

XXVIII.—*Additional Species of Microdon in the British Museum (Natural History)*. By FRANK M. HULL, University Mississippi.

A NUMBER of species of *Microdon* were described in 1943 from a miscellaneous collection of Syrphids submitted by the British Museum (Natural History) in 1936. This paper appeared in the *Annals & Magazine of Natural History* (s. 11. vol. x. p. 702), and studies of other genera from this collection have appeared from time to time. This paper describes the remainder of the new forms in the genus *Microdon*. The types will be deposited in the British Museum (Natural History).

Chrysidimyia lazuli, sp. n.

Related to *chrysidiformis* Hull, the abdomen is broader and wider; but the punctures more deep and coarse.

Female.—Length 8 mm. excluding antennæ; antennæ 2.3 mm.; wing 8 mm.

Head: hemispherical, barely wider than the thorax; the very tumid, rather sharp-edged and shelving upper occiput together with the vertex, the front and face are all brilliant shining, metallic greenish blue with deep heavy punctures. The pile of the vertex is black, quite sparse and erect, that of the front obscure owing to considerable mold. The eyes are thickly and moderately long white pilose over their whole surface. The face is rather narrowed on the lower portion as viewed from the front; the upper front below the ocelli is about the same width as the lower part of the face. The face is quite convex, as much so upon the upper half as upon the lower half, its pile appressed and tolerably sparse and pale shining yellow. There appears to be a very narrow, obscure, non-punctate, bare mid-line of the same colour as the face. The antennæ are elongate, the third segment as long as the first two segments and nearly three times as thick as the first; the first segment, except for the narrow apex, is blackish above and light reddish brown below; the remaining two joints are greyish black; the arista is much shorter than third joint, the latter ends somewhat truncate. *Thorax*: broad and short and actually broader than long; it is wholly deep, brilliant blue, shining, with sparse deep punctures; the pile is sparse and black and strongly appressed. The scutellum is thick, of the same colour as the thorax, similarly punctate with a

pair of well-developed, greenish spines set almost as far apart as the length of the scutellum. The area between the spines has the merest suggestion of a concavity. The surface pile of the scutellum is pale as well as the scant marginal pile. There are a few pale hairs on the extreme posterior part of the mesonotum. The pleuræ are brilliant, shining blue; the squamæ are yellowish white with yellowish fringes; halteres brownish yellow. *Abdomen*: thick and compact, widest basally; the second segment is wider than the thorax and wholly brilliant bluish green, covered everywhere with very large deep punctures in which is set the pale, semi-appressed, shining, setaceous pile. There is a small patch of dark hairs in the middle of the second segment posteriorly. The sides of the fused third and fourth segment and to a lesser extent of the second are turned down. The posterior corners of the second segment lack the sharp angles often present in some species of *Microdon*. The first segment is flattened, obtusely triangular, fused with the second segment, and has shallow, transverse ridges or grooves in addition to its punctures; the line of junction with the second segment forms a wide, depressed, V-shaped figure. The posterior corners of the second segment strongly overlap the anterior corners of the third, at which point the abdomen is turned downward. At the base of the second segment ventrally, there is on each side, a short blunt spur. *Legs*: the femora and tibiæ are bright shining green, the latter apparently reddish brown in ground-colour, but largely obscured. The tarsi are brownish, the terminal joints a little lighter and, together with the tibiæ, obscured by the thick, flat, pale, shining pile. The pile of the legs is everywhere pale. *Wings*: tinged with brown; a strong stigmal cross-vein is present; the second longitudinal vein ends at right angles after an almost rectangular bend. The straight first longitudinal vein ends acutely. The sub-apical cross-vein practically straight, ending at right angles to the last section of the third vein. The posterior corner of the first posterior cell has no spur, is almost square, but is slightly rounded to an outward curve of the last section of the fourth longitudinal vein. Vena spuria well developed.

Holotype: a female. [Amazons] Villa Nova (*H. W. Bates*), 55: 37.

Microdon aureomagnifica, sp. n.

A blackish-brown species with thick golden scalose pile up on the occiput; similar pilose fascia upon the thorax and

abdomen ; second abdominal segment light red. Related to *rugosus* Bezzi.

Male.—Length 11 mm. excluding antennæ, antennæ nearly 3 mm. ; wings 7 mm.

Head : a little wider than the thorax and hemispherical except for the ventral bulging of the face. The ground-colour is visible only in the middle of the very wide vertex in the equilateral triangle about the ocelli ; there is a similar transverse striate area above the antennæ which is confluent with the ocellar area ; the area narrowly all around the antennæ and in a narrow median, bare vittæ on the lower two-thirds of the face, all of which areas are dark, shining, chestnut-brown. The broad, upper part of the vertex above the ocelli is quite rugose and short, appressed, black pilose. This area is somewhat swollen above the top of eyes. It is margined with appressed, brilliant, golden, scalose pile, which is everywhere directed inward. The occiput is wholly golden scalose pilose. The front is broad, the eyes being angulated. The front across from the nearest approach to the eyes is divided by a groove and above it is golden pile, directed outward and then upward, beginning at the mid-line ; below the groove the pile is directed outward and downward from the mid-line. The side of the face, continuous with that of the front, is densely brilliant, golden, scalose pilose. The face in profile is evenly rounded, but retreats more rapidly on the lower third. The antennæ are elongate, the first and the second segments almost as long as the third segment. All three segments are light brownish red. The second segment is about one-fifth as long as the first. The arista is rather short and thickish, and light coloured. The bare eyes have a waxy surface. *Thorax* : densely appressed, black setate, the setæ proceeding from micro-tubercles. On either side of the mid-line, widely separated, there is an obscure vittæ composed of just a few isolated golden scales ; these scales appear to flow into two, short transverse patches of similar scales that lie on either side of the mid-line just before the scutellum. The lateral margin of the mesonotum before and behind, including the posterior calli, the broad anterior margin of the mesonotum, the humeri, the propleura and the mesopleura continuously, the sternopleura and upper pteropleura, are all densely, golden, scalose pilose. The scutellum has large black setæ with broad patches of gold pile which are diagonally directed from the corners over the margin to meet in the

