

on the membrane at its apex. Inferior appendage broad at its base, upper apical angle produced in a somewhat incurved finger. In side view the upper margin of the appendage is humped near the base, and there is a very small protuberance just before the apex. From beneath, the inner apical angle is roundly rectangular.

Length of fore-wing 9.5 mm.

ASSAM: Khasi Hills, McLachlan Collection, 3 ♂♂.

Type (in the form of a microscope preparation) and paratypes in B.M.N.H. In general appearance this species resembles *L. insolitus*, but is smaller. The ♂ genitalia differ in the long production of the ninth dorsal segment, the distally, not downwardly, directed spines of the tenth segment (in *insolitus* both pairs of spines are out-curved in dorsal aspect) and in the different form of the inferior appendages.

Key to Males of *Limnocentropus* spp.

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|---|-----------------------------|
| 1. Plates of 10th segment each simple, not branched or bifid | 2. |
| Plates of 10th segment each bifid or branched. | 5. |
| 2. Bornean species | <i>L. grandis</i> Bks. |
| Mainland species | 3. |
| 3. Apex of inferior appendage distinctly two-branched. | <i>L. bifidus</i> , sp. n. |
| Apex simple | 4. |
| 4. Plates of 10th segment, from side, rounded apically | <i>L. fletcheri</i> Mos. |
| Plates of 10th segment pointed apically | <i>L. moselyi</i> , sp. n. |
| 5. Inferior appendage, from side, bent up at apex. | <i>L. borneonius</i> Ulm. |
| Inferior appendage not bent up at apex | 6. |
| 6. Forks or branches of 10th segment approximately equal in length | <i>L. mergatus</i> , sp. n. |
| Inner fork longer than outer | 7. |
| 7. Inner fork from side curving downward: from above, both forks out-curved | <i>L. insolitus</i> Ulm. |
| Both forks directed tailward from side, outer fork curving inward | <i>L. rectus</i> , sp. n. |

List of the Described Species of the Genus *Limnocentropus* Ulmer.

- L. grandis* Banks, 1934, J. Fed. Malay St. Mus. xvii. p. 572, fig. 21. Borneo.
- L. bifidus*, sp. n. N.E. Burma.
- L. fletcheri* Mosely, 1935, J. Bombay Nat. Hist. Soc. xxxviii. p. 132, figs. 34-7. Sikkim.
- L. moselyi*, sp. n. N.E. Burma.
- L. borneonius* Ulmer, 1930, Treubia, xi. p. 457, figs. 124-7. Borneo.
- L. mergatus*, sp. n. Sikkim, ? Assam.

- L. insolitus* Ulmer, 1907, Coll. Zool. Selys, fasc. 6, p. 13 (♀). Japan.
- L. insolitus* Ulmer, 1907, Genera Insect. fasc. 60 a, p. 28.
- L. insolitus* Ulmer, 1907, Notes Leyd. Mus. xxix. p. 2, figs. 1-2 (♂).
- L. insolitus* Nakahara, 1913, Canad. Ent. xlv. p. 327.
- L. insolitus* Martynov, 1924, Ann. Mag. N. H. (9), xiv. p. 213. Japan, Darjiling.
- L. insolitus* Ulmer, 1925, Arch. Naturgesch. xci. A, p. 63.
- Kitagamia montana* Iwata, 1927, Annot. Zool. Jap. xi. p. 215.
- L. insolitus* Martynov, 1930, Proc. Zool. Soc. Lond. 1930, pp. 91, 110-11.
- L. insolitus* Ulmer, 1932-3, Pekin Nat. Hist. Bull. vii. p. 148. China, Japan, Darjiling, Sikkim.
- L. insolitus* Mosely, 1935, J. Bombay Nat. Hist. Soc. xxxviii. p. 131, figs. 27-31. Darjiling, ? Sikkim.
- Kitagamia montana* Tsuda, 1936, Annot. Zool. Jap. xv. p. 395, pl. 25.
- L. himalayensis* Martynov, 1930, Proc. Zool. Soc. Lond. 1930, p. 91 (♀). Sikkim.
- L. rectus*, sp. n. Assam.

L.—Studies upon Syrphid Flies in the British Museum (Natural History). By FRANK M. HULL (University of Mississippi).

SEVERAL years ago the author was privileged to study an accumulation of undescribed Syrphid flies in the British Museum (Natural History). This paper presents the descriptions of miscellaneous species.

Spilomyia chinense, sp. n.

A black species with considerable amount of lighter coloration which tends to be reddish or brownish orange rather than yellow. Related to *maxima* Sack and *suzukii* Matsumura. However, the basal half or more of each femora is blackish and the whole of the first and second basal cells is orange to brown as well as the area above the third vein. Length 16 mm.

Female.—*Head*: the vertex, front and face entirely light yellowish to orange-brown: there is no trace of a medial dark stripe upon the face. There is a very small, subcircular spot on the cheeks along the eye-margin and another roundish one upon the posterior part of the cheeks behind the crease which are brownish black. The silvery pubescence of the face is limited to a narrow area on the lower part and narrowly along the eye-margins: above, it extends for a short distance towards the antennæ. The

