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A SYNOPSIS
OF THE WORLD SPECIES OF
DESMOMETOPA LOEW (DIPTERA, MILICHIIDAE)

By

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A Synopsis of the World Species of
Desmometopa Loew (Diptera, Milichiidae).

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ABSTRACT

The genus Desmometopa Loew is revised, with the number of recognized species in the world raised from 10 to 51, divided for the first time into two subgenera, Desmometopa Loew and Platophrymyia Williston. The classification, identification, morphological characteristics, and biology of adults and larvae are discussed, with numerous new rearing records. A key is provided to the 51 species, 41 of them new, of which 8 are left unnamed because of inadequate material. Two new synonyms are proposed, a queried synonymy is confirmed, and 4 lectotypes are designated.

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INTRODUCTION

The small black flies of the dipterous genus *Desmometopa* Loew are commonly encountered in all faunal regions, and they form a delightfully recognizable group of species because of a black M-shaped frontal vitta delineated by gray frontal triangle, fronto-orbital plates, and two straplike interfrontal plates (figs. 1,2,10). The genus is easily placed in available keys to the genera of Milichiidae (e.g., Hennig 1937). However, some confusion in identification of the species has long indicated that a synopsis and usable key were badly needed.

Classification

For some years, the genus *Desmometopa* included species now referred elsewhere, notably to *Leptomotopa* Becker, *Stomosis* Melander, and *Neophyllomyza* Melander, none of which has the inter-frontal plates although they may have rows of fine setae in the same positions. As recognized for over six decades, however, the genus has been confined to those species having the two straplike or bandlike interfrontal plates, with 17 proposed specific names well scattered from 1820 to 1965. In the present study these are reduced to 10 species and 7 synonyms, only 4 of the recognized species being common. The present study recognizes a total of 51 species, including 41 new species, chiefly Neotropical, well over half of these in the "*tarsalis* complex". Eight of the 41 are left unnamed at this time, however, because of the inadequacy of available material, but they have been included in the key. I am inclined to believe that even more species will be discovered, as has often been the case in other genera of neglected or overlooked small black flies.

The contrast with recent literature is striking. Modern catalogues for the Nearctic, Neotropical, Oriental, and Afrotropical Regions (Sabrosky, 1965b, 1973, 1977, 1980) listed, respectively, 3, 6, 6, and 8 species, and Duda (1935) recognized 4 Palearctic species. Eliminating duplications, a total of 12 species was recognized, and 3 of these are dropped as synonyms in the present classification.

The discovery of several polished black Neotropical species that might belong to the genus inevitably raised questions about their relationship to *Desmometopa* and to *Litometopa* Sabrosky, the latter proposed for a single species from Tanzania. Neither *Litometopa* nor the polished Neotropical species have interfrontal stripes, but the Neotropical species have 2 rows of interfrontal setae in contrast to their complete absence in *Litometopa*. Possibly these are degrees of reduction from the interfrontal plates of *Desmometopa*, but I prefer here to retain the distinctness of the plates as uniquely characteristic of *Desmometopa*. The polished species may represent a new genus. I may add that *Litometopa* has other distinct features: only one upper and one lower fronto-orbital bristle on each side; no presutural bristle, and mesonotum almost bare of hairs except for the median acrostical and dorsocentral rows and a few intra-alar hairs, whereas the polished black Neotropical species resemble *Desmometopa* in all these features.

The genus may be divided into two subgenera on the basis of the structure of the head:

Subgenus *Platophrymyia* Williston (type species *P. nigra* Williston, which is a synonym of *D. tarsalis* Loew, a commonly used--and all too frequently misused--name): Vibrissal angle distinctly produced anteriorly to about a 45° angle (fig. 18), the angle emphasized by shining black lateroventral corner of facial plate, immediately mesad of vibrissal angle and usually warped forward and upward beyond it. Lower margin of head comparatively long and face deeply

concave as seen in profile. Epistomal margin, the lower margin of face, more or less strongly warped upward also, and especially so on the midline so as to shorten the face between epistomal margin and apex of the lunule between antennal bases, this warping and shortening, together with a distinct medial facial carina, all combining to accentuate the concave antennal grooves or foveae.

Subgenus *Desmometopa* s. str. (type species *Agromyza m-atrum* Meigen, a synonym of *D. sordida* (Fallén): Vibrissal angle not produced anteriorly, only an 80° to 90° angle (e.g., figs. 3,5,6-8), face only slightly concave as seen in profile, the latero-ventral corner of facial plate dull gray like rest of face, and not warped forward. Epistomal margin at most only slightly warped forward and upward, usually not markedly so at midline, the face not materially shortened on midline, facial carina weak, and antennal foveae not accentuated.

Most of the species fall easily into one or the other of the two groups. The characteristics of a few species seem to be somewhat intermediate, or could be misinterpreted by someone using the key without adequate reference material or experience. Accordingly the subgeneric division is not used initially in the key, which is intentionally artificial to bypass some problem species and give priority to accuracy of identification.

The species can be assigned to subgenera as follows, with geographic distribution indicated by faunal regions (Oceanic = the Pacific islands):

Subgenus *Desmometopa* Loew (22 species)

Widely distributed:

inaurata (Afrotropical, Neotropical, Australian, Oceanic), *microps* (Afrotropical, Palearctic, Oriental, Oceanic), *m-nigrum* (Holarctic, Neotropical, Afrotropical, Oriental, Australian), *singaporensis* (Oriental, Oceanic, Afrotropical, Palearctic, Neotropical), *varipalpis* (Australian, Oceanic, Oriental, Afrotropical, Palearctic, Nearctic, Neotropical).

Holarctic: *sordida*.

Palearctic: sp. H.

Afrotropical: *aldabrae*, *interfrontalis*, *leptomotopoides*, *magnicornis*, *nudigena*, *pleuralis*, *postorbitalis*.

Oriental: *philippinensis*, *propeciliata*, *srilankae*, spp. L,M,N.

Australian: *ciliata*.

Oceanic: *terminalis*.

Subgenus *Platophrymyia* Williston (29 spp.)

Nearctic: *floridensis*, *latigena*, *melanderi*, *nearctica*, *parafacialis*, *saguaro*, sp. O.

Neotropical: *aczelii*, *argentinica*, *atypica*, *blantoni*, *evanescens*, *flavicoxa*, *glaucanota*, *indistincta*, *lucidifrons*, *meridionalis*, *nigrohalteralis*, *obscurifrons*, *stilbopleura*, *woldai*, spp. I,J,K.

Neotropical to Oceanic: *tarsalis*.

Oceanic: *flavipalpis*, *gressitti*.

Oriental: *kandyensis*.

Afrotropical: *nigeriae*.

Five species of the typical subgenus are widely distributed, apparently having been spread in commerce, and *D. tarsalis* in *Platophrymyia* has moved out into the Pacific islands from its Neotropical homeland. Otherwise, except for a few unexplained species in *Platophrymyia*, the two subgenera make a fairly good separation between Old World (*Desmometopa*) and New World (*Platophrymyia*) species.

There are a number of records of adult Desmometopa being collected on ships and planes (e.g., see varipalpis), and it has been suggested that this indicates how some species were distributed widely in commerce. Another possibility is indicated by the rearing of varipalpis at New York from larvae in potatoes in a ship from Argentina, and of singaporensis in Fiji from onions imported from Australia.

Desmometopa is clearly a name of feminine gender, not neuter as it has often been used in such combinations as D. sordidum. Loew's first species included in the genus was D. tarsalis, which could indicate either masculine or feminine gender, but certainly not neuter. In his accompanying note he used the feminine ablative form "cui Desmometopae." The distinguished European dipterists Hendl and Becker, among others, in writing on milichiids around the beginning of the century used D. sordidum, undoubtedly influenced by the specific names m-atrum and m-nigrum; however, in these the adjectival ending -um (neuter) depends not on the generic name but on the "m" which it modifies, and individual letters of the alphabet are treated as neuter. Konow (1907) early pointed out that Desmometopa was feminine. Grensted (1956) likewise argued that Desmometopa was feminine, compounded with the stem of the Greek metopon (a forehead), which is neuter, but with an irregular termination -a that made the name feminine. He followed a ruling of the International Commission on Zoological Nomenclature (1958, Declaration 39), which was incorporated into the International Code (1961, 1964) as Article 29c.

For the record, and to assist in the proper placement of species listed in the literature as "Desmometopa," species either described in or referred to that genus at some period, but now referred elsewhere, are listed at the end of this paper together with a discussion of the special case of Agromyza albipennis Meigen.

Identification

Misidentifications have been rife in Desmometopa, probably in part because of the great similarity in appearance of many of the species. The two interfrontal plates combine with the fronto-orbital plates and frontal triangle to divide the frontal vitta into an M-shaped black area (M as viewed from in front), and this has led to the frequent misuse of the name D. m-nigrum. An early error in using the name D. tarsalis Loew for an Old World species resulted in many misidentifications, in addition to which the name tarsalis has been widely misapplied in the New World because of failure to realize the large number of similar species in what might be called the "tarsalis complex". In all faunal regions, taxonomists have failed to appreciate the large number of species that actually exist in the genus, aided and abetted by the belief--partly true--that several common scavenger species had been widely distributed in commerce. Minor sources of error have been the inability to distinguish females of singaporensis and varipalpis, compared with their very distinct males, and lack of recognition of the sexual dimorphism in the form of the head in microps.

A few examples will suffice. In one of the great New World museums, I found five species identified as D. m-nigrum: true m-nigrum (most of the specimens, fortunately), a few of sordida, and one each of tarsalis, varipalpis, and Leptometopa latipes (Meigen), the latter probably only a curatorial lapsus. Likewise in one of the great European museums there were five species under m-nigrum: true m-nigrum (again, most of the specimens), sordida, varipalpis, inaurata, and a new species near microps. "D. tarsalis" of Malloch's (1914) report on Sauter's Formosa-Ausbeute proved to be a mixture of singaporensis and microps.

The confused usage of names is vividly illustrated in Hawaii, where four introduced species of Desmometopa are currently known to occur. The first record of the genus from the islands, as far as I know, is that by Illingworth at the Feb. 5, 1925 meeting of the Hawaiian Entomological Society (note published 1926), who published D. m-nigrum as "recently" identified by J. M. Aldrich from specimens reared in 1916 "in abundance from macerated hen manure." True m-nigrum has never been found in Hawaii, however, and Aldrich himself corrected his identification to D. tarsalis (see Illingworth 1929). Hardy and Delfinado (1980) in the "Insects of Hawaii" record Illingworth's 1916 rearing in two places, once under their "singaporensis" (based on an earlier identification by me), which is varipalpis, and once under tarsalis, the original usage of Illingworth (on authority of Aldrich). Both may be in error. The specimens in the U.S. National Museum of Natural History reared by Illingworth and identified by Aldrich are singaporensis as I recognize it, not "singaporensis" of Hardy and Delfinado (see discussion under singaporensis). To complicate the picture still further, both true tarsalis and true singaporensis are now known in Hawaii and one or both might also have been present in Illingworth's material. For what it may indicate, however, true singaporensis was also reared from poultry manure in Hawaii years later by Yoshinori Tanada, and I have no records of varipalpis from manure anywhere, and only one record of tarsalis from manure, from cow manure in Guam.

As a result of such situations, published records with commonly used names must be ignored unless the original specimens can be reexamined, at least outside of the Holarctic Region in which the few species are well known. Ordinarily, for the common species, enough specimens have been available to me that I can give an adequate picture of the distribution without verifying or correcting individual published records. If voucher specimens have been checked, however, I record the fact.

The condition of specimens affects the usefulness of many characters. One must ever be alert for immature (teneral) specimens in which proportions and color are unnatural. In particular, the proportions of the head can be greatly affected, especially the breadth of the cheek and the angle of the vibrissal angle. If the face is collapsed, it becomes more concave as seen in profile, and the vibrissal angle may thus appear to be produced and acute. Identification of such examples should be done with caution and attention to other characteristics.

Morphological Characteristics

All species have a similar habitus and community of structure and chaetotaxy, and a full description under the genus permits rather brief descriptions for the species, with concentration on characters differing most among the species. A few comments on these are in order.

Microtomentose: The dorsum of the thorax and parts of the pleuron are densely gray to brownish gray, over the black ground color. This has usually been referred to as pollinose or pruinose or "dusted", but analysis shows that the areas are actually covered with microscopic outgrowths of the cuticle, sometimes curled or curved like minute microtrichia. The terms pollinose and pruinose seem fundamentally inappropriate, and in recent papers I have used the term "tomentose". However, this may imply to some readers woolly or matted hair, and I suggest, and use here, the term microtomentose.

The frons almost always appears slightly longer than broad at vertex, especially in males. Measurements confirm this, although the quotient for longer than broad is usually not as great as anticipated, often only up to 1.2 times. I have mentioned it only for a few extreme cases. Aside from lengths and widths

of interfrontal plates, fronto-orbital plates, and frontal triangle, which need no explanation, the appearance of the M-shaped frontal vitta is a most useful character. In two species, the entire frons is uniformly dull brownish or brownish gray, obscuring all plates and the frontal triangle and making these species unusual and aberrant in the genus. Most other species have the frontal vitta velvet black, sometimes slightly subshining, against which background the other parts stand out distinctly. In a number of species (tarsalis and relatives) most of the frontal vitta is gray microtomentose, although not densely so, from at least certain angles.

The frontal triangle is not a definite sclerotized plate, as in most Chloropidae, but nevertheless the triangular microtomentose area is as regular and consistent as the interfrontal plates. It is a continuation of the microtomentum regularly present on the ocellar tubercle. Occasionally the tomentum barely extends beyond the median ocellus, or it may extend far forward between the interfrontal plates to midway of the frons (fig. 10).

The term cheek (rather than gena) is used here for the combined gena plus subgena below the eye. If gena is correct for the upper part of the cheek, it should not be used for the entire area, even though in these tiny flies the subgena is linear and gena s.str. is almost coextensive with cheek. The breadth (height) of the cheek compared to the breadth of a 3rd antennal segment and to the vertical height of an eye are useful characteristics, as well as the development of a polished area along the lower margin of the eye that I propose to call the subocular crescent (cf. figs. 7 and 14 for extremes). Without actual measurement, one can more easily perceive the proportion of cheek to 3rd antennal segment than that of cheek to the much higher and very convex eye, where optical illusion can deceive. However, the antennae are easily knocked off and are often missing in available specimens that are otherwise in good condition, but the cheek:eye relationship can always be determined.

In the row of subgenal setae along the lower margin of the head, the first or second behind the vibrissa is developed in a few species as a strong upcurved subgenal bristle, e.g., in D. ciliata (fig. 11). In most species, the setae form an even row, gradually becoming longer and stronger towards the vibrissa.

The postorbital (dorsal) and postgenal (ventral) areas are usually narrow but in a few species one or both are broader than usual, and in males of one species (microps, fig. 17) they are convex and appear bulging.

The produced vibrissal angle (fig. 18) is explained under the division into subgenera. The area immediately mesad of the vibrissal angle has no special name and I have referred to it, hopefully accurately albeit long and somewhat awkwardly, as the lateroventral corner of the facial plate. In the subgenus Platophrymyia (fig. 18), it is shining black although not smooth and polished, the shine interrupted by fine lines. The warping forward and upward of this area and the whole epistomal margin is distinct and even exaggerated in large specimens, but less distinct and unimpressive in small specimens.

In most species, each 3rd antennal segment is only a little broader than the 2nd segment, and it is referred to in the descriptions as "small." In three new species, however, the 3rd segment of the male is conspicuously enlarged (fig. 21) (see the supplemental "key to males with unusual features"). Other species presently known only from females may also show this, especially the small species with blackish halteres that seem closely related to the three just mentioned.

The palpi are usually gently clavate (e.g., fig. 18), gradually broadening from base to apex, but in a few species they are broad and flat (fig. 4), unusually long, with the development more striking in large specimens. In a few species, the males have unusually long and distinctive palpi (see special key for such males,

and cf. figs. 3 and 5). The color of the palpi is often useful, but one can also be deceived. Species with palpi entirely or almost entirely yellow in both sexes, or black in both sexes, are easy to separate. Between those extremes are species with yellow or predominantly yellow palpi in males but with palpi half or more infuscated in females. Occasional specimens of the latter have the palpi entirely infuscated, and while this apparently involves only a small proportion of the specimens, it does diminish the usefulness of the color as a character for the key. Except for one possible exception (sp. H), the broadly flattened palpus (cf. fig. 4) is found in some species of subgenus Platophrymyia.

The geniculate proboscis appears slender in side view, but in dorsal or ventral view the haustellum is often broadened, especially toward the base. It is usually slightly longer than the lower margin of the head and is mentioned only if unusual. The labella are almost always a little shorter than the haustellum, but because they are soft and their condition of expansion differs greatly among individual specimens it is useless to mention comparative lengths. They almost always appear slender, but in reality they are like a furled sail and occasionally specimens will have them expanded nearly to the width of the oral cavity. This should not be interpreted as a specific distinction.

The propleuron is rounded anteriorly in most Desmometopa, but some show part of a ridge dorsally, just below the humerus. In some, there appears to be a ridge on a line between a gray, microtomentose part and a polished anterior declivity, but this line may have appeared more like a ridge because of drying of the specimen. A strong propleural carina is characteristic of the family Chloropidae, and the ridge in these species of Desmometopa might confuse the unwary. It does suggest relationship between the two families, as indicated by recent authors.

The polished areas on the pleuron (figs. 23-27) did not impress me at first, and indeed such a careful observer as Hennig made no mention of them in his monograph of the European species (1937). I have found these polished areas surprisingly uniform within each species throughout the genus, even in such an apparently insignificant and easily overlooked place as the small concave postspiracular area. The spots may have been misinterpreted as rubbed areas and therefore of no importance. The polished spot on the pleuron posterodorsad of the fore coxa is sometimes difficult to see because the femur at rest is over it and close to the body. In most species the area is large enough that one can usually glimpse it between femur and pleuron, but in species with a small spot, such as interfrontalis, singaporensis, and varipalpis, one could easily miss it and key to the few species that truly have an entirely microtomentose pleuron. Luckily, interfrontalis has a distinctive pattern on the frons, and the common singaporensis and varipalpis have yellowish cheeks and in the males uniquely distinct palpi, and the chance of misidentification because of missing the pleural spot is almost nil. The figures are somewhat stylized and semi-diagrammatic, but they illustrate the major different types of polished areas.

The color of the tarsi needs particular attention. Tarsi that appear yellowish in ventral aspect may actually be infuscated dorsally. Truly yellow tarsi are yellow viewed from any angle. Specimens that have been mounted out of alcohol will almost always be paler. Even though the sharpness of the character is not always all that could be wished, nevertheless it is often useful to distinguish between entirely infuscated tarsi, chiefly yellow tarsi (except for distal tarsomere or two), and species with fore tarsus infuscated and mid and hind tarsi chiefly yellowish.

Yellow fore coxae set off the flavicoxa group, all Neotropical species. Species with black fore coxae are regularly and unquestionably so, but in very teneral specimens the coxae may not be fully colored and one might think they

were yellowish. It is a good general rule to be cautious in dealing with teneral individuals.

In most species, and in almost all females, the fore coxa is short and convex, and the fore femur is not significantly longer than mid and hind femora. In a few species (e.g., *saguaro* and *melanderi*), the fore coxa and fore femur are strikingly elongate and raptorial or mantislike in appearance (cf. fig. 22). In others, they are slightly to moderately elongate. Within any given species that shows elongation, large specimens show it more distinctly than small ones.

The *halteres* usually have the stalk brown, but the knob may be lemon yellow or whitish yellow, or it may be brown to blackish. The color of the knob is actually an excellent specific character, especially for mature and clean specimens. Unfortunately, many specimens, especially those from tropical countries, are cleared from fluid, or are teneral, and the halteres are paler than normal and can be misinterpreted.

The *length* is variable, and precision is difficult at best, but the approximate length is given in order to distinguish in a rough way between the relatively large and stocky species and the tiny species.

Male genitalia: Males of 32 species were dissected, including 13 of the subgenus *Desmometopa* and 19 of the subgenus *Platophrymyia*. The genitalia of all are strikingly similar, including those of such widely different species as *varipalpis* and *singaporensis* on the one hand and *tarsalis* on the other, and they have not been described for each species. The postabdominal and genitalic characters agree with the characterization of Griffiths (1972) in most particulars. The postabdomen and genitalia are completely symmetrical. There is no full pregenital sclerite between the 5th segment and the hypopygium, rather only a lateral band of sclerotization along each side of the epandrium. Spiracles 6 and 7 lie in the membrane alongside each of these bands. The bristly cerci are unusually large, convergent ventrally in dissected specimens, as noted by Griffiths, but in dried specimens the mesal margins are parallel and adjoining so that under ordinary magnification they appear as a single shining slightly convex line. This is quite different in appearance from the female abdomen so that unless the abdomen is damaged or collapsed one can almost always be sure of the sex of a specimen without dissection, even though the genitalia are tiny. The epandrium bears on each side a single surstylus, partly fused with the epandrium. The hypandrium is relatively small and slender, incomplete dorsally, the dorsal ends of the arms of the hypandrium bifid. The aedeagus has a short basiphallus (phallopore of Griffiths) and a long and weakly sclerotized to membranous distal section, the two folding back at rest against the long and slender aedeagal apodeme.

Sternites: Dissection of the male abdomens for genitalia revealed more differences in the shape and setation of the sternites, especially of the 5th, than in the genitalia. In most species examined, the 5th sternite was nearly square or broader than long, but in *lucidifrons* and *kandyensis* it was decidedly longer than broad. The 5th sternites in some species showed numerous discal setae, up to 70-80 in 8 or 9 very irregular rows, e.g., in *ciliata*, while others showed few and sparse discal setae, even as few as 4 or 6 (*indistincta* and *parafacialis*). Because of the similarity of the male genitalia, relatively few specimens were dissected and the range of variation in shape and setation cannot be stated positively. I would expect variation in the number of discal setae, but consistency in the general pattern of few vs. many setae.

Biology of the Adults

Adult *Desmometopa* are recorded as visiting various flowers, sometimes in numbers, and they are also taken occasionally in light traps, including black light, and in Medfly traps, Steiner traps, and "fruitfly traps." Numerous collections of adults of *D. varipalpis* show their attraction to odors: "hospital laboratory" (Reading, Penn.), "adults entering sterile operating and surgery area" (Peru, Ind.: John Sillings), "in hospital operating room" (Ogden, Utah: J.B. Marsh), in a Dairy Cheese room (Clovis, N. Mex.: B. Dictson), "in urinal" (Austin, Tex.: M.R. Wheeler), "over outdoor latrine" (Mona I., West Indies: W.F. Pippin), "in septic tank" (Khartoum, Sudan), "ex latrine" (Saipan), "on mud at edges of sewer effluent beds" (Phoenix, Ariz.), "privy trap" (Savannah, Ga.: H.R. Dodge), "abundant in butcher shop" (Austin, Minn.), and a huge number "collected dead in plastic about trunk containing *Cannabis sativa* (San Francisco, Calif.: Terry Coddington, J.F. Williams, P.H. Arnaud, Jr.). *D. singaporensis* was commonly "collected on decaying giant African snails" (Palau Is., Koror: C.W. Sabrosky), and this species, as "*tarsalis*", was collected on Guam on several occasions as "feeding adults from human excrement" (Bohart and Gressitt 1951). In South Africa (Transvaal), *D. m-nigrum* was collected off an Impala carcass (L. Braack), and in Ohio they have occurred in great numbers in poultry houses (C.A. Triplehorn). One record that may be open to some doubt: *D. varipalpis* was reported by employees of a filling station in Riverside, Calif., to be "very annoying and hovering around the faces...and occasionally getting into the eyes." This habit is that of *Hippelates* flies (eye gnats), and perhaps the wrong flies were collected and charged with being the culprits. On the other hand, a female of *D. singaporensis* was collected in Manila, Philippine Is., October 1928, by R.C. McGregor, who pinned this note to the specimen: "The small fly kept pestering me--tried to get into my eye." Perhaps the records do suggest annoyance at times or under some circumstances.

Another interesting habit of the adults is the phoretic relationships that have been observed with predacious insects and spiders, in which adults of *Desmometopa*--as well as some other milichiids--feed on the juices of the prey. Knab (1915) reviewed a number of these observations, as did Peyerimhoff (1917), who added two observations of small flies on the bodies of the prey of asilids. In one case the small flies covering the body of the prey, a bee, were identified as *D. m-nigrum*. Subsequently, Rabaud (1924) recorded an interesting case of *D. sordida* riding not on the body of a dead bee that was prey, but upon the pollen "pâtée" on the hind tibia of a live bee, and apparently feeding at the pollen paste. Richards (1953) observed *D. sordida* on a dead honey bee being sucked by a reduviid, and he later captured specimens of the same species sitting on the same species of bug that was without prey. Most interesting of all, McMillan (1975) made detailed notes on an unidentified species of *Desmometopa* closely associated with spiders in Western Australia, and called by him "cleaning flies" because of their habits. They not only congregated in numbers on the spiders' prey (bees and cicadas) but also on the spiders themselves. These had become "wet and sticky around their chelicerae and mouths" from feeding on the bees, and the flies were observed "actually feeding ... actively all over the bases, fangs and mouth." McMillan noted that none of the spiders observed attempted to capture or rid themselves of the flies and in fact seemed "to actively cooperate with them in making the cleaning easier by opening their chelicerae."

There may be other instances in the literature, but I have not attempted an exhaustive search for present purposes. I can add seven records from material that I have identified:

D. floridensis n. sp.: Lake Worth, Fla., "on asilid prey" (S.W. Bromley).

D. m-nigrum: San Diego, Calif., "feeding at Apis wrapped up by Metargiope spider" (F.X. Williams); Maadi, near Cairo, Egypt, numerous (ca. 75) on a honey bee captured by a spider, Thomisus sp., "hovering in a cluster very closely over bee thorax and sometimes crawling or resting briefly on it, as if to obtain a fluid" (Harry Hoogstraal).

D. sordida: France, "Sur Abeille capture par Harpactor" (Hemiptera, Reduviidae) (H. Manwal); England, with two honeybees labeled "sucked by Desmometopa (L. Parmenter).

D. tarsalis: Jamaica, "flies which attack a large spider Nephila clavipes (H.G. Hubbard); Panama, Canal Zone, "pentatomid" (Michael Robinson).

Biology of the Larvae

Rearing records of Desmometopa show feeding on a wide variety of spoiled, decaying, or rotten plant material, with rare exceptions. Specimens have been personally identified or verified except as noted.

From manure, dung, and sewage:

D. inaurata: poultry: Hawaii (Y. Tanada), Samoa (P.A. Buxton, G. H. Hopkins), Nyasaland (i.e., Malawi) (W.A. Lamborn).
horse: Samoa (Buxton and Hopkins).
"manure": Guyana (F.A. Squire).

D. m-nigrum: chicken: Auburn, Ala., and Montgomery Co., Va. (G. Breeden).

D. singaporensis: cattle: Pakistan (L.S. Sohi), Guam (Bohart and Gressitt 1951, as "tarsalis," "in moist cattle excrement, both fresh droppings and when piled as manure.")
poultry: Hawaii (J.F. Illingworth, Y. Tanada), Samoa (Buxton and Hopkins).

