

ENTOMOLOGICA AMERICANA

REVIEW OF THE GENUS *STERPHUS* PHILIPPI
(DIPTERA: SYRPHIDAE). PART I.

F. CHRISTIAN THOMPSON

PUBLISHED BY THE
NEW YORK ENTOMOLOGICAL SOCIETY
INCORPORATING THE BROOKLYN ENTOMOLOGICAL SOCIETY

Vol. 46, No. 2

August 8, 1973

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ABSTRACT: The genus *Sterphus* Philippi is reviewed. Twenty-eight species are recognized in this genus and are grouped into three subgenera and eleven species groups. Part I includes descriptions of all subgenera, key to and description of all species except those of the *fascithorax* group. Figures of some of the significant features of these taxa are also provided. One new subgenus and seven new species are described.

INTRODUCTION

During the course of a study of the Neotropical milesine genera (Thompson 1972) a number of new species of *Sterphus*, *Crepidomyia* Shannon and related genera were found. Some of these species display intermediate states of the characteristics traditionally used to separate *Sterphus*, *Crepidomyia*, *Tatuomyia* Shannon, *Senoceria* Hull and *Mutillimya* Hull; thus, all these genera were synonymized. However, the descriptions of these new species were delayed until a complete review of all the known species could be prepared. No revision or key to the species of *Sterphus* or its subdivisions has ever been published and the species descriptions are widely scattered in the literature.

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Genus *Sterphus* Philippi

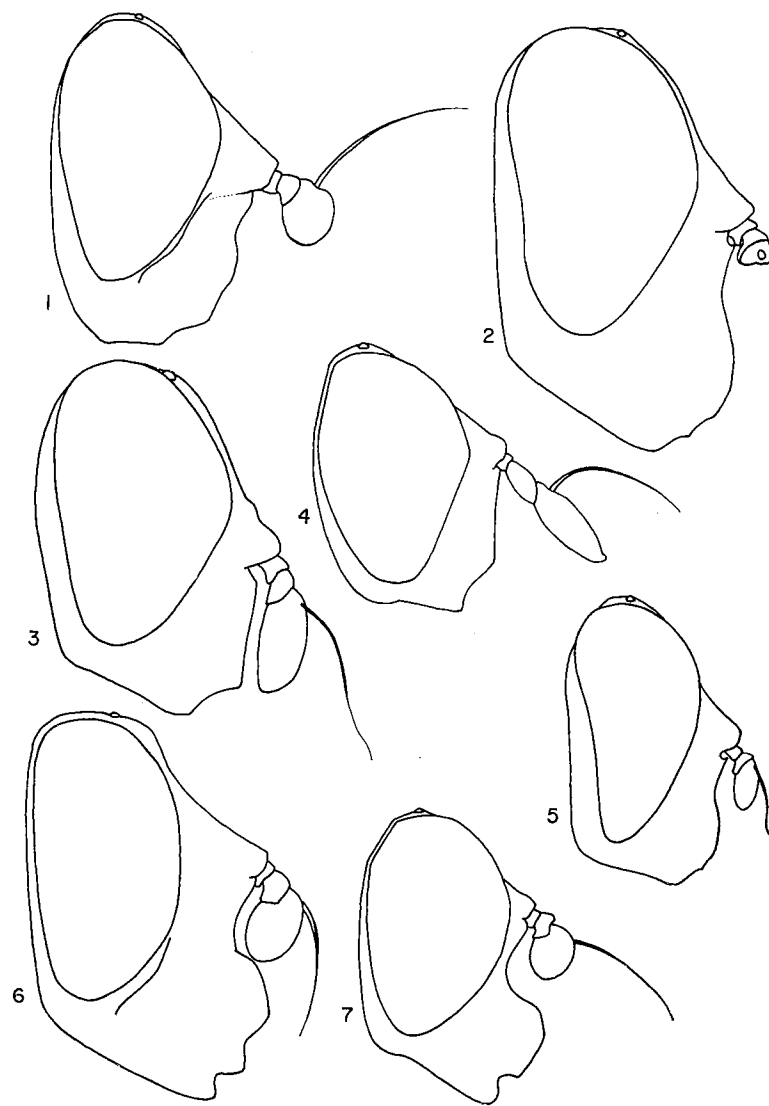
Sterphus Philippi, 1865, p. 737. Type species, *Sterphus autumnalis* Philippi (original indication) = *coeruleus* Rondani. Subsequent references: Kertész, 1910, (cat. citation).—Shannon, 1926, p. 45 (cat. citation).—Shannon & Aubertin, 1933, p. 155 (descript. note; distr. data).—Hull, 1949, p. 369 (descript.).—Thompson, 1972, p. 153 (descript.).

Stherphus: Fluke, 1957, p. 106 (misspelling).

Head: higher than long; face bare, usually either completely pollinose or pollinose only on sides, mostly shiny only in subgenus *Telus*, usually carinate, with medial and lateral carinae, frequently with carinae very strong and straight, with medial carina slightly concave beneath antennal bases and swollen laterally near the oral margin in subgenus *Sterphus*, rarely tuberculate; cheeks broad, as broad as or broader than long; facial grooves long, extending about two-thirds the way to the antennal bases; facial stripes indistinct; frontal prominence low, above the middle of the head; front of male short, slightly longer than vertical triangle; front of female broad, as broad as or broader at antennal bases than long; vertical triangle of male long, about twice as long as broad; ocellar triangle always distinctly before posterior margin of eyes. Eyes bare, usually narrowly holoptic in male, narrowly dichoptic in males of *fascithorax* group, dichoptic only in males of *telus* and *stimulans*. Antennae usually elongate, slightly shorter than face, sometimes only half as long as face; third segment elongate to orbicular; arista long, longer than antenna.

Thorax: longer than broad, with short sparse pile, without long thick woolly pile, may have pair of medially interrupted transverse golden pollinose bands on anterior part of notum; mesokatepisterna with separate dorsal and ventral pile patches; mesoanepimera with posterior portion bare; meropleurae bare; metasterna usually bare, pilose only in *cybele* and always developed; post-metacoxal bridge usually incomplete, complete only in *fascithorax* group, metathoracic pleurae usually bare, with a few hairs in *plagiatus*; metathoracic spiracle usually enlarged, in some species larger than third antennal segment; plumulae absent to elongate; scutellum usually with ventral pile fringe, without ventral pile fringe only in *fascithorax* group, with or without distinct emarginate apical rim.

Legs: hind trochanters frequently with spurs; hind femora usually slightly swollen, straight ventrally, with two rows of very strong ventral spines; hind tibiae frequently with apical spurs. **Wings:** marginal cell open; apical cell closed and petiolate; anterior crossvein



FIGS. 1-7. Heads of *Sterphus*, lateral view; 1. *coeruleus* (Rondani); 2. *incertus*, n. sp. (holotype); 3. *fulvus*, n. sp. (holotype); 4. *shannoni*, n. sp.; 5. *intermedius*, n. sp. (holotype); 6. *telus*, n. sp. (holotype); 7. *stimulans*, n. sp. (holotype).

at or beyond middle of discal cell, always greatly oblique; anterior margin of wings may be dark.

Abdomen: usually elongate, rarely petiolate; *batesi* group with long petiole; *coarctatus* and *fascithorax* groups with short petiole; constriction always on second segment. *Male genitalia*:² cerci long pilose, rectangular, usually rounded on dorsal margin, medium sized, without special modification; surstyli usually of typical *Xylota* form, with elongate curved and tapering dorsal lobe which is densely covered with short appressed pile, with sparsely pilose or bare broad and apically expanded ventral lobe, in *chloropygus* group with both dorsal and ventral lobes greatly expanded, in *stimulans* with ventral lobe expanded, in *tinctus* with ventral lobe greatly reduced; 9th sternum frequently with small membranous opening on dorsolateral surface near base of superior lobe; lingula short or long, absent in *stimulans*; superior lobes broad, broadly and completely fused to sternum, pilose, with large ventral teeth or processes; ejaculatory apodeme umbrella shaped except rod shaped in *stimulans* and *woodorum*; aedeagus consisting of large curved dorsal lobe, paired elongate and tapering lateral lobes and flattened ventral lobe, with posterior margin of dorsal lobe flared into two lateral flaps, with tips of lateral lobes usually between base of these flaps, and with ventral lobe beneath and/or between the lateral lobes, with lateral lobes divided in *chloropygus* group, *batesi* and *genuinus* complex, with lateral lobes absent in *stimulans*.