antennæ are short and wholly orange with brownish tinge ; the arista is missing ; the first and second are segments of about the same length, each with black microsetæ dorsally and yellowish ones medially. The eyes are bare with only a single stripe, which is, however, irregular and somewhat broken ; this stripe lies on the posterior half of the eyes and anteriorly there are numerous small scattered spots on the upper half which cannot be called stripes. In addition the anterior and posterior margins are linearly blackish. *Thorax* : rather dull black with conspicuous light brownish-orange markings. The convex bulbous humeri and a larger, posteriorly concave, adjacent, antero-medial, subrectangular spot are so coloured. Also the postcallus, its apex excepted, and the usual sublateral, anteriorly curved, yellowish vittæ are brownish orange. This vitta ends at the transverse suture and curves inward, but only for a short distance, where it is continued by a quite linear grey suture marginal stripe. Other brownish-orange areas consist of a small spot on the posterior part of the mesopleura, a slightly rounded triangle in front of the scutellum which, however, is separated from the scutellum narrowly by black and a quite small darker spot on the upper part of the sternopleura. There is, moreover, a rather bright yellow vertical stripe on the posterior part of the mesopleura. Thus the pleura are black except for one large bright stripe and one quite small dark spot. The scutellum is dark reddish brown on the basal two-thirds, diffusely merging with the bright yellow rim. The base of the scutellum on either side just behind the postcalli has a small blackish spot. The pile of the scutellum is of moderate length, erect and entirely yellow. There is a marked transverse sunken area on the posterior half of the scutellum of considerable size. The metanotum is quite black, with greyish-white pollen above, margined on either side by a slender brown line. The squamæ are pale brown with darker fringe, the halteres orange. *Abdomen* : first segment entirely black, second entirely black except for a conspicuous, subbasal, brownish-yellow fascia narrowly touching the midline, where it is indented ; it is expanded towards the side margin where it continues posteriorly, though narrowly, to the end of the segment, and at the end of the segment it extends inward but quickly narrows to a microscopically narrow and

quite inconspicuous posterior margin. Laterally the narrow yellow margin does not reach the anterior corners. The third segment is similarly marked although laterally the basal fascia does not expand, and as a result the black at the base of the segment does expand laterally. The posterior margin of this segment has a conspicuous light brownish-yellow fascia also which is twice as wide in the middle as at the sides. The posterior fascia turns up along the sides for a short distance. Fourth segment with a subcrescentic, subbasal, yellow-brown fascia which in the middle virtually touches the base of the segment but laterally comes to a point and does not quite reach the narrowly reddish margin, from which it is separated by black. The posterior part of this segment is widely reddish, especially in the middle, where the red is more than half as long as the segment. The fifth segment is chiefly reddish brown. The sternites are almost wholly black except their narrow posterior margins and the last half of the fifth. *Legs* : the legs are almost wholly light reddish or brownish orange, except the basal half of the anterior and middle femora and the basal two-thirds of the posterior femora which are black, merging into the reddish apically. The basal third or half of all of the tibiæ with pale yellow colour instead of orange ; hind tibiæ with a small diffuse, linear, brownish spot in the middle. The spur of the hind femora is large and elongate ; the femoral pile is entirely pile, including the black area. The pile of the abdomen is everywhere short and entirely brassy except on the basal black fascia of the third and fourth segments and towards the apex of the fourth segment and the whole of the fifth segment, where it is black. The pile of the first segment is suberect but entirely short and pale, a little longer on the sides. *Wings* : the costal cell, stigmal cell, marginal, submarginal cells and the whole of the first basal cell as far as the anterior cross-vein and virtually all of the second basal cell are light reddish brown to yellowish. The submarginal cell and the area above and below this cell which borders the second and third veins and externally borders the anterior cross-vein is brownish ; the remainder of the coloured area is more of a yellowish red. The posterior border of the fifth vein is also reddish as far as the small cross-vein.

Holotype: a female, the Mekong River north of Yei-Chih, 6400 ft., 4. vii. 1922. From Yunnan, southwest China; coll. by Prof. J. W. Gregory.

Milesia simillima, sp. n.

A bright yellow and black species, the anterior half of the wings dark brown; the face is yellow with a medial black stripe. Related to *reinwardti* Wiedemann. The face is black in the middle and the wings are brown instead of yellow. Length 21 mm.

Male.—*Head*: the ocellar region of the vertex and the area behind are dull shining black; immediately in front of the ocelli the long, slender, vertical triangle is golden pollinose, yellow in background and yellow pilose. The posterior vertical pile is black. The front is light yellow except for a large, somewhat triangular, though narrow and posteriorly rounded, black spot which lies on the middle of the anterior two-thirds and encloses the antennal callus. The face is pale yellow, golden pollinose and pilose with a prominent medial black stripe upon the lower two-thirds of the face. There is a large black triangle on the anterior portion of the cheeks; it does not quite reach the epistoma. The frontal pile is yellow, the eyes bare and holoptic for only a short distance. The first and second antennal segments are light brown, the third blackish brown. *Thorax*: the large humeri and the almost equally large subtriangular, yet posteriorly rounded, lateral spot which lies behind and bordering the transverse suture, together with the post-calli and the wide posterior border of the scutellum, are pale yellow. The scutellum has a narrow thin rim. There is a quite large pale yellow spot on the posterior half of the mesopleura, upper half of sternopleura, whole of the pteropleura, metapleura and propleura. Upon the mesonotum there are yellowish or light golden pollinose markings; there is a pair of prominent, widely separated, posteriorly attenuated, anteriorly constricted vittæ which at the extreme anterior margin expand widely to reach the humeri and at the lateral suture are narrowly connected with a yellow spot. This pair of vittæ does not quite connect with a wide posterior fascia in front of the scutellum. The thoracic pile is everywhere yellow or light golden. The squamæ and halteres are pale yellow.

The basal half or more of the scutellum and the remainder of the mesonotum are shining blackish. *Abdomen*: moderately slender, the first segment black except narrowly along the anterior corners, the second segment is black over most of the posterior part of the segment with anteriorly a pair of quite large, clear, pale yellow, sharply marked triangular spots. These spots are rounded on the medial ends where they are narrowly separated and do not quite lie along the basal margin of the segment. The opaque black of the posterior part of the segment narrowly divides the yellow spot and runs still more narrowly along the basal margin of the segment almost to the lateral margin, and as far as the appearance from above is concerned, the black reaches quite to the lateral margin. The yellow spot along the lateral margin occupies rather more than half the length of the segment; the black area encloses a shining blue fascia. The third segment is quite similar, except that the yellow spots are barely smaller on the second segment and equally narrowly separated, the medial ends rounded, yet narrower, and the yellow spots lie exactly on the basal margin. The black of this segment also encloses a blue fascia. The fourth segment is similar to the third, the yellow spots of nearly the same size. The segment is, however, longer than wide, the entire posterior half, somewhat less on the sides, shining blue and enclosing a pair of separated, shining, orange-brown, fascia-like spots which do not reach the sides. The pile of the abdomen is appressed, short and black over all of the black areas, yellow throughout upon the yellow spots, likewise black along the lateral margins, where the black reaches the lateral margin. *Legs*: the anterior and middle coxæ and posterior coxæ, except for a ventral blackish spot, are all yellow. The metasternum is golden pilose, the hind femora are brownish yellow with ventrally a black streak on the basal half, and on the dorsal surface blackish throughout from base to apex. The pile is everywhere golden, even on the ventral subapex, but with a few blackish hairs at the apex above. The spine is quite long, yellow and golden pilose. The anterior femora are wholly yellow except a ventral blackish streak on the ventral half. The middle femora have a ventral streak running nearly the full length and with a diffuse short, brown, apical dorsal streak. The

