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FRUIT FLIES OF THE GENUS *TOMOPLAGIA* COQUILLET
(DIPTERA, TEPHRITIDAE)

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Introduction

The original generic name *Plagiotoma* was proposed by Loew in 1873 as a subgenus of *Trypeta*, with *obliqua* Say designated as type, but is preoccupied by Clarapede and Lachmann in 1858, in Protozoa. The valid name *Tomoplagia* was proposed by Coquillett (1910, p. 615) to replace *Plagiotoma*. The first attempt to bring together the described species was made in 1914 by Hendel, when he listed 20 species and published the first key. His paper dealt with 16 new forms, the others having been described by Say in 1829 (*obliqua*), Loew in 1862 (*discolor*) and 1873 (*biseriata*), and by Williston in 1896 (*incompleta*). In 1918 Lutz and Costa Lima described three new species from Brazil (*jonasi*, *rudolphi*, and *trivittata*). The genus remained untouched until the present paper except for the description of a few new species by Curran (1931), Costa Lima (1934) and Hering (1937, 1938, 1941, 1942). Hering (1941) published a partial key that contained nine Peruvian species.

In all these subsequent papers the authors used principally the wing pattern and the black markings on the thorax and abdomen. The late F. H. Benjamin (1934) was the first to describe the genital apparatus in both sexes and the early stages of *T. obliqua* (Say). The writer (1950) included 30 species in his catalog of the family as it occurs in the Neotropical region.

In the present paper the writer describes 15 new and 12 already existing species. Undoubtedly many more new species will be found if all the numerous morphological characters of these flies are taken into consideration as in the present paper.

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The following 15 species have not been seen by the writer: *arsinoë* Hering, *atelesta* Hendel, *atimeta* Hendel, *biseriata* (Loew), *conjuncta* Hendel, *diagramma* Hendel, *jonasi* (Lutz and Lima), *penicillata* Hendel, *pura* Curran, *quadriseriata* Hendel, *quadrivittata* Lutz and Lima, *separata* Hendel, *stacta* Hendel, *titschacki* Hering, and *tripunctata* Hendel. The writer did not think it desirable to give a redescription of *obliqua* (Say), having seen only two specimens of this species.

In the material of the Fundación Miguel Lillo (FML), the collection of Dr. E. E. Blanchard, and the Colegio Máximo de San José, 11 species from Argentina were found; of these, only *trivittata* has been previously reported from that country. In addition to the 28 old names presented herein, 15 new ones are proposed; these 43 presumably valid species are united in a new key. The writer would be indebted to all entomologists and institutions for the loan of more material.

There is also great need for further biological work, as the food plants are known for only four species. Adults of *obliqua* were reared from larvae feeding in the bases of the inflorescences of *Vernonia scaberrima*, *V. blodgettii*, and *V. gigantea* (Compositae) in the United States (Benjamin, 1934). Adults of *rudolphi* were reared from larvae feeding in variably formed stem galls of *Vernonia polyanthes* Less. (Costa Lima, 1934) and *V. tweediana* Baker (Hering, 1938) p. 415, "*T. vernoniae*" in Brazil. Larvae of two species may damage cultivated fruits, feeding in the fleshy parts. Adults of *cressoni* were reared by L. D. Christensen from peach (*Prunus persica* (L.) Batsch.) in California, and those of *costalimai*, *phaedra*, and *trivittata* were reared by K. J. Hayward (Hayward, 1942) from sweet orange (*Citrus sinensis* (L.) Osbeck) and guava (*Psidium guajava* L.) in Argentina (Tucumán). Adults of *brevipalpis*, *deflorata*, and *stonei* were trapped in fruit fly traps by Zetek in Panamá, those of *costalimai* and *trivittata* in fruit fly traps among citrus trees by K. J. Hayward in Argentina (Entre Ríos, etc.), adults of *incompleta* in fruit fly traps in roseapple trees by J. W. Baker in Puerto Rico, and an adult of *discolor* in a fruit fly trap in a guava tree by J. W. Balock in Puerto Rico. M. Kisliuk and C. E. Cooley have collected specimens of *unifascia* on olive trees in Chile (Arica, etc.). According to Hayward's data, however, the economic importance of the species reared by him was subordinate to that of some species of *Anastrepha*.

The preparation of the present revision has been greatly facilitated by the assistance rendered by the following entomological workers and institutions: Dr. Remington Kellogg, Director of the U. S. National Museum (USNM), Washington, and Dr. Alan Stone, entomologist, U. S. Department of Agriculture Research Service, made available valuable material; Dr. Messias Carrera, entomologist of the Depart-

tamento de Zoologia in São Paulo, Brazil, submitted for study all the material in the collection there; Dr. Everard E. Blanchard, chief entomologist of the Instituto de Sanidad Vegetal in Buenos Aires, loaned all his material, including his undescribed new species which the author describes under the manuscript names applied by him; Dr. Gregorio Willinier, subrector of the Colegio Máximo de San José, San Miguel, Province of Buenos Aires, lent all the material available; Professor A. da Costa Lima (Distrito Federal, Brazil) contributed the paratypes of his *rudolphi* for study and kindly supplied information on the types of various Brazilian species; Mr. Jean L. Laffoon, entomologist of Iowa State College, Ames, Iowa, was also very helpful. The writer expresses his deep gratitude to all.

The line drawings were made by the writer; 5× or 10× oculars and the 8× objective of a Zeiss binocular microscope, and camera lucida were used, and the drawings reduced to half size. The original photographs of the wings represent enlargements of 12 to 32 diameters and all were photographed by Mr. V. Brennan of the Fundación Miguel Lillo.

Genus *Tomoplagia* Coquillett

This American genus is distributed from the United States to Chile and Argentina, but attains its greatest development in South and Central America within the tropics of the Neotropical region. As far as is known, only two species occur in the United States: *obliqua* (Indiana, New Jersey, Pennsylvania, Illinois, Iowa, Kansas, New Mexico, California) and *ressoni* (Arizona and California). Benjamin (1934) was doubtful about the records of *obliqua* from the West Indies and México, but they seem very reasonable to the writer. Much remains to be learned concerning the geographic distribution of the various species.

The following outstanding characters readily distinguish this genus from all known genera of Trypetini of the subfamily Trypetinae: Body and bristles yellow; oral margin of concave mesofacial plate raised and more or less prominent; basic wing pattern usually consisting of four coherent oblique bands, yellow with narrow brown distal border; inner and outer cross-veins oblique and closely placed, both included in the median band of wing pattern; fourth longitudinal vein (M_1) excurved near base of second posterior cell (Cp_2); some black spots present on thorax and abdomen; third longitudinal vein (R_{4+5}) spinulose from base to apical yellow band on superior, and from base to anterior cross-vein on inferior surface.

Additional morphological characters of the genus are as follows:

Length of body of the species examined (females without ovipositor sheath) 2.8 to 7.7 mm.; length of thorax (including scutellum) 1.3 to

3.9 mm.; wings equal to, slightly shorter than, or longer than the body, 1.8 to 2.8 times as long as broad. Head generally wider than length or height and higher than long. Upper half of postcranium with the cerebral plate concave in profile, inferior margin of cerebral plate raised and slightly prominent, lower part of postcranium more or less convex. Eyes in profile shorter or longer oval, with axis nearly vertical in nearly all species examined; with sparse, erect whitish microscopical hairs in the larger species, apparently bare in the smaller species; ratio of height to width of eye in profile 1.3 to 2.4. Genae below eyes in most species very narrow, usually one-half as wide to wider than postpedicel. Frons at vertex always more or less wider than one eye and usually slightly shorter than width at vertex (measured from lunula to vertex in the median line); flattened, slightly produced near antennae and gradually narrowed to anterior margin. Mesofacial plate (face) sunken, not visible in profile, slightly receding beneath, with indistinct and superficial antennal foveae, oral margin raised and more or less prominent. Head in all species yellow, without black spots, genae slightly darkened below the eyes in some species; with or without conspicuous pruinosity; mesofacial plate may be evenly and densely dusted in some species. Only four of the known species have frons distinctly vittate by pruinosity; lateral borders of frons along eyes and a median vitta along frontal stripe in these species densely white pruinose, the bare parts of frontal stripe forming two broader, intensive, testaceous to reddish yellow vittae. Antennae and mouth-parts as yellow as other regions of head, except for the mostly brown labella. Scape of antenna very short; pedicel with some short and thickish hairs and with conspicuous dorsal bristle. Postpedicel short-lobate, with widely rounded, truncated apex, 1.1 to 2.2 times as long as wide and slightly shorter than mesofacial plate. Shape of maxillary palpi variable in the genus but constant as a specific character, distinctive in being slightly curved and broadly sickle-shaped, although in some species it is oval and not curved and with a differently formed apex. Prementum very short and small, yellow. Cephalic bristles somewhat flattened, usually brownish yellow but genal bristle (*ge*) mostly darker in color. Usually three pairs of convergent lower orbital bristles (*ori*), anterior pair usually shorter than posterior pairs but in some forms all three pairs subequal in length. Two pairs of recurved upper orbitals (*ors*), posterior pair shorter and weaker than anterior. One pair of divergent ocellars (*oc*), usually long and robust. Outer pair of divergent verticals (*vte*) more or less shorter than inner pair (*vti*), the longest and strongest of the cephalic bristles. Postverticals (*pvt*) parallel and relatively short.

Body yellow in ground color with conspicuous black markings on thorax and abdomen; spots may occasionally vary in size and color

(black to yellowish brown) but their presence or absence is nearly always constant in the species. Mesonotum usually covered with dense dusting except for a narrow margin in front of scutellum, which is shining; dusting may be silky white, whitish or pale to light brass yellow. Visible black spots covered with black dusting. Dusting of mesonotum in majority of species even and uniform, without a trace of vittae, but in some species vittae present; these may be composed of differently colored dusting or may be structural. In many species the ground color of mesonotum vittate or spotted with black, but these black markings not visible without the removal of dusting (see figure, in which the contours of the black vittae have been marked by dotted lines). Three darker almost linear vittae on the uniformly dusted mesonotum of several species (one median and two lateral on dorsocentral line), visible only from behind; these vittae are structural, that is, composed of minute squamulae of the same color as the other appressed ones, but slightly raised. Insertion points of some mesonotal bristles of some species conspicuously large, shining and dark colored. Hairs of mesonotum short, somewhat thickish and appressed, usually pale yellow in color. The following thoracic bristles present: One pair of humerals (*h*), one pair of presuturals (*prst*), two pairs of notopleurals (*npl*), one pair of dorso-centrals (*dc*), one pair of supra-alars (*sa*), two pairs of postalars (*pa*), one pair of prescutellars (*prsc*), two pairs of scutellars (*sc*), one pair of sternopleurals (*st*), two pairs of mesopleurals (*mpl*) and one pair of pteropleurals (*ptpl*); all brownish yellow and somewhat flattened. As in *Blepharoneura*, *Hexachaeta*, etc. (tribe Acanthorheurini) species dorso-centrals and prescutellars stand almost in a transverse line with the upper postalars very near the scutellar suture; prescutellars very closely spaced. There appears to be little doubt that the dorso-centrals and prescutellars represent the posterior pairs of dorso-centrals and achrostichal bristles (*acr*=*prsc*); posterior pair of notopleurals slightly shorter than, to one-half as long as anterior; ratio of lengths of the two pairs of mesopleurals may be more diverse in the various species; lower postalar (*pa*=infra-alar) shorter than the upper in all species.

Scutellum shining, with some yellow, brownish yellow, or nearly black hairs laterally. Apical pair of scutellars parallel or convergent and crossing, nearly as long as, to two-thirds as long as, basal pair.

Basic wing pattern, unique in subfamily Trypetinae, consists of five diagonal translucent yellow bands, usually with more or less distinct, sometimes interrupted, translucent brown to dark brown distal borders and tips. The three median bands attain posterior wing margin, but the fifth (basal) strongly abbreviated in the majority of species, usually forming an irregular transparent spot or an indistinct

blurred cloud, pale to dark brown in color, at apical process of anal cell. Each of the three distal bands connected to stem band, which extends from wing base to marginal cell along anterior wing margin; the two proximal bands unite with yellow wing base; apical band borders costa from submarginal cell usually to tip of third longitudinal vein (R_{4+5}), with apex slightly penetrating into first posterior cell; subapical band rather straight, extending from submarginal cell to tip of fourth longitudinal vein (M_1); median band running from tip of subcosta to tip of fifth vein ($M_3 + Cu_1$), covering both inner (*ta*) and outer (*tp*) cross-veins—an outstanding generic character; prebasal band as curved as median, running parallel with latter from base, attaining posterior margin of wing halfway between tips of fifth and anal ($Cu + An_2$) veins; basal band running from base toward tip of anal vein. Three variable dark brown to black spots in stem band bordering anterior wing margin from wing base to middle of second costal section (marginal cell): one at tip of humeral cross-vein (*th*), one surrounding rectangularly bent tip of subcosta, and one at tip of stem band at middle of second costal section; distad of this spot usually a variable hyaline spot; a dark costal spot is present in the apical band proximad to tip of second longitudinal vein (R_{2+3}) in several species, but absent in many others; often a small hyaline spot at tip of second longitudinal vein.

Venation in this genus shows the general characters of the family Tephritidae and of the subfamily Trypetinae in having apical portion of subcosta rectangularly bent toward costa; apical part of this vein again rectangularly bent, turning parallel with costa toward base; anal (cubital) cell with acute and rather long apical process; first vein (R_1) densely spinulose on upper surface of wing. Inner and outer cross-veins very closely spaced; third vein usually spinulose from base to apical yellow band on superior, and from base to anterior cross-vein on inferior surface; base of ultimate section of fourth vein (M_1) more or less distinctly curved upward toward anterior wing margin, the tip usually straight or very slightly upcurved; second vein usually nearly straight, sometimes slightly curved; apical part of third vein more or less distinctly downcurved toward wing apex, apical portions of third and fourth veins usually slightly divergent. Humeral cross-vein running obliquely from costa toward wing base; outer cross-vein (*tp*) usually nearly perpendicular to anterior margin of wing; anterior cross-vein (*ta*) nearly always more oblique than *tp*, extending from fourth longitudinal vein toward apex of stigma; *ta* and *tp* cross-veins nearly parallel in some species, in others distinctly divergent toward anterior wing margin. Section of fifth vein posteriorly bordering discoidal cell nearly straight or curved toward posterior wing margin. Inner cross-vein subequal to, shorter or longer than penultimate

section of fourth vein between both cross-veins. Second costal section the longest, fourth and first sections shortest, basal section of fourth longitudinal vein shorter than, equal to, or longer than the ultimate; anal (cubital) cell with a longer or shorter apical process by rectangular curvature of vein Cu_2 . Ratio of entire length of anal cell to length of apical process variable, ranging from 1.8 to 4.5; entire cell 2.2 to 3.2 times as long as apical process; petiole of anal cell usually weaker toward posterior wing margin and rarely attaining it, except for a foldlike continuation in some species; second basal cell hyaline and yellowish in the majority of species. Axillary lobe well developed; alula relatively small, the basal part bare, without microtrichiae. Halteres usually yellow, in some species the knob partly brownish.

Legs usually without special characters except in two species, which have apical third of midtibiae anteroposteriorly compressed and dorsoventrally dilated, with a dorsal group of short, strong, black bristles; legs and coxae entirely yellow; distal one or two tarsal segments of middle and hind legs sometimes infuscated. A conspicuous postero-dorsal row of rather closely spaced, brownish yellow to black, short and erect bristlelike hairs on hindtibiae of all species.

Preabdomen mostly wide-oval, almost as wide or slightly wider than long, in some species oval to long-oval. Preabdomen of male of five segments, that of female of six; tergites and intersclerital membrane well developed, sternites rather narrow; first and second tergites coalesced, forming the first and second syntergite; first tergite with a pair of lateral processes, as usual in the higher flies. Fifth tergite of male 1.2 to 2.5 times as long as fourth and tapering toward posterior margin; fifth tergite of female approximately as long as, shorter, or longer than fourth, contradicting Hering's (1947) definition of the subfamily Trypetinae ("Letztes tergite des ♀ stets kürzer als das vorletzte"). Tergites covered with brownish yellow to black appressed hairs. Male postabdomen small, revolute, hidden under fifth tergite; epandrium (ninth and tenth syntergite) together with the short, incurved surstyli oval to wide-oval, terminal surface with cerci turned downwards, similar in structure to that of some higher Tephritinae (*Trupanea*, *Paroxya*, etc.); short surstyli usually forming, in profile, a direct continuation of body of epandrium, thus very different from that of *Rhagoletis* and allied genera. Usually two pairs of shining black, toothlike gonapophyses present, but posterior (lateral) pair more acute and more or less reduced, weaker and shorter than anterior pair, sometimes entirely absent. Irretractable basal part of ovipositor (sheath) flattened dorsoventrally, sometimes subconical; shining, usually entirely translucent to opaque yellow; surface covered with short, fine, appressed hairs; subequal to, slightly shorter than, or slightly longer than width at base; ratio of length of thorax to length

of sheath 1.9 to 4.9 (sheath measured in flattened condition, only exposed dorsal portion measured); apical portion of ovipositor (ovipositor proper) translucent reddish yellow, dorsoventrally flattened, lanceolate, with variable tip either arrowheadlike, somewhat delimited, with minute dorsal hook at apex, or simple.

In the present paper, as in former publications, the writer has sought new and better taxonomic methods and, considering the species as natural units, has attained satisfactory results. The more extensive application of morphological and biometric methods undoubtedly would be advantageous for the development of entomological taxonomy.

The genus *Tomoplagia* represents a phylogenetically homogeneous group which it would be unnatural to divide into further genera. In this genus there are many species with very similar wing pattern, as in other genera of the family *Tephritidae* (e. g., in *Xanthaciura*, *Parastenopa*, *Rhagoletis*, etc.) and some species with distinctly different pattern. It is very interesting to find four species in this genus, each of which, with regard to a conspicuous character, has a counterpart or "twin" species; these are *penicillata-pseudopenicillata* (special armature of the midtibiae), *atimeta-kelloggi*, *discolor-pura*, *incompleta-argentiniensis* (each pair with a special wing pattern).

The most highly developed and at the same time most crowded groups of *Tomoplagia* are apparently the *obliqua-monostigma-minuta* (excluding *kelloggi* and *incompleta*) and the *pleuralis-reimoseri* groups.

There are, however, many highly specialized species which cannot be placed in groups, such as *propleuralis*, *atimeta*, *kelloggi*, *carrerei*, *quadriseriata*, *quadrivittata*, *fiebrigi* and *unifascia*.

In this genus the following principal tendencies of evolution can be noted: Toward the reduction of the anterior *ori*, posterior *ors*, posterior *npl*, inferior *mpl*, apical *sc* bristles; toward the reduction of the black ground color of the thorax and abdomen; advance of the *dc* and *prsc* (= *acr*) bristles toward the anterior region of the thorax; and toward the reduction of the posterior pair of gonapophyses in the male postabdomen.

The modern form of the epandrium and the dense dusting of the mesonotum apparently represent progressive characters in *Tomoplagia*.

The following key includes all the known species and is based principally upon the presence of the black spots of the thorax. Since it is not known whether the species *pura* Curran and *tripunctata* Hendel have postscutellum black or black-spotted, and since the black spots of the postscutellum in *incompleta* (Williston) are recently in a state of disappearance, these three species will be found in both alternatives of couplet 1.

Key to the species of *Tomoplagia*

1. Postscutellum black, the median part more or less extensively yellow. Mediotergite usually testaceous yellow to brown but sometimes partly or entirely black 2
- Postscutellum and usually the mediotergite uniformly yellow to brownish yellow, without dark brown to black lateral spots 26
2. Two black or dark brown markings on the sides of mesonotum: a short vitta-like one below the posterior notopleural bristle and a semicircular spot above wing base. Only the usual pair of lateral black spots present on hind region of mesonotum between the prescutellar and upper postalar bristles. Wing pattern normal. Pteropleuron with black spot. Dorsocentrals slightly behind the level of the supra-alars. (*phaedra* group). 3
- Only one black marking present on sides of mesonotum above wing base. Only the usual pair of lateral black spots present on the hind region of mesonotum. Wing pattern normal. Dorsocentral bristle pair inserted in hind two-fifths of distance between suture and *sa* bristles. Two black spots on pleura, a large one on sternopleuron and a smaller one on pleurotergites. Inferior mesopleural bristle almost as long as superior. Sheath of ovipositor shorter than breadth at base; thorax 3.7 times as long as the sheath. Preabdomen yellowish brown, tergites with wide yellow hind margins, third to sixth tergites each with a pair of incised lateral black spots, irregular in shape. Eyes in profile 1.9 times as long as wide. 6 mm. Argentina.
 ♀ *minattai* Blanchard (MS.), new species (p. 368)
- Both black markings absent from sides of mesonotum 4
3. Frons twice as broad as one eye, with five incurved lower orbital bristles (*ori*). Mediotergite entirely shining black. Sternopleura black with yellow upper margin; one black spot above hind coxa, and another on pleurotergites. Mesonotum ochraceous yellow, dusted, with five dark yellow linear vittae. Second basal cell entirely yellow. Male abdomen without lateral black spots. 7 mm. Bolivia, Argentina.
 ♂ *staeta* Hendel
- Frons approximately twice as broad as one eye, with the usual three incurved *ori*. Mediotergite shining testaceous yellow, with pair of elongated lateral black spots. Pleura with only one black to brown spot on pteropleuron. Mesonotum evenly dusted with yellow, without linear vittae. Second basal cell yellow, with large anterobasal hyaline spot. A pair of black to brown lateral spots always present on sixth tergite of female; sometimes the fifth, exceptionally the fourth and fifth tergites, with a smaller pair of lateral spots. Fifth tergite of male with a pair of lateral black to brown spots, very variable in size, occasionally absent; 1.5-1.7 times as long as fourth. Eyes in profile 1.9-2.0 times as high as wide. Sheath of ovipositor slightly shorter than broad at base; thorax 2.8-3.0 times as long as sheath. Postpedicel 1.4-1.6 times as long as wide. Dorsocentral bristles inserted almost in line with supra-alar (*sa*) bristles (♀) or in hind fourth of distance between transverse suture and *sa* bristles (♂). 5.1-7.0 mm. Perú, Argentina.
 ♂ ♀ *phaedra* Hendel (p. 378)
4. Four black spots present on hind region of mesonotum 5
- Hind region of mesonotum with three black spots, one spot between the usual pair which almost reach the scutellar suture. Three pairs of incurved *ori* present 6
- Only the usual pair of black spots present on hind region of mesonotum. . . 8

5. Inner pair of black spots closely placed between the usual pair. Incurved orbital bristles absent. Mesopleuron with triangular black spot, sternopleuron black except for yellow upper margin, bordered with black line; a black spot above the hind coxa on pleura and another on the pleurotergites. Second to fifth abdominal tergites each with two pairs of lateral black spots. Second basal cell entirely yellow. Ovipositor sheath as long as last two tergites together, with tip black. Apical process of anal cell about one half as long as entire cell. 5.3 mm. Perú.

♀ *quadriseriata* Hendel

- Lateral pair of black spots exceptional, each stands between upper and lower postalar bristles (*pa*), inner pair commonly present. Inner vertical and genal bristles, outer occipital cilia (*occe*), and genal hairs black. Three pairs of incurved lower orbital bristles. Pleura with three black spots: one on sternopleuron, one above hind coxa, and one on pleurotergites; upper margin of sternopleura bordered with black line. Eyes in profile wide oval, 1.6 times as high as wide. Fifth abdominal tergite 1.6 times as long as fourth. Entire anal cell 2.0-2.2 times as long as the long apical process. Dorsocentral bristle pair halfway between suture and supra-alar (*sa*) bristles. 4.9-5.1 mm. Southern Brazil: São Paulo.

♂ *carrerai* new species (p. 341)

6. Wing pattern as in *kelloggi*: a well-delimited large roundish opaque brownish black spot present on apical process of anal cell. Frons without vittae. Pleura black except for reddish yellow upper half of mesopleuron and pteropleuron. Mediotergite entirely shining black. A pair of small black spots on mesonotum, each situated at termination of branches of transverse suture; last third of mesonotum shining black, separated by two longitudinal linear vittae into three large spots (the median being the largest). Abdomen shining reddish yellow, third to fifth tergites each with a pair of large lateral black spots, variable in form and size. 4.5 mm. Bolivia ♂ *atimeta* Hendel

- Wing pattern normal. Pleura yellow with black spots. Frons conspicuously vittate: two lateral vittae along eyes and a median one covered with shining white pruinosity; between these, two testaceous yellow vittalike intervals. Anterior part of mesonotum without black spots. Mediotergite shining testaceous yellow to reddish brown, without black spots 7

7. Apical third of median tibia brownish, compressed, and dorsoventrally dilated, with a dorsal group of about 20 strong black bristles as in *penicillata*. Pleura with three black spots: a large one on sternopleuron, one above hind coxa, and a double one on pleurotergites; narrow upper margin of the sternopleuron bordered with black. Second to fourth abdominal tergites each with a pair of large lateral black spots; the short fifth tergite (only 1.3 times as long as fourth) with pair of lateral black vittae. Apical process of anal cell long (entire cell 2.3 times as long as process). Stigma short, only 2.2 times as long as breadth at base. Eyes in profile twice as high as wide. Dorsocentral bristles inserted halfway between transverse suture and supra-alar bristles. Inferior mesopleural bristle but slightly shorter than superior. Second basal cell yellow with a large anterobasal hyaline spot. 5 mm. Southern Brazil: São Paulo.

♂ *pseudopenicillata*, new species (p. 387)

- Legs without special *r* mature. Pleura whitish dusted, with only one black spot on the pleurotergite. Third to fifth tergites each with a pair of well-delimited blackish lateral spots. Second basal cell almost entirely hyaline. 5 mm. Paraguay ♂ *tripunctata* Hendel

8. Pleura with black spots 9
 — Pleura entirely yellow, without black spots 24
 9. Pteropleuron with a black spot 10
 — Pteropleuron yellow, without black marking 11
 10. Wing pattern modified as in *discolor*: apical yellow band separated from subapical at anterior wing margin but broadly connected with subapical band in apex of first posterior cell. Abdomen shining reddish yellow with black hairs, third to fifth tergites each with a pair of large lateral black spots. Pleura with three black spots: a circular one on pteropleuron, a triangular one on pleurotergite, and another circular one on sternopleuron. 4 mm. Puerto Rico ♂ *pura* Curran
 — Wing pattern normal. Entire mediotergite and dorsal pleurotergite, ventral pleurotergite except for the yellow superior margin, and adjacent lower hind part of pteropleuron black; metapleura above hind coxa extensively black, this large spot separated from above-mentioned black parts by a testaceous yellow narrow vitta extending forward over superior margin of metapleura and sternopleuron; sternopleuron entirely black except for narrow upper margin and separated from the black of metapleura only by the yellow median coxa. Third and fourth abdominal tergites of male each with three black spots (one median and two lateral), very variable in size; fifth tergite with a pair of very large lateral black spots separated by a testaceous yellow median vitta narrower than the spots. Third to fifth tergites of female each with three variable black spots; sixth tergite with a pair of lateral black spots and sometimes with a median triangular third spot. Fifth tergite of male 1.7–1.8 times as long as fourth. Postpedicel very short, only 1.1–1.2 times as long as wide. Inferior mesopleural bristle but slightly shorter than superior. Ovipositor sheath slightly shorter than width at base; apex of ovipositor with a minute dorsal hook; thorax 3.0–3.2 times as long as the sheath. 3.2–4.2 mm. Paraguay; Argentina ♂ ♀ *fiebrigi* Hendel (p. 355)
 11. At least the dorsocentral and prescutellar bristles inserted on very conspicuous shining dark brown to brownish black circlets on mesonotum. Fifth abdominal tergite of male 1.7 times as long as fourth. (*stonei* group). 12
 — Insertion points of mesonotal bristles very small and yellow, normal . . . 13
 12. Presutural, dorsocentral, prescutellar, supra-alar, postalar, and scutellar bristles inserted on very conspicuous shining brownish black circlets. Pleura marked with two small dots: a circular one on sternopleuron and an oval one on inferior part of ventral pleurotergite (latter may be absent). Fourth and fifth abdominal tergites in both sexes each with a pair of short, vittalike lateral black markings, third tergite with a pair of small black to pale brown lateral dots; sixth tergite of female without black markings. Ovipositor sheath slightly longer than breadth at base; thorax only 2.4–2.5 times as long as sheath; apex of ovipositor lanceolate with rounded tip and without minute dorsal hook. Postpedicel long, 2.0–2.2 times as long as wide. Eyes in profile twice as high as wide. Dorsocentral bristles inserted halfway between transverse suture and supra-alar bristles. Maxillary palpi long-oval with long bristles on outer margin. 5.8–7.3 mm. Panamá ♂ ♀ *stonei*, new species (p. 402)
 — Only dorsocentral and prescutellar bristles inserted on conspicuous shining dark brown circlets of mesonotum. Pleura with three black spots: an oval one on sternopleura, a large one above hind coxa, and a double one on pleurotergites. Third to fifth abdominal tergites in both sexes each with a pair of large rounded lateral black spots, fifth tergite of female usually with a pair of small yellowish brown to brownish black lateral

- dots. Ovipositor sheath slightly shorter than width at base; thorax 3.0-3.1 times as long as sheath; apical part of ovipositor wide lanceolate with blunt tip, tip with minute dorsal hook. Postpedicel shorter, 1.1 times as long as wide in male, longer (1.4-1.5 times) in female. Eyes 1.5-1.7 times as high as wide. Dorsocentral bristles inserted in posterior fourth of distance between suture and supra-alar bristles. Maxillary palpi broad oval with very short bristles and widely rounded apex. 4.5-4.9 mm. Argentina ♂ ♀ *punctata*, new species (p. 390)
13. Pleura with the usual three black spots: one on sternopleuron, one above hind coxa, and one on inferior portion of the pleurotergites 14
 — Pleura with two black spots, one of these on inferior portion of pleurotergites. 19
 — Pleura with only one black spot, above hind coxa.
 ♂ ♀ *costalimai* Blanchard (MS.), new species (p. 344)
14. Apical fourth of midtibia brownish, compressed and dorsoventrally dilated, with a dorsal bunch of short and strong black bristles (as in *pseudopenicillata*). Upper margin of sternopleuron with black border. 3.5 mm. Perú ♂ *penicillata* Hendel
 — Legs without exceptional armature. 15
15. Frons with two conspicuous broad testaceous yellow vittae between densely whitish pruinose narrower vittae, as in *pseudopenicillata* and *tripunctata*. Mesonotum densely whitish dusted, conspicuously marked with three equally wide, golden to reddish brown, dusted vittae, one median and two laterals on dorsocentral line. Eyes in profile high, 2.1 times as high as wide. Third to fifth abdominal tergites of male each with a pair of lateral black spots. Mediotergite in some specimens partly black. 4.5-5.5 mm. Brazil: Mato Grosso, São Paulo; Argentina.
 ♂ ♀ *trivittata* (Lutz and Lima) (p. 405)
 — Frons without conspicuous vittae. Mesonotum without broad and conspicuous reddish brown dusted vittae (except in *heringi* which has three linear bright golden-yellow dusted vittae) 16
16. Maxillary palpi almost as broad-oval as in *punctata*, with very short marginal bristles and with apex widely rounded. Third to fourth abdominal tergites of female each with a pair of roundish black spots, second tergite with a more widely spaced pair of pointlike small black dots; fifth and sixth tergites entirely spouless. Ovipositor sheath shorter than breadth at base; thorax 3.6 times as long as sheath. 4.2 mm. Brazil: São Paulo.
 ♀ *ovalipalpis*, new species (p. 374)
 — Maxillary palpi curved, sickle-shaped, with longer marginal bristles. Fifth abdominal tergite in both sexes and sixth tergite of female each with a pair of lateral black spots, which may be absent on the sixth tergite in *reimoseri*. Second tergite with a pair of lateral black spots in *heringi* and *pleuralis* 17
17. Only upper mesopleural bristle present. Sternopleuron sometimes almost entirely black, mesopleuron shining. Dorsocentral bristle pair inserted in anterior fourth of distance between suture and supra-alar bristles. Third to fifth abdominal tergites of male and second to sixth of female each with a pair of lateral black spots. Mesonotum covered with pale brass-yellow dusting, without pruinose or structural vittae of different color. Fifth tergite of male 1.7 times as long as fourth. Ovipositor sheath slightly shorter than breadth at base; thorax 2.7-2.8 times as long as sheath. 3.0-3.8 mm. Ecuador; Perú; Argentina.
 ♂ ♀ *pleuralis* Hendel (p. 381)

