AMERICAN MUSEUM NOVITATES

Number 300 — Published by THE AMERICAN MUSEUM OF NATURAL HISTORY New York City — Feb. 21, 1928

59.57,99M (67.5)

CARPENTER BEES OF THE GENUS *MESOTRICHIA* OBTAINED BY THE AMERICAN MUSEUM CONGO EXPEDITION, 1909–1915[1]

BY NORMA LEVEQUE

The females of almost all the species of *Mesotrichia* bear a pouch of chamber in the first abdominal segment. The only opening to this chamber is on the anterior face of this first segment, just dorsal to the point of attachment of the abdomen and thorax. Thus when the abdomen is appressed against the thorax this small oval-rimmed hole is faced by the metathorax. In this pouch may be found mites of the genus *Paragreenia* Cockerell, 1907, (Syn. *Greenia* Oudemans, 1901, pre-occupied; *Dolaea* Oudemans, 1912; *Greeniella* Banks, pre-occupied) of the Parasitidæ of Order *Acarina*. The different species of *Paragreenia* vary in length from 1 mm. to a little over 3 mm. Other mites, especially of the genus *Trichotarsus*, very minute animals, have occasionally been found in the pouch.

Interest in the symbiotic relationship between the *Paragreenia* and these carpenter bees led me to make this survey of the collection of *Mesotrichia* obtained by the American Museum Congo Expedition, of which expedition Mr. H. Lang and Mr. J. P. Chapin were leaders. From June 1909 to October 1915 they explored the Congo Basin from the mouth to the borders of Anglo-Egyptian Sudan. About eight hundred *Mesotrichia* were obtained, among which there are twenty-two species, eight of which are new. An assortment of these specimens is to be sent to the Belgium Museum; the others are retained by The American Museum of Natural History. All type specimens will be with the American Museum.

Dr. T. D. A. Cockerell of the University of Colorado has given very valuable assistance in determining the *Mesotrichia* and also in observations noted in the description of the new species found. Mr. S. A. Rohwer of the Bureau of Entomology, U. S. Department of Agriculture, Washington, has kindly assisted with comparisons.

[1]Scientific Results of the American Museum Congo Expedition. Entomology, No. 17.

All the figures of genitalia belonging to this group of bees from Africa given by Maidl in 'Die Xylocopen (Holzbienen) des Wiener Hofmuseums,' 1912, have been traced and are shown by Figs. 17 to 29. The legend for Fig. 22 has been corrected by me from *luteola* Vachal to *luteola* Lepeletier. Just what Maidl has determined as *olivacea* Smith is perplexing (Fig. 18). *M. olivacea* Smith is a synonym of *luteola* Lepeletier; *olivacea* Fabricius is a synonym of *caffra* Linnæus. Figure 18 most closely approximates Fig. 14 of *stanleyi*, new species, except for absence of the dense cluster of hairs on inner ventral curve of the stipites. Genitalia of the different species obtained on this expedition, which have been permanently mounted in balsam, are herein figured. These latter figures have been drawn with the aid of the camera lucida by myself.

From the various authors listed in the bibliography, especially from Friese, 1909, and from subsequent reports, I have compiled the following list of species of *Mesotrichia* in Africa and have added the new species. All species were originally described as *Xylocopa* or as subgenus *Mesotrichia* or *Koptorthosoma*, except those by T. D. A. Cockerell and myself.

M. absurdipes Enderlein, 1903, Hopefield, West Cape Colony.
M. æstuans Linnæus, 1758, Egypt; Senegal.
M. æstuans rubida Gribodo, 1884, Ambo-Rarra.
M. africana Fabricius, 1781, Guinea.
M. africana conradti Enderlein, 1903, Bismarkburg, Togo.
M. africana congoënsis Enderlein, 1903, Ogowe, Congo.
M. africana longjinensis Strand, 1911, Cameroons.
M. albiceps Fabricius, 1804, Guinea.
M. albifimbria Vachal, 1898, San-Benito (Maidl says = *præusta* Sm.).
M. apicalis Smith, 1854, Sierra Leone; Gambia.
M. bevisi Cockerell, 1917, Umbilo, Natal.
M. caffra Linnæus, 1767, Africa.
M. caffra mossambica Gribodo, 1894, Magnarra, Mozambique.
M. caffra nigrescens Maidl, 1912, Cape of Good Hope, Algoa Bay.
M. caffrariæ Enderlein, 1903, Kaffraria, Cape Colony.
M. caffrariæ capensis Enderlein, 1903; Cape Colony.
M. calcarata, new species, Garamba, Congo.
M. calens Lepeletier, 1841, Madagascar.
M. calens atripyga Strand, 1911, Usambara, German East Africa.
M. calens malagassa Saussure, 1891, (described as variety of *M. olivacea*).
M. chapini, new species, Faradje, Congo.
M. citrina, Friese, 1909, Togo; Congo.
M. cloti Vachal, 1898, Upper Egypt; Natal; West Africa.

M. codinai Dusmet, 1924, Cameroons.
M. combusta Smith, 1854, Congo; Sierra Leone, Angola, Fernándo Po.
M. divisa Klug, 1807, (Friese reports from Abyssinia, Natal, Mozambique).
M. duala Strand, 1921, Cameroons.
M. erlangeri Enderlein, 1903, Bornu; Somali.
M. escalerai Dusmet, 1924, Fernando Po.
M. eximia Friese, 1908, Ikutha, British East Africa.
M. flavobicincta Gribodo, 1894, Benue (West Africa).
M. flavobicincta uluguruna Enderlein, 1903, German East Africa.
M. flavorufa DeGeer, 1841, Kaffraria, Cape Colony.
M. flavorufa kristenseni Friese, 1911, Abyssinia.
M. forsiusi Dusmet, 1924, Abyssinia.
M. fulva Friese, 1922, Cameroons.
M. gabonica Gribodo, 1894, Gabun; Congo; Sierra Leone.
M. ignescens, new species, Banana, Congo.
M. imitator Smith, 1854, Sierra Leone; Congo; Gold Coast.
M. imitator nigriceps Friese, 1922, Sierra Leone.
M. insola Vachal, 1910, Belgian Congo.
M. incerta Perez, 1901.
M. incerta seychellensis Cockerell, 1912, Seychelles.
M. langi, new species, Faradje, Congo.
M. lateritia Klug, 1854, Isle of Johanna, Mozambique.
M. lepeletieri Enderlein, 1903, Guinea; West Africa; South Cameroons.
M. lepeletieri ruboris Strand, 1920, Leopoldville, Congo.
M. leucothoracoides Maidl, 1912, Dar es Salam.
M. leucothorax DeGeer, 1773, Egypt.
M. luteola Lepeletier, 1841, Nubia.
M. media Vachal, 1909, Lumbwa.
M. mixta Radoszkowski, 1881, Angola.
M. modesta Smith, 1854, Gambia.
M. modesta denasta Strand, 1911, Liberia; Togo.
M. modesta miniata Friese, 1921, Belgian Congo.
M. nigricans Vachal, 1910, Belgian Congo.
M. nigricaula, new species, Garamba, Congo.
M. nigriceps Friese, 1922, Dibongo, South Cameroons.
M. nigripes Friese, 1915, Southeast Abyssinia.
M. nigrita Fabricius, 1775, Sierra Leone.
M. nyassica Enderlein, 1903, German East Africa.
M. obscurata Smith, 1854, West Africa.
M. olivacea Fabricius = syn. of *M. caffra* Linnæus.
M. orthosiphonis Cockerell, 1908, Benguela.
M. perpunctata, new species, Boma, Congo.
M. præusta Smith, 1854, Congo.
M. preussi Enderlein, 1903, Cameroons; Togo.
M. pseudoleucothorax Maidl, 1912, Dar es Salam.
M. rufosellata Cockerell, 1922, Maritzburg, Natal.