mid-line. Squamæ white ; halteres orange. *Abdomen* : longer than the thorax and broadest at the end of the second segment, which is considerably wider than the first ; it tapers from the second segment, gradually down to the end of the fourth, which ends in the very wide, pale, brownish-orange hypopygium. The first segment is chiefly black ; the second segment is wholly light brownish red ; the pile on the posterior margin is scalose and silvery, on the basal half it is more blackish microsetate and appressed. The third segment is dark brown, almost black and quite black upon the sides ; beginning at the anterior corners there is a broad, diagonal band of thick, appressed, pale, brassy, scalose pile, which, however, does not quite reach the posterior corners and fails by much to cover the basal corners of the segment ; very little of this band is visible from above because of the segment being strongly curved downward. However, the third segment has a spot of similar pale pile which is visible from above and is widely separated on either side upon the posterior third of the segment ; it extends broadly on to the posterior margin and it is continuous with a diagonal, large, triangle of pile on the basal corners of the fourth segment which reaches to the apex of the fourth segment and which triangle almost fills out the anterior corners of the fourth segment. Finally, there is upon the top of the subcylindrical fourth segment, beginning not far from the anterior margin, an elongate, widely separated, wide but linear stripe of the pale brassy pile, which reaches broadly on the posterior margin of the segment and becoming wider as it proceeds posteriorly and almost unites with the more lateral, diagonal stripe. This middle pair of stripes is composed of pile which is directed, like currents, towards the mid-line, and meeting in the mid-line it turns directly posteriorly. The fourth segment is like the third, chiefly black, a little reddish on the terminal portion and where not covered with pale pile it is black setate. *Legs* : wholly light brownish orange, the coxæ a little darker, the tibiæ, tarsi and at least the hind femora with ground-colour obscured in certain lights by dense, silvery, scalose pile. *Wings* : strongly suffused with brown which is evenly distributed ; there is a heavy stigmal cross-vein. The stigmal cell is not darker than the remainder of the wing. The subapical cross-vein is recurrent ; the posterior, outer angle of the cell is more or less rounded and without trace of spur.

Holotype : a male. Belgian Congo, Elizabethville, Nov. 1925 (*Ch. Seydel*), British Museum, 1927 : 253.

Microdon aurifascia, sp. n.

Belongs to the *bidens* group. The thorax and abdomen are chiefly blackish. All but a little of the second segment and the whole of the hypopygium light ochraceous. Wings grey, the anterior border orange.

Male.—Length 13 mm. ; antennæ 3.5 ; wing 9.3 mm.

Head : hemispherical, the eyes moderately separated with a shallow, non-grooved depression across the front at their nearest approach ; the vertex is dully shining black, the ocelli set upon a slightly raised area ; the pile, in a transverse fascia across the ocelli from eye to eye, is erect and black. The pile behind the ocelli and on the occiput is pale silky yellow ; there is similarly coloured pile across the depression of the front which is divided along the bottom of the depression, the lower half directed downward, the upper half directed upward, but the pile across the front before the antennæ is black. The front has the ground-colour similar to that of the vertex, brownish, bare, and transversely striate just above the antennæ, the face is shining and polished ; the cheeks and the extreme upper part of the face and a conspicuous, perfectly straight, vertical, median stripe are shining, chestnut-brown. The remainder of the face, diagonally delimited along a line from the anterior edge of the epistoma to the middle of the face along the eye-margins, is broadly light brownish-yellow. This area is covered with thick, scaly, appressed, deep golden pile. The antennæ are elongate and black, the first segment is somewhat reddish brown along the inner margin basally. The first segment is not quite as long as the third, the second segment a fourth as long as first. *Thorax* : dull, opaque black, thickly short, flat, pale yellow microsetate when viewed in the proper angle. There is a very thin, transverse, sutural stripe and an erect, anterior, marginal, band of pile and a similar, broader band of yellowish pile on the posterior margin of the mesonotum. Scutellum obscurely shining blackish, the rim brownish with two, slender, sharp spines set moderately distant. The pile of the scutellum is flat and pale, shining yellow but not conspicuous. Squamæ yellowish white. Halteres brown. *Abdomen* : quite elongate with practically parallel sides as far as the middle of the fourth