D. sordida: cow: Dallas, Tex. (F.C. Pratt).

D. tarsalis: cow: Guam (J.L. Gressitt).

D. varipalpis: in sewage water: Dade Co., Fla. (J. Porter); in septic tank: Khartoum, Sudan (H.W. Bedford); "breeding in traps of sinks": Brookings, S. Dak. (H. C. Severin); "millions...breeding on the bio-filters" in "trickle sewage filter": Lafayette, Ind. (G.L. Walker); "eri dung" (i.e., feces of Attacus sp., probably A. ricini, a wild silkworm): Coimbatore, South India (Y. Rao).

D. sp.: from stable manure and from toilet pools: Sendai, Japan (Kato and Hori 1952; unverified).

From plant material:

D. ciliata (unverified): from African boxthorn berries (Nikitin 1965).

D. gressitti: "ex papaya log": Truk (R.W.L. Potts).

D. inaurata: "from pods of Inga ingoides infested with olothreutid and cosmopterygid larvae": Dominica (J.F.G. Clarke); "from larvae feeding on rotten cow pea seed": Fiji (W. Greenwood); "from over-ripe coffee cherries": Kenya (T.J. Anderson); "ex maize cob": Sierra Leone (E. Hargreaves); "ex avocado pear fruit": Sierra Leone (E. Hargreaves); "bred from decaying banana skins": Uganda (E.G. Gibbins).

D. interfrontalis: "palm log": Liberia (C.C. Blickenstaff); "reared from rotting lettuce": N. Nigeria (J.C. Deeming); "bred from decaying banana skins": Uganda (E.G. Gibbins).

D. magnicornis: "reared cacao pods": Ibadan, Nigeria (R.W. Williams).

D. melanderi: reared from Opuntia cacti: San Dimas Canyon, Los Angeles Co., Calif. (C.P. Christianson, J.P. Fonseca).

D. meridionalis: "ex rotting Jack fruit": Bahia, Brazil (J.A. Winder).

D. nearctica: "reared from grass": Coachella, Calif. (D.G. Hall, Sr.).

D. saguaro: "ex rotting Saguaro": Pima Co., Ariz. (F.J. Santana); reared from Opuntia cacti: San Dimas Canyon, Los Angeles Co., Calif. (R.E. Ryckman).

D. singaporensis: "from rotten onions" and "from rotten pawpaw stem":

Darwin, N.Terr., Australia (G.F. Hill); "from onions imported from Australia": Fiji (H.W. Simmonds); "decaying stump of a papaya tree": Guam, as "tarsalis" (Bohart and Gressitt 1951); "ex Pomalo fruit": Malaya (G.H. Corbett); "larvae feeding on decaying inflorescence of Areca catechu": Malaya (G.H. Corbett); "ex decaying leaves of Brassica oleracea": Malaya; "ex rotten Solanum tuberosum": Malaya; "bred from decaying banana skins": Uganda (E.G. Gibbins).

D. sordida: "reared from grass silage": East Lansing, Mich.

D. tarsalis: "reared from decaying Cereus gigantea": Wickenburg, Ariz. (R.E.

Ryckman and C.T. Ames)(Ryckman and Ames 1953); "reared in pond weed": Guam (G.E. Bohart and J.L. Gressitt); "emerged from decaying barrel cactus": Jamaica (E.F. Legner).

D. varipalpis: "reared ex rotting Saguaro": Pima Co., Ariz. (F.J. Santana);

"reared from decaying head lettuce": Coachella, Calif. (D.G. Hall, Sr.); "larvae in potatoes": New York City, N.Y. (in ship from Argentina); "ex potatoes": Algiers, Algeria; "fr[om] blue figs": Jerusalem, Israel (J.H. Brair); "reared ex damaged sugar beet roots": Khorassan, Iran (Mir Salavatian); "from decaying melons": Khartoum, Sudan (R. Cottam); "ex rotting potato": Kinshasa, Zaire (M. Wanson); "from rotting mustard stem": Coimbatore, South India; "from rotting pomegranate": Coimbatore, South India; "from larvae on rotting pumpkin": Coimbatore, South India (Fletcher).

D. sp. (woldai?): "reared from Pachycereus pringlei": Baja Calif., Mexico (R.E. Ryckman et al.).

D. sp.: "ex rotting Jack fruit": Bahia, Brazil (J.A. Winder).

Miscellaneous food media

D. inaurata: "ex locust eggs": Zimbabwe (A. Cuthbertson); rotting snails and Drosophila pupa: Hawaii (Hardy and Delfinado 1980).

D. leptometopoides: "reared from mud and debris collected from pools": Accra, Ghana (J.W. Scott Macfie).

D. m-nigrum (not checked; probably tarsalis): "reared from water contained in the axils of the large bracts of decaying Heliconia blossoms": Hawaii (Swezey 1952).

D. singaporensis: "from dead cat": Samoa (P.A. Buxton and G.H. Hopkins).

D. tarsalis (unverified): "breeding in material, possibly bone meal with molasses added, set out for cattle to lick": Oahu, Hawaii (J.L. Gressitt)(Gressitt 1956).

D. varipalpis: "in cadelle culture": Montreal, Canada; "found living around and depositing their eggs on a fungus growing on formerly preserved and dried sheep hearts": Commerce, Texas (E.C. Hancock); "found breeding in enormous numbers in a vermiculite-alfalfa meal-brewers' yeast mixture used as a breeding medium for eye gnats, Hippelates flies": Riverside, Calif. (Mulla and Barnes 1957).

D. sp. H: "des galeries du Cossus": Algeria (P. Lesne).

Sources of Material

For convenience of reference, museums and collections are referred to by the name of the city, enclosed in brackets. I am indebted for specimens and assistance to the individuals named.

- Amsterdam: Zoologisch Museum (G. Kruseman, Jr.).
 Austin (Texas): M.R. Wheeler personal collection.
 Berkeley: University of California, Dept. of Entomology (the late Paul Hurd).
 Berlin: Zoologisches Museum, Museum für Naturkunde der Humboldt-Universität (H. Schumann).
 Budapest: Zoological Section, Hungarian Natural History Museum (F. Mihályi, L. Papp, A. Soós).
 Cambridge (Mass.): Museum of Comparative Zoology, Harvard University (N.E. Woodley).
 Colombo: Dept. of National Museums, Sri Lanka (through K.V. Krombein).
 East Lansing (Mich.): Dept. of Entomology, Michigan State University (repository of R.R. Dreisbach Collection)(the late R.R. Dreisbach).
 Eberswalde: Institut für Pflanzenschutzforschung, Bereich Eberswalde, German Democratic Republic (formerly Deutsches Entomologisches Institut, Berlin-Dahlem)(the late W. Hennig, G. Morge).
 Gainesville (Fla.): Florida State Collection of Arthropods (H.V. Weems, Jr.).
 Helsinki: Zoological Museum, University of Helsinki, Finland (B. Lindeberg, W. Hackman).
 Honolulu: Bernice P. Bishop Museum (the late J.L. Gressitt, N. Evenhuis).
 Lansing (Mich.): W.L. Downes personal collection.
 Logan (Utah): Dept. of Entomology, Utah State University (W.J. Hanson).
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 Ludwigsburg: Staatl. Museum für Naturkunde in Stuttgart, Zweigstelle Ludwigsburg, West Germany (B. Herting).
 Lund: Museum of Zoology, University of Lund, Sweden (H. Andersson, R. Danielsson).
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 Paris: Museum National d'Histoire Naturelle, Entomologie (L. Matile, L. Tsacas).
 San Francisco: California Academy of Sciences (P.H. Arnaud, Jr.).
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Desmometopa Loew

Desmometopa Loew, 1866, Berlin. Ent. Ztschr. (1865) 9: 184 (Cent. 6, no. 96).

Two species. Type species, *Agromyza m-atrum* Meigen, 1830, by designation of Hendel, 1903, Wien. Ent. Ztg. 22: 251, = *D. sordida* (Fallén).

Platophrymyia Williston, 1896, Trans. Entomol. Soc. London 1896: 426. Type species, *P. nigra* Williston, 1896, by monotypy. (Synonymy by Sabrosky, 1973).

Desmetopa (error) Hendel, 1902, Wien. Ent. Ztg. 21: 262-4.

Liodesmometopa and *Liodesma* Duda, 1935, Natuurhist. Maanblad 24: 24, 25.

Subgenus of *Desmometopa*. Type species, *D. atra* Duda, 1935, by original designation, = *D. sordida* (Fallén) (Synonymy queried by Hennig 1937, confirmed here).

There is great uniformity of color, structure, chaetotaxy, and general habitus among the species of this genus, and the characters given here are usually not mentioned further in the individual descriptions.

Small flies (1-2.5 mm), black in ground color, sometimes entirely so, some species with yellow to orange-yellow color on antennae, palpi, propleura, halter knobs, fore coxae, and tarsi, especially mid and hind tarsi.

Frons with black M-shaped frontal vitta delineated by the frontal triangle and the fronto-orbital and interfrontal plates (e.g., figs. 1,2,10); each fronto-orbital plate with 2 laterocline upper orbital and 2 mesocline lower orbital bristles; inner and outer vertical, ocellar, and postocellar bristles strong; a row of 4 to 6 short setae on each interfrontal plate. Eye large. Cheek usually narrow, 1/3-1/2 the breadth of a 3rd antennal segment, but broad in a few species like *D. m-nigrum*. Postorbital and postgenal areas usually narrow. Distinct lunule projecting between bases of antennae. Face with more or less distinct median carina, and oral margin warped forward and upward, leaving subcircular and concave antennal grooves (foveae). Vibrissal angle either strongly produced forward to about a 45° angle (fig. 18), with face decidedly concave in profile (subgenus *Platophrymyia*), or not so produced, the angle about 80° to 90° and face not or weakly concave in profile (figs. 6-8) (subgenus *Desmometopa*). Palpus usually moderately large, clavate, occasionally broad and flat (fig. 4), and even capitate or elongate fusiform in males of species showing sexual dimorphism (figs. 3,5). Proboscis commonly slender, geniculate, haustellum often as long or longer than lower margin of head, labella usually as long as haustellum or nearly so. Antenna usually small, 3rd segment only a little larger than 2nd segment; arista slender, micropubescent.

Thorax black, subshining dorsally, densely microtomentose, usually gray to brownish gray, brighter gray on pleuron, the pleuron occasionally entirely gray microtomentose (four species) but in most species with some bare and polished areas (figs. 23-27), in a few species almost entirely polished. Chaetotaxy: 1 humeral, 1 + 1 notopleural, 1 presutural, 1 postalar, 1 dorsocentral, 2 scutellar, 1 small propleural, and 1 sternopleural pairs of strong bristles; a 2nd short

dorsocentral anterior to but close to the strong dorsocentral and usually not conspicuous; prescutellar, supra-alar, and intra-alar bristles are much weaker and usually not noticeable but may sometimes be developed. Mesonotum densely haired but scutellum bare; pleuron predominantly bare, only the sternopleuron with some hairs.

Legs usually slender and without striking characteristics except for a few species with fore coxa elongate in males, and sometimes fore femur as well, raptorial in appearance (e.g., fig. 22).

Wing venation differing little throughout the genus (cf. Curran, 1934, p. 337, fig. 16; Hennig, 1937, fig. 36), the 2nd vein and 2nd sector of costa very long, 2nd, 3rd, and 4th veins ending near apex of wing, and usually the 3rd and 4th veins slightly convergent toward apex of wing; costa extending to 4th vein (M), with both humeral and subcostal breaks, the costa between the breaks with up to 16 erect to semi-erect dorsal setae, usually fine but in a few species (*ciliata*, etc.) coarse and well spaced.

KEY TO THE WORLD SPECIES OF *Desmometopa*

(For cautionary remarks on interpreting some characters, see the introductory section on "Morphological Characteristics." Bracketed characters may be useful, in addition to regular parts of a couplet. This key is followed by a "Key to males with unusual characteristics.")

1. Pleuron of thorax entirely gray microtomentose [Note: If thinly so, as in *lucidifrons*, concave areas such as anterior slope of sternopleuron will be shining and the microtomentum difficult to see] 2.
 - Pleuron with polished black spot posterodorsad to fore coxa, entirely or chiefly on anterior slope of sternopleuron, in a few species pleuron extensively polished 5.
2. Cheek with broad polished subocular crescent that is 2/5 height of cheek, extending as broad band along entire lower margin of eye (fig. 15); [all tarsi yellowish except distally] (Gambia, Nigeria). 1. *D. pleuralis*, n. sp.
 - Not so, cheek with narrower subocular crescent that is either linear or widened anteriorly (figs. 14, 20) 3.
3. Entire frons dull, heavily gray to brownish gray microtomentose, viewed from most angles the interfrontal and fronto-orbital plates only weakly demarcated; lunule yellow, large and long, extending to or beyond apices of 2nd antennal segments (Nigeria) 2. *D. nigeriae*, n. sp.
 - Not so, frontal vitta entirely or chiefly subshining velvet black, at least frontal triangle and fronto-orbital plates sharply demarcated; lunule blackish, small, shorter than preceding 4.
4. Mesonotum bright gray microtomentose with yellowish to golden cast; all tarsi infuscated; subocular crescent linear (fig. 14); frons with M-shaped frontal vitta subshining velvet black, interfrontal plates strong and distinct (widespread) 3. *D. inaurata* Lamb
 - Mesonotum dark gray to brownish gray microtomentose; mid and hind tarsi yellow except distal tarsomere or two; subocular crescent widened anteriorly (fig. 20); frons with anterior 2/5 glistening, interfrontal plates weak and obscure, evanescent (Trinidad). 4. *D. lucidifrons*, n. sp.

- 5.* Cheek exceptionally broad for *Desmometopa*, appearing equal to breadth of 3rd antennal segment or nearly so and often with broad and triangular polished subocular crescent (fig. 7), or postgenal area broad (fig. 17), or both, postorbital area also broad in males of two species 6.
 - *[Note: A possible new species from Algeria, sp. H, tentatively associated with the broad-cheeked species, is represented by two teneral males and may not belong here. It has a narrow subocular crescent and somewhat broad and flat palpus (cf. fig. 4). If it should prove to have the cheek obviously narrower than 3rd antennal segment, it would pass to couplet 43, but it agrees with neither of the species there.]
 - Cheek not so, much narrower and obviously less than breadth of 3rd antennal segment, any shining subocular crescent usually linear (figs. 3,5,11), broad in only a few species; postgenal and postorbital areas always narrow . . . 10.
6. Thoracic pleuron chiefly polished, including entire propleuron and area almost surrounding anterior spiracle (fig. 28) (Texas, Calif.) 5. *D. latigena*, n. sp.
 - Thoracic pleuron predominantly dull, gray microtomentose, including entire propleuron and area surrounding anterior spiracle 7.
7. Palpus yellow on basal third to half or more, slender clavate in both sexes, gradually broadening from base to apex 8.
 - Palpus black, somewhat broad and flat distally in male (not as extreme as fig. 4); [halter brown; polished spot on pleuron bilobed] (Algeria, 2 males). 6. *D. sp. H* *disc. palps Pepp*
8. Polished spot on pleuron relatively large, bilobed, the dorsal lobe an elongate-oval anteroventral area of mesopleuron (fig. 23); knob of halter yellow 9.
 - Polished spot on pleuron relatively small, not bilobed, not with adjoining polished area on mesopleuron; knob of halter brownish; [postgenal area wide in both sexes, and in male the postorbital area broad to vertex, both areas convex and bulging (fig. 17)] (Afrotropical and Oriental Regions, to Guam) 7. *D. microps* Lamb
9. Postorbital and postgenal areas in male exceptionally broad, shining black, the former fairly broad up to vertical bristles, the latter continued forward nearly to vibrissa as a band nearly half as broad as cheek (fig. 13), in female the band distinct but postorbital and postgenal areas narrower (Kenya, Uganda) 8. *D. postorbitalis*, n. sp.
 - Postgenal area only slightly broadened and not continued forward as a broad band, the subocular shining area triangular, the postorbit narrowed dorsally (fig. 7) (widespread, especially Holarctic Region). 9. *D. m-nigrum* (Zett.)
10. Each fronto-orbital and interfrontal plate wide, and frontal triangle long, hence the black M of frontal vitta with exceptionally narrow sections, at least inner ones little over half as wide as an interfrontal plate (fig. 10) (Afrotropical). 10. *D. interfrontalis* Sabr.
 - Each fronto-orbital and interfrontal plate narrower and frontal triangle shorter, the black M of frontal vitta more conspicuous (except in *obscurifrons*), each section almost always equal to or wider than a plate 11.
11. Fore coxa yellow or predominantly so, contrasting with black thorax, often elongate in male but not or only slightly elongate in female; [vibrissal angle strongly produced, to a 45° angle] (*flavicoxa* group of subgenus *Platophrymyia*) (Neotropical spp.) 12.
 - Fore coxa entirely black or brown-black. 23.

12. Pleuron chiefly bright gray microtomentose with large polished black spot posterodorsad to fore coxa and including the adjoining anteroventral area of mesopleuron (as in fig. 24); propleuron and areas surrounding anterior spiracle entirely and heavily gray microtomentose, and mesopleuron predominantly so; propleuron black in ground color 13.
- Pleuron chiefly, sometimes almost entirely, polished black (cf. fig. 27), including propleuron (at least ventrally), or areas surrounding anterior spiracle, or both, and mesopleuron entirely or chiefly; propleuron orange-yellow in some species 16.
13. Interfrontal plates notably short, narrow and evanescent, each appearing to consist of 2 to several small, separate microtomentose spots surrounding bases of interfrontal setae (Panama). 11. *D. evanescens*, n. sp.
- Not so, plates distinct, if short the frons approximately square 14.
14. Frons clearly longer than broad (about 1.25x), entirely black 15.
- Frons relatively broad, approximately square, at least in female (male unknown), narrowly yellow along anterior margin (s. Brazil), 1 female). 12. *D. sp. I*
15. Male: Palpus entirely black (Neotropical) 13. *D. woldai*, n. sp. [See *woldai* for possible species that key here]
- Male: Palpus orange-yellow on more than basal half (Argentina) 14. *D. flavicoxa* Hendel
- [Note: The holotype of *flavicoxa*, a female, has black palpi, but the male could be either black or orange-yellow. I have assumed the latter, from an available male from Argentina. Thus far I cannot separate or satisfactorily associate females of *woldai* and *flavicoxa*.]
16. Frontal vitta shining or subshining velvet-black, viewed at any angle 17.
- Frontal vitta changeable, velvet-black at some angles, but at others the anterior 2/5 dull brownish gray like frontal triangle; [pleuron almost entirely polished anterior to pleural suture; propleuron orange-yellow; halter knob yellow; all tarsi black] (Panama; 1 male) 15. *D. sp. J*
17. Knob of halter yellow or whitish yellow 18.
- Knob of halter brown-black, concolorous with stalk; [pleuron chiefly polished, mesopleuron entirely so] (Argentina) 16. *D. nigrohalteralis*, n. sp.
18. Small area behind anterior spiracle gray, microtomentose, sometimes continuous with broad or narrow band of microtomentum along dorsal and posterior margins of mesopleuron (fig. 27). 19.
- Postspiracular area polished, as is mesopleuron almost entirely. 21.
19. Palpus yellow on basal half or more, gently clavate in both sexes; propleuron black or chiefly so. 20.
- Palpus entirely black in male (female unknown), broad and flat (cf. fig. 4); propleuron orange-yellow (s. Brazil, 1 male). 17. *D. sp. K*
20. Mesopleuron chiefly polished black, sometimes appearing entirely so, but postspiracular depression always with small patch of gray microtomentum and usually a narrow band of same along posterior margin of mesopleuron (fig. 27), occasionally the two narrowly connected along dorsal margin (Belize, Mexico, Panama). 18. *D. glaucanota*, n. sp.
- Mesopleuron with a broad band of gray microtomentum dorsally and posteriorly that extends across anterior spiracle and propleuron (cf. fig. 26) (Florida, Georgia) 19. *D. floridensis*, n. sp.

21. Frons shining black; interfrontal plates without microtomentum, shining, only weakly distinguished from the shining frons; antennal fovea thinly microtomentose and rather shining; pteropleuron chiefly polished, at least on lower half; [male with palpus broad and flat (cf. fig. 4)] (3 males, Peru and Costa Rica, have orange-yellow propleuron; 2 females, Colombia and Ecuador, have propleuron black). 20. *D. indistincta*, n. sp.
- Frontal vitta subshining, velvet black; interfrontal plates microtomentose, well marked against velvet black vitta; antennal fovea densely bright gray microtomentose; pteropleuron entirely gray microtomentose. 22.
22. Male with propleuron strikingly orange-yellow and palpus broad and flat (cf. fig. 4); female apparently distinguishable only by geographic distribution and association with male (Argentina, Brazil, Uruguay, Bolivia, Peru) 21. *D. meridionalis*, n. sp.
- Male with propleuron black and palpus clavate; female as noted in preceding (Mexico to Panama) 22. *D. blantoni*, n. sp.
23. Abdomen entirely black. 24.
- In male, margin of 4th tergum, all of 5th, and all terminalia orange-yellow; female unknown but assumed to show some color at apex of abdomen (Palau Is.). 23. *D. terminalis*, n. sp.
24. Thoracic pleuron predominantly dull or subshining, gray microtomentose, including entire propleuron and area surrounding anterior spiracle (cf. fig. 23) 25.
- Propleuron chiefly polished black (fig. 26), rest of thoracic pleuron anterior to pleural suture usually predominantly so 47.
25. Frontal vitta dull and gray to brownish gray, viewed at most angles, interfrontal plates only weakly contrasting 26.
- Frontal vitta subshining, velvet black, the gray interfrontal plates sharply distinct, or frons shining on anterior half 28.
26. Lunule, antenna, palpus chiefly, and proboscis black 27.
- Lunule, antenna in part, palpus chiefly, and proboscis yellow (Neotropical) 24. *D. obscurifrons*, n. sp.
27. Epistomal margin and lateroventral corner of facial plate strongly warped forward well in advance of and accentuating the vibrissal angle (cf. fig. 18); [male with fore coxa and fore femur elongate] (Texas, Mexico) 25. *D. parafacialis*, n. sp.
- Epistomal margin and lateroventral corner of facial plate only weakly warped forward, the vibrissal angle about a 70° angle (fig. 12); parafacial midway not or only linearly visible in profile; cheek with comparatively broad polished subocular crescent, half as broad as cheek; [male unknown but probably fore coxa and fore femur not elongate] (Panama, Ecuador, Peru; 2 females, s. Brazil and Trinidad, key here and may be conspecific) 26. *D. atypica*, n. sp.
28. Vibrissal angle not produced anteriorly, the angle 80° to 90° (figs. 3,5,11), face only weakly concave in profile; lateroventral corner of facial plate dull gray like rest of face, and not warped forward 29.
- Vibrissal angle produced anteriorly to about a 45° angle (cf. fig. 18), face deeply concave in profile, emphasized by shining black lateroventral corner of facial plate, mesad of vibrissal angle, which is warped forward often beyond vibrissal angle 46.
- *29. Knob of halter yellow. 30.
- Knob of halter brown to black 36.

- [*Note: Teneral specimens or those mounted out of fluid may be pale, and caution must be exercised. Species with brown to blackish halteres usually retain at least a brownish tint, however, even though the paleness suggests otherwise. The marginal specimens are all in the tiny species, 1.25-1.5 mm, whereas most of the species with yellow halteres are larger, 2.2-2.5 mm, and considerably bulkier.]
30. Polished spot on thoracic pleuron, posterodorsad to fore coxa, relatively large, including elongate-oval area along anteroventral margin of mesopleuron (fig. 24); 2nd subgenal seta behind vibrissa developed as a strong bristle, subequal to vibrissa (fig. 11) (Australia). 27. *D. ciliata* Hendel
- Polished spot on thoracic pleuron relatively small, confined to anterior slope of sternopleuron, the mesopleuron not polished anteroventrally (fig. 25); no outstanding subgenal bristle subequal to vibrissa, although in one species (*leptomtopoides*) the subgenal setae quite long and becoming longer toward vibrissa, and the second may be stronger than the others. 31.
31. Males. 32.
- Females. 34.
32. Hind tibia unusually broad and flat, resembling that of *Leptomtopa* (fig. 19); palpus clavate, gradually enlarged distally (West Africa; ? Cape Province). 28. (male) *D. leptomtopoides*, n. sp.
- Hind tibia slender; palpus elongate and greatly broadened distally (figs. 3,5) 33.
33. Palpus fusiform elongate, often considerably so, tapering to acutely angled apex (fig. 3); cheek wider than in *singaporensis* (cf. figs. 3,5) (widespread). 29. (male) *D. varipalpis* Mall.
- Palpus capitate, abruptly broadened, rounded distally (fig. 5); cheek narrower than in *varipalpis* (cf. figs. 3,5) (widespread) 30. (male) *D. singaporensis* Kert. (syns.: *D. tristicula* Hendel, *D. palpalis* Meij.)
34. Cheek comparatively narrow, usually barely over 1/10 the height of an eye (cf. fig. 5 of male); each fronto-orbital plate not appearing broad, lower section in particular approximately equal to that of an interfrontal plate (fig. 2). 35.
- Cheek obviously broader, about 1/5 height of eye (fig. 3), each fronto-orbital plate relatively broad, obviously greater than breadth of an interfrontal plate (fig. 1)(widespread) 29.(female) *D. varipalpis* Mall.
35. Cheek black in ground color, heavily gray microtomentose; frontal triangle large and interfrontal and fronto-orbital plates relatively broad, the sections of black M of frontal vitta relatively narrow, posterior arms of interfrontal plates separated from frontal triangle by approximately their own width (West Africa; ?Cape Province) 28. (female). *D. leptomtopoides*, n. sp.
- Cheek yellowish in ground color, thinly microtomentose; sections of black M-shaped frontal vitta relatively broad (fig. 2), interfrontal plates usually more widely separated from frontal triangle, by twice their own width (widespread). 30. (female) *D. singaporensis* Kert. (syns.: *D. tristicula* Hendel, *D. palpalis* Meij.)
36. Subocular crescent narrow, linear to sublinear (cf. figs. 5,14); chiefly tiny species, 1.25-1.5 mm. 37.
- Subocular crescent broadened behind vibrissa, subtriangular (fig. 8); relatively large and bulky species, 2-2.5 mm (Holarctic). 31. *D. sordida* (Fallén)

37. Frontal triangle and ocellar tubercle virtually coextensive, the gray microtomentum of triangle barely or not at all extending anterior to median ocellus 38.
- Frontal triangle longer, extending into median part of frontal vitta. 42.
38. Palpus black in both sexes 39.
- Palpus partly orange-yellow, at least on basal third to half. 40.
39. Third antennal segment of male relatively small, little larger than 2nd segment; costa between humeral and subcostal breaks with only 5 erect, well-spaced setae (Malaya, 1 male). 32. *D.* sp. L
- Third antennal segment of male exceptionally large (as in fig. 21); costa between breaks with 7-8 dorsal setae (West Africa). 33. *D. nudigena*, n. sp.
40. At least mid and hind tarsi yellow except distally. 41.
- All tarsi black (Marshall and Palau Is., New Hebrides; ?Philippines) 34. *D. flavipalpis*, n. sp.
41. Palpus heavily infuscated distally and below in both sexes; antenna black in both sexes; polished pleural spot bilobed anteriorly (cf. fig. 23)(Sri Lanka; ?Philippines). 35. *D. srilankae*, n. sp.
- Palpus chiefly yellow in male, sometimes infuscated at tip, in female heavily infuscated distally; antenna black in female, 3rd segment orange-yellow on basoventral half in male; polished pleural spot not bilobed anteriorly (Malaya, Java, Thailand). 36. *D. propeciliata*, n. sp.
42. At least mid and hind tarsi yellow except distally. 43.
- All tarsi infuscated (Nigeria, Ivory Coast) 37. *D. magnicornis*, n. sp.
43. Second subgenal seta behind vibrissa developed as a strong bristle, standing out among the shorter setae in subgenal row (cf. fig. 11) 44.
- Subgenal setae even, none developed as an outstanding bristle although setae may lengthen gradually toward vibrissa. 45.
44. Polished subocular crescent distinct, although linear; male unknown (Taiwan, 1 female). 38. *D.* sp. M
- Subocular crescent absent or indistinct; 3rd antennal segment of male exceptionally large (cf. fig. 21) (Philippine Is.) 39. *D. philippinensis*, n. sp.
45. Polished subocular crescent distinct, although linear; palpus black in female (male unknown) (Malaya; Philippines). 40. *D.* sp. N
- Subocular crescent absent or indistinct; palpus yellow in both sexes, slightly infuscated at apex (Aldabra). 41. *D. aldabrae*, n. sp.
46. Polished pleural spot small, not including any area of mesopleuron (cf. fig. 25); palpus ordinary, gently clavate; abdominal tergum 5 of male elongate, longer than terga 3 and 4 combined (Sri Lanka) 42. *D. kandyensis*, n. sp.
- Polished pleural spot relatively large, including anteroventral area of mesopleuron (as in fig. 24); palpus of male especially broad and flat (fig. 4); abdominal tergum 5 of male not elongate, barely longer than tergum 4 (South Pacific: Caroline, Gilbert, and Marshall Islands, Guadalcanal, New Hebrides) 43. *D. gressitti*, n. sp.
47. Mesopleuron microtomentose dorsally and posteriorly, the dorsal band extending to anterior spiracle, though sometimes narrowly (as in fig. 26) 48.
- Mesopleuron extensively polished black, the immediately postspiracular area polished (as in fig. 28) 51.
48. Frons dull gray from most angles of view, the interfrontal plates obscure 49.
- Not so, frontal vitta subshining velvet black, interfrontal plates well contrasted 50.