anterior and middle tibiæ are wholly pale yellow and golden pilose. The middle tibia has a long golden fringe on one side. The hind tibiæ are yellow except for the dorsal surface of the basal half which is light brown with sepia brown pile, the remainder of its pile golden. All of the tarsi are black. *Wings*: rather dark brown in front of the third vein, also including the narrow basal portion of the first posterior cell; remainder hyaline but appearing slightly brown, due to the very thick brown villi.

Female.—Very similar to the male. Upon the front the medial anterior black spot becomes prolonged as a very slender acute triangle or wedge as far as the ocelli, to which it is connected by a black line. On the fourth abdominal segment the posterior orange-brown spot of the male is in the female replaced by a quite wide, shining, yellow apical band which is narrowly separated in the middle, the inner ends quite rounded. Fifth segment wholly bluish or greenish black. The pile upon the fifth segment in the female is considerably shorter and more sparse. The legs are similar, the femoral spine is shorter, sharper, and less pilose.

Holotype: a male, allotype a female, Soekaboemi, Java; E. Le Mout; there are twelve paratype males and seven paratype females from the same locality. The dates range from iii. to vi. 1926, the majority taken v. 1926. One paratype male from Sumbawa or Sepanjang Island.

Criorrhina rubropilosa, sp. n.

A handsome fly, the face obtusely conical, the thoracic pile almost wholly white, the abdominal pile white, black and red. Related to *pallipilosa* Hull. The face is not long and acutely conical as in that species. Length 14 mm.

Female.—*Head*: the upper part of the front and vertex is dusted with brownish-yellow pollen, the pollen continued in the middle across the front and medially though narrowly down to the antennal callosity. In *pallipilosa* the pollen seems to be absent on the vertex and in front of the antennæ, but there is a wider band of pollen beneath the antennæ in that species. In *rubropilosa* the occipital pile is white, the vertical and frontal pile black, the pile on the upper part of the face reddish. The front and vertex are black in ground colour, becoming red below;

the face is polished, chestnut-red in colour and bare of pollen except narrowly beneath the antennæ where a band runs from eye to eye and for a short distance down the eye-margin. The face is produced diagonally forward and downward and forms almost an equilateral triangle, if the lateral epistomal projections below are not considered. The face has a slight elevation in the middle. The antennæ are orange-brown, the third segment darker brown along the apical margin and considerably deeper than long; arista dark brown. Eyes bare. *Thorax*: black, the ground colour quite obscured anteriorly and posteriorly except for a pair of large wedge-shaped spots lying some distance above the wing. The pollen on the anterior half is greyish white; behind the pollen it is deep brown in colour. All of the thoracic and scutellar pile is long, thick and white except for a very few black hairs above the wing. The surface of the scutellum is densely greyish white pollinose; the mesopleura and pteropleura are similarly pollinose; squamæ dark brown with reddish fringe. *Abdomen*: very broad and short, somewhat elevated on the apical half of the second segment and the basal half of the third segment; the posterior part is turned downward; the abdomen is black in ground colour, only feebly shining, grey pollinose on the basal half of the second segment, bright brownish orange pollinose on the posterior margin of the third segment. The fourth segment is largely yellowish brown pollinose, its anterior corners, its base very narrowly, and a small medial wedge on the base more or less bare and shining black. The fifth segment is also brownish yellow pollinose, with a narrow, medial, bare, wedge-shaped spot. The basal half of the second segment has white pile which is rather long; the posterior half of the second segment and basal half of third segment has dense, erect black pile, not much shorter than that of the base of the abdomen. The posterior part of the third segment, more narrowly towards the sides, and the whole of the fourth and fifth segments have thick, erect, rather long, bright orange-red pile. *Legs*: the femora are dark sepia brown, becoming more yellowish brown apically; their pile is black or brownish black. The tibiæ are reddish brown with short brownish yellow appressed pile. The first four segments of all of the tarsi are light reddish brown;

the last segment is dark brown. *Wings*: the whole of the marginal and submarginal cells and the margins along all of the veins are light brown; the costal cell is also pale brown. Anterior cross-vein oblique, entering the discal cell close to the outer third; the confluence of the apical cross-vein and third vein is some distance from the apex of the wing; the costa ends a short distance from the tip of the wing.

Holotype: a female, Gulmarg, Kashmir, 8500 ft., summer of 1913, by Lt.-Col. F. W. Thompson; two paratype females with the same date.

Criorrhina pallipilosa Hull.

Female.—Similar to the male, but the face completely lacks the dense pale yellow pubescence which completely covers the anterior half of the face and the front in the male. Moreover, the hind femora is not quite so thick; otherwise I can discern no important differences. In the female the pale pile has the same distribution as in the male, but instead of being brownish yellow it is quite white, and the yellow pile of the second segment in the male is replaced by white in the female.

The female is described from one specimen from the same locality from which the type male of the species was taken; at the time the author described *pallipilosa* this single female was confused with a series of females which belonged to a different species, namely *rubropilosa*. A further series is now described as *pallipilosa* var. *bicolorata*, subspecies.

Some additional distinctions between *pallipilosa* female and *rubropilosa* female are the absence of brown pollen on the posterior half of the mesonotum, the dense black band across the mesonotum between the wings, the fact that the second segment of the abdomen is wholly greyish white pilose, and lastly that the wing of *pallipilosa* is almost entirely hyaline, at least much more faintly tinged with brown.

