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THE SPHEGIDAE OF SOUTH AFRICA

By GEORGE ARNOLD, D.Sc., A.R.C.Sc., F.E.S.

PART III

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THE SPHEGIDAE OF SOUTH AFRICA

By GEORGE ARNOLD, D.Sc., A.R.C.Sc., F.E.S.

Curator of the Rhodesia Museum, Bulawayo

PART III

With 13 figures

Genus TACHYTES continued

AFTER an examination of all the material available, I am now in a position to furnish the key to the species which was omitted from the introduction to the genus in Part II of this work. Before proceeding to do this, it is necessary to state some of the conclusions which have been arrived at as a result of that examination.

First of all, these conclusions are only tentative since the paucity of material on which they are based does not justify any dogmatism. The total number of specimens of *Tachytes* which I have seen, exclusive of the British Museum's collection, does not exceed 180, and in no case in that number have I seen series of one species exceeding eight for either sex. Since this number represents the combined total of five different collections, it will be seen that it bears out the statement in the introductory paragraphs concerning the scarcity of these insects.

I can not help suspecting that if it were possible to breed a few species extensively in the laboratory, we should find that some of the characters which we now use for the differentiation of species would prove to be too variable to justify their use. However, since such a task would need the patience of a Fabre, we are thrown back on the use of such characters as appear to be most constant. These, placed in their order of value, I think are

1. The interocular distance on the vertex.
2. The length of the galea.
3. The density and colour of the pilosity and pubescence of the head, thorax and pygidial area in freshly emerged specimens.

4. The number of spines on the outer margin of the anterior metatarsus.
5. The sculpture of the mesonotum, scutellum and epinotum.
6. The puncturation of the sternites.
7. The length of the inner spur of the hind tibia.

On the other hand, some other characters are, I believe, quite unreliable, either on account of their variability within the species (*e.g.* venation), or on account of their uniformity within the genus (*e.g.* the relative proportions of the thoracic segments). These characters are: the venation, the shape of the clypeus, the sculpture of the vertex, the colour of the tarsi (within the groups), the proportions of the thorax and the shape of the last tergite and sternite in the ♂.

I am unable to assign any value to the form of the male genitalia, since it has been possible to examine them only in a few species, but from such examination I am inclined to think that the genitalia are too uniform in structure to afford much help in the diagnosis of species.

In the construction of the subjoined key to the species, I have derived considerable assistance from the one drawn up by Turner, on which, indeed, it is largely based. It is, however, far from being complete, since it does not cover quite a number of forms which I have had before me, but which owing to insufficiency of material or to defective condition it seemed unwise to describe.

KEY TO THE ETHIOPIAN SPECIES OF *TACHYTES* ♀♀.

- (2) 1. Mandibles feebly excised on the outer margin; epinotum subrectangular, not rounded posteriorly, the dorsum striated; abdomen wholly pale ferruginous (subg. *Holotachytes*). **dichroa** Smith
- (1) 2. Mandibles deeply excised on the outer margin; epinotum rounded posteriorly, the dorsum never distinctly striated.
- (8) 3. Maxillary palpi five-jointed, labial palpi three-jointed, long and slender. (subg. *Calotachytes*).
- (5) 4. First four tergites clothed with brilliant silver pubescence. **Marshalli** Turner
- (4) 5. Tergites densely clothed with golden pubescence, arranged in a chequered pattern. **admirabilis** Turner
- (7) 6. Wings dark fusco-hyaline. **Danaë** Arnold
- (6) 7. Wings hyaline, with a narrow and pale fuscous apical margin. **Tachytes** Arnold
- (3) 8. Maxillary palpi six-jointed, labial palpi four-jointed (subg. *Tachytes*).
- (20) 9. Dorsal surface of abdomen densely clothed with bright golden pubescence, arranged more or less in a chequered pattern; head and thorax without golden pubescence.
- (13) 10. Galea shorter than the scape.
- (12) 11. Anterior metatarsi with six spines on the outer margins; stout species, abdomen conical. **rhodesiana** Bischoff
- (11) 12. Anterior metatarsi with five spines on the outer margins; slender species, abdomen oblongo-ovate. **dilaticornis** Turner
- (10) 13. Galea much longer than the scape.
- (15) 14. Abdomen, tibiae, tarsi and the greater part of the antennae and femora, brownish red. **basilica** Guérin
- (14) 15. Abdomen black, at the most only the apical margins of the segments brownish red.

- (17) 16. Second sternite shining, with large scattered punctures. **velox** Smith
(16) 17. Second sternite dull, closely and finely punctured.
(19) 18. Anterior metatarsi with seven spines; pygidial area not very elongate. **mira** Kohl
(18) 19. Anterior metatarsi with six spines; pygidial area elongate triangular. **observabilis** Kohl
(9) 20. Abdomen without bright golden pubescence, in some species with pale brassy or dull golden pubescence, but not arranged in a conspicuously chequered pattern.
(28) 21. Wings black or dark brown, with a steely blue lustre, or dark fusco hyaline.
(23) 22. Wings dark fusco-hyaline, flushed with violet; abdomen with fasciae of silver pubescence widely interrupted in the middle. **moerens** Turner
(22) 23. Wings black, flushed with blue or violet.
(25) 24. Large black species, 23 mm. long; all the pubescence and pilosity black. **nigropilosella** Cameron
(24) 25. Smaller species, less than 18 mm. long.
(27) 26. Pubescence of face and clypeus silvery; anterior tibiae black. **natalensis** Saussure
(26) 27. Pubescence of face and clypeus golden; anterior tibiae ferruginous. **memnon** Turner
(21) 28. Wings not dark brown or black.
(30) 29. Abdomen black, without pubescent fasciae. **nudiventris** Turner
(29) 30. Abdomen with pubescent fasciae, sometimes rather inconspicuous.
(38) 31. At least the first and second abdominal segments red.
(37) 32. Three basal abdominal segments yellowish red above.
(36) 33. Interocular distance¹ equal to the length of the second joint of the flagellum.
(35) 34. Pygidial area covered with dark reddish golden pubescence; 15 mm. long. **Sjöstedti** Cameron
(34) 35. Pygidial area covered with pale golden pubescence; 13 mm. long. **Sjöstedti**, race *formosa* Arnold
(33) 36. Interocular distance equal to the length of the first and second joints of the flagellum; 12 mm. long. **Sjöstedti**, race *karrooensis* Arnold
(32) 37. Two basal abdominal segments red. **ambidens** Kohl
(31) 38. Basal abdominal segments black, or at least not all red.
(40) 39. Prothorax, mesonotum in front, scutellum and last two abdominal segments brownish red. **rufiscutis** Turner
(39) 40. Thorax entirely black.
(46) 41. Galea very long, more than twice as long as the scape.
(43) 42. All the tibiae and tarsi fulvo-ferruginous. **simulatrix** Turner
(42) 43. At least the middle and hind tibiae and tarsi black.
(45) 44. Fore tibiae and tarsi ferruginous. **praestabilis** Turner
(44) 45. Fore tibiae wholly, and fore tarsi mostly black. **labilis** Turner
(41) 46. Galea less than twice as long as the scape, often shorter than the scape.
(64) 47. Tibiae and tarsi wholly red or yellowish red.
(49) 48. Galea about half as long again as the scape. **separabilis** Turner
(48) 49. Galea as long as, or shorter than, the scape; if longer (*neglecta*), then only a quarter so.
(53) 50. Second sternite shining, with large scattered punctures.
(52) 51. Vertex not carinate; 17-20 mm. long. **testaceinerva** Cameron
(51) 52. Vertex carinate; 23.5 mm. long. **exclusa** Turner
(50) 53. Second sternite dull, closely and minutely punctured.

¹ See explanatory note, page 144, part II.