segment and only slightly narrower beyond. The third and fourth segments are fused into a long, rounded club, which is thrust sharply downward at the end of the second segment. The first segment is wholly shining black with sparse, yellowish pile on the basal half, that is flat appressed. Viewed posteriorly the posterior margin of the first segment is fluted. The second segment is one and four-fifths wider than long and is a light brownish yellow over most of its area, with a diffused, inverted T of considerable size in the middle, the top of the T resting upon the apex of the segment, the figure reaching the anterior margin in the middle. The whole of the remainder of the abdomen is brownish black, becoming a little more reddish brown in the middle just before the extreme apex; the rounded hypopygium is reddish brown. The pile of the abdomen is everywhere flat appressed, thick, microsetate and shining brassy or golden in appearance. *Legs*: the femora are chiefly black, the apical half of the first and the narrow apices of the others light reddish chestnut. The anterior and middle tibiae on the outer halves are dark brown with median, yellowish brown, semiannulate stripes, their ventral surfaces reddish. The hind tibiae are more or less reddish brown, and darker apically. The tarsi are dark brown, obscured by pale-coloured pile and pollen. The pile of the legs appears to be wholly pale and quite appressed. The hind femora are only moderately thickened, the greatest thickening a little before the middle. *Wings*: tinged with brown, nowhere dark. The anterior basal half, limited by the anterior cross-vein and by the end of the second basal cell but continued apically along the stigmal cell, and along the costa almost to the fusion of the second longitudinal vein, is all light yellow. There is a strong stigmal cross-vein present; the subapical cross-vein is straight, slightly recurrent, the posterior angles of the first and second posterior cells broadly rounded and without trace of spur. Subapical cross-vein ends rectangularly to the last section of the third vein.

Holotype: a male. Alto da Serra, Sao Paulo, Brazil (G. E. Bryant), March 12, 1912, British Museum, 1913: 70.

Microdon tabanoides, sp. n.

Moderate in size, chocolate-brown in colour. The scutellum unspined, the abdomen somewhat inflated. Related to *macquariensis* Ferguson, but with yellow facial pile, and without the medial blackish stripe upon the abdomen.

Female.—Length 13 mm.; third antennal joint missing; wing 10 mm.

Head: hemispherical and but little wider than the thorax; the front and vertex are of normal width and not at all conspicuous, the latter is barely raised above the eye-margin; front, vertex and face everywhere shining chestnut-brown; the more or less erect pile is fairly long, thick, black on the vertex and the front, except for a narrow row of golden hairs along the side-margins of the front; the upper part of the front is separated from the vertex and ocelli by a transverse, shallow, arcuate depression, the convex side turned down. Just before the antennæ there is a bare, triangular area lighter brown in colour. The pile of the extreme occiput behind the ocelli and all of that of face and cheeks is brassy yellow. The first and second segments of the antennæ are short, the second segment about half as long as the first. *Thorax*: dark shining brown, with slight bronze cast; the pile is rather long, more or less erect, thickish, and of mixed black and yellowish hairs, the yellow pile is brightly shining and forms an unmixed transverse band along the dorsal suture and there is similar pile on the mesopleura and sternopleura. The scutellum is light brown, its margin even, without spines. *Abdomen*: elongate, but quite evenly convex, and everywhere light chestnut-brown; it is more or less shining. The base of the abdomen is barely wider than the end of the third segment. The fourth segment is rapidly tapering so that the segment is almost equilateral and triangular, but its anterior margin is rounded anteriorly. The second segment is short, about half as long as the third segment, but has a conspicuous depression in the middle. The second and third segments are subequal. Pile of abdomen chiefly short, sharp, black and appressed, the posterior corners of each of these segments, and the posterior margin on each side almost to the mid-line, are appressed, shining brassy or yellowish pilose. *Legs*: entirely brown, the basal half of all of the femora are dark brown, the remainder of the legs uniformly pale reddish brown or brownish orange. *Wings*: uniformly tinged with light brown, the veins light brownish yellow. There is a stigmal cross-vein present; the stigmal cell is no darker than the remainder of the wing.

Holotype: a female. Victoria, Australia, Feb. 5, 1900 (A. White), British Museum, 1917: 104.

Microdon petiolata, sp. n.

Characterized by the slender subpetiolate abdomen and infuscated wing-veins and reddish brown coloration. Related in general to *variegata* Macquart.

Female.—Length 10 mm. without antennæ ; wings 6.5 mm.

Head : the eyes are widely separated, the face no wider and no narrower than the width of the front at the vertex. The vertex is somewhat swollen, shining black in colour and very much tumid beyond the posterior corners of the eyes. The front has a shining black, raised, median, rounded ridge connecting with the vertical area about the ocelli. On either side of this ridge, obscuring the black ground-colour of the front, are large patches of radiating, fan-shaped areas of flat, scale-like, reddish-golden pile, directed backwards and towards the sides of the eyes. The face is nearly straight in profile, slightly retreating just above the epistoma and shining black in colour, with copious, flat, bright brassy pile. The pile of the vertex behind the ocelli is golden ; there is a transverse band of black pile in front of the ocelli. The antennæ have the first two segments dark brown ; the third segment is cylindrical, light red, and nearly twice as long as the first two segments ; the tip is rounded. The arista is short, not reaching the end of the third joint and much thickened. The pile of the first two segments is black ; the antennæ are not as long as the face to epistoma. *Thorax* : dully shining blackish with golden, appressed hair in patches along either side of the scutellum and a transverse band of pile along the transverse suture of the mesonotum, which is directed backwards ; all of this pile is more or less confluent with the general, shorter, brassy pile of the thorax. The pleura have longer brassy pile, the scutellum dark brown with golden pile. *Abdomen* : quite slender, the last segments beyond the second developed into a club which is, however, slender and at its widest, which is in the middle, only about twice as wide as the second segment. The second segment is subcylindrical ; the first segment is very little wider than the second. The whole of the abdomen is rather light reddish brown, shining, the pile largely black and setaceous except for transverse, post-marginal bands on the third and fourth segments of pale, shining hair, which does not reach the middle of the segment, and some similar hair along the sides and the posterior corners of the second segment. *Legs* : almost wholly light reddish