M. schoana Enderlein, 1903, Shoa, Abyssinia.
M. scioënsis Gribodo, 1884, Ambo-Karra.
M. senex Friese, 1922, Lake Tanganyika; Tamatave, Madagascar.
M. senior Vachal, 1899, German East Africa.
M. senior albopleuralis Friese, 1922, Ikutha, British East Africa.
M. senior clitelligera Friese, 1922, German East Africa.
M. stanleyi, new species, Stanleyville, Congo.
M. stuhlmanni Kohl, 1893, German East Africa.
M. stuhlmanni albicincta Enderlein, 1903, German East Africa.
M. stuhlmanni alticola Cockerell, 1919, Mt. Kilimanjaro.
M. subcombusta, new species, Banana, Congo.
M. suspiciosa Vachal, 1899, Delagoa Bay.
M. togoënsis Enderlein, 1903, Togo.
M. torrida Westwood, 1838, Fernando Po; Angola.
M. torrida gramineipennis Friese, 1922, Gold Coast.
M. varipes Smith, 1854, Sierra Leone; Fernando Po; Gabun; Cameroons.
M. varipes melanotrichia Strand, 1914, Cameroons.
M. varipes parva Enderlein, 1903, North Cameroons.

Two species formerly considered to be of the *Mesotrichia* group are placed in *Xylocopa*, for the reasons stated on page 21:

Xylocopa inconstans Smith, 1874, South Africa.
X. chiyakenis (Cockerell), 1908, Benguela, West Africa,

The following list includes all localities at which *Mesotrichia* was collected.

SOUTH OF EQUATORIAL RAIN FOREST
Banana, 6° S., 12° 20′ E.
Malela, 6° S., 12° 40′ E.
Zambi, 6° S., 12° 50′ E.
Matadi, 5° 50′ S., 13° 35′ E.
Boma, 5° 50′ S., 13° 10′ E.
Thysville, 5° 30′ S., 15° E.
Leopoldville, 4° 25′ S., 15° 20′ E.
Kinshasa, 4° 20′ S., 15° 20′ E.
Kwamouth, 3° 20′ S., 16° 10′ E.

IN THE RAIN FOREST
Coquilhatville, 0° 1′ N., 18° 20′ E.
Lisala, 2° 10′ N., 21° 30′ E.

IN THE RAIN FOREST—(continued)
Stanleyville, 0° 30′ N., 25° 15′ E.
Batama, 1° N., 26° 40′ E.
Bafwasende, 1° 10′ N., 27° E.
Avakubi, 1° 20′ N., 27° 40′ E.
Gamangui, 2° 10° N., 27° 20′ E.
Medje, 2° 25′ N., 27° 30′ E.

NORTH OF THE EQUATORIAL RAIN FOREST
Poko, 3° 10′ N., 26° 50′ E.
Niangara, 3° 40′ N., 27° 50′ E.
Vankerckhovenville, 3° 20′ N., 29° 20′ E.
Faradje, 3° 40′ N., 29° 40′ E.
Garamba, 4° 10′ N., 29° 40′ E.

Mesotrichia chapini, new species

Both male and female specimens, upon first examination, agree rather closely with Lepeletier's description (1841) of *flavorufa* DeGeer, except for color of wings and red pubescence on abdomen. The male genitalia are found to differ from Maidl's figure of the *flavorufa* genitalia, Fig. 27. Lepeletier describes the female of *flavorufa* as: "alae nigrae, basi late violaceo, apice aeneo nitentes," whereas *chapini* has a dark blue, green and a touch of purple iridescence, with the same color-tone throughout the wings. Moreover the hind margin of segment five and the terminal segment of the abdomen are described as having ferruginous pubescence, whereas only the terminal segment of *chapini* has the red color. On the other hand, *chapini* has some red hair on the occiput not described by Lepeletier but mentioned by Vachal (1899). The *flavorufa* determined by Vachal were females from Delagoa Bay, Zambezi and Tanga, all East Coast Africa. Lepeletier's specimen was from Kaffraria. Gribodo, 1895, records specimens from Mosambique which have a less reddish color, but rather a brown color, and have a bald area on the mesonotum where the hairs may have been rubbed off.

MALE—Type from Faradje, December 1912. Large robust bee with large light eyes, narrow face with light clypeus and supra-clypeal area, former with some short brown hairs. Body shiny black, with red-brown hairs on prothorax, pleuræ, and on last abdominal segment. Wings dark with blue, green and purple iridescence.

Head.—Black except clypeus, supra-clypeal area, two minute spots below anterior ocellus sometimes evanescent, usually small spot on base of each mandible, triangular process on labrum with evanescent median spot or two lateral spots on labrum, under side of scape, which are light; second and last segments of antennæ are reddish; underside of flagellum, except first joint, is testaceous. Thick covering of dark red-brown hair, except on supra-clypeal area and usually lower margin and medial line of clypeus. Golden-brown hairs on labrum and on groove of mandibles. Supra-clypeal area slightly punctured. Eyes light, large, very slightly converging, 2 mm. apart at vertex. Third antennal joint about equal to length of three following.

Thorax.—11 mm. wide; 9 mm. long; black, bald, shiny disk surrounded by thick covering of golden-brown hairs extending over pleuræ, and more sparsely over scutellum. Hairs on sternum dark brown. Tegulæ dark red-brown, shining, with short nap of golden hairs at base and extending slightly on anterior margin of upper wings.

Abdomen.—12 mm. wide, about 16 mm. long; black, shining, sparsely punctured, black hairs on sides, and on last segment, longer near posterior segments; few golden-brown hairs mingling on margin of sixth segment, and on anal segment.

Legs.—Brownish black, except: femora I, all last tarsal segments, bases of claw, and distal spot on basitarsi II, which are red-brown; hairs mostly dark brown, except red-brown on tarsi I, golden brown on outer side of tibiæ I and anterior margin of tibiæ, and brighter and longer on tarsi II; posterior fringe of tarsi II is dark brown, with pointed brush-like growth at distal margin of first three tarsal segments, latter fringe

slightly mixed with light hairs. Femora II laterally compressed, with tubercle near center of ventral margin, giving a triangular shape. Femora I practically bare.

Wings.—Dark, shiny with blue, some green, and purple iridescence, 27 mm. long.

Genitalia.—Fig. 1.

FEMALE.—Allotype from Faradje, November 1912. A large robust black bee with russet-brown hairs on thorax and pleuræ; bald shiny disk on thorax; wings dark, with green, blue and purple iridescence; abdomen rather elongate, fringed on sides with short tufts of black hair; last segment also has an anal fringe of shorter russet-red hairs.

Head.—8 mm. wide; black, coarsely, fairly closely, though unevenly, punctured, sparingly covered with brownish-black hairs, thicker below antennæ, on lower half of clypeus, and on lower cheeks, where longer; russet-red hairs over labrum and in groove on mandibles. Edge of occiput with few short russet-brown hairs. Mandibles toothed, sparingly punctured near base. Maxillæ heavy, shiny, 4.5 mm. long. Clypeus closely and rather coarsely punctured, surrounded by an emarginate, slightly raised, shiny line. Supra-clypeal area punctured, slightly raised, and bearing a cleft ridge terminating at anterior ocellus. Area above compound eyes more sparingly punctured. Antennæ black, second segment reddish, flagellum testaceous beneath; third segment almost as long as three following segments.

Thorax.—7 mm. long; 10 mm. wide; black with bald shiny disk usually extending to rim of scutellum, surrounded by thick covering of short dark ferruginous hairs extending on to pleuræ. Where hairs have been rubbed off puncturing is seen to be close and coarse, especially near anterior and lateral margins of thorax. Sternum with some brownish-black hairs. Tegulæ with bald disk; small tufting of some short russet-brown hairs on base of anterior wings.

Abdomen.—12 mm. wide; about 16 mm. long; black, shiny; sparingly punctured; practically bald except for black fringe on sides, which is somewhat tufted on last segments. Anal segment has lateral black tufts, margined at center with russet-red hairs shortest at center.