- (55) 54. Apical halves of the first five abdominal segments flavo-testaceous; scapes below, legs and tegulae ochreous. **Turneri** Arnold
- (54) 55. Abdominal segments black.
- (57) 56. Interocular distance greater than the combined length of the first two joints of the flagellum; pubescence of pygidial area rufo-fuscous. **ugandensis** Turner
- (56) 57. Interocular distance not more than the combined length of the first two joints of the flagellum; pubescence of pygidial area golden or reddish golden.
- (59) 58. Pygidial area elongate and narrow, one and a half times longer than wide at the base; a small and slender species, 9 mm. long. **Kristenseni** Turner
- (58) 59. Pygidial area shorter; larger species, over 12 mm. long.
- (63) 60. Anterior metatarsus with five spines.
- (62) 61. Femora in greater part black; pubescent fasciae on the abdomen greyish silver; second joint of flagellum three and a quarter times longer than the first; 15 mm. long. **associata** Turner
- (61) 62. Femora black only at the extreme base, if at all; pubescent fasciae on the abdomen brownish golden; second joint of the flagellum little more than twice as long as the first; 13-14 mm. long. **tomentosa** Kohl
- (60) 63. Anterior metatarsus with six spines. **neglecta** Turner
- (47) 64. Tibiae and at least a portion of the tarsi black, the tibiae rarely fusco-ferruginous at the base.
- (70) 65. Tergites with dull golden, greyish golden or pale brassy pubescence.
- (67) 66. Abdominal pubescence greyish golden; 10 mm. long; pubescence of pygidial area orange golden. **lichtenburgensis** Arnold
- (66) 67. More than 10 mm. long.
- (69) 68. Anterior metatarsus with five spines; pubescence of pygidial area silvery; 13 mm. long. **bimetallica** Turner
- (68) 69. Anterior metatarsus with six spines; pubescence of pygidial area fusco-ferruginous; 15 mm. long. **aurichalcea** Kohl
- (65) 70. Pubescence of the tergites silvery, greyish or white.
- (72) 71. Mesonotum and scutellum distinctly punctate-rugulose, the dorsum of the epinotum strongly so. **notabilis** Turner
- (71) 72. Mesonotum and scutellum finely punctured only.
- (76) 73. Interocular distance greater than the combined length of the first and second joints of the flagellum, but equal to that of the second and third, or nearly.
- (75) 74. Inner calcar of hind tibia shorter than the basal joint of the hind tarsus. **argenteovestita** Cameron
- (74) 75. Inner calcar of hind tibia as long as the basal joint of the hind tarsus. **transvaalensis** Cameron
- (73) 76. Interocular distance not greater than the combined length of the first and second joints of the flagellum.
- (94) 77. Interocular distance equal to the combined length of the first and second joints of the flagellum, or very nearly so.
- (83) 78. Second and third sternites dull, very closely and microscopically punctured.
- (80) 79. Wings short, not reaching the apex of the abdomen (pygidial area covered with dull reddish golden pubescence). **erynnis** Turner
- (79) 80. Wings reaching the apex of the abdomen.
- (82) 81. Pygidial area covered with coarse and dark reddish pubescence. **inexorabilis** Turner
- (81) 82. Pygidial area covered with fine and pale golden pubescence. **hirsuta** Smith
- (78) 83. Third sternite shining and sparsely punctured.
- (85) 84. Tergites covered with a dense and ashy-silvery pubescence arranged in

- a chequered pattern (anterior metatarsus with five spines; pubescence of pygidial area silvery). **Distanti** Turner
- (84) 85. Pubescence on the tergites dense only on the apical margins, not distinctly chequered.
- (87) 86. Second and third sternites shining, coarsely and sparsely punctured (vertex rugosely punctured, thorax with dense fulvous pubescence, 16-18 mm. long). **versatilis** Turner
- (86) 87. Second sternite dull, closely and finely punctured, the third shining and if closely punctured, then only so on the apical margin.
- (89) 88. Anterior metatarsus with six spines; abdominal pubescence with a slightly golden tint. **lachesis** Turner
- (88) 89. Anterior metatarsus with five spines.
- (91) 90. Wings distinctly flavo-hyaline basally, very pale fusco-hyaline apically (pygidial pubescence pale golden). **Braunsi** Turner
- (90) 91. Wings hyaline, at the most only slightly tinted with flavous at the base (pygidial pubescence darker).
- (93) 92. 12-14 mm. long. **instabilis** Turner
- (92) 93. 9-10 mm. long. **Silverlocki** Turner
- (77) 94. Interocular distance not greater than the length of the second joint of the flagellum.
- (96) 95. Pubescence and pilosity of thorax yellowish; pubescence of the pygidial area orange golden. **confusa** Arnold
- (95) 96. Pubescence of thorax whitish or silvery.
- (98) 97. Pubescence of the pygidial area dark fulvous. **pulchricornis** Turner
- (97) 98. Pubescence of the pygidial area fusco-ferruginous. **megaera** Turner

KEY TO THE ♂♂.

- (2) 1. Mandibles feebly excised on the outer margin; epinotum subrectangular, not rounded behind, the dorsum striated; abdomen wholly light ferruginous (subg. *Holotachytes*). **dichroa** Smith
- (1) 2. Mandibles deeply excised on the outer margin; epinotum rounded behind, never distinctly striated on the dorsum.
- (8) 3. Maxillary palpi five-jointed, labial palpi three-jointed, long and slender. (subg. *Calotachytes*).
- (5) 4. First four tergites clothed with brilliant silver pubescence; eighth sternite subtruncate, the apical angles not produced. **Marshalli** Turner
- (4) 5. Tergites densely clothed with golden pubescence, arranged in a chequered pattern.
- (7) 6. Seventh tergite broadly rounded; wings subhyaline with a pale fuscous apical border. **Danaë** Arnold
- (6) 7. Seventh tergite truncate at the apex; wings strongly infusate. **admirabilis** Turner
- (3) 8. Maxillary palpi six-jointed, labial palpi four-jointed (subg. *Tachytes*).
- (22) 9. Dorsal surface of abdomen densely clothed with bright golden pubescence (dark golden in *dilaticornis*), arranged more or less in a chequered pattern; head and thorax entirely without golden pubescence.
- (13) 10. Galea shorter than the scape.
- (12) 11. Second to seventh joints of the flagellum strongly arcuately dilated beneath; wings flavo-hyaline, pale fusco-hyaline apically. **dilaticornis** Turner
- (11) 12. Joints of flagellum normal; wings hyaline. **rhodesiana** Bischoff
- (10) 13. Galea much longer than the scape.
- (19) 14. Interocular distance not exceeding half the length of the second joint of the flagellum.