brown, except that the cicatrices on the hind tibiæ, all of the femora, and tiny spot in the middle of the anterior tibiæ, are black or dark brown. *Wings* : rounded at the tip, greyish, most of the veins broadly and obscurely suffused with brown. The subapical and the post-apical cross-veins, each slightly recurrent, are slightly sinuous ; these cross-veins, together with the last section of the third longitudinal vein, the area about the spur from the third longitudinal vein, the extreme end of second longitudinal vein, the area about the small cross-vein, the end of fifth longitudinal vein, the middle cross-vein, the furcation of the second and third longitudinal veins, and the subcostal cell beyond the stigma, are all margined with brown. There is a strong stigmal cross-vein. The posterior corners of the submarginal and the first posterior cells are angular and form an angle less than a right angle ; they have strong spur-veins.

Holotype : a female. Tasmania, Mangalore, 22. xi. 1914 (*A. White*), British Museum, 1917 : 104.

Microdon pictulipennis, sp. n.

Related to *pictipennis* Macquart. Scutellar spines very small ; wing-pattern extensive and solidly brown over much of the apex.

Male.—Length 9 mm. including antennæ ; wings 7 mm.

Head : hemispherical, the eyes more closely approximated than usual ; at the closest distance they are separated by a groove at the bottom of a depression. The vertex is feebly shining black and white pilose, small in area and depressed. The face is unusually convex viewed from above and almost straight in profile ; actually it is gently curved and retreating from the top of the face. The epistoma are, therefore, definitely less prominent than the base of the antennæ. The face immediately below the antennæ is considerably bulged out. The antennæ in consequence are attached at the upper part of a shallow, slanting excavation. The ground-colour of the face is shining black with a faint purplish cast ; the narrow eye-margins on the upper two-thirds are brownish yellow, the pile of the face is rather thick and long, downward thrust and a shining whitish. The antennæ are short ; the third segment is as long or barely larger than the first two segments. All of the segments are brown, rather dark. The first segment is about two-and-one-half times as long as the second, its pile black. Eyes bare. *Thorax* : feebly shining black, rather

flattened and black appressed setate; there is a patch of brassy pile above the root of the wings; there is a distinct, isolated, roundish spot on either side in the middle of the thorax which is especially noticeable when viewed from in front; also from in front, the anterior border of the mesonotum, the posterior calli and a patch on either side of the extreme posterior margin of the mesonotum, are all covered with this bronze or brassy pile. The scutellum is black, appressed black microsetate, rather high, and set with two very tiny but definite spines that are fairly close together and set upon the low rim of the scutellum; they might almost pass unnoticed. The squamæ are whitish, the halteres orange.

Abdomen: half again as long as wide; the general colour is dark brown and in places black. The abdomen is widest on the second and third segments and tapers to the bluntly-rounded fourth segment and hypopygium. The first segment is shining black, short and inconspicuous, the second segment at least five times as wide as its middle length, depressed or excavated basally; it is transverse striate on the basal two-thirds. The second segment, together with the third segment, are rather dark brown but lighter brown along the base of the third segment and on the sides of both segments. The fourth segment is lighter brown basally, this colour continuing as a narrow, median vittæ, which is connected with the posterior border and which leaves a pattern of two large, blackish lateral areas, one upon each side, the pattern and marking indistinct and obscure. The pile of the abdomen is everywhere flat-appressed; it is pale brassy scabose on the outer posterior margins of the second segment, broadly all over the posterior two-thirds of the third segment and throughout the dark lateral areas of the fourth segment, but it is everywhere scattered and sparse. There are some sparse, black hairs in the middles of the segments; there is no long pile upon the margins of the segments except the anterior corners of the second. Ventrally, on the sides of the first segment, there is a small, blackish, white-tipped spine. *Legs*: chiefly light reddish brown, the basal third of the first and second femora is blackish; the hind femora is slender, the hind basitarsi not greatly enlarged, the tarsal joints, except the basal one, broader than long. *Wings*: nearly hyaline on the basal two-fifths and with a slight greyish cast; all of the cross-veins are margined with brown and the entire anterior, outer three-fifths of the wing, including the posterior side of

the third longitudinal vein, is continuous with the clouds along the posterior veins and is uniformly dark brown in colour. There is a large, clear spot in the centre of the first posterior cell, a very small clear spot in the basal portion of this cell, and an elongated spot in the posterior part of the second posterior cell. The subapical cross-vein is almost straight; there is a slight inward bend shortly before it joins the third longitudinal vein at right angles. There is a strong spur from the posterior corner of the first posterior cell where the subapical cross-vein bends upward.

Holotype: a male, and two *paratype* males. Tasmania, Mangalore, Feb. 7, 1913 (*A. White*), British Museum, 1917: 104.

I fail to identify this species with the *M. pictipennis* Macq., which Masquart credits from Tasmania. It is described as having "ailes claires; less nervures transversales bordees de noiratre," which scarcely corresponds with the more or less uniformly brown pattern present in the specimens before me.

Microdon modesticolor, sp. n.

Somewhat similar to *rugosus* Bezzi, but smaller and characterized by the dull brown to black coloration; the scutellum is unspined, non-marginate, the wings smoky.