49. Fore leg of male raptorial in appearance, mantislike, the fore coxa and femur elongate, latter obviously longer than other femora and with anteroventral and posteroventral rows of short, even, straight spinelike bristles (fig. 22); fore coxa and femur of female longer than usual, coxa more or less elongate but not as extreme as in male; [wing whitish, veins whitish yellow] (Calif., Ariz.) 44. *D. saquaro*, n. sp.
 -- Not so, fore coxa and fore femur not elongate (circum-Caribbean, also Hawaii to Solomon Islands) 45. *D. tarsalis* Loew
50. Subocular crescent relatively broad, obviously over 1/2 breadth of cheek, broad anteriorly, similar to fig. 20 but usually not triangular; Nearctic (Calif. to Utah and Texas, N.Y. to Kans. and Ga.) 46. *D. nearctica*, n. sp.
 -- Subocular crescent comparatively narrow, obviously less than 1/2 breadth of cheek [Warning: teneral specimens will appear like *nearctica*]; South Temperate (Argentina; 1 Peru) 47. *D. argentinica*, n. sp.
51. Knob of halter lemon yellow; pteropleuron gray microtomentose; frontal vitta usually dull 52.
 -- Knob of halter black; pteropleuron polished black; frontal vitta subshining black, extremely broad, the interfrontal plates narrow and lower fronto-orbital plates reduced to mere lines (Mexico, 1 female) 48. *D.* sp. 0
52. Frontal vitta dull gray-black from above and in front, with velvet black spot along each side of ocellar tubercle 53.
 -- Frontal vitta chiefly subshining velvet black, thinly gray on anterior half between and beside the interfrontal plates (s. Brazil) 49. *D. stilbopleura*, n. sp.
53. Fore leg of male raptorial in appearance, mantislike, with coxa and femur elongate, fore femur obviously longer and larger than other femora and anteroventrally with row of short, even, stout spines, posteroventrally with row of similar but weaker spines (like fig. 22); fore coxa and femur of female longer than usual, without spine rows, the coxa more or less elongate though not as extreme as in male (Calif. to Texas and Mexico) 50. *D. melanderi*, n. sp.
 -- Fore leg not raptorial, fore coxa and femur not elongate, without spines, fore femur of approximately same length as other femora (Argentina) 51. *D. aczeli*, n. sp.

Key to males with unusual characteristics

(Males, or palpi of males, unknown for *atypica*, *evanescens*, *nigeriae*, *stilbopleura*, *woldaj*, and spp. I, J, M, N, O)

1. Palpus unusually enlarged and extended (figs. 3,5), chiefly yellow 2.
 -- Palpus not so, either ordinary clavate, or black if broad and flat. 3.
2. Palpus elongate, fusiform, often considerably so, tapering to rounded but acutely angled apex (fig. 3) (widespread) 29. *D. varipalpis* Mall.
 -- Palpus capitate, abruptly broadened, rounded distally (fig. 5) (widespread) 30. *D. singaporensis* Kert.
3. Hind tibia greatly broadened, resembling *Leptomometopa* (fig. 19) (West Africa; ? Cape Province) 28. *D. leptometopoides*, n. sp.
 -- Hind tibia slender. 4.
4. Postorbital area broadened up to vertex, postgenal area broader than usual (figs. 13,17) 5.
 -- Upper portion of postorbital area narrow, linear, and postgenal area narrow (as in fig. 14) 6.

5. Postgenal and postorbital areas convex, appearing bulging (fig. 17); polished spot on pleuron relatively small, not bilobed, not with adjoining polished area on mesopleuron (cf. fig. 25); knob of halter brownish (Afrotropical and Oriental Regions, to Guam) 7. *D. microps* Lamb
 -- Postgenal and postorbital areas flat, not appearing bulging; polished spot on pleuron large, bilobed, the dorsal lobe an elongate-oval anteroventral area of mesopleuron (cf. fig. 23); knob of halter yellow (Kenya, Uganda) (cf. fig. 23) 8. *D. postorbitalis*, n. sp.
6. Fore leg raptorial in appearance, mantislike, with fore coxa and fore femur elongate, latter obviously longer than other femora and often more or less incassate (fig. 22) 50. *D. melanderi*, n. sp.
 21. *D. meridionalis*, n. sp.
 44. *D. saquaro*, n. sp.
 -- Not so, fore leg not raptorial, fore coxa and fore femur not or only slightly elongate 7.
7. Third antennal segment large (fig. 21); palpus gently clavate 37. *D. magnicornis*, n. sp.
 33. *D. nudigena*, n. sp.
 39. *D. philippinensis*, n. sp.
 -- Third antennal segment small; palpus broad and flat (fig. 4) 43. *D. gressitti*, 20. *indistincta*, 50. *melanderi*, 21. *meridionalis*, 25. *parafacialis*, 44. *saquaro*, 17. sp. K)

1. *Desmometopa pleuralis*, n. sp.
 (Fig. 15)

Pleuron entirely dull gray microtomentose; cheek relatively broad (fig. 15).

Male, female. Chiefly black; palpus entirely yellow in both sexes; knob of halter yellowish; all tarsi yellowish; distal 1 or 2 tarsomeres infuscated on mid and hind tarsi, and distal 3 on fore tarsus.

Frons with M-shaped frontal vitta subshining velvet black, the gray interfrontal and fronto-orbital plates and rather long frontal triangle sharply distinct; cheek relatively broad, approximately equal to or a trifle greater than breadth of 3rd antennal segment and 3/10 the height of an eye, with relatively broad, shining black subocular crescent that is 2/5 breadth of cheek and continues from slightly broader postgenal area (fig. 15); face only weakly concave in profile, vibrissal angle rounded, about a 90° angle, approximately opposite anterior margin of eye; a strong subgenal bristle developed, immediately below and behind vibrissa; 3rd antennal segment small in both sexes; palpus short, gently clavate.

Thorax entirely gray microtomentose, including entire pleuron. Fore coxa not elongate. Length, 1.5 mm.

Holotype male, GAMBIA: Bakau at Tropic Bungalow, "swept in meadow rich in flowers, at the beach," Nov. 7, 1977 [Lund]. Allotype female, NIGERIA: Ibadan, Aug. 25, 1962 (D.C. Eidt; Malaise trap)[Ottawa].

This species differs from most other *Desmometopa* in having the pleuron entirely dull, without a polished spot. Other species with dull pleuron have narrower cheek and narrower subocular crescent.

The specific name is an adjective derived from the Greek *pleura*, side.

2. *Desmometopa nigeriae*, n. sp.

Frons uniformly dull, heavily brownish gray microtomentose, interfrontal and fronto-orbital plates not strongly contrasting with frontal vitta; pleuron entirely

gray, without polished black spot.

Female (male unknown). Chiefly black, with yellow to orange-yellow lunule, 1st and 2nd antennal segments, palpus chiefly, and proboscis; all tarsi yellow except distal segment or 2; knob of halter yellow.

Frons uniformly dull brownish gray from most angles of view, the interfrontal and fronto-orbital plates and frontal triangle scarcely evident, not strongly contrasting with frontal vitta and thus not demarcating the usual black "M" of most species of *Desmometopa*; interfrontal plates long, posterior ends at level of foremost upper orbital bristles; cheek narrow, 1/3 breadth of 3rd antennal segment and about 1/10-1/11 the height of eye, with linear subocular crescent; face concave in profile, vibrissal angle produced to a 45° angle, accentuated by shining black lateroventral corner of facial plate, which projects even beyond vibrissal angle; 3rd antennal segment small, little larger than 2nd segment; palpus large, clavate; proboscis long and slender.

Thorax entirely dull gray to brownish gray microtomentose, including entire pleuron, with no trace of the usual shining black spot posterodorsad to fore coxa. Fore coxa large but not especially elongate. Length, 2.5 mm.

Holotype female, NIGERIA: Olokemeji, 1914 (J.C. Bridwell) [Washington]. Paratype female, NIGERIA: Ibadan, July 4, 1962 (D.C. Eidt, Malaise trap)[Ottawa].

This species is obviously closely related to the Neotropical *obscurifrons*, but it differs strikingly by having the pleuron entirely gray microtomentose and thus the two are placed some distance apart in the key. *D. nigeriae* also differs in having the 3rd antennal segment entirely black, but antennal color is probably not significant and may be variable. The holotype has the 2nd antennal segment all orange-yellow, but in the paratype it is blackened dorsally.

The specific name is a noun in the genitive case, from the name of the country, Nigeria.

3. *Desmometopa inaurata* Lamb (Fig. 14)

Desmometopa inauratum Lamb, 1914, Trans. Linn. Soc. London, ser. 2 (Zool.), 16: 363 (Seychelles Islands)[London].

D. ciliata sensu Malloch, 1924, Proc. Linn. Soc. N.S. Wales 49: 336 (New South Wales); 1934, Insects of Samoa, Pt. VI (Diptera), Fasc. 8: 327 (Samoa).

D. inauratum; Lamb in Bezzi and Lamb, 1926, Trans. Entomol. Soc. London 1925: 563 (Rodriguez).

D. M-nigrum; Bezzi, 1928, Diptera Brachycera and Athericera of the Fiji Islands [British Mus. (Nat. Hist.)], p. 163.

D. semiaurata Sabrosky, 1958, Stuttg. Beitr. Naturk. 4: 4 (Tanzania) [Ludwigsburg]. N. syn.

D. inaurata; Sabrosky, 1958. loc. cit.: 4 (Tanzania).

D. inaurata; Hardy, 1972, Proc. Hawaiian Entomol. Soc. 21: 160 (Hawaii).

D. inaurata; Hardy and Delfinado, 1980, Insects of Hawaii, 13 (Diptera: Cyclorrhapa III): 354-5 (Hawaii; figs. of head and male genitalia).

Pleuron entirely dull gray microtomentose; mesothorax with the bright gray microtomentun with slightly yellowish to decidedly golden tint.

Male, female. Almost entirely black, yellowish only on antenna and palpus (more so in male than in female), and knob of halter; antenna usually all black in female, occasionally orange-yellow to base of 3rd antennal segment, in male base of 3rd segment largely orange-yellow; palpus chiefly orange-yellow in both sexes, infuscated apicoventrally, more infuscated in female than in male.

Frons with M-shaped frontal vitta subshining velvet black, the fronto-orbital and interfrontal plates, and large frontal triangle gray microtomentose and sharply distinct; upper orbital plate much broader than lower; apex of frontal triangle nearly midway of frons, at level of foremost upper orbital bristles; cheek 1/2 to nearly 3/5 breadth of 3rd antennal segment and 1/8-1/5 the height of an eye, chiefly gray with linear and sometimes scarcely visible subocular crescent (fig. 14); vibrissal angle not produced, the angle about 80° to 90°, and mesad of it the facial plate flat and dull gray, 3rd antennal segment small in both sexes; palpus clavate in both sexes.

Thorax entirely dull gray microtomentose, including entire pleuron; mesonotum bright gray microtomentose, usually with distinctive yellowish to golden tint. Fore coxa and all tarsi infuscated, the fore coxa not elongate. Length, 2.5 mm.

The yellowish to golden tint of the mesonotal microtomentum will distinguish *inaurata* at once from the other species with all gray pleuron and indeed from all other known species of *Desmometopa*. Dirty or greasy specimens cannot of course be fairly judged. The subocular crescent is narrower than in *pleuralis* and *lucidifrons* (cf. figs. 14, 15, 20). Teneral females might be confused with females of *singaporensis*, but the latter has the polished black area posterodorsad to the fore coxa, as usual in most *Desmometopa*.

After seeing much more material from a wide range of localities, I now believe that *D. semiaurata* Sabrosky was based on less brightly colored variants of *inaurata*. Moreover, in smaller specimens, called "*semiaurata*", the cheek measures proportionately wider than in larger specimens. The subocular crescent is normally narrow, but in some specimens, probably as a result of a slightly teneral condition, the cheek shows a triangular folding below the polished area, giving an appearance somewhat like that of *D. m-nigrum*.

Distribution: Widespread, suggesting its dissemination in commerce, but it seems curious that I know no records from the Oriental Region. It is widespread in the Afrotropical Region from West Africa (Gambia) to northeast Africa (Sudan) and south to South Africa (Cape Province), plus Rodriguez, Mauritius, and the Seychelles. In the Neotropical Region, I have records from Brazil, Guyana, and El Salvador, and from the West Indies (Bahamas, Puerto Rico, Virgin Islands, Dominica, the Grenadines, and St. Vincent). In Oceanica, I know it from Hawaii, Marquesas Islands, Samoa, Ellice Islands, and Fiji, and from Australia (Queensland, New South Wales, Victoria, and South Australia).

4. *Desmometopa lucidifrons*, n. sp. (Fig. 20)

Frons with short, weak, evanescent interfrontal plates, and anterior 2/5 of frons shining.

Male, female. Black, gray to brownish gray microtomentose; knob of halter lemon yellow; mid and hind tarsi yellow except for distal tarsomere or two.

Frons longer than broad (1.2x), with anterior 2/5 glistening, not a smooth and polished appearance but with a peculiar sheen that helps to obscure the interfrontal plates, the posterior 3/5 the usual subshining velvet black, fronto-orbital plates and frontal triangle distinct but interfrontal plates obscure and weak, evanescent, appearing to consist of 3 or 4 small, separate, microtomentose areas surrounding bases of interfrontal setae, the posterior ends of the plates about at level of foremost upper orbital bristles; frontal triangle long and narrow, much longer than broad at base, apex about at level of posterior ends of the plates; cheek narrow, barely over 1/3 breadth of 3rd antennal segment and 1/9 the eye height, with distinct polished subocular crescent that is broadly

triangular anteriorly (fig. 20); face deeply concave in profile, the vibrissal angle produced anteriorly nearly to a 45° angle, lateroventral corner of facial plate shining and warped forward to exaggerate the angle; 3rd antennal segment small in both sexes; palpus gently clavate in both sexes, that of male not enlarged; proboscis slender in side view, but from above or below haustellum broadened toward base, about 0.70x the distance between the vibrissae.

Thoracic pleuron gray microtomentose, including entire propleuron and areas surrounding anterior spiracle; anterior slope of sternopleuron, posterodorsad to fore coxa, rather shining but entirely thinly microtomentose, without the customary polished spot of most species of Desmometopa. Fore coxa and fore femur not elongate. Length, 2 mm.

Holotype male, allotype, and 2 paratypes (male, female), TRINIDAD: Simla, Arima Valley, Feb. 6-12, and 20-26 (allotype), 1966 (S.S. and W.D. Duckworth)[Washington].

The peculiar sheen of the anterior part of the frons, which helps to obscure the already short and weak, evanescent interfrontal plates, is a distinctive feature of this species. Also, the species is apparently the only one of the subgenus Platophrymyia in which the pleuron is entirely gray microtomentose, although thinly so and hence somewhat shining on the anterior slope of the sternopleuron. A Panamanian species, evanescens, has a frons suggestive of lucidifrons, but evanescens has a large polished pleural spot.

The specific name is a noun in apposition derived from the Latin verb luceo, to shine, combined with frons.

5. Desmometopa latigena, n. sp.

Cheek as in m-nigrum (fig. 28), broad and subequal to breadth of 3rd antennal segment, with large subtriangular subocular crescent; pleuron anteriorly chiefly polished.

Male, female. Chiefly black or brownish black; antenna and palpus black in both sexes; knob of halter yellow; fore coxa brownish to black; proximal tarsomere or two of mid and hind tarsi yellowish.

Frons with M-shaped frontal vitta dull, rather heavily bluish gray microtomentose, the gray fronto-orbital and interfrontal plates and frontal triangle only moderately distinct, a narrow velvet black spot along each side of frontal triangle, which is long and reaches middle of frons; cheek subequal to breadth of 3rd antennal segment and about 1/4 the eye height, with large subocular crescent 1/2 or more as broad as cheek, approximately as figured for m-nigrum (cf. fig. 7); vibrissal angle acute, nearly a 45° angle, and lateroventral corners of facial plate shining black; 3rd antennal segment small in both sexes; palpus gently clavate in both sexes.

Dorsum of thorax dark gray microtomentose; anterior 1/2 of pleuron chiefly polished, including propleuron, most of mesopleuron, and anterior slope of sternopleuron, the anterior spiracle almost surrounded by polished areas (fig. 28); mesopleuron gray posteriorly. Fore coxa not elongate. Length, 1.7 mm.

Holotype male, allotype, and 13 paratypes (12 males, 1 female), TEXAS: Big Bend National Park, Dagger Flats, 3500 ft., May 11, 1959 (W.R.M. Mason; "Ex Yucca torrei"[Ottawa]; 3 female paratypes, CALIFORNIA: 2, Riverside Co., Cottonwood Spring, Apr. 12, 1950 (P.D. Hurd)[Berkeley], and 1, San Bernardino Co., San Bernardino Mts., Hidden Valley, May 5, 1928 (A.L. Melander)[Washington].

The broad cheek will readily distinguish this species from all other Desmometopa except m-nigrum, sp. H, and postorbitalis, and from these by the predominantly polished pleuron. The California females are far removed from the

main series but seem to be conspecific. The fore coxa is definitely black, compared with brownish yellow in the Texas specimens. However, most of the latter appear to be slightly immature and not fully colored.

The specific name is a noun in apposition derived from the Latin latus, broad, combined with gena, cheek.

6. Desmometopa sp. H → *discipalpis* Popp / *palpalis* Wiedl.

Two males from ALGERIA: Edough, August 1907 (P. Lesne; "des galeries du Cossus de Moskat")[Paris], are leneral, and the species is left unnamed until the characters can be properly described. The cheek appears to be broad, which would place it near m-nigrum, but the subocular crescent is narrow and bandlike, unlike m-nigrum and similar species. The 3rd antennal segment is small. The black palpus is almost capitate rather than clavate, broad and flat although not as extreme as figured for gressitti (fig. 4). The black fore coxa is somewhat elongate, and the fore femur distinctly elongate compared to the other femora. As in m-nigrum and postorbitalis, the polished black spot posterodorsad to fore coxa is large, including an anteroventral area of mesopleuron, and bilobed (cf. fig. 23).

7. Desmometopa microps Lamb (Figs. 16,17)

Desmometopa microps Lamb, 1914, Trans. Linn. Soc. London, ser. 2 (Zool.), 16: 364 (Seychelles Is.)[London].

D. microps; Sabrosky, 1977, in Delfinado and Hardy (eds.), A Catalog of the Diptera of the Oriental Region 3: 271.

D. microps; Sabrosky, 1980, in Crosskey (ed.), Catalogue of the Diptera of the Afrotropical Region, p. 686.

D. tristicula part; Hennig, 1941, Ent. Beihefte aus Berlin-Dahlem 8: 177 [Pilam and Chipun, Formosa, specimens].

Near sordida but with broad postgenal and postorbital areas.

Male, female. Black, only the basal 1/3 of palpus orange-yellow in both sexes.

Frons with distinct interfrontal plates against velvet black frontal vitta; frontal triangle large, equilateral, apex well in advance of median ocellus and anterior to level of posterior ends of interfrontal plates; cheek relatively broad (figs. 16,17), 7/10 the breadth of 3rd antennal segment and 1/4-1/3 the eye height, with broadly rounded (female) to broadly triangular (male) polished black subocular crescent; in male, postorbital area broad and convex up to vertex, with a bulging appearance (fig. 17), as is the postgenal area, but in female the postorbital area narrow but the subshining postgenal area, while relatively narrow compared to that of male, is broader than in other females of the genus (fig. 16); 3rd antennal segment small in both sexes; face weakly concave, vibrissal angle not produced anteriorly, only an 80°-90° angle; palpus moderately long, clavate in both sexes.

Thorax predominantly bright gray microtomentose, brighter gray on sides, including entire propleuron and area around anterior spiracle, with comparatively small polished black spot, posterodorsad to fore coxa, that is not bilobed and does not include an anteroventral area of mesopleuron (as in fig. 25). Fore coxa not elongate. Length, 2-2.5 mm.

This is one of the most distinctive species of the genus in the male sex, but the female is more easily confused except by the experienced eye. In the male,

the postorbital area, which extends broadly to the vertex (fig. 17), is convex and together with the similar postgenal area can best be described as bulging. Females of *microps* are easily confused with those of *sordida*, and older records of "*sordida*" from the Oriental Region seem likely to be *microps*. The cheeks of the two are similar in breadth and in the appearance of the polished subocular crescent. The postorbital area, so broad in the male, is not obviously different in females from that of *sordida*, but it is still clearly broader in *microps*. If the specimen is teneral and the head collapsed, which is all too often in available material, this feature can easily be misinterpreted. The difference in the color of the palpi is a consistent difference, but if the palpi are withdrawn into the oral cavity and the proboscis folded back, the color of the basal halves of the palpi is not at all evident and those of *microps* might easily be misinterpreted as entirely black.

Although *microps* is placed in the key near *m-nigrum* and other broad-cheeked species, it is apparently not closely related. *D. latigena* has an extensively polished pleuron, and *m-nigrum*, *postorbitalis*, and sp. H all have a large, bilobed polished spot that includes an anteroventral area of the mesopleuron (fig. 23).

Distribution: Afrotropical Region (Seychelles, Tanzania, West Cameroun), widespread in Oriental Region and bordering areas of Palearctic Region, from Afghanistan and West Pakistan to Nepal, Manchuria and Japan, south to the Ryukyu Islands (Okinawa), Taiwan, Java, Malaya, Thailand, and Sri Lanka; also Guam.

8. *Desmometopa postorbitalis*, n. sp.
(Fig. 13)

Cheek broad, subequal to breadth of 3rd antennal segment, but postorbital area broad below and rather broad dorsally up to vertical bristles, and continued forward below eye as a broad subocular band (fig. 13).

Male, female. Chiefly black or brown-black; 1st and 2nd antennal segments and part of 3rd reddish yellow; palpus yellow on basal 1/2 in female, chiefly yellow in male; knob of halter yellow; fore coxa and all tarsi black.

Frons with upper orbital plates obviously broader than lower plates, the latter and the interfrontal plates narrow and the sections of the M-shaped, subshining, velvet black frontal vitta relatively broad; frontal triangle short, apex not quite opposite upper ends of interfrontal plates; cheek broad, subequal to breadth of 3rd antennal segment and over 1/4 the eye height; postorbital area in male broad up to vertical bristles, widening below, postgenal area shining black and continued forward beneath the eye as a broad band 1/2 or more as broad as cheek (fig. 13), in female the postorbital and postgenal areas not as broad as in male; vibrissal angle approximately a 90° angle, the lateroventral corner of facial plate flat and dull gray; 3rd antennal segment small in both sexes; palpus gently clavate, not large.

Thorax dark gray microtomentose; pleuron, posterodorsad to fore coxa, with bilobed polished black spot, including adjoining broad anteroventral marginal area of mesopleuron (as in fig. 23). Fore coxa somewhat elongate, but fore femur only moderately so. Length, 2.25 mm.

Holotype male, allotype, and seven paratypes (3 males, 4 females), UGANDA: Kigezi Province, Mabungo, 6000 ft., Nov. 1934 (J. Ford)[London, paratypes Washington]. Other paratypes: male, female, UGANDA: Kigezi District, Mabungo Camp, 6000 ft., Nov. 18, 1934 (J. Ford)[London, Washington]; male, female, Kigezi District, Mt. Muhavura, Sept. 29, 1934 (F.W. Edwards)[London]; KENYA: male, Molo, Mau Escarpment, 2420 m, Dec. 1911 (Alluaud and Jeannel) [Paris].

This species is superficially similar to *m-nigrum* and has been confused with it in the past because of the broad cheek. The key and figures will adequately distinguish the two species, especially the males because of the broad upper part of the postorbital area and broader postgenal area in *postorbitalis*. Females alone will be more difficult: the postgenal area is narrower than in the male but there is still the shining band continuing forward below the eye.

The specific name is an adjective referring to the postorbital area.

9. *Desmometopa m-nigrum* (Zetterstedt)
(Figs. 7, 23)

Agromyza M nigrum Zetterstedt, 1848, Dipt. Scand. 7: 2743 (Sweden).

Desmometopa [sic] *niloticum* Becker, 1903, Mitt. Zool. Mus. Berlin 2: 188 (Nile Valley, Egypt).

Desmometopa m-nigrum; Malloch, 1924, Proc. Linn. Soc. N.S. Wales 49: 336 (Australia).

D. M. nigra; Duda, 1935, Natuurhist. Maandblad 24: 25.

D. m-nigrum of most European and American authors (e.g., Hennig, 1937; Melander, 1913).

With unusually broad cheek and large triangular polished subocular crescent.

Male, female. Predominantly black, including all tarsi, only palpus in part and knob of halter yellow; 1st and 2nd antennal segments and base of 3rd sometimes dark reddish; body chiefly gray to brownish gray microtomentose.

Frons with M-shaped frontal vitta subshining velvet black and especially large and distinct because of narrow gray interfrontal and fronto-orbital plates, the latter narrower on lower orbital plate than on upper; frontal triangle usually not extending quite to middle of frons and ending opposite or only slightly in advance of posterior ends of interfrontal plates; cheek especially broad, appearing equal to breadth of 3rd antennal segment or nearly so, and over 1/4 the height of an eye, with large triangular polished subocular crescent (fig. 7); postgenal and postorbital areas relatively narrow; vibrissal angle an 80° - 90° angle, the latero-ventral corner of facial plate dull gray; face gently concave in profile; 3rd antennal segment small in both sexes; palpus gently clavate, not large.