- (16) 15. Abdomen pale ferruginous except at the base¹, the greater part of the antennae and legs reddish brown. **basilica** Guérin
- (15) 16. Abdomen black, only the apical margins of the segments ferruginous.
- (18) 17. Third to seventh joints of the flagellum distinctly arcuately dilated beneath. **Neavei** Turner
- (17) 18. Joints of the flagellum simple. **observabilis** Kohl
- (14) 19. Interocular distance slightly exceeding three-quarters of the length of the second joint of the flagellum.
- (21) 20. Eighth sternite truncate, almost rounded, the apical angles not produced; third to fifth joints of the flagellum arcuately dilated beneath, the fourth to seventh with a narrow ferruginous streak below. **velox** Smith
- (20) 21. Eighth sternite arcuately emarginate, the apical angles acute. **perornata** Turner
- (9) 22. Abdomen without bright golden pubescence, in some species with brassy or dull golden pubescence, but not arranged in a conspicuously chequered pattern.
- (26) 23. Wings black, flushed with steel blue or violet; abdomen black without pubescent fasciae.
- (25) 24. All the pubescence and pilosity black. **nigropilosella** Cameron
- (24) 25. Face and clypeus with silvery pubescence. **natalensis** Saussure
- (23) 26. Wings not dark brown or black.
- (28) 27. Abdomen black, without pubescent fasciae. **nudiventris** Turner
- (27) 28. Abdomen with pubescent fasciae, sometimes rather inconspicuous.
- (32) 29. At least the first and second abdominal segments red.
- (31) 30. First, second and basal half of the third abdominal segments red; posterior tibiae ferruginous. **Sjöstedti**, race *karrooensis* Arnold
- (30) 31. Third abdominal segment not red at the base, posterior tibiae blackish. **ambidens** Kohl
- (29) 32. Basal abdominal segments black, or at least not red.
- (34) 33. Prothorax, mesonotum in front, scutellum, postscutellum and last two abdominal segments brownish red. **rufiscutis** Turner
- (33) 34. Thorax entirely black.
- (40) 35. Galea very long, more than twice as long as the scape.
- (37) 36. All the tibiae and tarsi fulvo-ferruginous. **Hamiltoni** Turner
- (36) 37. At least the middle and hind tibiae and tarsi black.
- (39) 38. Fore tibiae and tarsi ferruginous. **praestabilis** Turner
- (38) 39. Fore tibiae and tarsi black. **labilis** Turner
- (35) 40. Galea less than twice as long as the scape, often shorter.
- (62) 41. Tibiae and tarsi wholly red or yellowish red.
- (47) 42. Galea about half as long again as the scape (interocular distance less than half the length of the second joint of the flagellum).
- (44) 43. Anterior metatarsus with six spines. **separabilis** Turner
- (43) 44. Anterior metatarsus with five spines.
- (46) 45. Clypeus angularly excised in the middle of the anterior margin; 15 mm. long. **cataractae** Arnold
- (45) 46. Anterior margin of clypeus not excised in the middle; 11 mm. long. **irritabilis** Turner
- (42) 47. Galea as long as, or shorter than, the scape; if longer (*neglecta*), then not more than a quarter so.
- (53) 48. Interocular distance about equal to the length of the first joint of the flagellum.
- (52) 49. Second sternite shining, sparsely punctured; abdominal fasciae silvery.

¹ On the dorsal surface the colour of the integument is somewhat obscured by the pubescence, but it is quite apparent on the ventral surface.

- (51) 50. Eighth sternite truncate at the apex, the apical angles rounded; 18 mm. long. *testaceinerva* Cameron
- (50) 51. Eighth sternite widely and very shallowly emarginate at the apex; 21.5 mm. long. *exclusa* Turner
- (49) 52. Second sternite closely and minutely punctured; abdominal fasciae brownish golden grey. *tomentosa* Kohl
- (48) 53. Interocular distance equal to at least twice the length of the first joint of the flagellum.
- (55) 54. Eighth sternite bisinuate at the apex, the apical angles rounded. *associata* Turner
- (54) 55. Eighth sternite not bisinuate at the apex.
- (57) 56. Second to seventh joints of the flagellum pale ferruginous beneath (eighth sternite rounded at the apex, anterior metatarsus with four spines). *Turneri* Arnold
- (56) 57. Joints of the flagellum black.
- (59) 58. Interocular distance equal to the combined length of the second and third joints of the flagellum. *ugandensis* Turner
- (58) 59. Interocular distance less than, or only slightly greater than, the length of the second joint of the flagellum.
- (61) 60. Interocular distance very nearly equal to the length of the second joint of the flagellum. *opposita* Turner
- (60) 61. Interocular distance equal to slightly more than the length of the second joint of the flagellum. *neglecta* Turner
- (41) 62. Tibiae and at least a portion of the tarsi black; the tibiae rarely fusco-ferruginous at the base.
- (66) 63. Tergites with dull brownish golden pubescence.
- (65) 64. Interocular distance less than the length of the second joint of the flagellum; anterior metatarsus with six spines, eighth sternite shallowly emarginate. *aurichalcea* Kohl
- (64) 65. Interocular distance as great as the length of the second joint of the flagellum; anterior metatarsus with five spines, eighth sternite rounded. *volubilis* Turner
- (63) 66. Tergites with silvery or whitish pubescence.
- (68) 67. Middle joints of flagellum marked at least beneath with dull ochreous. *pulchricornis* Turner
- (67) 68. Joints of flagellum black.
- (72) 69. Interocular distance greater than the combined length of the first and second joints of the flagellum, about equal to that of the second and third.
- (71) 70. Small species, 8 mm. long; pubescence of face and clypeus pale golden; galea shorter than the scape; anterior metatarsus with three spines. *glabriuscula* Arnold
- (70) 71. Larger species, 12.5 mm. long; pubescence of face and clypeus silvery; galea as long as the scape; anterior metatarsus with four spines. *punctuosa* Arnold
- (69) 72. Interocular distance distinctly less than the combined length of the second and third joints of the flagellum.
- (86) 73. Interocular distance equal to the length of the first and second joints of the flagellum, or (*lichtenburgensis*) very slightly greater.
- (75) 74. Thorax punctured rugulose, dorsum of epinotum strongly so. *notabilis* Turner
- (74) 75. Thorax very finely and closely punctured.
- (81) 76. Anterior metatarsus with six or more spines.
- (78) 77. Anterior metatarsus with eight spines; eighth sternite broadly rounded. *habilis* Turner
- (77) 78. Anterior metatarsus with six spines; eighth sternite emarginate.
- (80) 79. Second to fourth sternites moderately shining, shallowly and not closely punctured; costa dark brown. *inexorabilis* Turner

- (79) 80. Second to fourth sternites dull, closely and evenly punctured; costa ochreous. **hirsuta** Smith
- (76) 81. Anterior metatarsus with four spines.
- (83) 82. Small species, 8.5 mm. long. **lichtenburgensis** Arnold
- (82) 83. Larger species, 11 mm. long.
- (85) 84. Vertex with distinct and scattered punctures; eighth sternite broad. **instabilis** Turner
- (84) 85. Vertex microscopically punctured; eighth sternite very narrow. **disputabilis** Turner
- (73) 86. Interocular distance less than the combined length of the first and second joints of the flagellum.
- (90) 87. With five (or six?) spines on the anterior metatarsus.
- (89) 88. Interocular distance scarcely more than half the length of the second joint of the flagellum; pubescence of the face and clypeus silvery. **erynnis** Turner
- (88) 89. Interocular distance a little more than the length of the second joint of the flagellum; pubescence of the face and clypeus golden. **versatilis** Turner
- (87) 90. Anterior metatarsus with four spines.
- (92) 91. Wings flavo-hyaline basally, very pale fusco-hyaline apically; eighth sternite truncate at the apex, the angles not produced. **Braunsi** Turner
- (91) 92. Wings hyaline, slightly flavo-hyaline at the base; eighth sternite deeply and angularly emarginate. **melancholica** Arnold

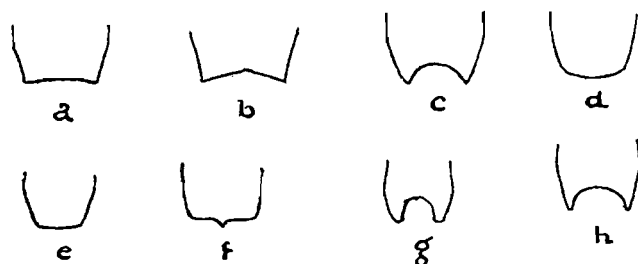


Fig. 41. Eighth sternites. (a) *T. observabilis*, (b) *T. Neavei*, (c) *T. perornata*, (d) *T. velox*, (e) *T. testaceinerva*, (f) *T. associata*, (g) *T. ugandensis*, (h) *T. pulchricornis*.