Male.—Length 8 mm.; wing 5 mm.

Head: the eyes are bare with waxy lustre; the occiput is tumid behind, the vertex and front and face very dark, shining, chestnut-brown in ground-colour. The pile of the vertex and front is short and black with a few pale hairs intermixed on the front. The eyes are only moderately separated and are angulated, and at their nearest approach are separated by a transverse groove. The face is gently convex, both viewed from above and from the side; it retreats somewhat more rapidly on the lower third, and is covered with sparse, downwardly directed, silvery pile. The antennæ are moderately elongate, the first two segments are dark brown, the third segment black; the total length of the antennæ would scarcely reach to the oral margin. The first segment is a little longer than the second and third combined, and is about three times as long as the second segment, second segment about two-fifths of the length of the second and third combined. The arista is short, basally thickened and light brown. *Thorax*: mesonotum and scutellum shining black with appressed, pale-coloured, wiry pile which proceeds from black tubercles. The

scutellum is evenly rounded without spines or emarginations. The pile is similar to that of the thorax. *Abdomen* : about twice as long as broad and broadest on the basal half ; it is tuberculate with setate pile which is especially large upon the second segment. The second segment is short and is four or five times as broad as its length in the middle ; the third segment is one-and-one-half times wider than long ; the fourth and fifth segments are fused and almost as long as the basal part of the abdomen. The third and remaining segments are turned down at the sides ; the first segment and the second segment are blackish upon the sides. The posterior margin of the second segment almost to the corners, the whole of the third segment and the base of the fourth are narrowly and diffusely light red. The remainders of the fourth and fifth segments are black. The hypopygium is not especially large and is dark brown in colour ; the silvery pile of the abdomen is arranged as a diagonal band across the corners of the third segment, which reaches to the apex of the segment but does not fill out the anterior corners ; there is a similar, more extensive, silver stripe of pile which is more or less triangular and begins broadly on either side of the basal margin of the fourth segment and proceeds, narrowing, diagonally to the corners of the tip of the abdomen. There is a broad patch of such sparse pale pile beginning in the middle of the fourth segment and extending broadly upon the apical margin at the end of the abdomen. *Legs* : dark in colour, the femora and posterior tibiæ black. The anterior tibiæ are dark brown, their tarsi somewhat lighter. The two basal hind tarsal joints are blackish, black pilose and silvery pubescent, and yellow pilose ventrally. The hind basitarsi are considerably enlarged. The following segment is also somewhat broadened and enlarged and barely longer than wide. Subterminal segments of all of the tarsi wider than long. The hind femora are not greatly thickened ; all of the tibiæ are conspicuous for their thick, silvery, scalose pile. The halteres are pale, the squamæ similar. *Wings* : very dark and evenly tinged with brown, with a well-developed stigmal cross-vein present ; the subapical cross-vein is recurrent. The outer bulge of the posterior corner of the cell is somewhat rounded and without spur.

Holotype : a male, and a *paratype* male from the Port St. John, Pondo Land, Feb. 6-25, 1924, South Africa (R. E. Turner), British Museum, 1924 : 136.

Microdon albofascia, sp. n.

Somewhat similar to *carbonarius* Brunetti, although the scutellum is without spines. Blackish flies, the post-margin of the third and fourth and all of the second segment brassy-whitish pilose.

Female.—Length 13.5 mm. including antennæ; first antennal joint 1 mm., others missing; wings 10 mm.

Head: the dorsal, posterior occiput is tumid but rounded; together with the front and vertex and face, it is dark, shining, brownish black in ground-colour and somewhat roughened, with yellowish-brown pile which becomes golden upon the front; the front is bare just above the antennæ and has at most only faint striations. The front is without transverse groove and the ocelli are set very flatly upon the front. The face is rather convex, becoming more so ventrally as the face retreats to the epistoma. The pile of face is thick, shining, pale yellowish and directed downward. The first segment of the antennæ is black and quite elongate; others missing. Eyes bare. *Thorax*: dully shining brownish black, covered densely with shining reddish pile on the entire anterior half which is visible only from the front; but there is a thin line of such pile visible along the suture and above. The posterior sides of the mesonotum, the posterior calli and posterior margins and sides of scutellum are covered with similar, shining reddish pile. The middle of the posterior half of the mesonotum is broadly black microsetose pilose; there is some black pile present also upon the disc of the scutellum, which, like the mesonotum, is prominently rugose from the tuberculate pile. The scutellum is evenly rounded, without spines and not emarginate. *Abdomen*: somewhat more than half again as long as wide and broadest at the end of the moderately long and much flattened second segment; the first segment is short; the abdomen is thrust downward at the beginning of the third segment; its sides are moderately curved over posteriorly and the tip of the abdomen is obtusely pointed, not rounded. The abdomen is dark, brownish black in colour, the posterior half of the first segment, the whole of the second, the narrow basal corners of the third, a broad, posterior margin upon the third segment that, however, does not reach the sides but is continuous with similar material on the anterior corners of the fourth segment, are all pale, shining, appressed, yellowish scalose pilose. There is a prominent, wide band on the

posterior third of the fourth segment which is not at all interrupted in the middle and almost reaches to the posterior corners. The remainder of the pile upon the base of the third, fourth and whole of fifth segments may in the proper lights from the side be seen to be chiefly reddish pilose. There are apparently a few black hairs intermixed. *Legs*: blackish upon the first and second femora except upon their apices and except upon the basal third to one-half of the hind femora; the remainder of the legs is light reddish and covered chiefly with silvery pile. *Wings*: strongly tinged with brown, a strong stigmal cross-vein present; the subapical cross-vein is perfectly straight, slightly recurrent and without an apical spur at its base. Vena spuria merely a faint fold.