Thorax dark gray microtomentose, pleuron chiefly so but with large bilobed polished black spot posterodorsad to fore coxa, the spot including an adjoining broad anteroventral marginal area of the mesopleuron (fig. 23). Fore coxa and fore femur not elongate in either sex. Length 2-3 mm.

This well known species is distinctive because of the broad cheek with triangular polished subocular crescent (fig. 7), as figured by Hennig (1937, fig. 34). Most specimens in collections are correctly identified, yet some confusion is possible, as noted in the introduction. Johnson (1913) recorded *m-nigrum* from Biscayne Bay and Lake Worth, Florida (Mrs. Slosson), as determined by Coquillett. I have not found these specimens, but they may have been *sordida*, judging from a Dallas, Tex. specimen of *sordida* [Washington] that was identified by Coquillett as *m-nigrum*. Aldrich also at one time misidentified Hawaiian material as *m-nigrum*, but the species is not known to occur there (see discussion under "Identification" in the Introduction).

This species, along with *postorbitalis* and sp. H, not only has a characteristically broad cheek but also a characteristically bilobed polished spot on the pleuron (fig. 23). *D. latigena*, the fourth member of the group of broad-cheeked species--*microps* is not really one of these, is quite different in having the pleuron chiefly polished (fig. 28).

D. m-nigrum is virtually cosmopolitan, probably spread in commerce. It occurs widely in the Palearctic Region, but most records are from southern Europe, especially the Mediterranean Subregion. I have also seen material from the Azores and Israel, and from northern Africa (Egypt, Algeria, Morocco). I have seen numerous specimens from the Afrotropical Region, ranging from sub-Saharan countries south to Cape Province, and from the Cape Verde Islands and St. Helena to the Seychelles and Madagascar. In North America it is recorded from Iowa and Michigan to New York and New Hampshire, south through the Atlantic and Gulf Coast States to Texas, and from Arizona and California, as well as Bermuda. Neotropical records are scattered but significant and suggestive of transport in commerce: Mexico, Cuba, Dominica, Barbados, Ecuador, and Chile. In the Oriental Region I have seen it only from India (Assam), Sri Lanka, and Pakistan. I have seen it from Australia, from several localities in New South Wales, as correctly recorded by Malloch (1924). I have not seen it from any of the Pacific Islands, and published records from Fiji by Bezzi (1928) and from Hawaii by Illingworth (1926) and others are misidentifications.

10. *Desmometopa interfrontalis* Sabrosky
(Figs. 9,10)

Desmometopa interfrontalis Sabrosky, 1965, Stuttg. Beitr. Naturk. 138: 3
(Tanzania) [Ludwigsburg].

With broad interfrontal and fronto-orbital plates, and correspondingly reduced sections of the M-shaped frontal vitta.

Male, female. Chiefly black, palpus chiefly yellow, knob of halter yellow, fore coxa yellowish to brown, and all tarsi chiefly yellow.

Frons with interfrontal and fronto-orbital plates broad and frontal triangle long, 1/2 to 2/3 length of frons, so that the sections of M-shaped frontal vitta are greatly narrowed, the inner arms of the M little over half as wide as an interfrontal plate; cheek over 1/2 as broad as 3rd antennal segment and 1/6 the height of an eye, entirely gray, without trace of subocular crescent; vibrissal angle not produced, about a 90° angle; 3rd antennal segment small in both sexes; palpus clavate.

Thorax heavily gray microtomentose, brownish gray on dorsum, brighter gray on pleuron, with small polished black spot posterodorsad to fore coxa (cf. fig. 25), the mesopleuron with anteroventral polished area; fore coxa not elongate. Length, 1.5 mm.

Distribution: Cameroun, Ivory Coast, Liberia, Namibia, Nigeria, Tanzania, Uganda, and Zaire. An exceptionally long series (151 specimens) was "bred from decaying banana skins" at Mulago, Kampala, Uganda, Sept. 30, 1936 (E.G. Gibbins)[London].

The broad interfrontal stripes and parafrontals and the narrowed "M" of the frontal vitta make this species unique in the genus.

11. *Desmometopa evanescens*, n. sp.

Frontal vitta shining velvet black, the interfrontal plates short, obsolescent.

Female (male unknown). Chiefly black, only the knob of halter and the mid and hind tarsi, except for distal segment or two, yellow.

Frontal vitta shining velvet black from all angles of view, gray frontal triangle and dark gray fronto-orbital plates distinctly delineated, triangle ending at or near middle of frons and at or almost at level of the foremost upper orbital bristles, the plates narrow throughout their length; interfrontal plates short and

weak, posterior ends well anterior to apex of frontal triangle, each plate linear and usually interrupted, consisting of 2 to several small spots of microtomentum surrounding bases of interfrontal setae; cheek narrow, slightly over 1/4 the breadth of 3rd antennal segment and nearly 1/10 the height of an eye, with narrow polished black subocular crescent that is linear posteriorly but widens anteriorly (similar to fig. 18, but wider anteriorly); vibrissal angle produced to a 45° angle, accentuated by shining black lateroventral corner of facial plate warped forward even beyond the angle; face strongly concave in profile, parafacial not visible; 3rd antennal segment not large; palpus gently clavate.

Thorax chiefly and heavily dark gray microtomentose; pleuron chiefly so but with large polished black spot posterodorsad to fore coxa and including adjoining area of mesopleuron (as in fig. 24), also with a median to posteromedian polished spot on sternopleuron. Fore coxa not elongate, fore femur slender. Length, 1.5 mm.

Holotype and 8 paratypes, PANAMA: Panamá Province, Las Cumbres, various dates Jan. 31-Feb. 28, 1981 (holotype Feb. 28)(H. Wolda, at flowers of *Aristolochia*)[Washington].

The weak and evanescent interfrontal plates are suggestive of *lucidifrons* but that species has entirely gray microtomentose pleuron. Some of the specimens are slightly teneral, but even the darkest have the fore coxae slightly infuscated proximally. I believe the species is best associated with the *flavicoxa* group, because the fore coxae are at least partly yellowish. Should it be judged otherwise at couplet 11, *evanescens* would run easily--at least disregarding the "sharply distinct" interfrontal plates mentioned in couplet 25, 2nd part--to the Old World species *kandyensis* and *gressitti* in couplet 46, both of which have long and distinct interfrontal plates.

The specific name is a participle, from the Latin *evanesco*, to vanish or die away.

12. *Desmometopa* sp. I

One female, BRAZIL: Sao Paulo, Nova Teutonia, July 7, 1937 (F. Plaumann) [Helsinki] apparently represents a distinct species, but I forgo naming it until material of both sexes is available. The apex of the long frontal triangle is midway on the frons, approximately on a level with the posterior ends of the short interfrontal plates and with the foremost upper orbital bristles. The cheek is narrow, 1/3 the breadth of 3rd antennal segment and 1/9 the height of an eye, with linear subocular crescent. The face is only moderately concave in profile because the vibrissal angle is only slightly produced, although almost a 45° angle. The pleuron is predominantly gray, including the entire propleuron and the areas surrounding the anterior spiracle; the polished pleural spot is fairly large, including an elongate-oval anteroventral area of the mesopleuron (as in fig. 24), and there is a median polished spot on the sternopleuron. The halter knob is brownish yellow, and I believe it is brown but immature rather than a discolored yellow. The 3rd antennal segment is small and the fore coxa short, features usual in females but not necessarily true of the males.

13. *Desmometopa woldai*, n. sp.

Fore coxa yellow, palpus black, and propleuron entirely gray microtomentose.

Female. Chiefly black, with strikingly contrasted yellow fore coxa; knob of halter yellow; mid and hind tarsi yellow except distally.

Frons with frontal vitta subshining velvet black, the fronto-orbital plates, narrow interfrontal plates, and frontal triangle gray and distinct; frontal triangle moderately long, its apex usually at level of foremost upper orbital bristles; cheek narrow, 1/3 breadth of 3rd antennal segment and 1/10 the height of an eye, with linear polished subocular crescent that slightly widens anteriorly; face deeply concave in profile, vibrissal angle strongly produced to a 45° angle, the lateroventral corner of facial plate shining black and warped forward even beyond the angle; 3rd antennal segment small; palpus clavate.

Thorax bright gray microtomentose; pleuron with large polished black spot posterodorsad to fore coxa, including anteroventral area on mesopleuron (as in fig. 24); sternopleuron with small to large polished spot mesally, just dorsal to apex of mid coxa; propleuron entirely gray microtomentose, and anterior spiracle completely surrounded by gray areas. Fore coxa not elongate, as usual in females. Length, 1.75-2 mm.

Holotype female and 144 paratypes, all females, PANAMA: Las Cumbres, Panamá Province, Nov. 1980-Feb. 1981 (H. Wolda, on flowers of Aristolochia pilosa) [Washington].

The long series of topotypic females permitted a useful evaluation of variation. The characters proved to be very consistent. The polished sternopleural spot was always present, though varying in extent from a small round spot (common) to a large subquadrate spot (uncommon, only a half dozen specimens). One female, not a paratype, had exceptionally short and narrow interfrontal plates, but it is probably only a variant. Some 32 other specimens are more or less damaged and not included in the type series.

Most species of the flavicoxa group have the thoracic pleuron predominantly polished, whereas flavicoxa and woldai have the sternopleuron chiefly gray microtomentose with a mesal polished spot, usually small.

A series of specimens, partly from widely scattered localities without good series, partly specimens in poor condition, will key to woldai but may represent different species. I leave them unidentified for the present. All males have small 3rd antennal segment, ordinary clavate palpus, and slightly elongate fore coxa. The various specimens differ from woldai as follows:

All tarsi yellowish: 3 females, Mexico, Costa Rica, and Colombia.

All tarsi black: 2 males, Panama (Canal Zone).

Sternopleuron entirely dull gray microtomentose: 2 males, Peru, Dominica.

Larger palpus in male: Trinidad, Tobago, Panama (Canal Zone).

Probably woldai: Mexico (Baja Calif., Michoacan), Honduras, Panama (Canal Zone), Colombia, and possibly a male from southern Brazil (Nova Teutonia).

The specific name is in the genitive case. It is dedicated to the collector of the magnificent series, Henk Wolda, who has found many interesting species of Desmometopa and Chloropidae visiting the flowers of Aristolochia in Panama.

14. Desmometopa flavicoxa Hendel

Desmometopa flavicoxa Hendel, 1932, Konowia 11: 143 (n. Argentina) [Ludwigsburg].

Species with narrow cheek, produced vibrissal angle, subshining velvet black frontal vitta, yellow fore coxa, and entirely gray microtomentose propleuron; male (presumed) with partly orange-yellow palpus.

Female (holotype). Chiefly black; antenna and palpus black; knob of halter yellow; legs predominantly black, fore coxa yellow and contrasting strongly with black pleuron; tibiae narrowly yellow basally; mid and hind tarsi chiefly yellow, with distal tarsomere or two infuscated. Length, 2 mm.

Frons with frontal vitta entirely subshining velvet black, with ocellar triangle and fronto-orbital plates gray microtomentose; interfrontal plates distinct but thickly microtomentose, ending posteriorly about midway of frontal vitta and just short of apex of frontal triangle; cheek narrow, not 1/3 breadth of 3rd antennal segment and 1/10 the height of an eye, gray-black with narrow polished subocular crescent that is broader anteriorly; vibrissal angle produced as in tarsalis, the angle about 45°, face decidedly concave in profile, and lateroventral corner of facial plate shining black; 3rd antennal segment small in both sexes.

Thorax heavily dark gray microtomentose except for large polished black spot posterodorsad to fore coxa, including a broad anteroventral area of the mesopleuron (as in fig. 24), and a small polished black spot centrally on the sternopleuron, the propleuron entirely gray and anterior spiracle completely surrounded by gray areas. Fore coxa not elongate.

Through the kindness of Dr. B. Herting, I received for study a specimen that is undoubtedly the holotype, although it was not so marked. The specimen is labeled "Mis. Tacaagle/XI.25. Lindner/D.Chaco-Exped." and "Desmometopa flavicoxa H. [apparently in Hendel's handwriting]/F. Hendel det.", all agreeing with the information published by Hendel, and in the appropriate collection. It agrees with Hendel's description except that it is a female and not a male, which was either a typographical error or an understandable mistake in these small black flies with small genitalia. I have seen only one other specimen that can be associated with it, a male that differs only in having the palpus partly yellow, a not unexpected difference in males, and in even shorter and narrower interfrontal plates.

Male, "Bemberg" [sic!, probably Puerto Bemberg], Misiones, March 14-30, 1945 (Hayward, Willink, and Golbach)[Tucumán]. As described for female, but interfrontal plates narrower and shorter, not reaching middle of frons and ending well in advance of frontal triangle; palpus orange-yellow on more than basal half, clavate, not broad and flat.

The combination of yellow fore coxa and entirely gray microtomentose propleuron distinguishes this species from all but woldai. The latter has entirely black palpus in the male.

15. Desmometopa sp. J

One male, PANAMA: Almirante, Bocas del Toro Province, Dec. 10, 1952 (F.S. Blanton)[Washington], is in poor condition and will not be named at this time. It appears to represent a distinct species in the flavicoxa group. It is the only one of that group with the frontal vitta dark gray microtomentose on the anterior half. The palpi are missing, unfortunately. The yellow fore coxa is elongate, and the prosternum and propleuron are concolorous with the fore coxa. Other characters that can be noted are the pleuron almost entirely polished, knob of halter yellow, and fore tarsus black. The other tarsi are discolored and may have been reddish or yellowish. Like all others in the flavicoxa group, the vibrissal angle is strongly produced and the face in profile is deeply concave. The 3rd antennal segment is small.

16. Desmometopa nigrohalteralis, n. sp.

Fore coxa yellow, pleuron almost entirely polished, and knob of halter black.

Male, female. Almost entirely black, only fore coxa and mid and hind tarsi, except for distal segment or two, yellow; propleuron pitch black.

Frons with frontal vitta velvet black; frontal triangle large and chiefly polished, with slight microtomentum on ocellar tubercle; interfrontal plates

exceptionally short and weak, little more than 1/3 length of frons and not strongly marked; face deeply concave in profile and vibrissal angle produced to a 45° angle; antennal grooves deeply concave and heavily gray microtomentose; cheek narrow, 1/4 breadth of 3rd antennal segment and 1/10 the eye height, with polished subocular crescent that is linear posteriorly but wider anteriorly; 3rd antennal segment small in both sexes; palpus of male somewhat broad and flat but not as extreme as figured for gressitti (cf. fig. 4).

Thoracic pleuron anterior to pleural suture all polished, as is the pteropleuron. Fore coxa of male somewhat elongate but fore femur not so, both slender. Length, 1.75-2 mm.

Holotype male and allotype, ARGENTINA: Villa Padre Monti, Tucumán-Burrucú, Jan. 17-Feb. 7, 1948 (R. Golbach)[Tucumán].

The black halter will distinguish this species from all others in the flavicoxa group, and indeed from most other species of Desmometopa, in addition to the uncharacteristic polished frontal triangle.

The specific name is an adjective referring to the black halteres.

17. Desmometopa sp. K

This species appears to be distinct, but I leave the lone male unnamed for the present in the hope that additional material will be forthcoming. It is very close to meridionalis in general habitus, with elongate yellow fore coxa, raptorial fore leg, small 3rd antennal segment, and black and broad and flat palpus (cf. fig. 4) but the mesopleuron has a broad gray band of microtomentum dorsally and posteriorly, beginning at the anterior spiracle, and the fore femur is thinly gray microtomentose, whereas meridionalis has polished black mesopleuron, and the posterior surface of the fore femur is shining and chiefly polished.

BRAZIL: male, Rio de Janeiro, Nietheroy, July 20, 1915 (P.G. Russell)[Washington].

18. Desmometopa glaucanota, n. sp. (Fig. 27)

Fore coxa yellow; pleuron anterior to pleural suture chiefly polished, with isolated postspiracular patch of gray microtomentum.

Male, female. Chiefly black, with palpus yellow on basal 1/2, knob of halter yellow, fore coxa yellow, mid and hind tarsi yellow in female but infuscated dorsally in male.

Frons with M-shaped frontal vitta subshining black and the long interfrontal plates distinctly delineated; frontal triangle long acute, its apex well past the posterior ends of the interfrontal plates; cheek very narrow, 1/4 breadth of 3rd antennal segment and 1/12 height of an eye, with linear subocular crescent that is slightly broader anteriorly; face deeply concave and vibrissal angle strongly produced to a 45° angle, the lateroventral corner of facial plate highly shining black and well warped forward and upward; antennal grooves deeply concave and densely gray microtomentose; 3rd antennal segment small in both sexes; palpus large, clavate.

Thoracic pleuron anterior to pleural suture almost entirely polished, with postspiracular patch of gray microtomentum, and a narrow margin of same gray on mesopleuron posteriorly and occasionally dorsally (fig. 27); propleuron polished on lower 1/2; pteropleuron gray microtomentose. Fore coxa and fore femur in male slender and elongate, not incrassate and raptorial, in female ordinary. Length, 1.75-2 mm.

Holotype male, allotype, and 4 male paratypes, BELIZE: Corozal Town, Aug. 30, 1967 (G. and R. Lacy)[Washington]. Other paratypes [all Washington]: MEXICO: male, Veracruz, Nov. 1963 (N.L.H. Krauss), and female, Territory Quintana Roo, Cancún, July 16, 1974 (D.J. Pletsch). PANAMA: 95 females, Panamá Province, Las Cumbres, various dates 1980-82 (H. Wolda; on flowers of Aristolochia).

In addition to the type series, about 60 other females from Las Cumbres, Panama, not in suitable condition, were identified.

The pleuron is characteristic of this species, with the isolated spot of gray microtomentum in the flat area just behind and a little above the anterior spiracle. This is sometimes only a small patch, and that area often appears shining, especially if the upper margin (notopleural ridge) is projecting and the postspiracular area is thus depressed and concave. One will need to rotate the specimen and view it at different angles to be sure. This spot is usually not connected to any linear strip of microtomentum along the dorsal margin of the mesopleuron.

The pattern of microtomentum on the pleuron is virtually the only difference I find from floridensis. In the long series available, there is almost always a polished break posterior to the postspiracular patch of microtomentum (fig. 27), and rarely is there a continuous narrow band of microtomentum along the dorsal margin of the mesopleuron. In floridensis, on the contrary, both dorsal and posterior bands of microtomentum on the mesopleuron are broad (similar to fig. 26), and the microtomentum on the post-spiracular area does not appear as an isolated patch.

The specific name is a noun in apposition derived from Latin glaucus, gray, plus nota, referring to the spot of gray posterior to the anterior spiracle.

19. Desmometopa floridensis, n. sp.

Fore coxa yellow; vibrissal angle produced; frontal vitta velvet black; pleuron extensively polished but broadly gray microtomentose behind anterior spiracle and along dorsal and posterior borders of mesopleuron.

Male, female. Chiefly black; palpus yellow on approximately basal 1/2; knob of halter and fore coxa yellow; tarsi brown-black in male, but in female mid and hind tarsi yellow except distally.

Frons with M-shaped frontal vitta subshining velvet black; frontal triangle not extending quite to middle of frons, ending approximately opposite posterior ends of the narrow interfrontal plates; cheek narrow, slightly over 1/3 breadth of 3rd antennal segment and 1/9 height of an eye, subocular crescent strongly broadened anteriorly; face deeply concave and vibrissal angle strongly produced to a 45° angle; lateroventral corner of facial plate shining black and oral margin strongly warped forward, especially at midline, shortening face and accentuating the concavity of the antennal grooves; 3rd antennal segment small in both sexes; palpus clavate.

Thorax dark gray microtomentose; pleuron anterior to pleural suture extensively polished black, including part of propleuron, but mesopleuron broadly gray along dorsal and posterior margins, including gray postspiracular area (as in fig. 26). Fore coxa of male slightly elongate. Length, 2 mm.

Holotype male, allotype, and 4 paratypes (2 males, 2 females), FLORIDA: Seminole Co., Sanford, Aug. 14, 1965 (G.W. Desin; Steiner trap)[Washington, paratypes in Gainesville]. Other paratypes [Washington except as noted]: GEORGIA: male, Savannah, Feb. 3, 1954 (H.R. Dodge). FLORIDA: 7 females, Clewiston, June 20, 1953 (M.R. Wheeler)[Austin], 2 females, Vero [Beach], Feb. 25, 1937 (J.R. Malloch); 3 females, Lake Worth, Jan. 16, 1929, "on asilid prey"

("S.W. Bromley Colln."); 3 females, Lee Co., Sanibel Island, May 11, 1973 (W.W. Wirth, Malaise trap); male, Sweetwater, Apr. 15, 1969 (M.J. Kuck, "ragweed"); male, Merritt Island, Mar. 12, 1956 (H.V. Weems, Jr.) [Gainesville].

The pattern of gray microtomentum on the pleuron will distinguish this species from the very similar species glauca (see discussion under that species).

The specific name is an adjective derived from the name of the state of Florida, the provenance of most of the specimens in the type series.

20. Desmometopa indistincta, n. sp.

Yellow fore coxa, unusually shining frons, and almost entirely polished pleuron.

Male, female. Chiefly black; propleuron (and sometimes humerus) and fore coxa yellow; mid and hind tarsi yellow except for distal 2 or 3 tarsomeres; knob of halter yellow; palpus sometimes obscurely yellowish toward base.

Frons shining black except for microtomentose ocellar tubercle and parafrontals; interfrontal plates long, shining, without microtomentum and hence only weakly distinguished from frontal vitta, the long frontal triangle likewise shining and not microtomentose anterior to median ocellus; cheek narrow, less than 1/2 breadth of 3rd antennal segment and 1/10 height of an eye, with polished subocular crescent that is broader anteriorly; antennal grooves deeply concave, densely gray microtomentose; face strongly concave in profile, vibrissal angle produced to a 45° angle, and shining black lateroventral corner of facial plate conspicuous and warped forward even beyond vibrissal angle; 3rd antennal segment small in both sexes; palpus strongly clavate, broad and flat distally in male (as in fig. 4), less broad in female.

Thoracic pleuron almost entirely polished, gray microtomentose only on posterior slope and on upper part of pteropleuron, about the wing base. Fore coxa moderately elongate in male but fore leg not raptorial, both ordinary in female. Length, 2-2.25 mm.

Holotype male and male paratype, PERU: Iquitos, March-April 1931 (R.C. Shannon); allotype, COLOMBIA: Rio Raposo, Feb. 1965 (V.H. Lee, light trap). Paratypes: COSTA RICA: male, Turrialba, Nov. 1922 (Pablo Schild) [all Washington]. ECUADOR: female, Pompeya, Napo R., Pastaza, May 14-22, 1965 (L. Peña) [Ottawa].

The shining frons with indistinct interfrontal plates and the almost entirely polished pleuron will distinguish this species from others of the flavicoxa group.

The specific name is an adjective from the Latin indistinctus, indistinct or obscure.

21. Desmometopa meridionalis, n. sp.

With yellow fore coxa, and orange-yellow propleuron in male, sometimes in female; pleuron anterior to pleural suture chiefly polished black.

Male, female. Predominantly black, strikingly marked in male with elongate yellow fore coxa and orange-yellow propleuron; knob of halter yellow; mid and hind tarsi yellow in both sexes except for distal 2 or 3 tarsomeres.

Frons with M-shaped frontal vitta subshining, velvet black, the dark gray interfrontal and fronto-orbital plates and frontal triangle distinct against that background; interfrontal plates extend back only to midlevel of frons and end approximately opposite apex of long frontal triangle; cheek narrow, 1/3 breadth of 3rd antennal segment and 1/9 the height of an eye, with linear subocular crescent that is wider anteriorly; face deeply concave as seen in profile, vibrissal angle

produced to a 45° angle; polished black lateroventral corner of facial plate warped forward, and with the strong facial carina leaves deeply concave, heavily gray microtomentose antennal grooves; 3rd antennal segment small in both sexes; palpus of male strongly clavate, broad and flat distally (cf. fig. 4), especially striking in large specimens, palpus of female long but not broadly expanded.

Thoracic pleuron anterior to pleural suture almost completely polished, except for narrow dorsal and posterior margins of mesopleuron and sparse microtomentum on ventral portion of propleuron; postspiracular area polished; pteropleuron gray microtomentose. Fore leg in male raptorial in appearance, fore coxa elongate, 4 times as long as greatest width, with a row of rather strong bristles, and fore femur clearly longer and larger than other femora, with an anteroventral row of short, even, well-spaced bristles; in female, fore femur only slightly elongate. Length, 1.5 - 3 mm (large males).

Holotype male, allotype, and 13 paratypes (11 males, 2 females), BRAZIL: Nova Teutonia, 300-500 m, various dates (holotype, June 1964) (Fritz Plaumann) [Ottawa]. Other paratypes: BRAZIL [all Washington]: 4 males, 3 females, Nova Teutonia, Sept. 1949 (2 females) and Apr. 1950 (F. Plaumann); male, Rio Grande do Sul, Pelotas, Oct. 20, 1956 (C.M. Biezanko); male, Bahia, Itabuna, Apr. 1973 (J.A. Winder); male, 3 females, São Paulo, Maua, May (N.L.H. Krauss). URUGUAY: male, Montevideo, Jan. 25, 1965 (E.F. Legner) [Washington]. PERU: 3 males, Iquitos, Mar.-Apr. 1931 (R.C. Shannon) [Washington]. BOLIVIA: male, Chulumani, Yungas, Dec. 19-25, 1955, 1700 m (L.E. Peña) [Ottawa]. ARGENTINA [Tucumán, except for last 7 specimens]: 8 males, 2 females, Villa Padre Monti, Tucumán-Burruyacu, Jan. 27-Feb. 7, 1948 (R. Golbach); 2 males, 1 female, Santiago del Estero, Montepotrere, Apr. 13, 1952 (A. Willink); female, Mendoza, Vista Flores, Jan. 31, 1950 (M.L. Aczél); 5 males, Tucumán, Villa Padre Monti, Jan. 17-Feb. 7(3) and Mar. 7, 1948 (R. Golbach); male, Tucumán: Alpechiri, Nov. 29, 1946 (R. Golbach); male, Tucumán, San Javier, Nov. 18, 1946 (R. Golbach); male, Tucumán, [locality illegible], Nov. 23-28, 1951 (Aczél & Golbach); 2 males, Salta, San Lorenzo, Jan. 20 (M.L. Aczél); 4 males, Salta, Urundel, Feb. 8-12, 1949 (M.L. Aczél) [Tucumán]; male, Salta, Bella Vista, Embarcación, Apr. 20, 1927 (R.C. Shannon); female, Misiones, Posa, May (N.L.H. Krauss); female, Corrientes, 39 mi. s. Goya, Dec. 13, 1976; male, Jujuy, Zapia, Apr. 10, 1927 (R.C. Shannon) [Washington]; 2 females, Salta, El Carmen, 27 km s. Molinos, 1900 m, Oct. 6, 1968 (L. Peña) [Ottawa]; female, Catamarca, El Arenal, Oct. 3-4, 1968 (L. Peña) [Ottawa].

The males have the propleuron consistently orange-yellow in the fairly long series available, and the palpus broad and flat as in gressitti (cf. fig. 4), and these provide striking differences from blantoni in which the males have black propleuron and ordinary clavate palpus. However, I have found no way to separate females of the two species except by geography. The fore coxa and fore femur of meridionalis are similar to those of saguaro (cf. fig. 22), but narrower.

The specific name is a Latin adjective meaning southern, referring to the geographic distribution of the specimens in the type series.