T. nudiventris Turner. *Ann. Mag. N.H.* xx (8), No. 115, p. 25, ♀, ♂. 1917.

“♀. Nigra; fronte clypeoque pallide fulvo-pilosis; thorace segmentoquo mediano sparse griseo-pilosis; abdomine nudo, nitido; alis hyalinis, flavo suffusis, venis fuscis; area pygidiali nigro-setosa; palpis testaceis.

♂. Feminae simillimus. Long. ♀ 15 mm., ♂ 14 mm.”

“♀. Clypeus finely and closely punctured, broadly rounded at the apex. Eyes separated on the vertex by a distance equal to the combined length of the first and second joints of the flagellum. Thorax and median segment opaque, very finely and closely punctured, rather more sparsely on the scutellum than elsewhere; the median segment as long as the scutellum and postscutellum combined, rounded at the posterior angles, very steeply sloped posteriorly, with a narrow and shallow median sulcus broadening on the apical third and continued more deeply on the apical truncation. Abdomen shining, minutely punctured, the segments without apical bands of pubescence; second sternite closely and minutely punctured, with an arched row of large punctures before the apex. Pygidial area broad at the base, narrowly rounded at the apex,

subtriangular, clothed with black setae. Basal joint of the fore tarsi with six short and stout spines."

"♂. Seventh tergite small, rather narrowly rounded at the apex; eighth sternite about half as long again as broad, narrowly and not very deeply incised at the apex. Galea rather short and broad, not rostrate."

Hab. Uganda.

The vertex in this species is irregularly and fairly sharply punctured. The abdomen, although without pubescent bands, has a sparse and microscopic pubescence. The ♂ has six spines on the anterior metatarsus as in the ♀. I do not think that this species is likely to be found within our subregion.

T. Sjöstedti Cameron. Sjöstedt, *Kilimandjaro-Meru Exped.* II, p. 284.

"Black, the basal three abdominal segments red, the apical four joints of the anterior, and the apical two of the posterior tarsi of a darker red colour; wings hyaline, the costa and nervures testaceous, the second abscissa of the radius almost one-fourth longer than the third, longer than the space bounded by the recurrent nervures, the apical of which is received in the cellule. The pubescence is silvery, the head and thorax being also covered densely with white hair, which is longer and denser on the epinotum; on the abdominal segments the depressed silvery pubescence forms apical bands. The pubescence on the outer side of the hind tibiae is golden; the spines are whitish, the calcaria pale fulvous. Pygidium covered with dark reddish golden pile. ♀, length 15 mm.

Meru lowlands, Ngare na nyuka.

Eyes separated above by the length of the third antennal joint; a curved furrow with raised sides runs from either side of the posterior ocelli; the two forming a horseshoe-shaped area."

T. Sjöstedti, race *formosa* n. subsp.

♀, 13 mm. Head, thorax and legs black, the last four joints of the anterior tarsi ferruginous, the two basal joints of the middle and hind tarsi brown, the rest ferruginous. First three tergites pale yellowish red, the second and third slightly clouded with black in the middle, the first and second sternites pale yellowish red, the third and following sternites and the fourth to sixth tergites piceous, all the segments with pale flavous apical margins. Face and temples with whitish or silvery pubescence; thorax with a pale yellowish white decumbent pubescence intermixed with white and outstanding pilosity, longer and denser on the epinotum than elsewhere. Middle and hind tibiae and the pygidial area with a pale golden pubescence. Spines on the legs yellowish white. Wings hyaline, the veins reddish yellow. Head and thorax microscopically reticulate-punctate and dull, the declivity of the epinotum closely and transversely striolate. Third to fifth sternites slightly shining, smooth, with a few large pre-apical punctures. Anterior margin of the clypeus convex and entire. Galea a little shorter than the scape. Interocular distance on the vertex equal to the length of the second joint of the flagellum. Pygidial area elongate-triangular, subacute at the apex. Anterior metatarsi with five spines on the outer margin.

Essexvale, S.R. April. Type in the R.M. coll.

T. Sjöstedti, race *karrooensis*, n.r.

♀, 12 mm. long. This form differs from the preceding only in the slightly smaller size, in the colour of the third tergite which is entirely yellowish red like the first and second, and by the greater interocular distance, which is equal to the combined length of the first two joints of the flagellum. The apex of the pygidium is also slightly less acute.

♂, 10 mm. long. The hind and middle tibiae at the apex, the posterior tibiae and all the tarsi, ferruginous. The pygidial pubescence is silvery. The interocular distance on the vertex is the same as in the ♀. The sculpture of the thorax is stronger than in that sex, especially the dorsum of the epinotum which is almost punctate-rugulose. The seventh tergite widely rounded, the eighth sternite wide, arcuately emarginate, the apical angles produced into short teeth. Anterior metatarsus with five spines, as in the ♀.

Willowmore, C.P. (Dr H. Brauns).

- *T. ambidens* Kohl. *Verh. Zool. Bot. Ges. Wien*, xxxiv, p. 343, ♀. 1884.

Turner identifies a ♂ and ♀ in the Brit. Mus. coll. from South-west Abyssinia with this species, which was originally recorded from South-east Russia. It is not likely to occur within our limits. Only the two basal abdominal segments are red, and the ♀ differs from *Sjöstedti* also in the structure of the clypeus, which has a short longitudinal carina on each side near the middle of the apical margin, the carinae being continued forwards into short teeth which project beyond the margin. The interocular distance is equal to the length of the first and second joints of the flagellum. ♀ 11 mm. long, ♂ 9 mm. The clypeus in the ♂ lacks the carinae and teeth.

Praestabilis group. This group is composed of four species characterised by the great length of the galea, which is more than twice as long as the scape. With the exception of *labilis*, they appear to be confined to the tropical Ethiopian region.

T. labilis Turner. *Loc. cit.* p. 17, ♀, ♂.

♀, 18 mm. long. Black; the three last joints of the tarsi beneath and the calcaria fusco-ferruginous, the spines on the legs ferruginous. Face and clypeus with greyish silvery pubescence. Pubescence and pilosity of the thorax reddish ochreous, the pubescence a shade darker. The first four tergites with wide apical transverse bands of greyish silvery pubescence. The pygidial area covered with coarse fusco-ferruginous pubescence. Wings hyaline, faintly tinged with ochreous and slightly infusate apically, the veins pale brown.

Clypeus closely and finely punctured, also with a few large punctures intermixed, the median area with three small teeth on each side. Interocular distance on the vertex nearly equal to the combined length of the first and second joints of the flagellum. Galea as long as the scape and the first joint plus three-quarters of the second joint of the flagellum. Second sternite closely and finely punctured. Anterior metatarsus with five long spines.

♂, 15 mm. long. Interocular distance on the vertex as in the ♀. Seventh dorsal segment broadly rounded at the apex, not truncate. Eighth sternite shallowly emarginate at the apex, the apical teeth blunt.

Hab. Mlanje, Nyasaland. December to February. Type in the B.M. coll.

T. praestabilis Turner. *Loc. cit.* p. 16, ♀, ♂.

♀, 15-16 mm. long. Very much like *labilis* from which it differs as follows. Pubescence of face and clypeus golden. Pubescence and pilosity of thorax less reddish. Pubescence of the abdomen brighter. The front tibiae and tarsi are ferruginous. Median area of the clypeus with one tooth on each side. Interocular distance on the vertex equal to a little more than the length of the second joint of the flagellum. Anterior metatarsus with six spines. Pygidial area a little more acute than in *labilis*.

♂, 13 mm. long. Seventh tergite broadly truncate at the apex; eighth sternite widely and shallowly emarginate, the apical angles acute and dentiform. Otherwise like the ♀. The eighth sternite is wider than in *labilis*.

Uganda. December. Type in the B.M. coll.