Holotype: a female. North Burma, Adung Valley, 12,000 ft., July 10, 1931 (*Lord Cranbrook*) British Museum, 1932: 196.,

Microdon bicolorata, sp. n.

Related to *flavipennis* Sack, the apical half of the wing is black, the base yellow.

Male.—Length 15 mm. exclusive of antennæ; first two antennal joints 2.3 mm.; third missing, presumably elongate since the first two are quite slender; wing 10 mm.

Head: the eyes are moderately separated; the vertex, front and face are shining black in ground-colour, the latter with perhaps a faint bluish-purple cast; the front and vertex are very rough, black pilose; there are a few pale hairs lying within the transverse depression which separates the nearest approach of the eyes to each other. Just above the antennæ there are three longitudinal conspicuous grooves, which are half of the length of the distance from antennæ to the transverse depression. This area above antennæ is bare. The ocelli are set upon a small hillock. The eyes are bare, the face in profile has the merest suggestion of a concavity; it is very slightly retreating down to a point about one-third from the epistoma and then more rapidly retreating. The pile of the face is shining whitish and directed downward, with a very few black hairs and with a thick row of shining, white pile along the upper parts of the eye-margins. The face is roughened by prominent micro-tubercles from which the pile arises. The first two joints of the antennæ are black, the third missing. These segments are quite slender, consequently the antennæ is most certainly of the elongate type. *Thorax* and scutellum wholly shining black and very roughly tuberculate with black, appressed, setate pile, there are one or two

reddish hairs, and a few pale hairs narrowly along the outer portions of the suture and upon the anterior inner ends of the humeri. *Abdomen* : quite elongate, the second segment the widest, the remainder of the abdomen barely less wide, and from the ends of the short second segment, the elongated portion of the abdomen has practically parallel sides and is quite thick and strongly subcylindrical. Abdomen wholly dully shining blackish, perhaps brownish black upon the terminal portion ; it is very much tuberculate, with abundant, black, shining, microsetate pile, which on the extreme sides of the third segment forms a diagonal band which begins in the anterior corners of that segment ; there is also a similar, somewhat more extensive triangle on the anterior corners of the fourth segment, reddish or yellowish to whitish in appearance. The pale pile cannot be discerned from the upper half of the abdomen except very narrowly in the anterior corners of the fourth segment. There is considerable reddish pile upon the second segment and this segment is elevated medially into a blunt, medial ridge, leaving a depression on either side along the anterior and posterior borders of that segment. The first segment is almost hidden by the scutellum ; the scutellum is without spines or emargination. Squamæ dark brown ; halteres orange. *Legs* : the femora are wholly black, the hind pair slender, short and rather weak for the size of the species ; the tibiæ are all very dark brown, almost black, the tarsi similarly coloured ; the hind basitarsi are but little thickened. *Wings* : with the basal half bright, brownish yellow ending at the strong stigmal cross-vein and the middle cross-vein and extending on down to the confluence of the fifth and sixth longitudinal vein at the end of the anal cell. The remainder of the wing outwardly is uniformly a rich sepia-brown. The subapical cross-vein is nearly straight, barely bent inward and joins the third longitudinal vein at right angles ; only its basal half has any resemblance of recurrence. There is a trace of spur on one side and a short spur upon the other.

Holotype : a male. Dutch East Indies, Sumbawa, or Sepanjang Island, purchased E. Le Moulton, British Museum, 1933 ; 189.

This species may possibly prove to be *wulpii* Mik. or *apicalis* Walker*. In the arrangement of wing pattern it is

* Professor Hull's *bicolorata* is not *apicalis* Walker. The type-specimen of *apicalis* has a brassy pile on the vertex, front and face ; the wing is much infuscated, with no delimitation of an outer dark part and inner clear or yellow part ; the thoracic pile is brassy.—
JOHN SMART.

the opposite of *pretiosa* Curran, in which the base of the wings is brown and the apical half is yellowish.

Microdon sulcata, sp. n.

Characterized by the dark mahogany, deep punctate abdomen, the last two segments thick, flat, pale golden pilose; the deeply emarginate scutellum is similar to *trimacula* Curran, but *sulcata* is readily distinguished by the black pile upon the base of the abdomen and by the black legs.

Female.—Length 9 mm. excluding antennæ; first antennal joint nearly 1 mm. long; wings 7 mm.

Head: the vertex protuberant, the eyes moderately separated, with a broad, shallow depression separating them at their nearest point, but no groove; this depression in the middle is confluent with a medial, shallow depression running upward and dividing on either side of the ocelli. The front and vertex are dark, brownish black, feebly shining, their pile chiefly pale yellow and shining. Eyes bare. The face is light yellowish brown or clay-coloured, with thick, appressed, shining, downward-directed, pale yellow scabrous pile. The first antennal segment is slender, light brown with black pile; second segment about one-third as long as first, third segment missing. *Thorax*: short and broad, feebly shining blackish with an obscure, medial vittæ of pale yellow pile; there is a narrow, transverse complete vittæ of the same across the mesonotum and a small patch of the same on the posterior corners of the mesonotum and upon the posterior calli. Actually the medial and transverse vittæ of the mesonotum are interrupted in the middle, but are probably continuous in better-preserved specimens. Scutellum large, rather long and rather deeply sulcate in the middle; the prominent, blunt spurs are moderately widely separated. The scutellum is dark, shining, chestnut-brown, and pale yellow pilose, the pile proceeding from large, flat tubercles. The mesonotum of the thorax is densely micro-tuberculate. *Abdomen*: broad, much wider than thorax, very dark shining chestnut-brown, and lighter brown upon the fourth segment; the appressed, black setæ of at least the second and third segments appears to arise from gross black punctures rather than tubercles. The whole pile upon the fourth and fifth segments is flat-appressed, dense, posteriorly directed, pale yellowish, shining, and covers the whole of these segments. That upon the anterior corners of the third segment is first directed upwards