Criorrhina pallipilosa Hull, subspecies
bicolorata, new subspecies.

Female.—In this subspecies apparently the only difference lies in the colour of the pile upon the third and fourth and fifth segments, which is light reddish orange

varying to pale yellow in the typical form, and in this variety the pile of these segments is almost entirely black with a little reddish pile in the centre of the fourth and fifth segments and the apical half of the third segment. Moreover, the pile upon the basal part of the second segment and of the scutellum may be more or less yellowish. In the typical form the pile of the femora is almost entirely pale yellow with some short, inconspicuous, black pile along the ventral margin of the hind femora scattered among longer yellow pile. In *bicolorata* it may be yellow or wholly black.

Holotype: a female, Gulmarg, Kashmir, 8500 ft., summer of 1913; Lt.-Col. F. W. Thompson; four paratype females with the same data.

Microdon simillima, sp. n.

Closely related to *inarmatus* Curran, from which it presents the following differences: the third antennal segment is more elongate, the face has only a very narrow brown streak in the middle which is evanescent on the upper half; there is a small yellow spot on the anterior margin of the wing at the end of the subcostal vein, the subcostal vein, first and second longitudinal veins being also light yellowish; lastly, where there is a conspicuous elongate patch of yellowish-white pile on the ventral and lateral surfaces of the hind tibiae on the basal half in *inarmatus*, the pile is almost entirely black with only a trace of white pile in *simillima*. The hind basitarsi of *simillima* are thicker.

Holotype: a male, British Guiana, Essequibo River, Moreballi Creek, 17. x. 1929, Oxford University Expedition; two paratype males, one with the same date, one dated 25. ix. 1929.

Microdon aurivesta, sp. n.

A narrow species in which the club shaped abdomen is slightly constricted at the end of the second segment and the mesonotum and abdomen bear conspicuous spots and fascia of brilliant golden pile. Related to *gloriosus* Hull; the transparent yellow spots of the second abdominal segment reach widely to the posterior margin. Length 10 mm.

Male.—*Head*: the vertex and front are shining blackish and are rather narrow in the middle portion; the lower portion of the front is constricted in the middle to a sharply creased rounded ridge which anteriorly rises still higher into the sharp antennal process. The face is rather light brownish yellow on the sides, especially below, with a black middle stripe which is quite narrow on the lower half, but gradually widens above sufficiently to reach the eyes at a point which is a short distance below the antennæ. The cheeks are black. The pile of the head is brilliant shining golden. It is appressed along the sides of the occiput and there somewhat flattened, but fine and erect behind, erect upon the vertex, directed anteriorly and posteriorly from either side of the frontal depression and directed obliquely downward upon the face, where the pile is exceptionally long and thick. *Thorax*: the mesonotum is dull shining black, brassy in some reflections, especially in the middle, and bluish in others. The surface is pitted or granulate. The pile of the thorax consists of a prominent band along the anterior margin of quite appressed, brilliant golden pile and a similar, slightly arcuate band running along the posterior part of the notopleura, the transverse suture and completely across the mesonotum, where in the middle it is a little expanded posteriorly. On the sides these two bands of golden pile connect into a wide pleural band of similar pile equally bright and appressed. Along the posterior margin of the mesonotum, broadly expanded laterally to cover more than the postcalli, there is a similar band of pile. The scutellum is blackish basally, gradually becoming rather light, shining, yellowish brown towards the apex. The whole scutellum is thickly covered with similarly appressed long golden pile which completely hides the bare, small, moderately separated, inwardly curved yellow spines. Squamæ and halteres pale orange. *Abdomen*: first and second segments quite flattened: the second, however, is convexly ridged in the middle posteriorly; the first segment is wholly brownish black, its posterior half is nearly bare, semicircular, the margin toothed and fluted, the anterior portion of it very deeply pitted, the large pits bearing flat, appressed, sharp, short, golden setate hairs, the posterior portion transversely striate. The second segment has the anterior corners

and a short inward basal extension brownish black. This segment upon the remainder on each side has a very large, nearly hyaline, pale brownish-yellow spot separated by a medial brownish-black vitta; it is punctate and transversely grooved and the medial vitta expands posteriorly into a large, rounded, blackish spot lying on the middle of the posterior margin. If the fly is rotated, the turned under portion of the lateral margin is blackish almost to the apex of the segment. The middle portion of the hyaline spots is bare, the sides and the lateral corners of the black spot appressed, long, golden pilose. Fourth segment black with an obscure light yellowish fascia on the posterior margin on each lateral third. Except for a narrow band of black pile along the base of this segment and equally narrow down the middle of the segment, the pile is very dense, quite appressed and brilliant golden. The third and fourth segments form an expanded, downwardly enlarged club. The abdomen is narrowest at the end of the second segment. Fourth segment with the entire posterior margin obscurely pale brownish yellow; the basal band of black pile is much wider; the medial band of black pile is a little wider and is replaced by gold pile posteriorly. *Legs*: the hind femora are a little thickened, entirely brownish black except narrowly along the spindly base; the anterior and middle femora are very dark brown dorsally but pale, slightly reddish brown below. The hind tibiæ are sepia throughout; the four anterior tibiæ are medium to dark brown anteriorly, paler and more reddish brown posteriorly. The pile of the femora and tibiæ is chiefly golden to golden brown; in some lights it appears dark. The hind tarsi dark brown, the anterior fore tarsi light brown, all of them shining yellowish pilose. *Wings*: nearly hyaline; there is a very slight brownish tinge near the apex above the third vein and narrow streak across the subapical cross-vein. This may be due to darker and thicker villi. The third vein has a long well-developed spur into the first posterior cell. The subapical cross-vein is nearly straight, a little convex outwardly on its posterior half, but meets the third vein at a right angle.

Holotype: a male, Soekaboemi, Java, vi. 1925: E. Le Moult.