T. Hamiltoni Turner. *Loc. cit.* p. 17, ♂.

♂, 15 mm. long. Black; mandibles at the base, the apices of the femora, the tibiae and tarsi pale ferruginous. Wings flavo-hyaline, costa and veins pale ferruginous. Face and clypeus with golden pubescence. Pubescence of the thorax pale golden, the pilosity pale yellowish. The first five tergites with apical bands of silver pubescence, the pygidium with reddish golden pubescence. Clypeus very shallowly emarginate in the middle of the anterior margin, and with three small teeth on each side. Interocular distance on the vertex equal to the length of the second joint of the flagellum. Sternites finely and evenly, but not very closely punctured. Seventh tergite widely truncate at the apex, the eighth sternite widely and shallowly emarginate, the apical angles subdentiform. Anterior metatarsus with six spines on the outer margin.

Hab. British East Africa. April. Type in the B.M. coll.

T. simulatrix Turner. *Loc. cit.* p. 18, ♀.

♀, 16 mm. long. Black; the apex of the scape below, the mandibles at the base, the apical half of the femora, tibiae, tarsi and tegulae reddish ochreous. Face and clypeus with pale golden pubescence. Pubescence of the thorax dull ochreous golden. The first four tergites with apical bands of silvery pubescence. Pygidial area clothed with coarse brownish red pubescence. Wings flavo-hyaline, the veins ferruginous.

Vertex sparsely and not very finely punctured. Second sternite dull, closely and very finely punctured. Galea very long and narrow, three times as long as the scape. Interocular distance on the vertex equal to or barely exceeding the length of the second joint of the flagellum. Second sternite dull, microscopically and closely punctured; pygidial area rounded at the apex. Anterior metatarsus with six spines.

Hab. S. Nigeria. May. Type in the B.M. coll.

T. rufiscutis Turner. *Ann. Mag. N.H.* 1 (9), 1, p. 95, ♂. 1918.

"♂. Niger; palpis, galea, mandibulis dimidio basali, clypeo, antennis, prothorace pedibusque ferrugineis; mesonoto antice, scutello postscutelloque fusco-ferrugineis; tegulis testaceis; segmentis duobus apicalibus rufo-brunneis; alis flavo-hyalinis, venis ferrugineis. Long. 18 mm."

"♂. Galea scarcely longer than the scape, a little longer than its basal breadth; palpi not elongate. Head covered with whitish hairs, changing to pale golden on the clypeus. Vertex opaque, very finely punctured; eyes separated on the vertex by a distance scarcely equal to half the length of the second joint of the flagellum. Antennae stout, the joints not arcuate beneath. Thorax opaque finely and very closely punctured; median segment twice as long as the scutellum, without a distinct median sulcus, but with a strong apical fovea, the posterior slope with a strong median sulcus. Abdomen closely and minutely punctured, rather sparsely clothed with very short silver-grey pubescence, which does not form apical fasciae; second sternite very minutely and closely punctured on the sides, much more strongly and rather sparsely in the middle; the third and following sternites very sparsely and deeply punctured in the middle. Seventh tergite elongate triangular, rather narrowly rounded at the apex, densely clothed with coarse reddish-gold pubescence. Eighth sternite rather narrowly truncate at the apex, the angles not produced. First recurrent nervure interstitial with the first transverse cubital nervure, second received just before the middle of the second cubital cell; third abscissa of the radius nearly twice as long as the second and about equal to the first. Six spines on the basal joint of the fore tarsus."

An examination of the type shows that the galea is about one-third longer than the scape.

T. aurichalcea Kohl. *Ann. Soc. Ent. Belg.* xxxv, p. 15, ♀. 1891.

♀, 15 mm. long. Black; tarsi fusco-ferruginous towards the apex; tegulae testaceous; wings hyaline, the veins testaceous. Face, clypeus and temples covered with silvery pubescence, becoming pale golden above on the temples. Thorax with a dense golden pubescence underlying the yellow pilosity. First tergite and apical halves of the other tergites clothed with brownish golden pubescence, the pygidial area with fusco-ferruginous pubescence. Vertex finely and sparsely punctured. Thorax very finely and closely punctured. Second and third sternites dull, very finely and closely punctured. Clypeus with three short blunt teeth on each side of the anterior margin. The interocular distance on the vertex equal to very little more than the length of the second joint of the flagellum. Galea as long as the scape. Anterior metatarsi with six spines on the outer margin.

♂, 14 mm. long. Interocular distance on the vertex less than the length of the second joint of the flagellum, about equal to twice the length of the first. Seventh tergite widely rounded at the apex; eighth sternite shallowly emarginate in the middle, the apical angles not dentiform. All the sternites moderately shining, the first three shallowly and sparsely, the fourth to sixth densely and sharply punctured.

Widely distributed, recorded from Nigeria, Congo and Rhodesia.

T. bimetallica Turner. *Ann. Mag. N.H.* xx (8), No. 115, p. 21, ♀. 1917.

“♀. Nigra; tarsis ferrugineis, articulo basali infuscato; calcaribus ferrugineis; tegulis segmentisque abdominalibus margine apicali brunneo-testaceis; alis hyalinis, venis testaceis; clypeo, fronte, pygidioque argenteo-pubescentibus; thorace cinereo-hirsuto; segmentis dorsalibus 1-5 pallide aureo-pubescentibus. Long. 13 mm.”

“♀. Clypeus subtruncate at the apex, with three minute teeth on each side. Vertex very minutely and closely punctured; eyes separated on the vertex by a distance equal to the combined length of the two basal joints of the flagellum. Median segment scarcely half as long again as the scutellum, with a distinct longitudinal sulcus on the dorsal surface. Basal joint of fore tarsus with five spines; spur of hind tibia as long as the basal joint of the hind tarsus. Pygidial area triangular, narrowly rounded at the apex. Third and fourth sternites shining and sparsely punctured in the middle.

Hab. Cape, Hex River (South African Museum). January.

Nearly allied to *aurichalcea*, but differs in the colour of the pubescence on the thorax and pygidial area, and in the number of spines on the fore metatarsus.”

T. volubilis Turner. *Loc. cit.* p. 24, ♂.

♂, 12 mm. long. Black; apical margins of the abdominal segments fusco-ferruginous. Spines on the legs ferruginous. Face and clypeus with dull silvery pubescence. Thorax with a scanty and dull golden pubescence, the pilosity yellowish. Abdomen with brownish golden pubescence, forming distinct apical fasciae. Pygidium with pale golden pubescence. Interocular distance on the vertex equal to the length of the second joint of the flagellum. Second, third and fourth joints of the flagellum moderately dilated beneath. Abdomen slender; the second sternite dull, finely and closely punctured; seventh tergite long, rounded at the apex; eighth sternite rounded at the apex. Anterior metatarsus with five spines.

British East Africa and Portuguese East Africa (Neave). Type in the B.M. coll.

T. dilaticornis Turner (Fig. 42). *Loc. cit.* p. 23, ♀, ♂.

♀, 14 mm. long. Black. Wings flavo-hyaline, widely infusate at the apex. Clypeus, face and temples with silvery pubescence, tinged with golden. The thorax in front and at the sides has a thin, decumbent and golden pubescence, underlying the sparse and pale yellowish pilosity. Pubescence of abdomen pale golden, denser on the apical margins, where it forms transverse fasciae. Pygidial area with a reddish golden pubescence. Thorax closely reticulate-punctate, the dorsum of the epinotum finely and closely reticulate, the declivity feebly and transversely striate. Abdomen microscopically and closely punctate above; the first and second sternites dull, closely and finely punctured, the following sternites shining, coarsely and sparsely punctured basally, finely and closely so apically. The apical margins of the abdominal segments brown. Vertex distinctly punctured. Interocular distance on the vertex equal to the length of the second joint of the flagellum. Abdomen slender, oblongo-ovate. Pygidial area elongate-triangular, narrowly rounded at the apex. Anterior metatarsus with five spines.