- Both mesopleural bristles present, the lower shorter and weaker than the upper. Mesopleuron whitish dusted and with faint greasy luster, except in *formosa*. Dorsocentral bristle pair inserted in anterior third of distance between suture and supra-alar bristles. Sternopleuron never extensively black 18
18. Mesonotum densely silky whitish dusted, with three linear bright golden-yellow dusted vittae as in *punctata*. Postpedicel 1.6 times as long as wide. Eyes in profile only 1.6 times as high as wide. Second to sixth abdominal tergites each with a pair of large black spots. Ovipositor sheath shorter than breadth at base; thorax 3.5 times as long as sheath. Apex of ovipositor in profile with somewhat delimited tip. 4 mm. Paraguay ♀ *heringi*, new species, (p. 360)
- Mesonotum densely bright brass-yellow dusted, with three linear structural vittae, visible only from behind, in darker color. Postpedicel short, 1.1–1.3 times as long as wide. Eyes in profile higher, 1.8–2.0 times as high as wide. Fifth abdominal tergite of male 1.2–1.3 times as long as fourth; third to fifth tergite in both sexes with lateral black spots; a pair of small lateral black spots sometimes present on sixth tergite of female. Ovipositor sheath a short trapezoid in shape, much shorter than breadth at base; thorax 4.6–4.9 times as long as sheath. Blunt apex of ovipositor with a minute dorsal hook. 4.0–4.3 mm. Paraguay; Brazil; São Paulo; Argentina: Misiones, Corrientes . . . *reimoseri* ♂ ♀ Hendel (p. 392)
- Mesonotum densely silky white dusted, without vittae. Postpedicel 1.5 times as long as wide. Third to sixth abdominal tergite each with a pair of lateral black spots which, on the third to fifth, are placed exceptionally close to the lateral margins. Ovipositor sheath the longest in this group, approximately as long as breadth at base; thorax only 2.2 times as long as sheath. Apical part of ovipositor with simple apex. 4.5 mm. Argentina: Formosa . . . ♀ *formosa*, new species (p. 358)
19. Second black spot placed on sternopleuron (no black spot above hind coxa). 20
- Second black spot placed above hind coxa (sometimes absent in *incompleta*), sternopleuron without black spot. Fifth abdominal tergite of male with two pairs of lateral black spots 22
20. Wing pattern modified as in *incompleta*: subapical band absent except for a brown spot on tip of fourth longitudinal vein (M_1). Anterior part of mesonotum with two pairs of supernumerary black spots: a pair of long oval spots before dorsocentral bristles at termination of branches of transverse suture; a pair of smaller oval spots, each situated between presutural and anterior notopleural bristles. Third to fifth abdominal tergites each with a pair of black spots, fifth tergite only 1.4 times as long as fourth. Postpedicel short, 1.3 times as long as wide. Apical process of anal cell short, entire cell three times as long as process (the latter half as long as remainder of cell). 4.4 mm. Argentina: Tucumán. ♂ *argentiniensis*, new species (p. 337)
- Wing pattern normal. Anterior portion of mesonotum without black spots. Abdomen of male with only one pair of elongate lateral black spots on fifth tergite. 21
21. Scutellum with an apical brown dot. Apical band of wing not separated from costa by a hyaline line. The broad brown basal band attains posterior wing margin. Anteromedian portion of second basal cell hyaline. 7 mm. Colombia ♂ *arsinoë* Hering
- Scutellum entirely yellow. Apical band of wing separated from costa by a narrow hyaline border; basal band abbreviated, not attaining posterior wing margin. 4.5 mm. Perú ♂ *separata* Hendel

22. Wing with modified wing pattern as in *argentiniensis*. Abdominal tergites in both sexes with four pairs of lateral black spots; third and fourth tergites of male and third to sixth tergites of female each with a pair of lateral black spots (the pair on third tergite may be absent). Lateral brown spots of postscutellum sometimes absent. Eyes in profile 1.6–1.7 times as high as wide. Postpedicel long, 1.6–1.7 times as long as wide. Fifth abdominal tergite of male unusually long, 2.0–2.2 times as long as fourth. Ovipositor sheath slightly longer than basally wide; thorax only 1.9–2.0 times as long as sheath. Apical part of ovipositor lanceolate in dorsal view, with apex somewhat delimited in lateral view. 3.6–4.1 mm. St. Vincent (island); Paraguay; Argentina: Córdoba, Santa Fé, Tucumán, Jujuy, Chaco, Misiones ♂ ♀ *incompleta* (Williston) (p. 362)
- Wing with the usual pattern 23
23. Only median third of mesonotum dusted densely with white pruinosity, the lateral thirds shining, bare. Abdomen of male with 10 pairs of lateral black spots, second to fourth tergites each with a pair; fifth tergite of male 1.7 times as long as fourth. Eyes in profile 1.7 times as high as wide. Postpedicel short, only 1.2 times as long as wide. Inferior mesopleural bristle absent. Dorsocentral bristle inserted in anterior fifth of distance between suture and supra-alar bristles. 3.6 mm. Chile.
- ♂ *unifascia* Hendel (p. 408)
- Mesonotum normally dusted, except for a narrow hind margin. Preabdomen with lateral black spots similar to *incompleta*. Black spot on pleurotergites sometimes absent. Eyes in profile twice as high as wide. Postpedicel 1.4 times as long as wide. Fifth abdominal tergite of male short, only 1.3 times as long as fourth. Ovipositor sheath almost as long as width at base; thorax 2.5–2.8 times as long as wide. Apical part of ovipositor very narrowly lanceolate in dorsal view, with apex somewhat delimited in lateral view. Inferior mesopleural bristle distinctly shorter and much weaker than superior. Dorsocentral pair inserted in anterior third of distance between suture and supra-alar bristles. 3.8–4.8 mm. Brazil; Argentina: Tucumán, Entre Ríos.
- ♂ ♀ *costalimai*, Blanchard (MS.) new species (p. 344)
24. Mesonotum wholly bright reddish brown dusted, without shining bare hind margin in front of scutellum and with the following special black markings: two lateral black vittae not attaining the anterior margin nor scutellar suture, a pair of circular black spots each between presutural and anterior notopleural bristles and the usual black spots on hind region which are elongated toward the transverse suture. Mediotergite shining dark brown, pleura yellowish brown, inferior part of sternopleuron dark brown. Abdomen with three pairs of lateral black spots. 10 mm. Brazil ♂ *quadrivittata* Lutz and Lima
- Mesonotum normally dusted with posterior margin bare and shining, without black vittae or black spots on anterior region. (*conjuncta* group) . . 25
25. Apical band of wing separated from costa by a narrow hyaline border. Abdomen with four pairs of lateral black spots, second to fifth tergites each with a pair. Second basal cell almost entirely hyaline. 5 mm. Perú ♂ *titschacki* Hering
- Apical band not separated from costa, submarginal cell without hyaline spot. Bands of wing unusually broad, reddish yellow in color. Abdomen with only two pairs of lateral black spots on fifth tergite. Postpedicel approximately 1.5 times as long as wide. Second basal cell yellow, with an anteromedian hyaline spot. 6.5 mm. Perú; Bolivia.
- ♂ *conjuncta* Hendel

- Apical band of wing not separated from costa, submarginal cell with hyaline marginal spot bordered with brown. Abdomen with three pairs of lateral black spots, third to fifth tergites each with one pair; fifth tergite approximately 1.5 times as long as fourth. Eyes in profile twice as high as wide. Postpedicel long, 1.7 times as long as wide. Dorsocentral bristles inserted halfway between suture and supra-alar bristles. Inferior mesopleural bristle absent. Maxillary palpi unusually short and almost semicircular in shape. 5.6 mm. Panamá.
- ♂ *brevipalpis* new species (p. 339)
26. Two black to dark brown markings on sides of mesonotum: a short vittalike dot below posterior notopleural bristle and a semicircular spot above wing base, below supra-alar bristle. (A small group with exceptional characters.) 27
- No black markings below posterior notopleural bristle or above wing base . 30
27. Hind region of mesonotum without black spots, even the usual ones absent; four black markings on pleura: a horizontal short linear vitta on propleuron attaining upper margin of first spiracle, a double spot on inferior margin of ventral and dorsal pleurotergites, an oval spot above hind coxa, and another on lower hind region of pteropleuron. Yellow apical band entirely separated from rest of wing pattern. 4 mm. Puerto Rico ♀ *propleuralis*, new species (p. 385)
- Hind region of mesonotum with the usual pair of lateral black spots, each between prescutellar and upper postalar bristles; between these another pair of black spots nearer to scutellar suture than the usual pair (sometimes these are absent in *rudolphi*). Propleura without black markings. Apical band of wing connected with rest of pattern in submarginal cell (*atelesta* group) 28
28. Pleura with three black markings: inferior part of sternopleuron entirely black, one black spot on pteropleuron and another above hind coxa. The four black spots on hind region of mesonotum almost equal in size. Black markings below posterior notopleural bristle and above wing base form an interrupted black vitta. Mesonotum whitish yellow dusted, with three reddish brown dusted vittae (the two lateral are broad, the median is linear). Scutellum with a pair of laterobasal brown spots. Third to fifth abdominal tergites each with a pair of lateral black spots. Basal part of second basal cell hyaline. 3-4 mm. Perú.
- ♂ *diagramma* Hendel
- Pleura without black markings. Second basal cell wholly yellow. Larger species 29
29. Inner pair of four black spots on hind region of mesonotum considerably smaller than lateral pair, rarely absent. Third and fourth abdominal tergites of male each with one pair of black to blackish brown small lateral spots (third tergite sometimes spotless); fourth to sixth tergite of female each with one pair of lateral black spots (sometimes third tergite also marked with a pair of dark spots). Subapical yellow band of wing sometimes very pale. Dorsocentral bristles inserted in line with supra-alar bristles or slightly before them. 6.5-7.5 mm. Southern Brazil: São Paulo, Santa Catarina ♂ ♀ *rudolphi* (Lutz and Lima) (p. 395)
- Four black spots on hind region of mesonotum equal in size. Third to fifth tergites of male each with a pair of lateral black spots, the pair on fifth tergite usually elongated. Dorsocentral bristle pair slightly behind line of supra-alars. Black spot below posterior notopleural bristle large. 6mm. Bolivia ♂ *atelesta* Hendel
30. Hind region of mesonotum with three black spots, a median spot between the usual pair. 5 mm. Paraguay ♂ *tripunctata* Hendel

- Hind margin of mesonotum with the usual pair of lateral black spots (*obliqua-monostigma-minuta* group) 31
31. Pteropleuron with a black spot. Apical yellow band separated from subapical at anterior margin of wing, but connected to subapical band in apex of first posterior cell. 4 mm. Puerto Rico ♂ **pura** Curran
- Pteropleuron without black spot 32
32. Wing pattern as in *atimeta*: a well-delimited large roundish opaque black spot on apical process of anal cell. Sternopleuron black except for a narrow yellow upper margin bordered by a narrow black vitta along suture. One black spot above hind coxa and a double one on inferior portion of pleurotergites. Second basal cell yellow with a hyaline dot. Second to fifth tergites each with a pair of lateral black spots, the pair on fifth tergite elongated. 4.7 mm. Perú. ♂ **kelloggi** new species (p. 365)
- Wing with the usual or with a modified pattern. Sternopleuron yellow with or without black spot 33
33. Pleura with three black spots: one on sternopleuron, one above hind coxa, and one on pleurotergites. Wing pattern normal 34
- Pleura with two black spots: one above hind coxa and one on inferior part of pleurotergites. 35
- Pleura with only one black spot, which is on inferior part of pleurotergites. Mesonotum with three indistinct linear structural vittae of darker color, visible only from behind 36
- Pleura without black spots 38
34. Second basal cell almost entirely hyaline. Second to fifth abdominal tergites of male and second to sixth of female each with a pair of lateral black spots. Ovipositor sheath as long as last three tergites together. Posterior pair of gonopophyses much reduced and short in male epandrium. 3.3–3.9 mm. United States of America; México? . . . ♂ ♀ **obliqua** Say
- Second basal cell yellow with a large anteromedian hyaline spot. Only three pairs of lateral black spots on abdominal tergites of male. Posterior pair of gonopophyses as long as, but more slender than, anterior. 4 mm. Brazil: Distrito Federal ♂ **jonasi** (Lutz and Lima)
35. Wing pattern modified; subbasal band absent except for a brown apical part on tip of fourth longitudinal vein. Third and fourth abdominal tergites of male and third to sixth tergites of female each with a pair of lateral black spots; fifth tergite of male with two pairs (sometimes spotless). Eyes in profile 1.6–1.7 times as high as wide. Postpedicel only 1.1–1.2 times as long as wide. Fifth tergite of male elongated, 2.0–2.2 times as long as fourth. Ovipositor sheath slightly longer than basal width; thorax only 1.9–2.0 times as long as sheath. 3.6–4.1 mm. St. Vincent (island); Paraguay; Argentina . . ♂ ♀ **incompleta** (Williston) (p. 362)
- Wing pattern normal. Only fifth abdominal tergite of male (which is 1.5–1.6 times as long as fourth) with one pair of lateral black spots; abdomen of female spotless. Postpedicel longer 1.5–1.6 times as long as wide. Ovipositor sheath shorter than width at base; thorax 4.4–4.6 times as long as sheath. 4.4–5.1 mm. Costa Rica; Panamá.
- ♂ ♀ **defflorata** Hering (p. 350)
36. A well-delimited small oval opaque brownish black dot at apical process of anal cell. Fifth abdominal tergite of male only 1.5 times as long as fourth. Eyes in profile wide-oval, only 1.4 times as high as wide. Dorsocentral bristles inserted almost in transverse suture. Third to fifth abdominal tergites each with a pair of rounded lateral black spots. 2.5–2.8 mm. Southern Brazil: São Paulo, Santa Catarina.
- ♂ **minuta** Hering (p. 370)

- A blurred translucent dark brown cloud on apical process of anal cell. Eyes in profile higher, 1.7 times as high as wide. Dorsocentral bristles inserted in anterior third to fourth of distance between suture and supralar bristles. Fifth tergite of male with two pairs of lateral black spots. Slightly larger species, 3.5–4.0 mm 37
37. Apex of scutellum with a small brown dot. Inferior mesopleural bristle shorter and much weaker than superior. Second abdominal tergite of both sexes with a pair of small brown to black dots. Ovipositor sheath relatively long, thorax only 2.0–2.3 times as long as sheath. 3.6–4.0 mm. United States of America: California, Arizona.
♂ ♀ *cressoni*, new species (p. 347)
- Scutellum entirely yellow. Inferior mesopleural bristle absent. Second abdominal tergite of both sexes without brown or black lateral spots. Ovipositor sheath relatively shorter, thorax 2.7–2.8 times as long as sheath. 3.5–3.6 mm. Perú ♂ ♀ *monostigma* Hendel (p. 373)
38. Wing pattern modified as in *pura*: apical yellow band separated from subapical at anterior wing margin, but broadly connected with subapical band in apex of first posterior cell. At least apical part of abdomen entirely black, basal part yellow, without black spots. 3.4 mm. Puerto Rico; Cuba ♀ *discolor* (Loew) (p. 353)
- Wing pattern normal. Abdomen yellow with lateral black spots on tergites 39
39. Second basal cell entirely yellow. Second to sixth abdominal tergites of female each with one pair of lateral black spots. Brazil.
♀ *biseriata* (Loew)
- Second basal cell yellow with large hyaline spot; a well-delimited small opaque brownish black spot at apical process of anal cell, distad to anal vein. Dorsocentral bristles inserted almost in transverse suture 40
40. Smallest species of the genus, testaceous yellow. Sometimes a brownish black spot present on pleurotergites. Third to fifth tergites of male each with a pair of roundish black lateral spots. Eyes in profile wide-oval, only 1.4 times as high as wide. Fifth tergite of male only 1.5 times as long as fourth. 2.5–2.8 mm. Brazil: São Paulo, Santa Catarina.
♂ *minuta* Hering (p. 370)
- Slightly larger species, pale yellow. Third and fourth abdominal tergites of male each with a pair of small black dots, fifth tergite spotless, very long, 2.3–2.5 times as long as fourth. Eyes in profile higher oval, 1.8 times as high as wide. 3.8–4.0 mm. Southern Brazil: São Paulo.
♂ *salesopolitana*, new species (p. 400)

Tomoplagia argentiniensis, new species

FIGURES 98, *a-d*; 102, *n*; PLATE 22, FIGURE 13

A well-defined aberrant species of the *arsinoë* group with the same modified wing pattern as *incompleta*, differing from the allied species in having two pairs of lateral black spots on the anterior region of the mesonotum.

MALE: Length of body 4.4 mm.; wing 3.9 mm. long, 1.8 mm. wide, 2.1 times as long as wide.

Head entirely testaceous yellow; mesofacial plate very sparsely whitish dusted, oral margin raised and slightly prominent. Head 0.66 mm. long, 1.21 mm. wide, and 1.00 mm. high. Frons 0.54 mm. at vertex, 0.38 mm. broad at anterior margin. about as broad as one

eye, and 0.43 mm. long in the medial line. Ocellar plate raised. Antennae and maxillary palpi testaceous yellow. Postpedicel 0.23 mm. long and 0.18 mm. wide, almost 1.3 times as long as wide; seta shining black, bare, only the basal third testaceous yellow; approximately twice as long as the postpedicel. Labella yellowish brown. Eye in profile 0.85 mm. high and 0.50 mm. wide, 1.7 times as high as wide. Inferior part of cerebral plate very slightly raised, invisible in profile. Genae below the eyes (0.07 mm.) and inferior part of the posteranium in profile (0.11 mm.) very narrow.

Cephalic bristles brownish yellow, except for black genal bristle; considering the insertion points, the usual garniture present, but nearly all bristles of the type specimen are broken except for lower orbital, ocellar, and occipital bristles. Genal hairs brownish black.

Thorax with scutellum 1.7 mm. long and 1.5 mm. wide, dark testaceous yellow; mesonotum densely dusted with light brownish yellow, golden iridescent dusting and pale yellow appressed hairs, except for the shining hind margin. Anterior region of mesonotum silky whitish dusted, this whitish dusted area ending posteriorly in two wedge-shaped processes between the dorsocentral bristles, reaching level of supra-alar bristles. Mesonotum with the following black spots: the usual pair, each oval one between the prescutellar and upper postalar bristles; one pair of long-oval black spots just before dorsocentral bristles, each one at upper termination of short branches of transverse suture; one pair of small wide-oval spots, each situated between presutural and anterior notopleural bristle, and a black dot behind wing base. The special black markings on anterior region of mesonotum make this species easily distinguishable from *incompleta*. Pleurae shining, except for major part of mesopleuron (anepisternite); on central part of sternopleuron (katepisternite) is a large trapezium-shaped black spot, and ventral pleurotergite is almost wholly black except the narrow brownish black upper margin. Scutellum shining, with some appressed brownish yellow hairs. Postscutellum and mediotergite shining golden brown; postscutellum yellowish dusted with lateral parts black in color; these lateral black spots continue in a pair of narrow black vittae which border lateral margins of the shining mediotergite.

Thoracic bristles brownish yellow; lower mesopleural bristle considerably shorter and weaker than superior. Dorsocentrals situated approximately in anterior third of distance between transverse suture and supra-alar bristle, their spacing slightly wider than the prescutellars, which stand approximately in posterior fourth of distance between supra-alar and upper postalar bristle. Apical pair of scutellar bristles slightly convergent and two-thirds as long as the divergent basal pair.

Wings with the same modified wing pattern as in *incompleta*; sub-apical band completely absent, except for brown spot on tip of fourth longitudinal vein. A small hyaline dot at apex of second longitudinal vein. Apical half of humeral cross-vein brownish black. Basal band abbreviated and terminated in a subtriangular translucent brown spot at tip of apical process of anal cell. Anterior half of second basal cell hyaline. Fourth longitudinal vein (M_1) densely and very distinctly setulose on upper surface of wing almost to tip of vein; lower surface very loosely setulose between base and inner cross-vein. Subcostal cell (stigma) 3 times as long as broad at base. First section of costa 0.66, second 1.25, third 0.68, and fourth 0.50 mm. long. Basal section of M_1 1.11, penultimate 0.25, and ultimate 1.16 mm. long. Inner cross-vein 0.33 mm. long and nearly parallel to outer cross-vein (0.53 mm.). Anal cell, including apical process, 3 times as long (0.77 mm.) as apical process itself.

Halteres yellow. Legs testaceous yellow, without special armature.

Preabdomen 1.9 mm. long and 1.5 mm. wide, shining dark testaceous yellow, covered with appressed brownish black hairs and marked with four pairs of lateral black spots, one each on second to fifth tergites; spots on third and fourth tergites rounded, spots on second tergite narrow, long, transversely placed, and spots on fifth tergite long-oval in shape. Fifth tergite approximately 1.4 times as long (0.57 mm.) as fourth (0.41 mm.).

Postabdomen testaceous yellow; epandrium very wide-oval, with normally shaped surstyli and with two pairs of shining black gonapophyses, posterior pair shorter and more acute than anterior.

FEMALE: Unknown.

TYPES: Holotype ♂ (FML), Argentina, Tucumán, Quebrada de Cainzo, near Tafi Viejo, November 18, 1950, R. Golbach.

Tomoplagia brevipalpis, new species

FIGURES 91; 97, *e*; PLATE 19, FIGURE 2

This rather large species belongs to the *conjuncta* group and may be distinguished from the related species by the characters of the wing and by the black markings of the abdomen.

MALE: Length 5.6 mm.; wing 5.6 mm. long and 2.5 mm. wide, 2.2 times as long as wide.

Head 1.07 mm. long, 1.75 mm. wide, and 1.59 mm. high, ochraceous yellow, mesofacial plate, lunula, and lower half of the occiput paler in color; frons at vertex 0.93, at anterior margin 0.68 mm. wide, and in median line 0.75 mm. long, considerably shorter than wide at vertex. Frontal vitta bare and slightly darker than genovertical, parafacial, and ocellar plates, except for a wedge-shaped area in front of ocellar plate. Mesofacial plate impressed, oral margin raised and

but very slightly prominent. Ocelli transparent whitish. Antennae and maxillary palpi of same color as head, palpi rather unusually short and wide.

Postpedicel (third antennal segment) 0.34 mm. long and 0.20 mm. wide, 1.7 times as long as wide. The shining seta more than twice as long as the postpedicel, with basal two-thirds yellowish and with apical third blackish brown. Eyes in profile exactly twice as high as wide, sparsely beset with tiny hairs, erect and white.

Head bristles and hairs are yellow to brownish yellow, rather acute, not flattened; three incurved lower orbital bristles (*ori*), all equally long, and about as long as anterior pair of recurved upper orbital bristles (*ors*). Posterior pair of *ors* slightly shorter, the strongly divergent ocellar and outer vertical bristles are slightly longer than these; inner vertical bristles are the longest. There is a weak but distinct genal bristle, darker in color than the others.

Thorax pale ochraceous yellow in ground color, 2.3 mm. long and 1.8 mm. wide; mesonotum densely covered with pale brownish yellow dusting and with short hairs of the same color, except the narrow bare posterior part in front of scutellum, which is subshining and sparsely whitish dusted; in the dusting of mesonotum there are three indistinct and nearly linear vittae, slightly darker in colour: one in median line and two lateral in line of dorsocentrals; on posterior part of mesonotum are a pair of rather rounded black spots, each between the upper postalar and the prescutellar bristles, and another pair of black spots, each beneath the wing basis, on the side of the postalar callosity.

The long and strong thoracic bristles are brownish yellow and rather acute, not flattened; on the examined specimen only one mesopleural bristle present on each side (the upper pair); dorsocentral pair is situated about in middle between transverse suture and (imaginary) transverse supr-aalar line.

On the whitish dusted pleurae no black or brown spot present but a triangular black marking occurs on each side of postscutellum. Scutellum ochraceous yellow, subshining, with some brownish yellow appressed hairs about the basal pair of scutellar bristles. Mediotergite shining and intensively brownish yellow.

Coxae and legs entirely ochraceous yellow, with bristles and hairs including row of densely placed short anterodorsal bristles on hind tibiae, yellow to brownish yellow.

Halteres pale ochraceous yellow.

Wings with the usual pattern of the genus; basal band present but does not attain posterior wing margin, forming at apical process of anal cell a large, diffuse, translucent, and dark brown spot, extending over anal vein; costa at humeral cross-vein (*th*) and at tip of subcosta not blackened; anterior half of *th* brownish black; stigma long, about

2.4 times as long as wide at base. First costal section 0.82, second 1.97, third 1.00 and fourth 0.68 mm. long; first section of fourth longitudinal vein (M_1) 1.59, penultimate 0.45, and ultimate 1.54 mm. long; inner cross-vein (ta) 0.43, outer (tp) 0.84 mm. long, ta about as long as distance between cross-veins, and slightly more oblique than tp ; fifth longitudinal vein, which borders posteriorly discal cell, is but slightly excurved. Anal cell long (1.11 mm.), its apical process (0.45 mm. long) slightly shorter than rest of cell; whole cell almost 2.5 times as long as apical process itself.

Preabdomen rather shining, clear brownish yellow, 2.9 mm. long and 1.7 mm. wide, rather elongate; tergites sparsely covered with dark brownish hairs; each of the third to fifth tergites with pair of relatively small, brownish black lateral spots; pair on fourth tergite is largest and pair on fifth is smallest. Fifth tergite 0.43 mm. long, nearly 1.5 times as long as the fourth.

Epandrium oval, yellow; two pairs of shining black gonapophyses, the posterior pair acute and tiny.

FEMALE: Unknown.

TYPES: Holotype ♂, (USNM 61717), Panamá, El Cermeño, December 16, 1941, J. Zetek.

Tomoplagia carrerai, new species

FIGURES 96, *a-c*; 97, *j*; PLATE 21, FIGURE 9

A very well defined Brazilian species of the *pleuralis* group, which is readily distinguished from all known *Tomoplagia* in having black outer vertical, outer occipital, and genal bristles, and black genal hairs, and in having a pair of black spots on sides of the postalar callosity, between the lower and upper postalar bristles.

MALE: Length 5.1 (4.9) mm.; wing 4.5 (4.5) mm. long and 2.0 (1.8) mm. wide, 2.3 (2.5) times as long as wide.

Head ochraceous yellow, antennae and mouthparts testaceous yellow, excepting brown prementum and labellae. Head 0.77 (0.88) mm. long, 1.38 (1.38) mm. wide, and 1.25 (1.18) mm. high. Frons at vertex 0.73 (0.66), at anterior margin 0.57 (0.54) mm. wide, and in the median line 0.54 (0.52) mm. long, hardly wider at anterior margin than long; unicolored, only the genovertical plate with grayish tinge; ocellar plate among the transparent yellow ocelli is blackish brown. Upper half of occiput testaceous yellow. Oral margin of mesofacial plate raised and prominent.

Postpedicel oval, 0.27 (0.27) mm. long and 0.20 (0.18) mm. wide, 1.35 (1.5) times as long as wide. Seta bare and shining brownish black, except the testaceous yellow basal third; nearly three times as long as postpedicel. The eyes, in profile, 1.6 times as high as wide.

Head bristles somewhat flattened, brownish yellow, except outer vertical, outer occipital, and genal bristles, and hairs on genae, which

are black. This is a very unusual character in this genus. Three pairs of incurved lower orbital bristles, all the same length and hardly longer than the considerably thicker posterior pair of recurved upper orbital bristles (*ors*). Anterior pair of *ors* as long as divergent ocellar and outer vertical bristles; the convergent inner vertical bristles are longest and strongest of all. Two to three pairs of well-developed genal bristles present among the black hairs, the latter are only slightly shorter but much weaker than the bristles.

Thorax 2.2 (2.0) mm. long and 1.5 (1.4) mm. wide, ochraceous yellow; mesonotum strikingly vittate and, except the narrow shining ochraceous yellow hind margin, densely covered with reddish brown dusting except for two broad, whitish dusted vittae separated in median line by a reddish brown linear vitta; each of these densely white dusted vittae (in which the dorsocentral and prescutellar bristles are inserted) is broader than the reddish brown dusted lateral vittae, which terminate in the usual black spots situated between the upper postalar and prescutellar bristles; the white dusted vittae are covered with pale yellow and the reddish brown ones with black hairs. On hind part of mesonotum are two pairs of oval black spots, placed in transverse row—the inner pair situated in front of scutellum, and present in most all known species of *Tomoplagia* (it is homologous to the outer pair of black spots in the *atelesta* group); each black spot of the supernumerary outer pair of black spots situated between upper and lower pair of postalar bristles (*pa*), immediately above the lower *pa*; black spot beneath the wing base. Pleura ochraceous yellow, shining, darker below, with four black spots: a horizontal broad vittalike one in the middle third of sternopleura, a narrow vittalike one situated on upper margin of sternopleura before the sternopleural bristle, a large oval one above hind coxa, and a wide stripelike one on lower half of ventral and on inferior margin of dorsal pleurotergite.

Scutellum shining ochraceous yellow, with some black hairs on hind half. Postscutellum shining testaceous yellow, with pair of triangular lateral black spots. Mediotergite in one specimen is entirely dark testaceous yellow, in the other one with two lateral black vittae united with the pair of lateral black spots of postscutellum.

Thoracic bristles brownish yellow except lower postalar pair (*pa*), which in both specimens examined are brownish black, and upper *pa* and the four scutellar bristles, which in one specimen are also brownish black, in the other are brownish yellow; two pairs of mesopleural bristles present, lower one dark brown to brownish black, much weaker than and about half as long as the upper one; dorsocentral bristle pair inserted about middle of distance between transverse suture and the (imaginary) transverse line between supra-alar bristles; apical pair of scutellar bristles convergent and may be crossed apically.

Coxae and legs testaceous yellow, but distitarsi of mid and hind legs slightly darkened, brownish; bristles and hairs of coxae and legs

brownish yellow, except posteroventral row of long bristles on fore-femora, the two or three preapical dorsal bristles of hind femora, the rather loose anterodorsal row of very short bristles on hind tibiae, and the hairs on hind femora, all of which are brownish black.

Halteres testaceous yellow.

Wings with intensively colored bands; the yellow apical band separated from costa by a hyaline line, ending in a dark brown dot (at

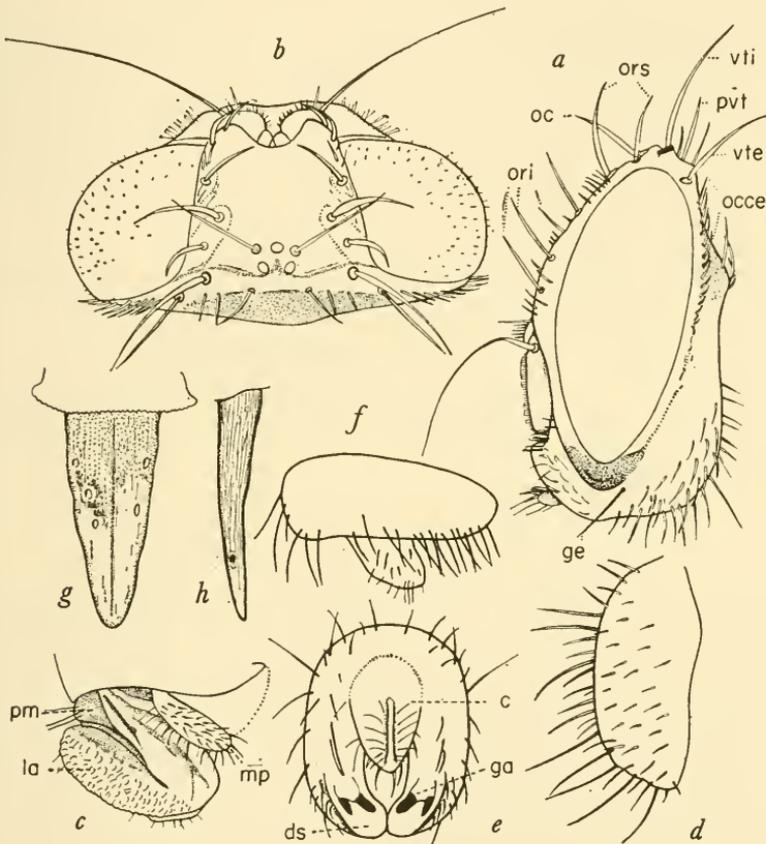


FIGURE 90.—*Tomoplagia stonei*: a, Lateral view of head; b, dorsal view of head; c, lateral view of mouthparts; d, right maxillary palpus, superior surface; e, dorsal view of epanthrium; f, lateral view of epanthrium; g, dorsal view of ovipositor tip; h, lateral view of ovipositor tip.

tip of third longitudinal vein); basal band well developed, nearly attaining posterior wing margin, entirely translucent yellowish brown, with apex it extends broadly over petiole of anal cell; in middle of marginal cell a dark brown dot proximal to a hyaline one; the yellow of subapical band pale, bordered with a pale brown line. Stigma 2.6 times as long as wide at base. First costal section 0.68 (0.66), second 1.59 (1.50), third 0.91 (0.77), and fourth 0.59 (0.52) mm. long; first

section of the fourth longitudinal vein 1.36 (1.28), penultimate 0.38 (0.36), and the strongly arched ultimate 1.46 (1.48) mm. long; inner cross-vein 0.34 (0.34), outer cross-vein 0.62 (0.52) mm. long; inner slightly shorter than distance between cross-veins; penultimate section of fifth longitudinal vein distinctly excurved. Anal cell with apical process 1.09 (1.02) mm. long; whole anal cell 2 (2.2) times as long as the apical process (0.51 (0.50) mm.); apical process longer than petiole of anal cell.

Preabdomen shining yellowish brown with reddish tinge, in one specimen mostly blackened and covered with appressed short black hairs. It is 1.9 (1.9) mm. long and 1.8 (1.7) mm. wide; each one of second to fifth tergites is marked with a pair of large lateral black spots; on third to fifth tergites, between the mentioned black spots and lateral margin may be present a smaller long-oval spot, sometimes connected with the usual ones; fifth tergite 0.61 (0.63) mm. long, 1.6 times as long as the fourth.

Epandrium testaceous yellow, oval, with relatively long surstyli; two pairs of shining black gonapophyses present, posterior pair slightly shorter than anterior one, and more acute.

FEMALE: Unknown.