DISCUSSION: A discussion of the relationships and distinctive characteristics of *Sterphus* has been included in my review of the Neotropical milesine genera (Thompson, 1972, p. 156) and thus is not repeated here.

With nothing known of the immature stages of *Sterphus* and with undoubtedly less than half the probable number of species described, it is premature to discuss the phylogeny of the group in detail. However, to justify my classification (Table I) it is necessary to provide at least a general phylogeny of *Sterphus*. Such a general outline (Diagram 1) can be developed from the study of two morphoclines, cline A—facial color and shape and cline B—abdominal shape and number of hind tibial spurs. In cline A, the facial color darkens, from primitive reddish or orange (A_p & A_o) thru partially black (A_1) to completely black (A_2) and the facial carinae develop, from strongly tuberculate and concave above (A_p), thru slightly tuberculate but still concave above (A_o) and slightly tuberculate and concave above

² The male genitalia are described as they appear in lateral view, the same perspective as used for the figures.

TABLE I

Classification of the Genus *Sterphus* Philippi

Subgenus <i>Telus</i> Thompson	7. <i>plagiatus</i> group
<i>telus</i> Thompson	<i>plagiatus</i> (Wiedemann)
Subgenus <i>Sterphus</i> Philippi	<i>shannoni</i> Thompson
1. <i>stimulans</i> group	<i>genuinus</i> (Williston)
<i>stimulans</i> Thompson	<i>tricrepis</i> (Shannon)
2. <i>coeruleus</i> group	8. <i>fascithorax</i> group
<i>coeruleus</i> (Rondani)	<i>fascithorax</i> (Williston)
<i>aurifrons</i> Shannon	<i>transversus</i> (Walker)
Subgenus <i>Ceriogaster</i> Williston	<i>transversus</i> (Hine)
3. <i>incertus</i> group	<i>spinosa</i> (Shannon)
<i>incertus</i> Thompson	<i>scutellatus</i> (Curran)
4. <i>auricaudatus</i> group	<i>panamensis</i> (Curran)
<i>auricaudatus</i> (Williston)	<i>arethusia</i> (Hull)
5. <i>chloropygus</i> group	<i>aureopila</i> (Hull)
<i>chloropygus</i> (Schiner)	<i>funnebris</i> (Hull)
<i>intermedius</i> Thompson	<i>rudis</i> (Hull)
<i>woodorum</i> Thompson	9. <i>tinctus</i> group
6. <i>cybele</i> group	<i>tinctus</i> (Fluke)
<i>cybele</i> (Hull)	10. <i>coarctatus</i> group
	<i>coarctatus</i> (Wiedemann)
	11. <i>batesi</i> group
	<i>batesi</i> (Shannon)
	<i>fulvus</i> Thompson

(A_{1-2}), to straight and carinate (A_3). In cline B the abdomen becomes constricted and petiolate, from parallel-sided (B_p), thru slightly constricted (B_o) and with a short petiole (B_1), to with a long petiole (B_2). Also in cline B the hind tibial spurs develop, from no spurs (B_o) thru one apical spur (B_1) to two apical spurs (B_2). On the basis of this phylogeny, I have recognized three subgenera; *Telus* for the species *telus*; *Sterphus*, s. s., for the *coeruleus* and *stimulans* groups; and *Ceriogaster*, for all the other species groups. *Telus* is considered the plesiomorphic sister-group to *Sterphus* + *Ceriogaster*. Character state A_o , slightly tuberculate and carinate face, demonstrates the monophyly of the combined group, *Sterphus* + *Ceriogaster*. The monophyletic nature of *Ceriogaster* is defined by character state A_1 , partially black and slightly tuberculate and concave face. The recognition of *Mutillimya* (= *auricaudatus* group), *Senoceria* (= *coarctatus* group), *Crepidomyia* (= *plagiatus* group) or *Tatuomyia* (= *batesi* group) is not justified because such an action would leave *Ceriogaster* a paraphyletic and sympleisomorphic group.

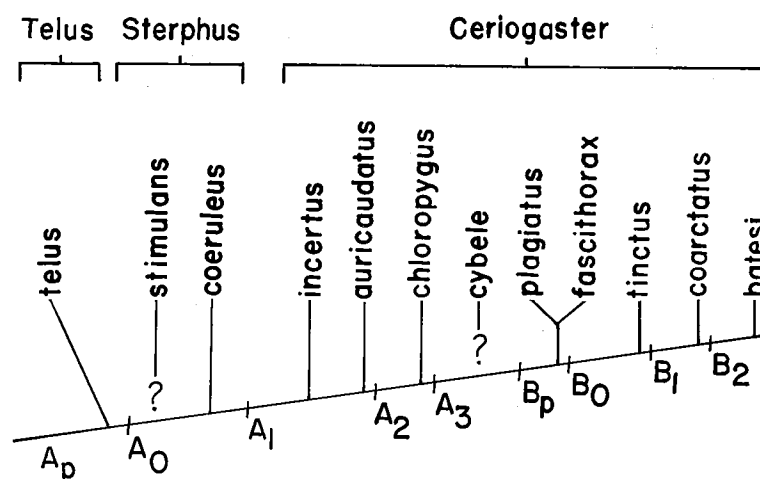


DIAGRAM 1. Phylogeny of the subgenera and species groups of *Sterphus* Philippi. Subgenera listed across the top, species groups listed vertically and apomorphic character states on the bottom. Explanation of characters is in the text.

The only weakness in this arrangement is that no apomorphic character state has been demonstrated for the nominate subgenus, *Sterphus*. Thus there is the strong possibility that *Sterphus*, s.s., is a symplesiomorphic group. This possibility would require that a subgenus be recognized for *stimulans*, if *Ceriogaster* is to be continued to be recognized as a subgenus. In this case, the enlarged metathoracic spiracle would be used as the defining apomorphic character of the *coeruleus* group. However, I consider the completely pollinose faces of both the *stimulans* and *coeruleus* groups to be a synapomorphous condition and define my concept of the nominate subgenus, *Sterphus*, by it (see discussion under the subgenus *Sterphus*).

My recent key to Neotropical milesine genera (Thompson, 1972) should be modified to include the new subgenus *Telus*.

MODIFICATION OF NEOTROPICAL MILESINI
GENERA KEY (THOMPSON, 1972, P. 148)

- 1-14, the same, no change.
 15. Face straight, with distinct keels (fig. 4) _____
 Sterphus (*Ceriogaster*) Williston
 Face either concave or tuberculate, never straight _____ 16

16. Hind femora spindle-shaped, greatly enlarged on apical half, slender on basal half and apex (Fig. 11) *Sterphus (Telus)* Thompson
Hind femora slender, if enlarged, then uniformly enlarged 17
17. Apical cell petiolate, with petiole as long as or longer than humeral crossvein 18
Apical cell not petiolate, closed at wing margin 19
18. Face bright yellow or orange in ground color
..... *Sterphus (Sterphus)* Philippi
Face dark in ground color 20
19. Scutellum with apical emarginate rim; abdomen oval-elongate
..... *Philippimyia* Shannon
Scutellum without apical emarginate rim; abdomen petiolate
..... *Odyneromyia* Shannon & Aubertin
20. Face straight or outwardly sloping above, with epistoma strongly produced below; hind femora greatly enlarged
..... *Crioprora* Osten-Sacken
Face concave or tuberculate, not as above; hind femora slender 21
21. Face usually with tubercle; if without facial tubercle, then either with strongly constricted abdomen or wings bicolored, anterior edge dark and posterior part light *Valdivia* Shannon
Face concave; abdomen not strongly constricted and wings never bicolored 22
22. Anterior crossvein distinctly before middle of discal cell; males with dichoptic eyes *Hemixylota* Shannon & Aubertin
Anterior crossvein at or beyond middle of discal cell; males with holoptic eyes *Xylota* Meigen