Fig. 42. Antenna of *T. dilaticornis*, ♂.

♂, 14 mm. long. Vertex distinctly punctured. Interocular distance on the vertex equal to a little less than the length of the third joint of the flagellum; seventh tergite truncate at the apex; eighth sternite subtruncate at the apex. Second to seventh joints of the flagellum strongly arcuately dilated beneath. Otherwise like the ♀.

Measurements of the types in the B.M. coll. show that Turner's description is incorrect in regard to the interocular distance.

Hab. British East Africa; Pinetown, Natal (G. F. Leigh). T.M. coll. ♂.

The latter specimen differs slightly from the type of the ♂ in having the joints of the flagellum less strongly arcuate and in the last four joints of the flagellum being fusco-ferruginous beneath. (T.M. coll.)

T. lichtenburgensis, n.sp.

♀, 10 mm. long. Black; mandibles piceous, last three joints of all the tarsi ferruginous, the two basal joints more or less fusco-ferruginous. The apical margins of the abdominal segments fusco-testaceous. Spines on the legs yellowish white, the calcaria flavous. Head, thorax and legs with brassy golden pubescence, somewhat paler or silvery on the sides of the mesonotum and the posterior tibiae. Abdomen clothed with a pale brassy golden pubescence, appearing brownish yellow in some lights, denser on the apical margins of the segments, where it forms wide transverse fasciae. Pygidial area clothed with a dense and deep golden pubescence. Head and thorax very closely and finely punctured, the sides of the epinotum almost smooth, the declivity closely and transversely striolate. First and second sternites dull and closely punctured, the rest shining, sparsely and coarsely punctured. Anterior margin of the clypeus convex, with two small blunt teeth on each side of the median area. Interocular distance on the vertex equal to a little more than the length of the first two joints of the flagellum. Dorsum of the epinotum short, not longer than the scutellum and metanotum combined. Pygidial area longer than wide at the base, narrowly rounded at the apex. Inner calcar of the hind tibia longer than the basal joint of the hind tarsus. Anterior metatarsus with five spines. Wings hyaline, the veins fusco-flavous.

The mouth parts in the type have been damaged and it is not possible to state the length of the galea.

♂, 8.5 mm. Pilosity and pubescence paler than in the ♀, on the abdomen

almost silvery, the pygidium covered with yellowish silver hairs. Anterior metatarsus with four spines. Galea as long as the scape. Otherwise like the ♀. Lichtenburg, Transvaal (Dr H. Brauns). Types in R.M. coll.

T. separabilis Turner. *Loc. cit.* p. 27, ♀, ♂.

♀, 16 mm. long. Black; mandibles at the base, the scapes below, tegulae, apical halves of the femora and nearly the whole of the hind ones, tibiae and tarsi, ferruginous. Wings flavo-hyaline, the veins ferruginous. Face and clypeus with pale golden pubescence. Thorax with pale golden pubescence, not dense except at the sides, and with reddish yellow pilosity. First four tergites with wide apical fasciae of silvery pubescence; the pygidial area with golden pubescence. Galea half as long again as the scape. Interocular distance on the vertex not quite equal to the length of the second joint of the flagellum. Second sternite dull, very finely and closely punctured. Pygidial area triangular, widely rounded at the apex. Anterior metatarsus with six spines; inner calcar of hind tibia as long as the basal joint of the hind tarsus.

♂, 15 mm. long. Interocular distance on the vertex less than the length of the second joint of the flagellum. Seventh tergite widely truncate at the apex; eighth sternite emarginate, the apical angles bluntly dentiform.

Hab. Transvaal, Zululand, East Africa and Gold Coast.

In a specimen from Waterberg, Transvaal (T.M. coll.) which I identify with this species there are three teeth on each side of the clypeus.

T. exclusa Turner. *Ann. Mag. N.H.* xx (8), No. 118, p. 290, ♀, ♂. 1917.

♀, 23 mm. long. Although very much larger, this species is, I think, very closely allied to *separabilis*, from which it differs only in the following features.

Anterior half of the clypeus and the antennae ferruginous. Pygidial area clothed with coarse fusco-ferruginous pubescence, and broadly rounded at the apex. Second to fourth sternites shining, with large scattered punctures. Inner calcar of hind tibia longer than the basal joint of the hind tarsus. Vertex minutely and closely punctured, with a low carina extending from the occiput and not reaching the ocellar area.

♂, 22 mm. Interocular distance on the vertex hardly equal to the length of the first joint of the flagellum. Seventh dorsal segment broadly rounded at the apex; eighth sternite very feebly emarginate, the apical angles not produced. Sternites shining and more closely and finely punctured than in the ♀.

Hab. Yapi, Gold Coast.

Turner remarks of this species, "This is near *testaceinerva* Cam., differing in the much sparser pubescence of the thorax and median segment, in the distinctly longer galea, in the presence of a carina on the vertex of the female, in the broader pygidial area, and in the distinctly sparser punctures of the sternites; the seventh tergite of the male is also much broader."

T. testaceinerva Cameron (Fig. 41 e). Sjöstedt, *Kilimandjaro-Meru Exped.* II, p. 283, ♀. 1910.

♀, 17-20 mm. long. Black; the base of the mandibles, the scapes in front, tegulae, apices of the femora, tibiae and tarsi, ferruginous. Face, clypeus and tibiae with reddish golden pubescence. Thorax with similar pubescence, somewhat scanty on the middle of the mesonotum. The first four tergites with wide apical transverse fasciae of ashy silver pubescence. The pygidial area clothed with reddish setae. Wings flavo-hyaline. Median area of clypeus with three teeth on each side of the anterior margin. Vertex with sparse and sharp punctures. Interocular distance on the vertex a little less than the length of the second joint of the flagellum, but equal to that of the third. Second

sternite shining, sparsely and deeply punctured, with a smooth triangular area on the middle of the apical margin. Pygidial area broadly rounded at the apex. Anterior metatarsus with six spines.

♂, 18 mm. long. The legs are darker than in the ♀, with the femora blackish over the basal half. Interocular distance on the vertex equal to the length of the first joint of the flagellum. Third to sixth joints of the latter feebly and arcuately dilated below. Seventh tergite trapezoidal, clothed with reddish golden pubescence. Eighth sternite widely truncate at the apex, the lateral apical angles narrowly rounded. Otherwise like the ♀.

Meru lowlands and Nyasaland. December to February.

T. Turneri, n.sp.

♀, 12 mm. long. Head, thorax, coxae and trochanters black. Scapes below, legs and tegulae ochreous, the third to sixth and apex of the second joint of the flagellum ferruginous beneath. Mandibles pale yellow at the base, castaneous at the apex. Apical halves of the first to fifth abdominal segments flavo-testaceous, their basal halves blackish or dark brown, the first and second tergites with a flavo-ferruginous transverse band in the middle, the second sternite with a round ferruginous spot on each side, the pygidium black. Wings hyaline, with ochreous veins. Pubescence pale brassy golden except on the clypeus and lower half of the face, where it is almost silvery, and on the tibiae where it is golden only. The pubescence on the thorax is fairly dense and decumbent, hiding the sculpture, and on the abdomen sparse except on the apical margins where it forms narrow transverse bands. Pilosity pale yellow, long but not abundant, except on the sides of the thorax and on the epinotum. Pygidial area clothed with reddish golden setae.

First and second sternites dull, finely and closely punctured and pubescent, the remaining sternites dull, finely punctured and pubescent on the sides, glabrous, shining and sparsely punctured in the middle. Galea shorter than the scape; labial and maxillary palpi yellow, with the apical joints fuscous. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. Pygidial area longer than wide at the base, the apex subacute. Anterior metatarsus with five spines on the outer margin. Inner calcar of hind tibia longer than the basal joint of the hind tarsus.