Xylota probosca, sp. n.*

Closely related to *Xylota montana* Miller, but distinguished by the much less abrupt production of the facial tubercle. The pile of the thorax and scutellum is yellowish instead of grey, and the reflection from these parts tends to be brassy rather than blue-black. The pubescence of the front should be described as yellowish grey and not silvery. Length 9 mm.

Male.—*Head*: eyes bare and widely dichoptic in the male, where they are almost as wide as in the female and certainly cannot be described as approximated. The vertex and upper half of the front, that area lying above a narrow transverse impressed line, are moderately shining black with faint brassy reflections, and very sparse grey pollen. Below the impressed line the pollen becomes dense and yellowish or brownish grey and extends down to the upper part of the face, thinning out towards the middle of the face. The pile of the vertex and front is abundant, quite long and black, the sides of the face with a few long, yellowish-white hairs; the shining black face is rather deep; it is brassy or almost bronze upon the sides and upon the pinched and creased tubercle, which is considerably less abrupt than as figured by Miller for *montana*. The antennæ are short and black; there is a suggestion of red in the black colour where the second and third segments join; arista black. The pile of the occiput, including the area behind the ocelli, is yellowish white, but with a fringe of long black hairs intermixed along the upper part of the eye-margin. *Thorax*: opaque brownish grey with four conspicuous opaque black stripes; the inner pair is confluent apically and only narrowly separated posteriorly. The outer pair is divided along the suture by a brassy streak. The scutellum is shining black with a brassy reflection, the apex becoming somewhat brownish. The pile of the dorsum of the mesonotum and scutellum is long, thick, erect and light yellow with a few black hairs upon the sides of the notopleura, none over the root of the wings, but two anteriorly upon the postcalli. The pleural pile

* In 1949 the author made this species (as a *nomen nudum*) the type of the subgenus *Palæoxylota*, a name proposed for those species of *Xylota* which are widely dichoptic in the male (Trans. Zool. Soc. London, vol. xxvi. part 4, p. 361).

is long and pale yellow with seven or eight black hairs upon the upper mesopleura. The metasternum is pilose, the squamæ brownish white with light brown border and a short brownish-yellow fringe. *Abdomen*: moderately shining black with rather large opaque spot, shaped like an hour-glass, in the middle of the second segment. The pile is long but sparse and almost entirely pale yellow. There are a very few black hairs in the middle of the fourth segment and the pile of the hypopygium is mostly black upon the upper half. The pile of the venter is long and pale and there are several large yellow mites attached to the venter. *Legs*: shining black with almost wholly light yellow pile; there are only two or three black hairs at the dorsal apex of the hind femora, but ventrally there is a series of numerous sharp black setæ extending fully three-fourths of the length. The dorsal pile of all of the tarsi is black; the hind femora have a well-developed basal patch of black spinules and there is a similar patch basally upon the four remaining femora. *Wings*: greyish hyaline, thickly villose; the pterostigma is hyaline apically but yellowish towards the base, and a little brownish and thickened at the extreme base; there is no stigmal cross-vein. The marginal cell is widely opened; the third vein has a shallow loop and ends, together with a costa, a moderate distance above the apex of the wing. The lower point of the discal and first posterior cells is rounded and without spurs. The cubital vein is very slightly arched backward.

Holotype: a male, Arthur's Pass New Zealand II. ii. 1920; G. V. Hudson: allotype female, same locality, i. 1923; two male paratypes, L. Manapouri. 4600 ft.: S. Lyndsay.

Graptomyza spectralis, sp. n.

A black and yellow species; the abdomen fasciate, the arista plumose, the third antennal segment chiefly dark brown and the facial cone with three black stripes. Related to *ventralis* Wiedemann. Length 9 mm.

Female.—*Head*: the vertex and upper half of the front is shining brownish black, longitudinally striate in front of the ocelli and light yellow, the yellow continued on down the sides of the face and meeting beneath the antennæ. The stripes upon the sides continue to the

epistoma. There is a broad black middle stripe, widest over the large tubercle, continuous to the epistoma, but evanescent above, and another large brownish black stripe runs along the side of the face from the eye to the tip of the epistoma and probably includes part of the cheek region; the cheeks posteriorly are light yellow. The face is quite elongate, sparsely yellow pilose, the cone acute and directed mostly downward, but a little forward. The antennæ are elongate, the first two segments short, reddish brown, the third entirely brownish black and yellowish pubescent. The arista is long and light yellow with a darker brown apex, and is long plumose. There is a little very sparse yellow pile upon the eyes. *Thorax*: there is a wide rectangle of shining black occupying the greater part of the mesonotum; it has an opalescent reflection. Close to the anterior margin this rectangle is continued downward as a wide median stripe. The notopleura and the sides of the thorax above the wing are also shining black, but the humeri and a large confluent, medial, adjacent spot, the confluent upper half of the notopleura, and a continuing stripe sublaterally down the mesonotum on to and including the postcalli are light brownish yellow. The propleura, the posterior half of the mesopleura, the upper corner of the sternopleura and the anteroventral corner of the pteropleura are also yellow. The pile of the thorax, including the pleura, is thick, subappressed and light golden yellow. The notopleural and pleural bristles are red, but the supralar, the three long postcallar bristles, and the prescutellar fringe of ten long, slender bristles, as well as the scutellar bristles, are all black. The scutellum is yellow with a large oval, basally subtruncate, dark brown, microgranulate, shallow concavity in which there is sparse reddish pile. The apical margin of the scutellum has a few bristles, two of which are quite long squamæ; fringe and border light yellow; halteres light brown. *Abdomen*: moderately convex, the first segment brownish black along the sides but yellowish on the remainder of the posterior margins, the entire lateral margin of the abdomen is black; the second segment is extensively black but is yellow upon a narrow, posterior, medially indented, marginal fascia upon a much wider, parallel-sided, sublateral, yellow stripe and upon a narrow, basal, marginal