TYPES: Holotype ♂ (Dep. Zool., São Paulo), Brazil, São Paulo, Castelhanos, July 23, 1936, Lange de Morretes. Paratype (FML), same data as holotype.

Tomoplagia costalimai Blanchard (MS.), new species

FIGURES 98,*e-i*; 102,*o,p*; PLATE 22, FIGURE 14

Tomoplagia costalimai (Blanchard in litt.) Hayward, 1941, p. 95 (nomen nudum).
Tomoplagia distincta (Blanchard in litt.) Hayward, 1942, p. 32 (nomen nudum).

The only species without special characters of the aberrant *unifascia* group which may easily be recognized from the key.

MALE: Length of body 3.8 mm.; wing 4.5 mm. long and 1.9 mm. broad, nearly 2.4 times as long as broad.

Head entirely testaceous yellow, 0.73 mm. long, 1.28 mm. wide, and 1.09 mm. high; oral margin of mesofacial plate raised and prominent, plate without whitish dusting. Frons at vertex as wide (0.54 mm.) as long in median line, 0.43 mm. wide at anterior margin. Antennae and the narrow, slightly curved maxillary palpi with rounded apex testaceous yellow, labellae yellowish brown. Ocellar plate but slightly raised. Postpedicel 0.25 mm. long and 0.18 mm. wide, nearly 1.4 times as long as wide; seta bare, shining black except for the testaceous yellow basal fourth, approximately 2.5 times as long as postpedicel. Eyes in profile 0.93 mm. high and 0.45 mm. wide, slightly more than twice as high as wide. Inferior part of cerebral plate very slightly raised, invisible in profile. Genae below eyes 0.09, inferior part of postcranium in profile 0.18 mm. broad.

Cephalic bristles brownish yellow, except for the golden shining brown genal bristle. The three pairs of incurved lower orbital bristles are subequal in length and slightly longer than the posterior pair of recurved upper orbital bristles (*ors*); anterior pair of *ors* subequal to outer vertical and ocellar bristles, which are slightly longer than any of these and slightly shorter than the inner vertical bristles.

Thorax with scutellum 1.8 mm. long and 1.5 mm. wide, testaceous yellow; mesonotum, except for the shining hind margin, evenly and densely covered with pale yellow pruinosity and with short appressed pale yellow hairs; there are no pruinose vittae. The usual pair of nearly round black spots present, each one between prescutellar and upper postalar bristles; a black dot behind (and beneath) wing base:

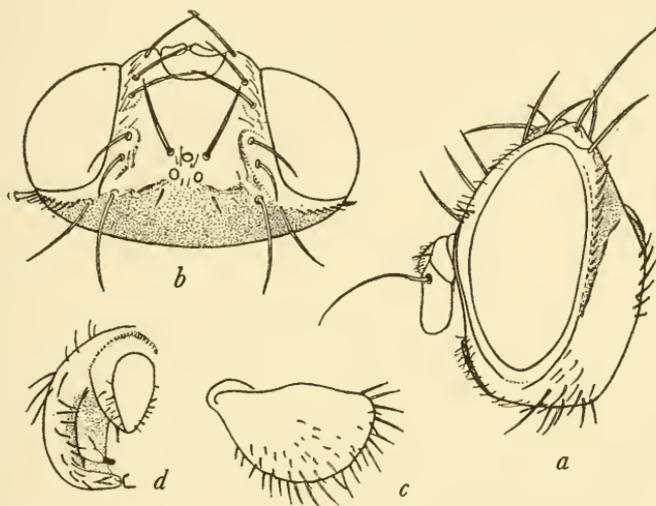


FIGURE 91.—*Tomoplagia brevipalpis*: a, Lateral view of head; b, dorsal view of head; c, right maxillary palpus, superior surface; d, dorsal view of epandrium.

Pleura subshining except for mesopleura and sternopleura. Two black spots on the pleura: a large one above hind coxa and a double one on inferior part of ventral and dorsal pleurotergites. Scutellum shining ochraceous yellow with some yellowish hairs on sides. Median third of postscutellum pale brownish yellow, the lateral thirds black. Mediotergite shining intensive testaceous yellow.

Thoracic bristles brownish yellow; lower mesopleural bristles shorter than the anterior pair; dorsocentral pair inserted approximately in anterior third of distance between transverse suture and supra-alar bristle (*sa*) and more widely placed than the prescutellar pair, which stands in posterior third of distance between *sa* and upper postalar bristles (in female almost halfway between these). Apical pair of scutellar bristles convergent and crossed, considerably shorter than basal pair.

Wings with the general pattern of the genus and with intensive yellow oblique bands; there is a small hyaline dot at tip of second

longitudinal vein. Basal band abbreviated and ends in a diffuse dark brown spot at apex of apical process. Stigma approximately 2.6 times as long as broad at base. First costal section 0.64, second 1.45, third 1.00, and fourth 0.54 mm. long. Basal section of the fourth longitudinal vein 1.11, penultimate 0.41, and ultimate 1.50 mm. long. The 0.32-mm. inner cross-vein slightly more oblique than the 0.59-mm. outer one. Anal cell with apical process 0.85 mm. long, cell itself approximately 3.4 times as long as the short (0.27-mm.) apical process.

Halteres testaceous yellow, knob sometimes brownish.

Legs testaceous yellow.

Preabdomen 1.5 mm. long and 1.2 mm. wide, shining testaceous yellow with appressed brownish black hairs and with four pairs of lateral black spots; third to fourth tergites each with one pair, and fifth with two pairs, from which the posterior pair reaches the posterior margin. The 0.57-mm. fifth tergite is approximately 1.3 times as long as the 0.43-mm. fourth.

Postabdomen testaceous yellow; epandrium wide-oval, with normally shaped surstyli; only the anterior pair of the shining black gonapophyses present in this species.

FEMALE: Body 4.6 (4.8) mm. long; wings 4.8 (4.8) mm. long and 2.0 (2.1) mm. broad, 2.4 (2.3) times as long as broad.

Head 0.82 (0.79) mm. long, 1.34 (1.30) mm. wide and 1.07 (1.16) mm. high. Frons at vertex 0.61 (0.59) and at anterior margin 0.50 (0.45) mm. broad, in the median line 0.56 (0.57) mm. long. Postpedicel 0.29 (0.27) mm. long and 0.18 (0.20) mm. wide, 1.6 (1.4) times as long as wide. Eyes in profile 0.91 (0.93) mm. high and 0.48 (0.52) mm. wide, 1.9 (1.8) times as high as wide. Genae below the eye 0.09 (0.09), inferior part of the posteranium in profile 0.24 (0.17) mm. wide. Thorax with scutellum 2.0 (2.0) mm. long and 1.4 (1.5) mm. wide.

Wings similar to those of the male. First costal section 0.71 (0.71), second 1.61 (1.63), third 0.93 (0.98), and fourth 0.57 (0.59) mm. long. Basal section of fourth longitudinal vein 1.17 (1.17), penultimate (median) 0.39 (0.38), and ultimate 1.57 (1.55) mm. long. Inner cross-vein 0.32 (0.33), outer cross-vein 0.61 (0.66) mm. long. Anal cell and apical process, 0.86 (0.86) mm. long, cell itself 2.7 (2.8) times as long as the apical process (0.32 (0.31) mm. long).

Preabdomen 1.6 (1.6) mm. long and 1.5 (1.5) mm. wide. Third to sixth tergites each with a pair of lateral black spots, which are subequal (the pair on the sixth tergite is slightly larger) and oval in shape. Sixth tergite (0.36 (0.30) mm.) slightly longer than fifth (0.32 (0.23) mm.).

Ovipositor sheath shining testaceous yellow, with dark brown apical margin and covered with fine dark brown hairs; it is dorso-ventrally flattened in the specimens examined (basally only 0.11

(0.20) mm. long) and approximately as long (0.70 (0.79) mm.) as basally wide (0.70 (0.75) mm.); at apex it is 0.34 (0.38) mm. wide. Middle and apical parts of ovipositor pale testaceous yellow, apical part subshining, translucent and dorsoventrally flattened, in dorsal aspect narrow-lanceolate and slightly narrowed before the tip.

Types: Holotype ♂ (Coll. Blanchard), Argentina, Entre Ríos, Concordia, August 1936, trapped among citrus trees, K. J. Hayward No. 3284, "*T. costalimai* n. sp. det. E. E. Blanchard." Allotype ♀ (Coll. Blanchard), Argentina, Tucumán, Tucumán, August 16, 1936, K. J. Hayward, "No. 5. *T. distincta* n. sp. det. E. E. Blanchard." Paratypes: 2 (Coll. Blanchard), with same data as allotype; ♀ (FML), Brazil, "Citrus."

This species was taken in fruit-fly traps among sweet orange trees by Hayward (1941) in the provinces of Entre Ríos, Corrientes, and Misiones, and was reared from sweet orange and guava fruits (Hayward 1942) in Tucumán, Argentina. The types of this species and of *minattai* were kindly submitted for description and inclusion in this paper by Dr. E. E. Blanchard when he learned that a revision of the genus had been planned. The writer preserves the original manuscript names of Blanchard for both species, listed previously in applied entomological papers (Hayward 1941, 1942).

Tomoplagia cressoni, new species

FIGURES 95,g-h; 97,c,d; PLATE 20, FIGURE 7

This is the same species from southwestern United States, that Cresson (1907, p. 100) mentioned as "*Plagiotoma obliqua* Say" from Alamogordo, New Mexico, and which Hendel (1914, p. 38: "Cresson erwähnt diese Form als *T. obliqua* Say") considered conspecific with the Peruvian *monostigma*. It is closely related to the latter, more closely than to *obliqua* or to the Brazilian *biseriata*, nevertheless it may be distinguished from *monostigma* by the presence of a weak lower mesopleural bristle, by a small brown apical spot on the scutellum, and by the following comparative characters: the black spot on the ventral pleurotergite does not extend to the dorsal; on the second tergite there is always one pair of small pointlike dots, black to brown in color; the sheath of ovipositor is slightly longer than wide at base.

MALE: Length 3.7 (3.6) mm.; wing 3.6 (3.8) mm. long, and 1.5 (1.5) mm. wide, about 2.5 times as long as wide.

Head, together with antennae and mouthparts, entirely pale ochraceous yellow, 0.66 (0.70) mm. long, 1.07 (1.16) mm. wide and 0.98 (0.95) mm. high. Frons at vertex 0.57 (0.52) and at anterior margin 0.38 (0.36) mm. wide, and in the median line 0.48 (0.48) mm. long, shorter than wide at vertex; pale ochraceous yellow, only the genovertical and ocellar plates are slightly infuscated. Oral margin of mesofacial plate is raised and prominent. Postpedicel wide-oval, 0.22 (0.23) mm. long and 0.16 (0.15) mm. wide, 1.3 (1.5) times as long

as wide; seta bare shining black, except the thickened basal third, which is ochraceous yellow; slightly more than twice as long as the postpedicel. Eyes in profile 1.7 times as long as wide, very sparsely beset with erect microscopic hairs. Maxillary palpi wide-oval.

The brownish yellow cephalic bristles hardly flattened; the weak posterior pair of the recurved upper orbital bristles (*ors*) the shortest, two-thirds as long as anterior pair; three incurved lower orbital bristles, the anterior slightly longer than the posterior *ors*, the two posterior ones equal to the anterior *ors* and to the outer vertical bristles; ocellar bristles divergent and slightly longer than the latter but the longest of the head bristles are the convergent inner verticals. One pair of relatively short but distinct genal bristles present.

Thorax 1.6 (1.4) mm. long and 1.2 (1.25) mm. wide, pale ochraceous yellow in ground color; mesonotum, except the shining bare posterior margin, evenly and densely covered with testaceous yellow dusting and with very short yellow appressed hairs; only a trace of three linear vittae on mesonotum, darker in color, one on median line and two lateral vittae in the line of the dorsocentrals; in some of the dried specimens these are grayish and more distinct. One pair of rounded black spots present on hind part of mesonotum, each one between the prescutellar and upper orbital bristles. On the whitish dusted pleura there is a single pair of black spots on the inferior margin of the raised ventral pleurotergite, which in the specimens examined does not project into the inferior margin of the dorsal pleurotergite; on sternopleura and above hind coxae there are testaceous yellow spots instead of black ones. Scutellum shining, pale ochraceous yellow or whitish in color, with a brown small apical spot between the apical scutellar bristles, bare, with some short brown hairs at hind margin; postscutellum without black spots, as shining testaceous yellow as the mediotergite.

Thoracic bristles relatively short but strong and brownish yellow. All specimens examined possess two pairs of mesopleural bristles, the upper bristle hardly twice as long as the much weaker lower one; the dorsocentral pair inserted in anterior third of distance between transverse suture and transverse line between the supra-alars.

Coxae and legs pale ochraceous yellow, with brownish yellow bristles and hairs, including the anterodorsal row of rather closely placed short bristles on hind tibiae.

Wing with the general pattern of the genus; the second basal cell hyaline, except for posteroapical part, which is yellow; basal band reduced to a diffuse small spot, transparent light brown, extending slightly over petiole of anal cell. Stigma about three times as long as wide at base. Costa at apex of subcosta not darkened, at most its fracture is bordered with a fine dark brown line. Anterior tip of

humeral cross-vein dark brown only on the upper surface of wing; the neighboring part of costa remains yellow. First costal section (stigma) 0.61 (0.66), second 1.25, third 0.68, and fourth 0.45 mm. long; first section of the fourth longitudinal vein 1.25, penultimate 0.29, and ultimate 0.98 mm. long; inner cross-vein slightly shorter (0.27 mm.) than the distance between both cross-veins and nearly parallel to the 0.50-mm.-long outer cross-vein; both cross-veins placed slightly more obliquely than in *monostigma*. Anal cell with apical process 0.68 (0.72) mm. long. Process (0.23 (0.25) mm.) about half as long as the rest of the cell; whole anal cell nearly three times as long as apical process, which latter is slightly shorter than in *monostigma*.

Preabdomen shining ochraceous yellow, opaque, covered with very short brown hairs, 1.6 (1.7) mm. long and 1.4 (1.2) mm. wide; third and fourth tergites each with one pair and fifth tergite with two pairs of lateral black spots, all of which are smaller than in female; second tergite in all specimens examined with pair of pointlike lateral black to brown dots; fifth tergite 0.57 (0.52) mm. long, 1.7 (1.8) times as long as fourth. Sternites and membrane ochraceous to whitish yellow, sternites slightly shining.

Epandrium ochraceous yellow and wide-oval; only one pair of shining black gonapophyses present, posterior pair entirely absent.

FEMALE: Length 4.0 (3.9) mm.; wing 4.1 (4.1) mm. long and 1.8 (1.6) mm. wide, 2.3 (2.5) times as long as wide. Head 0.75 (0.70) mm. long, 1.23 (1.20) mm. wide and 0.95 (0.91) mm. high. Frons at vertex 0.54 (0.52), at anterior margin 0.36 (0.36) mm. wide, and in median line 0.50 (0.48) mm. long. Postpedicel 0.25 (0.25) mm. long and 0.16 (0.16) mm. wide, 1.5 times as long as wide. Thorax, including scutellum, 1.6 (1.5) mm. long and 1.3 (1.3) mm. wide, with the same black markings as in the male.

Wings like those of male; first costal section 0.68 (0.63), second 1.41 (1.34), third 0.75 (0.85), and fourth 0.54 (0.52) mm. long; first section of the fourth longitudinal vein 1.45 (1.38), penultimate (between the cross-veins) 0.34 (0.29), and ultimate 1.02 (0.98) mm. long; inner cross-vein 0.27 (0.27), outer 0.59 (0.50) mm. long, inner slightly shorter than distance between both cross-veins; anal cell 0.72 (0.68) mm. long, including the apical process (0.25 (0.23) mm. long); whole anal cell is 2.9 (3) times as long as apical process itself.

Preabdomen 1.8 (1.7) mm. long and 1.4 (1.4) mm. wide; second to fourth tergites with the same markings as in male, fifth and sixth tergites each with a pair of lateral black spots; these black spots usually larger in female than in male; fifth tergite about as long (0.27 (0.27) mm.) as sixth (0.29 (0.27) mm.).

Sheath of ovipositor in specimens examined slightly flattened dorsoventrally and slightly longer (0.68 (0.73 mm.)) than wide at base (0.64 (0.63) mm.); at apex 0.27 (0.27) mm. wide and at the base 0.43

(0.39) mm. high, shining testaceous yellow with a pair of round brown spots at apex, and covered with short brown appressed hairs. Only extreme apex of apical part of ovipositor visible; in the allotype it is more acutely pointed than in *monostigma*, and is translucent testaceous yellow.

Types: Holotype ♂ (USMN 61718), California, Ontario, 1940, "ex peach," L. D. Christensen. Allotype ♀, California, Pasadena, J. M. Aldrich. Paratypes: ♂, Arizona, Sedona, June 20, 1938, "foliage," L. D. Christensen; 2 ♀♀, California, Banning, "ex peach," L. D. Christensen. (Holotype, allotype, 2 paratypes in USNM; paratype in FML.)

Tomoplagia deflorata Hering

FIGURES 92; 97,f; PLATE 19, FIGURE 3

Tomoplagia deflorata Hering, 1937, p. 296.

Belongs to the *obliqua* group and is readily distinguished from its allies by the black markings, having two little black spots on the pleura, one on inferior part of ventral pleurotergite and a larger one above hind coxa; by the spotless abdomen in the female; and by the unique pair of small black spots on fifth tergite in male.

MALE (First description of male): Length 4.5 (4.4) mm.; wing 4.4 (4.6) mm. long and 2.0 (1.8) mm. wide, 2.2 (2.5) times as long as wide.

Head entirely pale yellowish ochraceous, sometimes infuscated, 0.79 (0.73) mm. long, 1.43 (1.39) mm. wide and 1.13 (1.11) mm. high. Ocelli very clear transparent yellow, nearly whitish. Frons at vertex 0.61 (0.59) and at anterior margin 0.41 (0.36) mm. wide, and in median line slightly longer (0.50 (0.45) mm.) than wide at anterior margin. Oral margin of the impressed mesofacial plate raised and slightly prominent. Postpedicel wide-oval, 0.22 (0.18) mm. long and 0.18 (0.16) mm. wide, only 1.1 (1.2) times as long as wide; seta brownish black, bare and shining, except the thickened basal part, which is brownish yellow, only 1.5 times as long as postpedicel. Eyes in profile slightly more than twice as high as wide, sparsely beset with tiny erect and whitish hairs. Maxillary palpi wide, sickle-shaped.

Head bristles brownish yellow with golden shine, slightly flattened; the weak posterior pair of the recurved upper orbital bristles (*ors*) is shortest, equal in length to the parallel postvertical bristles; anterior pair of *ors* slightly longer than the three pairs of the incurved lower orbital bristles; outer verticals and divergent ocellar bristles about the same length and slightly longer than the anterior *ors*; the relatively short inner verticals the longest of all. One distinct pair of genal bristles present.

Thorax 2.2 (2.0) mm. long and 1.6 (1.6) mm. wide, ochraceous yellow in ground color; mesonotum densely covered with clear brass-yellow dusting and with short and shining appressed hairs of the same

color, except on the bare and subshining, narrow posterior part in front of scutellum; on mesonotum only a trace of three linear vittae, these slightly deeper in color than the surrounding, one in median line and two lateral vittae in the line of the dorsocentrals; on the shining hind part of mesonotum only one pair of round black spots, each between the upper postalar and prescutellar bristles, and a pair of round black dots, each beneath base of wing on side of the postalar callosity. On mesonotum are four very small brown circlets at base of dorsocentral and prescutellar bristles.

The long and strong thoracic bristles are brownish yellow with a golden shine. All the examined specimens have two pairs of mesopleural bristles, the lower pair considerably weaker; the dorsocentral

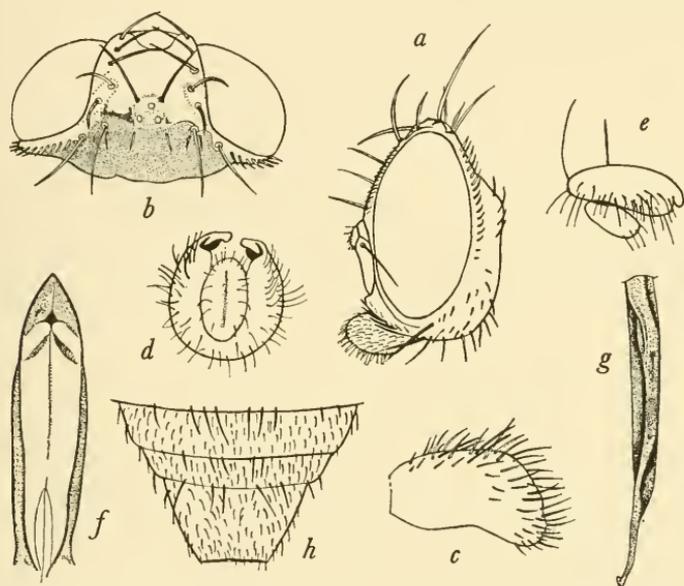


FIGURE 92.—*Tomoplagia deflorata*: a, Lateral view of head; b, dorsal view of head; c, right maxillary palpus, inferior surface; d, dorsal view of epandrium; e, lateral view of epandrium; f, ventral view of ovipositor tip; g, lateral view of ovipositor tip; h, dorsal view of apex of female abdomen.

pair situated near the anterior third of distance between transverse suture and (imaginary) transverse line between the supra-alar bristles; apical pair of scutellar bristles not crossed but nearly parallel or slightly convergent.

On the pale ochraceous pleura always only two pairs of black markings, one on inferior margin of ventral pleurotergite and a larger one above hind coxa, these may be sometimes insignificant but are present in all the examined species. Scutellum transparent pale yellow, subshining, covered with sparse whitish pruinosity and with some hairs between bases of the basal and apical scutellar bristles; postscutellum without black markings; mediotergite shining, transparent bronze

colored, in dried specimens with or without irregular, intensely yellow, opaque spots.

Coxae and legs pale ochraceous yellow, except distitarsi of hind legs, and two last tarsomeres of midlegs, which are yellowish brown; bristles and hairs are yellow with brownish tinge, except anterodorsal row of rather closely spaced bristles of hind tibiae, which are slightly darker in color.

Halteres pale ochraceous, nearly whitish in color.

Wing with the usual pattern of the genus, but basal band abbreviated, forming at apical process of the anal cell a diffuse and rounded small translucent brown spot, hardly extending over anal vein; a very short section of costa blackened at tip of subcosta in some of the examined specimens; anterior third to half of humeral cross-vein brownish black. Stigma about 2.3 times as long as wide basally. First costal section 0.70 (0.68), second 1.52 (1.43), third 0.82 (0.86), and fourth 0.52 (0.50) mm. long; first section of the fourth longitudinal vein 1.36 (1.41), penultimate 0.38 (0.43), and ultimate 1.16 (1.09) mm. long; inner cross-vein (*ta*) 0.32 (0.32), outer (*tp*) 0.66 (0.61) mm. long, *ta* slightly shorter than distance between both cross-veins, and almost parallel to *tp*; fifth longitudinal vein which forms the posterior limit of the discoidal cell hardly excurved; the whole anal cell 0.98 (0.88) mm. long, 2.4 (3) times as long as apical process (0.41 (0.27) mm.).

Preabdomen subshining ochraceous yellow, opaque, sometimes infuscated and translucent. Basal double tergite (segments 1+2) covered with pale yellowish, other tergites mostly with dark brown appressed hairs; shape of preabdomen wide-oval, 1.6 (1.5) mm. long and 1.5 (1.4) mm. wide. Only fifth tergite marked with a pair of subquadrate lateral black spots; fifth tergite 0.47 (0.43) mm. long, 1.5 (1.6) times as long as fourth. Sternites, membrane, and postabdomen pale ochraceous yellow.

Epandrium wide-oval, nearly round; two pairs of shining black gonapophyses, posterior pair nearly as long as the anterior but very acute.

FEMALE: Like male. Length 4.5 (5.1) mm.; wings 4.6 (4.5) mm. long and 2.0 (2.0) mm. wide. Head 0.75 (0.85) mm. long, 1.36 (1.31) mm. wide and 1.13 (1.13) mm. high. Frons at vertex 0.59 (0.60), at anterior margin 0.41 (0.40) mm. wide, and in median line 0.48 (0.54) mm. long. Postpedicel 0.20 (0.21) mm. long and 0.16 (0.16) mm. wide, 1.2 (1.3) times as long as wide. Thorax with scutellum 2.2 (2.1) mm. long and 1.6 (1.5) mm. wide, with the same black markings as in male.

Wings like those of male; first costal section 0.65 (0.68), second 1.52 (1.54), third 0.91 (0.79), and fourth 0.50 (0.50) mm. long; first section of the fourth longitudinal vein 1.38 (1.47), penultimate 0.38 (0.36), and

ultimate 1.16–1.11 mm. long; inner cross-vein 0.32 (0.34), outer cross-vein 0.61 (0.63) mm. long; anal cell and process 0.82 (0.88) mm. long, apical process 0.22 (0.32)_{um} mm. long, whole anal cell 2.7 (3.5) times as long as apical process.

Preabdomen 1.6 (2.2) mm. long (without ovipositor) and 1.5 (1.5) mm. wide, without black markings in all the specimens examined; fifth tergite 0.23 (0.31), sixth 0.18 (0.29) mm. long; fifth tergite slightly longer than, to 1.2 times as long as, sixth.

Sheath of ovipositor in living specimens very probably short conical (length 0.48, basal width 0.70, apical width 0.29, and basal height 0.61 mm.) but in dried specimens is usually flattened (length 0.49, basal width 0.82, apical width 0.36, and basal height 0.23 mm.); about 1.5 times as wide basally as long; shining and brownish yellow in color, evenly covered with fine, yellowish brown, appressed hairs. Apical part of ovipositor lanceolate, with apex pointed.

Species originally described from Costa Rica.

TYPE: In Hamburg Museum.

SPECIMENS EXAMINED: Panamá: El Cermeño, 28 ♂♂, 26 ♀♀, April 1939, fruit-fly trap, Zetek; ♀, Dec. 5, 1939, fruit-fly trap, Zetek; La Campana, 2 ♂♂, 3 ♀♀, March–April 1938, fruit-fly trap, Zetek; Arraijan, ♂, May 29, 1951, Zetek. Guatemala: Guatemala City, ♀, June 12, 1923, E. G. Smyth; Antigua, ♂, June 12, 1923, E. G. Smyth. (All specimens in USNM.)

Tomoplagia discolor (Loew)

FIGURE 97,*g*; PLATE 20, FIGURE 6

Trypeta discolor Loew, 1862, p. 64.

Tomoplagia discolor (Loew), Hendel, 1914, p. 34.

A single female specimen is at hand from Puerto Rico; it undoubtedly belongs to the well-defined species *discolor* (Loew), with modified wing pattern, although its abdomen is not entirely black. According to the absence of the black spots on the postscutellum, this species may belong to the *obliqua* group.

FEMALE: Length 3.4 mm.; wing 4.0 mm. long and 1.7 mm. wide, 2.3 times as long as wide.

Head entirely pale ochraceous yellow, including antennae and mouthparts; 0.75 mm. long, 1.30 mm. wide, and 1.09 mm. high. Frons at vertex 0.57 and at anterior margin 0.45 mm. wide, and in median line 0.57 mm. long. Postpedicel wide-oval, 0.27 mm. long and 0.23 mm. wide, nearly 1.2 times as long as wide; seta bare, shining black, except the thickened testaceous yellow basal fourth; only about twice as long as postpedicel. Eyes in profile 1.6 times as high as wide. Oral margin of mesofacial plate raised and considerably prominent.

Cephalic bristles brownish yellow, relatively short and somewhat flattened. Four pairs of incurved lower orbital bristles on both sides, the three anterior pairs about equal in length; the posterior pair much weaker and one half as long as the others. Two pairs of recurved upper orbital bristles, the anterior pair slightly longer but much stronger, the posterior pair slightly shorter and weaker than the anterior pairs of *ori*. The convergent inner vertical bristles (*vti*) almost as long but much stronger than the ocellars. The divergent outer vertical pair the longest of the head bristles, slightly longer but weaker than the *vti*, an exceptional character. A distinct pair of genal bristles present.

Thorax 1.8 mm. long and 1.4 mm. wide; mesonotum uniformly testaceous yellow, densely covered with short appressed brownish yellow hairs, except for shining posterior margin behind prescutellar bristles. Only one pair of black spots, each between the upper postalar and prescutellar bristles. Pleura pale ochraceous yellow, with lower region more testaceous yellow, without black spots, except a pointlike dot beneath base of wing; on inferior part of ventral pleurotergite above hind coxa and below bristle on sternopleura only reddish yellow spots present. Postscutellum and mediotergite shining testaceous yellow, opaque, without black spots. If we do not consider the modified wing pattern, this species belongs to the *obliqua* group. Scutellum shining ochraceous yellow with some brownish hairs at hind margin. Postscutellum entirely yellow.

Thoracic bristles brownish yellow; only the upper mesopleural bristle present and well developed; the posterior notopleural bristle much weaker than, and nearly half as long as, anterior; dorsocentral bristle inserted in anterior third of distance between transverse suture and supra-alar bristle; the apical pair of scutellar bristles convergent and crossed.

Coxae and legs without exceptional characters, ochraceous yellow, with bristles and hairs (including the anterodorsal row of rather loosely placed, relatively short bristles of hind tibiae) yellow.

Halteres ochraceous yellow.

Wings with the general pattern of the genus, but with apical band at anterior margin of wing separated at apex from first posterior cell, which is broadly connected with the next (subapical) band; the black dot of humeral cross-vein absent; second basal cell almost entirely hyaline; only basal part of basal band represented, forming a small diffuse transparent light brown spot on each side of anal vein; very characteristic is an opaque dark brown V-shaped marking in marginal cell above stigma, marking bifurcation of subapical and median bands; stigma 2.4 times as long as wide basally. First costal section 0.59, second 1.27, third 0.66, and fourth 0.34 mm. long; first section of the fourth longitudinal vein 1.18, penultimate 0.33, and ultimate 1.00 mm.

long; inner cross-vein (0.23 mm. long) is considerably shorter than distance between both cross-veins and is much more oblique than the 0.54-mm.-long, convex outer cross-vein. Anal cell and its 0.23-mm. apical process 0.73 mm. long, the whole anal cell being 3.2 times as long as the apical process.

Preabdomen covered with brownish appressed hairs, subshining and bicolored in the specimen examined; basal tergites (first to third) and lateral margins of fourth and fifth tergites ochraceous yellow, apical part black; 1.25 mm. long and 0.9 mm. wide; third and fourth tergites shortest; fifth tergite shorter (0.25 mm.) than sixth (0.32 mm.). Sternites and major part of membrane ochraceous yellow, only apical part of membrane black.

Sheath of ovipositor flattened, 0.70 mm. long, at base 0.68, at apex 0.29 mm. wide, basally 0.14 mm. high; nearly as wide at base as long; dark brown with yellowish tinge, except below on both sides of apical part, where there are testaceous yellow triangles separated by a rather wide dark median vitta.

Species originally described from Cuba.

TYPE:

SPECIMEN EXAMINED: Puerto Rico: Mayagüez, ♀ July, J. W. Ballock, "trap in guava tree, P. R. No. 1511" (in USNM).

Tomoplagia fiebrigi Hendel

FIGURES 98,j-o; 102,j,k; PLATE 22, FIGURE 15

Tomoplagia fiebrigi Hendel, 1914, p. 40.

A well-defined species with special characters, distinguished from all the other species by the presence of a median row of black spots between the usual lateral ones on the preabdomen.

MALE: Length of body 3.2 (4.0) mm.; wing 3.3 (4.0) mm. long and 1.3 (1.7) mm. broad, 2.3 (2.5) times as long as broad.

Head ochraceous yellow, frontal vitta testaceous yellow, frontal plates grayish and sparsely whitish dusted; 0.73 (0.80) mm. long, 1.18 (1.34) mm. wide and 0.91 (1.08) mm. high; ocellar plate scarcely raised.

Postpedicel short-oval, 0.20 (0.22) mm. long and 0.16 (0.19) mm. wide, only 1.2 (1.1) times as long as wide. Seta bare, shining black, except for the testaceous yellow, thickened basal fourth, almost 2.5 times as long as postpedicel. Frons at vertex 0.54 (0.61) and at anterior margin 0.41 (0.48) mm. broad, and at median 0.54 (0.59) mm. long. Antennae and mouthparts testaceous yellow. Inferior part of cerebral plate slightly raised. Eyes in profile 0.77 (0.91) mm. high and 0.50 (0.48) mm. wide, 1.5 (1.9) times as high as wide. Genae below eyes very narrow (0.07 (0.09) mm.), inferior part of postcranium in profile 0.16 (0.25) mm. wide.

Cephalic bristles brownish yellow; the usual garniture present. The genal bristle not very distinct.