and then posteriorwards. The abdomen is strongly turned downward from the base of the third segment. *Legs* : blackish, everywhere black pilose. The hind basitarsi are considerably thickened, all of the subbasal and subapical tarsal segments wider than long. *Wings* : rather pointed, the basal half of the subapical cross-vein proceeding rectangularly from the fourth longitudinal vein, straight for half of its distance, then turned outward for a short distance and back to the third vein to join it rectangularly. The vena spuria is a mere fold ; the entire wing is pale brownish and darker along the anterior border. Stigmal cross-vein present.

Holotype : a female and one *paratype* female. Java, Soekaboemi, April, 1926, purchased E. Le Moul, British Museum, 1933 : 189.

Microdon flavipennis Sack, var. *nigrita*, var. nov.

Male.—Length 20 mm. without antennæ ; antennæ about 4.5 mm. ; wing 15 mm.

Head : eyes bare, moderately separated, the ground-colour of the front and face is very dark, shining, chestnut-brown, upon the front more nearly black ; the pile of the front and vertex is black, of the face yellow and black intermixed. The face is very shallowly concave beneath the antennæ, then retreats to the epistoma. The antennæ are elongate ; first segment almost as long as second and third together ; second segment about two-fifths of the length of the third segment. Antennæ wholly black and black pilose. *Thorax* and scutellum dully shining black with appressed, wholly black, tuberculate, setaceous pile. *Abdomen* : elongate, broadest basally, wholly shining black, with similar, tuberculate, appressed, setate pile everywhere black in colour. *Legs* : black, the anterior tibiæ and apical portions of the first and second femora very dark brown or blackish brown. The anterior tarsi are dark brown, the posterior tarsi black, the basitarsi rather long, somewhat thickened and, together with the ventral apical third of the hind tibiæ, covered with golden-red pile. Only the outer dorsal surface of the hind basitarsi has black pile. *Wings* : wholly light brownish yellow, there is a strong stigmal cross-vein present ; the subapical cross-vein is practically straight and joins the third longitudinal vein at right angles, with only a very faint trace of spur in the corners.

Holotype : a male. Philippine Islands, Mindanao, May 14, 1920 (*Dr. A. Moore*), British Museum, 1921: 449, "tree stump."

This specimen is very close, if not identical, with *M. flavipennis* Sack, described from the Philippine Islands. There is no trace of the red hairs on the scutellum or abdomen in this specimen and there are other minor differences; consequently I name it as a variety of Sack's species.

Microdon aurilinea, sp. n.

Related to *auriscutatus* Curran, but distinguished by the convex profile of the face, the median gold vitta of the thorax restricted to the posterior half, the whitish pile of the last abdominal segment, etc.

Male.—Length 10.5 mm. excluding antennæ; wing 8 mm.

Head : the vertex is dark shining chestnut, the ocelli not conspicuously raised; the occiput along the eye-margins has flat, shining, golden pile directed towards the eyes; the vertex on either side of the ocelli has similar pile directed toward the ocelli and anteriorly developed diagonally towards the mid-line, but farther down the eye it is directed ventrally; all the pile is quite flat in appearance. The front is flat, bare, and shining black upon a large triangular area before the antennæ. The antennæ are missing. The face is black, obscured by very thick, flat, scaly, pale golden pile; there is no bare line upon the middle of the face. The eyes are a little mouldy, but appear to be bare. *Thorax* : black, obscurely shining, the greater part of its pile extremely short, flat, microsetate and black. There is a prominent, transverse, complete fascia of gold pile across the suture and a similar one along the anterior margin which on the lateral margins is connected with a broad patch upon the propleura, mesopleura, upper sternopleura and anterior pteropleura and, through the lateral margin, is connected with a prescutellar fascia of similarly-coloured pile. The prescutellar fascia and the sutural fascia are connected by a narrow scalose line in the mid-line. The scutellum is wholly covered by flat golden pile without spines. *Abdomen* : broad and compact, a little wider than thorax; the first two segments are flattened with flat, shining, yellow pile extending upon the posterior half of the first segment. The whole middle of the third segment is covered with similar pile as well as its broad sides, leaving only a diagonal stripe of black pile, which is rather wide, on each

side. The fourth segment has a large triangle of such flat pale pile narrowly covering the entire anterior margin and extending the full length of the sides, and with on either side of the dorsum of the fourth segment a broad, posteriorly-directed band of pale pile which is widely separated in the middle, is confluent at the posterior margin, is rounded upon its anterior end where it begins, and separated from the stripe of the opposite side as well as from the anterior lateral and basal band by a broad stripe of black, flattened pile, on either side. *Legs* : anterior femora on the basal half, the basal third of the middle femora and whole of hind femora are dark brown ; elsewhere light reddish brown. The anterior tibiæ, except for a wide subapical band, the middle tibiæ similarly and hinder tibiæ also similarly light reddish brown, but dark brown apically or subapically. The tarsi are reddish brown, the posterior basitarsi somewhat thickened. The pile of the legs is wholly pale. *Wings* : strongly tinged with brown ; a strong stigmal cross-vein is present ; the subapical cross-vein is quite straight and strongly recurrent ; there is a short spur from the posterior corner of the first posterior cell.