KEY TO THE SPECIES OF *STERPHUS* PHILIPPI

- A. Postmetacoxal bridge complete; occiput and anterior edge of mesonotum with transverse row of short black spines
..... *fascithorax* (Williston) group
Postmetacoxal bridge incomplete; occiput (except in *plagiatus*) and anterior edge of mesonotum never with a row of such spines 1
1. Abdomen petiolate, minimal width usually less than $\frac{1}{3}$ maximal width (figs. 19-21) 2
Abdomen not petiolate, if slightly constricted, then minimal width never less than $\frac{1}{4}$ maximal (fig. 18) 6
2. Hind tibiae with apical spurs 4
Hind tibiae without apical spurs 3
3. Hind legs orange except brownish coxae and apical two tarsal segments, with black femoral spines; abdominal segments without bands of golden tomentose-like pile; face straight, epistoma not produced *tinctus* (Fluke)
Hind legs bicolored, coxae, trochanters, femora and apical tarsal segments black, tibiae and basal tarsal segment orange, with black femoral spines; abdominal segments without apical bands of

- tomentose-like pile; face with tuberculate swelling below (fig. 2) *incertus*, new species
- Hind legs dark, with yellow femoral spines; abdominal terga with apical bands of thick tomentose-like golden pile; face with epistoma distinctly produced forward — *auricaudatus* (Williston)
4. Hind tibiae with two apical spurs; abdominal petiole long, about three-fourths as long as second segment (fig. 21) 5
- Hind tibiae with single apical spur; abdominal petiole short, about quarter as long as second segment (fig. 20) *coarctatus* (Wiedemann)
5. Anal cell bare except apical quarter microtrichose (fig. 17); middle legs orange *fulvus*, new species
- Anal cell almost completely microtrichose (fig. 16); middle legs black *batesi* (Shannon)
6. Abdomen red; wings completely dark except for apical light band *telus*, new species
- Abdomen dark; wings hyaline or almost completely hyaline 7
7. Face shiny medially, pollinose laterally, mostly black, never completely yellow or orange 11
- Face completely pollinose, orange, yellow or black in ground color 8
8. Cheeks and most of frons orange, all of frontal triangle in males and lower third in females orange 10
- Cheeks and frons black 9
9. Legs black; metasterna bare 16
- Anterior four legs orange; metasterna pilose *cybele* (Hull)
10. Thoracic pile reddish brown; bases of tibiae light reddish brown *aurifrons* Shannon
- Thoracic pile white and black; tibiae completely black *coeruleus* (Rondani)
11. Mesonotum with longitudinal stripes of golden appressed pile on posterior half 12
- Mesonotum without longitudinal stripes of golden pile 13
12. Abdomen with bands of golden tomentose-like pile on third thru fourth (males) or fifth (females) terga; wings diffusely yellowish brown *shannoni*, new species
- Abdominal terga without apical golden pile bands; wings with distinct diagonal brown stripe (fig. 13) — *plagiatus* (Wiedemann)
13. Hind trochanter and tibiae without spurs or processes 3
- Hind trochanter and/or tibiae with distinct spurs or processes (figs. 10, 12) 14
14. Transverse suture golden pollinose; hind tibiae without apical spur *genuinus* complex
- Transverse suture without golden pollinosity; hind tibiae with long apical spur (fig. 10) 15

15. Mesonotum with front and sides silvery-gold pilose; frontal triangle of male shiny black; hind trochanter of male with simple spur
..... *woodorum*, new species
Mesonotum black and yellow pilose, completely black pilose above wings and on postalar calli; frontal triangle of male golden pollinose; hind trochanter of male with a bilobed spur
..... *intermedius*, new species
16. Face orange, concave, slightly tuberculate (fig. 7); hind tibiae without spurs *stimulans*, new species
Face black, straight (as in fig. 5); hind tibiae with apical spur
..... *chloropygus* (Schiner)

Subgenus *Telus*, new subgenus

Type species: *Sterphus* (*Telus*) *telus*, new species

Head: face tuberculate; mostly shiny, pollinose only under antennae; antennae short, third segment orbicular, arista about as long as face; eyes of male dichoptic, separated by about length of third antennal segment.

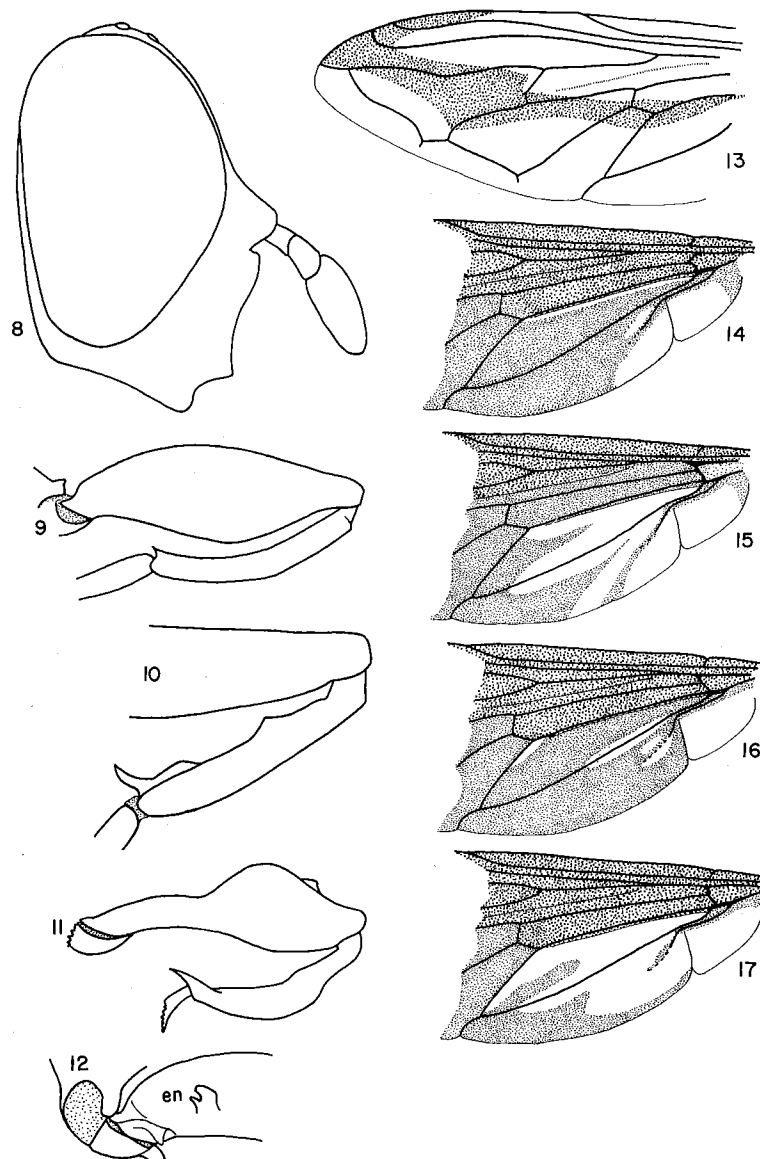
Thorax: metathoracic spiracle slightly larger than third antennal segment; scutellum non-emarginate. *Wings*: dark except for apical orange spot; apical crossvein just beyond middle of discal cell. *Legs*: (fig. 11), hind trochanter without spur; hind femora greatly enlarged on apical half, spindle-shaped, with patch of thick pile on apical half, with small dorsoapical tubercle on inner side; hind tibiae with slight medial swelling, with two apical spurs, with outer spur longer than inner, with medial patch of thick pile. These characteristics of the hind leg may be restricted to the male sex.

Abdomen: elongate, slightly broader apically.

DISCUSSION: The combination of a xylotine body form with a tuberculate face is a unique feature in the Milesini and will distinguish the subgenus *Telus* from other milesine groups. The structure of the hind leg of *Telus* is unique among syrphids. The hind leg of *Cacoceria* Hull is similar but it lacks a dorsoposterior apical tubercle and has only one spur on the tibia. *Cacoceria* with its elongate antennae, bifurcate third antennal segment and pilose metasterna can hardly be confused with *Telus*. *Telus* with its tuberculate face is considered the plesiomorphic sister-group to *Sterphus* (*Sterphus* + *Ceriogaster*).