Thorax with scutellum 1.5 (1.8) mm. long and 1.1 (1.4) mm. wide, testaceous yellow; mesonotum sparsely covered with whitish pruinosity and with appressed short yellowish hairs, except for the narrow shining hind margin; in the whitish pruinosity there are three indistinct pale brownish yellow vittae, one on median line and two laterals between prescutellar and dorsocentral bristles, ending in the usual pair of lateral black spots; these yellowish brown dusted vittae slightly broader than space between them. On sides of mesonotum only one black dot present behind wing base. Pleura sparsely white dusted, only region between and around sternopleural and pteropleural bristles fully shining, and mesopleura (anepisternite) dusted with testaceous yellow and subshining. Pleura characteristically marked with black in this species; postscutellum (except for a small anteromedian yellow dot), entire mediotergite and dorsal pleurotergite, ventral pleurotergite (except for superior margin), and adjacent lower hind part of pteropleuron (anepimeron) coherently black. Sometimes inferior third of pteropleuron black. Metapleura above hind coxa extensively black; this large black spot is separated from the above-mentioned black region by a testaceous yellow, narrow, horizontal vitta which begins at the haltera base, extending over superior margin of metapleura and of sternopleuron; the same metapleural black spot separated from the entirely black sternopleuron (katapisternite) by the testaceous yellow midcoxa.

Thoracic bristles brownish yellow and somewhat flattened; lower mesopleural bristle more than two-thirds as long as upper; posterior notopleural bristle but slightly shorter than anterior. Dorsocentral bristle pair placed near trasverse suture, in the anterior fourth of distance between suture and supra-alar bristle (*sa*); slightly more widely spaced than prescutellar pair, which is inserted approximately in hind third of distance between upper postalar and *sa* bristles.

Coxae and legs entirely testaceous yellow.

Wings with the usual pattern of the genus. Stigma 2.7 (2.9) times as long as broad at the base. First costal section 0.45 (0.54), second 0.95 (1.16), third 0.68 (0.82), and fourth 0.41 (0.50) mm. long. Basal section of the fourth longitudinal vein (M_1) 0.75 (1.02), penultimate (between both cross-veins) 0.24 (0.34), and ultimate 1.11 (1.20) mm. long. Inner cross-vein (0.20 (0.27) mm.) slightly more obliquely placed than outer (0.43 (0.53) mm.). Anal cell with the apical process together 0.54 (0.63) mm. long, and 3.8 (3.9) times as long as apical process (0.14 (0.16) mm.).

Halteres testaceous yellow.

Preabdomen 1.4 (1.6) mm. long and 1.2 (1.5) mm. wide, shining testaceous yellow, covered with appressed brownish yellow hairs; the

black markings are very characteristic for this species. Third and fourth tergites each with three black spots, one median and two laterals extremely variable in size; the lateral spots situated near lateral margin of tergites, and median spot always reaches anterior margin; in one specimen fourth tergite is mostly black, the three black spots being separated only by two linear vittae. Fifth tergite with a pair of rounded subtriangular large black spots separated by a testaceous yellow narrow median vitta. Fifth tergite 1.8 (1.7) times as long (0.45 (0.59) mm.) as the fourth (0.25 (0.34) mm.). Intersclerital membrane and sternite testaceous yellow, with or without black parts.

Postabdomen testaceous yellow; epandrium oval with normally shaped surstyli and with two pairs of shining black gonapophyses subequal in length but anterior pair much thicker than posterior.

FEMALE: Like male. Body 4.1 (4.2) mm. long; wings 3.9 (3.9) mm. long and 1.6 (1.6) mm. broad, 2.4 times as long as broad.

Head 0.80 (0.80) mm. long, 1.32 (1.36) mm. wide, and 1.04 (1.11) mm. high. Frons at vertex 0.59 (0.57) and at anterior margin 0.45 (0.43) mm. wide, and in the median line 0.59 (0.54) mm. long. Postpedicel 0.20 (0.21) mm. long and 0.18 (0.19) mm. wide, only 1.1 times as long as wide. Eyes in profile 0.86 (0.73) mm. high and 0.52 (0.57) mm. wide, 1.6 (1.3) times as high as wide. Genae below eyes 0.08 (0.09) and inferior part of postcranium in profile 0.13 (0.13) mm. wide.

Thorax with scutellum 1.7 (1.8) mm. long and 1.4 (1.4) mm. wide, with the same characters as in male.

Wings like those of male. First costal section 0.57 (0.50), second 1.11 (1.09), third 0.75 (0.73), and fourth 0.50 (0.45) mm. long. Basal section of the fourth vein 0.98 (0.88), penultimate 0.29—0.35, and ultimate 1.29 (1.20) mm. long. Inner cross-vein 0.27 (0.25), outer 0.53 (0.50) mm. long. Anal cell with apical process 0.68 (0.68) mm. long, the whole cell 3.2 (3.4) times as long as entire apical process (0.18 (0.20) mm.).

Preabdomen 1.6 (1.6) mm. long and 1.5 (1.5) mm. wide. Third to fifth tergites each with three black spots, which are variable in size and shape; lateral spots are near lateral margin and usually long-oval in shape, median spots may be as large as, or considerably larger than, lateral spots, in shape transverse-oval to rhomboid. On sixth tergite a pair of lateral black spots, less widely spaced than those on anterior tergites, sometimes a small triangular median spot present, reaching anterior margin of the tergite. In some specimens the median black spots form an almost uninterrupted vitta. Sixth tergite (0.29 (0.38) mm.) slightly longer than fifth (0.25 (0.27) mm.).

Sheath of ovipositor usually dorsoventrally flattened (at base only 0.14 (0.16) mm. high) and entirely shining testaceous yellow, covered with appressed fine brownish yellow hairs; it is 0.52 (0.61) mm. long,

at the base 0.73 (0.73) and at the apex 0.36 (0.38) mm. wide. In one specimen sheath is perfectly conical, without lateral edges; this was 0.77 mm. long, at the base 0.66, at the apex 0.34 mm. wide and in profile 0.57 mm. high at the base; very probably this is the original form of the ovipositor sheath. In some specimens apex of sheath is bordered with lighter or darker yellowish brown.

Apical part of ovipositor shining, translucent, testaceous yellow, wide lanceolate in dorsal aspect; apex with tiny dorsal hook.

TYPE LOCALITY: San Bernardino in Paraguay.

TYPES: In Natural History Museum, Vienna, and in the Hungarian National Museum, Budapest.

SPECIMENS EXAMINED: Argentina: Córdoba, Sierra Córdoba, ♂, 3 ♀♀, January 5-14, Bridarolli, and Santa Fé, Piquete, ♂, January 15, 1930, Bridarolli (all in Coll. Colegio Máximo de San José, San Miguel); Corrientes, San Roque, ♀, February 1920, J. Bosq, "*T. dorsofasciata* n. sp. det. E. E. Blanchard" (Coll. Blanchard); Chaco, Colonia Benítez, ♂, December 7, 1949, R. Goldbach, Jujuy, Sierra Zapla, ♂, January 30, 1949, M. L. Aczél, Formosa, Pirane, ♀, December 29-31, 1948, R. Golbach; and Tucumán, El Naranjito, ♀, February 3, 1947, Ares (all in FML).

Tomoplagia formosa, new species

FIGURES 98,*p-s*; 102,*v*; PLATE 23, FIGURE 16

Similar to *reimoseri*, differing in the characters given in the key (p. 329).

Female: Length of body 4.5 mm.; wing 4.3 mm. long and 1.9 mm. wide, almost 2.3 times as long as wide.

Head testaceous yellow, except upper half of frons darker and mesofacial plate whitish dusted ochraceous yellow; 0.85 mm. long, 1.34 mm. wide and 1.13 mm. high. Ocellar plate only very slightly raised. Frons at vertex 0.61 and at anterior margin 0.41 mm. broad, and medially 0.60 mm. long, approximately as long as broad at vertex. Antennae and mouthparts testaceous yellow; maxillary palpi not curved, long-oval with widely rounded apex. Oral margin of mesofacial plate raised and considerably prominent. Postpedicel long oval, 0.27 mm. long and 0.18 mm. wide, 1.5 times as long as wide; setae shining black except for testaceous yellow basal fifth, and more than twice as long as postpedicel. Inferior part of cerebral plate only slightly raised. Eyes in profile 1.32 mm. high and 0.70 mm. wide, nearly 1.9 times as high as wide; inferior part of posteranium in profile 0.23, genae below eyes 0.11 mm. wide.

Cephalic bristles brownish yellow and somewhat flattened; the usual garniture present and the relation in length almost the usual, but in the specimen examined outer verticals much longer than ocellar and

anterior pair of recurved upper orbital bristles. Genal bristle short but distinct by the brownish black color.

Thorax with scutellum 2.0 mm. long and 1.5 mm. wide, testaceous yellow in ground color; mesonotum covered with silky whitish pruinosity and with appressed thickish pale yellow hairs, except for posterior margin which is shining; in the dusting there are no vittae present. The usual pair of oval black spots relatively large, each situated between prescutellar and upper postalar bristles; a minute black dot behind and beneath wing base. Pleura shining, only inferior part of sternopleuron (katapisternite) sparsely dusted with whitish pruinosity; they are marked with three black spots as in *reimoseri* but the double one on inferior part of dorsal pleurotergite is as wide as on ventral. Scutellum shining testaceous yellow with some minute yellowish hairs at sides. Median part of postscutellum yellow, whitish dusted; lateral parts black, which continues in a pair of large lateral long-oval black spots on the shining yellowish red mediotergite.

Thoracic bristles brownish yellow and somewhat flattened; inferior mesopleural bristle but slightly shorter than superior; posterior notopleural bristle slightly shorter than anterior; dorsocentral pair inserted approximately in, or slightly before, anterior third of distance between transverse suture and supra-alar bristle, spaced slightly farther apart than prescutellar pair, which stands approximately in posterior fourth of distance between upper postalar and supra-alar bristles. Apical pair of scutellar bristles almost parallel and slightly shorter than basal pair.

Coxae and legs entirely testaceous yellow, without special characters.

Wings with the usual pattern of the genus; tip of humeral cross-vein brownish black; costa blackened at tip of humeral cross-vein and at tip of subcosta. Basal band abbreviated and terminated in a small diffuse brown cloud at tip of apical process of anal cell. Subcostal cell (stigma) 2.9 times as long as basally broad. First section of costa 0.63, second 1.25, third 0.80, and fourth 0.63 mm. long; basal section of fourth longitudinal vein 1.02 penultimate 0.38, and ultimate 1.36 mm. long. Inner cross-vein 0.30 mm. long and almost parallel to outer cross-vein (0.61 mm.). Anal cell with 0.34-mm. apical process 0.85 mm. long, the whole cell exactly 2.5 times as long as the entire apical process.

Halteres testaceous yellow with brownish knob.

Preabdomen 1.7 mm. long and 1.6 mm. wide, ground color subshining testaceous yellow, covered with appressed brownish yellow hairs. Third to sixth tergite each with pair of lateral black spots; black spots of third to fifth tergites small, rounded or long-oval, and placed in two parallel longitudinal rows, unusually near lateral margins of corresponding tergites; black spots on sixth tergite larger and considerably closer placed than anterior pairs. Sixth tergite slightly

longer than fifth (0.25 mm.), 0.34 mm. long and nearly 1.3 times as long as fifth. Intersclerital membrane and sternites dark testaceous yellow.

Sheath of ovipositor dorsoventrally flattened (basally 0.20 mm. high in profile), entirely shining dark testaceous yellow and covered with appressed minute brownish yellow hairs; longer than in *punctata*, as long (0.91 mm.) as width of base, at the apex 0.41 mm. long. The median and the shining translucent apical part of ovipositor testaceous yellow; apical part dorsoventrally flattened, its shape in dorsal aspect long-oval, gradually tapering to a narrow, rounded tip.

MALE: Unknown.

TYPES: Holotype ♀ (FML), Argentina, Formosa, Misión Laishi, December 13-15, 1948, R. Golbach.

Tomoplagia heringi, new species

FIGURES 99,c-e; 102,s; PLATE 23, FIGURE 17

Similar to *reimoseri* in general aspect, but mesonotum is marked with three linear golden-yellow vittae and the ovipositor differs.

FEMALE: Length of body 4.0 mm.; wing 4.1 mm. long and 2.0 mm. broad, twice as long as broad.

Head pale ochraceous yellow, postcranium mostly testaceous yellow; 0.73 mm. long, 1.27 mm. wide, and 1.09 mm. high. Frons at vertex 0.57 and at anterior margin 0.43 mm. broad, and in median line 0.50 mm. long. Inferior part of cerebral plate slightly raised. Ocellar plate in this species strongly raised, with reddish ocelli. Oral margin of mesofacial plate raised and slightly prominent. Antennae and mouthparts testaceous yellow, only labella brown; maxillary palpi slightly curved, as in *reimoseri*, but much broader with blunt tip. Postpedicel broad-oval, 0.25 mm. long and 0.16 mm. wide, approximately 1.6 times as long as wide; seta bare shining black except for the thickened ochraceous yellow basal part. Inferior part of postcranium in profile (0.11 mm.) and genae below eyes relatively narrow. Eyes in profile 0.88 mm. high and 0.50 mm. wide, almost 1.6 times as high as wide.

Cephalic bristles brownish yellow.

Thorax with scutellum 1.8 mm. long and 1.3 mm. wide, pale ochraceous to testaceous yellow; mesonotum with the same pruinose pattern as in *punctata*, that is to say the mesonotum, except for the very narrow, shining hind margin, is covered with silky whitish dusting and with very short and somewhat thickish whitish yellow hairs; in the silky whitish pruinosity are three linear vittae of pale golden yellow dusting, a median vitta and two in the line of the dorsocentral bristles; on each side of mesonotum a broad vitta dusted with the same color. On the hind margin of mesonotum the usual pair of

lateral black spots, in this species relatively large; a black dot behind wing base. Pleura shining, except for the whitish pruinose mesopleuron (anepisternite) and sternopleuron (katepisternite), with three black markings—a broad horizontal black vitta crossing sternopleuron and broader than the yellow vitta above it on upper margin, a large black spot above hind coxa, and on inferior part of pleurotergites a double one, very broad, on ventral pleurotergite (occupying lower two-thirds) and much narrower on dorsal. Scutellum shining pale ochraceous yellow with some short black hairs on sides; middle third of postscutellum pale testaceous yellow, lateral thirds black. Mediotergite entirely shining, intensive, testaceous yellow.

Thoracic bristles brownish yellow and somewhat flattened; two mesopleural bristles present on both sides, but inferior very weak and shorter than half of superior bristle. Posterior notopleural bristle two-thirds as long as anterior but much weaker. Dorsocentral pair inserted in anterior third of distance between transverse suture and supra-alar bristle, spaced slightly wider than prescutellar pair, which stands in posterior third of distance between upper postalar and supra-alar bristle. Apical pair of scutellar bristles distinctly shorter than basal pair and convergent.

Coxae and legs entirely testaceous yellow.

Wings with the general pattern of the genus; apical half of humeral cross-vein brownish black on upper surface of wing; costa slightly darkened only at tip of subcosta; basal band very abbreviated, ending in an indistinct brownish cloud. Subcostal cell (stigma) approximately 2.4 times as long as basally broad. First costal section (stigma) 0.63, second 1.29, third 0.75, and fourth 0.59 mm. long. Basal section of the fourth longitudinal vein 1.09, penultimate (or median) 0.45, and ultimate 1.23 mm. long. Inner cross-vein 0.34 mm. long and more obliquely situated than the 0.59-mm. outer cross-vein. Anal cell 0.85 mm. long, including apical process (0.38 mm. long); the whole cell is approximately 2.2 times as long as the apical process itself.

Halteres entirely testaceous yellow.

Preabdomen 1.3 mm. long and 1.2 mm. wide, shining testaceous yellow, covered with appressed short black hairs; second to sixth tergites each with a pair of lateral black spots; black spots on second tergite small, on other tergites large, all slightly transverse-oval in shape except for rounded spots on the 0.34-mm. sixth tergite. The 0.27-mm. fifth tergite is slightly shorter than sixth.

Ovipositor sheath shining testaceous yellow, covered with appressed minute black hairs, apical margin with pair of small brown lateral dots. Sheath considerably shorter (0.52 mm.) than basally broad (0.77 mm.) and dorsoventrally strongly flattened; at apex 0.36 mm. wide and at base only 0.16 mm. high in profile. Apical part of ovi-

positor testaceous yellow, translucent with silky lustre, long-triangular in shape with narrowly rounded normal tip.

MALE: Unknown.

TYPES: Holotype ♀ (USNM 61719), Paraguay, Villarica, May 1939, F. Schade.

Tomoplagia incompleta (Williston)

FIGURES 99,*h-m*; 102,*l,m*; PLATE 22, FIGURE 12

Trypeta incompleta Williston, 1896, p. 378.

Tomoplagia incompleta (Williston), Hendel, 1914, p. 35.

Easily distinguishable by the modified wing pattern, in which respect it is very similar to *argentiniensis*; by the black markings of the fifth abdominal tergite of male it seems to belong to the *unifascia* group.

MALE: Length of body 3.8 (4.1) mm.; wing 3.4 (3.7) mm. long and 1.5 (1.6) mm. broad, approximately 2.3 times as long as broad.

Head pale ochraceous yellow except for the densely white pruinose mesofacial plate and genae which are brownish below eyes; 0.68 (0.67) mm. long, 1.02 (1.17) mm. wide, and 0.88 (0.86) mm. high. Frons at vertex 0.50 (0.50) and at anterior margin 0.36 (0.37) mm. broad, and medially 0.43 (0.43) mm. long; ocellar plate very slightly raised. Antennae ochraceous to testaceous yellow, maxillary palpi whitish yellow, slightly curved and with widely rounded apex; labella testaceous yellow. Postpedicel long-oval, 0.25 (0.26) mm. long and 0.16 (0.16) mm. wide, 1.5 (1.6) times as long as wide; seta bare, shining black, except for the testaceous yellow, thickened basal fourth, more than twice as long as postpedicel. Eyes in profile 0.77 (0.77) mm. high and 0.48 (0.46) mm. wide, 1.6 (1.7) times as high as wide. Inferior margin of cerebral plate only slightly raised, invisible in profile. Genae below eyes 0.08 (0.07), inferior part of postcranium in profile 0.17 (0.19) mm. wide.

Cephalic bristles brownish yellow; the usual garniture present. Anterior pair of lower orbital bristles (*ori*) considerably reduced in male, while in female only slightly shorter than posterior pairs; in male subequal to posterior pair of upper orbital bristles (*ors*) or slightly longer; the two posterior pairs of *ori* are subequal in length to anterior pair of *ors*; outer vertical bristles slightly longer than these and subequal to ocellar pair. Genal bristle brownish black, indistinct among the genal hairs of the same color.

Thorax with scutellum 1.5 (1.6) mm. long and 1.3 (1.4) mm. wide, ochraceous to testaceous yellow in ground color; mesonotum, except for the shining hind margin, sparsely and evenly covered with white pruinosity and very short appressed hairs; no dusted vittae present. The usual pair of brownish black spots marks the hind region of

mesonotum; behind wing base a pointlike black dot. Pleura shining, except for the finely whitish pruinose mesopleuron (anepisternite) and sternopleuron (katepisternite). The double black spot on inferior part of pleurotergites always present, sometimes yellowish brown; the smaller black spot above hind coxa sometimes absent. Scutellum ochraceous yellow, shining, with some minute appressed brownish yellow hairs on sides. The large median part of postscutellum yellow, lateral parts brownish black to yellowish brown, postscutellum, rarely, may be entirely yellow. Mediotergite shining and usually wholly intensive testaceous yellow, but sometimes on hind region a pair of large lateral dark spots, yellowish brown to brownish black.

Thoracic bristles brownish yellow; inferior mesopleural bristle slightly shorter than superior; posterior notopleural bristle usually only two-thirds as long as and much weaker than anterior. Dorso-central pair (*dc*) in male inserted in anterior fifth to fourth, in female approximately in anterior third, of distance between transverse suture and supra-alar bristles (*sa*); *dc* bristles more widely spaced than prescutellar pair which stands approximately halfway between *sa* and upper postalar (*pa*) bristles (in male slightly nearer *pa*). Apical pair of scutellar bristles shorter and weaker than basal pair, parallel to slightly convergent.

Wings with characteristically modified pattern as in *argentiniensis*; subapical band is completely absent, except for a brown spot on tip of fourth longitudinal vein. Antebasal band not bordered with brown, yellow with brown tip, much paler than in *argentiniensis*; costa blackened at tip of humeral cross-vein and at tip of subcosta. Basal band abbreviated and terminated in a translucent brown cloud at tip of apical process of anal cell. Stigma (subcostal cell) long, approximately 3.0 (3.2) times as long as basally broad. First costal section 0.52 (0.54), second 1.02 (1.03), third 0.61 (0.77), and fourth 0.43 (0.48) mm. long. Basal section of the fourth longitudinal vein 0.76 (1.00), penultimate (or median) 0.29 (0.25), and ultimate 1.16 (1.30) mm. long, nearly straight. Inner cross-vein (0.23 (0.27) mm.) parallel to outer cross-vein (0.48 (0.57) mm.). Anal cell with apical process 0.66 (0.76) mm. long, 2.2 (2.4) times as long as apical process (0.30 (0.32) mm.)

Halteres entirely testaceous yellow but the knob sometimes brownish.

Coxae, with legs, testaceous yellow.

Preabdomen 1.7 (1.9) mm. long and 1.2 (1.3) mm. wide, shining ochraceous to testaceous yellow, with golden, shining, appressed, brownish black hairs. Third to fourth tergites each with one pair and fifth tergite with two pairs of lateral black spots. Black spots on fourth tergite and basal pair of fifth tergite usually large and subequal; black spots on third tergite are generally as small as apical pair of fifth tergite, sometimes they are only brown to yellowish

brown in color, exceptionally may be absent. Fifth tergite unusually long (0.61 (0.73) mm.), 2.2 (2.0) times as long as the fourth (0.27 (0.36) mm.).

Postabdomen testaceous yellow; epandrium very specialized, long oval, without cercal emargination; surstyli bifid, shining and transparent testaceous yellow, dorsal lobes terminating in long, yellowish brown spines which are very probably homologous to the anterior pair of gonapophyses. These all are exceptional characters in this genus.

FEMALE: Like male. Body 3.6 (3.8) mm. long (without ovipositor); wings 4.1 (4.6) mm. long and 1.6 (1.9) mm. broad, 2.5 (2.4) times as long as broad.

Head 0.71 (0.79) mm. long, 1.18 (1.32) mm. wide, and 1.00 (1.09) mm. high. Frons at vertex 0.52 (0.57), at anterior margin 0.39 (0.40) mm. broad and in median line 0.47 (0.51) mm. long. Postpedicel 0.27 (0.26) mm. long and 0.16 (0.16) mm. wide, 1.7 (1.6) times as long as wide. Eyes in profile 0.82 (0.91) mm. high and 0.50 (0.54) mm. wide, 1.6 (1.7) times as high as wide (or long). Genae below eyes 0.09 (0.09) and inferior part of posteranium in profile 0.13 (0.13) mm. wide. Thorax with scutellum 1.7 (1.9) mm. long and 1.3 (1.5) mm. wide, with the same characters as in male.

Wings like those of male; first costal section 0.63 (0.64), second 1.25 (1.27), third 0.85 (0.86), and fourth 0.52 (0.54) mm. long. Basal section of fourth longitudinal vein 1.00 (1.04), penultimate (between both cross-veins) 0.32 (0.28), and ultimate 1.38 (1.43) mm. long. Inner cross-vein 0.29 (0.32), outer cross-vein 0.59 (0.61) mm. long. Anal cell with apical process 0.79 (0.82) mm. long, approximately 2.5 times as long as the apical process (0.32 (0.32) mm. long).

Preabdomen 1.4 (1.4) mm. long and 1.4 (1.3) mm. wide, with two rows of four lateral black spots that converge towards ovipositor sheath; third to sixth tergites each marked with pair of lateral black spots. Black spots on fourth and fifth tergites usually the largest, black spots on third tergite smaller than that of sixth. Exceptionally, black spots on third tergite may be completely absent. Sixth tergite (0.28 (0.28) mm.) slightly longer than fifth (0.21 (0.22) mm.) in all specimens examined.

Ovipositor sheath entirely shining testaceous yellow, covered with fine yellowish to dark brown hairs; strongly flattened dorsoventrally (at the base only 0.16 (0.18) mm. high in profile) and slightly longer (0.91 (0.93) mm.) than width (0.80 (0.86) mm.) at base, at apex only 0.36 (0.35) mm. wide. Apical part of ovipositor dorsoventrally flattened, subshining and translucent testaceous yellow; in dorsal aspect short lanceolate and slightly narrowed before tip.

TYPE: ?

TYPE LOCALITY: St. Vincent Island, British West Indies. Also recorded from Paraguay (Hendel).

SPECIMENS EXAMINED: Argentina: Misiones, Loreto, ♀, December 30, 1929, and Uberaba, ♀, June 16, 1936, R. Mundell, (both in coll. Blanchard); Córdoba, Sierra Córdoba, ♂, January 1, 1938, Bridarolli, (in coll. Dr. Williner); Tucumán, Villa Padre Monti, 38 ♂♂, 33♀♀, January 17–February 7, 1948, R. Golbach; Jujuy, Palpalá, ♂, ♀, January 12–18, 1949, M. C. Aczél; Chaco, Colonia Benítez, ♂, December 7, 1949, R. Golbach; Misiones, Iguazú, ♀, January 30–February 13, 1947, Hayward, Willink, and Golbach (all in FML); Catamarca, Catamarca, ♀, May 31, 1927, M. Kisliuk, “No 782, on chrysanthemum”; Puerto Rico: Maricao, ♂, December 19, 1935, H. L. Dozier, “P. R. 199,” Mayagüez, ♂, January 21, 1936, J. W. Baher, “1502, trap in rose apple tree.” St. Kitts: Stapleton, ♂ August 10, 1931, Kisliuk and Cooley, “K. & C. St. Kitts No. 32, on guava” (in USNM).

The specimens from the Antilles were much smaller in size than those from the Argentine but no structural differences were to be found.

Tomoplagia kelloggi, new species

FIGURES 99,a,b; 102,g; PLATE 23, FIGURE 18

The writer received the type specimen of this medium sized species as *atimeta* Hendel from the U. S. National Museum, but it doubtlessly represents a well-characterized new species which has an entirely different aggregate of characters than *atimeta* except for the large opaque black spot on the anal vein, a common character for both species. It may be easily distinguished from all known species by the characters given in the key (p. 329).

MALE: Length 4.7 mm.; wing 5.3 mm. long and 2.1 mm. wide, 2.5 times as long as wide.

Head entirely testaceous yellow, 0.86 mm. long, 1.36 mm. wide and 1.13 mm. high. Eyes in profile obliquely situated, 0.85 mm. high and 0.57 mm. wide, 1.5 times as high as wide; genae below eyes 0.18 and inferior part of posteranium 0.25 mm. wide, both relatively wide. Ocellar plate behind posterior ocelli with small black dot. Inferior part of cerebral plate raised. Oral margin of the impressed mesofacial plate raised and prominent. Frons at vertex 0.61 and at anterior margin 0.52 mm. broad, broader than one eye and medially as long (0.52 mm.) as broad at anterior margin. Antennae and mouth-parts reddish testaceous yellow, except for the reddish brown labella; maxillary palpi wide sickle-shaped. Postpedicel wide-oval, 0.25 mm. long and 0.18 mm. wide, as wide as genae below eyes and 1.4 times as long as wide; seta bare, shining blackish, except for the testaceous yellow basal third; more than three times as long as postpedicel.

The major part of the cephalic bristles lacking; the three incurved lower orbital bristles are brownish yellow, the outer occipital (=

postocular) cilia golden shining brownish black; the missing outer vertical and perhaps the anterior pair of the recurved upper orbital bristles are most probably also brownish black. Genal bristle and the majority of the genal hairs are brownish black with a golden lustre.

Thorax with scutellum relatively long, 2.0 mm. long and 1.4 mm. wide, reddish testaceous yellow in ground color; mesonotum, except for the bare and shining posterior margin in front of scutellum, evenly covered with yellowish dusting and golden shining appressed short hairs; no pruinose vittae of different color, but both sides of mesonotum above wing base and behind transverse suture up to line of dorsocentrals covered with black hairs longer and thinner than the whitish hairs. Only the usual pair of oval black spots present on hind region of mesonotum, each between prescutellar and upper postalar bristles. In the specimen examined the small black dot behind (and beneath) wing base absent. Sternopleuron (katapisternite) almost entirely shining black, except for the narrow yellow superior and hind margins; on the reddish yellow pleura are the following black markings: a large black spot above hind coxa and a long vittalike spot on inferior part of pleurotergites. Scutellum, post-scutellum, and mediotergite shining dark testaceous yellow, without black or dark spots.

Thoracic bristles dark brownish yellow. Only superior mesopleural bristle present on both sides; dorsocentral pair inserted anterior third of distance between transverse suture and supra-alar bristle and more widely spaced than prescutellar pair. The hind notopleural bristle only two-thirds as long as the fore.

Coxae and legs testaceous yellow, only tips of femora and tarsi are darker.

Wings with the general pattern of the genus but basal band represented only by a round, large, opaque, brownish black spot situated on apical part of anal cell and on both sides of $Cu_2 + An_2$ vein, and bisected in two halves by a hyaline line that borders from behind the brownish black anal vein. Costa blackened at the almost entirely black humeral cross-vein and darkened at tip of subcosta. Stigma 2.5 times as long as broad at base. First costal section 0.27, second 1.66, third 0.95, and fourth 0.52 mm. long. Basal section of the fourth longitudinal vein (M_1) 1.36, penultimate 0.48, and ultimate 1.66 mm. long. Inner cross-vein more obliquely placed than the unusually oblique outer cross-vein (*tp*) and slightly shorter than the penultimate section of M_1 (0.36 mm.); *tp* 0.61 mm. long. Discoidal cell peculiarly shaped, since the fifth longitudinal vein is strongly excurved; second basal cell mostly yellow with a small oval hyaline dot in the anteromedian part of cell. Anal cell with apical process 0.86 mm. long, 2.3 times as long as the (0.37-mm.-long) apical process. Halteres dark testaceous yellow.

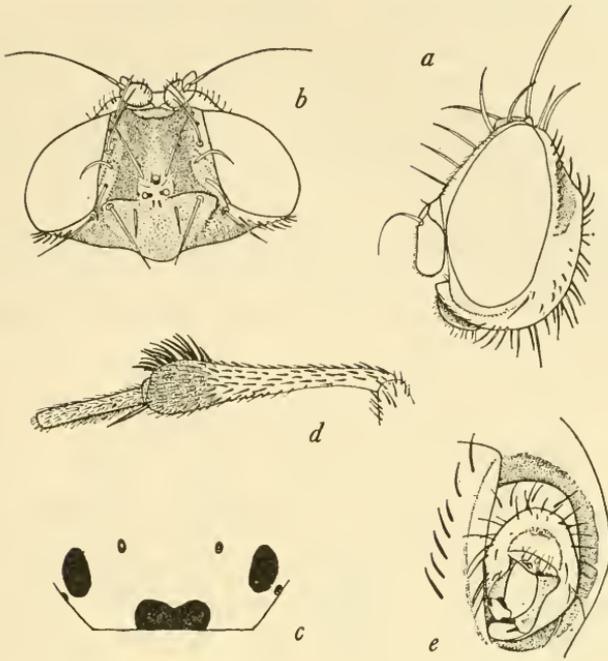


FIGURE 93.—*Tomoplagia pseudopenicillata*: *a*, lateral view of head; *b*, dorsal view of head; *c*, markings on hind margin of mesonotum; *d*, anterior view of midtibia; *e*, dorsal view of epandrium.

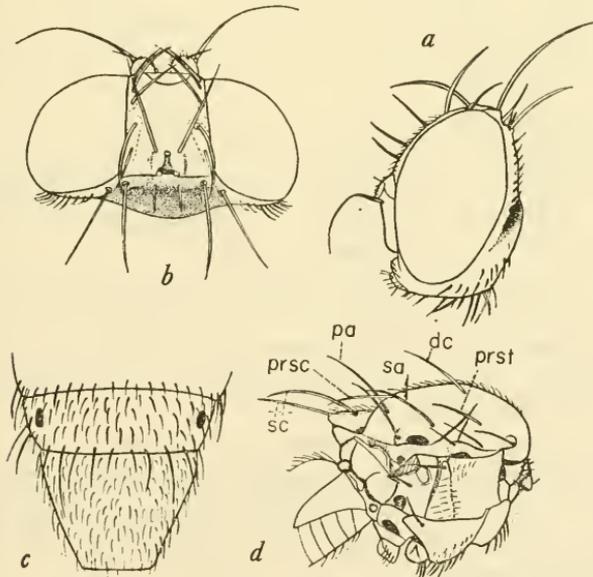


FIGURE 94.—*Tomoplagia propleuralis*: *a*, lateral view of head; *b*, dorsal view of head; *c*, dorsal view of apex of female abdomen; *d*, lateral view of thorax.

Preabdomen shining reddish testaceous yellow, covered with appressed fine black hairs, 1.7 mm. long and 1.8 mm. wide. In the type specimen are four pairs of lateral black spots, second to fourth tergites each with a large rounded pair (on second tergite they are smaller than the others), and fifth tergite with a pair of narrow vittalike spots that do not attain the hind margin; fifth tergite 1.7 times as long (0.59 mm.) as fourth (0.34 mm.).

Postabdomen dark testaceous yellow; epandrium oval with brown cerci and normally shaped surstyli.

Types: Holotype ♂ (USNM 61720), Perú, Río Charape, September 15, C. H. Townsend.

Tomoplagia minattai Blanchard (MS.), new species

FIGURES 99,*f,g*; 102,*i*; PLATE 24, FIGURE 19

A very distinct large species with special characters; similar to *tripunctata* Hendel, but differs from all known species by having on sides of the mesonotum only the pair of long-oval black spots, each above the wing base (below the supra-alar bristle).

