than long, malar space 1.2 MOD long.

Distribution.—Holotype male: California, Yolo County, Davis, May 28, 1960 (A. S. Menke, UCD). Paratypes: 10 males and 1 female; California: Yolo County, Davis (A. S. Menke, R. E. Rice), Winters (J. L. Campbell); Alameda County, Berkeley, Oakland (C. Koehler), Albany (W. H. Tyson); Lake County, Borax Lake (M. E. Irwin); Napa County, Monticello Dam (M. E. Irwin). Seven other males were seen from Santa Cruz Island, Canada del Medio, California, collected in April and May. Paratype collection dates are April through June and August.

Discussion.—Although closely related to *rufigaster*, *rufifemur* can be distinguished by the all-red legs, and absent or weakly indicated discoidal cell.

Cleptes (Cleptes) rufigaster, new species

Figs. 16, 18, 21, 28

Holotype male.—Length 6.0 mm; head and thorax bluish green with some purple highlights, except vertical face of propodeum black; scape, coxae and femora blue green; tibiae and tarsi reddish; T-I–IV reddish orange; T-

V bluish; wings brown tinted; forewing discoidal and cubital cells strongly indicated, vein remnants darkly stained (Fig. 21). Pedicel 1.7 times as long as wide; F-I length 2.4 times width; F-II length 1.6 times width; malar space 1.2 MOD; clypeal apex wider than antennal socket (Fig. 16); pronotum with a depressed pit row along posterior margin, punctures 2.0 to 2.5 puncture diameters apart; mesopleuron with extensive ridging and punctures elongate, 1.0 to 2.0 puncture diameters apart; propodeal teeth blunt and apically truncate. Male genitalia (Fig. 28); paramere apically pointed, deeply notched subapically on inner margin with a digitate projection; cuspis elongate; digitus pointed apically.

Female.—Head, thorax and femora black with blue and green highlights; terga reddish. Pedicel twice as long as wide; F-I 1.7 times as long as wide; F-II wider than long.

Distribution.—Holotype male: California, Placer County, 4 mi S Rocklin, May 26/29, 1979 (M. S. Wasbauer and P. Adams, UCD). Paratypes: 1 male, California, Napa County, Mt. Saint Helena, May 7, 1930 (E. C. VanDyke); 1 female, Los Angeles County, Tanbark Flat, April 24, 1952 (D. S. Thompson).

Discussion.—The shape of the paramere in *rufigaster* is unusual for the nearctic *Cleptes*, however, it is quite similar to that of *semiauratus*. This species can be distinguished from *rufifemur* by the dark blue or black femora and from *semiauratus* by the smoother mesopleuron and wider clypeal truncation.

Cleptes (Cleptes) semiauratus (Linnaeus)

Figs. 17, 19, 29

Sphex semiauratus Linnaeus, 1761:413. Holotype ♂; Sweden (Linnaean Society Collection, Burlington House, London).

Male.—Head and thorax bluish green; femora blue to green; T-I–II reddish; T-IV–V blue. Clypeal apex narrower than antennal socket diameter; pedicel 1.5 times as long as wide; F-I over twice as long as wide; F-II slightly less than twice as long as wide; pronotum with foveate groove along posterior margin; malar space about 1.0 MOD long (Fig. 17); pronotal punctures about one puncture diameter apart or less; forewing discoidal cell strongly indicated; mesopleuron coarsely sculptured with extensive ridging (Fig. 19). Male genitalia (Fig. 29); paramere apically tapered to a point, inner margin with elongate pointed process; cuspis slender and elongate; digitus slender and apically acute.

Female.—Head and thorax coppery with gold and green highlights; femora yellow orange; T-I–III orange; T-IV bluish; forewing with two faint brown bands.

Distribution.—USA: New Jersey, Metuchen; Europe.

Discussion.—A European species, *semiauratus* is undoubtedly adventive in New Jersey and only a few specimens have been recorded from this locality. Coloration in this species is sexually dimorphic with males tending to have a bluer or greener head and thorax, and females tending to be bronze colored. Hosts reported in the European literature include, *Pristophora* sp., *Nematus* spp., and *Pachynematus* spp. in the Tenthredinidae (Gauss, 1964). This species can be distinguished from North American *Cleptes* s.s. by the narrow clypeal truncation, extensively ridged mesopleuron especially in the female, blue male femora and complete strongly sclerotized forewing discoidal cell.

Cleptes (Neocleptes), new subgenus

Type-species.—*Cleptes fritzi* Kimsey, present designation.

Diagnosis.—Head, thorax, and abdomen metallic; pronotum with medial depression or groove along posterior margin; head and thorax coarsely punctate, punctures generally much less than one puncture diameter apart and usually contiguous.

Discussion.—The single species in this group, *fritzi*, has the southernmost distribution of any species of *Cleptes*. The reason for such a disjunct distribution of *Cleptes* in the western hemisphere is unclear. *Neocleptes* seems to more closely resemble the palearctic *Chrysocleptes* Móczár and *Oxy-cleptes* Móczár rather than the three nearctic subgenera.

Cleptes (Neocleptes) fritzi, new species

Fig. 25

Holotype male.—Length 6.0 mm. Head, thorax, and abdomen bright green with T-I and posterior part of T-II–III darker and somewhat bluish; legs, except tarsi green; forewing discoidal cell with anterior veins weakly indicated, cubital cell and Cu-a heavily sclerotized; wing membrane lightly brown stained. Pedicel length 1.2 times width; F-I 2.3 times as long as wide; F-II 1.5 times as long as wide; malar space 0.7 MOD; clypeal apex slightly wider than antennal socket diameter; vertex and facial punctures almost contiguous, pronotum with an elongate medial depression along posterior margin, pronotal punctures less than 0.5 puncture diameter apart; mesopleural punctures mostly contiguous; propodeal teeth short, almost peglike. Male genitalia (Fig. 25); paramere evenly tapered apically, inner margin simple; cuspis broadly rounded apically with four basal spines; digitus unclear; aedeagus subtriangular apically with a dentate lobe one third of distance below apex.

Female.—Unknown.

Distribution.—Holotype male: Argentina, Entre Rios, Palmar Colon, December 1973 (M. Fritz, UCD). Paratype male, same data as type.

Discussion.—*C. fritzi* appears to be the only *Cleptes* found in the southern hemisphere. The bright green body, pronotum with a posterior groove, the coarsely punctate thorax and unusual male genitalia make this a distinctive species.

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