The name *Telus* is derived from the Greek, *Telos*, meaning end and should be treated as masculine.

Since *Telus* is the plesiomorphic sister-group to *Sterphus* + *Ceriogaster* and is amply distinct, it would be feasible to recognize *Telus* as a genus rather than a subgenus of *Sterphus*. While this action is clearly justified and would perhaps better illustrate the phylogenetic



FIGS. 8-17. fig. 8. Head of *Xylota ventralis* Walker (holotype), lateral view; figs. 9-11. Hind legs, lateral view; 9. *Xylota ventralis* Walker (holotype); 10. *Sterphus intermedius*, n. sp. (paratype);

relationships involved, I have decided against recognition of *Telus* as a genus on utilitarian grounds, i.e., a broader genus is of greater utility and intelligibility to more people than would be two smaller genera. Crowson (1970, pp. 47-56, 298), Darlington (1971, pp. 147, 148) and others have presented a strong case against excessive splitting of genera and for the use of broader, more utilitarian genera, with the use of subgeneric categories by specialists, if necessary.

***Sterphus* (*Telus*) *telus*, new species**

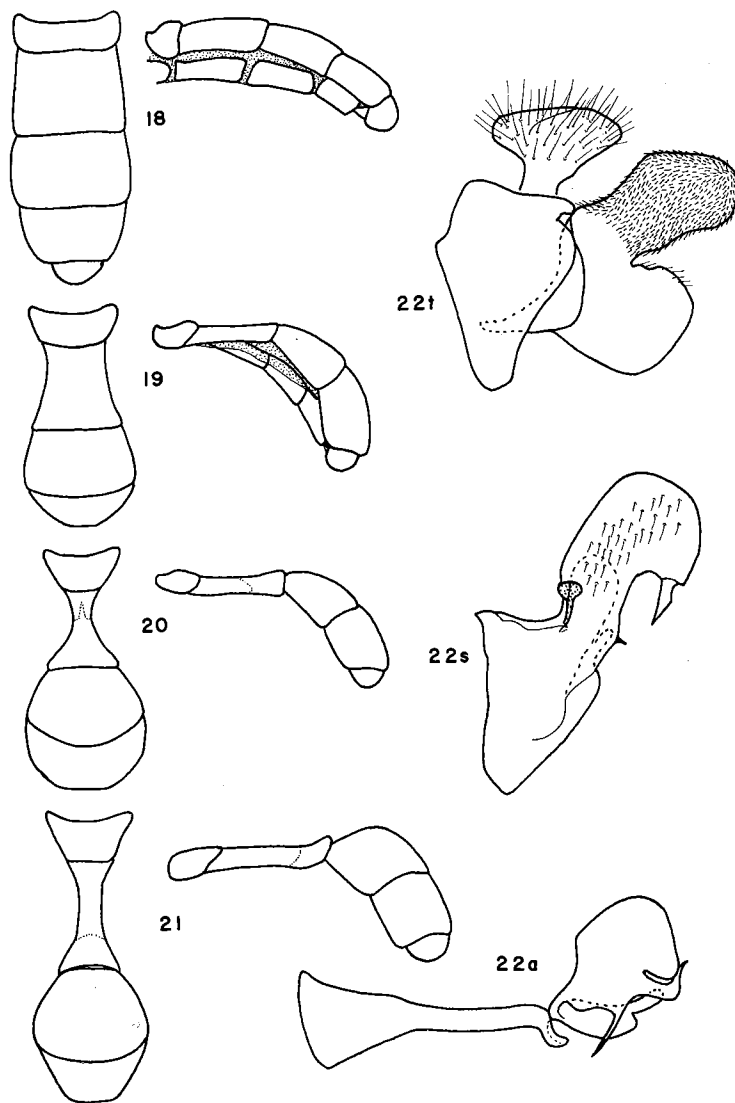
Type locality: Ecuador, Azuay Province, Tarqui, 2800 m. Holotype ♂ CNC.

Head: (fig. 6), face slightly concave below antennae with a strong tubercle above epistoma, dark reddish brown medially, black laterally and beneath antennae, shiny except silvery pollinose band under antennae; cheeks black, shiny, black pilose; front black except dark yellowish red on lower quarter, shiny medially, silvery pollinose laterally and posteriorly, black pilose; frontal lunule yellowish red; vertical triangle black, lightly silvery pollinose, black pilose; occiput black, lightly silvery pollinose, black pilose with a few light brownish gold hairs on upper half. Eyes broadly dichoptic, separated by distance equal that between anterior ocellus and posterior ocelli. Antennae dark brown except lighter at base of third segment; third segment roughly oval, as long as broad, slightly longer below than above; arista dark reddish brown except black at base, about as long as face.

Thorax: dark bluish black except dark reddish on humeri and postalar calli, black pilose except white pilose on proepisterna and on mesokatepisterna between front and middle coxae and light golden brown on anterior part of humeri, dull grayish pollinose except for shiny spots on upper posterior corner of mesoanepisterna and medially to notopleura and dark black and brown pollinose pattern on mesonotum; mesonotal pollinose pattern as figured (fig. 34); scutellum black, grayish pollinose, black pilose except golden subscutellar fringe;

←

11. *telus*, n. sp. (holotype); fig. 12. Enlarged view of base of hind leg of *Sterphus intermedius*, n. sp. (holotype), biased lateral view; figs. 13-17. Wings of *Sterphus*, brown or blackish coloration indicated by large dots, microtrichia indicated by small dots as well as by the large dots; 13. *plagiatus* (Wiedemann), only extent of brownish coloration indicated; 14. *coarctatus* (Wiedemann) (Typic population); 15. *coarctatus* (Wiedemann) (Panama population); 16. *batesi* (Shannon); 17. *fulvus*, n. sp. (holotype). en = trochanteral spur, enlarged view.



FIGS. 18-22. fig. 18-21. Abdomens of *Sterphus* (*Ceriogaster*), dorsal and lateral views; 18. *genuinus* (Williston); 19. *tinctus* (Fluke); 20. *coarctatus* (Wiedemann); 21. *batesi* (Shannon); fig. 22. Male genitalia of *Sterphus batesi* (Shannon), lateral view. t = 9th tergum and associated structures, s = 9th sternum, a = aedeagus and apodeme.

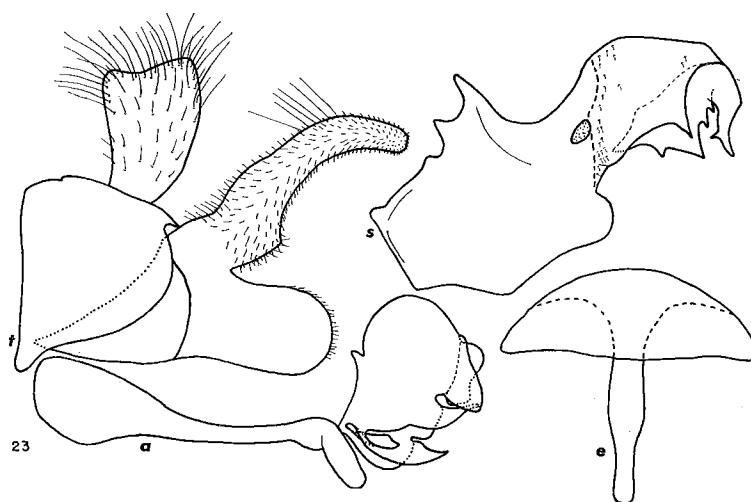
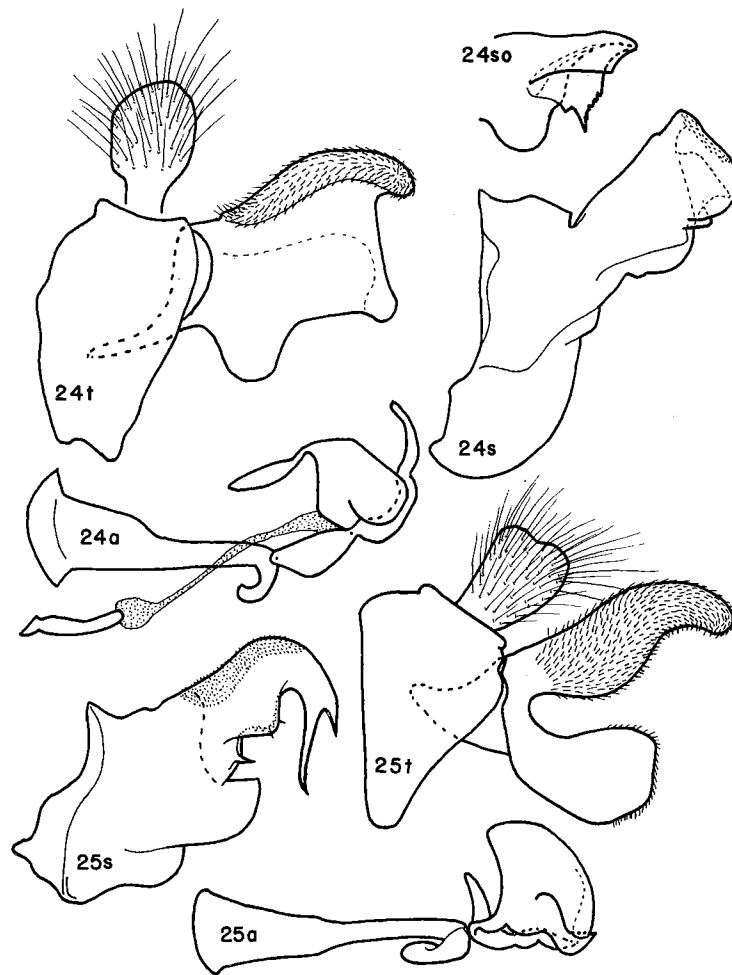