22. Desmometopa blantoni, n. sp.

Yellow fore coxa, predominantly polished pleuron, and black propleuron.

Male, female. Chiefly black, only fore coxa and knob of halter yellow, and in the female mid and hind tarsi yellowish except for distal tarsomere or two.

Frons with M-shaped frontal vitta subshining, velvet black, the interfrontal and fronto-orbital plates brownish gray and distinct but narrower than usual, the

interfrontal plates short, posterior ends about at midlevel of frons and about opposite apex of frontal triangle; triangle mostly shining anterior to median ocellus, the microtomentum usually confined to ocellar tubercle; cheek narrow, 1/4 breadth of 3rd antennal segment and 1/15 height of an eye, with linear subocular crescent that is slightly wider anteriorly; face deeply concave in profile, vibrissal angle produced to a 45° angle (cf. fig. 18), the lateroventral corner of facial plate shining black and warped forward; antennal grooves deeply concave, densely gray microtomentose; 3rd antennal segment small in both sexes; palpus gently clavate in both sexes, only slightly larger in male.

Thoracic pleuron entirely polished anterior to pleural suture, except for sublinear gray margin posteriorly on mesopleuron and sternopleuron; pteropleuron entirely gray microtomentose. Fore coxa moderately elongate in male, nearly 4 times as long as greatest breadth, with short but strong bristles ventrally. Length, 1.5 mm.

Holotype male, allotype, and a female paratype, PANAMA: Canal Zone, Camaron, Ft. Kobbe, June 23, 1952 (F.S. Blanton, light trap) [Washington]. Paratypes [Washington except as noted]: PANAMA: female, Canal Zone, Colón, July 2-14, 1979 (E. Broadhead et al., canopy fogging of *Hura crepitans* L. in humid forest). COSTA RICA: male, Cartago, Nov. 1965 (N.L.H. Krauss); 2 females, [Farm] La Caja, 8 km w. of San José, 1930 (H. Schmidt)[Eberswalde]. EL SALVADOR: male, San Andrés, Apr. 7, 1952 (P.A. Berry). MEXICO: 3 males, 1 female, Nayarit, 15 km n. of Chapalilla, July 19, 1951 (P.D. Hurd)[Berkeley]; male, Jalisco, Barra de Navidad, Sept. 1965 (N.L.H. Krauss); female, Veracruz, Fortin de Las Flores, June 1964 (F.S. Blanton, light trap).

This species is closest to *meridionalis*. The males appear to be distinct on the basis of the color of the propleuron and the form of the palpus (see under *meridionalis*), but I have been unable to separate females of the two species.

The specific name is in the genitive case, and is dedicated to my good friend, F.S. Blanton, who carefully saved much interesting material from his years in the Panama Canal Zone.

23. *Desmometopa terminalis*, n. sp.

Almost entirely black, with knob of halter yellow and 5th tergum and male terminalia orange-yellow.

Male. Black, dark gray microtomentose, only knob of halter yellow and apex of abdomen orange-yellow, including posterior edge of 4th tergum, all of 5th, and all terminalia.

Frons broader than usual in male, approximately square; frontal vitta dull black, not velvet black, but the gray interfrontal and fronto-orbital plates and frontal triangle are distinct; interfrontal plates relatively long, divergent, widely separated, the interval between them much wider than between one of them and a fronto-orbital plate; frontal triangle relatively short, its apex only slightly in advance of median ocellus; cheek about 1/2 breadth of 3rd antennal segment and 1/5-1/6 height of an eye, with subtriangular subocular crescent that is at its widest 2/5 as broad as cheek; face weakly concave in profile, vibrissal angle not produced and approximately a 90° angle, the lateroventral corners of facial plate dull gray and not developed; 3rd antennal segment relatively large, nearly reaching lower margin of face, but not strikingly enlarged as in *magnicornis*; palpus small, clavate.

Thoracic pleuron densely bright gray microtomentose, including all propleuron and areas surrounding anterior spiracle, with large polished black area posterodorsad to fore coxa that includes an anteroventral area of mesopleuron but is not bilobed (cf. fig. 24). Fore coxa ordinary, convex and not elongate, only 2/3 length of fore femur. Length, 1.25 mm.

Holotype male, PALAU ISLANDS: Koror Island, Mar. 15, 1953 (J.W. Beardsley)[Honolulu].

The yellowish terminalia are unique in the genus as far as known, and thus I have presumed to describe this single specimen. As in other Old World species, the vibrissal angle is not produced. Possibly it is near *ciliata*. The subgenal bristles are present on one side only, and the 2nd from the vibrissa is upturned and longer than the others, although still much shorter and weaker than a vibrissa. The setae on the section of costa between the costal breaks are few in number, which would also tend to associate the species with *ciliata*, although there are other species which also show a small number of such setae.

The specific name is an adjective referring to the terminalia and the apex of the abdomen, from the Latin referring to boundaries.

24. *Desmometopa obscurifrons*, n. sp.

Frons uniformly dull, heavily brownish gray microtomentose, interfrontal and fronto-orbital plates and ocellar triangle not strongly contrasting with frontal vitta; pleuron with large polished black spot posterodorsad to fore coxa.

Male, female. Chiefly black, but with considerable yellow to orange-yellow color on lunule, all antennal segments except narrowly dorsally, palpi chiefly, and proboscis; all tarsi yellow except distal tarsomere or two; knob of halter whitish yellow.

Frons uniformly dull brownish gray from most angles of view, often changeable to greenish brown from certain angles, the interfrontal and fronto-orbital plates and the frontal triangle scarcely evident, not strongly contrasting with frontal vitta and thus not delineating the usual black "M" of most species of *Desmometopa*; cheek narrow, 1/4 breadth of 3rd antennal segment and 1/12 height of an eye, with linear polished subocular crescent; face concave in profile, the vibrissal angle produced to a 45° angle, and lateroventral corner of facial plate, mesad of the vibrissal angle, at least partly shining black; 3rd antennal segment small in both sexes; palpus clavate; proboscis especially elongate and narrow.

Thorax heavily brownish gray microtomentose; pleuron with large polished black spot posterodorsad to fore coxa, including broad anteroventral area on mesopleuron (cf. fig. 24), this coxa not elongate in male. Length, 2.25 mm.

Holotype male, PANAMA: David, Chiriqui, 2200 ft., July 24, 1964 (A. Broce, light trap); allotype, Panamá Province, Las Cumbres (H. Wolda, on flowers of *Aristolochia pilosa*)[Washington]. Paratypes [Washington except as noted]: PANAMA: 8 females, Panamá Province, Las Cumbres (Henk Wolda, on flowers of *Aristolochia pilosa*); 4 males, 5 females, Almirante, Arraijan, and in the Canal Zone, Mojinga Swamp at Ft. Sherman, and Summit Gardens (all, F.S. Blanton). MEXICO: male, female, Vera Cruz, Fortin de Las Flores, June 1964 (F.S. Blanton, light trap). EL SALVADOR: female, Santa Tecla, June 3, 1958 (O.L. Cartwright). COSTA RICA: male, San José, July (H. Schmidt); 2 females, [Farm] La Caja, 8 km w. of San José, 1930 (H. Schmidt)[Eberswalde]. COLOMBIA: 4 males, Rio Raposo, May 1964 and Feb. 1965 (V.H. Lee, light trap). ECUADOR: male, 22 females, Pichilingue, 1976 and April 1978 (E.J. Mendoza); female, Rircay Azuay, Oct. 31, 1954 (R. Levi-Castillo); female, Sta. Domingo, Pichincha, June 19, 1965, 600 m (L. Peña) [Ottawa]. TOBAGO: male, two females, St. John Prov., Charlotteville, Mar. 14-21, 1979 (D. Hardy and W. Rowe).

This characteristic species is distinct from all other *Desmometopa* except *nigeriae* by the uniformly dull frons. The interfrontal plates, parafrontals, and frontal triangle are present but indistinct, and one does not see the usual black M-shaped frontal vitta of almost all species of *Desmometopa*.

A small series from PERU: Huanuco, Tingo Maria, Apr. 19-24, 1969 (P. & P. Spangler) and Iquitos, Mar-Apr. 1931 (R.C. Shannon), and another from TRINIDAD: Simla, Arima Valley, Feb. 6-12 and 13-19, 1966 (S.S. and W.D. Duckworth, black light) [both Washington] are referred here tentatively. The pleuron appears to vary from a large polished spot posterodorsad to fore coxa, through limited polished areas, in some cases only a narrow anteroventral area of mesopleuron, to entirely gray pleuron, but the immaturity of some specimens introduces an element of uncertainty.

The specific name, a noun in apposition, is derived from Latin obscurus, indistinct, plus frons.

25. Desmometopa parafacialis, n. sp.

Frons heavily gray microtomentose, antenna and palpus black, and parafacial visible in profile.

Male, female. Black, densely gray to bright gray microtomentose, only knob of halter yellow; tarsi sometimes yellowish basally, especially in females.

Frons densely gray to brownish gray microtomentose viewed from any angle, fronto-orbital plates distinct but interfrontal plates indistinct or not visible from in front, slightly shining and therefore visible from behind, the plates rather narrow and short, posterior ends at level of foremost upper orbital bristles, which are also about the level of apex of frontal triangle; cheek bright gray, of moderate width, barely over 1/2 breadth of 3rd antennal segment and 1/5 height of an eye, with narrow polished subocular crescent that widens anteriorly and continues as a polished area halfway up a parafacial, which is visible in profile; face deeply concave, vibrissal angle strongly produced anteriorly, at about a 45° angle, even beyond level of anterior margin of frons; lateroventral corner of facial plate shining black and warped forward even beyond vibrissal angle; 3rd antennal segment small in both sexes; palpus gently clavate in female but very broad and flat in male (cf. fig. 4).

Thoracic pleuron densely gray microtomentose, including entire propleuron and areas surrounding anterior spiracle, with polished black spot posterodorsad to fore coxa that includes anteroventral area of mesopleuron (cf. fig. 24). Fore coxa and fore femur in male somewhat elongate, former nearly 3 times as long as broad. Length, 1.5-2 mm.

Holotype male, allotype and 39 paratypes (27 males, 12 females), TEXAS: Austin, Nov. 9 and 13, 1958 (Lynn Throckmorton)[holotype, allotype, and paratypes in Washington, paratypes in Austin]. Other paratypes, TEXAS: 2 males, 10 mi. s. Charlotte, Sept. 13, 1955 (W.L. Downes)[Lansing], 2 females, Llano River, Kimble Co., May 23, 1972 (W.W. Wirth, Malaise trap)[Washington]; 2 males, Big Bend National Park, Oak Spring, 4500 ft., May 1, 1959, and Panther Junction, 3500 ft., May 14, 1959 (both, J.F. McAlpine)[Ottawa]. MEXICO: 3 males, 10 mi. ne. San Luis Potosí, 6200 ft., Aug. 22, 1954 (R.R. Dreisbach) [Lansing], and 2 males, same data (J.G. Chillcott)[Ottawa]; 3 males, Hidalgo, Pachuca, 1700 ft., July 29, 1954 (J.G. Chillcott)[Ottawa]; male, female, Nayarit, Ahuacatlán, July 18-22, 1951 (P.D. Hurd, on flowers of Donnellsmithia Hintonii) [Berkeley]; male, Durango, Nombre de Dios, Aug. 5, 1951 (P.D. Hurd, [flowers of?] Keysenhardtia polystachya) [Berkeley]; male, Puebla, Tehuacán, June 23, 1951 (P.D. Hurd) [Berkeley].

The parafacial visible in profile will separate this species from most of those in the genus, and certainly from those in the subgenus Platophrymyia with dull and densely microtomentose frons.

The specific name is an adjective referring to the parafacials.

26. Desmometopa atypica, n. sp.
(Fig. 12)

Frons heavily gray microtomentose, antenna and palpus black, and parafacial not visible in profile.

Female. Black, heavily gray microtomentose; knob of halter, and mid and hind tarsi except for distal segment or two, yellow; palpus obscurely yellowish dorsally toward base.

Frons as described for parafacialis, the short and narrow interfrontal plates sometimes visible as slightly shining lines, from other angles not evident; cheek narrow, 1/2 breadth of 3rd antennal segment and 1/7-1/8 eye height, with polished subocular crescent almost 1/2 breadth of cheek (fig. 12); parafacial midway not visible in profile; face moderately concave in profile, vibrissal angle somewhat produced anteriorly but not as much as in typical members of the subgenus, about a 70° angle; lateroventral corner of facial plate shining black and slightly warped forward; 3rd antennal segment small, palpus gently clavate.

Thoracic pleuron densely gray microtomentose, including entire propleuron and areas surrounding anterior spiracle, with rather large polished spot posterodorsad to fore coxa, including anteroventral area of mesopleuron (cf. fig. 24). Fore coxa not elongate, and with no suggestion that it might be elongate in males, but this is not certain. Length, 1.5 mm.

Holotype female and 12 paratypes, all females, PANAMA: Panamá Province, Las Cumbres, Nov. 19 (holotype), 21, and 22, 1980, Jan. 24, Feb. 22, Nov. 16, and Dec. 1, 1981, and 4 undated (H. Wolda)[Washington]; female, ECUADOR: Sto. Domingo, Pichincha, June 19, 1965, 600 m (L. Peña)[Ottawa]; female, PERU: Iquitos, March-April 1931 (R.C. Shannon)[Washington].

This species is obviously very close to parafacialis, but the narrow parafacial and the less distinctly produced vibrissal angle will distinguish it. In side view the heads are quite different, that of parafacialis with head somewhat elongate and long axis of eye diagonal, that of atypica with head not elongate and long axis of eye vertical.

I have isolated females from far distant places that may indicate a wider Neotropical distribution, but unrecognized species may be involved, and they are not included in the type series: BRAZIL: São Paulo, Nova Teutonia, Nov. 1958 (F. Plaumann)[Ottawa]; TRINIDAD: Simla, Arima Valley, Feb. 20-26, 1966 (S.S. and W.D. Duckworth)[Washington].

The specific name is an adjective referring to the atypical appearance of the head compared with typical members of the subgenus Platophrymyia.

27. Desmometopa ciliata Hendel
(Figs. 11, 24)

Desmometopa ciliata Hendel, 1919, Ent. Mitt. 8: 200 (Sydney, New South Wales) [Budapest].

Dark gray, resembling a small sordida but with knob of halter yellow; strong subgenal bristle.

Male, female. Chiefly black or black-brown; knob of halter yellow.

Frons slightly broader than long, with velvet black M-shaped frontal vitta delineated by strong gray interfrontal and fronto-orbital plates and frontal triangle, the interfrontal plates moderately long and strong, extending posteriorly to level of hindmost upper orbital bristles, the fronto-orbital plates broader than

usual; frontal triangle short and approximately equilateral, apex not midway of frons; cheek 2/3 breadth of 3rd antennal segment and 1/5-1/4 height of an eye, with relatively broad polished subocular crescent, and 2nd subgenal seta behind the vibrissa developed as a strong, upcurved bristle (fig. 11); face only weakly concave in profile, and vibrissal angle not produced, a broadly rounded 80°-90° angle; 3rd antennal segment small in both sexes, little larger than 2nd segment; palpus clavate.

Thorax dark leaden gray microtomentose; pleuron chiefly gray, including entire propleuron and areas surrounding anterior spiracle, with large polished black spot posterodorsad to fore coxa that includes an anteroventral area of mesopleuron, the anterior margin of spot more or less straight (fig. 24), not bilobed as in *m-nigrum* (cf. fig. 23). Fore coxa of male not elongate. Section of costa between humeral crossvein and subcostal break with 8-10 coarse and well-spaced setae. Length, 2 mm.

Hendel's original series consisted of five specimens. Through the kindness of Dr. F. Mihályi of the Hungarian National Museum at Budapest, I was loaned a male and 3 females of the original series, each specimen labeled "Typus". The male, which is in good condition and bears Hendel's identification label, is hereby designated lectotype and has been so labeled. I have also seen the fifth syntype, now a paralectotype, in the Museum in Vienna.

I have seen barely a dozen additional specimens of the species, from several localities in New South Wales, and from South Australia and the Australian Capital Territory. It may be an endemic Australian species.

Hendel's brief characterization gave few details and emphasized the bristling of costa between the costal breaks, 8-10 well-spaced bristles in *ciliata* but 14-16 in other species. The type series reveals that an even better character is the development of a strong subgenal bristle, often subequal to a vibrissa. The association of this character and the smaller number of coarse setae on the costa before the subcostal break is found in *ciliata* and a few Oriental species and may be said to link these as a "*ciliata* group".

Malloch's *D. ciliata* was a misidentification of *D. inaurata* Lamb, both in 1924 (p. 336) from New South Wales and in 1936 (p. 327) from Samoa, as revealed by Malloch-labeled specimens in Washington.

28. *Desmometopa leptometopoides*, n. sp.
(Fig. 19)

Of the *sordida* group but with yellow halter knob, small polished spot on pleuron, and *Leptometopa*-like broad and flat hind tibia.

Male, female. Chiefly black, densely gray microtomentose; palpus orange-yellow, infuscated distally and below, more so in female than in male; knob of halter yellow.

Frons with interfrontal and fronto-orbital plates and frontal triangle distinctly well developed, the sections of M-shaped frontal vitta narrower than usual; frontal triangle long, its apex at middle of frons, posterior portions of interfrontal plates separated from triangle by approximately the width of one plate; cheek of moderate width, 1/2 breadth of 3rd antennal segment and 1/8 height of an eye, with narrow but distinct polished subocular crescent; face weakly concave in profile, vibrissal angle 80° to 90°, not produced anteriorly in profile; 3rd antennal segment small in both sexes, only a little larger than 2nd segment; palpus clavate.

Thoracic pleuron densely gray microtomentose, including all propleuron and areas surrounding anterior spiracle; polished spot on pleuron posterodorsad to fore coxa rather small and confined to anterior slope of sternopleuron, no polished area

anteroventrally on mesopleuron (cf. fig. 25). Fore coxa not elongate; hind tibia of male broad and flat (fig. 19) as in males of *Leptometopa*. Length, 1.5 - 2 mm.

Holotype male, allotype, and one female paratype, LIBERIA: Suakoko, July 1, 1952 (C.C. Blickenstaff)[Washington]. Paratypes: GHANA: 5 females, Accra, Aug. 16, 1945 (M.A. Locke)[Washington]; female, Accra, Dec. 1921 (J.W. Scott Macfie, "reared from mud and debris collected from pools" [London]; female, Legon, Apr. 6, 1969 (O.W. Richards, at light)[London]. CAMEROUN: 8 females, Victoria, Dec. 22, 1920 (L.H. Booth)[London]. N. NIGERIA: male, 3 females, Zaria, May 23, 1966 (J.M. Lyall, "Tenebrio/Trib culture window") [London]. TUNISIA: male, Bou Hedma, Apr. 11, 1976 (M. Olsson) [Lund].

One female, not a paratype, is not in good condition but appears to be this species. If correct, it would represent a considerable extension of the known range: CAPE PROVINCE, Mossel Bay, Dec. 15, 1928 (R.E. Turner)[London].

The striking feature of broad and flat hind tibia in the male, resembling that of *Leptometopa*, is unique in *Desmometopa*. Females are much less distinct, however. The occasional lengthening of the subgenal setae might suggest *ciliata*, but the small polished pleural spot of *leptometopoides* separates it from *ciliata* and associates it with *varipalpis* and *singaporensis*. The elongated palpi of these two species easily distinguish the males from *leptometopoides*, but females are less distinctive. Females of *varipalpis* have a definitely broader cheek, but females of *singaporensis* are much closer. Teneral females of *leptometopoides* have yellowish cheeks and could on that basis alone have been confused with *singaporensis*. Associated males give the best basis for identification.

The specific name is an adjective derived from the generic name *Leptometopa* plus *oides*, like.

29. *Desmometopa varipalpis* Malloch
(Figs. 1,3,6,25)

Desmometopa varipalpis Malloch, 1927, Proc. Linn. Soc. N.S. Wales 52: 7 (New South Wales) [Sydney].

D. tarsalis Loew; Hennig, 1937, Fam. 60a. Milichiidae et Carnidae, p. 44, in Lindner (ed.), Fliegen Palaeark. Region, Lfg. 115.

D. singaporensis (*tarsalis* of European records); Hennig, 1939, Arb. Morph. Taxon. Ent. Berlin-Dahlem 6: 87-88.

D. m-nigrum (Zetterstedt); Wolcott, 1951, Jour. Agr. Univ. Puerto Rico 32(3): 529 (Puerto Rico, at least in part: the San Juan specimen, now in Washington, is *varipalpis*).

D. varipalpis; Lee, Crust, and Sabrosky, 1956, Proc. Linn. Soc. N.S. Wales 80: 339 (footnote on presumed holotype).

D. singaporensis; Hennig, 1965, Stuttg. Beitr. Naturk. 139: 2, fig. 1 (Iran; figs. of male and female palpi).

D. singaporensis; Sabrosky, 1973, Family 75, p. 2, in A Catalogue of the Diptera of the Americas South of the United States.

D. varipalpis (*singaporensis*, authors, in part); Sabrosky, [1977], p. 271, in Delfinado and Hardy (eds.), A Catalog of the Diptera of the Oriental Region, p. 271.

D. singaporensis; Hardy and Delfinado, 1980 (June 4), Insects of Hawaii 13: 355-6 (Hawaii; figs. of head and male genitalia).

D. varipalpis (*singaporensis*, authors, in part); Sabrosky, 1980 (July 10, Family Milichiidae, p. 687, in Crosskey (ed.), Catalogue of the Diptera of the Afrotropical Region.

Polished pleural spot small, not including an area of mesopleuron; fronto-orbital plates relatively broad (fig. 25); palpus of male strikingly elongate, fusiform (fig. 3).

Male, female. Black, heavily gray microtomentose; cheek yellowish in ground color; 1st and 2nd antennal segments almost always reddish, contrasting with black 3rd segment; palpus partly yellow, extensively so in the enlarged palpus of male, yellow on proximal 1/2 in female; knob of halter yellow; mid and hind tarsi yellowish except distal 2, rarely 3, tarsomeres.

Frons (fig. 1) with velvet black frontal vitta, the interfrontal and fronto-orbital plates and frontal triangle gray and distinct; frontal triangle equilateral or slightly longer, reaching about to middle of frons; fronto-orbital plates especially broad, each almost twice width of an interfrontal plate, and without or almost without break between upper and lower orbital plates, unlike *singaporensis* (cf. figs. 1,2); cheek (fig. 3) over 1/2 breadth of 3rd antennal segment and about 1/5 height of an eye, with narrow polished subocular crescent; parafacial narrowly visible throughout in profile; face weakly concave in profile, vibrissal angle about 80° - 90°, not strongly produced, the lateroventral corner of facial plate dull and not warped forward; 3rd antennal segment small in both sexes; palpus gently clavate in female, but elongate fusiform in male (fig. 3), narrowed apically, usually large and long, occasionally in small specimens short and not so narrowed apically.

Thoracic pleuron heavily and extensively gray microtomentose, with small polished spot posterodorsad to fore coxa, mesopleuron not polished anteroventrally (fig. 25). Fore coxa and femur not elongate. Section of costa between the humeral and subcostal breaks with many (12-14) short, semierect setae, each only a little longer than diameter of costa. Length, 2.5 mm.

A specimen found in Malloch's collection years ago, still before me but to be returned to Australia, is undoubtedly the holotype of *varipalpis*. It agrees perfectly with the specimen data and the description but is labeled "Desmometopa varicornis Type." No doubt Malloch changed this in publication upon realizing that he really meant the name to refer to the palpus and not the antenna. It is a male, not a female as stated by Malloch. He clearly described the palpi as "large" and "lanceolate," an attribute not then recognized as characteristic of males only.

Males of this species are very distinctive because of the elongate fusiform palpi, unique in the genus and comparable only with *singaporensis* which also has a large palpus but a capitate one (cf. figs. 3,5). However, females are much less distinctive and may easily be confused with those of *singaporensis* and perhaps with *leptomtopoides*, and even with some other species (e.g., *m-nigrum*) if the specimens of the last named are teneral with collapsed cheeks. Two characteristics distinguish *varipalpis* from *singaporensis* in both sexes, and these are useful for females: (1) in *varipalpis* (fig. 1) the fronto-orbital plates are broad throughout, without an obvious break between the upper and lower orbital plates, whereas in *singaporensis* (fig. 2) the fronto-orbital plates are narrower, especially the lower orbital plate, and there is a distinct break and narrowing from upper to lower sections; (2) the cheek is wider in *varipalpis* than in *singaporensis* (cf. figs. 3,5), a consistent difference but one that can be tricky because in teneral individuals the cheek tends to fold longitudinally toward the eye, thus narrowing the cheek.

The antennae are usually entirely black in *singaporensis*, but with reddish 1st and 2nd segments in *varipalpis*. However, enough specimens of *singaporensis* also have these segments more or less reddish that the character cannot be relied upon, although the bright segments in typical *varipalpis* will be a supporting character.

Males of *varipalpis* have the additional characteristic of elongate fusiform palpi, but in a few cases, almost always small individuals, the palpi are relatively short and small and in such cases they appear less acute apically. In some long series that are available from the same place and time, there are usually a few small specimens with small palpi, which encourages me to believe that the condition of small palpi represents only an occasional variant. In small specimens of *singaporensis*, small palpi also occur, and such individuals are difficult to identify with assurance except for the reliable character of the narrower parafrontals. In males, the larger the specimen, the more elongate and conspicuous appear the palpi, whereas in small specimens the palpi are shorter and apically they are less acutely angled.

There has been almost no confusion in the use of the name *varipalpis*, except for Hennig's synonymizing of it with *palpalis*, undoubtedly misled by Malloch's incorrect statement of the sex of the holotype. The real confusion has been in the use of the name *singaporensis*, to which I myself, regretfully, have contributed. See the discussion under that species for the effect of the lectotype designation by which *singaporensis* must be applied to *palpalis* for the species with elongate and capitate palpi in the males, leaving *varipalpis* the valid name for the species with elongate and fusiform palpi. Hardy and Delfinado (1980) figured the quite different palpi of the two species, with *singaporensis* under the synonymous name *tristicula* (their fig. 143c) and *varipalpis* under the name *singaporensis* (their fig. 143a). For further discussion of the confused usage, see the introductory section on "Identification". If it will alleviate the pain of name changing, I can note that even if *singaporensis* had been restricted to the species here called *varipalpis*, the frequently used name *palpalis* would have had to be changed to the rarely used *tristicula*, which has priority.

Distribution: Widespread, occurring in all faunal regions, summarized as follows to show the wide range (records from planes and ships not included):

Nearctic: Canada: Quebec (Montreal); U.S.A.: records from 23 states, Wash.-Mich.-N.Y., south to Calif.-Texas-Fla.

Neotropical: Bolivia, Brazil (Santos, São Paulo), El Salvador, Guatemala, Mexico (Veracruz), Panama, and islands Antigua, Clipperton Island, Cuba, Galapagos, Puerto Rico, St. Vincent, Virgin Islands.

Palaearctic: Algeria, Egypt, Iran, Iraq, Israel, Saudi Arabia. [The record from Hyères, southern France, published by Séguy (1934) as *D. albipennis* (Meigen) with *singaporensis* in synonymy, and mentioned by Hennig (1937) as *tarsalis*, was actually based on *D. m-nigrum*, from the female specimen in Paris].

Afrotropical: Djibouti [as French Somaliland], Ghana, Kenya, South Yemen (Aden), Sudan, Uganda, Yemen, Zaire, also Ascension Island.