♂, 12 mm. long. Pubescence on the abdomen paler than in the ♀, almost greyish silvery. The second to seventh joints of the flagellum pale ferruginous beneath. First and second tergites without the transverse band of ferruginous colour in the middle. Pygidium triangular, as long as wide at the base, the apex moderately rounded, covered with pale silvery golden pubescence; eighth sternite rounded at the apex, not emarginate. Anterior metatarsus with four spines. Otherwise like the ♀.

Sawmills, S.R. December. 1 ♀, 2 ♂. Types in R.M. coll.

A very distinct species, characterised by the pale colour, especially of the legs, scapes and underside of the flagellum, and by the elongate pygidium and entire eighth sternite in the ♂.

T. ugandensis Turner (Fig. 41 g). *Ann. Mag. N.H.* xx (8), No. 115, p. 31, ♀, ♂. 1917.

♀, 13 mm. long. Black; mandibles castaneous, apices of the femora, the tibiae and tarsi, and the tegulae ferruginous. Wings hyaline, the veins testaceous. Face and clypeus clothed with pale golden pubescence. Pubescence of the thorax pale golden and scanty, the pilosity pale ochreous. The first four tergites with apical bands of greyish silvery pubescence. Pygidial area clothed with dark reddish setae. Vertex distinctly and sparsely punctured. Second

sternite minutely and closely punctured. Interocular distance on the vertex equal to a very little more than the combined length of the second and third joints of the flagellum (in another specimen in the B.M. coll. it is a little less than the second and third). Pygidial area triangular, the apex narrowly rounded. Anterior metatarsus with seven spines on the outer margin. Galea broadly rounded at the apex, hardly longer than the scape.

♂, 13 mm. long. Pubescence on the face and clypeus of a deeper golden colour than in the ♀. The pubescence on the abdomen with a tinge of yellow. Seventh tergite rounded at the apex; eighth sternite deeply and narrowly emarginate, the apical angles blunt. Otherwise like the ♀.

Hab. Uganda. Type in the B.M. coll.

T. Kristenseni Turner. *Loc. cit.* p. 30, ♀.

♀, 9 mm. long. Black; tibiae, tarsi and posterior femora ferruginous, tegulae testaceous, apical margins of the abdominal segments narrowly brown. Face and clypeus with dull silvery pubescence. Thorax and first four tergites with pale yellowish silvery pubescence. Pygidial area clothed with pale golden pubescence. Wings hyaline, the veins fusco-ferruginous. The apical fasciae on the first four tergites distinctly wide.

Second sternite dull, very finely and closely punctured. Interocular distance on the vertex equal to the length of the first two joints of the flagellum, the first joint of the latter quite half as long as the second. Pygidial area narrow, one and a half times longer than wide at the base, narrowly rounded at the apex. Anterior metatarsus with five spines.

A slender species with rather short antennae.

Hab. Harar, Abyssinia.

Turner in his description of this species says that there are only three spines visible on the basal joint of the fore tarsus; this is incorrect, as there are distinctly five to be seen on the left fore tarsus of the type in the B.M. coll.

T. associata Turner (Fig. 41 f). *Loc. cit.* p. 29, ♂.

♂, 15 mm. long. Black; apices of the femora, tibiae, tarsi and tegulae, ferruginous. Face and clypeus clothed with golden pubescence. Thorax with a deep golden pubescence which is dense and adpressed, hiding the sculpture. The pilosity pale golden or yellow. First five tergites with apical fasciae of silvery pubescence; all the sternites with a fairly abundant, exserted and yellowish pilosity. Pygidial area covered with pale golden pubescence. Wings hyaline, faintly tinged with yellow, the veins brownish yellow. First and second sternites finely and closely punctured, and dull all over. The remaining sternites shining, shallowly and sparsely punctured. Anterior margin of clypeus narrowly depressed, arcuate. Interocular distance on the vertex equal to the length of the second joint of the flagellum. Seventh tergite widely rounded at the apex, wider at the base than long; eighth sternite broad, the apex bisinuate. Anterior metatarsus with five spines.

♀ (hitherto undescribed), 15 mm. long. Apical third of the front and middle femora, and apical two-thirds of the hind femora on the inner face above, ferruginous. Interocular distance on the vertex slightly greater than the length of the second joint of the flagellum. The latter fairly long and slender, the second joint three and a quarter times longer than the first and a little longer than the third. Galea as long as the scape. The anterior margin of the median area of the clypeus with three small teeth on each side. Pygidial area covered with fulvous setae, the apex truncate and rounded at the apical angles. Anterior metatarsus with five spines; all the spines on the legs ferruginous. Inner calcar

of the hind tibia a little longer than the basal joint of the hind tarsus. Otherwise like the ♂.

Beira, ♂ (Sheppard); ♀ (Arnold). Type in the B.M. coll.

T. tomentosa Kohl. *Ann. Soc. Ent. Belg.* xxxv, p. 16, ♀. 1891. Turner, *loc. cit.* p. 33, ♀, ♂.

♀, 13–14 mm. long. Black; mandibles castaneous, their apices black. Apices of the femora, tibiae and tarsi reddish ochreous, tegulae testaceous. Wings faintly flavo-hyaline, the veins ferruginous. Face, clypeus, temples, pronotum, sides of the thorax and lateral margins of the mesonotum covered with golden pubescence; pilosity on the thorax yellow, scanty above, longest and most abundant on the epinotum, which has very little underlying pubescence. First four tergites with transverse bands of scanty golden pubescence on the apical margins; the pygidial area clothed with fulvous golden setae. Thorax very finely and closely punctured, the dorsum and declivity of the epinotum closely punctate-rugulose. First and second sternites dull, finely and closely punctured, the remaining sternites dull and closely punctured on their apical margins, shining, very sparsely and coarsely punctured basally. Anterior margin of clypeus convex, with three small teeth on each side of the median area. Galea not longer than the scape. Interocular distance on the vertex equal to the length of the second joint of the flagellum. Pygidial area triangular, narrowly rounded at the apex. Basal joint of the fore tarsus with five spines.

“♂. Seventh tergite rather narrowly truncate at the apex; eighth ventral segment truncate at the apex, the angles not produced. The pubescence on the abdomen is paler than in the ♀; and the eyes are closer together on the vertex, separated by about the length of the first joint of the flagellum.”

Hab. Cape (Kohl); Gold Coast, Nyasaland and Uganda.

Two females from Durban (C. N. Barker), which I identify with this species, have the pygidial area subacute at the apex, but otherwise conform to the description of the species as given by Turner.

T. neglecta Turner. *Loc. cit.* p. 32, ♀, ♂.

♀, 12–14 mm. long. Black; tibiae and tarsi ferruginous, apical margins of the abdominal segments narrowly brown. Wings hyaline, faintly tinged with yellow, the veins brown. Face and clypeus with a brassy silvery pubescence; thorax with a deep golden pubescence, and pilosity somewhat paler. Abdomen with greyish brown pubescence, the first four tergites with apical fasciae of a dull and pale golden pubescence; pygidial area with reddish golden pubescence.

Vertex sparsely and shallowly punctured. Second sternite dull, very finely and closely punctured. Galea one-fourth longer than the scape. Interocular distance on the vertex equal to the combined length of the second plus half the first joints of the flagellum. Pygidial area triangular, longer than wide at the base, the apex subacute. Anterior metatarsus with six spines.

♂, 13 mm. long. Interocular distance on the vertex slightly exceeding the length of the second joint of the flagellum; seventh tergite broadly rounded at the apex and clothed with golden pubescence; eighth sternite deeply and narrowly emarginate, the angles produced. Otherwise like the ♀.