FIG. 23. Male genitalia of *Sterphus coeruleus* (Rondani), lateral view. a = aedeagus and apodeme, e = ejaculatory apodeme, s = 9th sternum, t = 9th tergum and associated structures.

plumulae black; squamae white with black fringe; halteres brown with yellow stalk. *Legs*: black except reddish femoral-tibial joints, black pilose except with a few white hairs intermixed on coxae, trochanters and bases of femora. *Wings*: black except for yellowish-orange subapical spot, which extends from wing margin at end of subcosta to just beyond third vein; completely microtrichose.

Abdomen: elongate, slightly broader at apex than base, red except first segment black, black pilose except white pilose on first and basal two-thirds of second segment. *Male genitalia*: (fig. 25), cerci rectangular, rounded dorsally, with slight indentation on dorsal margin. Surstyli: dorsal lobe narrow, elongate, gently arched on dorsal margin, strongly sinuous on ventral margin and slightly turned in medially at apex; ventral lobe elongate, broaden on apical three-fourths and with blunt apical margin. Ninth sternum without dorsolateral opening; lingula short, broad, and tri-lobed medially; superior lobe with dorso-apical margin evenly curved and densely covered with very short pile, with ventroapical portion hook-like and ending in short outer tooth and longer inner tooth, with ventral margin with a number of small teeth and larger single basal tooth, with lateral flap covering all but large basal tooth. Aedeagus with two dorsolateral processes at base; dorsal lobe large, produced posteriorly; lateral lobes elongate, narrow,



FIGS. 24-25. Male genitalia of *Sterphus*, lateral view; 24. *stimulans*, n. sp. (holotype); 25. *telus*, n. sp. (holotype). a = aedeagus and apodeme, s = 9th sternum, so = tip of 9th sternum, ventrolateral view, t = 9th tergum.

broadly tapering to point; ventral lobe flat, long, reaching almost to end of dorsal lobe. Ejaculatory apodeme umbrella shaped.

MATERIAL EXAMINED: ECUADOR, Azuay Prov., Tarquí, 2800 m., 11 Mar. 1965, L. Peña, 1 ♂ (CNC, holotype).

DISCUSSION: *Sterphus telus* is easily distinguished from all other species of *Sterphus* by its bright red abdomen.

Subgenus *Sterphus* Philippi

Head: face bright orange, completely pollinose, slightly to strongly concave above, with either large or small tuberculate swelling below, facial carinae weak; third antennal segment roughly oval, as long as broad; males with holoptic or dichoptic eyes.

Thorax and abdomen dark bluish or greenish black, either iridescent or dull; humeri with white pollinose spot on medial margin; scutellum with weakly emarginate rim; metathoracic spiracle either large or small; wings without dark anterior margin, slightly fumose; legs dark, hind legs simple except hind trochanter usually spurred in males, hind femora not enlarged; abdomen elongate oval.

DISCUSSION: *Sterphus* is readily separated from both *Telus* and *Ceriogaster* by its dark coloration and bright orange pollinose face. The facial shape of *Sterphus* with its strong concavity beneath the antennae, is also characteristic.

As suggested above, *Sterphus* may be a sympleisiomorphic group. The enlarged metathoracic spiracle of *aurifrons* and *coeruleus*, a synapomorphic character, clearly suggests that these two species form a monophyletic group but *stimulans* does not have an enlarged spiracle. Most of the other character states mentioned in the description must be considered plesiomorphic when compared to those of *Ceriogaster*. However, if the extensively shiny face of *Telus* is accepted as the primitive condition of the face, then the completely pollinose face of *Sterphus* can be used to demonstrate the monophyletic nature of the subgenus. This evaluation of the character states is not unreasonable since most species of *Ceriogaster* have laterally pollinose faces (intermediate condition) and only *batesi* and *chloropygus* have an almost or completely pollinose face. The facial pollinosity of *Ceriogaster* species would support the idea of a trend from the primitive shiny condition to the derived pollinose condition.

coeruleus group

A synapomorphic character state of the *coeruleus* group is the enlarged metathoracic spiracle. The structure of aedeagus is also unique to the group.

Sterphus (*Sterphus*) *coeruleus* (Rondani)

Xylota coerulea (Rondani), 1863, p. 8 (also, 1864, p. 8 (1863)). Type locality: Chile. Type ♂ ?

Sterphus coeruleus: Kertész, 1910, p. 308 (cat. citation).—Shannon, 1926, p. 46 (descript. note; distr. recs.).—Porter, 1932, p. 190 (distr. rec.).—Shannon & Aubertin, 1933, p. 156 (distr. recs., fig. head of male, lateral).—Porter, 1937, p. 42 (distr. rec.).—Stuardo, 1946, p. 127 (cat. citation).—Fluke, 1957, p. 107 (cat. citation).—Etcheverry & Shenefelt, 1962, p. 208, figs. 5 (♂ genitalia), 10 (♀ genitalia).—Pino, 1962, p. 51, figs. 12, 13 (heads), 14 (antenna), 15 (mouthparts), 16 (wings), 17 (legs).—Etcheverry, 1963, p. 80 (descript., synonymy, distr. data).—Thompson, 1971, p. 526 (fig., head of male, lateral).

Sterphus autumnalis Philippi, 1865, p. 738, 782. Type locality: Chile, Prov. Valdivia. Types ? MNHN Santiago.

Sterphus antennalis Philippi, 1865, p. 737. Incorrect original spelling of *autumnalis* Philippi (First reviser, Lynch Arribalzaga, 1892, p. 191).

Xylota aurifacies Schiner, 1868, p. 360. Type locality: Chile. Types VMNH. Subsequent references: Kertész, 1910, p. 297 (cat. citation).—Shannon, 1926, p. 50 (questioned generic placement of).—Shannon & Aubertin, 1933, p. 123 (note on status).—Stuardo, 1946, p. 130 (cat. citation).—Fluke, 1957, p. 157 (cat. citation).—Etcheverry, 1963, p. 110 (citation). **New Synonym.**

Head: (fig. 1), face orange, orange pollinose, weakly carinate, slightly concave beneath antennae, slightly swollen below; cheeks orange, shiny, with a few black and white hairs intermixed posteriorly; frontal triangle of male orange, orange pollinose and pilose; front of female shiny orange on lower third, bluish-black and white pollinose on upper two-thirds, black pilose; frontal lunule orange; vertex bluish black, lightly brownish pollinose, black pilose; occiput bluish black, white pollinose, white pilose below becoming intermixed with black pile above. Antennae black, black pilose; third segment roughly oval, as long as broad; arista black, about as long as face.