Legs.—Black, except base of claws reddish; hairs black, except some red-brown at distal end of posterior margin of tibiæ I, and some more red on underside of basitarsi I; underside of tarsal segments 2 to 5 of all legs with short napping of reddish hairs.

Wings.—27 mm. Dark, shiny, with blue, some green, and purple iridescence.

LOCALITIES.—All are from the Uele district, northeast of the Rain Forest belt: 24 males and 28 females from Faradje (one battered female has rosy, probably discolored wings); 1 male and 5 females from Garamba.

Mesotrichia ignescens, new species

Large robust bee similar to *chapini* but may be distinguished by: hairs of thorax darker; brown hairs confined to small area anterior to tegulæ, to pleuræ, and to a "necktie" tuft on sternum between anterior legs; brown hairs of anal segment shorter and confined to posterior margin on ventral side; wings more brilliant, with blue, green, and rosy-purple iridescence. For comparison of genitalia see Figs. 1 and 2.

MALE.—Type from Boma, June 17, 1915.

Head.—Black, except: clypeus, supra-cylpeal area, two very small spots below anterior ocellus, and under side of scape, which are light; antennal segments following

first long segment of flagellum, testaceous beneath. Bare area of supra-clypeal area and clypeus shows very slight puncturing. Mandibles toothed and grooved. Hair dark, short and thick on face, easily rubbed off the clypeus; on vertex longer and mixed with a few lighter brown; on labrum and groove of mandibles a few short golden hairs. Eyes large, parallel, about 2.5 mm. apart.

Thorax.—Black; with bald, smooth central disk, slightly punctured around edge, surrounded with short nap of dark brown hairs with a region of golden-brown hair anterior to tegulæ and extending to pleuræ. Scutellum almost bare; slightly punctured. Width 11 mm.; length 9 mm.

Abdomen.—Black, shining, sparingly punctured, almost bare except for lateral fringe of black hair beginning on fourth segment, longest on last two segments. Venter shows some light brown hairs near median line and surrounding anal opening. Width 12 mm.

Legs.—Anterior, red-brown; others dark brown; last tarsal segments more reddish. Base of claws red; apex dark brown. Hair mostly dark brown; some golden brown on posterior margin of basal part of basitarsi I; shorter red-brown on anterior margin of same and on other tarsal segments of leg I. Tarsi II have a wide lateral fringe mixed with golden-brown or yellow-brown hairs. Femora II, covered with short, dark brown hairs, are compressed laterally and have a sharp tubercle on ventral margin, giving triangular shape from posterior view.

Wings.—Dark; shining; blue, green and violet iridescence. Length, 27 mm.

Genitalia.—Fig. 2.

Localities.—One male (type) from Boma, June; another from Banana, July.

Key to Separate Females of *M. combusta, subcombusta, torrida,* and *perpunctata*

1.—Body broad (intertegular space 9 mm., abdomen 14–15 mm. broad), wings dark with shining blue and violet iridescence.....2.

Body narrower (intertegular space 7–8 mm., abdomen 13 mm. broad), wings dark with green and copper iridescence predominating, some blue or violet.....3.

2.—Antennæ dark, punctures on sides of abdominal segments fine and close together, few short red hairs in anal tuft rather unnoticeable....*M. perpunctata.*

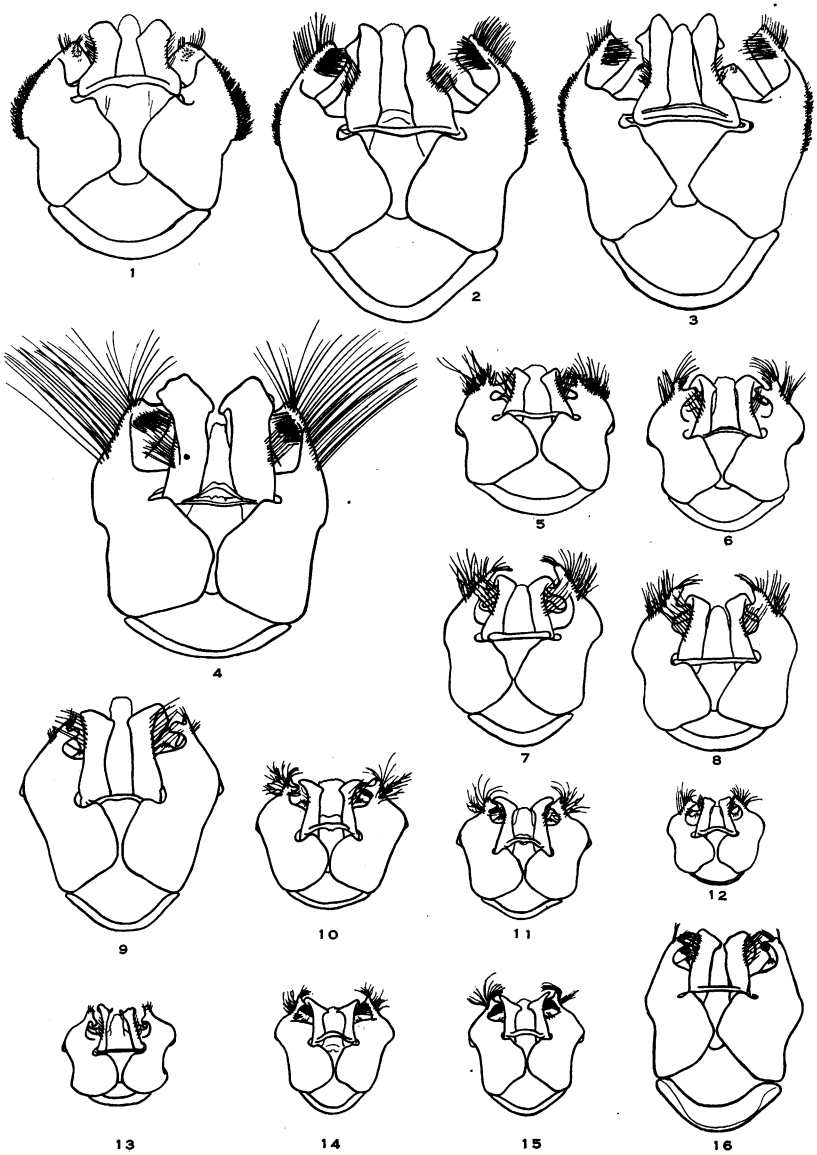
Scape mahogany, flagellum dark, slightly testaceous beneath, abdomen sparingly punctate.....*M. subcombusta.*

3.—Antennæ dark, flagellum from segment 3 testaceous below, anal tuft black with tinge of red unnoticeable without lens, abdomen finely and closely punctured, especially at sides.....*M. torrida.*

Antennæ reddish, dark testaceous below, anal tuft red, abdomen moderately punctate.....*M. combusta.*

Mesotrichia combusta (Smith)

Female specimens obtained from the Western Forest Province, south of the Equatorial Rain Forest, were compared with a specimen determined as *combusta* in the F. Smith collection, obtained from Angola, and now in T. D. A. Cockerell's collection. *M. combusta* is easily con-



Figs. 1 to 16. Genitalia of *Mesotrichia:* 1, *M. chapini*, new species, from Faradje; 2, *M. ignescens*, new species, from Banana; 3, *M. subcombusta*, new species, from Banana; 4, *M. torrida* Westwood, from Kwamouth; 5, *M. africana* Fabricius, from Banana; 6, *M. africana conradti* Enderlein, from Niangara; 7, *M. lepeletieri* Enderlein, from Stanleyville; 8, *M. lepeletieri ruboris* Strand, from Niangara; 9, *M. nigrita* Fabricius, from Stanleyville; 10, *M. luteola* Lepeletier, from Boma; 11, *M. luteola* Lepeletier, from Garamba; 12, *M. langi*, new species, from Faradje; 13, *M. nigricaula*, new species, from Garamba; 14, *M. stanleyi*, new species, from Stanleyville; 15, *M. calcarata*, new species, from Garamba; 16, *Xylocopa chiyakensis* (Cockerell), from Garamba.