fascia which narrows a little towards the middle. The third segment, as upon the second segment, is widely black through the middle, but the posterior marginal fascia is a little more broadly indented in the middle and the basal yellow fascia widens rapidly as it proceeds from the middle to join the sublateral yellow stripe. The fourth segment is shining black with a slender medial yellow wedge which is attenuated both anteriorly and posteriorly, where it ends some distance away from the margins. There is a basal yellow fascia on this segment, narrow but wider laterally as it connects with the sublateral yellow stripe. The apex of the abdomen is entirely blackish. The posterolateral corners of the abdomen have a large triangular spur; the pile of the abdomen is entirely yellowish upon the first and second segment except for a few black hairs upon the central black fascia, but on the third segment the central black fascia is black pilose only in the middle; all the remainder of the segment is thick, long, nearly erect, light yellow pilose. On the fourth segment the lateral pile is wholly light yellow, long and erect. The central black spot has mostly long, suberect, black pile mixed with yellow pile laterally. *Legs*: the anterior femora are yellow except for a brown, subapical, anterior streak; the middle and posterior femora are entirely yellow and light golden pilose. All of the femora are brown and either brown or black pilose. All of the tarsi are dark brown with similarly coloured pile. *Wings*: rather strongly tinged with light brown, slightly darker than the remainder of the wing. Subapical cross-vein rounded, the discal and first posterior cells without spurs upon the lower corners; radial sector with nine long, slender brown bristles.

Holotype: a female, Soekaboemi, Java, iii. 1926: E. Le Moul.

Graptomyza phyllocera, sp. n.

A small species, the antennæ wholly orange, the face without black middle stripe, the wings nearly hyaline, the abdomen fasciate. Related to *ventralis* Wiedemann. Length 8.5 mm.

Female.—*Head*: the entire vertex and upper two-thirds of the front are shining brownish black, the lateral depressions more blackish and punctate and set off by a crease. The lower part of the front and the entire face

are light shining yellow, the cheeks reddish brown. Pile of face, front and vertex and occiput light golden. The third segment of the antennæ is quite elongate, the antennæ wholly light orange; the arista rather long plumose upon the apical three-fourths, light-yellow. The face is deeply acuminate and conical and directed nearly straight downward. There is yellow pile from the small tubercle down to the epistoma. *Thorax*: the mesonotum is broadly sepia brown across the middle, broken only by a very narrow, linear, yellow, transverse suture. The sides of the mesonotum and a stripe down the middle of the pleura, including the posterior mesopleura, anterior sternopleura and upper sternopleura are yellow. The entire anterior margin of the pleura, as well as the front coxæ and the entire scutellum, are also light brownish yellow. The depression of the scutellum is quite large, flattened, covered with flat, appressed brown pile; both the bristles and all of the thoracic pile, except that of the depression, is golden yellow. The squamæ and halteres are yellowish. *Abdomen*: only moderately convex; the first segment is brownish yellow, with the posterior margin sepia brown except in the posterior corners. The second segment is brownish yellow basally and narrowly along the entire lateral margin and still more narrowly along the posterior margin of the segment. The yellow posterior margin is extended forward in the midline as a small triangle; the middle of the segment is thus left widely sepia brown, with the sublateral anterior corners of this brown area produced forward but not reaching the base of the segment. The anterior yellow fascia is therefore arched. The base of the third segment forms an arched yellow fascia which continues obliquely into the side margins but fades into brown posteriorly along the side margin. Lying on the posterior margin of the third segment is a still more strongly arched fascia of yellow which does not quite reach the lateral margin but which in the middle is extended forward as an acute wedge, almost splitting the brown band along its anterior border. The third and fourth segments are virtually fused; the apical margin of the abdomen is not flanged, but on either side the chitinous edge is produced into a long, prominent, pilose, light brown spur; the pile of the abdomen is everywhere flat appressed except upon the first segment, the base of the second and the lateral

margins. Beyond the first segment the pile is light golden upon the yellowish areas, dark brown upon the brownish areas, except that the golden pile of the arched fascia tends to run posteriorly beyond the ends of these fascia on to the brown areas behind. *Legs*: the whole of the anterior femora, except a dorsal apical brown spot, and the whole of the middle femora and the tibiæ of both of these legs light yellow. The hind femora are yellowish, except upon the medial surface and upon the ventral surface, the apices excluded; the latter areas are brown. The posterior tibiæ are light yellow with the apical third diagonally brown. The anterior tarsi and the last four segments of the middle tarsi and the whole of the hind tarsi are light brown; middle basitarsi light yellow. The pile of the legs is entirely light golden. *Wings*: pale brownish hyaline, very slightly darker near the anterior cross-vein, the stigmal area pale yellow, the lower corners of the first posterior and discal cells with a very short spur. The subapical cross-vein is a little rounded outwardly. The radial sector has five long, slender brown bristles.

Holotype: a female, Philippine Islands, Luzon Baguio, 9.iii.1920; Dr. A. Moore.

Graptomyza elegans, sp. n.

A black and yellow species, black fasciate, and related to *ventralis* Wiedemann, but with a much shorter face; moreover, the base of the scutellum is widely brownish black, the abdomen slightly more convex and with submarginal spurs. Length 8.5 mm.

Female.—*Head*: the vertex and all of the front, except a narrow band just above the antennæ, are shining black and deeply, grossly pitted and grooved; the entire area is flattened and excavated a little beneath the surface of the eyes, and down the middle there is a narrow ridge. The pile is short, erect and pale yellow; the eyes are thickly short white pilose; the lower portions of the front, face and cheeks are quite pale yellow with a strong medial black stripe beginning a short distance beneath the antennæ and an equally wide brownish-black stripe between cheeks and face beginning at the eye and reaching to the epistoma. The pile of the face is white. The face is only moderately lengthened but is rather acute and