Thorax: metallic bluish black; pleurae white pollinose, white pilose except black pile intermixed on mesoanepisterna and upper half of mesoanepimera and all black pile on upper posterior corner of mesoanepisterna; mesonotum brown pollinose except for shiny lateral and sublateral stripes and shiny patch in front of scutellum, light brownish yellow and black pilose on anterior half, black pilose posteriorly; scutellum shiny, black pilose except white subscutellar fringe. **Legs:** simple except spur on hind trochanter of male, black, black pilose except white pilose as follows: front and middle coxae, lateral apical patch on hind coxae, about basal half on front and middle femora, basal three-fourths of hind femora, slightly more extensive on posterior than anterior surface of femora, and tips of tibiae. Plumulae brownish, squamae white with black margin and

fringe. Metathoracic spiracle much larger than third antennal segment. Halteres black with orange stem. *Wings*: diffusely blackish, completely microtrichose.

Abdomen: metallic bluish, shiny except dull pollinose as follows: basal margin of first tergum, narrowly along basal margin of second tergum medially, apical half of second tergum with narrow medial connecting stripe to basal band, and apical third of third tergum; pile appressed black except long white as follows: on all sterna and first tergum, in lateral triangular patches on basal three-fourth of second tergum with these patches touching medially, and on basal third of lateral margins of third and fourth terga. *Male genitalia*: (fig. 23), cerci rectangular, with shallow indentation on dorsal margin. Surstyli: dorsal lobe narrow, elongate, slightly curved medially at apex, with dorsal margin arched and ventral margin recurved except basal portion straight, with a few long marginal hairs on dorsal edge, elsewhere short pilose; ventral lobe broad, elongate, with rounded apical margin. Ninth sternum with small dorsolateral membranous opening; lingula very short, reduced to small convex lip. Superior lobes with dorsoapical margin angulate, with ventroapical portion hook-like and ending in a long narrow outer tooth and small inner tooth, with two small teeth near base of apical hook-like process, with ventral margin with one small tooth, with large lateral flap extending posteroventrally in form of large tooth. Aedeagus: dorsal lobe large, produced dorsally, with well developed lateral flaps and with medial production between flaps; lateral lobes narrow, tapering into long thin points; ventral lobe with large lateral flaps which extend posteriorly into sharp point. Ejaculatory apodeme umbrella shaped.

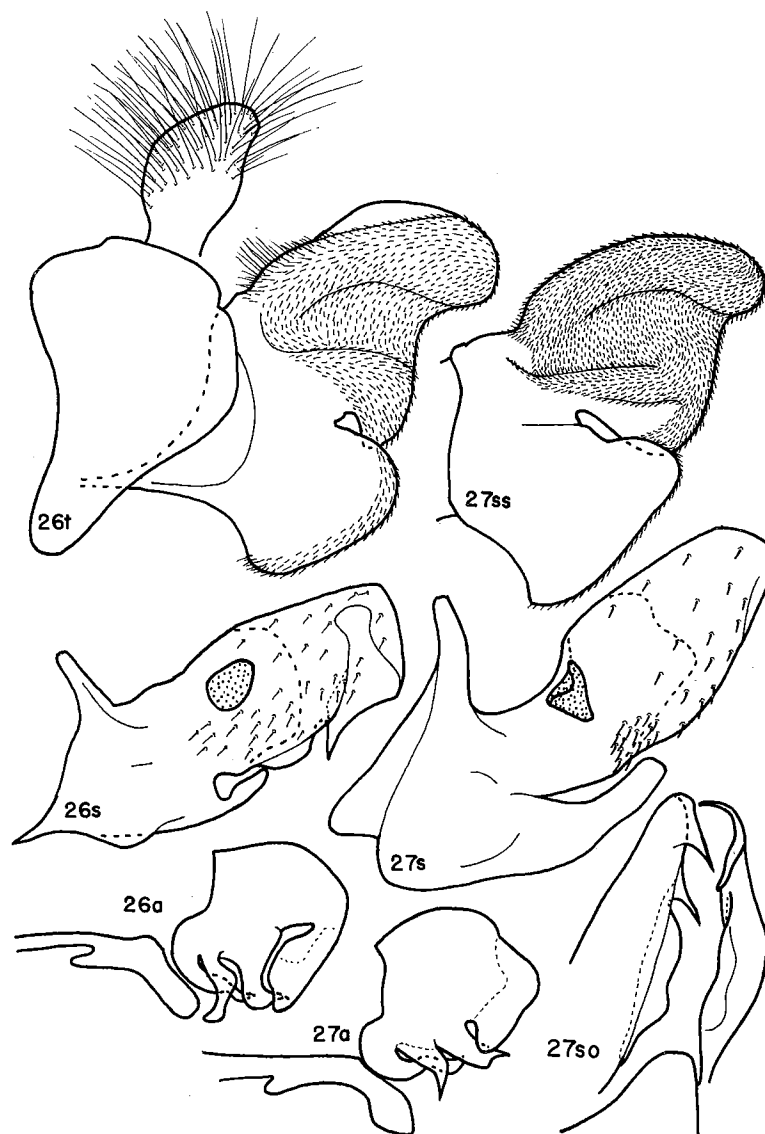
MATERIAL EXAMINED: ARGENTINA: Neuquén, San Martin de los Andes, Oct. 1952–Jan. 1953, F. H. Walz, 1 ♀ (FCT). CHILE: 2 ♂ (AMNH); Valparaiso, A. Faz, 1 ♂ (USNM); Valparaiso, E. P. Reed, 1 ♀ (AMNH); Valparaiso, Limache, A. Faz, 1 ♂ (AMNH); Valparaiso, Pichilemis, Jan. 1925, Reed, 1 ♀ (FCT); Arauco, Peral, 1–2 Jan. 1966, Flint & Cekalovic, 1 ♂ (USNM); Malleco, Angol, 4 Feb. 1951, J. Suarlez, 1 ♂ (USNM), 27 Mar. 1930, 1 ♀ (AMNH), 2 Apr. 1951, J. Suarlez, 1 ♂ (USNM), 6 Apr. 1926, 1 ♀ (AMNH), 5 Oct. 1937, Gekwall, 1 ♀ (USNM), 20 Oct. 1946, F. Trina, 1 ♀ (AMNH); Llanquihue, Casa Panque, Dec. 1926, R. & E. Shannon, 1 ♂ (USNM); Chiloe, Castro, 20 Dec. 1926, R. & E. Shannon, 1 ♂, 2 ♀ (USNM); Chiloe, Isla de Chiloe, Ancud, Apr. 1941, P. A. Berry, 1 ♂, 2 ♀ (USNM); Magallanes, Wellington Island, Puerto Eden, 7–15 Dec. 1962, P. J. Darlington, 1 ♀ (MCZ); Magallanes, Magellan Strait, 25 Mar. 1925, 2 ♀ (AMNH). In addition, I briefly

examined 36 ♂ ♀ from Chile, ranging from Santiago to Aysén, in the Canadian National Collection.

DISCUSSION: *S. coeruleus* is readily separated from most syrphids by its shiny metallic blue body color with a bright orange face and front. Both *Philippimyia cyanocephala* and *Stilbosoma rubiceps* are very similar in appearance but can be readily separated by their distinctive generic characters and also, in *S. rubiceps* by the orange vertex, and in *P. cyanocephala* by the metallic blue face. A discussion of the distinguishing characters between *S. coeruleus* and the other species of the subgenus have been included under those species, *aurifrons* and *stimulans*.