FEMALE: Length of body 6.0 mm.; wing 6.2 mm. long and 2.8 mm. broad, 2.2 times as long as broad.

Head 1.07 mm. long, 1.75 mm. wide, and 1.52 mm. high, testaceous yellow with brown markings, symmetrical on both sides of inferior part of postcranium. Frons at vertex 0.80 and at anterior margin 0.59 mm. broad, and in median line 0.66 mm. long; parafacial plates, which widen considerably towards antennae, and a median vitta, including the slightly raised ocellar plate, distinctly silky white pruinose, much narrower than the bare testaceous-yellow vittalike lateral parts of the frontal vitta. Antennae and the almost straight subtriangular maxillary palpi testaceous yellow, labella yellowish brown. Oral margin of mesofacial plate raised and considerably prominent. Postpedicel long-oval, 0.32 mm. long and 0.22 mm. wide, approximately 2.5 times as long as wide; setae bare, shining black, except for the testaceous yellow basal sixth, approximately 2.5 times as long as postpedicel. Inferior part of cerebral plate raised. Eyes in profile 1.32 mm. high and 0.70 mm. wide (or long), nearly 1.9 times as high as wide. Inferior part of postcranium in profile 0.27, genae below eyes 0.13 mm. wide.

Cephalic bristles brownish yellow and somewhat flattened; considering the insertion points, the usual garniture present but almost all the bristles of the type specimen are absent. No distinct genal bristle; the short hairs on genae and on inferior part of postcranium shining brownish black.

Thorax with scutellum 3.0 mm. long and 2.0 mm. wide, testaceous yellow in ground color; mesonotum covered with whitish pruinosity and with appressed short yellowish hairs except for the bare and shin-

ing narrow hind margin; some erect blackish hairs around the usual black spots on the hind region and three yellowish brown-dusted golden shining vittae, one in median line and two on dorsocentral line; the two whitish dusted vittalike interspaces between them are narrower than these; the lateral brown vittae terminate posteriorly in the usual black wide oval spots and are narrower than the whitish dusted lateral sides of the mesonotum. A long oval black dot above wing base (below supra-alar bristle) on both sides of the type specimen, and a subtriangular spot behind (beneath) wing base. Pleura shining, except the sparsely whitish pruinose, subshining mesopleuron and

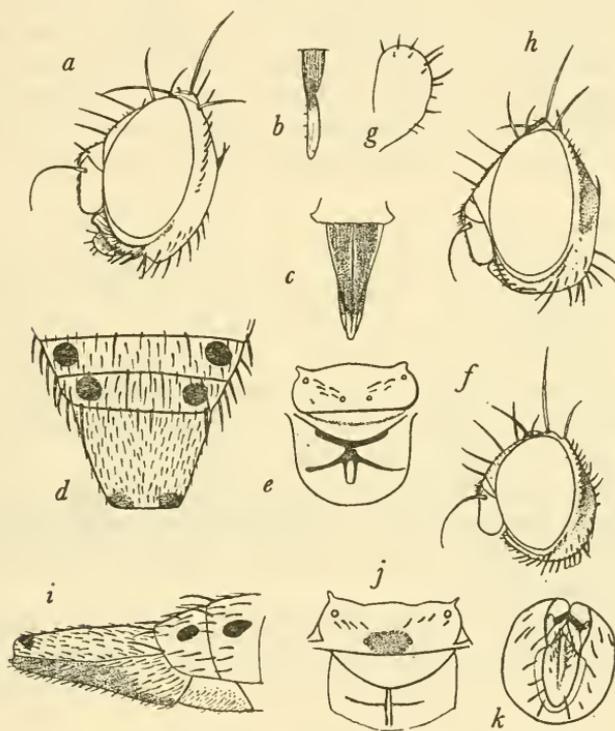


FIGURE 95.—*Tomoplagia monostigma*: a, lateral view of head; b, lateral view of ovipositor tip; c, dorsal view of ovipositor tip; d, dorsal view of apex of female abdomen; e, scutellum, postscutellum, and mediotergite. *T. minuta*: f, lateral view of head. *T. cressoni*: g, right maxillary palpus, superior surface; h, lateral view of head; i, lateral view of apex of female abdomen; j, scutellum, postscutellum, and mediotergite; k, dorsal view of epandrium.

sternopleuron; pleura marked with two of the most common black spots; one large spot on sternopleuron below bristle and a double spot occupying lower half of ventral pleurotergite, extending over inferior part of dorsal. Scutellum shining translucent ochraceous yellow with some brownish black hairs on sides. The large median region of postscutellum testaceous yellow, whitish dusted, the small lateral parts black. Mediotergite shining, intensive testaceous yellow.

Thoracic bristles brownish yellow and somewhat flattened; lower mesopleural bristle slightly shorter and weaker than upper; posterior notopleural bristle considerably shorter and weaker than anterior. Dorsocentral pair inserted nearer supra-alar bristle than transverse suture, approximately in distal two-fifths of distance between them. Apical pair of scutellar bristles only slightly shorter than basal pair.

Coxae and legs entirely testaceous yellow.

Wings with the usual pattern of genus. Apical half of humeral cross-vein (*th*) black; costa not blackened at tip of *th* and subcosta. Basal band abbreviated and ending in a subtriangular, nearly opaque, dark brown spot at apex of apical process. First costal section 1.04, second 1.73; third 1.23, and fourth 0.82 mm. long. Basal section of fourth longitudinal vein 1.48, penultimate (median) 0.41, and ultimate 1.88 mm. long, strongly curved. Inner cross-vein 0.43 mm. long and nearly parallel to the 0.86-mm.-long outer cross-vein. Whole anal cell 1.23 mm. long, 3.0 times as long as the apical process (0.41 mm. long).

Halteres ochraceous yellow.

Preabdomen 2.4 mm. long and 2.6 mm. wide, yellowish brown, except for the wide yellow hind margins of second to fifth tergites; sixth tergite with narrow hind margin; preabdomen covered with very short brownish black hairs. Third to sixth tergites each marked with pair of lateral black spots, irregular in shape. Sixth tergite 0.41 mm. long, slightly longer than the fifth (0.35 mm.). Intersclerotol membrane pale yellow, sternites testaceous yellow.

The dorsoventrally flattened ovipositor sheath entirely ochraceous yellow, opaque, densely covered with fine yellow hairs; wider at base (1.11 mm.) than long (0.80 mm.), apically 0.48 mm. wide and basally 0.22 mm. high in profile.

Types: Holotype ♀ (Coll. Blanchard), Argentina, Entre Ríos, Concordia, November 1947, Ismael Minatta. Named in honor of the collector.

Tomoplagia minuta Hering

FIGURES 95, f; 97, h; PLATE 21, FIGURE 10

Tomoplagia minuta Hering, 1938, p. 187.

This species pertains to the *obliqua*-group and it is the smallest of all; it may be easily distinguished from its allies (*monostigma* and *cressoni*) as indicated in the key, and from *biseriata* (Loew) by the mostly hyaline coloration of the second basal cell of the wing.

MALE: Length 2.8 mm.; wing 3.1 mm. long and 1.3 mm. wide, nearly 2.4 times as long as wide.

Head pale ochraceous yellow, 0.52 mm. long, 0.96 mm. wide, and 0.68 mm. high; antennae and mouthparts testaceous yellow. Frons

without darker vittae, genovertical plate hardly infuscated; at vertex 0.43, at anterior margin 0.27 mm. wide, and in median line 0.38 mm. long, slightly shorter than wide at vertex. Occiput (postcranium) apparently brownish yellow, because it is translucent except for narrow inferior part around posterior part of oral margin, which is opaque and pale ochraceous yellow. Ocelli clear transparent yellow. Oral margin of mesofacial plate raised and but very slightly prominent. Postpedicel wide-oval, 0.19 mm. long and 0.13 mm. wide, about 1.4 times as long as wide; seta bare and shining black except the slightly

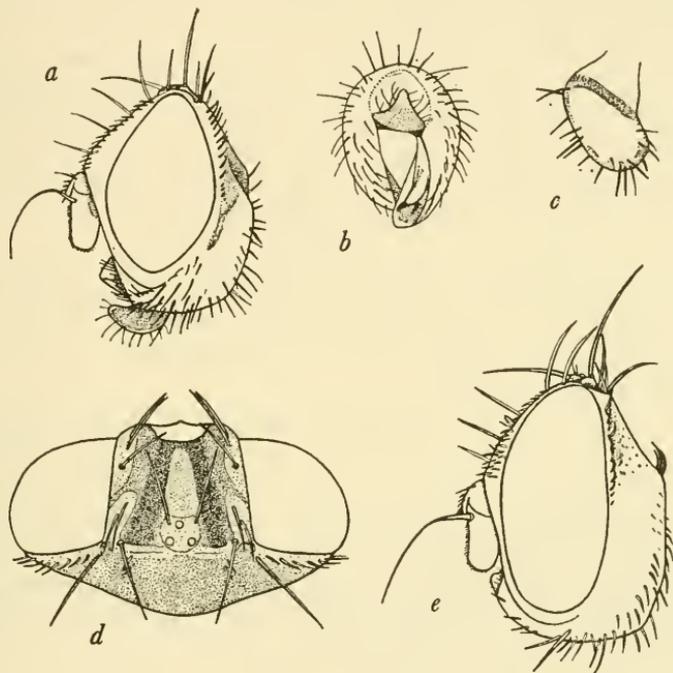


FIGURE 96.—*Tomoplagia carrerai*: a, lateral view of head; b, dorsal view of epandrium; c, left maxillary palpus, inferior view. *T. trivittata*: d, dorsal view of head; e, lateral view of head.

thickened, brownish yellow basal fourth; about 2.5 times as long as postpedicel. Eyes, in profile, only 1.4 times as high as wide. Maxillary palpi wide-oval.

Head bristles brownish yellow; the weak posterior pair of the recurved upper orbital bristles (*ors*) and the anterior pair of the incurved lower orbital bristles (*ori*) the shortest; the two posterior pairs of *ori* about as long as the anterior pair of *ors*, and slightly shorter than the outer vertical bristles (*vte*); ocellar bristles slightly longer than *vte*, but much shorter than inner vertical ones. One pair of weak, hardly distinguishable genal bristles.

Thorax 1.3 mm. long and 0.9 mm. wide, ochraceous yellow in ground

color; mesonotum evenly covered with testaceous yellow dusting and with short appressed yellow hairs, except the bare and shining narrow translucent posterior margin; on mesonotum only a trace of three linear vittae: one on median line and two lateral vittae on line of dorsocentrals visible only from behind as a slightly darker color. On hind part of mesonotum one pair of rounded black spots present, each one between upper postalar and prescutellar bristles. The pleura sparsely covered with ochraceous yellow dusting in front of mesopleural bristles and bare and shining in their rear, with only one narrow stripe-like dark spot on inferior margin of ventral pleurotergite, which in the specimen examined is yellowish brown.

Scutellum shining and translucent, ochraceous yellow, with some sparse brown hairs on hind margin. Postscutellum without black spots, slightly lighter than the brownish yellow, shining mediotergite.

The yellowish brown thoracic bristles somewhat flattened; two pairs of mesopleural bristles present, the lower one much weaker and about half as long as upper one; dorsocentral pair placed almost in suture; apical pair of scutellar bristles parallel.

Coxae and legs ochraceous yellow, except the blackish brown distitarsi of mid and hind legs; bristles and hairs brownish yellow, including anterodorsal row of short bristles on hind tibiae.

Halteres ochraceous yellow.

Wings with characteristic pattern of the genus; it is characteristic of the species that the remainder of basal band is concentrated, at apical process of anal cell, in a small opaque blackish brown spot which does not extend over anal vein. Stigma about 2.5 times as long as wide basally. First costal section 0.45, second 1.07, third 0.68, and fourth 0.41 mm. long; first section of the fourth longitudinal vein 1.04, penultimate 0.20, and very slightly arched ultimate 0.85 mm. long; inner cross-vein (*ta*) 0.24 and outer (*tp*) 0.39 mm. long; *ta* slightly longer than distance between cross-veins, and more obliquely situated than *tp*; penultimate section of fifth longitudinal vein, which limits discoidal cell, slightly but distinctly excurved. Anal cell with 0.16-mm.-long apical process 0.52 mm. (whole anal cell 3.2 times as long as the apical process).

Preabdomen shining testaceous yellow, covered with brownish yellow appressed hairs, 0.9 mm. long and 1.0 mm. wide, wider than long; each one of third to fifth tergites marked with a pair of rounded black spots; fifth tergite 0.33 mm. long, 1.5 times as long as fourth.

Epandrium testaceous yellow, wide-oval and very small.

Species originally described from Brazil (Nova Teutonia).

TYPE: In the collection of Dr. Martin Hering (Berlin).

SPECIMENS EXAMINED: Brazil: São Paulo, Salesópolis. ♂, 850 m., October 21, 1940, Travassos, Travassos filho, and Rabello (in Dep. Zool., São Paulo).

Tomoplagia monostigma Hendel

FIGURES 95, a-e; 97, i; PLATE 20, FIGURE 8

Tomoplagia monostigma Hendel, 1914, p. 38.

This species of the *obliqua* group is very similar to *ressoni*, but may be easily distinguished from the latter by the following comparative characters: only the upper mesopleural bristle is present; the apical brown spot is always absent on the scutellum; the black spot on the inferior part of ventral pleurotergite is always more or less projecting into the neighboring parts of the dorsal pleurotergite; and the second abdominal tergite is spotless.

FEMALE: Length 3.5 (3.6) mm.; wing 4.0 (4.0) mm. long and 1.75 (1.66) mm. wide, 2.3 (2.5) times as long as wide.

Head, including antennae and mouthparts, pale ochraceous yellow, 0.66 (0.57) mm. long, 1.11 (1.09) mm. wide, and 0.91 (0.93) mm. high. Frons at vertex 0.50 (0.48), at anterior margin 0.32 (0.32) mm. wide, and in median line 0.41 (0.41) mm. long. Oral margin of mesofacial plate raised and as prominent as in *ressoni*. Postpedicel wide-oval, 0.22 (0.23) mm. long and 0.16 (0.16) mm. wide, 1.4 times as long as wide. Seta bare, shining black, except the thickened basal fourth, which is testaceous yellow, about 2.5 times as long as postpedicel. Eyes in profile 1.7 times as long as wide.

Head bristles as in *ressoni*.

Thorax 1.6 (1.6) mm. long and 1.2 (1.1) mm. wide, pale ochraceous yellow in ground color; mesonotum covered with brass-yellow dusting and with very short appressed hairs, except the bare and shining translucent hind margin; only a trace of three linear vittae, slightly darker, present on mesonotum, as in *ressoni*. On the shining hind part of mesonotum the pair of usual black spots, each one between upper postalar and prescutellar bristles; one pair of pointlike small dots, each beneath wing base. Pleura pale ochraceous yellow with only one black spot on inferior part of ventral pleurotergite projecting, in all specimens examined, into the neighboring parts of the dorsal pleurotergite. Scutellum shining translucent ochraceous or whitish yellow, without small brown apical spot in all the specimens examined; postscutellum and mediotergite as in *ressoni*.

Thoracic bristles as in *ressoni*, but only upper pair of mesopleural bristles present; dorsocentral pair placed in anterior fourth to third of distance between suture and transverse line between supra-alars.

Wing with very similar pattern to that of *ressoni*; but a more or less short stretch of costa at apex of subcosta (distal to fracture) blackish brown; anterior tip of humeral cross-vein dark to blackish brown on both surfaces of wing, the brown often extends to the neighboring parts of costa. Subcostal cell considerably narrower than in

cressoni. First costal section 0.61 (0.63), second 1.25 (1.32), third 0.80 (0.77), and fourth 0.50 (0.49) mm. long; first section of the fourth longitudinal vein (M_1) 1.34 (1.36), penultimate 0.27 (0.30), and ultimate 1.18 (1.25) mm. long; inner cross-vein (*ta*) 0.32 (0.30), outer 0.50 (0.54) mm. long, *ta* as long as or slightly longer than distance (penultimate section of M_1) between cross-veins; anal cell with apical process 0.72 (0.72) mm. long, whole cell only 2.5 times as long as the apical process (0.29 (0.28) mm.), which is longer than in *cressoni*.

Halteres ochraceous yellow.

Coxae and legs ochraceous yellow with brownish yellow bristles and hairs, including anterodorsal row of short bristles on hind tibiae.

Preabdomen 1.6 (1.4) mm. long and 1.4 (1.3) mm. wide, with coloration and black markings as in *cressoni*, but second tergite in all specimens examined spotless; fifth tergite about as long as sixth (0.20 (0.25) mm.).

Sheath of ovipositor in specimens examined, strongly flattened dorsoventrally and slightly wider at base (0.73 (0.77) mm.) than long (0.57 (0.59) mm.); at apex wider than in *cressoni* (0.34 0.34 mm.), and basally only 0.14 (0.11) mm. high, shining testaceous yellow, with pair of round brown dots at apex as in *cressoni*. Apical part of ovipositor is translucent testaceous yellow, dorsoventrally flattened and acutely lanceolate.

Species originally described from Perú.

TYPE: In the Dresden Museum.

SPECIMENS EXAMINED: Perú; Tingo María, Varias-Aguaytía, 2 ♀♀, September 6-7, 1944, Hambleton; San Bartolomé ♀, July 19, 1932, E. Wille (all in USNM).

Tomoplagia ovalipalpis, new species

FIGURES 100, a-e; 102, w; PLATE 24, FIGURE 20

Belongs to the *pleuralis-reimoseri* group and may easily be distinguished from the allied species by the broad-oval maxillary palpi and other characters given in the key (p. 329).

FEMALE: Length of body 4.2 mm.; wing 4.9 mm. long and 2.1 mm. broad, 2.3 times as long as broad.

Head testaceous yellow, postcranium brownish yellow; 0.77 mm. long, 1.43 mm. wide and 1.20 mm. high, almost twice as wide as long. Frons at vertex 0.61, at anterior margin 0.45 mm. broad, and at median line 0.57 mm. long, broader than one eye. Oral margin of mesofacial plate raised and prominent. Inferior part of cerebral plate slightly raised. Antennae testaceous yellow, mouthparts brownish yellow, except for the testaceous yellow narrow basal part of the broad-oval, straight maxillary palpi. Postpedicel wide-oval, 0.25 mm. long and 0.18 mm. wide, 1.4 times as long as wide; seta bare, shining black except for the thickened testaceous yellow basal fifth;

three times as long as postpedicel. Eyes in profile 1.00 mm. high and 0.52 mm. wide (or long), almost twice as high as wide. Genae below eyes 0.07 mm., inferior region of posteranium 0.11 mm. wide, both relatively narrow.

Cephalic bristles brownish yellow, only genal bristle brown; three incurved lower orbital bristles present, anterior shorter than posterior two and subequal in length to posterior pair of recurved upper orbital

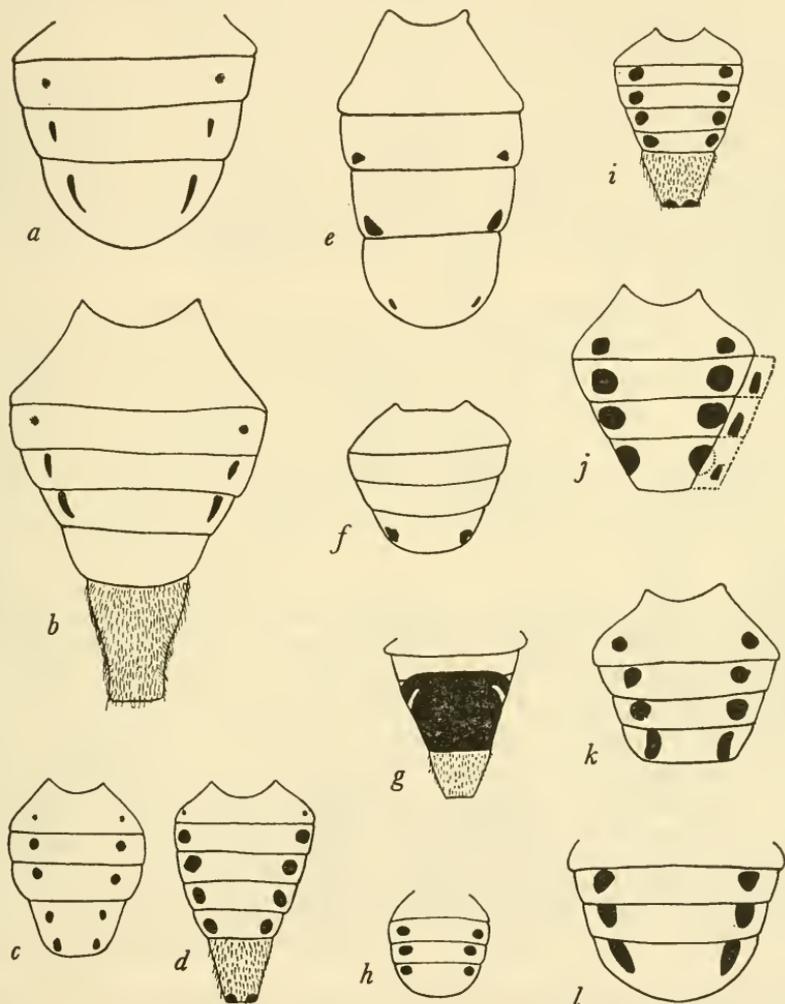


FIGURE 97.—*Tomoplagia stonei*: dorsal view of abdomen: a, Male; b, female. *T. cressoni*; dorsal view of abdomen: c, Male; d, female. *T. brevipalpis*: e, Dorsal view of male abdomen. *T. deflorata*: f, Dorsal view of male abdomen. *T. discolor*: g, Dorsal view of female abdomen. *T. minuta*: h, Dorsal view of male abdomen. *T. monostigma*: i, Dorsal view of female abdomen. *T. carrerai*: j, Dorsal view of male abdomen. *T. pseudopenicillata*: k, Dorsal view of male abdomen. *T. trivittata*: l, Dorsal view of male abdomen.

bristles (*ors*) but weaker; anterior pair of *ors* longer than these and subequal in length to the strongly divergent outer vertical and to the ocellar bristles.

Thorax 2 mm. long and 1.5 mm. wide, testaceous yellow in ground color; mesonotum evenly covered with pale golden yellow dusting and with short appressed pale yellow hairs, except for the bare and shining very narrow hind margin; three structural linear vittae in the dusting of mesonotum, one median and two lateral in line of dorso-central bristles which are visible only from behind. Only the usual pair of black spots present on hind region of mesonotum, each between the prescutellar and upper postalar bristles; behind (and beneath) wing base a small black dot. The commonest three black spots are present on the pleura: one below sternopleural bristle on katepisternum, a large spot above hind coxa, and a double one on inferior region of pleurotergites. Scutellum shining yellow, with some appressed pale yellow hairs on sides. Postscutellum yellow, with a pair of large triangular lateral black spots; mediotergite shining, intensive reddish yellow.

Thoracic bristles brownish yellow and long. Inferior mesopleural bristle only slightly weaker than superior; dorsocentral pair placed in anterior third of distance between transverse suture and supra-alar bristles and slightly farther apart than prescutellar pair, which is situated far before the level of upper postalar bristles. Apical pair of scutellar bristles parallel and slightly shorter than basal pair.

Coxae and legs testaceous yellow, except for the last two tarsomeres of midlegs and distitarsus of hind legs, all of which are dark brown.

Wings with the general pattern of the genus; costa blackened at tip of humeral cross-vein and at tip of subcosta; a hyaline dot present in apical band at apex of second longitudinal vein (R_{2+3}). Basal band abbreviated, ending in an oval-shaped translucent brown cloud at tip of anal cell. Subcostal cell (stigma) 2.3 times as long as basally broad. First costal section 0.68, second 1.70, third 0.91, and fourth 0.54 mm. long. Basal section of the fourth longitudinal vein 1.20, penultimate 0.48, and ultimate 1.48 mm. long. Inner cross-vein 0.33 mm. long, distinctly shorter than the penultimate section of M_1 and more obliquely situated than the 0.63-mm.-long outer cross-vein. Anal cell 1.02 mm. long, 2.5 times as long as the apical process (0.45 mm. long).

Preabdomen without ovipositor 1.7 mm. long and 1.7 mm. wide, shining testaceous yellow with appressed brownish black hairs; only second to fourth tergites each with pair of rounded black spots, the pair on third tergite wider spaced than posterior pair, the circular black spots on second tergite very small. Fifth tergite (0.27 mm.) distinctly (approximately 1.3 times) longer than sixth (0.20 mm.).

Halteres dark testaceous yellow with a brown knob.

Ovipositor sheath entirely shining reddish yellow, sparsely covered with appressed fine black hairs, slightly flattened dorsoventrally and with lateral edges; shorter (0.54 mm.) than basally wide (0.73 mm.) and almost as long as wide at base (0.57 mm. in profile); at tip 0.34 mm. wide. Membranous median part (rasper) and strongly chitinized apical part testaceous yellow, the latter translucent and shining.

Types: Holotype ♀ (in Dep. Zool. São Paulo), Brazil, São Paulo, Itanhaém, November 1948, E. Rabello.

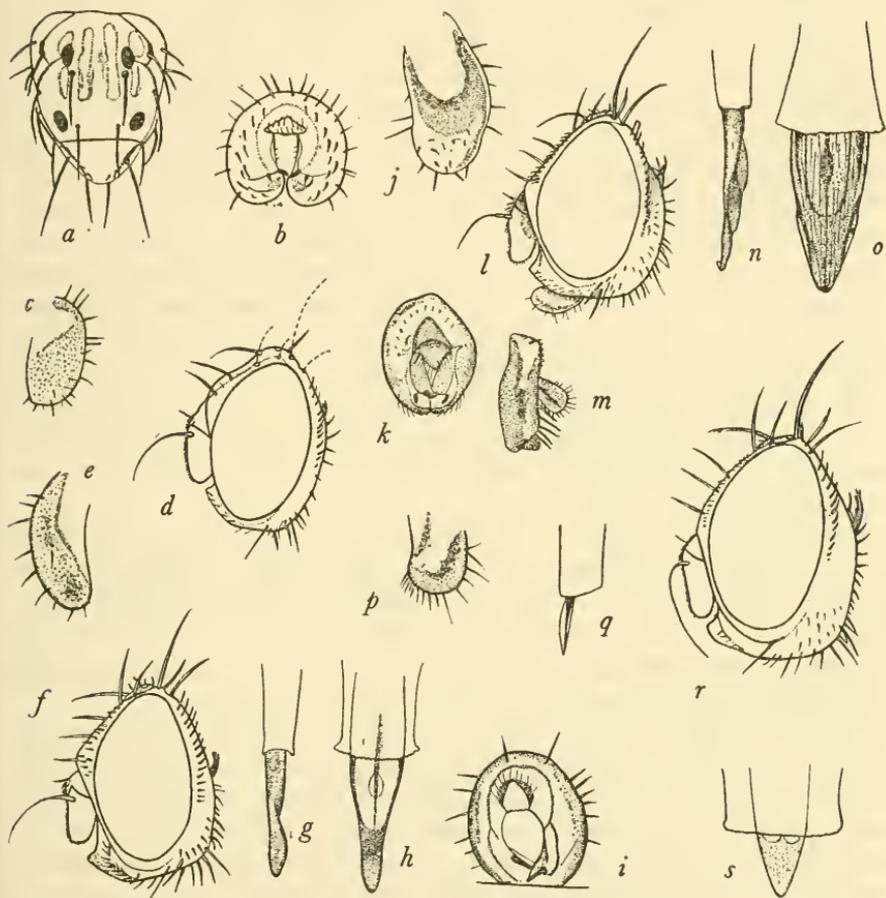


FIGURE 98.—*Tomoplagia argentiniensis*: a, Dorsal thoracic markings; b, dorsal view of epandrium; c, right maxillary palpus, inferior surface; d, lateral view of head. *T. costalimai*: e, Left maxillary palpus, inferior surface; f, lateral view of head; g, lateral view of ovipositor tip; h, dorsal view of ovipositor tip; i, dorsal view of epandrium. *T. fiebrigi*: j, Left maxillary palpus, superior surface; k, dorsal view of epandrium. l, Lateral view of head; m, lateral view of epandrium; n, lateral view of ovipositor tip; o, dorsal view of ovipositor tip. *T. formosa*: p, Left maxillary palpus, superior surface; q, lateral view of ovipositor tip; r, lateral view of head; s, dorsal view of ovipositor tip.

Tomoplagia phaedra HendelFIGURES 100,*h-l*; 102,*c,d*; PLATE 24, FIGURE 21*Tomoplagia phaedra* Hendel, 1914, p. 38.*Tomoplagia tucumana* (Blanchard in litt.) Hayward, 1942, p. 32 (nomen nudum).*Tomoplagia bosqi* (Blanchard in litt.).

A well-defined large species easily distinguishable by the characters given in the key.

MALE: Length of body 5.1 (6.3) mm.; wing 5.0 (5.2) mm. long and 2.2 (2.1) mm. broad, 2.3 (2.5) times as long as broad.

Head entirely testaceous yellow, 1.04 (1.11) mm. long, 1.71 (1.88) mm. wide and 1.52 (1.63) mm. high. Antennae and mouthparts testaceous yellow, antennae paler. Frons at vertex 0.86 (0.98) and at anterior margin 0.66 (0.75) mm. broad, and in median line 0.80 (0.82) mm. long, without white pruinosity. Ocellar plate slightly raised, vertex on both sides of ocellar plate considerably raised. Postpedicel long-oval, 0.27 (0.32) mm. long and 0.22 (0.20) mm. wide, 1.4 (1.6) times as long as wide; apical half of seta shining black, basal half testaceous yellow; seta approximately three times as long as postpedicel. Oral margin of mesofacial plate raised and prominent. Maxillary palpi wide oval, almost straight, with widely rounded tip. Inferior part of cerebral plate very slightly raised, invisible in profile. Eyes in profile 1.18 (1.27) mm. high and 0.59 (0.67) mm. wide, 2.0 (1.9) times as high as wide. Genae below eyes (0.20 (0.26) mm.) and inferior region of posteranium in profile (0.43 (0.29) mm.) are relatively wide.

Cephalic bristles yellow to brownish yellow; anterior of the three incurved orbital bristles (*ori*) as long as posterior of the recurved upper orbital bristles (*ors*); posterior pairs or *ori*, anterior pair of *ors*, ocellar pair and outer postvertical bristles are longer than the aforementioned and subequal in length; inner postvertical pair usually but slightly longer than these. Genal bristle indistinct.

Thorax with scutellum 2.5 (2.7) mm. long and 1.8 (2.0) mm. wide, testaceous yellow; mesonotum evenly and densely covered with yellow dusting and with very short appressed yellow hairs, except for the very narrow, shining hind margin; no dusted vittae of different color present. Only the usual pair of wide-oval, almost circular, black spots present on hind region of mesonotum; sides of mesonotum with three black spots: a short vittalike one beneath posterior notopleural bristle, a large half-circle spot above wing base, and a pointlike dot behind (and beneath) wing base. Pleura shining except for the mesopleuron and sternopleuron, the major part of which is covered with fine whitish pruinosity. Pleura marked on lower hind part of pteropleuron (anepimeron), with only one brownish black to brownish yellow spot which is quite variable in size and sometimes completely absent. Scutellum subshining testaceous yellow with some scattered brownish yellow

appressed hairs at sides. Median part of postscutellum yellow, lateral parts black to brown, continuing in a pair of lateral spots of the same color on the shining testaceous yellow mediotergite (as in *formosa*).

Thoracic bristles brownish yellow; inferior mesopleural bristle two-thirds as long as superior and much weaker; posterior notopleural bristle almost as long as anterior. Dorsocentral pair inserted in male slightly before line of supra-alar, approximately in posterior fourth

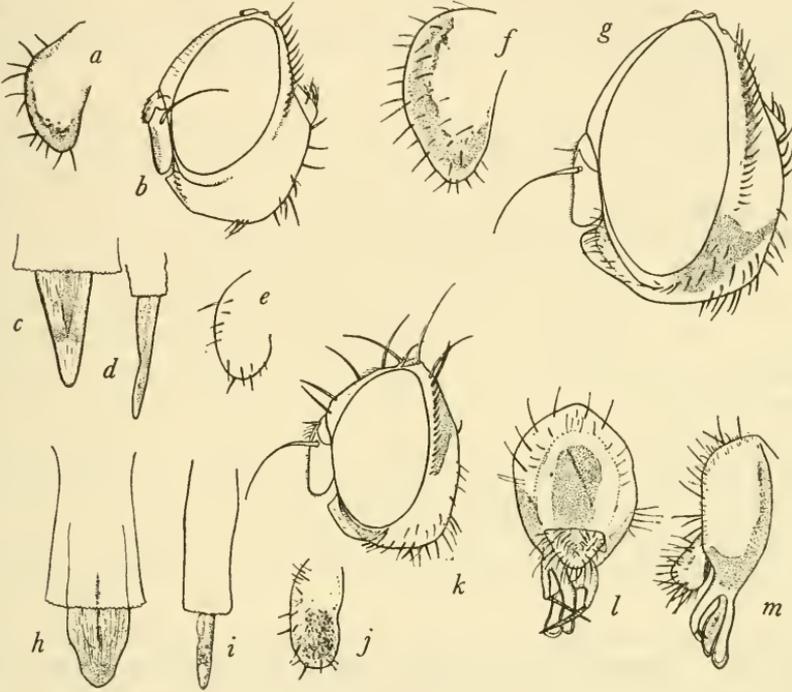


FIGURE 99.—*Tomoplagia kelloggi*: a, Left maxillary palpus, inferior surface; b, lateral view of head. *T. heringi*: c, Dorsal view of ovipositor tip; d, lateral view of ovipositor tip; e, left maxillary palpus, inferior surface. *T. minattai*: f, Left maxillary palpus, inferior surface; g, lateral view of head. *T. incompleta*: h, Dorsal view of ovipositor tip; i, lateral view of ovipositor tip; j, left maxillary palpus, inferior surface; k, lateral view of head; l, dorsal view of epandrium; m, lateral view of epandrium.

of distance between transverse suture and supra-alar (*sa*) bristle, and in female placed on a level with *sa* bristles or slightly behind. Dorsocentral bristles slightly wider spaced, and shorter than prescutellar pair, which stands but slightly before level of upper postalar bristles. Apical pair of scutellar bristles convergent and almost as long as the divergent basal pair.