directed almost straight downward. The antennæ are elongate; all three segments are dark brown, almost blackish; the third segment is rather elongate and reddish upon its ventral surface; the arista is yellowish brown throughout and with short plumes. *Thorax*: the greater part of the mesonotum is shining black, with faint brassy reflections. The humeri and a wide, large, adjacent medial spot, its posteromedial corners nearly rectangular, are quite pale yellow. This leaves the black colour occupying only the middle third anteriorly, but the black is extended over laterally to cover not quite the whole of the notopleura; the black colour continues straight on down the pleura, leaving somewhat less than half of the mesopleura pale yellow. The remainder of the pleura, except the propleura, is shining blackish with nearly white pile. There is a yellowish spot on the mesonotum, bordering narrowly the posterior part of the notopleura and more widely the adjacent area opposite the suture. The postcalli and a blunt, triangular spot in front of the scutellum and all of the scutellum with its lateral corners, but excepting the basal third, are pale yellow. The ground colour of the scutellar depression in the more restricted sunken area is pale yellow, but is appressed, reddish brown, tufted pilose. Actually the depression is much wider and is lens-shaped, with one surface more convex, and reaches nearly to the base of the segment. The bristles of the thorax and scutellum are black, quite long on the postcalli and scutellum, but short above the wings and apparently absent on the notopleura. The squamæ and its fringe are white, the halteres reddish. The mesonotal pile is nearly erect and white. *Abdomen*: rather convex, a little more so than in *ventralis*; the surface is quite granulate upon the third and fourth segments, but upon the black areas of the second segment becoming even microfoliose and punctate, although the basal area of the segment is smooth. The first segment is pale yellow basally and on the sides but widely black and grossly punctate posteriorly; the intersegmental margin is almost denticulate. The second segment is widely black on the sides; the black lateral margin continues throughout the length of the abdomen; it is bordered medially by a pale, sub-translucent, yellow, longitudinal stripe which becomes a little wider as it reaches the base of the segment, and

from near the base of the segment the yellow sends a narrow, somewhat diagonal, extension of this colour medially and backward; these two extensions fail by a considerable distance to meet in the middle of the segment. This leaves the greater posterior middle portion of the segment as a very wide, sublaterally widened, shining black rugose band which in the middle anteriorly connects with a very obtuse, triangular, basal blackish fascia. The third segment has the entire basal margin yellow as far laterally as the outer black stripe. This basal fascia is completely confluent with the sublateral longitudinal yellow stripe. There is a small yellowish triangle in the middle of the posterior margin of this segment. The sublateral yellow vitta grows more narrow posteriorly, but narrowly connects with a similar longitudinal wide yellow stripe on the last segment as well as a similar basal yellow fascia. The large black area of the last segment, constituting most of the segment, is completely bisected by a yellow vitta. The subapical posterior margin is much curved, and from the inner concealed edge emits a rather prominent blunt, but curved, yellowish-brown spur; the spur is visible from a lateral view. The pile of the abdomen is subappressed, mostly black upon the blackish areas, and elsewhere almost or quite whitish. *Legs*: the femora are light yellowish except that the anterior pair bears a complete, subapical, blackish-brown band which on the anterodorsal surface occupies over half the length of the femur. The second femur is blackish brown to a similar extent. All of the tibiæ are blackish brown except the narrow base of the anterior pair and extreme base of the remaining four which are pale yellow, the colours diffusely merging. The anterior tarsi are dark brown with nearly white pile, much in contrast to the reddish sepia pile of their tibiæ. The middle and posterior tarsi are entirely light yellow with a slightly reddish tinge and with pale shining yellow pile. The dark areas of the legs are mostly reddish sepia pilose. *Wings*: nearly hyaline, rendered slightly darker by the thick long villi; the pterostigma is brown, the extreme base more thickened and darker. The subapical cross-vein is bowed convexly outward; the discal and first posterior cells have spurs along their lower corners.

Holotype: a female, Soekaboemi, Java, vi. 1924; ♀. Le Moults.

Graptomyza flavitincta, sp. n.

A black and yellow species, the abdomen banded, the face long and sharply conical and trivittate. Related to *ventralis* Wiedemann. Length 11 mm.

Female.—*Head*: the vertex and all of the front, except the lower third, shining black with opalescent reflection and sharply set off and rather lower than the margins. The front is polished and smooth, the lateral subtriangular depressions are non-punctate but perhaps striate. The pile of the front and vertex is sparse, erect and light yellow. The lower front and the face are quite pale yellow, shining and polished, with sparse long yellow pile but with a few blackish hairs on either side of the anterior callus. There is a wide, medial, black facial vitta beginning shortly below the antennæ and reaching to the epistoma. The cheeks from eye to tip of epistoma are shining reddish brown, a little darker next to the face. The face is quite long and acute and is directed diagonally downward and forward. The first two segments of the antennæ are light orange-brown, the third quite long, blackish on the dorsal half, orange-brown at the base and below; the arista is light yellow on the basal half, sharply black in the middle and then brown, with rather long plumes. *Thorax*: light brownish yellow with a wide, black, shining, opalescent pattern upon the mesonotum; the black occupies all of the posterior half of the mesonotum except a narrow, posterior, crescentic margin along the posterior side of the suture which, together with the postcalli, are pale. In the middle of the mesonotum, the black area is rather more than one-fifth the central width of the mesonotum. The transverse suture is outlined on both sides conspicuously with brownish yellow which is continued on down over the mesopleura, pteropleura and sternopleura. The entire anterior margin of the mesonotum, including the humeri, is light yellowish brown except for the medial vittæ, and it is continued down to include the propleura and anterior coxæ. This leaves a prominent transverse fascia, occupying most of the notopleura, connected quite widely in full width with the median vittæ and also continued widely down across the anterior portions of the mesopleura and sternopleura. The scutellum is entirely brownish yellow. The pile of the