Oriental: India (West Bengal, Tamil Nadu), Singapore, Thailand.

Australian: New South Wales.

Oceanica: New Guinea, Bismarcks, Bonins (Chichi Jima), Carolines (Lukunor Atoll, Truk), Guam, Hawaii, Johnston Island, Marianas (Saipan), Marshalls (Eniwetok Atoll, Jaluit Atoll, Kwajalein, Ujelang Atoll), New Hebrides (Espiritu Santo), Volcanos (Iwo Jima), Wake Island.

A number of records suggest the probable importance of commerce in the distribution of *varipalpis*: Guam, from planes (China Clipper and Honolulu Clipper); Honolulu, Hawaii, plane from New Zealand and New Caledonia; Liverpool, England, "from ship in Liverpool docks ex Canada"; Port Adelaide, South Australia, "taken on ship ex Kuwait"; Valparaiso, Chile, "on board Santa Inez" [undoubtedly the specimen called *m-nigrum* by Malloch, 1934b]; New Orleans, La. from Central America; New York, N.Y., "larvae in potatoes in ship from Argentina", and "plane from Buenos Aires"; Norfolk, Va., "specimens in soil with potatoes from Colombia".

Perhaps it is only chance, but I have seen only one specimen of *singaporensis* bearing any similar information, although the rearing records noted under "Biology" would indicate the similar possibility of transport in commerce or movement of people.

Interesting historical records are furnished by a male labeled "Cuba/Poey" and "Loew Coll." and a female with similar labels [both Cambridge], and a male, "Havana, Cuba" "27.1.'69" [Washington, very old handwritten label, undoubtedly 1869], showing that the species has been in the New World for well over a century.

30. *Desmometopa singaporensis* Kertész
(Figs. 2, 5)

Desmometopa singaporensis Kertész, 1899, Termész. Füzetek 22: 194
(Singapore)[Budapest].

- D. tarsalis* Loew (syn., *singaporensis*); Hendel, 1907, Wien. Ent. Ztg. 26: 242
[but at least Egypt and Aden records refer to *varipalpis*].
- D. tarsalis*; Malloch, 1914, Ann. Mus. Nat. Hungar. 12: 309 (male, female)
[Budapest].
- D. tristicula* Hendel, 1914 (Jan. 27), Suppl. Ent. 3: 96 (Formosa) [Eberswalde].
N. syn.
- D. palpalis* de Meijere, 1914 (Oct. 15), Tijd. Ent. 57: 251 (Java, Sumatra)
[Amsterdam].
- D. tarsalis*; de Meijere, 1914 (Oct. 15), Tijd. Ent. 57: 251 (Java, Sumatra;
females).
- D. m-nigrum* (Zetterstedt) Illingworth, 1926, Proc. Hawaiian Entomol. Soc.
6(2): 224 (Hawaii, det. Aldrich).
- D. tarsalis* (female) and *D. palpalis* (male); Bezzi, 1928, Diptera Brachycera
and Athericera of the Fiji Islands, p. 162-3 (Fiji; also Fiji, "from onions
imported from Australia").
- D. tarsalis*; Illingworth, 1929, Proc. Hawaiian Ent. Soc. 7(2): 233
("Correction" from Aldrich of his earlier identification of *m-nigrum*).
- D. palpalis*; Malloch, 1934, Insects of Samoa, Pt. VI (Diptera), Fasc. 8: 327-8
(Samoa; fig. of male head and palpus; first to note sexual dimorphism in the
palpi of this species).
- D. palpalis*; Hennig, 1939, Arb. Morph. Taxon. Ent. Berlin-Dahlem 6: 88-89,
fig. 8 (head of male, side view).
- D. tarsalis*; Hennig, 1941, Ent. Beihefte aus Berlin-Dahlem 8: 177 (Formosa, at
least in part; I have seen the Hokuto specimens).
- D. palpalis*; Bohart and Gressitt, 1951, Bull. Bishop Mus. 204: 46 (Guam).
- D. palpalis*; Hardy, 1952, Proc. Hawaiian Ent. Soc. 14(3): 474 (Hawaii).
- D. singaporensis*; [Hardy?], 1972, Proc. Hawaiian Ent. Soc. 21(2): 160 (Correct
name for species known in Hawaiian literature as *palpalis*, teste Sabrosky).
- D. palpalis*; Sabrosky, 1973, Family 75, p. 2, in A Catalogue of the Diptera of
the Americas South of the United States (Brazil, Puerto Rico).
- D. singaporensis* (syn., *palpalis*) and *D. tristicula*; Sabrosky, [1977], Family
Milichiidae, p. 271, in Delfinado and Hardy (eds.), A Catalog of the Diptera of
the Oriental Region.
- D. tristicula*; Hardy and Delfinado, 1980 (June 4), Insects of Hawaii 13: 356,
358 (Hawaii, figs. of head and male genitalia).
- D. singaporensis* (syn., *palpalis*); Sabrosky, 1980 (July 10) Family
Milichiidae, p. 687, in Crosskey (ed.), Catalogue of the Diptera of the
Afrotropical Region.

Polished pleural spot small, not including an area of mesopleuron; fronto-orbital plates relatively narrow (fig. 2); palpus of male broadly expanded, capitate (fig. 5).

Male, female. Black, heavily gray microtomentose; cheek yellowish in ground color; antenna usually black but sometimes 1st and 2nd segments reddish; palpus partly yellow, extensively so in male but only proximal 1/2 in female; knob of halter yellow; mid and hind tarsi sometimes yellowish on proximal 2 to 3 tarsomeres.

Frons with velvet black frontal vitta, the interfrontal and fronto-orbital plates and frontal triangle gray and distinct; each fronto-orbital plate moderately narrow, especially the lower orbital plate, and almost always with a more or less distinct break between upper and lower sections, just anterior to foremost upper orbital bristle (fig. 2); frontal triangle longer than broad at base, its apex about midway on frons; cheek about 1/2 breadth of 3rd antennal segment and 1/8-1/9 height of an eye, with narrow polished subocular crescent (fig. 5); parafacial usually not visible in profile; face weakly concave, vibrissal angle not produced, about an 80° - 90° angle, lateroventral corner of facial plate dull gray and not warped forward; 3rd antennal segment small in both sexes; palpus gently clavate in female, but in male elongate and broad, capitate (fig. 5).

Thoracic pleuron densely and extensively gray microtomentose, with small polished spot on pleuron posterodorsad to fore coxa, no adjoining polished area anteroventrally on mesopleuron (cf. fig. 25). Fore coxa and femur not elongate. Costal setae as in *varipalpis*. Length, 2.5 mm.

Lectotype, female, "Singapore/Biró 1898," "*M-nigrum*" [Biró label], "*Desmometopa/singaporensis*/typus [in red ink] Kert./ det. Kertész," "typus" [printed in red on large red-bordered label], "*tarsalis* Lw./ det. Hendel." Paralectotypes: 6 females, "Singapore/ Biró 1898" [Budapest]; 3 females, same data [Vienna]. Of the paralectotypes, 5 in Budapest are the narrow-cheeked species, conspecific with the lectotype; the other four are *varipalpis*. Kertész
and An. Budapest

Kertész did not state the number of specimens in the type series, nor did he designate a holotype. The stated range of length (2.3-2.5 mm) and the use of the plural "die Exemplare" show that he had at least more than one specimen, and thus the single example now labeled "typus" is technically not a holotype. It seems reasonable to conclude that the seven specimens in the Museum at Budapest bearing identical labels "Singapore/Biró 1898" as published by Kertész, and standing in the collection under the name label "*tarsalis* Lw. (*singaporensis* Kert.) as revised by Hendel, are all syntypes. All are females, and these are now before me. Hendel (1907) also referred to "Typen" in the Museum in Vienna, and I have seen those three, also females with identical data to those in Budapest, and here also considered syntypes. Six of the Budapest specimens, including the one labeled "typus," are a narrow-cheeked species agreeing with *palpalis* de Meijere, and one is a broader-cheeked form agreeing with *varipalpis* Malloch. The three in Vienna agree with the latter. I have designated and labeled as lectotype the specimen in Budapest bearing the label "typus." Another female from Singapore, collected by Biró, is labeled 1895 and thus cannot be considered a syntype, although it is possible that it was before Kertész and he overlooked the difference in date. It is *varipalpis*.

There was a strong temptation to designate the one wide-cheeked example in Budapest as lectotype, which would have saved the name *singaporensis* for the species often (e.g., by Hennig 1937)--but not always--called that. However, such a designation would have been inconsistent with the labeling of the single specimen as "typus," it would have disagreed with the original description, and it would have been contrary to the majority of the specimens. The labeling of "typus" is not a binding consideration under the International Code of Zoological

Nomenclature, because it was not published, but some taxonomists may consider that such labeling should fix the status of the specimen and I consider it desirable to avoid that possible argument, as well as to respect the author's choice. In view of the mixed series, perhaps that "choice" was unintentional, but on the other hand it may have indicated the choice of an individual that seemed to Hendel most typical in the type series. Most of the description is generalized and applies in most particulars to both species, but the characters of 'cheeks very narrow' and 'antennae black' apply to the narrow-cheeked species and not to the other, *varipalpis*, which has a broader cheek--although not exceedingly so--and partly reddish antennae, differences that are clearly evident in the type series.

The narrow-cheeked form is that described by de Meijere as *palpalis*, from Salatiga, Java (D. van Leeuwen) and Deli, Sumatra (de Bussy). The palpi were described as "sehr gross, löffelförmig." I have before me, loaned from the Museum at Amsterdam by Dr. G. Kruseman, two males of the cited data. The one from Java was labeled "Type" by de Meijere, although not so published, and I here designate it as lectotype, the other being paralectotype. Three females of the same species are also present in that collection, labeled *tarsalis* by Becker (Pasuruan, Java) and by de Meijere (Semarang, Java, and Deli, Sumatra). The last two specimens were published by de Meijere as *tarsalis* at the same time that he described the males as *palpalis*.

D. tristicula Hendel was briefly and inadequately described from "♂♀", kindly loaned me for study from Eberswalde by Dr. G. Morge. One specimen is obviously a female, with genitalia clearly evident. The other, presumably the male referred to, bears a red label "Typus" but this was not so published and the type series really consists of two syntypes. The "male" is unrecognizable; it is now headless, the mid and hind legs are missing, and the abdomen, which has had the distal half sliced off, appears filled with eggs! Hennig (1941) recorded "1 Typus plus 1" in his list of the insects of Formosa, but this was a curatorial list and cannot be considered a definitive nomenclatural act. In other cases, all of Hendel's series have been marked "Typus", and the lack of such a label on the second specimen is probably a preparator's error. I hereby designate as lectotype the second specimen, the female, which is in excellent condition. Dr. Morge also sent 17 other specimens, mostly from H. Sauter's collecting in Formosa, identified as *tristicula*, most of which had been recorded by Hennig (1941). Four of these, from H. Sauter's collecting at Tainan, Nov. 1909 (1 female) and Hokuto, Dec. 1912 (2 males, 1 female) are *tristicula*, but most of the others are *microps*. Unfortunately, the abdomen is missing from each of the available males of *tristicula*, but the capitata palpus is characteristic of that sex.

The species that I recognize as *singaporensis* is nearest *varipalpis*, and although males of the two are easily distinguished by the form of the strongly developed palpi, identification of females is much more difficult, as discussed in detail under *varipalpis*. Females of *singaporensis* have a slightly narrower cheek and narrower fronto-orbital plates with a distinct break between upper and lower orbital plates. It must be kept in mind, as noted under *varipalpis*, that small males have less strongly developed and less conspicuous palpi, and this can sometimes be quite deceiving.

Hennig (1939) unfortunately misquoted Malloch as saying that only the females of *palpalis* have the enlarged and brightly marked palpi, whereas Malloch (1934a) had positively stated that such palpi were "characteristic of the male only" and that females had small palpi as in *m-nigrum* and *ciliata*. Probably Hennig was influenced by his natural acceptance of Malloch's earlier (1927) statement (erroneous!) that *varipalpis* was based on a female specimen.

As far as usage is concerned, there has been a great deal of confusion, to which I too have contributed. The name *singaporensis* has been applied to both

broad- and narrow-cheeked species, especially in the female sex in which the two species are difficult to separate. Because of the confusion and the relatively few publications involved, there is no overwhelming amount of usage that needs special consideration. Either choice would have resulted in synonymy. Moreover, if *singaporensis* had been restricted to the broad-cheeked form (*varipalpis*), the name most commonly used for the narrow-cheeked form, i.e., *palpalis*, would have had to be changed anyway as a junior synonym of *tristicula*. For further discussion of the confusion, see the introductory paragraphs under "Identification".

Distribution: Chiefly Old World, and chiefly Oriental and the Pacific Islands. I can record specimens from the following:

Neotropical: Brazil (Santos, S.P.), Puerto Rico.

Afrotropical: Ivory Coast, Seychelles, South Africa (Transvaal), Uganda.

Oriental (including some chiefly Palearctic countries with Oriental sections): Afghanistan, Cambodia, China (Szechuan), India (Assam, Bengal), Java, Korea, Malaya, Pakistan, Philippine Islands, Ryukyu Islands (Okinawa), Singapore, South Viet Nam, Sri Lanka, Sumatra, Taiwan, Thailand.

Pacific Islands: Bismarck Archipelago (New Britain), Caroline Islands (Merir Island, Palau Islands, Truk), Fiji, Gilbert Islands (Tarawa Atoll), Guam, Hawaii, Mariana Islands (Saipan), Marshall Islands (Kwajalein), New Hebrides, Solomon Islands (Guadalcanal, Russell Group), Tahiti, Tonga, Yap.

31. *Desmometopa sordida* (Fallén) (Fig. 8)

Madiza sordida Fallén, 1820, Oscinides Sveciae, p. 10 (Sweden) [Stockholm].
Agromyza M atrum Meigen, 1830, Syst. Besch. 6: 170 (usually cited *m-atrum*).
Desmometopa (Liodesma) atra Duda, 1935, Naturhist. Maanblad 24: 25, 38
(Saarland, West Germany) [Berlin]. (Synonymy confirmed).
D. sordida (Fallén)(?*Liodesma atra* Duda) Hennig, 1937, Milichiidae et Carnidae, in Lindner, Fliegen Palaeark. Region, Fam. 60a: 43.

Entirely black or dark brown, including knob of halter; cheek with distinct subocular crescent.

Male, female. Entirely black or dark brown, including palpi, halteres, and all tarsi.

Frons subshining black, the dark gray interfrontal and fronto-orbital plates and frontal triangle distinct; interfrontal plates moderately long, widely divergent, posterior ends barely overlapping apex of frontal triangle; cheek over 3/5 breadth of 3rd antennal segment and nearly 1/6 height of an eye, with large rounded subocular crescent (fig. 8); face weakly concave in profile, vibrissal angle about 90°, not produced; 3rd antennal segment small in both sexes; palpus clavate.

Thoracic pleuron densely brownish microtomentose, including all propleuron and areas surrounding anterior spiracle, a polished black spot posterodorsad to fore coxa that only narrowly or not at all encroaches on anteroventral area of mesopleuron. Fore coxa not elongate, convex, about 3/5 length of fore femur. Length, 2-2.5 mm.

D. sordida, whose junior synonym *m-atrum* is type of the genus, is a dark, nondescript species without particularly distinctive characters. In the Holarctic Region its black halteres distinguish it. It has apparently not been distributed widely in commerce as has *D. m-nigrum*, and published records in the Oriental and Afrotropical Regions are suspect.

It is widespread in North America and the Palearctic Region. I have seen numerous specimens from England, Sweden, and Russia (Leningrad Oblast) south

to Spain and Israel, also Manchuria and Japan.

In the "Catalog of the Diptera of the Oriental Region" (Sabrosky [1977], p. 271), I listed sordida from "India, Indonesia, Philippines" but indicated possible misidentifications. Up to the present time, I have not seen true sordida from the Oriental Region. Two specimens from Semarang, Java, August 1905 (Jacobson), borrowed from the Museum in Amsterdam as sordida, proved to be D. microps Lamb, and this is a likely species to be confused with sordida.

Likewise, in the "Catalogue of the Diptera of the Afrotropical Region" (Sabrosky 1980), I listed sordida from "Cameroun, ?Kenya, Tanzania", but these records too may now be doubted. The specimen on which the Cameroun record was based is before me, and it is a female of microps as I now recognize. The Tanzania record was also based on a female, recorded earlier by me (Sabrosky 1965a), and I suspect that this was also microps, the female being easily confused with that of sordida. The Kenya record was published by Ségué (1938), and should be checked for this same possibility.

Through the friendly cooperation of Dr. H. Schumann of the Museum für Naturkunde, Humboldt-Universität zu Berlin, I received for study the two specimens on which Duda founded his Desmometopa atra. One is teneral, with head and thorax collapsed. The other, which I here designate as lectotype, bears the following labels: "8 8 19, St. Wendel/Rheinl. Duda [printed], Piomadiza n. gen., atra Duda ♀, Typus [printed, colored label]." The name labels are in Duda's handwriting. Duda apparently changed his mind on the generic name and its status, before publishing. The other specimen, which now becomes a paralectotype, is labeled "6 8 20, 5a, atra Duda ♂ [actually a female and so published], Typus [printed, colored label]." Its locality was published as "Habelschwerdt (Schlesien)."

Duda described the face of atra, in contrast to Desmometopa, as "poliert glänzend" and the frons as "glänzend und unbereift," hence the name Liodesma. However, the shining appearance is an artifact. The entire head has been wetted with a dark, syrupy substance. The specimens are simply the common D. sordida, and I can confirm the synonymy suggested by Hennig (1937) from his reading of the description.

32. Desmometopa sp. L

A lone male, MALAYA: Pahang, Tahan River, George V National Park, Nov. 5, 1959 (H.E. McClure, light trap)[Washington], apparently represents a distinct species, with characters as given in the key, but it will not be described and named until further material is available. It is tiny (1 mm), with narrow interfrontal plates and short frontal triangle that together result in an unusually large M-shaped frontal vitta. The palpus is short clavate and black, and the 3rd antennal segment is small, only a little larger than the 2nd segment, both structures undoubtedly the same in females. The fore coxa is not elongate. The polished black spot posterodorsad to fore coxa appears to include, as in sordida, a very narrow anteroventral area on the mesopleuron.

33. Desmometopa nudigena, n. sp.

Tiny dark species of the sordida habitus, but with all tarsi partly yellow, and cheek lacking a polished subocular crescent.

Male, female. Black, dark gray microtomentose; all tarsi yellow except for distal segment or two.

Frons with velvet black frontal vitta, the gray interfrontal and fronto-orbital plates and frontal triangle distinct; interfrontal plates very narrow, practically

linear, hence the sections of the M-shaped frontal vitta unusually broad, the plates long, with posterior ends opposite apex of the short frontal triangle which is virtually coextensive with ocellar tubercle; cheek narrow, 1/4 breadth of 3rd antennal segment and 1/12 eye height, gray, without polished subocular crescent; face weakly concave, vibrissal angle an 80° - 90° angle and not produced anteriorly; lateroventral corner of facial plate flat, gray like rest of plate; 3rd antennal segment small in female but large in the now headless male (cf. fig. 21); palpus clavate.

Thorax densely dark gray microtomentose, including entire propleuron and areas surrounding anterior spiracle; a large polished black spot posterodorsad to fore coxa and including an elongate-oval anteroventral area of the mesopleuron (cf. fig. 24). Fore coxa and fore femur ordinary, not elongate. Section of costa between costal breaks with 8 erect, coarse, black, well-spaced setae. Length, 1.25 - 1.5 mm.

Holotype female and female paratype, GAMBIA: Bakau, Botanical Garden, Nov. 21, 1977 (Cederholm et al.)(Lund). Paratypes: GAMBIA: (all, Cederholm et al.): female, 6 km n. Kartung, Nov. 20, 1977, "swept in very dense forest with glades" [Lund]; male, female, at road junction to Situ Sinjang, about 2.5 km se. Kafuta, Mar. 1, 1977 [Lund, Washington]. IVORY COAST: female, Savane à Imperata, May 5, 1971 (D. Lachaise, "inflorescence de Cussonia") [Paris]. SIERRA LEONE: Female, Taninahur, Feb. 14, 1925 (E. Hargreaves) [London]. NIGERIA: female, Ibadan, Dec. 4, 1962 (D.C. Eide) [Ottawa].

The head of the male was accidentally and irretrievably lost, but not before it was noted that the 3rd antennal segment was unusually large, in which feature it resembles magnicornis and philippinensis (cf. fig. 21).

This species is one of a small group characterized by black-brown halteres and, in the male, by extra large 3rd antennal segment. It is differentiated in the key from the other species with these features, magnicornis and philippinensis by its longer frontal triangle, but in these small species the difference does not appear great. Should there be confusion, however, different combinations of other characters served to mark these as distinct species, in addition to the length of the triangle:

nudigena: subgenal setae fine and even, without outstanding bristle; all tarsi yellowish except for distal segment or two.

philippinensis: 2nd subgenal seta behind the vibrissa bristlelike, longer than the others; all tarsi yellowish except distally.

magnicornis: subgenal setae fine and even; all tarsi black.

Possibly D. aldabrae belongs in this group also, although the 3rd antennal segment is only moderately enlarged in the male. Should it be involved in the possible confusion, it is easily distinguished by almost entirely yellow palpi in both sexes. The subgenal setae are even and the tarsi are yellowish except distally.

The specific name is a noun in apposition compounded from the Latin nudus, bare, plus gena, cheek.

34. Desmometopa flavipalpis, n. sp.

Small dark species of the sordida habitus, but males with yellow palpus, and both sexes with short frontal triangle.

Male, female. Black, except for yellow palpus in male, slightly infuscated at tips, and basal 1/3 to 1/2 of palpus orange-yellow in females.

Frons subshining, velvet black, interfrontal plates distinct but of moderate width, the sections of M-shaped frontal vitta broad; frontal triangle short, apex barely anterior to median ocellus; face weakly concave, the vibrissal angle not produced forward, about an 80° - 90° angle; cheek narrow, barely over 1/3 breadth

of 3rd antennal segment and 1/11 eye height, with linear polished subocular crescent that is slightly wider anteriorly; subgenal setae rather long and lengthening toward vibrissa; 3rd antennal segment small in both sexes; palpus short, clavate.

Thorax dark gray microtomentose, including entire propleuron and areas surrounding anterior spiracle, with large polished black spot posterodorsad to fore coxa that includes an anteroventral area of the mesopleuron (cf. fig. 24). Fore coxa not elongate. Length 1.75-2 mm.

Holotype male, allotype, and 4 paratypes (3 males, 1 female), MARSHALL ISLANDS: Jaluit Atoll, Majurirek Island, Apr. 26, 1958 (J.L. Gressitt, "Hernandia flowers")[Honolulu]. Other paratypes: MARSHALL ISLANDS: 10 males, Jaluit Atoll, Jabor Island, Apr. 27 and May 1, 1958 (J.L. Gressitt, two of Apr. 27 labeled "Crotalaria"). CAROLINE ISLANDS: 2 males, 1 female, Ulithi Atoll, Falalop Island, April 30, 1952 (J.W. Beardsley); female, Lamotrek Atoll, Lamotrek Island, Feb. 5, 1953. PALAU ISLANDS: female, Angaur Island, May 1, 1954 (J. W. Beardsley). NEW HEBRIDES: male, Efate, Vila, 0-100 m, Feb. 1969 (N.L.H. Krauss). [Most paratypes in Honolulu, paratypes in Washington; New Hebrides paratype in Washington].

This species is similar to others of the sordida group in the Oriental and Pacific areas, but it can be distinguished by the combination of characters used in the key. Two noteworthy features are the very short frontal triangle and the conspicuous yellow palpi of the males. Females are much less distinctive because the palpi are heavily infuscated distally and apparently sometimes entirely black.

The specific name is an adjective compounded from the Latin flavus, yellow, and palpus, feeler.

Two females from the Philippines have not been included in the type series, but they appear to be this species: Samar, Osmeña, May 23, 1945 (K. L. Knight, at light), and Calicoan Island, July 27, 1945 (F.F. Bibby, "from dead land crab") [Washington].

35. Desmometopa srilankae, n. sp.

Tiny species near ciliata, but with bilobed polished black pleural spot.

Male, female. Chiefly black; palpus yellowish on basal half; all tarsi yellow except for several distal segments; knob of halter black.

Frons with velvet black M-shaped frontal vitta, the arms of the M broad, interfrontal plates long and slender, posterior ends at or posterior to level of hindmost orbital bristles; frontal triangle short, apex barely before median ocellus; cheek 1/3 breadth of 3rd antennal segment and 1/9 height of an eye, gray, with distinct but narrow subocular crescent, 2nd subgenal seta behind vibrissa more or less well developed; face weakly concave in profile, vibrissal angle not produced, about an 80° angle, and lateroventral corner of facial plate flat and dull, not polished; 3rd antennal segment small, only little larger than 2nd; palpus clavate.

Thorax dark gray microtomentose; pleuron chiefly gray, including entire propleuron and areas surrounding anterior spiracle, with large, bilobed (cf. fig. 23), polished black spot posterodorsad to fore coxa, including an anteroventral area of mesopleuron. Fore coxa and fore femur not elongate in male. Section of costa between costal breaks with few coarse setae, 6-7 in number. Length, 1.5 mm.

Holotype male, allotype, and 3 female paratypes, SRI LANKA: Kandy District, Udawattakele, 1800 ft., Nov. 19, 1976 (G.F. Hevel, R.E. Dietz, S. Karunaratne, D.W. Balasooriya)[Washington, paratype in Colombo]. Other paratypes: SRI LANKA: 2 females, Northwest Province, Bangadeniya, 4 mi. nne. Chilaw (Brinck & Cederholm, on flowers)[Lund, from the Lund University Ceylon Expedition 1962].

One male, PHILIPPINES: Luzon, La Trinidad, May 1914 [Helsinki] appears to belong here but it is in poor condition and decision on its identity must await better material from those islands.

The bristlelike 2nd subgenal seta, the bilobed pleural spot, and the unusually sparse setae on the costa between the costal breaks will spot this species as near ciliata.

In the holotype, both interfrontal plates are interrupted midway, but they are continuous in the other specimens and the interruption is undoubtedly an aberrant condition.

The specific name is a noun in the genitive case, from the name of the country Sri Lanka.

36. Desmometopa propeciliata, n. sp.

Tiny species near ciliata and srilankae, differing from the latter in a combination of characters as shown in the key, and from ciliata in having brown-black halter and narrower cheek with linear subocular crescent.

Male, female. Chiefly black; 3rd antennal segment orange-yellow on basoventral half in male; palpus chiefly yellow in male, broadly infuscated distally in female; all tarsi yellowish toward base.

Frons velvet black, frontal vitta delineated by distinct but slender interfrontal and fronto-orbital plates, the frontal triangle short, apex not exceeding median ocellus; cheek of moderate width, 1/3 breadth of 3rd antennal segment and 1/12 height of an eye; 2nd subgenal seta behind vibrissa a rather strongly developed bristle, suggestive of ciliata (cf. fig. 11); face weakly concave in profile with vibrissal angle not produced, about an 80° angle, and latero-ventral corner of facial plate dull gray and flat; 3rd antennal segment small, little longer than 2nd segment; palpus clavate.

Thorax dark brownish gray microtomentose; pleuron chiefly gray, including entire propleuron and areas surrounding anterior spiracle, with large polished black spot posterodorsad to fore coxa, and including narrow anteroventral area of mesopleuron, the polished spot not bilobed (cf. fig. 24). Fore coxa not elongate. Section of costa between costal breaks with 7 coarse and well spaced setae, each much longer than diameter of costa. Length, 1.5 mm.