In order to determine the location of the plumose hairs, it would be well to examine these figures with a reading glass.

fused with *M. torrida* Westwood, *M. subcombusta*, new species, and *perpunctata*, new species. Vachal separates *M. torrida* and *M. combusta* on the punctures on the sides of the third abdominal segment. They are very fine and close together in the *torrida* female. *M. combusta* has an anal tuft of bright red hairs; *torrida* does not. The wings of *combusta* show deep fuscous and green iridescence, quite similar to the wing color of *torrida* and not having the rich blue iridescence of the wings of *subcombusta*.

Five females were obtained: 2 from Leopoldville, July; 2 from Kinshasa, May; and 1 from Kwamouth, July. Friese reports specimens from Congo, Sierra Leone, Angola, Fernando Po. Maidl reports specimens of *combusta* in 1912 from West Africa, Congo, Banana, Angola.

Mesotrichia subcombusta, new species

Large robust bee similar to *combusta* Smith, but abdomen of female is not so elongate, and iridescence of wings shows more blue. Hair of body shows a very dark brown cast almost a black, while hair of *combusta* is black.

FEMALE.—Type from Banana, August 1915.

Head.—Black; first three segments of antennæ mahogany-red; following segments testaceous beneath; third segment about as long as the three following. Integument densely and coarsely punctured except shiny margin of clypeus and irregular shiny ridge extending from bases of mandibles over base of supra-clypeal area, median clypeal line, shining malar space; few shallow punctures on bases of mandibles, which otherwise are smooth and shining. A slightly cleft medial ridge divides around anterior ocellus. Short black hair more dense on face and occiput; few golden-brown hairs on labrum and in grooves of mandibles. Width between eyes 5 mm. Mandibles toothed.

Thorax.—Black, dense covering of short black hairs over pronotum, around tegulæ and on pleuræ, leaving a bare, smooth, shiny central disk; scutellum slightly punctured. Width 12 mm. Length 8.5 mm.

Abdomen.—Black; sparingly punctured; almost bare; lateral black fringe, somewhat longer on last segment; anal tuft of some short golden-brown hairs. Length 13 mm.

Legs.—Black or very dark brown; claw segments and bases of claws red-brown.

Wings.—Dark, shining, with blue, green and violet iridescence.

Length.—26 mm.

MALE.—Type from Banana, August 1915. Very similar to female.

Head.—Black, except; scape in front, clypeus, supra-clypeal area, two spots on labrum which are light; flagellum, except first two segments, red-brown beneath. Thick covering of brownish-black hair. Eyes very large; parallel; 2.5 mm. apart.

Thorax.—Robust; central smooth shiny disk surrounded by slightly punctured area; dark brown hair over pronotum, around tegulæ, and on pleuræ; dark "necktie" tuft of hair on sternum between first legs; scutellum sparingly and finely punctured at center, more closely at sides. Width 12 mm. Length 9 mm.

Abdomen.—Black, shiny; more closely punctured on sides, but sparingly down center; almost bare; lateral fringe of black hair, longer and tufted on last three segments. Width 12 mm.

Legs.—Dark brown or black; femora I dark red-brown; last two tarsal segments, bases of claws of leg I, yellow-brown; claw segments and base of claws of other legs dark red-brown. Hair dark brown; dark red-brown on basitarsi I and II; mixture of dark brown, golden brown and red-brown forming a fringe on sides of all tarsal segments of leg II.

Wings.—Dark, blue and violet iridescence, greenish near base. Length 27 mm.

Genitalia.—Fig. 3. For comparison with *M. combusta* Smith, see Fig. 29.

LOCALITIES.—12 females and 5 males from Banana; 6 females and 2 males from Boma; 4 females from Malela and 5 from Zambi.

Mesotrichia perpunctata, new species

Large robust black bee very similar to *M. subcombusta, M. combusta,* and *M. torrida.* See foregoing key for separation.

FEMALE.—Type from Boma, June 16, 1915.

Black; dark mahogany cast to apical half of last tarsal segments and base of claws, and flagellum below. Hair black or very dark brown, sparse on head, absent or well worn off on superior orbits; thicker on thorax, except on bald shining central disk; abdomen almost bare, except lateral and anal fringe; a few short red hairs mixed in anal tuft. Punctures on head close together except more scattered on superior orbits, a few shallow punctures on mandibles; no puncturing on irregular margin of clypeus, base of supra-clypeal area, and malar space. Thorax moderately punctured, except bare on shining central disk; abdomen sparingly punctured through medial area, quite densely so laterally. Wings dark with blue, purple, and some green iridescence; length 27 mm. Greatest diameter between eyes 5½ mm. Length of body 29 mm.

LOCALITIES.—One female from Boma and one from Malela.

Mesotrichia torrida (Westwood)

The female is large and dark, easily confused with *combusta* Smith, or with *subcombusta,* or *perpunctata,* new species. The thorax is a little shorter and a little narrower than that of *subcombusta* and *combusta;* the abdomen a little longer. Green and copper iridescence of wings about same as that of *combusta,* but without the blue and violet iridescence of *subcombusta* or *perpunctata.* Punctures very dense on sides of abdomen, sparse on tergum; very slight indication of red hairs in anal tuft.

Friese reported (1909) males and females from West Africa (Cameroon, Congo, Gold Coast) and also several from Uganda, East Africa. The female from the Gold Coast has green iridescent wings, the others more blue iridescence. The specimens I have determined as *torrida* have the wings with the green and fuscous iridescence. It may be

that on closer inspection the Friese specimens will be found to be of two species. In 1922, he described three females from the Gold Coast as a new variety, *gramineipennis*, as similar to *M. torrida*, but wings deep green instead of dark blue iridescent; head and thorax thickly covered with long black hair, underside of antennæ golden brown. Length 27–28 mm. Breadth 11 mm.

The male *M. torrida* from the F. Smith collection, now held by T. D. A. Cockerell, has been examined. See Fig. 4 for genitalia of specimen from Kwamouth.

The following specimens are in the present collection: one female and and 9 males from Medje; 16 females and 3 males from Avakubi; 3 males from Kwamouth, just south of the Rain Forest; 2 males from Stanleyville and 1 from Poko.

Mesotrichia varipes (Smith)

Females are without the pouch in the first abdominal segment. Two specimens were taken at Stanleyville, in the Rain Forest, April, and were temporarily paired off by me with *M. lepeletieri* Enderlein, of which we have three specimens from Stanleyville taken in March 1915. They are black, with whitish hair on collar, thorax, pleuræ, first abdominal segment, and on sides of last two abdominal segments. Length 24 mm. Wing 21 mm. Smith gives the length 26 mm., abdomen 12 mm. wide, wing 22 mm. Friese lists females from Sierra Leone, Fernando Po; also from Cameroons, Gabun, in West Africa, and from Dumisa (Natal).

Dusmet, 1924, discussed the relationship of *varipes* Smith and *africana* Fabricius, concluding that they are not, as Vachal and Dalla Torre thought, opposite sexes of one species. The three specimens of *africana* Fabricius (male) in the present collection were taken at Banana in the extreme lower Congo. Figure 24 is a copy of Maidl's figure of the genitalia of the male *varipes* Smith. It will be seen to somewhat resemble that of Fig. 7 or Fig. 26, *lepeleteri* Enderlein, except that it shows no hairs on the sagittæ, very few on stipites, and that the sagittæ appear to arch higher than the stipites; and the whole genitalia to be more elongated, having a narrower base.