pleura and the mesonotum and scutellum is everywhere light golden yellow except for the black bristles, which are large and strong. There are two upon the notopleura, two on mesopleura, two or three above the wing, three upon the postcalli, four or five pairs upon the margin of the scutellum, and a strong row in front of the scutellum. The scutellar depression is rather large, nearly circular, the pile brownish red; it is completely flat appressed, as if wet, but the tufts end along the posterior margin. There is also a row of smaller bristles along the posterior margin of the scutellum. The larger ones are tuberculate. *Abdomen*: the abdomen is rather convex, at least as much so as *ventralis*; the margin, laterally and apically, is entirely brown to black except upon the sides of the first segment, and is very roughly granulate. There is a wide, conspicuous, sublateral yellow stripe longitudinally along the abdomen which curves inward a little at the base of the second segment, runs along the base of this segment, and almost meets the stripe of the opposite side, from which it is separated by a small brownish triangle. This yellow sublateral stripe is connected with the prominent, wide, yellow basal fascia that runs along the third and fourth segments. The connection is fully as wide as the fascia. This leaves at least the posterior two-thirds of the second and third segments extensively shining black except for the yellow lateral stripe. Upon the second segment the black is connected with the brown basal triangle; upon the third segment there is in the middle anteriorly on the black band a rounded anterior extension, quite wide, which does not reach to the base of the segment. Upon the fourth segment the middle portion of the black is extended forward towards the base sufficiently to reduce the width of the yellow fascia by half, and this basal extension is wider and more rectangular, though with rounded corners. The large black spot of the fourth segment has a slender, linear, yellowish vitta in the middle of its posterior portion; the apex of this segment has a large and prominent brownish-black flange, which on either side is prolonged into a long black straight spur. The pile of the abdomen is entirely golden upon the first and second segments, quite widely golden upon the sides of the third and fourth segments, but in the middle of these segments it is long

and black. Beyond the second segment the pile is more or less subappressed. The posterior margin of the first segment is rather strongly denticulate and yellowish. The first segment of the abdomen is yellow, with an oblique, medially pointed, subtriangular, clongate, blackish spot on either side close to the lateral margin. *Legs*: all of the femora are light reddish brown, the hind pair, however, with a subbasal blackish-brown band which is rather diffuse upon the basal third. The tibiae are a little darker, especially towards the apical half, where they may become quite dark brown upon the middle and posterior pair and with similar reddish-brown pile. The anterior tarsi are dark brown with reddish sepia pile to match. The middle and posterior tarsi are lighter reddish brown, the dorsal pile, however, is quite dark. The ventral surface of the first three segments of the hind tarsi has a peculiar type of pile. There is a row of shining, light reddish, paddle-like or brush-like sheets of pile mixed in on the medial ventral margin, and at the apices of these segments the fans of pile are wider and more conspicuous. *Wings*: pale, dilute, brownish hyaline, the pterostigma dark brown. The subapical cross-vein bulges outward, and is rounded and without any posterior spur on the first posterior cell.

Holotype: a female, Soekaboemi, Java, iii. 1926; E. Le Mout; two paratype females with the same data.

LI.—*Sur deux espèces de poissons du genre Symphurus de l'Atlantique orientale.* Par PAUL CHABANAUD.

Symphurus nigrescens Rafinesque*.

D (83) 85-90. A (68) 72-78. C (10) 12. D + A + C (164) 168-179. Vn 4. S 80-90 †. En centièmes de la longueur étalon: tête 20-23 (25); hauteur 27-29 (32). En centièmes de la longueur de la tête: œil (11) 12-15; espace interoculaire 0; espace postoculaire 62-71;

* On trouvera la synonymie complète de cette espèce dans le travail suivant: Chabanaud, Téléostéens dyssymétriques, Résultats Scientifiques des croisières du navire-école belge "Mercator", 4, 1950 (sous presse).

† Fide Kyle: D 85-90. A 68-76. S circ. 75. Les spécimens que j'ai eus sous les yeux se trouvant tous privés de la plupart ou même de la totalité de leurs écailles, les nombres 80-90 que j'indique sont approximatifs et vraisemblablement supérieurs à la réalité.

nageoire caudale 40-49. Le canthus rostral est largement arqué; tout en dessinant une convexité légère mais évidente, la partie rhinophthalmique du canthus dorsal ne s'incline que faiblement vers l'avant. L'extrémité caudale du maxillaire est placée au-dessous de l'œil fixe, plus ou moins en arrière du bord antérieur de cet œil*. La membrane postradiaire de l'ischioptérygie est généralement rudimentaire; au maximum de son développement, cette membrane est triangulaire et ne s'élève que jusqu'au milieu de la longueur du dernier rayon ischioptérygien. La face zénithale est d'un brun (grisâtre en eau formolée) plus ou moins clair, uniforme ou varié de 5 ou 6 larges bandes transversales brun foncé, qui ne sont distinctes qu'à proximité immédiate de la notoptérygie et de la proctoptérygie. D'ordinaire, la base de ces 2 nageoires se teinte de brun foncé, tandis que leurs autres parties demeurent incolores ou sont blanchâtres, ainsi que la totalité de l'uroptérygie. La face nadirale est blanchâtre. Dimensions maximum observées: ♀ longueur totale 102 mm., longueur étalon 93 mm.; ♂ longueur totale 89 mm., longueur étalon 80 mm.

Açores; partie sud du golfe de Gascogne ("Travailleur" et "Talisman"); côtes de l'Espagne et du Portugal; banc d'Arguin ("Talisman"); Méditerranée (sauf peut-être la partie SE). L'espèce n'a pas encore été signalée de l'Adriatique, non plus que de la mer de Marmara.

Cette description est rédigée d'après 30 spécimens, dont l'un est originaire de Naples (sans précision); tous les autres ont été capturés au chalut, sur la côte d'Algérie, à Bou Haroun, par 100 m. de fond.

Symphurus normani, sp. n.

Symphurus nigrescens. Norman, 1930, Discovery Reports, ii. p. 363; *Id.*, 1935, *ibid.*, xii. p. 34.

D 87-92. A 74-76. C 12. D + A + C 173-183. Vn 4 S 95-105 (108?). En centièmes de la longueur étalon: tête 20-23; hauteur 20-30. En centièmes de la longueur

* C'est du moins le cas de tous les individus que j'ai examinés; aussi n'en est-il que plus remarquable de constater le désaccord qui se manifeste entre mes propres observations et un dessin de Kyle (Rep. Dan. ocean. Exped., 2, A 1, 1913, p. 130, eff. 23), dessin qui représente un spécimen adulte de 27 mm. de longueur totale, chez lequel le maxillaire se termine à grande distance en avant de l'œil fixe. L'origine de ce spécimen n'est malheureusement pas précisée.