Holotype male, allotype, and 3 paratypes (male, 2 females), MALAYA: Pahang, Tahan River, George V National Park, Nov. 5, 1959 (H.E. McClure, light trap)[Washington]. Other paratypes: THAILAND: female, Nonthaburi, Dec. 20, 1958 (Manop)[Washington]. JAVA: 3 males, 1 female, Bogor, Apr.-May 1954 (A.H.G. Alston)[London].

This species is closest to srilankae and the combination of characters for each is shown in the key. The developed subgenal bristle and long, coarse, well-spaced setae on costa between the humeral and subcostal breaks clearly relate the species to ciliata.

The specific name is an adjective from the Latin prope, near, plus ciliata, the name of a similar species.

37. Desmometopa magnicornis, n. sp. (Fig. 21)

Entirely black, narrow cheek lacking a subocular crescent, and male with exceptionally large 3rd antennal segment.

Male, female. Entirely black to brown-black, including palpi, halteres, and tarsi.

Frons with velvet black frontal vitta, the gray interfrontal and fronto-orbital plates and frontal triangle distinct; inter-frontal plates long, 2/3 length of frons and extending posteriorly to level of apex of the approximately equilateral frontal triangle, the plates widely divergent and interval between them wider than that between one of them and adjacent fronto-orbital plate; cheek narrow, 1/3 breadth of 3rd antennal segment and 1/10 height of an eye, entirely gray without visible subocular crescent; face weakly concave, vibrissal angle about an 80° angle, not produced, and lateroventral corner of facial plate not developed; 3rd antennal segment of male exceptionally large, 2 to 3 times the length and breadth of 2nd segment and extending to lower margin of face (fig. 21); palpus small, clavate.

Thoracic pleuron densely dark gray microtomentose, including entire propleuron and areas surrounding anterior spiracle; a large polished black spot posterodorsad to fore coxa and including anteroventral area on mesopleuron (cf. fig. 24). Fore coxa convex, short. Length, 1.5 mm.

Holotype male, allotype, and 6 paratypes (1 male, 5 females), NIGERIA: Ibadan, Gambani Forest, Feb. 1965 (R.W. Williams, "reared cacao pods") [Washington]. Other paratypes: NIGERIA: female, Ibadan, Jan. 7, 1963 (D.C. Eidt, Malaise trap)[Ottawa]. IVORY COAST: female, 'Lamto', Frange, Afrayomum, Mar. 20, 1971 (D. Lachaise) [Paris].

This entirely black species is easily distinguished by the absence of a subocular crescent on the cheek, and by the exceptionally large 3rd antennal segment of the male. The reared series was obviously mounted from fluid and is paler in color than one would expect. The paratype from a Malaise trap is fully colored and is the basis of the color description. See discussion at end of *nudigena* for separation of the three species with black-brown halteres and extra large 3rd antennal segments in the male, *nudigena*, *philippinensis*, and *magnicornis*.

The specific name is an adjective referring to the large antennal segment.

38. *Desmometopa* sp. M

A single female from TAIWAN (as Formosa): Chipun, July 1912 (H. Sauter)[Eberswalde], identified in the collection as *D. tristicula*, appears to represent a new species near *sordida* but with narrow cheeks and sublinear polished subocular crescent. The interfrontal and fronto-orbital plates are fairly broad although nowhere near the pattern in *interfrontalis*. A relatively strong subgenal bristle is present, although not as strongly developed as in *ciliata* (cf. fig. 11). At least the first two tarsomeres are yellowish in all tarsi. The 3rd antennal segment is small, which is normal for females. The fore coxa is a little longer than usual, and it is possible that the male will be found to have elongate fore coxa, although not necessarily so. The polished black spot posterodorsad to the fore coxa is bilobed and includes an anteroventral area on the mesopleuron (cf. fig. 23).

39. *Desmometopa philippinensis*, n. sp.

Tiny species near *ciliata*, but with large 3rd antennal segment in both sexes.

Male, female. Chiefly black or black-brown; all tarsi yellowish except distally; knob of halter brown.

Frons with broad velvet black frontal vitta distinctly delineated by interfrontal and fronto-orbital plates and short frontal triangle, apex of latter not reaching middle of frons; cheek less than 1/2 breadth of 3rd antennal segment and 1/8 height of an eye, uniformly gray, without polished subocular crescent; 2nd subgenal seta developed bristlelike (cf. fig. 11); face only weakly concave, the vibrissal angle not produced, an 80° - 90° angle, and lateroventral corner of

facial plate flat and dull; 3rd antennal segment in both sexes larger than usual, and larger in male than in female, in male similar to but not as extreme as in fig. 21; palpus clavate.

Thoracic pleuron brownish gray microtomentose, including entire propleuron and areas surrounding anterior spiracle, with large polished black spot posterodorsad to fore coxa that includes an anteroventral area on mesopleuron, anterior margin of spot approximately straight, not bilobed (cf. 24). Fore coxa of male not elongate. Section of costa between the costal breaks with few (8-9) coarse and well-spaced setae. Length, 1.5 mm.

Holotype male, allotype, and a female paratype, PHILIPPINES: Manila (Robert Brown)[Washington].

The large antennae will distinguish this species in the *ciliata* group. See discussion at end of *nudigena*. Unlike the other species with black-brown halteres and extra large 3rd antennal segments in the male, *nudigena* and *magnicornis*, this species has a developed subgenal bristle, second behind the vibrissa, and outstanding in the subgenal row.

The specific name is an adjective referring to the Philippine Islands.

40. *Desmometopa* sp. N

Two females, and possibly a third, appear to represent a new species but it will not be named at this time. It is one of several tiny species "near" *sordida* in the sense of generally dark appearance, black palpi and black halteres. The large polished black pleural spot posterodorsad to the fore coxa includes an anteroventral area of the mesopleuron (cf. fig. 24). The 3rd antennal segment is small and the fore coxa short, but these features are usual in females and do not necessarily indicate the appearance of the males.

MALAYA: Two females, Pahang, Tahan River, George V National Park, Nov. 5, 1959 (H.E. McClure, light trap), and Perak, Pulau Panghor, Apr. 1, 1959 (R. Traub, light)[both, Washington]. One female, PHILIPPINES: Port Bauge, Jan. 1915 [Helsinki] is not in good condition but is tentatively associated here.

41. *Desmometopa aldabrae*, n. sp.

Small species with palpus almost entirely yellow in both sexes.

Male, female. Black, with predominantly yellow palpus, slightly infuscated at extreme apex; knob of halter brownish; tarsi yellow except for distal tarsomere or two.

Frons relatively broad, nearly square, the interfrontal plates, broad fronto-orbital plates, and frontal triangle gray and distinct, the sections of the M-shaped frontal vitta relatively narrow; frontal triangle moderately long, its apex nearly midway on the frons and well anterior to the posterior ends of interfrontal plates; cheek narrow, no more than 1/3 breadth of 3rd antennal segment and 1/8 the height of an eye, subocular crescent absent or indistinct; face weakly concave, vibrissal angle an 80° - 90° angle, not produced anteriorly; 3rd antennal segment small in female, moderately large in male; palpus clavate, approximately same in both sexes.

Thorax heavily gray microtomentose, propleuron and area surrounding anterior spiracle entirely so, a small polished black spot posterodorsad to fore coxa that barely or not at all encroaches on the mesopleuron (cf. fig. 25). Fore coxa and femur of male ordinary, not elongate. Costa between costal breaks with 8-9 fine and erect dorsal setae. Length, 1.25-1.5 mm.

Holotype male, ALDABRA: South Island, Flamingo Pool, Jan. 21-22, 1968 (B. Cogan, A. Hutson), and allotype, Dune Jean-Louis, Mar. 13-20, 1968 (Cogan and

Hutson, at light)[London, collected on the Aldabra Atoll Royal Society Expedition 1967-68].

This is a distinctive little species, dark but lightened by the predominantly yellow palpi in both sexes.

The specific name is a noun in the genitive case, from Aldabra.

42. *Desmometopa kandyensis*, n. sp.

Subshining velvet black frontal vitta, short and equilateral frontal triangle, and small polished black pleural spot.

Male, female. Black, heavily gray microtomentose; knob of halter yellow; tarsi somewhat yellowish basally in female.

Frons with M-shaped frontal vitta subshining velvet black viewed from any angle, the interfrontal and fronto-orbital plates and frontal triangle gray microtomentose and sharply distinct; interfrontal plates long, reaching level of uppermost fronto-orbital bristles and opposite apex of very short frontal triangle which is virtually coextensive with ocellar tubercle; cheek narrow, little over 1/3 breadth of 3rd antennal segment and 1/9 eye height, with narrow polished subocular crescent; face moderately concave in profile, vibrissal angle produced to a 45° angle and lateroventral corner of facial plate shining black and warped forward; 3rd antennal segment small in both sexes; palpus gently clavate in both sexes.

Thoracic pleuron heavily gray microtomentose, including entire propleuron and areas surrounding anterior spiracle, only a small polished black spot postero-dorsad to fore coxa, not at all encroaching on mesopleuron (cf. fig. 25). Fore coxa slightly elongate in male, but fore femur not so. Abdominal tergum 5 unusually long, longer than 3 and 4 combined; sternum 5 likewise elongate, much longer than broad and longer than sternum 4, with numerous discal setae (40-50).

Length, 1.5 mm.

Holotype male, allotype, and 2 male paratypes, SRI LANKA: Kandy District, Udawattakele, 1800 ft., Nov. 19, 1976 (G.F. Hevel, R.E. Dietz, S. Karunaratne, D.W. Balasooriya)[Washington, one paratype in Colombo].

The combination of velvet black frontal vitta and short frontal triangle will separate this species from all but *gressitti*, from which it is easily distinguished by the several characters noted in the key. Few species in the genus have the pleural spot so restricted, not encroaching on or including an anteroventral area on the mesopleuron.

The specific name is an adjective based on the name Kandy District.

43. *Desmometopa gressitti*, n. sp.
(Fig. 4)

Frontal triangle short, polished pleural spot large, and both halter knob and tarsi infuscated.

Male, female. Black, heavily gray to brown-gray microtomentose, halter knob and all tarsi infuscated.

Frons with frontal vitta subshining velvet black, with long and distinct interfrontal plates, their posterior ends at or posterior to level of uppermost orbital bristles and opposite apex of short frontal triangle, which is barely if at all in advance of median ocellus; cheek narrow, 2/3 breadth of 3rd antennal segment and less than 1/8 height of an eye, with narrow polished subocular crescent; face deeply concave in profile, the vibrissal angle produced anteriorly to a 45° angle, and lateroventral corner of facial plate shining and warped forward beyond vibrissal angle; 3rd antennal segment small in both sexes; palpus clavate, small in female, but conspicuously broad and flat in male (fig. 4).

Thoracic pleuron heavily gray microtomentose, including entire propleuron and areas surrounding anterior spiracle, with large polished black spot postero-dorsad to fore coxa that includes an elongate-oval anteroventral area on mesopleuron (cf. fig. 24). Fore coxa and fore femur slightly elongate in male, the former nearly 3 times as long as broad. Abdominal tergum 5 of male not elongate, barely longer than tergum 4; sternum 5 large, approximately square, with numerous discal setae (40-45). Length, 2-2.25 mm; occasional males as small as 1.5 mm.

Holotype male, allotype and 16 paratypes (10 males, 6 females), MARSHALL ISLANDS: Jaluit Atoll, Jabor Island, Apr. 25 (allotype), 26, 27, and May 1 (holotype), 1958 (J.L. Gressitt)[Honolulu]. Other paratypes [Honolulu except as noted]: MARSHALL ISLANDS: 21 males, 5 females, Jaluit Atoll, Majurirek Island, Apr. 26, 1958 (J.L. Gressitt; 4 labeled "*Hernandia* flowers"); 2 males, 1 female, Jaluit Atoll, Pinlep Island, Apr. 25, 1958 (Gressitt). CAROLINE ISLANDS: male, Kusaie Island, Matanluk (Yepan), 16 m, Jan. 23, 1953 (Gressitt, light trap); female, Ponape Island, s. of Nanponmal, Jan. 17, 1953 (J.F.G. Clarke); 2 females, Truk, S. Valley Mt. Tonaachau, Moen, Apr. 2, 1949 (R.W.L. Potts; one labeled "ex papaya log"; 2 males, 1 female, Ulithi Atoll, Falalop Island, Apr. 30, 1952 (J.W. Beardsley). GILBERT ISLANDS: Butaritari Atoll, Butaritari Island, Dec. 1957 (N.L.H. Krauss). SOLOMON ISLANDS: 4 males, Guadalcanal, 1944 (C.O. Berg)[Washington]. NEW HEBRIDES: 6 males, 3 females, Efate Island, Vila, 0-100 m, Feb. 1969 (N.L.H. Krauss)[Washington]; 6 males, same locality, Feb. 1970 (N.L.H. Krauss)[London].

I have also seen a number of other specimens that duplicate the above records, but their poor condition prevents their inclusion in the type series. One that does add slightly to the known distribution is a male from the New Hebrides, Espiritu Santo, Sept. 1944 (K.L. Knight)[Washington]. One male from Australia, Northern Territory, Darwin, Sept. 1908 (Lichtwardt)[Eberswalde] is possibly this species, but the halter knob is quite yellowish, possibly the result of the teneral condition of the specimen.

The nearest relative appears to be *flavipalpis*, which occurs on some of the same islands. The two species share the same combination of short frontal triangle and infuscated tarsi and knob of halter, but they differ in the color and shape of the palpus. The difference in color of the palpus, all black in *gressitti* and partly (female) to chiefly (male) yellow in *flavipalpis*, might be denigrated as possibly mere color variation, but the palpal shape is certainly more significant. In males of *gressitti*, most noticeable in average to large specimens, the palpi are very broad and flat (fig. 4), whereas in *flavipalpis* they are gently clavate, as in the female.

I dedicate this species to the memory of the collector, J. Linsley Gressitt, my friend of many years, entomologist extraordinary in the Pacific area, who perished in a plane crash in China.

44. *Desmometopa saquaro*, n. sp.
(Fig. 22)

Chiefly polished pleuron, with narrow stripe of gray microtomentum dorsally on mesopleuron behind anterior spiracle; in male, fore coxa and femur elongate, raptorial in appearance.

Male, female. Black; knob of halter yellow; basal tarsomere at least partly yellow on all legs.

Frons gray microtomentose from most angles of view, obscuring the interfrontal plates which are discontinuous, a series of shining spots about bases of interfrontal setae; frontal triangle only slightly extended anterior to median

ocellus; cheek about 2/3 breadth of 3rd antennal segment and 1/6 eye height, with polished subocular crescent of moderate width; parafacial visible in profile; face deeply concave in profile, the vibrissal angle produced to a 45° angle, lateroventral corner of facial plate shining black and warped forward even beyond vibrissal angle; 3rd antennal segment small in both sexes; palpus clavate, in male very broad and flat, as in fig. 4 but longer, and at rest projecting even beyond the antennae.

Thoracic pleuron chiefly polished, including entire propleuron and most of meso- and sternopleuron, the mesopleuron gray microtomentose dorsally and posteriorly, a narrow dorsal stripe reaching to anterior spiracle. Fore leg raptorial in appearance in male, fore coxa and fore femur greatly elongate (fig. 22), the former about 4 times as long as broad and its apex approximately opposite base of wing, fore femur 1.6 times as long as mid femur, somewhat incrassate, with anteroventral and posteroventral rows of short, even, straight spines or spinelike bristles, the postero-ventral weak; fore coxa and fore femur of ordinary size in female, neither elongated nor enlarged. Length, 1.5-2.5 mm.

Holotype male, allotype, and 13 paratypes (6 males, 7 females), ARIZONA: Pima Co., Saguaro National Monument (F.J. Santana, "ex rotting Saguaro"), collected Mar. 10-June 25, 1960, emerged in laboratory at Tucson, Mar. 18-July 8 [Washington, paratypes at Tucson]. Other paratypes: ARIZONA: female, Tucson, Aug. 8, 1937 (O. Bryant) [San Francisco]. CALIFORNIA: male, Andreas Canyon, Palm Springs, Mar. 11, 1955 (W.R.M. Mason) [Ottawa]; male, Morongo Valley, Oct. 5, 1934 (A.L. Melander) [Washington].

In addition, but not part of the type series because of teneral condition, I have seen a long series from CALIFORNIA: Los Angeles Co., San Dimas Canyon, Apr. 16, 1958, reared June 11, 1958 (R.E. Ryckman, ex *Opuntia*) [Loma Linda and Washington], and one male, ARIZONA: Maricopa Co., Wickenburg, Aug. 1950 (H.K. Gloyd, light) [Washington].

The raptorial fore legs are unlike most other *Desmometopa*. The nearest species is *melanderi*, and I am a little uncertain about their relationship. Both have been collected in San Dimas Canyon. Aside from the gray postspiracular stripe, however, there are a few tangible differences: the palpi in *saguaro* are definitely longer and broader, the fore coxa and fore femur are longer, but the spine rows on the femur are weaker than in *melanderi*, and the tarsi are yellow.

The specific name is a noun in apposition from the common name of the giant cactus from which the holotype and topotypic specimens were reared.

45. *Desmometopa tarsalis* Loew
(Figs. 18, 26)

Desmometopa tarsalis Loew, 1866, Berl. Entomol. Ztschr. (1865) 9: 184 (Cent. 6, no. 96) (Cuba) [Cambridge].

Platophrymyia nigra Williston, 1896, Trans. Entomol. Soc. London 1896: 426 (St. Vincent) [London] (Synonymy by Sabrosky 1973).

D. tarsalis; Bohart and Gressitt, 1951, Bull. Bishop Mus. 204: 99 (Guam).

Desmometopa sp.; Hardy, 1952, Proc. Hawaiian Entomol. Soc. 14: 474 (Hawaii).

D. tarsalis; Hardy and Delfinado, 1980, Insects of Hawaii 13 (Diptera Cyclorrhapha III): 357-8, figs.

Chiefly polished pleuron with gray stripe to anterior spiracle, gray frons, and normal (not elongate) fore coxa and fore femur.

Male, female. Black; knob of halter yellow; mid and hind tarsi except distal tarsomere or two, and usually basal tarsomere of fore leg, yellow.

Frons with interfrontal and fronto-orbital plates and frontal triangle distinct but most of the M-shaped frontal vitta dull, gray microtomentose viewed from most angles, only narrow, long-oval velvet black spots flanking the frontal triangle; cheek narrow, 2/5 breadth of 3rd antennal segment and 1/9 eye height, with moderately narrow polished subocular crescent (fig. 18); face deeply concave in profile, vibrissal angle produced anteriorly to a 45° angle, lateroventral corner of facial plate shining black and warped forward even beyond vibrissal angle; 3rd antennal segment small in both sexes; palpus gently clavate, not enlarged in male.

Thoracic pleuron chiefly polished, especially propleuron ventrally and mesopleuron chiefly, the latter gray microtomentose posteriorly and dorsally, the gray extending anteriorly to anterior spiracle (fig. 26); typically the sternopleuron chiefly gray with large polished spot on middle so that the pattern of gray microtomentum is that of a thick U, open posteriorly. Fore coxa and fore femur not elongate, in both sexes short and not raptorial. Length, 1.5-2 mm.

The characters given in the key will serve to distinguish the species. It keys near *saguaro*, but the two are not necessarily related: the development of raptorial front legs in that species makes it obviously distinct from *tarsalis*.

Loew described *tarsalis* from 'male and female', without recording the number of specimens. Through the kind cooperation of Norman E. Woodley, I received for study from the Museum of Comparative Zoology at Harvard University four specimens that I accept as the type series, glued on two card points, each labeled with a small silver square [meaning Cuba, collected by Gundlach], an old printed label "Loew Coll.", and a red MCZ label "Type 13443". One of the points, with two females, also has a label, "tarsalis m.", apparently in Loew's handwriting. The other point has a male and a female, and I have labeled and here designate the male as the lectotype. The holotype of *P. nigra* was studied at the British Museum (Nat. Hist.) some years ago.

This is a widely distributed, yet also widely misidentified, Neotropical species that has been transported to Hawaii, and to Wake Island and the South Pacific. Most of the South Pacific records are from the end of World War II or later, and could have been associated with the movements of American military forces to and among the islands. However, at least some introductions may have occurred earlier; Bohart and Gressitt (1951) found it to be "one of the commonest flies on Guam" in 1945.

Distribution (confirmed records, after revision):

Nearctic: Arizona, Texas.

Neotropical: Mexico (13 states from Baja California and Tamaulipas south to Yucatán), Guatemala, Belize, El Salvador, Nicaragua, Honduras, Costa Rica, Panama, Colombia, Ecuador, Venezuela, Guyana, Tobago, Grenada, St. Vincent, Barbados, St. Lucia, Dominica, Montserrat, Virgin Islands, Puerto Rico, Bahamas, Dominican Republic, Cuba, Jamaica.

Pacific: Galapagos, Hawaii, Wake Island, Marianas (Guam, Saipan, Tinian), Fiji, Solomons (Guadalcanal).

Misidentifications: *tarsalis* of European authors, at least of records from Europe, is usually *varipalpis*, of the material I have seen.

Sabrosky's (1965b) *tarsalis* in the Nearctic Catalog refers chiefly to new species described in this paper, except for Arizona and Texas records in part.

Johnson's (1913) record of *tarsalis* from Biscayne Bay, Fla. (Mrs. Slosson) actually refers to *Milichiella* sp. near *cinerea* (Coquillett).

Bezzi's (1928) record of *tarsalis* from Fiji was based on females of *singaporensis*. [I have, however, seen other material of true *tarsalis* from Fiji].

Malloch's (1914) *tarsalis* from Formosa is *singaporensis*, from the specimens in the Museum at Budapest. Another female, Takao, Formosa, April 17, 1907, not published by Malloch but apparently identified by him, is *microps*.

46. *Desmometopa nearctica*, n. sp.

Velvet black frontal vitta, chiefly polished propleuron, stripe of gray microtomentum across dorsal edge of mesopleuron to anterior spiracle.

Male, female. Black; knob of halter yellow; mid and hind tarsi with 2 to 3 proximal tarsomeres yellow, basal tarsomere on fore tarsus sometimes yellowish, at least toward base.

Frons with M-shaped frontal vitta subshining velvet black and the gray interfrontal and fronto-orbital plates and frontal triangle distinct; interfrontal plates strong and moderately long, extending posteriorly to level of foremost upper orbital bristles; frontal triangle moderately long, apex at or slightly anterior to level of posterior ends of interfrontal plates; cheek narrow, 1/2 breadth of 3rd antennal segment and 1/7 the eye height, with polished subocular crescent that is wider anteriorly and continuous with a polished, sometimes narrowly visible parafacial; face deeply concave, vibrissal angle produced anteriorly to a 45° angle, the latero-ventral corner of facial plate shining black and warped forward so as to exaggerate the vibrissal angle; 3rd antennal segment small in both sexes; palpus gently clavate, not enlarged in male.

Thoracic pleuron predominantly polished, including propleuron (except narrow dorsal strip) and much of mesopleuron, latter with gray stripe of microtomentum along posterior and dorsal margins up to anterior spiracle (cf. fig. 26); sternopleuron gray microtomentose above and below, broadly polished centrally, often with vertical gray stripe. Fore coxa and fore femur short, not elongate in male. Length, 1.5 mm.

Distribution: California to Georgia, north to Kansas and New York.

Holotype male, allotype, and 2 male paratypes, CALIFORNIA: Joshua Tree National Monument, Quail Springs, Oct. 5, 1934 (A.L. Melander)[Washington]. Other paratypes [Washington except as noted]: CALIFORNIA (all A.L. Melander except Coachella specimen): female, Riverside Co., Whitewater, near Palm Springs, Oct. 27, 1934; 3 females, Mill Creek, San Bernardino Mts., Aug. 17, 1952; female, Seven Oaks, sw. San Bernardino Co., July 28, 1953; female, Joshua Tree National Monument, May 18, 1946; male, Mountain Home Canyon, w. side San Bernardino Mts., Aug. 9, 1948; male, San Diego Co., Borrego Desert, Tubb Canyon, w. edge of Anza-Borrego State Park, Nov. 9, 1945; female, Coachella, Nov. 20, 1930 (D.G. Hall, reared from grass). ARIZONA: 3 females, Maricopa Co., Buckeye, July 15, 1960 (Ed Schulz, Steiner lure); female, Portal, June 5-9, 1972 (W.W. Wirth, Malaise trap); 2 males, 1 female, Douglas, Aug. 8, 1955 (R.R. Dreisbach)[East Lansing]. UTAH: male, Uintah Co., Bonanza, July 11, 1974 (G.E. Bohart, *Tamarix*). TEXAS: 2 males, 9 females, Big Bend National Park, various localities, May 1-22, 1959 (J.F. McAlpine, W.R.M. Mason)[Ottawa]; 3 females, Big Bend National Park, Boquillas Canyon, June 20, 1953 (W.W. Wirth). MEXICO: male, female, Nuevo León, Vallecillo, June 2-5, 1951 (P.D. Hurd)[Berkeley]. GEORGIA: 3 females, Tifton, Sept. 24, Oct., and Oct. 16, 1896. KANSAS: 2 females, Manhattan, Apr. 9, 1934 (C.W. Sabrosky) and Aug. 1945 (N.L.H. Krauss); male, Douglas Co., Oct. 4, 1937 (H.M. Smith); 2 males, Atwood, July 23, 1954 (W.L. Downes)[Lansing]. IOWA: male, female, Des Moines, May 17, 1951 (A.H. Sturtevant). NEW YORK: male, female, Cold Spring Harbor, Long Island, August. DISTRICT OF COLUMBIA: Washington, Aug. 23, 1907 (W.L. McAtee).

A few specimens from Colesville, Md. (W.W. Wirth) and Chittenango, N.Y. (D.J. Peckham)[Washington] are puzzling. The frontal vitta is slightly gray microtomentose and thus suggestive of *tarsalis*, but the localities are far removed from the known range of that species. All specimens available from the two

localities are females, so male genitalia cannot be checked. A different species may be involved, but for the present the specimens are considered here as odd variants of *nearctica*.

The specific name is an adjective referring to the Nearctic Region.

47. *Desmometopa argentinica*, n. sp.

Agreeing with *nearctica* in all particulars except proportion of width of subocular crescent to width of cheek (see key), the crescent more evenly rounded throughout, and cheek slightly wider.

Holotype male, allotype, and 5 paratypes (3 males, 2 females), ARGENTINA: Salta, Urundel, Feb. 8-12, 1949 (M. Aczél)[Tucumán]. Other paratypes: ARGENTINA [all Tucumán]: male, Jujuy, Sierra Zaple, Jan. 30, 1949 (M. Aczél); 8 males, 4 females, Santiago del Estero, Monte Potrero, Apr. 13, 1952 (A. Willink). PERU: female, Iquitos, Mar.-Apr. 1931 (R.C. Shannon)[Washington].

In addition to these I have a female from Urundel and 4 males, 10 females from Monte Potrero that are too teneral to include in the type series.

This species is extremely close to *nearctica*, and like that species it is also very similar to *tarsalis*, differing in having subshining velvet black frontal vitta. The proportion of width of subocular crescent to width of cheek is obvious in fully mature specimens. Unfortunately, in teneral specimens the collapse of the cheek affects the lower microtomentose portion and narrows it so that the subocular crescent appears over 1/2 the width of the cheek and thus agreeing with *nearctica*. Most available specimens of *argentinica* are somewhat teneral. The same tendency in *nearctica* does no harm because it merely exaggerates the characteristic proportion of crescent to cheek in that species.