Mesotrichia varipes parva (Enderlein)

Females are without the pouch in first abdominal segment. The one small-sized specimen from Bafwasende, September, seems to tally with the size of Dusmet's specimen from Itime, Spanish Guinea, and it

has the greatest width between the eyes, 3½ mm., the width given for this subspecies. However, there are two specimens, one from Avakubi, October, and one from Niangara, November, which are practically the same size as *varipes* Smith, but agree in the description of *varipes parva* Enderlein, by having the long dirty yellow-brown hairs on segment 6 but absent from segment 5. These specimens, which presumably are *varipes parva*, are black; with dull dirty tan hair on head, thorax, first abdominal segment, small patch on sides of second segment, lateral, tufts on sixth abdominal segment; rufous on tibiæ and tarsi; short reddish anal tuft; black fringe on segments 3, 4 and 5; abdomen moderately covered with short black hair more sparse along median line. Width between eyes 4 mm. Length 23 mm. Width of abdomen 10 mm. Wing length 19 mm. Enderlein's specimen, 20 mm. long, was taken in North Cameroons, Johann-Albrechts Heights. Dusmet gives the size of the specimen from Itime, Spanish Guinea, as: length 19 mm, breadth of abdomen 10 mm., wing length 17 mm.

Mesotrichia africana (Fabricius)

Males are distinguished by the disk of brilliant canary-yellow hairs on mesonotum and scutellum and on the first abdominal segment. Other segments of the abdomen have an olive-green color due to the covering of very short golden hairs, somewhat mixed with black hair, on the black integument. The hairs are a little longer at the sides of the last segments. Hair of pronotum, pleuræ and legs dark brown. Yellow hairs mixed in on vertex; white on cheeks. Wings iridescent copper, subhyaline. Legs dark, with dark hair; some yellow mixed on all tibiæ, and on basitarsi. Length 21 mm.; breadth of abdomen 10 mm.; wing length 18 mm. Genitalia: Fig. 5. There are three males from Banana, August and September.

Friese believes the female may be *M. obscurata* Smith rather than *M. varipes* Smith.

Mesotrichia africana conradti (Enderlein)

MALE.—A medium-sized dark bee distinguished by the bright reddish-brown hairs on mesonotum, and scutellum and first abdominal segment, and the dark olive-green color of rest of abdomen.

Head.—Black; coarsely punctured; clypeus with ochraceous hairs; front and supra-clypeal area with darker hairs; vertex with dark brown hair; some yellow above eyes; cheeks with light ochraceous hairs. Antennæ dark; flagellum from fourth joint on dark red-brown beneath; third joint almost as long as three following. Width between eyes 3½ mm., mandibles toothed and deeply grooved.

Thorax.—Black; long black hair with some yellow intermingling, densely covering pronotum, tegulæ and pleuræ; reddish-brown hair densely covers mesonotum and scutellum except for very narrow medial shiny streak; narrow band of dark-brown hair from postscutellum margins the sharp edge of the thorax.

Abdomen.—Very coarsely and closely punctured; pubescence on segment 1 bright reddish brown with an orange tinge; segments 2 to 7 covered with very short black and yellow hairs giving a dark bronze-green or dark olive-green color; sparse tufting of black hairs on sides of segments 5, 6 and 7.

Legs.—Black, except base of claws and last tarsal segment which are reddish brown. Hair brown, almost black; outer margin of basitarsus I with few light hairs; femora almost bare.

Wings.—Dark smoky brown, with blue, violet and golden iridescence, latter predominating over basal half. Length 18 mm.

Genitalia.—Shown in Fig. 6. Note the close similarity to *M. africana*, Fig. 5, except for relative proportions of length and width.

One male from Niangara, November 1910.

Mesotrichia lepeletieri (Enderlein)

MALE.—Head black; face with short gray to dark gray hair; behind the vertex and above the cheeks short yellow hair; lower cheeks with long gray hair. Antennæ black, joints 4 to 13 rust-red below. Distinguished by the triangular disk of brilliant yellow hair on the thorax, margined by a dense growth of very dark brown-hair on pronotum, pleuræ, and scutellum. Underside of thorax dark brown-haired. All abdominal segments are thickly covered with very short yellow hairs, which over the black integument give a dark olive-green color. There are some longer yellow hairs on the anterior rim of the first segment and fringing the sides of all abdominal segments except the sixth and seventh, on which latter places the long hair is black. However, the median line of the last segments is more yellowish olive-green because of longer yellow hairs. The anal tuft is pale, almost white. Underside of abdomen with dark brown hair; some long gray toward sides of segments 3, 4, and 5.

Legs—Black with very dark brown hair. Tibiæ and basitarsi I posteriorly fringed with long gray hair, and with short yellow hair on ventral side of other tarsal segments.

Length.—20 mm. Width of abdomen 10 mm. Wing length 19 mm.

Genitalia.—Shown in Fig. 7 compare favorably with Fig. 26, figured by Maidl. Note the similarity to the genitalia of *lepeletieri ruboris*, Fig. 8.

Three males from Stanleyville, March 1915.

Mesotrichia lepeletieri ruboris (Strand)

It is puzzling to know if the three specimens at hand are the sort Strand called *M. lepeletieri ruboris*. These are a red variety of *M. lepeleteri* but, upon examination with a lens, the hairs of the abdomen which Strand says are reddish on his specimen are here found to be a pure golden yellow. Mixed with black hairs, they give a very dark olive-green cast to the abdomen. The pubescence of the thorax corresponding to the

yellow region of *M. lepeletieri* is red on these Congo specimens. Assuming that Strand did not observe that the hairs of the abdomen were yellow rather than red, I am identifying these specimens as *lepeletieri ruboris*. His description is insufficient to allow for a more definite determination. See Fig. 8 for genitalia.

There is one male from each of the following: Leopoldville, July; Avakubi, October; and Niangara, November.

Mesotrichia imitator (Smith)

The male of this species is probably described under another name.

Forty-eight females were taken at six localities scattered from the estuary to the headwaters of the Congo: Banana, April, July, August, September; Stanleyville, March and April; Avakubi, October and November; Medje, July; Poko, August; and Niangara, November.

Mesotrichia albiceps (Fabricius)

M. albiceps is the miniature of *imitator*, but, unlike *imitator*, it does not bear the abdominal pouch. It is rather remarkable that the male of this very common and wide-spread species is not known. Vachal states that his *nigricans* (1910) may possibly be the male. Among the 113 specimens obtained from sixteen of the twenty-two localities there is a variation in size ranging from 13 mm. to 17 mm. Though there is no definite correlation between size and locality, on the whole those from the lower regions of the Congo were the smaller. The localities represented are Banana, July, August, September; Malela, July; Zambi, June; Matadi, June; Boma, June; Thysville, June; Kinshasa, May; Lisala, May; Stanleyville, March, April, May; Batama, September; Avakubi, October; Medje, July; Niangara, November; Vankerckhovenville, April; Faradje, March, April, November, and December; and Garamba, July.

Mesotrichia nigrita (Fabricius)

The males and females are large and robust, and entirely different in appearance.

FEMALE.—Black; with black hair except dirty cream-colored hair on face from posterior ocelli to labrum, on cheeks, tibiæ and tarsi I, pleuræ and mesosternum, and tufts on sides of segments 2 to 6 of abdomen. Length 30 mm. Wings dark with brown and violet iridescence, 27 mm. long.

MALE.—Dark brown, except marginal border and median line of clypeus, supracypeal area, under side of antennæ, basal mandibular spots. Entire body densely covered with light red-brown hair. Wings golden, hyaline; 28 mm. long. Body length 33–37 mm. Genitalia: Fig. 9, from a meduim-sized specimen from Stanleyville.

The collection contains specimens from Malela, July and August; Zambi, April; Stanleyville, Jan. to April; Bafwasende, Nov.; Avakubi, Oct.; Gamangui, Feb.; Medje, April; and Niangara, November.

Mesotrichia cloti (Vachal)

FEMALE.—Black; white pubescence on face, pleuræ, first tibiæ and in small marginal tufts at sides of abdominal segments 2 to 5. Wings dark, with blue and green iridescence. Length 23–26 mm. Wings 21 mm.

There are specimens from Stanleyville, April; Avakubi, October; and Niangara, November.