Coxae and legs entirely testaceous yellow, anteroventral row of short yellow bristles on hind tibiae indistinct, especially in male.

Wings with the general pattern of the genus, but the yellow bands are only indistinctly bordered with brown and are sometimes very pale

as in *rudolphi*. Basal band abbreviated, ending in a small pale brown cloud at apex of apical process of anal cell. Tip of humeral cross-vein brownish black. Subcostal cell (stigma) approximately 2.8 (2.9) times as long as basally broad. First section of costa 0.70 (0.75), second 1.59 (1.75), third 0.95 (0.85), and fourth 0.61 (0.59) mm. long. Basal section of fourth longitudinal vein 1.27 (1.34), penultimate (between both cross-veins) 0.29 (0.32), and ultimate 1.85 (1.66) mm. long. Inner cross-vein 0.36 (0.36) mm. long and slightly more oblique than outer cross-vein (0.68 (0.73) mm. long). Anal cell with apical process 0.93 (1.13) mm. long, 2.0 (2.6) times as long as apical process (0.48 (0.41) mm.).

Halteres testaceous yellow.

Preabdomen 2.2 (2.9) mm. long and 2.0 (2.2) mm. wide, faintly shining testaceous yellow in ground color, covered with dark brown, golden shining hairs. In all male specimens examined only the fifth tergite is marked with a pair of lateral brownish black spots, which are variable in size, usually very small, and in one specimen represented by pointlike yellowish brown dots; very probably they may be wholly absent. The fifth tergite (0.59 (0.82) mm.) is 1.5 (1.7) times as long as fourth (0.34 (0.56) mm.); intrasclerital membrane and sternites testaceous yellow.

Postabdomen testaceous yellow, relatively small; epandrium wide-oval, nearly round with normally shaped surstyli. Gonapophyses shining black, posterior pair very reduced.

FEMALE: Like male. Length of body 5.1 (7.0) mm.; wing 5.0 (6.3) mm. long and 1.9 (2.6) mm. broad, 2.6 (2.4) times as long as broad.

Head 0.95 (1.36) mm. long, 1.66 (2.13) mm. wide, and 1.48 (1.88) mm. high. Frons at vertex 0.80 (1.18) and at anterior margin 0.57 (0.68) mm. broad, and in median line 0.68 (1.00) mm. long. Postpedicel 0.34 (0.34) mm. long and 0.22 (0.25) mm. wide, approximately 1.4 (1.5) times as long as wide. Eyes in profile 1.13 (1.43) mm. high and 0.61 (0.73) mm. wide, 1.9 times as high as wide. Genae below eyes 0.16 (0.29) and inferior region of posteranium in profile 0.33 (0.48) mm. wide. Thorax with scutellum 2.3 (3.1) mm. long and 1.7 (2.3) mm. wide, with the same characters as in male.

Wings like those of male. First costal section 0.68 (0.82), second 1.63 (2.04), third 0.85 (0.95), and fourth 0.59 (0.75) mm. long. Basal section of fourth vein 1.27 (1.59), median or penultimate 0.31 (0.32), ultimate 1.48 (1.77) mm. long. Inner cross-vein 0.36 (0.50), outer cross-vein 0.63 (0.86) mm. long. Anal cell together with apical process 0.95 (1.43) mm. long, 2.5 (2.7) times as long as apical process (0.38 (0.52) mm.).

Preabdomen 2.1 (2.6) mm. long and 1.6 (2.4) mm. wide. Sixth tergite always with pair of long oval lateral black to brownish black

spots; fifth tergite usually with pair of dark lateral spots variable in size and in color from blurred yellowish brown small dots to long-oval black spots as large as that on sixth tergite (*tucumana* Blanchard in litt.) but sometimes entirely absent; on fourth tergite a pair of lateral dark spots or dots also rarely present, yellowish brown to blackish brown (*bosqi* Blanchard in litt.). Fifth tergite approximately as long (0.34 (0.43) mm.) as sixth (0.38 (0.43) mm.).

Ovipositor sheath slightly flattened dorsoventrally (at base, in profile 0.57 (0.45) mm. high), shining testaceous yellow and covered with golden shining appressed brown hairs, with apex usually darker (in *bosqi* brown); slightly shorter (0.70 (0.91) mm.) than basally wide (0.82 (1.18) mm.) and at apex 0.48 (0.57) mm. wide. Median part of ovipositor (rasper) darker in color than sheath, with unusually long rasper-tooth; apical part subshining, translucent, testaceous yellow from wide-oval base tapering into a long and narrow apical region, with blunt apex in dorsal aspect, with acute tip in lateral aspect.

TYPE: In Dresden Museum.

TYPE LOCALITY: Rosalinda, Río Urumbaba, Perú.

SPECIMENS EXAMINED: Argentina: Corrientes, San Roque, 2♀♀, February 1920, J. Bosq, "*T. phaedra* Hendel, det. E. E. Blanchard" and "*T. bosqi* n. sp., det E. E. Blanchard," and Tucumán, Tucumán, ♀, K. J. Hayward, "*T. tucumana* n. sp. det. E. E. Blanchard" (all in coll. Blanchard); Santa Fé, Piquete, ♂, January 4, 1928, Bridarolli (in Colegio Máximo de San José, San Miguel), and Santa Fé, Villa Ana, 2 ♂♂, February 1-18, 1946, Hayward and Willink, Misiones, Iguazú, ♀, January 30-March 13, 1945, Hayward, Willink and Golbach (all in FML).

Dr. Hayward (1942) reared this species, together with *Anastrepha* species, from sweet orange and guava fruits in Tucumán.

Tomoplagia pleuralis Hendel

FIGURES 100, *f,g*; 102, *h*; PLATE 25, FIGURE 22

Tomoplagia pleuralis Hendel, 1914, p. 39.

The writer examined some Argentine specimens and an Ecuadorian specimen of a species which traces to *pleuralis* in Hendel's key to the species of *Tomoplagia* but did not wholly agree with the original description. A typical male from the U. S. National Museum, when compared with the specimens in question, does not show any structural difference. Therefore it is very probable that the pleural black spots of this species are variable in size. It differs from allied species of the *pleuralis-reimoseri* group by the characters given in the key (p. 329). The drawings and the first number of all measures in the redescription of the male belong to the typical Peruvian specimen, and the second numbers to the smaller Ecuadorian specimen.

MALE: Length of body 3.5 (3.0) mm.; wing 3.9 (3.3) mm. long and 1.6 (1.4) mm. wide, 2.4 (2.3) times as long as wide.

Head entirely testaceous yellow, 0.59 (0.52) mm. long, 1.04 (0.93) mm. wide and 0.79 (0.72) mm. high. Frons at vertex 0.45 (0.43) and at anterior margin 0.36 (0.29) mm. broad, at median line 0.43 (0.36) mm. long. A minute black point at interior margin of each ocellus. Oral margin of mesofacial plate raised and slightly prominent. Inferior region of cerebral plate raised and in profile slightly prominent. Antennae and mouthparts testaceous yellow, maxillary palpi slightly curved, with broadly rounded apex. Postpedicel broad oval, 0.20 (0.18) mm. long and 0.15 (0.14) mm. wide, about 1.3 times as long as wide; seta bare, shining black, except for the yellow basal fourth; seta 2.5 times as long as postpedicel. Eyes in profile 0.68 (0.59) mm. high and 0.34 (0.38) mm. wide, 2.0 (1.6) times as high as wide; inferior region of posteranium in profile 0.17 (0.11), genae below eyes 0.07 (0.07) mm. wide.

Cephalic bristles brownish yellow; three incurved lower orbital bristles (*ori*), anterior pair slightly shorter; two recurved upper orbital bristles, anterior subequal to, posterior shorter than, *ori*. The divergent outer vertical bristles subequal to the divergent and proclined ocellar bristles in length, and longer than *ori*; inner vertical bristles slightly reclined and convergent.

Thorax 1.6 (1.4) mm. long and 1.2 (1.0) mm. wide, testaceous yellow in ground color; mesonotum evenly covered with pale brass-yellow dusting and with pale yellow thickish and short appressed hairs, except for the bare and shining posterior margin; mesonotum without structural, or pruinose, vittae of different color. Only the usual pair of lateral black spots present on hind region of mesonotum; behind (and beneath) wing base a black point. Mesopleuron (anepisternum) shining in all specimens examined; sternopleuron in the typical specimen shining black, except for the narrow upper margin; in the Ecuadorian specimen a longish, triangular, shining black spot below sternopleural bristle on hind margin of sternopleuron; in both specimens a long-oval spot above hind coxa and another spot on inferior region of pleurotergites (at the haltere base), both brownish black. Scutellum shining yellow with some appressed brown hairs on sides; postscutellum yellow with a pair of triangular lateral black spots; metanotum shining reddish yellow with some blackish markings irregular in shape.

Thoracic bristles brownish yellow; only upper mesopleural bristle present in all specimens. The hind notopleural bristle only half as long as forebristle and much weaker; dorsocentral pair situated in anterior fourth of distance between transverse suture and supra-alar bristle and slightly wider spaced than prescutellar pair, which is inserted far before line of upper postalar bristles.

Coxae and legs entirely testaceous yellow.

Wings with the general pattern of the genus; oblique bands intensive yellow distally bordered with dark brown. Second basal cell mostly

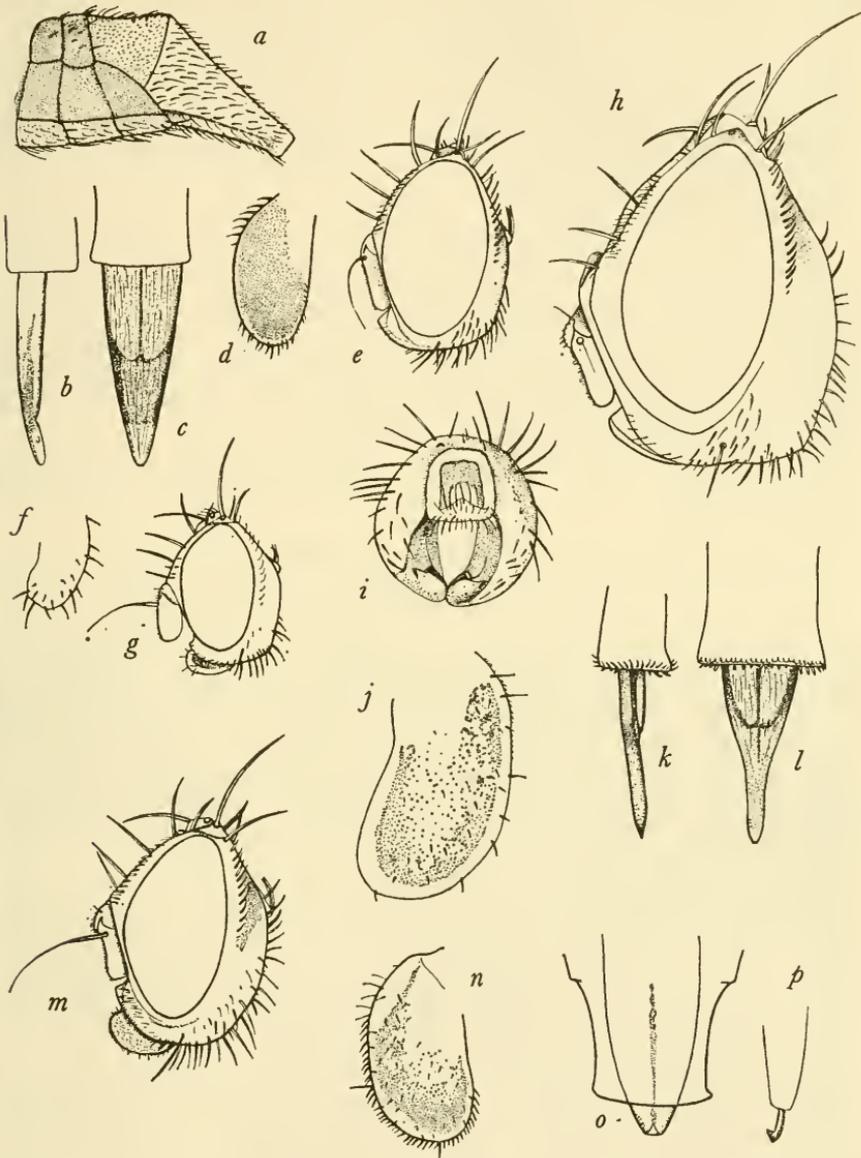


FIGURE 100.—*Tomoplagia ovalipalpis*: a, Lateral view of female postabdomen; b, lateral view of ovipositor tip; c, dorsal view of ovipositor tip; d, left maxillary palpus, inferior surface; e, lateral view of head. *T. pleuralis*: f, Right maxillary palpus, inferior surface; g, lateral view of head. *T. phaedra*: h, Lateral view of head; i, dorsal view of epandrium; j, left maxillary palpus, superior surface; k, lateral view of ovipositor tip; l, dorsal view of ovipositor tip. *T. punctata*: m, Lateral view of head; n, right maxillary palpus, superior surface; o, dorsal view of ovipositor tip; p, lateral view of ovipositor tip.

hyaline. Subcostal cell (stigma) 2.7 (2.6) times as long as basally broad. First costal section (stigma) 0.57 (0.52), second 1.34 (1.04), third 0.77 (0.68), and fourth 0.48 (0.39) mm. long; basal section of the fourth longitudinal vein 1.02 (0.86), penultimate 0.29 (0.23), and ultimate 1.33 (1.09) mm. long. Inner cross-vein 0.16 (0.22) mm. long, very obliquely placed and exactly parallel to outer cross-vein (0.54 (0.45) mm.). Fifth longitudinal vein, which posteriorly delimits discoidal cell, only slightly excurved. Anal cell with apical process 0.73 (0.54) mm. long, approximately 2.7 times as long as the short (0.27 (0.20) mm.) apical process.

Halteres testaceous yellow.

Preabdomen 1.4 (1.2) mm. long and 1.3 (1.3) mm. wide, shining testaceous yellow, covered with appressed fine black hairs and marked with three pairs of lateral black spots: third to fifth tergites each with a pair; the black spots on third and fourth tergites transverse-oval and the pair on the fifth is long and vittalike, crossing the tergite from anterior to posterior margin. Fifth tergite 1.7 times as long (0.43 (0.41) mm.) as the fourth (0.25 (0.23) mm.).

Postabdomen testaceous yellow; epandrium oval with normally shaped surstyli.

FEMALE: Like male; length of body 3.2 (3.8) mm., wing 3.1 (3.6) mm. long and 1.4 (1.5) mm. broad, 2.2 (2.4) times as long as broad.

Head 0.64 (0.70) mm. long, 1.04 (1.16) mm. wide, and 0.82 (0.91) mm. high. Frons at vertex 0.45 (0.50) and at anterior margin 0.36 (0.43) mm. broad, and medially 0.43 (0.45) mm. long. Postpedicel 0.25 (0.24) mm. long and 0.15 (0.16) mm. wide, 1.7 (1.5) times as long as wide. The three black points, each at the interior margin of the ocelli, present only in the specimen from Sierra Córdoba. Eye in profile 0.68 (0.75) mm. high and 0.41 (0.45) mm. wide, 1.6 (1.7) times as high as wide. Genae below eyes 0.07 (0.07), inferior region of postcranium in profile 0.16 (0.17) mm. wide.

Thorax with scutellum 1.4 (1.5) mm. long and 1.0 (1.1) mm. wide, with the same markings as in the Ecuadorian male, except for the black markings on sternopleuron: the black spot smaller in the Argentine females, which have additionally the upper margin of pleura bordered with a vittalike, narrow, short, brownish black marking.

Wings like those of male; brown basal band is paler and more abbreviated than in typical male specimen. First costal section 0.55 (0.57), second 0.98 (1.09), third 0.63 (0.73), and fourth 0.50 (0.50) mm. long. Basal section of fourth longitudinal vein 0.73 (0.88), median (penultimate) 0.27 (0.25), and ultimate 1.09 (1.18) mm. long. Inner cross-vein 0.25 (0.27) mm. long and more obliquely situated than the outer cross-vein (0.45 (0.48) mm.), which is placed almost at right angles to costa. Anal cell with apical process 0.57 (0.63) mm. long, whole cell 3.1 (2.7) times as long as the apical process itself (0.18 (0.23) mm.).

Preabdomen 1.3 (1.5) mm. long and 1.2 (1.3) mm. wide, with five pairs of lateral black spots; second to sixth tergites each with one pair of transverse-oval spots, the two longitudinal rows of black spots convergent towards the ovipositor. Fifth tergite (0.23 (0.25) mm.) slightly longer than the sixth (0.18 (0.23) mm.).

Ovipositor sheath in the specimens examined strongly flattened dorsoventrally, entirely shining testaceous yellow and covered with very short and fine, appressed, brownish yellow hairs, slightly shorter (0.52 (0.54) mm.) than basally wide (0.57 (0.63) mm.), at apex only 0.30 (0.32) mm. wide and basally in profile 0.16 (0.18) mm. high.

TYPE: In Hungarian National Museum, Budapest.

TYPE LOCALITY: Callanga, Río Charape, Perú.

SPECIMENS EXAMINED: Perú: Río Charape, ♂, September 12, C. H. Townsend. Ecuador: Hacienda Parish, ♂, 1914, J. M. Aldrich, (both USNM). Argentina: Corrientes, Corrientes, ♀, October 1938, D'Angelo, (in coll. Blanchard); ♀, Córdoba, Sierra Córdoba, January 1938, Bridarolli, (in coll. Colegio Máximo de San José, San Miguel); Chaco, Colonia Benítez, ♀, December 3, 1949, R. Golbach (in FML).

Tomoplagia propleuralis, new species

FIGURE 94; PLATE 20, FIGURE 5

A medium-sized, very well defined species, readily distinguished from all known species by the modified wing pattern (the apical band being separated entirely from the others) and by the absence of the pair of lateral black spots between the upper postalar and prescutellar bristles, on the hind part of the mesonotum. This species is the only known *Tomoplagia* which has a short linear black vitta on the propleura, above the anterior spiracle. Unfortunately the only specimen has become wet by some greasy liquid, thus the ground color and the morphological characters can be noted but the pruinosity is obscured.

FEMALE: Length 4 mm.; wing 4.5 mm. long and 1.6 mm. wide, relatively narrow, 2.8 times as long as wide.

Head testaceous yellow, 0.73 mm. long, 1.43 mm. wide, and 1.13 mm. high. Frons at vertex 0.48, at anterior margin 0.36 mm. wide, and in median line 0.54 mm. long, relatively narrow, since it is considerably longer than wide at vertex. Antennae and mouthparts testaceous yellow; postpedicel wide-oval, 0.27 mm. long and 0.20 mm. wide, 1.35 times as long as wide; seta bare, shining black, except the thickened transparent yellow basal third, about three times as long as postpedicel. Eyes in profile 1.6 times as high as wide, very sparsely beset with microscopically short fine erect and whitish hairs; oral margin of the impressed mesofacial plate raised and slightly prominent.

Head bristles brownish yellow and somewhat flattened; three pairs of incurved lower orbital bristles (*ori*), anterior pair much shorter and

weaker than the others, and but slightly longer and stronger than posterior pair of recurved upper orbital bristles (*ors*); the distance between posterior and middle pairs of *ori* nearly twice as long as between anterior and middle pairs; anterior pair of *ors* subequal to outer verticals; ocellar pair is slightly longer than these, but considerably shorter than inner vertical bristles. A pair of distinct genal bristles.

Thorax 2.0 mm. long and 1.5 mm. wide, testaceous yellow in ground color (mesonotum is darker), except for the characteristic black spots; mesonotum densely covered with short dark yellow appressed hairs. The usual pair of lateral black spots between upper postalar and prescutellar bristles is in this species wholly absent. There is a pointlike black dot beneath base of wing, below postalar callosity. On the sides of mesonotum the characteristic black spots of the *phaedra* group: one horizontal short vitta below posterior notopleural bristle, and one larger oval black spot on side of mesonotum above wing base. On pleura four black spots: a horizontal linear vitta on propleura attaining upper margin of anterior spiracle, a curved stripe on inferior margin of ventral and dorsal pleurotergites, an oval one on metapleura above hind coxa, and another one on lower hind corner of pteropleura; none on sternopleura.

The long and strong thoracic bristles are brownish yellow; only upper mesopleural bristle present and well developed; posterior notopleural bristle considerably shorter and weaker than anterior; dorso-central bristle inserted in anterior sixth of the distance between transverse suture and (imaginary) transverse line between supra-alar bristles; apical pair of scutellar bristles well developed, slightly convergent and crossed at apex.

Scutellum covered with yellow appressed hairs, except on the basical area. Postscutellum entirely testaceous yellow, without black spots. Mediotergite subshining, intensive dark testaceous yellow in ground color.

Coxae and legs without exceptional characters, entirely testaceous yellow with bristles and hairs of the same color, including anterodorsal row of rather closely spaced bristles of hind tibiae.

Halteres testaceous yellow.

Wing with the slightly modified pattern of the genus: apical band entirely separated from the others in both wings of the type specimen; basal band almost entirely absent, subbasal band entirely yellow and not attaining posterior wing margin; second basal cell almost entirely hyaline; costa darkened only above basal part of subcostal cell (*Csc*=stigma), which is rather narrow, 2.6 times as long as wide basally. The second longitudinal vein almost straight, ultimate section of third (R_{4+5}) and fourth longitudinal veins (M_1) only slightly curved. First costal section 0.63, second 1.70, third 0.66, and fourth

0.51 mm. long; first section of M_1 1.36, penultimate 0.38, and ultimate 1.25 mm. long; inner cross-vein oblique and shorter than distance between both cross-veins; outer cross-vein 0.54 mm. long and hardly oblique at all; fifth longitudinal vein, which limits the discoidal cell, perfectly straight. Anal cell with 0.25-mm. apical process 0.75 mm. long, latter half as long as rest of anal cell.

Preabdomen in the specimen examined darkened, yellowish brown with reddish tinge, and covered with appressed brownish yellow hairs. Preabdomen 1.8 mm. long by 1.4 mm. wide. Sixth tergite marked only with a pair of small and oval lateral black spots. Sixth tergite slightly longer (0.34 mm.) than the fifth (0.32 mm.).

Sheath of ovipositor flattened in the type specimen, 0.63 mm. long, at base 0.85 and at apex 0.38 mm. wide, and basally 0.38 mm. high; about 1.3 times as wide at base as long; shining dark testaceous yellow and evenly covered with appressed, short, fine, brownish yellow hairs.

MALE: Unknown.

TYPE: Holotype ♀ (USNM 61721), Puerto Rico, Petri Finca, Adjuntas, flying, August 17, 1932, R. G. Oakley No. 5573.

Tomoplagia pseudopenicillata, new species

FIGURES 93; 97,k; PLATE 19, FIGURE 4

Henkel (1914, p. 39) described his Peruvian species *penicillata* as a member of the *pleuralis* group. The characters of the male given by Henkel, in the very short original description and in his key to the species of *Tomoplagia*, agree completely with the characters of one male specimen in the material of the U. S. National Museum from southern Brazil. This Brazilian specimen, however, belongs to the *atimeta* group, having three brownish black spots on the subshining and bare hind margin of the mesonotum: the usual lateral pair, and one double spot at the middle, with posterior margin distinctly attaining the scutellar suture. Since *penicillata* Henkel has not been discussed by other authors after the first description, there is a possibility that the Brazilian specimen does not represent a species distinct from *penicillata*, if the absence of median black spot is not a constant character in the latter. Nevertheless, taking into consideration the mentioned character which Henkel thought important and which is regarded generally as constant structural character, furthermore the geographical distance, in order to avoid confusion which may be caused by two distinct kind of *penicillata*, the writer prefers, although unwillingly, to describe the Brazilian specimen as a new species. The comparison of the type specimen of the *penicillata* Henkel in the Hungarian National Museum with the description given below, or with Peruvian material, will be necessary to settle definitely the status of *pseudopenicillata*.

MALE: Length 4.9 mm.; wing 5.0 mm. long and 2.2 mm. wide, 2.3 times as long as wide.

Head testaceous yellow except the yellowish white lunula, 0.82 mm. long, 1.54 mm. wide, and 1.13 mm. high. Frons at vertex 0.63 and at anterior margin 0.45 mm. wide, and in median line 0.48 mm. long, 1.3 times as wide at vertex as long and but slightly longer than wide at anterior margin; *pseudopenicillata* and *trivittata* (Lutz and Lima) are the only known species in having two intensive testaceous yellow longitudinal strips on the frons, forming a V-shaped marking (frontal vitta intensive testaceous yellow except for a long triangular stripe in front of ocellar plate, the apex attaining the lunula, which is as covered with shining white dusting, as the ocellar, genovertical, parafacial, and mesofacial plates). Oral margin raised and considerably prominent. Antennae and mouthparts testaceous yellow, postpedicel wide-oval, 0.25 mm. long and 0.18 mm. wide, 1.4 times as long as wide; seta bare shining black except the thickened basal third, which is translucent testaceous yellow; seta about three times as long as postpedicel. Eyes in profile nearly two times as high as wide, very sparsely beset with tiny erect and whitish hairs.

Cephalic bristles brownish yellow and somewhat flattened; three pairs of incurved lower orbital bristles; anterior pair shorter and weaker. Two pairs of strong recurved upper orbital bristles, posterior pair slightly shorter, anterior pair about as long as the divergent ocellar bristles; inner vertical pair longest of all, strongly convergent, outer verticals shorter and divergent. One pair of brown genal bristles present.

Thorax 2.2 mm. long and 1.6 mm. wide, ochraceous yellow in ground color; mesonotum densely covered, except for bare and shining narrow posterior margin, with whitish dusting and short whitish appressed hairs; mesonotum with five distinct vittae of clear brass-yellow pruinosity: three middle ones almost linear (one in median line and two in line of dorsocentrals), and two lateral ones slightly wider than these and connected with vittae on dorsocentral line at its anterior origin and on transverse suture, bordering thus a whitish triangle and ending in the lateral black spots near hind margin. The usual pair of lateral black spots present on hind margin of mesonotum, each one between upper *pa* and *prsc* bristles, and between and behind these a double one, posteriorly limited by scutellar suture; one pair of black dots, each one beneath the base of wing, below postalar callosity. On mesonotum are tiny and shining transparent testaceous-yellow circles at bases of the dorsocentral and prescutellar bristles, the others clear yellow.

Thoracic bristles long and strong, brownish yellow with golden shine; two pairs of mesopleural bristles present, lower pair slightly shorter;

dorsocentral pair inserted halfway between transverse suture and (imaginary) transverse line between supraalar bristles; apical pair of scutellar bristles nearly parallel, not crossed; ochraceous-yellow pleura with three black markings: a double one on inferior margin of ventral and dorsal pleurotergites, a large one above hind coxa, and a triangular spot, the largest, on upper hind part of sternopleura, divided in two by a yellow horizontal line in which stands the sternopleural (*st*) bristle.

Scutellum subshining, opaque, ochraceous yellow and covered, except for center, with whitish, nearly erect hairs; postscutellum with a pair of triangular brownish black lateral spots; mediotergite shining, and intensively testaceous yellow.

Coxae and legs testaceous yellow except two last tarsomeres of mid and hind legs, which are yellowish brown; apical third of mid-tibiae strongly dilated and anteroposteriorly compressed, with dorsal bunch of about 20 strong and relatively short black bristles; bristles and hairs of coxae and legs pale to testaceous yellow except antero-dorsal row of rather closely spaced yellowish brown bristles.

Halteres ochraceous yellow.

Wing with the usual pattern of the genus; basal band does not attain posterior wing margin; at apical process of anal cell forming a very obliterate spot, transparent brownish yellow; costa not blackened at humeral cross-vein or at tip of subcosta; stigma 2.2 times as long as wide at base; first costal section 0.77, second 1.82, third 0.95, and fourth 0.54 mm. long; first section of the fourth longitudinal vein 1.54, penultimate 0.52, and ultimate 1.82 mm. long; inner cross-vein (*ta*) 0.36, outer (*tp*) 0.77 mm. long, *ta* considerably shorter than distance between cross-veins, and slightly more oblique than *tp*; anal cell with 0.43-mm.-long apical process 1.00 mm. long, apical process slightly shorter than rest of cell (whole cell is 2.3 times as long as process).

Preabdomen shining testaceous yellow, covered with brownish yellow hairs, those on basal double tergite (1.42) paler; 2.1 mm. long and 1.8 mm. wide. Second to fourth tergites each with a pair of large lateral black spots, fifth with a pair of rather wide and slightly curved lateral black vittae. The fifth tergite (0.45 mm. long) is about 1.3 times as long as fourth. Sternites and membrane testaceous yellow except basal part, which is ochraceous yellow. Postabdomen testaceous yellow. Epandrium wide-oval, in the specimen examined asymmetrical (very probably by the drying process); the two pairs of gonapophyses shining black, posterior pair shorter than anterior, thin and acute.

FEMALE: Unknown.

TYPE: Holotype ♂ (USNM 61722), Brazil, near São Paulo, 1932, Kisiuk and Cooley No. 278.

Tomoplagia punctata, new speciesFIGURES 100,*m-p*; 102,*t,u*; PLATE 25, FIGURE 23

This median-sized species is similar to *stonei* in having unusually large, shining dark brown insertion points of the dorsocentral and prescutellar bristles on the mesonotum, but is easily distinguished from *stonei* by the characters given in the key.

MALE: Length 4.5 mm.; wing 4.4 mm. long and 1.8 mm. broad, 2.4 times as long as broad.

Head 0.68 mm. long, 1.43 mm. wide and 1.16 mm. high, pale ochraceous yellow except for the testaceous yellow frontal vitta; ocellar, genovertical, parafacial, and mesofacial plates with fine white pruinosity but no distinct vittae on frons. Antennae and maxillary palpi ochraceous yellow, labella yellowish brown. Ocellar plate considerably raised; oral margin of mesofacial plate raised and prominent. Inferior region of cerebral plate slightly raised. Maxillary palpi broad-oval, not curved, with widely rounded apex. Postpedicel very broad-oval, 0.21 mm. long and 0.18 mm. wide, about 1.1 times as long as wide. Seta bare, shining black except for the testaceous yellow, thickened third, almost three times as long as postpedicel. Eyes in profile 0.91 mm. high and 0.54 mm. wide, nearly 1.7 times as high as wide. Inferior region of postcranium in profile 0.20 and genae below eyes 0.14 mm. wide.

Cephalic bristles pale brownish yellow; the usual garniture present and the relation in length among them is the same as in *reimoseri*, only the genal bristle is distinct.

Thorax with scutellum 2.1 mm. long and only 1.3 mm. wide, predominantly ochraceous yellow; mesonotum with the same pruinose pattern as in *heringi*: densely covered with silky whitish dusting and, except for the shining narrow hind margin, rather thick short whitish hairs; in the whitish pruinosity three light golden yellow vittae, slightly wider than in *heringi*, one on median line and two in lines of dorsocentral pair, on both sides of mesonotum before transverse suture a broad and short vitta reaching to insertion point of the presutural bristles. The chitin insertion circlets at base of dorsocentral and prescutellar bristles unusually large and shining dark brown, which is a distinct character of this species. The usual pair of black oval spots present on hind region of mesonotum, and the usual black dot behind (and beneath) wing base. Pleura shining except for the mesopleuron and "hypopleura" (katepimeron), and marked with the same three spots as in *reimoseri*. Scutellum shining ochraceous yellow, with some dark brown scattered hairs on sides. The larger median part of postscutellum yellow, whitish pruinose, lateral parts black. Mediotergite shining testaceous yellow.

Thoracic bristles pale brownish yellow, somewhat flattened; inferior mesopleural bristle only slightly shorter than superior; posterior

notopleural bristle shorter and weaker than anterior. Dorsocentral pair placed close to transverse suture, approximately in anterior fourth of distance between suture and supra-alar bristles (*sa*); slightly more widely spaced than prescutellars (*prsc=acr*) which stands in posterior third of distance between *sa* and upper postalar bristles. Apical pair of scutellar bristles convergent and sometimes crossing, slightly shorter than basal pair.

Coxae and legs entirely testaceous yellow.

Wings with the general pattern of the genus. Tip of humeral cross-vein brownish black. Basal band abbreviated and ending in a diffuse small brown cloud at tip of apical process of anal cell. Subcostal cell (stigma) 2.5 to 2.8 times as long as basally broad. First section of costa (stigma) 0.60, second 1.43, third 0.82, and fourth 0.57 mm. long. Basal section of fourth longitudinal vein 1.32, penultimate (median) 0.41, and ultimate 1.36 mm. long. Inner cross-vein 0.32 mm. long and slightly more obliquely placed than the 0.59-mm.-long outer one. Whole anal cell 0.93 mm. long, 2.6 times as long as apical process (0.36 mm.).