The specific name is an adjective derived from the name of the country of origin of the type series.

48. *Desmometopa* sp. 0

A single female undoubtedly represents a distinct species, but in the absence of additional material and males it is left unnamed. The extensively polished pleuron and black halter will distinguish it from other species. The pleuron is microtomentose only on the posterior slope, behind the sterno- and pteropleuron. The vibrissal angle is not produced anteriorly. The lateroventral corner of the facial plate is shining black as in the subgenus *Platophrymyia*, but not warped forward. The head structure and black halter suggest *sordida*, but of course the polished pleuron is quite unlike that heavily microtomentose species. The 3rd antennal segment is small, as usual in females. The fore coxa is slightly longer than usual in females, and this may indicate an elongate fore coxa in the male of the species.

Female, MEXICO: Cuernavaca, July 1965 (N.L.H. Krauss) [Washington].

49. *Desmometopa stilbopleura*, n. sp.

Predominantly polished black pleuron, lemon-yellow knob of halter, and mid and hind tarsi with proximal 2 to 3 tarsomeres yellow.

Female. Black; knob of halter lemon yellow; mid and hind tarsi with proximal 2 to 3 tarsomeres yellow.

Frons with frontal vitta gray microtomentose anteriorly and centrally, broadly velvet black on upper 2/5, on each side of frontal triangle, and anteriorly

mesad of the fronto-orbital plates; interfrontal and fronto-orbital plates and frontal triangle strong and distinct; frontal triangle long, apex midway on frons; cheek moderately narrow, 1/2 breadth of 3rd antennal segment and about 1/7 eye height, with polished subocular crescent that broadens anteriorly and continues as narrow polished parafacial visible in profile; face deeply concave, the vibrissal angle strongly produced to a 45° angle, accentuated by shining black lateroventral corner of facial plate which is warped forward beyond vibrissal angle; 3rd antennal segment small; palpus clavate, large, nearly as broad as 3rd antennal segment.

Thoracic pleuron predominantly polished anterior to pleural suture, including propleuron and all but narrow margins on mesopleuron and sternopleuron. Fore coxa slightly longer than usual for females, and this may indicate an elongate fore coxa in the male of the species. Length, 2.5-3 (holotype) mm.

Holotype and 2 paratypes, all females, BRAZIL: São Paulo, Nova Teutonia, 300-500 m (F. Plaumann), one paratype Sept. 1965, the others Nov. 1962 [Ottawa, paratype in Washington].

This is such a distinctive species that I have named it even in the absence of males. The microtomentum on the frons is more limited than usual, but it is so consistent in these specimens that I judge it to be characteristic of the species. Typically, in species with dull frons, the gray microtomentum is heavier and more extensive than in this species, completely covering the frons except for a usually elongate-oval velvet black area along each side of the ocellar tubercle. The breadth of the palpus suggests that in the male the palpus will be broadly expanded and flattened (as in fig. 4).

The specific name is a noun in apposition compounded from the Greek *stilbo*, shine, plus *pleura*, side.

50. *Desmometopa melanderi*, n. sp.

Pleuron polished anterior to pleural suture; frons chiefly dull; fore coxa and fore femur of male elongate, raptorial, at least in large specimens.

Male, female. Black; knob of halter yellow; mid and hind tarsi sometimes partly yellow from certain angles, but usually at least infuscated dorsally.

Frons chiefly gray microtomentose except for velvet black areas flanking ocellar tubercle; interfrontal and fronto-orbital plates and frontal triangle subshining and distinct; frontal triangle long, apex nearly midway on frons; cheek narrow, 1/2 or barely over 1/2 breadth of 3rd antennal segment and 1/7 eye height, with relatively broad polished subocular crescent 1/2 as broad as cheek, anteriorly becoming a polished parafacial narrowly visible in profile; face deeply concave in profile, vibrissal angle well produced anteriorly to a 45° angle, the lateroventral corner of facial plate shining black and warped forward even beyond the vibrissal angle, accentuating the angle; 3rd antennal segment small in both sexes; palpus clavate, broad and flat in male (especially striking in large males), but not as broad distally as in fig. 4.

Thoracic pleuron anterior to pleural suture entirely polished or virtually so, including entire propleuron and area surrounding anterior spiracle, gray microtomentose posterior to pleural suture, including entire pteropleuron. Male with fore leg raptorial in appearance, fore coxa and fore femur elongate (similar to fig. 22), especially evident in large specimens, the coxa over 3 times as long as broad, and femur incrassate and 1.3 times as long as other femora, with a row of short, thick, even spines, and a postero-ventral row of similar but weaker spines; fore coxa with numerous short but strong spines; in female fore coxa and fore femur only slightly if at all elongate, without spines or spinelike bristles. Length, 2-3 mm (large males).

Distribution: California, Arizona, Utah, Texas, Mexico.

Holotype male, allotype, and 23 paratypes (19 males, 4 females), CALIFORNIA: San Bernardino Co., Verdernont, San Gabriel Mts., various dates, including May 1, 1946 (holotype) and June 28, 1945 (allotype)(A.L. Melander)[Washington].

Other paratypes [Washington except as noted]: CALIFORNIA [collector A.L. Melander, except as noted]: 3 males, s. San Bernardino Co., Morongo Valley, Oct. 5, 1954; female, Palm Springs, May 6, 1946; 2 males, 1 female, sw. San Bernardino Co., Upper Santa Ana River, June 18(male) and Sept. 2, 1950; male, Ortega Highway, Mariana River, May 15, 1946; male, San Bernardino Mts., Mill Creek, Aug. 17, 1952; male, San Diego Co., Yaqui Well, w. edge of Anza-Borrego State Park, May 10, 1951; 8 males, 7 females, Los Angeles Co., San Dimas Canyon, Nov. 24, 1957, reared Dec. 16, 1957 - Jan. 3, 1958 (C.P. Christianson, J.P. Fonseca; ex *Opuntia*), and 1 female, same locality, Feb. 2, 1958, reared Mar. 11 (R.E. Ryckman) [Loma Linda]; 4 males, 3 females, Whittier, 1910, 1911 (P.H. Timberlake). ARIZONA: 2 males, Superior, May 18, 1950 (A.L. Melander, "*Datura* flower"); male, Globe, Oct. 13, 1948 (F.H. Parker); female, Yarnell Heights, May 31, 1935 (P.W. Oman); male, female, Baboquivari Mts., Apr. 25, 1947 (A.L. Melander); male, Yavapai Co., Cherry, Sept. 1968 (Judson May); male, Bowie, Dos Cabezas Mts., Oct. 8, 1916 (E.G. Holt); female, Tucson, Nov. 15, 1936 (O. Bryant)[San Francisco]; female, Portal, Sept. 13, 1960 (H.F. Howden)[Ottawa]; female, Congress, Yavapai County, Apr. 23-26, 1967 (D.M. Wood)[Ottawa]; male, Lower Bear Canyon, Tucson, Apr. 13-15, 1967 (D.M. Wood)[Ottawa]. UTAH: male, Washington Co., Leeds Canyon, 1 mi. nw. Leeds, July 19, 1970 (G.F. Knowlton et al.)(Logan). TEXAS: 17 males, 14 females, Austin, Nov. 9-23, 1958 (Lynn Throckmorton)[Austin]; male, Austin, July 29, 1950; male, Austin, Oct. 27, 1901 (A.L. Melander); 4 males, 2 females, Big Bend National Park, various localities, May 11-26, 1959 (J.F. McAlpine, W.R.M. Mason)[Ottawa]; 2 females, 10 mi. s. Charlotte, Sept. 13, 1955 (W.L. Downes)[Lansing]; male, female, Brewster Co., 25 mi. s. Marathon, Aug. 31, 1977 (Larry Bezark, "collected on *Baccharis glutinosa*"). MEXICO: 2 males, Ciudad Victoria, Sept. 1965 (N.L.H. Krauss); 4 males, Morelos, Cuernavaca; March (2) and May 1945, and Apr. 1959 (Krauss); male, Morelos, Hacienda Cocoyotla nr. Cuatlan del Rio, July 31, 1944 (Krauss); female, Michoacán, Morelia, June 1965 (Krauss); male, Durango, Nombre de Dios, Aug. 6, 1951 (P.D. Hurd, "*Asclepias*") [Berkeley]; 3 males, Durango, 11 mi. w. Durango, June 20, 1964 (J.F. McAlpine)[Ottawa]; male, Hidalgo, Ixmiquilpán, 1700 ft., July 29, 1954 (J.G. Chillcott)[Ottawa]; 8 males, 1 female, Hidalgo, Pachuca, 1700 ft., July 29, 1954 (J.G. Chillcott)[Ottawa]; México, Atlacomulco, 8500 ft., Aug. 18, 1954 (J.G. Chillcott), and male, Teotihuacán, 6900 ft., Aug. 12, 1954 (Chillcott)[Ottawa]; 7 males, 2 females, Nayarit, Ahuacatlán, July 18-22, 1951 (P.D. Hurd, 4 males, 1 female "on fls. of *Donnellsmithia Hintonii* M & C") [Berkeley]; male, Nayarit, 15 km n. of Chapalilla, July 19, 1951 (P.D. Hurd)[Berkeley]; 16 males, 1 female, San Luis Potosí, 10 mi. ne. San Luis Potosí, Aug. 22, 1954 (R.R. Dreisbach) [East Lansing], and 3 males, 1 female, same locality and date, (J.G. Chillcott)[Ottawa]; 2 males, 1 female, San Luis Potosí, 5 mi. e. Ciudad del Maiz, Aug. 23, 1954 (Dreisbach) [East Lansing].

The raptorial fore legs of the male immediately suggest *saguaro*, but that species has the dorsal stripe on the mesopleuron extending up to the anterior spiracle, as in *tarsalis*, and other differences are noted under *saguaro*. It may be noteworthy that both *saguaro* and *melanderi* were collected in San Dimas Canyon, but the former in the spring and the latter in midwinter. The possible consistency or significance of this apparent seasonal difference is not known.

The specific name is a noun in the genitive case, named in honor of my old friend, the late A.L. Melander, ardent collector whose material will enrich entomological studies for years to come.

51. Desmometopa aczeli, n. sp.

Predominantly polished pleuron; knob of halter yellow; all tarsi infuscated; fore leg of male not raptorial.

Male, female. Black; halter knob yellow.

Frons heavily gray microtomentose except for velvet black spot on each side of ocellar tubercle; interfrontal and fronto-orbital plates and frontal triangle distinct because slightly shining; interfrontal plates narrow and short, posterior ends at level of foremost upper orbital bristles; frontal triangle large, apex at middle of frons and opposite posterior ends of the short interfrontal plates; cheek moderately narrow, 1/2 breadth of 3rd antennal segment and 1/6 eye height, with narrow polished subocular crescent that continues as a shining parafacial visible in profile; face weakly concave in profile, vibrissal angle not produced, about 80°, lateroventral corner of facial plate shining black but not strongly warped forward; 3rd antennal segment small in both sexes; palpus gently clavate, not enlarged in male.

Thoracic pleuron virtually entirely polished black anterior to pleural suture, the pteropleuron and posterior slope dull, microtomentose. Fore coxa and fore femur not elongate, without spines, fore femur slightly incrassate but little longer than other femora. Length, 1.75-2 mm.

Holotype male and paratype male, ARGENTINA: Mendoza, Vista Flores, Jan. 31, 1950 (M.L. Aczél); paratype male, Mendoza, Cacheuto, Feb. 5, 1953 (M.L. Aczél)[Tucumán, paratype in Washington].

Even though the various characters lead this species to the final couplet with melanderi, the two are not closely related. That species is large, with raptorial fore legs, strongly produced vibrissal angle, and deeply concave face. In its fundamental characters, aczeli is closer to stilbopleura, for which the chiefly yellow mid and hind tarsi and the slightly microtomentose frons are distinctive.

The specific name is a noun in the genitive case, named in memory of Martin Aczél, enthusiastic entomologist whose untimely death cut short a fruitful career in Argentine entomology and the taxonomy of Diptera.

SPECIES OF "Desmometopa" NOW REFERRED ELSEWHERE

- Agromyza albipennis Meigen 1830: Agromyza (Agromyzidae) (See separate discussion after this list)
- A. annulimana von Roser 1840: synonym of Leptommetopa latipes (Meigen)
- A. annulitarsis von Roser 1840: ditto
- Madiza annulitarsis Zetterstedt 1848: ditto
- Desmometopa anuda Curran 1936: Neophyllomyza
- D. approximatonervis Lamb 1914: Neophyllomyza
- D. fascifrons Becker 1907: synonym of Leptommetopa niveipennis (Strobl)
- Opomyza flavipes Meigen 1830: synonym of Phyllomyza securicornis Fallén
- Madiza griseola Wulp 1871: synonym of Tethina illota Haliday (Tethinidae)
- Desmometopa halteralis Coquillett 1900: Leptommetopa
- Agromyza latipes Meigen 1830: Leptommetopa
- Desmometopa luteola Coquillett 1902: synonym of Stomosis innominata (Williston)
- Agromyza minutissima Wulp 1897: preoccupied name, renamed Desmometopa wulpi Hendel, now in Neophyllomyza

Siphonella niveipennis Strobl 1898: Leptommetopa
Desmometopa simplicipes Becker 1907: synonym of Leptommetopa niveipennis (Strobl)

Desmometopa wulpi Hendel 1907: new name for Agromyza minutissima Wulp, preoccupied: Neophyllomyza.

Agromyza albipennis Meigen

Agromyza albipennis Meigen, 1830, Syst. Besch. 6: 171 (Europe).

A. albipennis; Becker, 1902, Ztschr. Hymenop. Dipt. 2: 339 [Two specimens in Winthem Collection in Vienna and one in Paris found to belong to Agromyza].

A. albipennis; Hendel, 1931, Agromyzidae, in Lindner, Fliegen Palaeark. Region, Fam. 59: 98.

Desmometopa albipennis (Meigen) Ségué, 1934, Faune de France 28: 641

[Synonyms listed as D. tarsalis Loew of Becker 1907 and D. singaporensis Kertész].

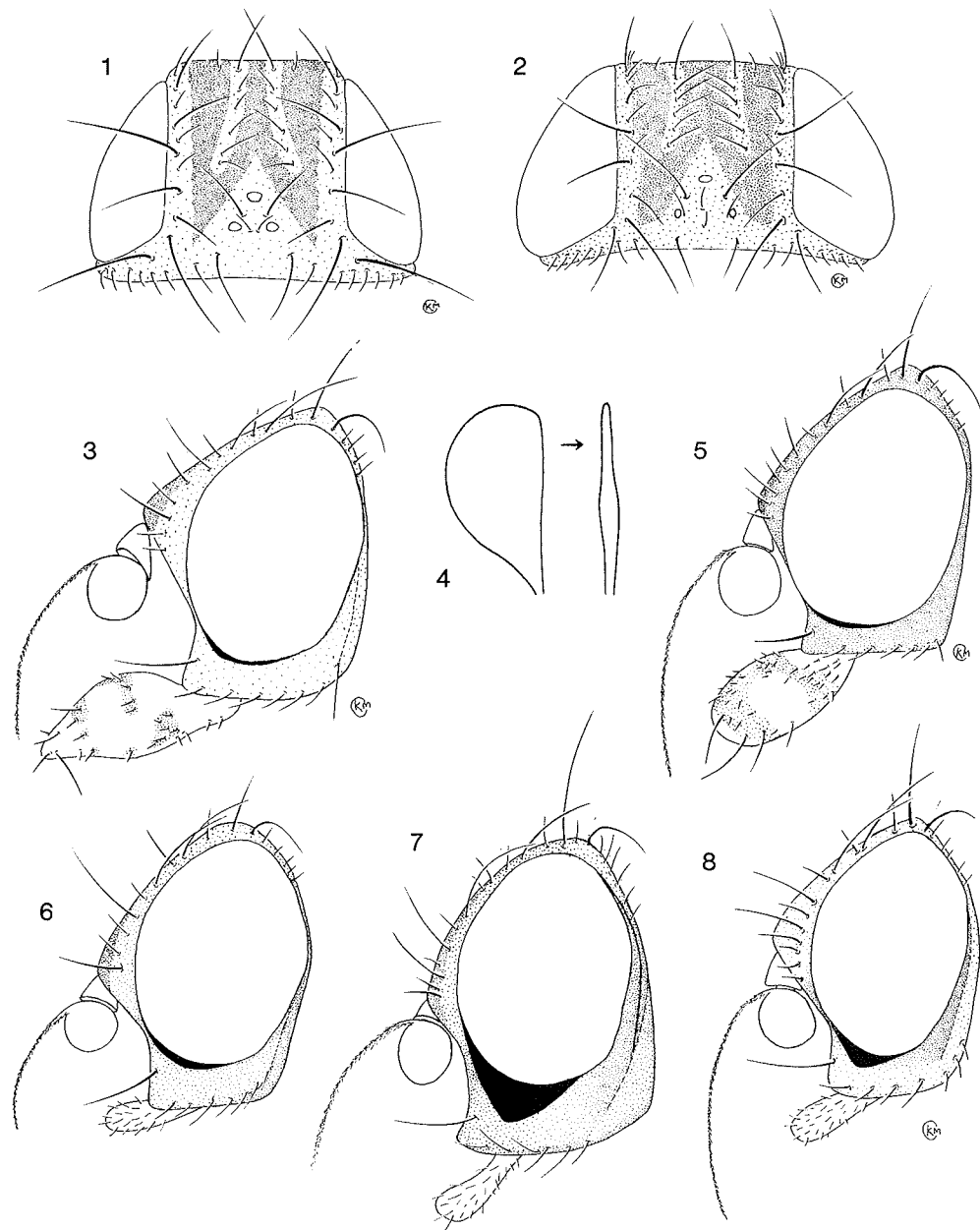
A. albipennis Meigen, 1976, Abbildung der europaischen zweiflügeligen Insecten, nach der Natur, Pars III. Beitr. Ent. 26: pl. ccxvi, fig. 7.

The species has long been treated as a valid species in the family Agromyzidae. However, Ségué (1934) referred it to Desmometopa "sec typ.", with tarsalis Loew (sensu Becker) and singaporensis Kertész as synonyms. The species was said by Meigen to be in the Winthem collection, and that collection contains two examples under the name albipennis, both Agromyza as noted by Becker (1902) in his review of the Meigen types. Meigen's original description does not apply to either of the species present in the syntype series of D. singaporensis (q.v.) in such features as shining black-green body, white halteres, whitish wings, and rather large black antennae, which are indeed features of Agromyza albipennis. Further, the wing figured by Meigen himself (1976) is that of Agromyza, not Desmometopa. I believe, therefore, that the Winthem specimens must be regarded as the original syntypes, hence in Agromyza, and that the Paris specimen was a later and erroneous addition, and misidentified. Incidentally, it is actually D. m-nigrum (Zett.) and not D. singaporensis!

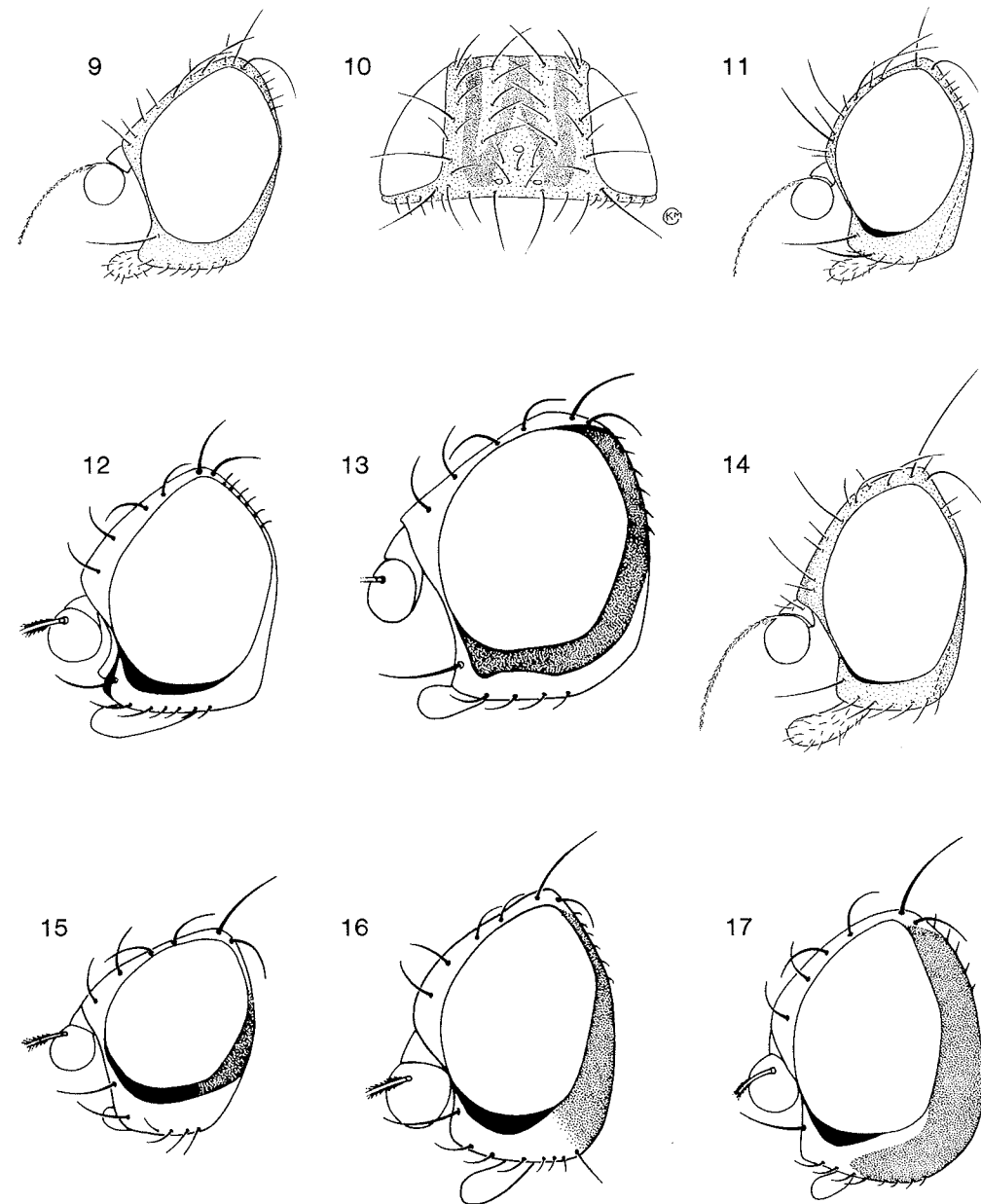
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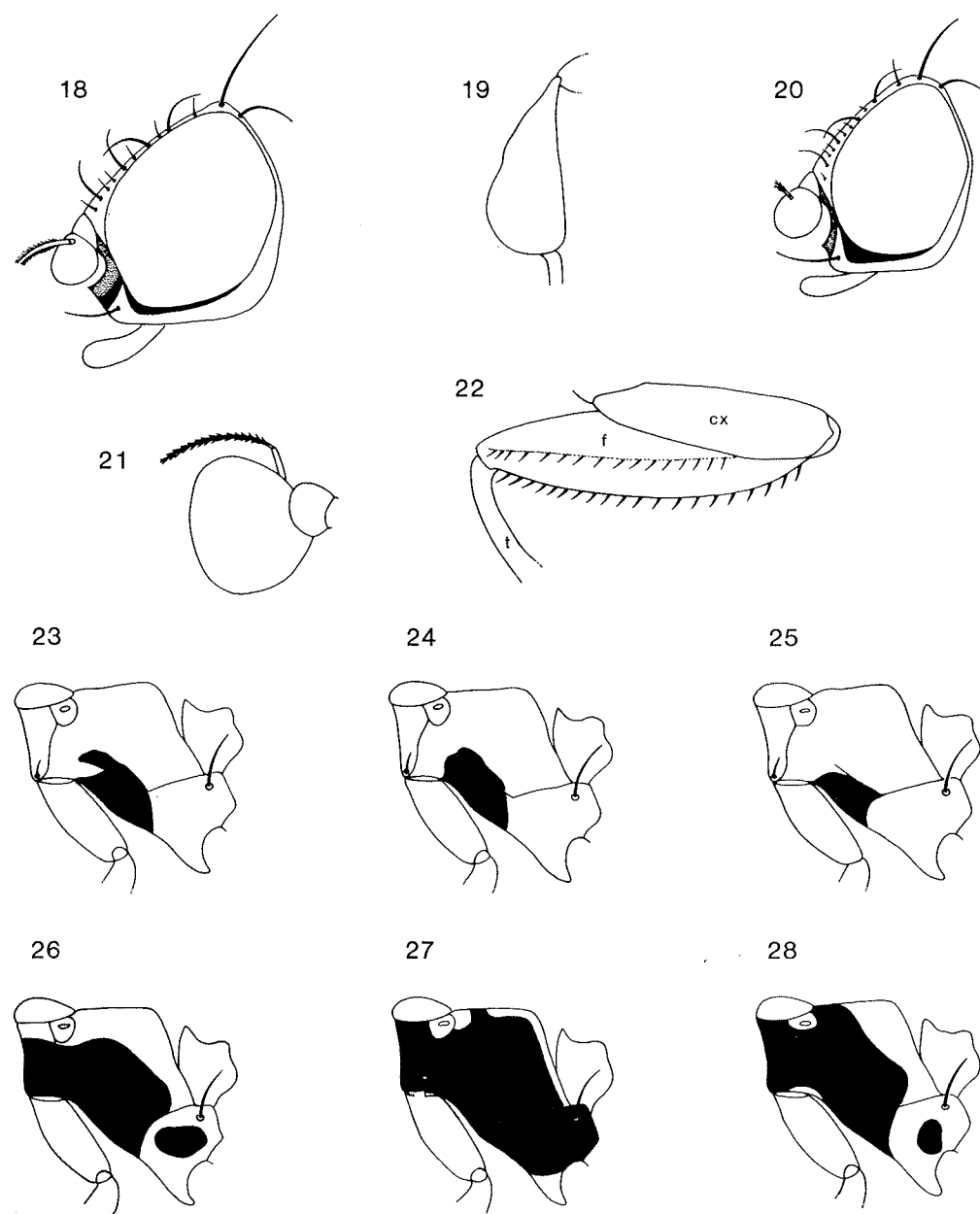
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Desmometopa: Dorsal aspect of head, (1) *varipalpis*, (2) *singaporensis*; (4) palpus of *gressitti*; lateral aspect of head, (3) *varipalpis* male, (5) *singaporensis* male, (6) *varipalpis* female, (7) *m-nigrum* female, (8) *sordida*.



Desmometopa: Dorsal aspect of head, (10) *interfrontalis*; lateral aspect of head, (9) *interfrontalis*, (11) *ciliata*, (12) *atypica*, (13) *postorbitalis* male, (14) *inaurata*, (15) *pleuralis*, (16) *microps* female, (17) *microps* male.



Desmometopa: Lateral aspect of head, (18) tarsalis, (20) lucidifrons; (19) hind tibia, leptomtopoides male; (21) antenna, magnicornis male; (22) fore leg, saguaro; left thoracic pleuron, semi-diagrammatic, (23) m-nigrum, (24) ciliata, (25) varipalpis, (26) tarsalis, (27) glaucanota, (28) latigena.

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