Mesotrichia luteola (Lepeletier)

The large number of medium-sized olive-green males and the black females with yellow hair on thorax and first abdominal segment called for a great deal of study. Locality sorting brought out two major groups among the females: one having brighter, clearer yellow pubescence, wings with somewhat more blue iridescence, and a shorter abdomen, all taken from June to September, from the lower Congo localities; and the other group having the more dingy yellow hair and the more distended abdomen, all from the upper districts of the Congo. This latter group could be sorted into lots according to size variation: 16 mm., 18–19 mm., 22 mm. The small and medium-sized specimens were entirely from two districts: Garamba and Faradje. It is very evident from the condition of the pubescence that the specimens were killed or preserved under different conditions. Those from the lower Congo localities were preserved dry, the others had been in a liquid medium. Just how much the color of the hair and wings was affected by the liquid is hard to judge. Further, different killing agents used on the two major lots may have caused a difference in the distention of the abdomen. The medium-sized bees of the more dingy color agreed in size and general form with the brighter-colored estuary group, which were determined as *M. luteola* Lepeletier. The extremes of size variation are no greater in this lot of bees than were found among *M. albiceps* and other species. There seems to be no morphological features upon which to base different species or subspecies. However, these may well represent different races if the methods of killing and preserving do not account for the group variations. The two specimens from Coquilhatville, taken May 19, 1915, have darker and duller yellow pubescence on the thorax and first abdominal segment.

The males fall into two major groups, also locality groups, showing the same difference in color tone and condition of the yellow pubescence

presumably due to the different killing or preserving agents used. The examination and comparison of genitalia showed no perceptible difference between the specimens of the two localities, other than normal variations. There are slight variations in the pale tegumentous markings on the clypeus and basal spots on the labrum. Again, it is judged that these are merely racial differences. Microscopic examination of a half dozen genitalia showed their similarity of form.

FEMALE (of lower Congo localities, resembling specimen of *M. luteola* in Cockerell's collection, obtained from F. Smith collection).—Head, black; pubescence black or very dark brown; very closely puctate except on malar space, clypeal margin and median clypeal line, and also more sparse lateral to the posterior ocelli. Antennæ black; reddish on under side from segment 4 to tip. Width between eyes 3½ mm. Thorax, black; pubescence bright yellow on notum, pleuræ and surrounding the tegulæ, leaving a small bare highly polished unpunctured central disk; sternum with very dark brown hairs. Abdomen: Segment 1 yellow-haired above; other segments and underside very sparingly covered with short black pubescence; anal tuft of short reddish hairs. Legs, black, with very dark brown pubescence. Wings: Coppery hyaline base, darker and with blue and violet iridescence in apical half; length 17mm. Length: 18–20 mm.

MALE (of lower estuary localities).—Black, except: antennæ beneath, anterior margin and medial line of clypeus, two spots on labrum, which are reddish yellow, and base of claws which are reddish. Width between eyes 3 mm. Pubescence on head, notum, and sides of thorax, tibiæ and basitarsi I and upper area of tibiæ II and III, rather long and thick, yellow. Tergum with sparse covering of short yellow hairs mixed with black or very dark brown, giving an olive-green cast. Lateral fringe on last segments black; anal tuft yellow. Ventral side of body with sparse covering of very dark brown hair; tarsi II and III with dark brown hair. Wings are subhyaline, dusky golden with violet iridescence. Wing: 15 mm. Length: 16–18 mm. Genitalia shown in Fig. 10 and Fig. 11, taken from the differing lots from widely separated localities, from Boma and Garamba respectively, indicate very slight variation. They are similar to Fig. 22 of *luteola*, copied from Maidl. He has evidently erroneously credited this species to Vachal rather than to Lepeletier.

Specimens.—(*a*.) Those with bright yellow pubescence, bluer wings, and shorter abdomen were from the lower river localities, points south of the Equatorial Rain Forest, as follows: Banana, July to September; Malela, July, August; Boma, June; Matadi, June; and a female from Lisala (Rain Forest Region), May. (*b*.) Those with dingy yellow hairs, more elongate abdomen, from north of the Equatorial Rain Forest: Faradje, March, Nov. and Dec.; Garamba, June, July; and a female from Niangara, November. (*c*) Like *b* but from the Rain Forest region: one female from Stanleyville; one from Medje, August; and two having yellow hairs more orange from Coquilhatville.

Mesotrichia langi, new species

MALE.—Type from Faradje, April 1911.

Head.—Black; antennæ beneath, except segments 2 and 3, testaceous. Dark hair on face rather long and not dense, mixed with some gray; area surrounding upper half of eyes thinly covered with very short yellow hair; labrum and mandibles with golden-brown hair. Clypeus has shining lower margin, lateral edges irregularly ridged, shining, meeting on short horizontal line below supra-clypeal area; slightly raised keel at base of anterior ocellus. Head closely and coarsely punctate. Labrum grooved and toothed. Greatest distance between eyes 2½ mm.; eyes slightly converging above and below.

Thorax.—Black; notum with thick covering of yellow hair except for very narrow median longitudinal stripe which is bald and shining. Tegulæ covered with yellow hairs. Pleuræ and ventral side with black hairs.

Abdomen.—Black; well covered with fine punctures. Yellow pubescence on segment 1 and extending on to segment 2 moderately long; all yellow pubescence on other segments very short and very sparse. Black fringe on sides of last abdominal segments; short black pubescence across last two segments.

Legs.—Black, with rather short black hairs except longer on each basitarsus.

Wings.—Smoky, with golden iridescence over basal half, rose and copper over apical half. 11 mm. long.

Length.—14 mm.

Genitalia.—Fig. 12. Very similar to Fig. 20 of *M. anicula* Vachal, copied from Maidl.

Mesotrichia nigricaula, new species

MALE.—Small, quit similar to *divisa* Klug, but differs by having flagellum and scape light below, by having hair on tarsi and tibiæ II yellow, and having the hairs of last abdominal segment dark.

Type and Paratype.—From Garamba, June–July 1912.

Head.—Black, except antennæ beneath, spot at base of mandibles, lower margin of clypeus, which are yellow. Densely covered with golden-yellow pubescence. Labrum and base of mandibles coarsely punctate. Greatest diameter between eyes 2 mm.

Thorax.—Black; notum and pleuræ densely covered with golden-yellow hairs; small central dorsal disk bare, shining; sternum rather bare with very few short dark brown hairs mixed with yellow.

Abdomen.—Black; closely punctate, more finely and densely so at sides; long yellow hairs on segment 1, short sparse covering on 2 and 3, a few very short black hairs on 4 and 5, longer black hairs fringing on last segments. Venter almost bare, few short yellow hairs mixed with dark; some longer yellow hair near sides of last segments.

Legs—Dark mahogany; last tarsal segments and base of claws reddish. Femora almost bare; first legs with long yellow hairs on tibiæ and tarsi; tibiæ II and III with long yellow hairs, except longitudinal streak of short dark brown near distal end; on tarsi II and III a mixture of long yellow golden-brown and dark brown hairs.

Wings.—Subhyaline, with gold, violet and some blue iridescence. Length 12 mm.

Length.—13–14 mm.

Genitalia.—Fig. 13; rather similar to that of Fig. 25, of *M. divisa* Klug.

Mesotrichia stanleyi, new species

Ten males from Stanleyville, March and April, run very close to the description of *M. gabonia* Gribodo, which description, 1894 (quoted in Friese, 1909), fails to mention a large thick blunt testaceous tibial spur on leg III.

They may be easily confused with *calcarata*, new species, but are slightly more robust. *M. gabonica* has been found at Gabun, Congo, and Sierra Leone.

MALE.—Type from Stanleyville, April 1915.