Haltera ochraceous yellow.

Preabdomen 1.6 mm. long and 1.6 mm. wide, subshining testaceous yellow, covered with appressed brownish yellow hairs. Third to fifth tergites each with a pair of large rounded black spots, larger than in *reimoseri*; the pairs on third and fourth tergites nearly equal, widely spaced but pair on fifth tergite less so and reaching posterior margin. Fifth tergite (0.54 mm.) 1.7 times as long as fourth (0.32 mm.).

Postabdomen testaceous yellow; epandrium oval with apex hidden beneath fifth sternite. Membrane mostly black, sternites mostly testaceous yellow.

FEMALE: Like male. Length of body (without ovipositor) 4.6 (4.9) mm.; wing 4.5 (4.6) mm. long and 2.1 (2.0) mm. broad, 2.1 (2.3) times as long as broad.

Head 0.85 (0.82) mm. long, 1.41 (1.48) mm. wide, and 1.25 (1.30) mm. high. Frons at vertex 0.66 (0.70) and at anterior margin 0.48 (0.50) mm. long, and on median line 0.53 (0.54) mm. long. Postpedicel 0.25 (0.25) mm. long and 0.17 (0.16) mm. wide, 1.4 (1.5) times as long as wide. Eyes in profile 0.91 (1.00) mm. high and 0.61 (0.57) mm. wide, 1.5 (1.7) times as high as wide. Genae below eyes 0.13 (0.13), inferior region of posteranium in profile 0.16 (0.17) mm. wide.

Thorax with scutellum 1.9 (2.1) mm. long and 1.5 (1.6) mm. wide, with the same dusted pattern, black spots, etc. as in male.

Wings like those of male. First costal section 0.68 (0.73) second 1.43 (1.45), third 0.82 (0.86), and fourth 0.59 (0.61) mm. long. Basal section of fourth longitudinal vein (M_1) 1.04 (1.20), penultimate 0.41 (0.41), and ultimate 1.34 (1.38) mm. long. Inner cross-vein (*ta*) 0.32 (0.34) and outer cross-vein 0.63 (0.63) mm. long, *ta* always slightly

shorter than penultimate section of M_1 . Anal cell with apical process 0.95 (0.98) mm. long, approximately 2.6 times length of process (0.36 (0.38) mm.).

Preabdomen 1.9 (2.0) mm. long and 1.6 (1.7) mm. wide. Third to fifth tergites each with a pair of relatively large lateral black spots, and sixth, in all specimens examined, with a small, sometimes point-like, brownish black to yellowish brown dot, which may occasionally be completely absent. Fifth tergite approximately as long (0.27 (0.35) mm.) as the sixth (0.27 (0.33) mm.).

Ovipositor sheath dorsoventrally strongly flattened (at base only 0.11 (0.18) mm. high in profile) and entirely shining testaceous yellow, evenly covered with appressed minute brownish yellow hairs; nearly as long (0.63 (0.67) mm.) as wide at base (0.75 (0.79) mm.) and much longer than wide at apex (0.43 (0.43) mm.). Median and apical parts of ovipositor testaceous yellow, apical shining and translucent, long-oval in shape, with a distinct dorsal hook at the apex.

Types: Holotype ♂ (FML), Argentina, Misiones, Iguazú, January 30–March 13, Hayward, Willink, and Golbach. Allotype ♀, 3 ♀♀ paratypes, with same data. (One paratype in USNM 61724.)

Tomoplagia reimoseri Hendel

FIGURES 101,*i-m*; 102,*q,r*; PLATE 25, FIGURE 24

Tomoplagia reimoseri Hendel, 1914, p. 39.

This seems to be a common medium-sized species in northern Argentine, southern Brazil, and Paraguay; it belongs to the *pleuralis-reimoseri* group, differing from the allied species by the characters given in the key.

MALE: Length of body 4.0 (4.3) mm.; wing 4.2 (4.5) mm. long and 1.8 (1.9) mm. broad, slightly more than 2.3 times as long as broad.

Head, antennae, and maxillary palpi testaceous yellow, only labella brown; 0.70 (0.73) mm. long, 1.27 (1.34) mm. wide and 1.02 (1.11) mm. high. Frons at vertex 0.59 (0.57) mm., at anterior margin 0.41 (0.39) mm. wide and on median line 0.50 (0.50) mm. long. Ocellar plate slightly raised and covered with many scalelike whitish hairs; ocelli transparent golden yellow. Oral margin of mesofacial plate raised and prominent. Inferior region of cerebral plate only slightly raised. Maxillary palpi broad, sickle-shaped, tapering into a pointed tip. Postpedicel very broad-oval, 0.20 (0.20) mm. long and 0.16 (0.18) mm. wide, only 1.1 (1.2) times as long as wide; seta bare, shining black except for the thickened basal third, which is testaceous yellow; approximately 3 times as long as postpedicel. Eyes in profile 0.87 (0.91) mm. high and 0.48 (0.49) mm. wide, approximately 1.8 times as high as wide; inferior region of postcranium in profile 0.18 (0.18), genae below eye 0.09 (0.08) mm. wide, both are relatively narrow.

Cephalic bristles brownish yellow and somewhat flattened; three pairs of incurved lower orbital bristles, relatively short, anterior pair slightly shorter than posteriors and not longer than posterior pair of recurved upper orbital bristles (*ors*). Genal bristle not very distinct. Anterior pair of *ors* subequal to outer vertical and ocellar bristles.

Thorax with scutellum 1.9 (2.0) mm. long and 1.5 (1.6) mm. wide, testaceous to ochraceous yellow in ground color; mesonotum densely covered with pale brass-yellow pruinosity and short appressed yellowish hairs, thickish and shining except for the shining narrow hind margin; no vittae of differently colored dusting, but three linear structural vittae, visible only from behind, in darker color: one on median line and two on lines of dorsocentral bristles. On hind region of mesonotum the usual pair of lateral black spots, each between prescutellar and upper postalar bristles, and a small black dot behind (and beneath) wing base. In a single male specimen (from Corrientes) the partly obliterated remains of a median pair of black spots between the usual pair, which are pale brown in color and nearer to scutellar suture than the usual spots, distance between them approximately equal to its diameter. Pleura shining, except the whitish dusted mesopleuron (anepisternite) and sternopleuron (katepisternite); marked with three black spots: a shining and oval one on sternopleuron below bristle (in some specimens it is brownish yellow), a large one above hind coxa on metapleura, and on inferior margin of pleurotergites a double one which is almost always wider on dorsal pleurotergite. Scutellum shining ochraceous yellow with some yellowish hairs on sides. Median region of postscutellum yellow, the lateral ones black. Mediotergite shining intensive dark testaceous yellow.

Thoracic bristles brownish yellow and somewhat flattened; inferior mesopleural bristle three-fourths as long as, and much weaker than, superior; posterior notopleural bristle slightly to considerably weaker, shorter than anterior. Dorsocentral pair situated approximately in anterior third of distance between transverse suture and supra-alar bristles (*sa*) and only slightly wider spaced than prescutellar pair, which stands approximately in posterior third of distance between *sa* and upper postalar bristles. Apical pair of scutellar bristles only slightly shorter than basal pair and slightly divergent.

Coxae and legs testaceous yellow, distitarsi of mid and hind legs usually darkened.

Wings with the characteristic pattern of the genus; tip of humeral cross-vein brownish black, costa blackened only at tip of subcosta. Basal band abbreviated, ending in a diffuse transparent brown cloud distad to anal vein. Subcostal cell (stigma) 2.0 (2.9) times as long as basally broad. First costal section 0.73 (0.66), second 1.34 (1.50), third 0.77 (0.77), and fourth 0.50 (0.48) mm. long. Basal section of the fourth longitudinal vein 1.07 (1.13), median (penultimate) 0.34 (0.34), and ultimate 1.27 (1.43) mm. long. Inner cross-vein 0.34 (0.34)

mm. long and slightly more obliquely placed than the outer cross-vein (0.59 (0.63) mm.). Whole anal cell 0.85 (0.95) mm. long, approximately 2.6 times as long as the apical process (0.32 (0.36) mm.).

Halteres ochraceous to testaceous yellow.

Preabdomen 1.6 (1.7) mm. long and 1.2 (1.6) mm. wide, shining testaceous yellow and covered with golden shining appressed brownish yellow hairs. Third to fifth tergites each with a pair of lateral black spots, placed in nearly parallel longitudinal rows, only the pair on the third tergite slightly wider spaced than the others; black spots of third tergite usually rounded, those on fifth tergite largest and long-oval but never reaching anterior or posterior margins. Fifth tergite in this species short, only 1.2 (1.3) times as long as fourth (fifth 0.43 (0.45), fourth 0.35 (0.34) mm.).

Postabdomen testaceous yellow; epandrium wide-oval with normally shaped surstyli and with two pairs of shining black gonapophyses; posterior pair nearly as long as anterior, but much slender.

FEMALE: Like male. Length of body 4.2 (4.1) mm.; wing 4.1 (4.0) mm. long and 1.9 (2.2) mm. broad, 2.1 (2.2) times as long as broad.

Head 0.70 (0.71) mm. long, 1.32 (1.58) mm. wide, and 1.07 (1.07) mm. high. Frons at vertex 0.57 (0.57) mm. and at anterior margin 0.38 (0.38) mm. broad, and medianly (from lunula to vertex) 0.57 (0.54) mm. long. Postpedicel 0.23 (0.22) mm. long and 0.19 (0.16) mm. wide, approximately 1.2 (1.3) times as long as wide. Eyes in profile 0.86 (0.91) mm. high and 0.48 (0.46) mm. wide (long), 1.8 (2.0) times as high as wide. Genae below eyes 0.07 (0.07) and the inferior region of posteranium in profile 0.18 (0.19) mm. wide.

Thorax with scutellum 2.0 (1.9) mm. long and 1.5 (1.4) mm. wide, with the same black markings as in male.

Wings like that of male; first costal section 0.66 (0.59), second 1.38 (1.38), third 0.75 (0.77), and fourth 0.50 (0.48) mm. long. Basal section of fourth longitudinal vein (M_1) 1.04 (1.09), median (penultimate) 0.32 (0.34), and ultimate 1.36 (1.36) mm. long. Inner cross-vein (*ta*) 0.32 (0.32) mm. long and slightly more obliquely placed than the outer cross-vein (0.63 (0.63) mm. long); *ta* approximately as long as median section of M_1 (between both cross-veins). Whole anal cell 0.86 (0.84) mm. long, 2.4 (2.2) times as long as the apical process (0.36 (0.38) mm.).

Preabdomen without ovipositor 1.5 (1.5) mm. long and 1.7 (1.6) mm. wide. Third to fifth tergites each with a pair of lateral black spots, the pair on second tergite slightly wider spaced than the others; all three pairs of rounded spots may be equally large or may be unequal, in the latter case the spots on fifth tergite are largest and those on the third smallest. On sixth tergite a pair of small lateral

black dots may exceptionally be present. Fifth tergite approximately as long (0.23 (0.25) mm.) as the sixth (0.25 (0.24) mm.).

Ovipositor sheath very short, trapezium-shaped, dorsoventrally strongly flattened and entirely shining testaceous yellow, covered with appressed minute brownish yellow hairs; much shorter (0.41 (0.41) mm.) than wide at base (0.73 (0.70) mm.), and approximately as long as apically wide (0.41 (0.41) mm.); at base only 0.16 (0.20) mm. high in profile. Median part of ovipositor (rasper) testaceous yellow, apical part shining and translucent testaceous yellow, long-oval with rounded tip and with a distinct small dorsal hook at the apex.

Species originally described from Paraguay (San Bernardino) and Trinidad (Port of Spain).

TYPES: In Vienna Museum and Hungarian National Museum, Budapest.

SPECIMENS EXAMINED: Brazil: São Paulo, Ipiranga, ♂, October 1937, F. Lane, Pôrto Cabral, 2 ♂♂, April 1-25, 1944, Travassos Filho, M. Carrera, and E. Dente, Batatais, ♂, June 1945, Pereira, and Irapolis, ♀, May 1947, F. Lane (all in Dep. Zool., São Paulo); near São Paulo, ♀, 1932, Kisliuk and Cooley No. 263 (in USNM); Santa Catarina, Nova Teutonia, ♂, ♀, March 17-23, 1938, F. Plaumann, "*T. reimoseri* Hend., det. M. Hering" (in coll. Aczél), and 2 ♂♂, 2 ♀♀, November 1, 1950, F. Plaumann (in Naturhistorisches Museum, Basel). Argentina: Misiones, Pindapoy, ♂, J. M. Bosq, "*T. jonasi* (Lutz and Lima) det. E. E. Blanchard," Corrientes, Corrientes, 3 ♂♂, 2 ♀♀, April 1938, D'Angelo (all in coll. Blanchard); Misiones, Puerto Bemberg, 13 ♂♂, 13 ♀♀, and Iguazú, 44 ♂♂, 32 ♀♀, January 30-March 14, 1945, Hayward, Willink, and Golbach (all in FML). Venezuela, Carabobo, Valle Seco, ♂, 2 ♀♀, January 1940, P. Anduze, (in USNM). Paraguay, Villarica, May and June 1939, 2 ♀♀, F. Schade (in USNM).

Tomoplagia rudolphi (Lutz and Lima)

FIGURES 101,a-d; 102,a,b; PLATE 26, FIGURE 25

Plagiotoma biseriata Ihering (not Loew), 1912, p. 14.

Plagiotoma rudolphi Lutz and Lima (new name), 1918, p. 10.

Tomoplagia rudolphi (Lutz and Lima), Lima, 1934, p. 116.

One of the largest species of the genus which belongs to the *atelesta-phaedra* group. There is no doubt that *T. vernoniae* Hering is but a synonym to this species because the original description of *vernoniae* entirely agrees with the examined *rudolphi* specimens, and Hering apparently did not know this species ("von der schon bekannten cecidogenen Art an *Vernonia*, *T. rudolphi* ist sie sogleich durch die ganz gelbe

*Cb*₂ zu unterscheiden") which has the second basal cell (*Cb*₂) entirely yellow. In any case the wing photograph published by Dr. A. da Costa Lima does not demonstrate this character.

It may be easily distinguished from the other species by the characters given in the key, and principally by the arrowhead-shaped apical part of the ovipositor.

MALE: Length of body 7.7 mm.; wing 7.3 mm. long and 2.6 mm. wide, 2.8 times as long as wide.

Head entirely testaceous yellow, 1.29 mm. long, 2.31 mm. wide, and 2.07 mm. high, considerably wider and higher than long. Frons at vertex 1.18, at anterior margin 1.00 mm. broad and medianly 1.02 mm. long, about as long as broad at anterior margin and twice as broad as one eye. Oral margin of mesofacial plate raised and prominent. Cerebral plate on occiput not raised. Antennae and mouthparts testaceous yellow except for the dark brown labella; apical part of broad-oval maxillary palpi slightly darkened. Postpedicel broad-oval, dorsally convex, 0.34 mm. long and 0.25 mm. wide, more than 1.3 times as long as wide; seta bare, dark brown with golden lustre except for thickened basal third, which is dark testaceous yellow; three times as long as postpedicel. Eyes in profile 1.95 mm. high and 0.79 mm. wide (long), more than 2.4 times as high as wide and 5.7 times as high as genae, bare. Genae below eyes relatively broad (0.34 mm.), nearly as broad as inferior region of postcranium in profile (0.36 mm.).

Cephalic bristles brownish yellow and somewhat flattened: three pairs of incurved lower orbital bristles (*ori*), anterior pair only slightly shorter; the divergent outer ventral pair and anterior pair of the recurved upper orbital bristles (*ors*) subequal to *ori*, ocellar pair slightly longer. Posterior pair of *ors* shorter, and the slightly convergent inner vertical pair much longer than *ori*.

Thorax with scutellum 3.3 mm. long and 2.6 mm. wide, testaceous yellow in ground color; mesonotum evenly covered with light yellow dusting and golden shining appressed short hairs, except for the bare and shining narrow posterior margin; in the specimens examined no dusted vittae of different color. The usual pair of oval black spots present on hind margin of mesonotum, and between them in all the specimens examined a pair of smaller rounded black spots situated nearer to scutellar suture than the lateral spots. On the sides of mesonotum three black spots: the largest spot above wing base, a short vittalike one below posterior notopleural bristle, and a smaller one behind wing base; all these spots black to dark brown. Pleura with no black spots.

Thoracic bristles long, brownish yellow with golden lustre. Two pairs of nearly equal, long mesopleural bristles; dorsocentral (*dc*) pair inserted in line with supra-alars or slightly before them. Prescutellar

pair nearly as widely spaced as *dc* pair and placed nearly in line with upper postalar pair. Scutellum faintly shining, and covered with fine whitish pruinosity, on sides with some appressed brownish yellow hairs. Postscutellum entirely yellow, whitish pruinose, without

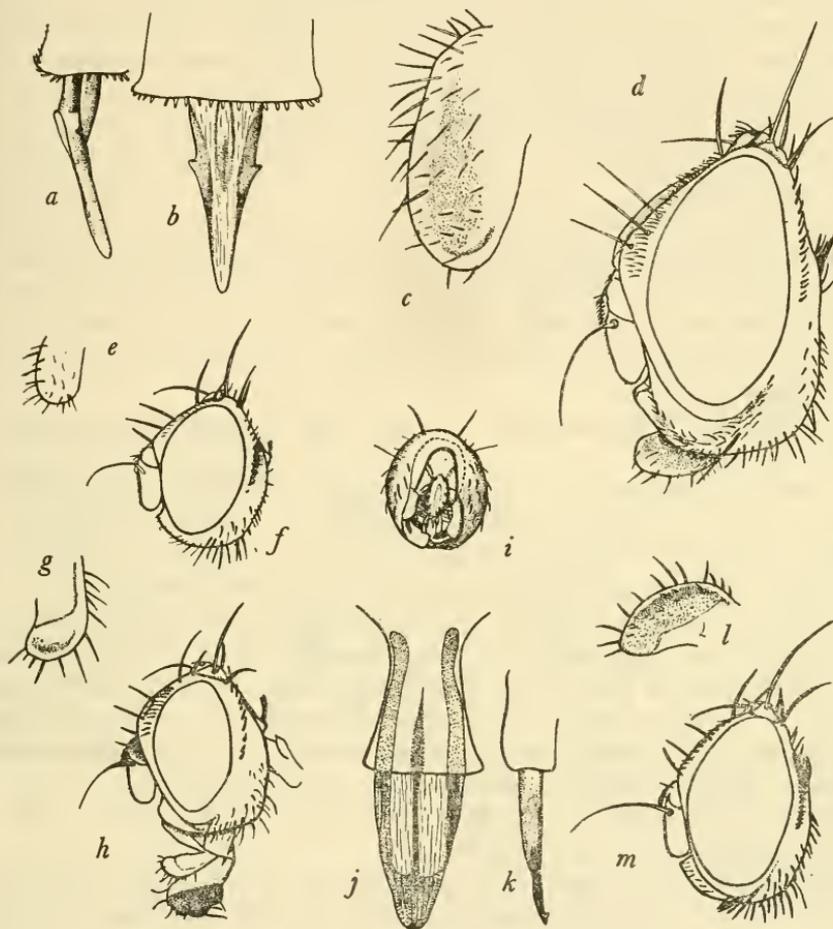


FIGURE 101.—*Tomoplagia rudolphi*: *a*, Lateral view of ovipositor tip; *b*, dorsal view of ovipositor tip; *c*, right maxillary palpus, superior surface; *d*, lateral view of head. *T. salesopolitana*: *e*, Left maxillary palpus, inferior surface; *f*, lateral view of head. *T. unifascia*: *g*, Left maxillary palpus, superior surface; *h*, lateral view of head. *T. reimoseri*: *i*, Dorsal view of epandrium; *j*, dorsal view of ovipositor tip; *k*, lateral view of ovipositor tip; *l*, right maxillary palpus, superior surface; *m*, lateral view of head.

lateral black spots. Mediotergite shining dark testaceous yellow, sometimes with irregular brownish markings.

Coxae and legs testaceous yellow.

Halteres testaceous yellow, the knob brownish.

Wings with the usual pattern of the genus but the bands intense yellow without dark brown distal borders, only the median band has a vestige of a dark border. Tips of apical, subapical, and median bands

brownish; subapical band sometimes very pale. Basal band abbreviated, does not reach posterior wing margin and does not end in a dark brown spot or cloud. Costa not blackened at tip of humeral cross-vein nor at tip of subcosta. Subcostal cell (stigma) 2.5 (♀♀ 3.0) times as long as broad at base. First costal section 1.07, second 2.11, third 1.25, and fourth 0.79 mm. long; basal section of fourth longitudinal vein (M_1) 2.02, median (penultimate) 0.45, and ultimate 2.17 mm. long. Inner cross-vein more obliquely placed than outer (*tp*) and as long as the penultimate section of M_1 (0.45 mm.); *tp* 0.95 mm. long. Whole anal cell 1.38 mm. long, 2.9 times as long as apical process (0.48 mm.).

Preabdomen moderately shining, testaceous yellow, covered with appressed yellowish and blackish hairs, 3.8 mm. long and 2.9 mm. wide. In the specimen examined only the fourth tergite with a pair of small blackish brown lateral spots. The 0.91-mm.-long fifth tergite approximately 1.5 times as long as fourth (0.59 mm.). Sternites and membrane testaceous yellow.

Postabdomen brownish yellow; epandrium wide oval (Costa Lima 1934, fig. 1).

FEMALE: Like male. Length of body 6.6 (7.4) mm.; wing 6.7 (7.8) mm. long and 2.5 (2.8) mm. wide, 2.7 (2.8) times as long as wide. Head 1.18 (1.41) mm. long, 2.09 (2.50) mm. wide, and 1.80 (2.18) mm. high. Frons at vertex 1.03 (1.23), and at anterior margin 0.82 (0.98) mm. broad, and medianly 0.91 (1.02) mm. long. Postpedicel 0.32 (0.40) mm. long and 0.22 (0.25) mm. wide, 1.5 (1.6) times as long as wide. Eyes in profile 1.36 (1.63) mm. high and 0.77 (0.79) mm. long, 1.7 (2.0) times as high as long (wide) and 4.3 (4.7) times as high as genae. Genae below eyes 0.29 (0.37) mm. wide, nearly as wide as inferior region of posteranium in profile (0.32 (0.45) mm.).

Thorax with scutellum 3.0 (3.8) mm. long and 2.2 (2.7) mm. wide, with the same characters as in male.

Wings like that of male; first costal section 0.85 (1.07), second 2.23 (2.62), third 1.14 (1.34) and fourth 0.75 (0.79) mm. long. Basal section of fourth longitudinal vein (M_1) 2.02 (2.27), penultimate 0.45 (0.50), and ultimate 2.09 (2.34) mm. long. Inner cross-vein (*ta*) 0.43 (0.52), outer 0.93 (0.95) mm. long; *ta* approximately as long as penultimate section of M_1 . Whole anal cell 1.34 (1.66) mm. long, 2.7 (2.8) times as long as apical process (0.50 (0.57) mm.).

Preabdomen 2.4 (2.6) mm. long and 2.8 (2.9) mm. wide, wider than long; fourth to sixth tergites each with a pair of small lateral rounded blackish brown spots; the pair on fifth tergite usually larger than the others; third tergite sometimes also marked with a pair of small lateral spots, usually lighter in color than the others. Fifth tergite slightly shorter (0.36 (0.34) mm.) than the sixth (0.41 (0.43) mm.).

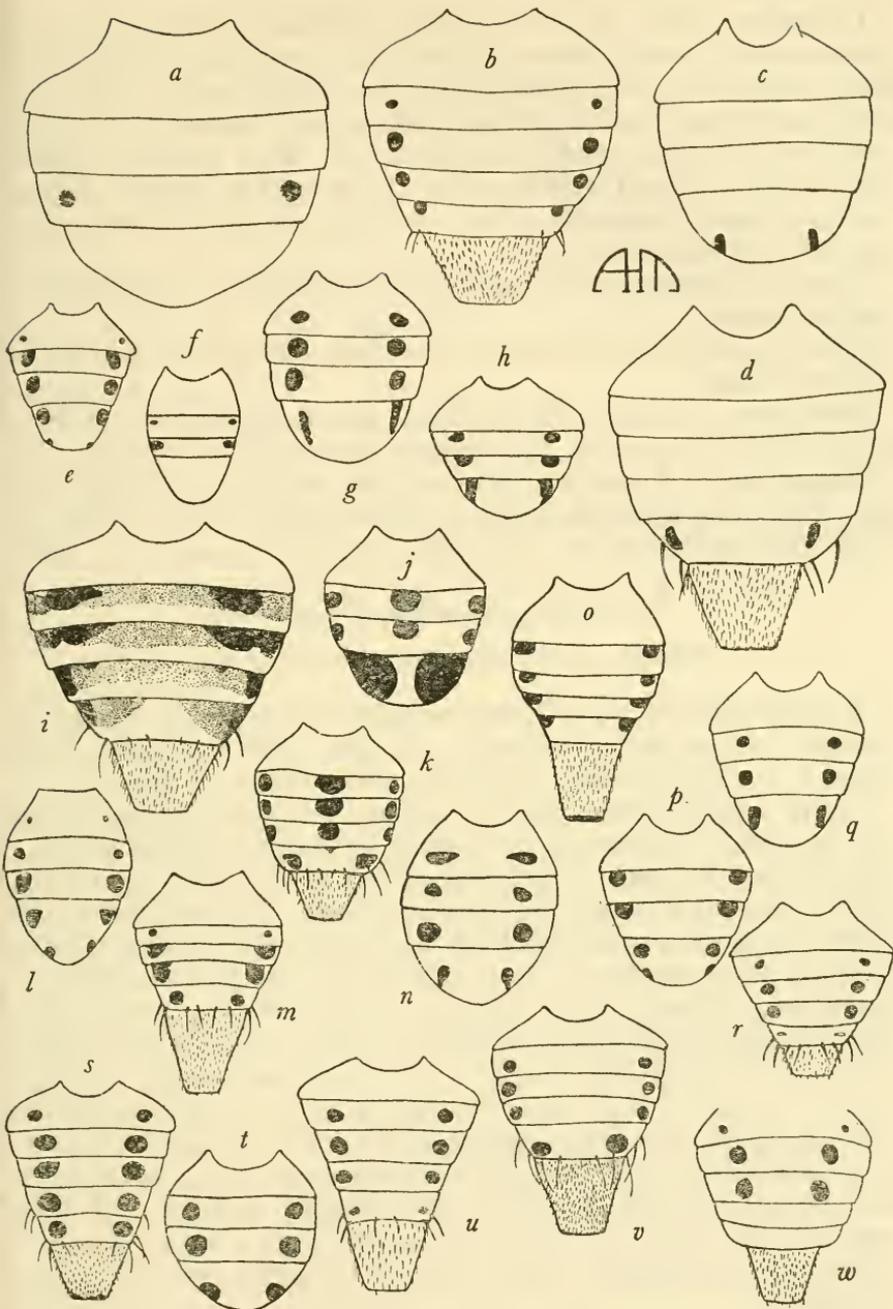


FIGURE 102.—Dorsal markings of abdomen: *Tomoplagia rudolphi*: a, Male; b, female; *T. phaedra*: c, Male; d, female. e, *T. unifascia*, male. f, *T. salesopolitana*, male. g, *T. kelloggi*, male. h, *T. pleuralis*, male. i, *T. minattai*, female. *T. fiebrigi*: j, Male; k, female. *T. incompleta*: l, Male; m, female. n, *T. argentinensis*, male. *T. costalimai*: o, Female; p, male. *T. reimoseri*: q, Male; r, female. s, *T. heringi*, female. *T. punctata*: t, Male; u, female. v, *T. formosa*, female. w, *T. ovalipalpis*, female.

Ovipositor sheath in the specimens examined strongly flattened dorsoventrally, much shorter (0.79 (0.93) mm.) than basally wide (1.34 (1.34) mm.), and slightly longer than apically wide (0.68 (0.70) mm.); at base only 0.30 (0.30) mm. high in profile; entirely subshining testaceous yellow, covered with fine and short appressed hairs. Median part (rasper) reddish yellow; the arrowhead-shaped shining and translucent, testaceous yellow apical part of ovipositor is characteristic for this species.

TYPE: In Museum of São Paulo and in the Instituto Oswaldo Cruz, Rio de Janeiro.

TYPE LOCALITY: The States of São Paulo and Rio de Janeiro in southern Brazil.

SPECIMENS EXAMINED: Brazil: Rio de Janeiro, Tinheiro, ♂, ♀, June 27, 1940, P. A. Araujo "De cecidias em caule de *Vernonia*. *T. rudolphi* Lutz & Lima, det. C. Lima, 8480 and 8482 col. ENA." (in coll. Escuela de Agronomía, Rio de Janeiro); São Paulo, ♀, May (in USNM); Paraná, Curitiba, ♀, December 1940, Claretiáno (in FML).

Tomoplagia salesopolitana, new species

FIGURES 101,*e,f*; 102,*f*; PLATE 26, FIGURE 26

A small species of the *obliqua-monostigma-minuta* group, similar to *minuta*, differing from this species by the black markings of the abdominal tergites and by other characters given in the key.

MALE: Length of the body 4.0 (3.8) mm.; wing 4.0 (3.7) mm. long and 1.6 (1.5) mm. broad, approximately 2.5 times as long as broad.

Head pale testaceous to ochraceous yellow, 0.68 (0.66) mm. long, 1.09 (1.04) mm. wide and 0.91 (0.88) mm. high. Frons at vertex 0.50 (0.48) and at anterior margin 0.36 (0.36) mm. broad, and on median line 0.45 (0.45) mm. long. Oral margin of mesofacial plate raised and prominent. Inferior margin of cerebral plate slightly raised. Antennae and mouthparts pale testaceous yellow, maxillary palpi almost straight and long-oval in shape. Postpedicel broad-oval, 0.23 (0.20) mm. long and 0.17 (0.15) mm. broad, slightly more than 1.3 times as long as broad; seta bare, shining black except for the thickened testaceous yellow basal fifth; about 2.5 times as long as postpedicel or slightly longer. Eyes in profile 0.77 (0.73) mm. high and 0.43 (0.41) mm. long (or wide), 1.8 times as high as wide. Inferior region of posteranium in profile 0.12 (0.16) genae below eyes only 0.05 (0.06) mm. wide.

Cephalic bristles pale brownish yellow; the usual garniture present. Anterior pair of the incurved lower orbital bristles (*ori*) shorter and weaker than the two posterior pairs and subequal to the posterior pair of recurved upper orbital bristles (*ors*); the two posterior *ori* subequal to the anterior *ors*, and the slightly longer ocellar bristles are subequal

to the outer vertical bristles. Genal bristle distinct, brown with golden lustre.

Thorax with scutellum 1.7 (1.6) mm. long and 1.3 (1.1) mm. wide, pale testaceous to ochraceous yellow in ground color; mesonotum evenly covered with pale, testaceous yellow dusting and shining pale yellow appressed short hairs except for the very narrow hind margin, which is bare and shining; there are no structural or dusted vittae present. On the hind region of the mesonotum the usual pair of lateral black spots present, in this species they are small; beneath (and behind) wing base a small brownish black dot. Pleura without black spot. Scutellum whitish dusted, only linear basal border shining. Postscutellum and metanotum intensive testaceous yellow, shining, without black spots.

Thoracic bristles brownish yellow; only the upper pair of mesopleural bristles present; hind notopleural bristle only half as long as and much weaker than fore pair. Dorsocentral pair placed in transverse suture or slightly behind, more widely spaced than prescutellar pair, which is inserted far before level of upper postalar bristles close to level of supra-alar pair. Apical pair of scutellar bristles crossed and considerably shorter than basal.

Coxae and legs pale testaceous yellow, only distitarsi of mid and hind legs dark brown.

Wings with the general pattern of the genus; it is characteristic of this species that the yellow basal band is abbreviated, ending in a subquadrangular semiopaque dark brown spot distad to anal vein, at tip of apical process of anal cell. Subcostal cell (stigma) 2.2 (2.3) times as long as basally broad. First costal section (stigma) 0.57 (0.50), second 1.38 (1.34), third 0.79 (0.70), and fourth 0.52 (0.45) mm. long. Basal section of the fourth longitudinal vein 1.13 (1.02), median (penultimate, between the cross-veins) 0.32 (0.27), and ultimate 1.30 (1.11) mm. long. Inner cross-vein 0.27 (0.26) mm. long and more obliquely placed than the outer cross-vein (0.51 (0.43) mm.). Entire anal cell 0.59 (0.59) mm. long, 2.6 (3.1) times as long as apical process (0.23 (0.19) mm.)

Halteres pale ochraceous yellow.

Preabdomen 1.7 (1.7) mm. long and 1.3 (1.2) mm. wide, long-oval testaceous yellow with appressed fine brownish yellow hairs and with only two pairs of lateral black spots; third to fourth tergites each with pair of small lateral black spots, equally widely spaced. Fifth tergite (0.41 (0.41) mm.) very long, 2.3 (2.5) times as long as the fourth (0.18 (0.16) mm.).