The name "*Xylota aurifacies* Bigot" was first published by Schiner in the discussion of the relationships of his new species, *Mallota xylotaeformis* ("... ich kenne einige exotische Xyloten, wie z. B. *Xylota aurifacies* Big. aus Chile, bei welchen die Cubitalader schon ziemlich stark eingebogen ist, ..."). This name was never used by Bigot. Since Schiner's citation, the name *aurifacies* has been usually carried in the literature as available, either attributed to Bigot or Schiner but of uncertain applicability (i.e. *nomen dubium*). Vockeroth and I have looked for material of "*Xylota aurifacies*" in the Bigot Collection at both Oxford and the British Museum (Natural History) without finding any. However, among the *S. coeruleus* material in the American Museum of Natural History there is an old specimen labelled "*Xylota aurifacies* Schiner" by Curran.³ This determined specimen lead me to suspect that there was similarly determined material in the Naturhistorisches Museum Wien where Schiner did his work. Ruth Lichtenberg of that museum informs me that there are two such specimens among the *S. coeruleus* material in their collections, one labelled as "X. aurifacies n. sp. Bigot, Chili, Schiner 1869" and the other as "aurifacies B. Alte Sammlung, Philippi Chili 1870." Schiner's statement was probably based on the first of these two specimens and thus that specimen should be considered as the type of *aurifacies*. Until a careful examination of all the *S. coeruleus* material in the Naturhistorisches Museum Wien is made to ascertain which specimens could have been available to Schiner at that time, I hesitate labelling this specimen as either the type or lectotype. There is no question that the name *aurifacies* must now be synonymized under *coeruleus*.

³ During the 1920's Curran acquired (? through exchange with Hans Zerny?) an extensive collection of syrphid material from the Naturhistorisches Museum Wien. Thus the American Museum has cotypes and other authenticated specimens of many of Wiedemann's and Schiner's species.



FIGS. 26-27. Male genitalia of *Sterphus*, lateral view except so; 26. *woodorum*, n. sp. (holotype); 27. *intermedius*, n. sp. (holotype). a = aedeagus and base of apodeme, s = 9th sternum, so = tip of 9th sternum from ventral view with slight lateral bias, ss = surstyle, t = 9th tergum and associated structures.

Sterphus (Sterphus) aurifrons Shannon

Sterphus aurifrons Shannon, 1926, p. 46. Type locality: Chile, Juan Fernandez Islands (see below). Type ♂ BM(NH), Subsequent References: Shannon & Aubertin, 1933, p. 156 (descript. note, distr. data).—Stuardo, 1946, p. 127 (cat. citation).—Fluke, 1955, p. 42 (descript. ♀, distr. recs.).—Fluke, 1957, p. 107 (cat. citation).—Etcheverry, 1963, p. 79 (descript., synonymy, distr. data).

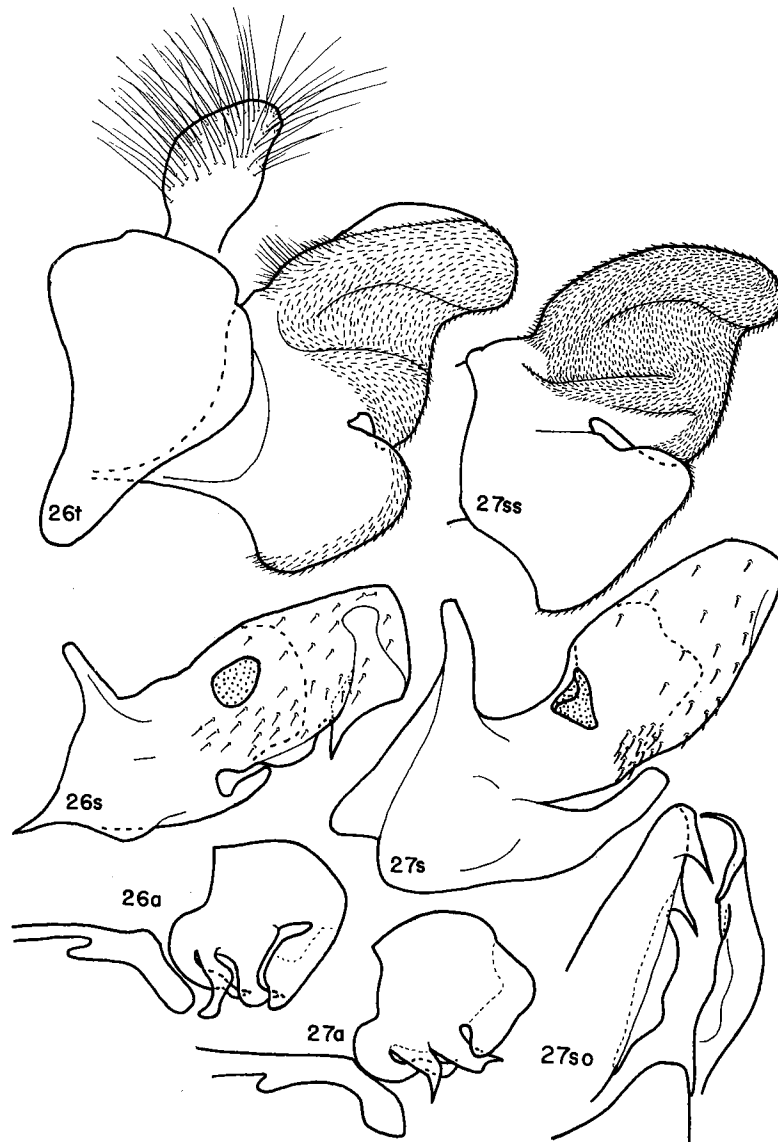
MATERIAL EXAMINED: CHILE: Juan Fernandez Islands, Masatierra, Plazoleta del Yunque, 12 February 1951, P. J. Kuschel, 1 ♂ (AMNH).

DISCUSSION: *S. aurifrons* is very similar to *coeruleus* in all respects except as follows: 1) the thoracic pile is completely reddish-brown instead of a mixture of black and white; 2) the mesonotum is completely reddish-brown pollinose with pollinosity completely obscuring the ground color instead of lightly brownish pollinose with a pair of submedial and sublateral shiny vittae and pollinosity not obscuring the bluish-black ground color; 3) the abdominal pile is brownish yellow and black instead of white and black; 4) the abdomen has a more greenish metallic lustre instead of steel blue lustre; 5) the dorsal lobe of surstyle (fig. 30ss) is more evenly curved on the ventral margin, not strongly angulate near the base; 6) the ventral lobe of the surstyle (fig. 30ss) has a slight ventroapical notch, not evenly rounded; and 7) the dentation of the superior lobe (fig. 30s) is quite different, the apical hook-like process is much broader with the inner tooth greatly reduced, the two small teeth at the base of the hook-like process are absent and the lateral flap is not as strongly produced.

The type locality of *S. aurifrons* was given by Shannon as "Chile (J. Fernz)," and later in *Diptera of Patagonia and South Chile* (Shannon and Aubertin, 1933) it was stated that "precise locality unrecorded." However, the only known material of the species besides the holotype was collected on Juan Fernandez Islands (Fluke 1955) and this strongly suggests that Shannon confused a contraction of *Juan Fernandez* for a collector's name. Since there is no indication on the locality label of the type that "J. Fernz" is either a location or collector it should be assumed to be a locality and that the type locality of *Sterphus aurifrons* be restricted to the Juan Fernandez Islands, where the species is known to exist.

stimulans group

Some of the apomorphic character states of *stimulans*, the only species in the *stimulans* group, that may be of use in defining the



FIGS. 26-27. Male genitalia of *Sterphus*, lateral view except so; 26. *woodorum*, n. sp. (holotype); 27. *intermedius*, n. sp. (holotype). a = aedeagus and base of apodeme, s = 9th sternum, so = tip of 9th sternum from ventral view with slight lateral bias, ss = surstyle, t = 9th tergum and associated structures.