Body.—Black, except scape, and flagellum past third segment, lateral marginal spots on clypeus, basal spots on mandibles, which are light testaceous; while apical part of last tarsal segments and base of claws are red. Thick covering of yellow hairs with some black mixed in on head, thorax and abdomen, giving a yellowish-green color; narrow median bald stripe on thorax; hairs of abdominal segments 3 to 6 shorter and more reclining, and sparse through median line causing a dark streak. Anal tuft very light yellow, bordered with long black hair. Ventral side of thorax and abdomen with sparse covering of golden-brown pubescence, necktie tuft on prosternum; ventral abdominal segments have a thin marginal fringe of long light yellow hairs except through medial area.

Legs.—All tibiæ with long yellow hairs; however, very short dark brown hairs form a longitudinal apical streak 1 mm. long on second tibiæ, and a similar streak 2 mm. long on third tibiæ; tarsi with fringe of golden yellow, some long dark brown hair mixed with the golden yellow on tarsi II, and considerable brown hair mixed in on tarsi III. A heavy, blunt, testaceous, tibial spur 2 mm. long, on legs III.

Wing.—Hyaline, marginal cell and first submarginal clouded; golden, with some rose and violet iridescence in apical third. 14 mm. long.

Length.—15–16 mm., width of abdomen 7–7½ mm., intertegular distance 5½–6 mm.

Genitalia.—Fig. 14.

Mesotrichia calcarata, new species

MALE.—Type from Garamba, June–July 1916. A small bee of olive-green cast, similar to description of *M. gabonica* and very similar to *M. stanleyi*, new species, which latter possess also the heavy blunt testaceous tibial spur on the third legs. *M. calcarata* male is distinguished from *M. stanleyi* by being slightly smaller and less robust, wings showing slightly more cloudiness at apex, distance between eyes being slightly less, width of head slightly less, being 4 mm., while *stanleyi* is 4½ mm.

Head.—Black, except evanescent lateral spots on labrum, basal spots on mandibles, antennæ beneath, except segments 2 and 3, which are testaceous. Malar space reduced; labrum with proximal concave ridge, distal portion convex, closely punctured, sharply toothed. Greatest distance between eyes 2.5 mm., 2 mm. at vertex, from 1.5 to 1.7 mm. at base. Hair of face yellow, rather long, with some black hair intermingling. Face closely punctured. Hair of cheeks and occiput long. Width of head 4 mm.

Thorax.—Black; dorsum and pleuræ and tegulæ well covered with long yellow hairs intermingled with black; closely punctured except on narrow, short medial

bare, shining ridge. Ventral surface with sparse covering of golden-brown hair. Tegulæ show central bald shiny spot. Width between tegulæ 5 mm.

Abdomen.—Closely punctured and covered with short yellow hair with some black, though more sparing through medial line; hair longer on segment 1 and on sides of 2 and on sides of 5 and 6, and fringe long, yellow, flanked by fringe of long black hair. Width 6 mm.

Legs.—Black, except last tarsal segment and bases of claws of all legs, dark red. Femora practically bare; tibiæ with rather long yellow hair; distal streak of very short dark hair on tibiæ II about 1 mm. long; streak on tibiæ III about 2 mm. long; basitarsi I and II with long fringe of golden-yellow hairs, some dark brown intermingling; basitarsi III with much dark brown on dorsal side, entirely dark brown on under side. Long, thick, blunt, testaceous spur on tibiæ III.

Wings.—Semi-hyaline, golden with some rose and slight amount of blue iridescence. Length 12 mm.

Length.—13–14 mm.

Genitalia.—Fig. 15.

FEMALE.—Allotype from Garamba, July 1912. This is a small black bee with yellow hair on thorax and first abdominal segment, central bald thoracic disk, dusky wings, with green and purple iridescence at apex, semi-hyaline over basal half where iridescence is rose and gold. Does not bear abdominal pouch. S. A. Rohwer reported on this specimen sent for comparison with National Museum specimens, "nearest to *M. scionensis* Grib. determined by Friese, but it lacks lateral oblique ridges on clypeus and has the tergites more closely sculptured."

Head.—Black, except dark testaceous on under side of flagellum from the third segment to tip. Malar space greatly reduced. Punctures very close and rather coarse. Malar space, lower central margin of clypeus, apical part of mandibles, base of supraclypeal area, unpunctured, shining. Eyes light, greatest distance between them 3 mm., converging to 2.5 mm. Thin covering of a mixture of black and dirty yellowish hairs over face, very sparse or worn off across vertex and super-orbital area, black hair on occiput and cheeks. Labrum with shining golden-brown fringe; small medial tubercle. Mandibles grooved, with few golden-brown hairs.

Thorax.—Black; with golden-yellow hairs on dorsum and pleuræ, black on ventral side. Bald, shiny, unpunctured dorsal disk about 1.5 mm. in diameter. Width between tegulæ 4 mm.

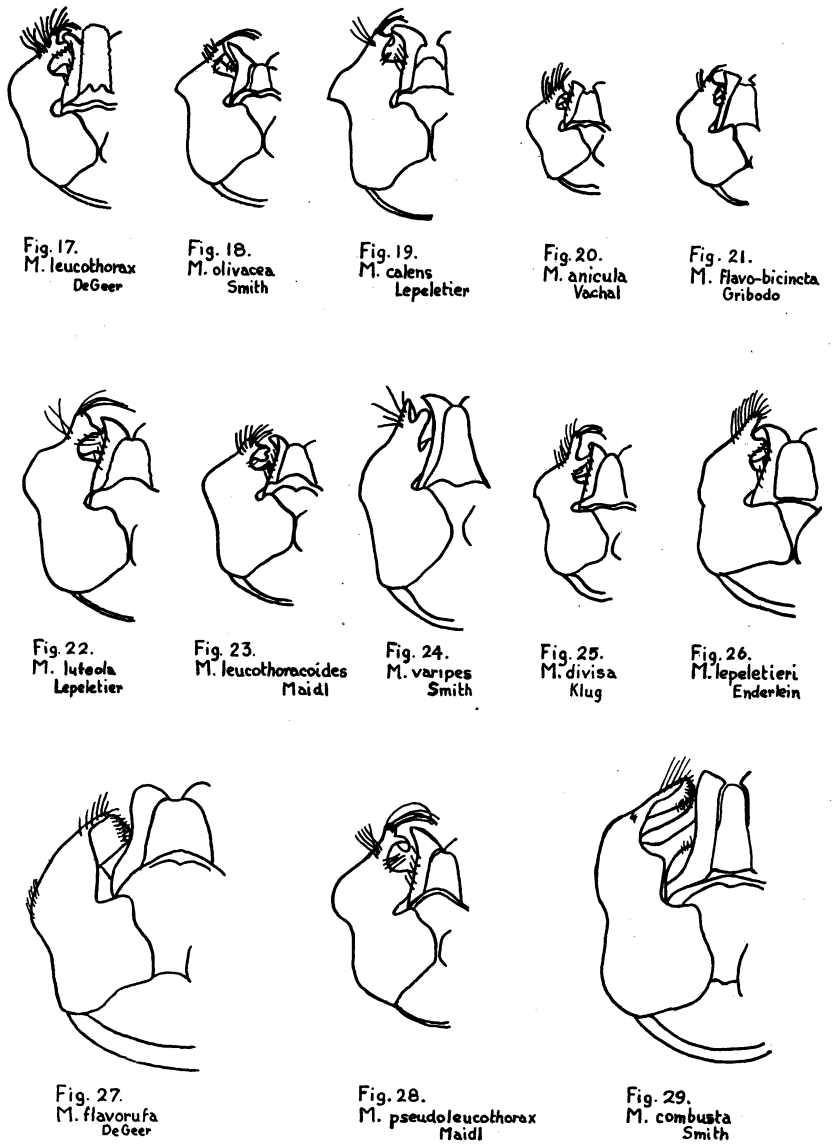
Abdomen.—Black; well punctured, more closely so along sides; sparse covering of short yellow hairs on first segment, some short black hairs on sides of segments 2, 3 and 4, slightly longer fringe, rather brownish, on segments 5 and 6, small group of short reddish hairs for anal tuft. Width 7 mm.

Legs.—Black, except last tarsal segment and bases of claws reddish. Hair black or very dark brown; ventral side of basitarsus I golden brown.