Postabdomen testaceous yellow; epandrium long-oval, with normally shaped surstyli. Apparently only the anterior pair of the shining black gonapophyses present.

FEMALE: Unknown.

Types: Holotype ♂, Brazil, São Paulo, Salesópolis, August 14, 1947, Rabello, Travassos Filho, and J. Lane. Paratype ♂, Brazil, Salesópolis, September 9, 1949, Travassos, Travassos Filho, and Rabello, ♂ Brazil, São Paulo, Campo de Jordão, January 23, 1936, F. Lane. (Holotype and paratype in Dep. Zool., São Paulo, paratype in FML.)

Tomoplagia stonei, new species

FIGURES 90; 97, *a, b*; PLATE 19, FIGURE 1

A large well-defined species of the *pleuralis* group with the same general characters as all other *Tomoplagia* species but differing from them in having small and shining brownish black insertion circlets on the thorax at bases of the presutural, dorsocentral, supra-alar, postalar, prescutellar, and scutellar bristles. It seems to be closely related to *arsinoe* Hering (Colombia) and to *punctata*, new species (Argentina).

MALE: Length 6.7 (7.3) mm.; wing 7.5 (8.1) mm. long and 3.1 (3.3) mm. wide, always longer than body and nearly 2.5 times as long as wide.

Head 1.09 (1.13) mm. long, 1.91 (2.07) mm. wide, and 1.77 (1.93) mm. high, pale ochraceous yellow; frons homogeneously pale ochraceous yellow, only genovertical and ocellar plates slightly grayish, parafacial plate below eyes brownish yellow; ocelli transparent clear yellow; frons at vertex 0.86 (0.88) and at anterior margin 0.56 (0.66) mm. wide, and in median line 0.70 (0.85) mm. long, shorter than wide at vertex; mesofacial plate impressed as in all other species; oral margin raised and considerably prominent. Antennae, maxillary palpi, and mouthparts pale ochraceous yellow; postpedicel oval, 0.38 (0.50) mm. long and 0.18 (0.25) mm. wide, 2 (2.2) times as long as wide, sometimes darkened; seta nearly three times as long as postpedicel, bare and shining black except the thickened basal parts, which are brownish yellow. Eyes in profile more than twice as high as wide, sparsely beset with tiny erect whitish hairs.

All head bristles as brownish yellow as the thoracic bristles and somewhat flattened. Three pairs of incurved lower orbital bristles present, posterior pair always slightly longer than anterior ones and subequal to posterior pair of recurved upper orbital bristles (*ors*); anterior pair of *ors* slightly longer than these and about as long as the strongly divergent ocellar bristles; as usual in Tephritidae, the inner verticals are the longest of all head bristles, slightly longer than the outer ones. A distinct genal bristle.

Thorax pale ochraceous yellow in ground color, 3.1 (3.4) mm. long and 2.3 (2.4) mm. wide; mesonotum densely covered with pale ochraceous yellow dusting and short pale appressed hairs except the narrow bare posterior part in front of scutellum, which is as subshining and sparsely whitish dusted as scutellum; in the dusting of mesonotum

are three vittae, golden yellow dusted and equally narrow, one in median line and two lateral ones in dorsocentral line; the pale ochraceous yellow dusted space between two golden yellow vittae twice as broad as one vitta. Only one pair of oval black spots, each between upper postalar and prescutellar bristles; a pair of round black spots, each beneath the base of wing and below postalar callosity. This is the only known species with small but very distinct shining brownish black circlets on mesonotum at bases of the presutural, dorsocentral, supra-alar, postalar, prescutellar, and scutellar bristles. In *punctata* only the dorsocentral and prescutellar bristles are inserted on shining dark brown circlets.

Thoracic bristles long and strong, brownish yellow and somewhat flattened; apical pair of scutellar bristles crossed; two pairs of long mesopleural bristles, inferior slightly shorter than superior; dorsocentral pair inserted about half way between transverse suture and supra-alar bristle.

On pleura only two small black dots present, a round one on sternopleura below sternopleural bristle and an oval one on inferior margin of ventral pleurotergite at base of haltere; the latter may be absent, principally in male. Sometimes there is a smaller black or brown dot above hind coxa. Scutellum pale ochraceous yellow, with narrow basal part subshining and with apical two-thirds sparsely covered with yellow appressed hairs. Each side of postscutellum with a triangular black marking. Mediotergite (metanotum of authors) shining and intensively brownish yellow with reddish tinge.

Coxae and legs entirely ochraceous to testaceous yellow, with bristles and hairs ochraceous yellow except for a row of densely spaced anterodorsal bristles and a row of much weaker posterodorsal bristles, and, between these, two rows of hairs on hind tibiae brownish black.

Halteres pale ochraceous yellow.

Wing with the usual pattern of the genus; base of subapical band very narrow; basal band present, forming at apical process of anal cell a diffuse translucent dark brown spot, which extends over anal vein; costa at humeral cross-vein (*th*) and at termination of subcosta not blackened, a small blackish brown dot on anterior termination of *th*, and almost linear borders of the same color at tip of subcosta (auxiliary vein). Stigma (=subcostal cell) long, nearly 2.8 times as long as wide basally. First costal section 1.13 (1.13), second 2.61 (2.73), third 1.36 (1.32), and fourth 0.75 (0.82) mm. long; first section of the fourth vein (M_1) 2.38 (2.45), penultimate section (between the cross-veins) 0.54 (0.59), and ultimate section 1.93 (2.0) mm. long; inner cross-vein (*ta*) 0.59 (0.66), outer cross-vein (*tp*) 1.13 (1.18) mm. long, *ta* slightly longer than distance between cross-veins (=penultimate section of M_1), and much more obliquely situated than *tp*; fifth longitudinal (M_3+Cu_1) vein which limits posteriorly the discoidal cell hardly excurved; anal cell very long (1.82 (1.86) mm.), its apical

process (0.95 (1.00) mm.) slightly longer than rest of cell, and considerably longer than petiole ($Cu_2 + An_2$); the whole anal cell only 1.8 times as long as the apical process.

Preabdomen subshining pale ochraceous to testaceous yellow, covered with pale yellowish and brownish hairs, 2.6 (3.0) mm. long and on the second tergite 1.8 (2.1) mm. wide; fourth and fifth tergites each with a pair of vittalike lateral black marks, and third tergite with a pair of lateral small dots, black to pale brown. Fifth tergite 0.81 (0.91) mm. long, 1.7 times as long as fourth. Sternites, membrane, and postabdomen of same color as tergites.

Epandrium oval; two pairs of gonapophyses ("claspers" of authors) shining black, posterior pair smaller.

FEMALE: Like male. Length 5.8 (7.3) mm., wings 7.4 (8.1) mm. long and 3.2 (3.5) mm. wide. Head 1.13 (1.18) mm. long, 1.98 (2.11) mm. wide, and 1.86 (1.93) mm. high. Frons at vertex 0.88 (0.95) and at anterior margin 0.63 (0.68) mm. wide, and in median line 0.80 (0.93) mm. long. Postpedicel 0.48 (0.50) mm. long and 0.23 (0.23) mm. wide. Thorax with scutellum 3.2 (3.4) mm. long and 2.4 (2.5) mm. wide, with the same black markings as in male.

Wings like that of male; first costal section 1.13 (1.29), second 2.61 (2.86), third 1.38 (1.38), and fourth 0.80 (0.86) mm. long; first section of the fourth longitudinal vein (M_1) (proximal to ta) 1.88 (2.16), penultimate 0.57 (0.63), and ultimate 2.43 (2.61) mm. long; inner cross-vein (ta) 0.57 (0.70), outer 1.62 (1.29) mm. long; anal cell 1.86 (1.86) mm. long, including apical process (1.02 (1.02) mm.), apical process is longer than half the whole cell length.

Preabdomen 2.2 (3.0) mm. long and 2.4 (2.6) mm. wide with the same black markings as in male but sixth tergite without black marks; fifth tergite 0.32 (0.43), sixth 0.43 (0.61) mm. long, longer than the fifth.

Sheath of ovipositor 1.29 (1.45) mm. long, in some specimens dorsoventrally flattened (first numbers), in others subcylindrical, shining and translucent testaceous yellow, evenly covered with fine golden shining brownish hairs; more than twice as wide at base (1.20 (1.11) mm.) as at apex (0.52 (0.45) mm.), slightly longer than basally wide. Apical part of ovipositor (ovipositor of Benjamin) dorsoventrally flattened, rather wide with rounded tip, translucent reddish yellow.

TYPES: Holotype ♂ (USNM 61717) and allotype ♀, Panamá, El Cermeno, April 1939, J. Zetek, No. 4382A. Paratypes: 7 ♂♂ and 8 ♀♀, with same data as type; ♂ same locality, May 10, 1940, J. Zetek "No. 4560, Fruit-fly trap," ♂ same locality, April 28, 1940, J. Zetek; ♀ La Campana, April 13, 1938, J. Zetek, "No. 5522." (Holotype, allotype, and 13 paratypes in USNM, 6 paratypes in FML.)

OBSERVATION: In all specimens examined the fourth longitudinal vein (M_1) is loosely setulose from the base only to the inner cross-vein (ta) on both surfaces of the wing.

Tomoplagia trivittata (Lutz and Lima)

FIGURE 96,d,e; 97,e; PLATE 21, FIGURE 11

Plagiotoma trivittata Lutz and Lima, 1914, p. 10.

Tomoplagia trivittata (Lutz and Lima), Lima, 1934, p. 118.

The writer has two specimens of this well-defined species of the *pleuralis* group, originally described from Brazil, which differs from its allies by having two testaceous yellow vittae on the frons as well as by other characters. The Argentine specimen differs slightly from the Brazilian, e. g., the Argentine specimen has the same wing pattern as figured by Costa Lima (1934, pl. 1, fig. 3) and nearly parallel vittae on the frons; the Brazilian specimen is larger in size, its wing pattern is slightly different, and the testaceous yellow vittae are more converging towards anterior margin of the frons, forming a V-shaped marking. It will be necessary to study more specimens, especially reared material, in order to settle the status of the Brazilian male specimen described here. This may represent a variety or a subspecies.

MALE: Length 5.5 mm.; wing 5.7 mm. long and 2.6 mm. wide, 2.2 times as long as wide.

Head pale ochraceous yellow, 1.02 mm. long, 1.68 mm. wide, and 1.43 mm. high. Frons at vertex 0.73 and at anterior margin 0.59 mm. wide, and in median line 0.66 mm. long, wider at vertex than long, with a testaceous yellow V-shaped marking on frontal vitta; ocellar, genovertical, parafacial and mesofacial plates, and a wedge-shaped longitudinal stripe on middle of frontal vitta (in front of ocelli) densely covered with whitish dusting. Oral margin of mesofacial plate raised and prominent. Antennae and mouthparts testaceous yellow, except the yellowish brown labellae; postpedicel 0.27 mm. long and 0.20 mm. wide, 1.3 times as long as wide, with bare shining black seta (only basal seventh testaceous yellow), three times as long as the postpedicel. Eyes, in profile, very high, 2.1 times as high as wide, very sparsely beset with tiny hairs, erect and whitish.

The brownish yellow head bristles somewhat flattened; three pairs of incurved lower orbital bristles, anterior pair slightly shorter; two pairs of recurved upper orbital bristles longer and stronger than lower orbitals, posterior pair about as long as the divergent outer vertical and anterior pair hardly shorter than the slightly divergent ocellar bristles; the hardly convergent inner verticals the longest and strongest of all. One pair of distinct genal bristles present, darker than the others.

Thorax 2.7 mm. long and 1.5 mm. wide, pale ochraceous yellow in ground color; mesonotum densely covered with whitish dusting and with short whitish appressed hairs except the very narrow bare and shining posterior margin; mesonotum marked with three vittae, golden to reddish brown dusted, all equal in width, slightly narrower than the white dusted vittae among them, and narrowing towards anterior margin: a median vitta extending from anterior margin to scutellum, two lateral vittae extending from anterior margin to pair of long-oval black spots between upper postalar and prescutellar bristles; dorsocentrals inserted in the lateral brown vittae, and prescutellar ones in middle of the white median vittae; black spot beneath base of wing is relatively large and quadrangular.

The brownish yellow thoracic bristles are long and strong. Two pairs of mesopleural bristles are present, lower pair but slightly shorter than upper. Dorsocentral pair inserted in first third of distance between transverse suture and transverse supra-alar line. Apical pair of scutellar bristles slightly divergent. On the ochraceous yellow pleura three black markings: a double one on inferior part of dorsal and ventral pleurotergites, a large one above hind coxa, and a broad vitta on middle of sternopleura, which in the specimen examined extends from anterior to posterior margin of pleura, and is interrupted at its middle by a brown stretch.

Scutellum shining ochraceous yellow, with some black hairs at hind margin; postscutellum with two long-triangular lateral black spots, between them a small ochraceous yellow spot, whitish dusted; mediotergite entirely reddish brown, shining and translucent.

Coxae and legs testaceous yellow, with brownish yellow bristles and hairs, except anterodorsal row of rather closely spaced, short brownish black bristles.

Halteres ochraceous yellow.

Wing with the characteristic pattern of the genus; bands intensively colored; apical band of this specimen distinctly separated from costa by a pale linear margin, and in the three proximal bands there is much more dark yellow color than brown; basal band rather well developed but does not attain posterior wing margin, forming a large broad yellowish brown transparent spot on each side of apical process and petiole of anal cell; costa not blackened above the black spots on humeral cross-vein and at tip of subcosta. Stigma 2.8 times as long as wide basally. First costal section 0.88, second 1.91, third 1.0, and fourth 0.68 mm. long; first section of fourth longitudinal vein 1.75, penultimate 0.42, and ultimate 1.44 mm. long; inner cross-vein (*ta*) about as long (0.43 mm.) as distance between cross-veins, outer cross-vein 0.82 mm. long, less oblique than *ta*; anal cell together with its 0.54-mm.-long apical process 1.20 mm. long (whole anal cell only 2.2 times as long as apical process).

Preabdomen 2.5 mm. long and 2.2 mm. wide, shining, testaceous to brownish yellow, with broad ochraceous yellow hind margins, and covered with pale yellow and black appressed hairs; fifth tergite 0.66 mm. long, 1.75 times as long as fourth; lateral and hind margin of fifth tergite with rather closely spaced marginal bristles, strong and black; each of third to fifth tergites with a pair of lateral black spots, which are on third tergite rounded, on fourth oval, and on fifth long-triangular.

The small epandrium is testaceous yellow (see fig. 3. of Dr. A. da Costa Lima, 1934, p. 119).

The Argentine specimen was reared from sweet orange by Kenneth J. Hayward, according to information received from Dr. Hayward. After finishing this paper the writer received a small lot of Argentine *Tomoplagia* from the private collection of Dr. Everard E. Blanchard (Buenos Aires), and among them was a female specimen of *trivittata*. The author wishes to acknowledge this generous assistance. The description of this specimen with the same wing pattern as figured by Lima (in which much of the intensive yellow of the wing pattern of the São Paulo specimen is substituted by brown) is as follows:

FEMALE: Length 4.5 mm.; wing 4.1 mm. long and 1.7 mm. wide, 2.4 times as long as wide.

Head 0.89 mm. long, 1.36 mm. wide and 1.16 mm. high, colored as in the São Paulo male, but the two testaceous yellow vittae on frons nearly parallel. Frons at vertex 0.68 and at anterior margin 0.52 mm. wide, and in median line 0.59 mm. long. Postpedicel 0.29 mm. long and 0.19 mm. wide, 1.6 times as long as wide.

Cephalic bristles as in the São Paulo specimen but anterior upper orbital bristles (*ors*) slightly shorter than the two pairs of lower orbitals (*ori*), and posterior *ors* slightly shorter than anterior *ori*; the more divergent ocellar bristles as long as the outer verticals.

Thorax 1.6 mm. long and 1.4 mm. wide, ground color, vittae of mesonotum, and bristles as in the São Paulo specimen, but apical pair of scutellar bristles slightly convergent, and the black markings brown.

Coxae and legs as in the São Paulo specimen.

Halteres brownish yellow.

Wings with the typical pattern of this species (pl. 1, fig. 3 of Costa Lima, 1934); first costal section 0.59, second 1.45, third 0.73 and fourth 0.50 mm. long; first section of fourth longitudinal vein 1.41, penultimate 0.30, and ultimate 1.01 mm. long; inner cross-vein 0.29, outer, 0.66 mm. long; anal cell 0.85 mm. long, together with the 0.36-mm.-long apical process; apical process slightly shorter than in the São Paulo specimen (whole anal cell 2.3 times as long as apical process).

Preabdomen 1.8 mm. long and wide, without black spots, only faint brown lateral clouds on second to sixth tergites; fifth tergite considerably longer (0.27 mm.) than the sixth (0.19 mm.), 1.4 times as long as the sixth tergite.

Sheath of ovipositor flattened, short and wide, 0.66 mm. long, at base 0.88, at apex 0.50 mm. wide, and but 0.16 mm. high basally; dark testaceous yellow with apical third blackish brown.

Species originally described from Brazil.

TYPE: In Instituto Oswaldo Cruz (Rio de Janeiro).

SPECIMENS EXAMINED: Brazil: São Paulo, Guatepará, January 1945, ♂, M. Carrera (in Dept. Zool., São Paulo). Argentina: Entre Ríos, Concordia, ♀, May 14, 1936, K. J. Hayward, "No. 3272, ex Citrus" (in coll. Blanchard).

Tomoplagia unifascia Hendel

FIGURES 101,*g,h*; 102,*e*; PLATE 26, FIGURE 27

Tomoplagia unifascia Hendel, 1914, p. 39.

This small Chilean species is undoubtedly related to *costalimai*, differing from all known species by the mesonotum of which only the median third is dusted, the lateral thirds being bare and shining.

MALE: Length of body 3.6 mm.; wing 3.6 mm. long and 1.5 mm. broad, 2.4 times as long as broad.

Head testaceous yellow, 0.68 mm. long, 1.05 mm. wide, and 0.88 mm. high. Frons at vertex 0.50 mm., at anterior margin 0.41 mm. broad, and on median line 0.48 mm. long. Oral margin of mesofacial plate raised and prominent. Inferior margin of cerebral plate slightly raised. Postpedicel broad-oval, 0.20 mm. long and 0.15 mm. wide, only 1.25 times as long as wide. Seta bare, shining black, except for the testaceous yellow basal fourth, 2.4 times as long as postpedicel. Eyes in profile 0.68 mm. high and 0.39 mm. wide, approximately 1.7 times as high as wide. Genae below eyes 0.13, inferior region of postcranium in profile 0.30 mm. wide (that is to say, unusually wide).

Cephalic bristles brownish yellow; the usual garniture present, the distribution and the relation in length is normal as in *salesopolitana*. The distinct genal bristle in this species is also darker in color than the other bristles.

Thorax with scutellum 1.5 mm. long and 1.1 mm. wide, testaceous yellow; it is characteristic of this species that only median third of mesonotum is covered with whitish pruinosity, lateral thirds and posterior margin on both sides and behind this broad vittalike pruinose area bare and shining. Mesonotum, except for the narrow hind margin, covered as usual with evenly distributed short appressed pale yellow hairs. Hind region of mesonotum marked with the usual lateral black spots, each between prescutellar and upper postalar bristles; behind (and beneath) wing base a pointlike small black dot.

Pleura throughout shining, with only two dark brown to brownish black spots: above hind coxa a small spot on metapleura, and a larger one on inferior half of ventral pleurotergite, extending in form of a nearly linear process over inferior margin of dorsal pleurotergite. Scutellum shining, pale testaceous yellow with some scattered minute hairs on the sides. Postscutellum and mediotergite shining, intensive testaceous yellow, postscutellum with a pair of small lateral black spots.

Coxae and legs entirely testaceous yellow.

Wings with the general pattern of the genus, but slightly modified, since apex of apical band is prolonged into tip of first posterior cell, with its wide apex ending at second third of fourth costal section, which therefore has only the posterior third hyaline. Second basal cell mostly hyaline and basal band greatly abbreviated. Subcostal cell (stigma) long, approximately 3 times as long as wide at base. First costal section 0.63, second 1.11, third 0.59, and fourth 0.50 mm. long. Basal section of the fourth longitudinal vein (M_1) 1.16, median 0.23, and ultimate 1.11 mm. long. Inner (*ta*) and outer (*tp*) cross-veins nearly parallel and only slightly oblique, *ta* 0.23 and *tp* 0.50 mm. long; *ta* as long as median section of M_1 . Whole anal cell 0.50 mm. long, 4.5 times as long as the short apical process (0.11 mm.).

Thoracic bristles brownish yellow; only upper mesopleural bristle present; posterior notopleural bristle slightly shorter and weaker than anterior. Dorsocentral pair inserted in anterior fifth of distance between transverse suture and supra-alar bristles (*sa*), and slightly wider spaced than prescutellar pair, which stands near level of *sa* pair. Apical pair of scutellar bristles convergent and crossed, much weaker than basal pair.

Halteres testaceous yellow.

Preabdomen 1.3 mm. long and 1.2 mm. wide, shining testaceous yellow (in the specimen examined it is irregularly darkened) and covered with dark brown appressed hairs. Second to fourth tergites each marked with a pair of rounded black lateral spots, pair on second tergite very small, nearly pointlike, pairs on third and fourth tergites large; fifth tergite with two pairs of lateral black spots, anterior pair large and oval, posterior pair represented by small, round dots touching posterior margin. The 0.50-mm.-long fifth tergite 1.7 times as long as the fourth (0.29 mm.).

Postabdomen shining, testaceous yellow; epandrium oval with normally shaped surstyli and with well developed shining black anterior gonapophyses; posterior pair very reduced.

TYPE. In Dresden Museum.

TYPE LOCALITY: Arica, Chile.

SPECIMENS EXAMINED: Chile: Arica, La Meite, ♂, February 7, 1932, Kiskiuk and Cooley, "K. & C. Chile No. 56. on olive tree" (in USNM).

Literature cited

ACZÉL, MARTÍN L.

1950. Catálogo de la familia "Trypetidae" de la región neotropical. *Acta Zool. Lilloana* (Tucumán), vol. 7 (1949), pp. 177-328.
1952. Suplemento al catálogo de la familia Trypetidae de la región neotropical. *Acta Zool. Lilloana* (Tucumán), vol. 12 (1951), pp. 117-133.
1954. Géneros y especies de la tribus Trypetini, 4. El género *Rhagoletrypeta* y nuevas especies de *Tomoplagia*. *Dusenía* (Curitiba), vol. 5, pp. 137-164, 31 figs., 1 pl.

BENJAMIN, FOSTER H.

1934. Descriptions of some native trypetid flies with notes on their habits. U. S. Dep. Agr., Techn. Bull. No. 401, pp. 1-95, 44 figs.

COQUILLET, D. W.

1910. The type species of the North American genera of Diptera. *Proc. U. S. Nat. Mus.*, vol. 37, pp. 499-647.

CURRAN, CHARLES H.

1931. First supplement to the "Diptera of Porto Rico and the Virgin Islands." *Amer. Mus. Novit.*, No. 456, pp. 1-23.

HAYWARD, KENNETH J.

1941. Insectos de importancia económica en la región de Concordia (Entre Ríos). *Revista Soc. Entom. Argentina* (Buenos Aires), vol. 11, No. 2, pp. 68-109.
1942. Primera lista de insectos tucumanos perjudiciales. *Publicación Misc. de la Estación Exper. Agr. Tucumán*, No. 1, pp. 3-110.

HENDEL, FRITZ

1914. Die Bohrfiegen Südamerikas. *Abhandl. Ber. zool.-anthrop.-ethnog. Mus. Dresden*, vol. 14 (1912), pp. 1-84.

HERING, MARTIN E.

1937. Neue neotropische Bohrfiegen aus dem Hamburger Museum, *Revista de Ent.* (Rio de Janeiro), vol. 7, pp. 296-302.
1938. Neue Bohrfiegen aus Brasilien. *Revista de Ent.* (Rio de Janeiro), vol. 8, pp. 187-196.
1941. Trypetidae, *in* *Beitr. zur Fauna Perus* (Hamburg), vol. 1, pp. 121-176, 1 pl.
1942. Neue Gattungen und Arten von Fruchtfliegen aus dem zoologischen Museum der Universität Berlin. *Mitteil. Zool. Mus. Berlin*, vol. 25, pp. 274-291.

IHERING, R. VON

1912. As moscas das fructas e sua destruição. *Secr. Agr. Comm. Obras Publ.* (São Paulo), pp. 1-48.

LIMA, A. DA COSTA

1934. Notas sôbre Tripetidas brasileiras (II). *Especies cecidógenas da América do Sul. Arq. Inst. Biol. Veget.*, vol. 1, No. 2, pp. 115-130, 1 pl.

LOEW, HERMANN

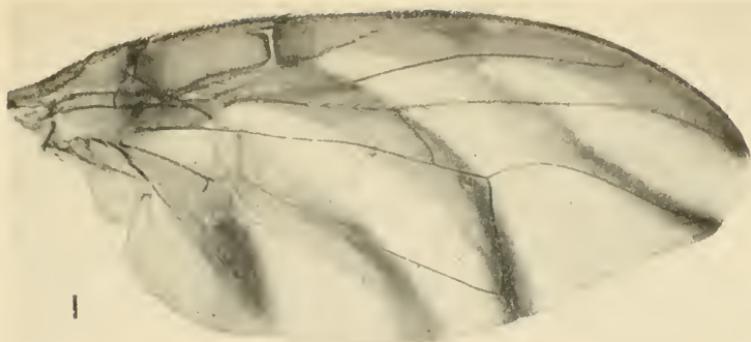
1862. *Monographs of the Diptera of North America. I.*, Smithsonian Misc. Coll. (Washington), No. 141, vol. 6, pp. 1-221, 2 pls.
1873. *Monographs of the Diptera of North America. III.*, Smithsonian Misc. Coll. (Washington), No. 256, vol. 11, pp. 1-351, 4 pls.

LUTZ, ARNOLD, and LIMA, A. DA COSTA

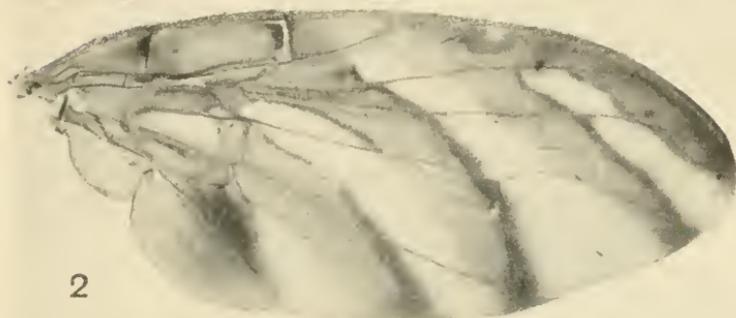
1918. Contribuição para o estudo das tripaneidas brasileiras. Mem. Inst. Oswaldo Cruz, vol. 10, pp. 1-15.

WILLISTON, S. W.

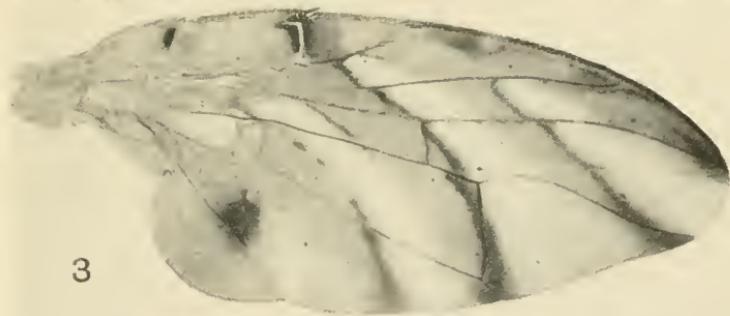
1896. On the Diptera of St. Vincent (West Indies). Trans. Ent. Soc. London, p. 253-446, 7 pls.



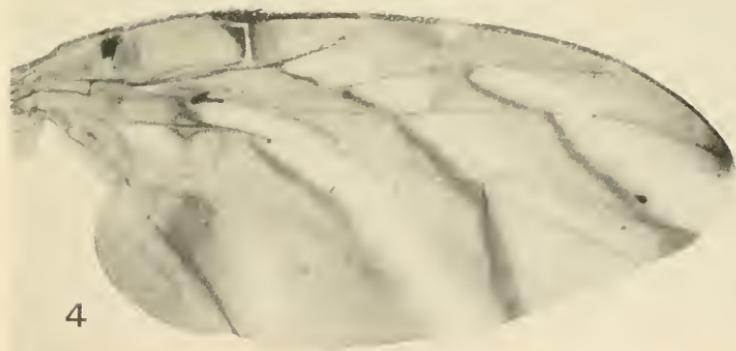
1



2



3



4

Wings: 1, *Tomoplagia stonei*; 2, *T. brevipalpis*; 3, *T. deflorata*; 4, *T. pseudopenicillata*.
(Photo by V. Brennan)



Wings: 5, *Tomoplaga propleuralis*; 6, *T. discolor*; 7, *T. cressoni*; 8, *T. monostigma*.
(Photo by V. Brennan)



9



10



11

Wings: 9, *Tomoplagai carrerai*; 10, *T. minuta*; 11, *T. trivittata*. (Photo by V. Brennan)



12



13



14

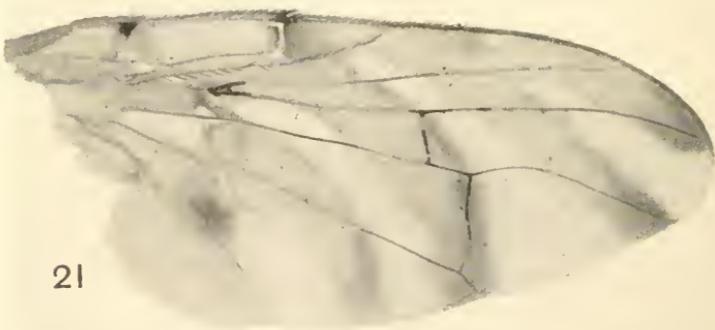


15

Wings: 12, *Tomoplagia incompleta*; 13, *T. argentinensis*; 14, *T. costalimai*; 15, *T. fiebrigi*.
(Photo by V. Brennan)



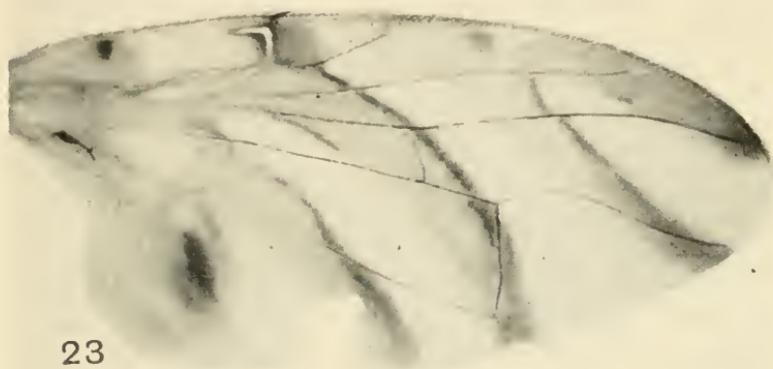
Wings: 16, *Tomoplagia formosa*; 17, *T. heringi*; 18, *T. kelloggi*. (Photo by V. Brennan)



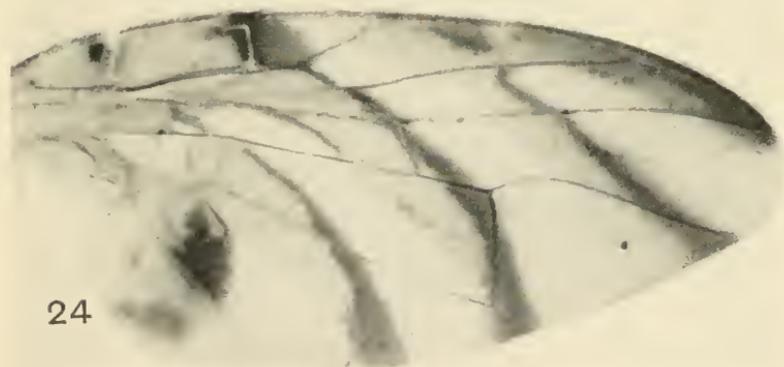
Wings: 19, *Tomoplagia minattai*; 20, *T. ovalipalpis*; 21, *T. phaedra*. (Photo by V. Brennan)



22

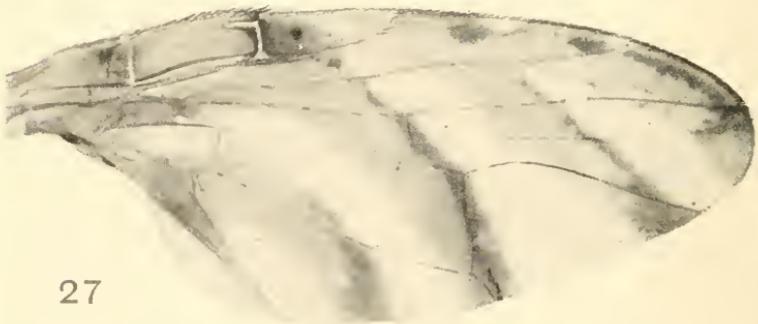


23



24

Wings: 22, *Tomoplagia pleuralis*; 23, *T. punctata*; 24, *T. reimoseri*. (Photo by V. Brennan)



Wings: 25, *Tomoplaga rudolphi*; 26, *T. salesopolitana*; 27, *T. unifascia*. (Photo by V. Brennan)