Holotype : a male, and a *paratype* male. *Allotype* : a female, and two *paratype* females. Java, Soekaboemi, from March to June, 1926, purchased E. Le Moul't, British Museum, 1933 : 189.

This species appears to be very near *auriscutatus* Curran, from the Malay States ; however, the profile of the face is quite convex, the median gold vittæ of the thorax runs only upon the posterior half, the pile of the abdomen on the fourth and fifth segment is more whitish and not gold, the subapical tarsal joints are not infuscated, and there is a spur to the subapical cross-vein at its base in these specimens, not described in *auriscutatus*. *Auriscutatus* was described both from the Malay States and from Siam. The male appears to be essentially similar to the female.

Microdon fumipennis, sp. n.

Related to the species with unspined scutellum, such as *simplicicornis* de Meijere, but distinguished by the golden-green thorax ; abdomen green and violet-coloured ; wings smoky.

Male.—Length 11.3 mm. without the antennæ ; antennæ 2.4 mm. ; wings 8 mm.

Head : the vertex is dark shining, greenish violet on either side of the eye with wholly pale pile, the ocelli not conspicuously raised. The eyes are set fairly close and connected by a flat depression with a groove at the bottom. The lower part of the front and face is black with a bronze and greenish lustre, the pile shining and white, the mid-line obscurely bare only upon the upper half. The eyes are bare and waxy. The antennæ are only moderately elongate, the third segment four-fifths as long as the first segment ; the second segment one-third as long as the third ; the arista is dark. *Thorax* : strongly metallic golden brown, but greenish before the scutellum and upon the sides, and covered with dense, sub-erect brownish-yellow shining pile. The scutellum is evenly rounded with perhaps a tiny impression in the middle upon the margin, and it is without spines ; it is shining green in colour, with erect golden pile. *Abdomen* : broad, wider than the thorax, compact, thickened and convex upon the fourth segment ; the first and second segments are punctate, or perhaps tuberculate, and shining green in colour ; the third segment is blackish, but green on the posterior two-thirds ; the fourth segment is green in the lateral corners, on the lateral margins and broadly upon the posterior two-thirds of the middle. The pile is arranged in conspicuous whitish fascia along the posterior margin of the second segment ; these fascia begin a little on either side of the mid-line, and are similarly placed upon the posterior margin of the third segment ; again, on the third segment, they lie on either side of the mid-line and continue from the posterior corners of the third segment on until they are confluent with similar pile in the anterior corners of the fourth segment ; the pile on the fourth segment begins near the mid-line, but is separated and forms a diagonal fascia about one-third of the distance from the base of similar whitish pile and proceeds to the posterior corners of the fourth segment. All three of these fascia, the first two transverse, and the third one diagonal, are connected by shining white pile along the margins of the abdomen. *Legs* : femora dark blackish brown, the hinder pair darker ; all of them with a greenish cast which is pronounced on the last pair. The tibiæ are light brown with bushy silvery pile, particularly on the ventral sides ; there is a dark spot just past the middle ; the bases of the tibiæ are narrowly yellowish, the hind tibiæ greenish about the cicatrix in the middle. The tarsi are reddish brown, the pile of the legs is everywhere pale. The

squamæ are whitish with pale yellow fringe ; halteres reddish brown. *Wings* : strongly tinged with brown, a strong stigmal cross-vein present, the posterior corners of the first and second posterior cells broadly rounded and without spur ; the sub-apical cross-vein is bent slightly inward, its last section rectangular to the third longitudinal vein.

Holotype : a male. Java, Soekaboemi, purchased E. Le Moul, British Museum, 1933 : 189.

XXIX.—*An Annotated Bibliography-Chronology of the Literature and Events relating to the Generic Names of Meigen, 1800.* By JOHN SMART, Ph.D., Department of Entomology, British Museum (Natural History).

THE problem of Meigen's names of 1800 has been before nomenclatorists in general, and dipterists in particular, since Hendel (1908) revived their use. Thrice has the matter come to the fore, in 1908, 1932 and 1941 (see Hendel (1908), Edwards (1932) and Stone (1941)). The question of whether to use these names or not remains unsettled, and dipterists themselves tend to be either violently "pro" or "contra" their use. Apart from the papers that actually affect the nomenclatorial points at issue, there is now quite a literature on the subject.

Stone (1941), discussing the application of the names, gave a list of "references" which, however, did not by any means constitute a complete guide to the relevant literature. This is unfortunate, because a comparatively small extension of Stone's list would have provided a bibliography on the subject and rendered the present paper superfluous.

The present bibliography may also be incomplete, but it contains every relevant reference that can be culled from a perusal of all the papers listed and from such other sources as are at the writer's disposal.

References with the author's name in Clarendon (bold face) are those papers which should, or rather must, be consulted in the original if an independent conclusion is to be reached as to the status of the 1800-names, without reference to the personal opinions of dipterists. Some help will, however, be obtained by reading the more opinionated papers which contain perfectly relevant