Wings.—Dusky, with green and some purple iridescence over apical half; semi-hyaline, golden with some rose iridescence over basal half. Length 13 mm.

Length.—14 mm.

There are 7 males and 20 females from Garamba, June and July; 5 females from Faradje, Nov., Dec.; and the following males: 2, Banana, Aug., Sept.; 3, Boma, June; 1, Matadi, June; 4, Stanleyville, April; and 2 from Avakubi, October.



Figs. 17 to 29. Genitalia of African species of *Mesotrichia* figured by Maidl in 'Die Xylocopen (Holzbienen) des Wiener Hofmuseums.' 1912.

Xylocopa chiyakensis (Cockerell)

The species *chiyakensis* undoubtedly belongs to *Xylocopa* rather than to *Mesotrichia*. The large, robust, black female does not have the abdominal pouch, which is a feature of almost all of the species of *Mesotrichia*. Other facts which indicate that it is intermediate between *Xylocopa* proper and the *Mesotrichia* group, or belongs to *Xylocopa s. str.*, are that the metathorax is convex, rather than concave, and that the margin of the scutellum is not as sharp as usual in the *Mesotrichia* group. The males also show the convex metathorax. Their genitalia are more nearly like the general form of those of the African forms of *X. s. str.* figured in Maidl, for instance, *X. tarsata* or *X. gaullei*.

The female specimen of *inconstans* Smith from Abyssinia, (Sayansiti), determined by Gribodo, in the Cockerell collection, formerly of the F. Smith collection, has the convex metathorax of *Xylocopa*, the less acute margin of the scutellum, and does not have the abdominal pouch. This pouch, wherein may be found mites of the genus *Paragreenia*, has been found in all of the larger sized species of *Mesotrichia*, except *M. varipes* Sm., *M. varipes parva* Enderlein, and in all of the smaller species, except *M. albiceps* Fabricius and *M. calcarata*, new species.

Friese, 1909, considers the female *chiyakensis* (Cockerell), 1908, as merely a yellow form of *inconstans* Smith, and misquotes Cockerell in respect to his assertion concerning the presence of yellow pubescence on the first abdominal segment. Cockerell distinctly says that there is yellow hair on that segment and contrasts *chiyakensis* with *flavescens* Vachal, which latter form has segment 1 with black hair. Friese (page 253) adds *inconstans* var. *flavocincta* on the basis of the scutellum and segment 1 being yellow-haired. Accordingly, *flavocincta* is a synonym of *chiyakensis* (Cockerell).

We may assume that the five males taken on the same dates at the same localities with the nine *chiyakensis* females are the *chiyakensis* males. They differ from the Radoszkowski (1876) description of the male of *inconstans* Smith by having a light yellow spot at the base of the mandibles, by the yellow pubescence not being bright ("vive"), but rather a reddish or brownish yellow—in fact it is the buckthorn brown of Ridgway's 'Color Standards and Nomenclature.' Pubescence on inner side of tibiæ and basitarsi III is dark brown; that of a median streak on outer side of tibiæ III, lateral margins of last four abdominal segments, anal tuft, and venter, a reddish brown. Length: 25 mm. to 32 mm. A specimen from Faradje, November 1912, had the second cubital cell divided, the small basal cell resulting forming a cell about twice as long as broad. The

genitalia of *Xylocopa chiyakensis*, from a specimen from Garamba, are shown in Fig. 16.

From the description of the male *inconstans*, I judge that it is much lighter than the male *chiyakensis*, though otherwise rather similar.

Specimens were obtained from the region north of the Equatorial Rain Forest as follows: 5 females and 3 males from Garamba, June, July; and 4 females and 2 males from Faradje, October to January.

BIBLIOGRAPHY

COCKERELL, T. D. A. 1908. 'Some Bees Collected by F. C. Wellman in West Africa.' The Entomologist, London, XLI, pp. 34–36.

1917. 'New Records of Bees from Natal.' Annals of Durban Museum, I, part 5, pp. 460–468.

1922. 'Description and Records of Bees, XCIV.' Ann. Mag. Nat. History, (9) IX, June, p. 666.

DUSMET Y ALONSO, J. 1924. 'Las *Xylocopa* en las Colecciones de Madrid.' Trabajos del Museo Nacional de Ciencias Naturales. Serie Zoologica, Num. 49. Madrid, pp. 5–58.

ENDERLEIN, G. 1903. 'Neue und Weniger Bekannte Africanische *Xylocopen*, besonders aus der Ausbente des Freiherrn von Erlanger in Galla and Somali.' Berl. Entomol. Zeitschrift, XLVIII, pp. 45–64.

FRIESE, H. 1903. 'Neue Arten der Biengattung *Xylocopa* Latr. aus der Neotropischen und Orientalishen Region.' Zeitschrift für Hymenopterologie und Dipterologie. Heft 3, pp. 202–208.

1909. 'V. Die Bienen Afrikas nach dem Stande unserer heutigen Kenntnisse.' Jenaische Denkschrift, XIV, pp. 83–475.

1911. 'Neue Arten der Bienengattung *Xylocopa*.' Deutsch. Ent. Zeitschr., pp. 658–687.

1915. 'Zur bienenfauna von Abessinien.' Deutsch. Ent. Zeitschr., pp. 265–298.

1921. 'Apidæ.' Ergebnisse der 'Zweiten Deutschen Zentral-Africa Expedition 1910–1911,' pp. 1091–1112.

1922. 'III. Nachtrag zu "Bienen Afrikas." ' Zoologischen Jahrbüchern, XLVI, Abt. f. Systematik, pp. 1–42.

MAIDL, F. 1912. 'Die *Xylocopen* (Holzbienen) des Wiener Hofmuseums. Ein Beitrag zu einer Monographie dieser Gattung.' Annalen des k. k. Naturhistorischen Hofmuseums, XXVI, Hefte 3 und 4, Wien, pp. 249–330.

PEREZ, J. 1901. 'Contribution a L'Etude des *Xylocopes*.' Actes. de la Société Linnéenne de Bordeaux, (6) VI, (128 pages).

STRAND, E. 1910. 'Wissenschaftliche Ergebnisse der deutschen Zentral-Africa-Expedition 1907–1908 unter Führung Adolf Friedrichs, Herzog zu Mecklenburg.' Berlin, Kgl. Zoolog. Museum, pp. 135–166.

1911. 'Faunistische und systematische Notizen über Afrikanische Bienen.' Wiener Entomologischen Zeitung, XXX.

1912. 'Zoologische Ergebnisse der Expedition des Herrn G. Tessmann nach Sud-Kamerun und Spanish-Guinea. Bienen.' Mitteilungen aus dem Zoologischen Museum in Berlin, VI, part 2, pp. 265–312.

1914. 'Ueber einige afrikanische Bienen des Deutschen Entomologischen Museums.' Archiv für Naturgeschichte, Heft 9, pp. 61–68.

1920. 'Notes sur quelques Apides du Congo belge.' Rev. Zool. Afric. Bruxelles, VIII, pp. 87–106.

VACHAL, J. 1898. 'Materiaux pour une Revision des Espéces Africaines du Genre *Xylocopa* Latr.' Extrait Des Annales de la Societe Entomologique de France, LXVII, pp. 92–99.

1899. 'Essai D'une Révision Synoptique des Espèces Européennes et Africaines du Genre *Xylocopa* Latr.' Extrait des Miscellanea Entomologica, Narbonne, VII, pp. 1044.

1909. 'Insectes hyménoptères: Melliferes.' (Collections recueillies par M. le Baron Maurice de Rothschild dans l'Afrique Orientale) Bulletin du Muséum d'histoire naturelle, No. 8, pp. 529–534.

1910. 'Diagnoses D'Insectes Nouveaux recueillis dans le Congo Belge par le D'Sheffield-Neave.' Extraite des Annales de la Societe Entomologique de Belgique, LIV, pp. 306–328.