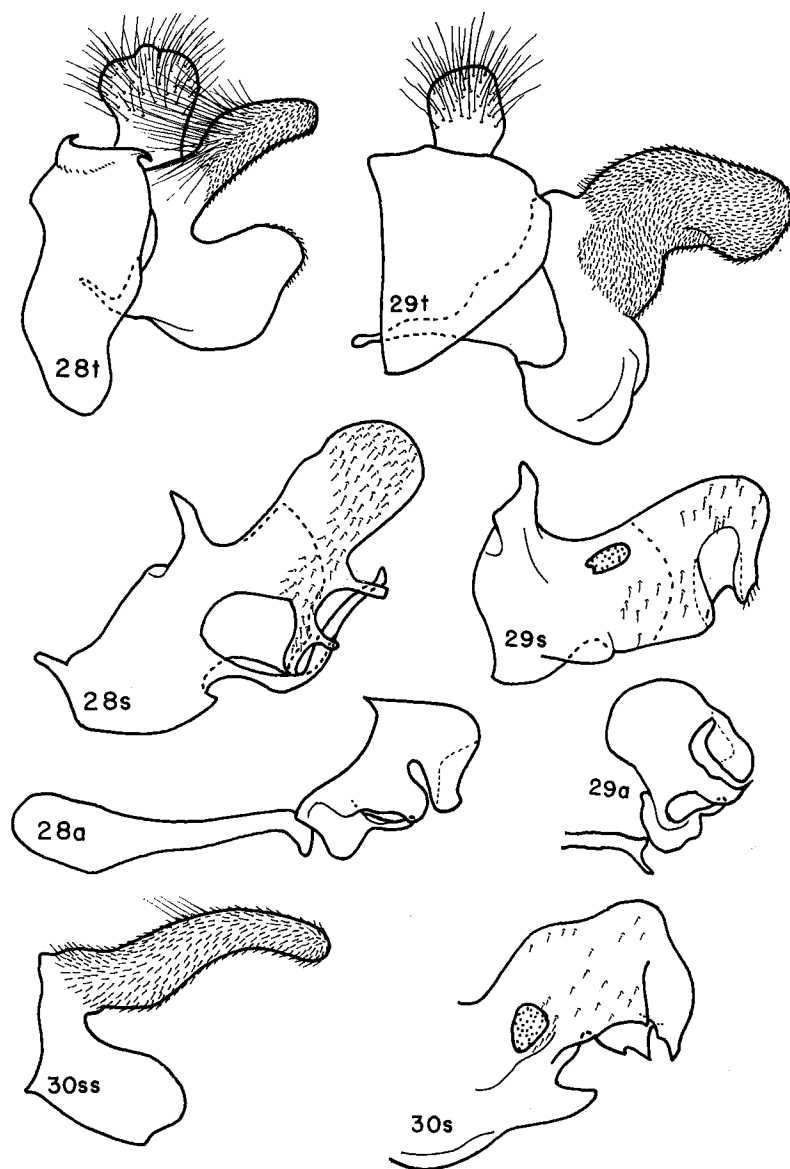


FIG. 28-30. Male genitalia of *Sterphus*, lateral view; 28. *shannoni* Thompson, n. sp. (paratype), 29. *tinctus* (Fluke), 30. *aurifrons* Shannon. a = aedeagus and apodeme, s = 9th sternum, ss = surstyle, t = 9th tergum and associated structures.

group, are: 1) the loss of the ventral lobe of the surstyle; 2) the lack of lateral lobes on the aedeagus; and 3) the elongate and bifid ventral lobe of the aedeagus.

***Sterphus (Sterphus) stimulans*, new species**

Type locality: Bolivia, Chipiriri. Holotype ♂ CNC.

Head: (fig. 7), face orange, golden pollinose, deeply concave beneath antennae, with distinct but low tubercle below; cheeks black, shiny on anterior two-thirds, silvery pollinose on posterior third, white pilose; frontal lunule black; frontal and vertical triangle black, brownish black pollinose, black pilose; occiput black, silvery pollinose and white pilose on lower half, brownish black pollinose and black pilose on upper half. Eyes dichoptic in male, separated by distance equal to that between anterior ocellus and posterior ocelli; antennae black, black pilose; third segment roughly oval, as long as broad; arista black, much longer than face.

Thorax: bluish black, completely dull pollinose, pleurae with pile same as in *coeruleus*; mesonotum black pilose except for a few light hairs on anterior margin and notopleurae; scutellum dull pollinose, black pilose except white subscutellar fringe; halteres black; squamae white with black margin and fringe; plumulae light brown. *Legs*: black, simple, without spur on trochanters or tibiae, with pile same as in *coeruleus* except all white pile on hind coxae. *Wings*: diffusely light black, completely microtrichose.

Abdomen: bluish black, dull pollinose except shiny narrowly on lateral margins of terga; mostly yellow pilose, longer on sterna and lateral margins of terga, black pilose on third and fourth terga except broad basal triangular corner patches of yellow pile. *Male genitalia*: (fig. 24), cerci rectangular, with dorsal margin rounded; surstyli broad, about as broad as long, with narrow curved dorsal ridge (= dorsal lobe), with large ventral extension (= ventral lobe) beneath this ridge, with margins of ventral extension straight except for basoventral and posteroventral lobes; ninth sternum without dorso-lateral opening; lingula absent; superior lobe with dorsoapical margin angulate, very short pilose narrowly along apical margin, with two lateral flaps, with outer flap with evenly curved margin and inner flap with serrate ventral edge; aedeagus with dorsal lobe produced posteriorly and with long anterior process, with lateral lobes absent, with ventral lobe greatly elongate and bifid; ejaculatory apodeme rod-shaped.

MATERIAL EXAMINED: BOLIVIA: Chipiriri, Sept. 1962, T. Steinbach, 1 ♂ (holotype, CNC).

DISCUSSION: *S. stimulans*, with its orange face, simple legs, and bluish-black coloration, is quite distinct from all other species of *Sterphus* except *coeruleus* and *aurifrons*. *S. stimulans* can be contrasted with *coeruleus* and *aurifrons* as follows: 1) the cheeks and lower front (all of frontal triangle in male) is black, not orange; 2) the face is strongly concave above, not slightly concave (fig. 7); 3) the frontal pile in the male is black, not orange; 4) the frontal lunule is black, not orange; 5) the metathoracic spiracle is much smaller than the third antennal segment, not much larger; 6) the metathoracic spiracle has a black fringe, not a white fringe; 7) the lateral margins of the abdomen has a long golden pile, not an alternatively mainly black and white pile; and 8) the hind coxae are completely white pilose, not mainly black pilose (*coeruleus*) or golden (*aurifrons*).

S. stimulans also differs from *coeruleus* in that the scutellum is dull pollinose, not shiny and the mesonotum is completely dull pollinose, not with shiny longitudinal stripes. It differs from *aurifrons* in that its mesonotum is black pilose not tawny brown pilose.

Subgenus *Ceriogaster* Williston

Ceriogaster Williston, 1888, p. 285. Type species, *fascithorax* Williston (monotypy). Subsequent references: Kertész, 1910, p. 308 (cat. citation).—Shannon, 1926, p. 50 (note on relationship to *Tatuomyia*).—Curran, 1934, p. 405 (notes, synonymy of *Zonemyia*).—Hull, 1949, p. 367 (descript.).—Fluke, 1957, p. 104 (cat. citation). **New status.**

Zonemyia Shannon, 1925, p. 109. Type species, *spinosa* Shannon (original designation). Subsequent references: Shannon, 1927, p. 4 (key ref.).—Shannon, 1928, p. 573 (relationship of *Lepidostola* to genus).—Shannon & Aubertin, 1933, p. 139 (key ref.).

Crepidomyia Shannon, 1926, p. 47. Type species, *tricrepis* Shannon (original designation). Subsequent references: Curran, 1934, p. 404 (note).—Hull, 1949, p. 368 (descript.).—Fluke, 1957, p. 105 (cat. citation).—Thompson, 1971, p. 524 (synonymy).

Tatuomyia Shannon, 1926, p. 48. Type species, *batesi* Shannon (original designation). Subsequent references: Hull, 1949, p. 367 (descript.).—Fluke, 1957, p. 105 (cat. citation, synonymy of *Senoceria*).

Senoceria Hull, 1930, p. 144. Type species, *spinifemorata* Hull (original designation) = *coarctatus* Wiedemann. Subsequent reference: Hull, 1949, p. 367 (descript., as subgenus of *Tatuomyia*).

Mutillimya Hull, 1943, p. 139. Type species, *Ceriogaster auricaudata* Williston (original designation). Subsequent references: Hull, 1949, p. 372 (descript.).—Fluke, 1957, p. 109 (cat. citation).

Willistonomyia Hull, 1943, p. 140. Incorrect original spelling of *Mutillimya*.