Turner in his description of this species says that the galea is no longer than the scape. An examination of the type, however, shows by actual measurement that it is one-fourth longer, and also that the interocular distance is less than the length of the first and second joints of the flagellum. Moreover, of the six ♀♀ placed under this species in the British Museum's collection, there

are two in which the galea is twice as long as the scape, and in another specimen from Nyasaland (B.M. No. 353, Neave 1910) there are only five spines on the metatarsus. There is little doubt, therefore, that that series comprises at least two different species. The connection between this species and *tomentosa* is also very close.

T. irritabilis Turner. *Loc. cit.* p. 28, ♂.

♂, 11–13 mm. long. Black; tarsi, extreme apices of the femora, all the tibiae outwardly, tegulae and veins of the wings, pale reddish ochreous. Apical margins of the abdominal segments narrowly brown. Wings faintly flavo-hyaline. Face and clypeus with a dense and dull brassy golden pubescence. Thorax with a pale golden adjacent pubescence and pale yellow pilosity. The pubescence and pilosity more abundant on the epinotum than elsewhere. First four tergites with apical fasciae of very pale brassy pubescence, the sternites with a thin, exerted and yellowish pilosity, the pygidium with pale golden pubescence. Vertex fairly closely and distinctly punctured. Thorax very finely coriaceous-punctate. Sternites nitidulous, punctured, the punctures becoming deeper and closer progressively towards the apex of the abdomen. Galea about half as long again as the scape. Interocular distance on the vertex slightly less than the length of the second joint of the flagellum. Seventh tergite not very wide, the apex broadly rounded; eighth sternite narrowly and angularly emarginate, the apical angles blunt. Anterior metatarsus with four spines. Inner calcar of hind tibia as long as the basal joint of the hind tarsus.

Mlanje, Nyasaland; Bulawayo. April. Type in the B.M. coll (R.M.).

T. opposita Turner. *Loc. cit.* p. 31, ♂.

♂, 13 mm. long. Black; tibiae, tarsi and apices of the anterior and middle femora, reddish ochreous. Wings faintly flavo-hyaline, the veins and tegulae ochreous. Face, clypeus and thorax clothed with brassy golden pubescence, which on the thorax is decumbent and fairly dense, hiding the sculpture. Pilosity yellowish, longest on the face, sides of thorax and on the epinotum. Abdomen covered with a dull golden pubescence on the first four tergites, not dense except on their apical margins, where it forms transverse fasciae; fifth and sixth tergites with brownish pubescence, the seventh with pale silvery golden pubescence.

Vertex sparsely punctured. Galea much longer than the scape. Interocular distance on the vertex very nearly equal to the length of the second joint of the flagellum. Dorsum of the epinotum longer than the scutellum. Sternites sparsely and shallowly punctured, the second to fourth shining, the rest dull. Seventh tergite triangular, the apex widely rounded; eighth sternite arcuately emarginate, the apical angles dentiform. Anterior metatarsus with four or five spines. Inner calcar of hind tibia a little shorter than the basal joint of the hind tarsus.

Turner gives the interocular distance as being only slightly greater than half the length of the second joint of the flagellum, but from a measurement of the type that statement is proved to be incorrect.

Pakasa, N.R. (Silverlock); Sawmills, S.R. (Arnold). January.

T. cataractae n.sp.

♂, 15 mm. long. Black; mandibles flavo-ferruginous with black apices. Legs flavo-ferruginous, the basal third or more of the femora black, behind and below. Scapes yellowish red in front, black behind. Tegulae flavo-testaceous. Wings flavo-hyaline, the veins yellowish red. Clypeus, face and

thorax clothed with pale golden pubescence, fairly scanty on the disc of the mesonotum, the scutellum and dorsum of the epinotum. Pilosity long and yellow. First five tergites covered with pale greyish pubescence, distinctly scanty except on the apical margins, where it forms narrow transverse fasciae. Pubescence of the sixth tergite brown, of the seventh silvery, tinged with golden. Second sternite nitidulous, closely and shallowly punctured, the third to seventh sternites fairly shining, sparsely and more coarsely punctured over their apical halves; sixth and seventh sternites with brown pubescence. Eighth sternite arcuately emarginate, the apical angles acute but not produced. Galea half as long again as the scape. Anterior margin of the clypeus convex, the median area with a fairly deep median excision and three small teeth on each side. Interocular distance on the vertex not more than two-thirds the length of the second joint of the flagellum. The latter is two and a half times longer than the first, and barely longer than the third joint. Dorsum of epinotum fully as long as the scutellum and metanotum taken together. Seventh tergite widely rounded at the apex. Anterior metatarsus with five spines; the inner calcar of the hind tibia a little shorter than the basal joint of the hind tarsus.

Victoria Falls. 2 ♂♂. January. Type in R.M. coll.

Allied to *Hamiltoni* Turner but with a shorter galea and shorter interocular distance on the vertex.

T. glabriuscula n.sp.

♂, 7-8 mm. long. Black; tarsi and calcaria pale ochreous, the spines on the legs whitish; tegulae flavo-testaceous. Face, clypeus and lateral margins of the mesonotum with pale golden pubescence. The pubescence on the thorax is silvery, dense only on the mesopleurae, scanty or absent elsewhere. Pilosity on the thorax scanty and greyish white. First four tergites with greyish silvery and fairly long pubescence, scanty except on the apical margins where it forms transverse fasciae; fifth and sixth tergites with brownish, the seventh with silvery pubescence. Vertex, mesonotum and scutellum finely and distinctly punctured, fairly closely so on the vertex, more sparsely on the thorax, the punctures being smaller than the spaces between them. Dorsum of epinotum fairly shining, transversely aciculate, the sides almost smooth, the declivity transversely striolate. Second to seventh sternites fairly shining, the second shallowly and not very closely punctured all over, the rest more strongly punctured only on the apical margins.

Galea broadly rounded at the apex, distinctly shorter than the scape. Anterior margin of the clypeus convex, the depressed margin of the median area shining. Interocular distance on the vertex distinctly great, being equal to the combined length of the second and third joints of the flagellum. Second joint of the flagellum about two-thirds longer than the first, not longer than the third. Dorsum of epinotum as long as the scutellum and metanotum together. Pygidial area trapezoidal, the apex rounded; eighth sternite arcuately emarginate, the lateral angles acute but not produced. Anterior metatarsi with three spines on the outer margin. Inner calcar of hind tibia as long as the basal joint of the hind tarsus. Wings hyaline, nervures testaceous.

Victoria Falls. January (type); Sawmills, S.R. December.

In one of the specimens from Sawmills, the tibiae also are ochreous, but otherwise like the type. In the great width of the vertex this species resembles *ugandensis*, but it is otherwise very distinct (R.M., T.M. colls.).

T. punctuosa n.sp.

♂, 12.5 mm. long. Black; tarsi ferruginous, the basal joint more or less fusco-ferruginous. Tegulae testaceous. Wings hyaline, the veins ochreous

proximally, turning to brown towards the apex. Face and clypeus with silvery pubescence and pilosity. Thorax without any adpressed pubescence, clothed only with a long, sparse and yellowish pilosity, not obscuring the sculpture. First tergite covered with a sparse greyish silvery pubescence and pilosity, the pubescence denser on its apical margin where it forms a transverse band, the following three tergites with similar pubescence only on their apical margins; the fifth and sixth tergites with blackish, the seventh with yellowish silvery pubescence. Vertex, mesonotum and scutellum sharply punctured, closely and finely so on the vertex, more strongly and less closely on the mesonotum and scutellum. Dorsum and declivity of epinotum fairly closely reticulate-rugulose, the mesopleurae and sides of the epinotum finely and closely punctured. Second sternite nitidulous, shallowly but fairly closely punctured, except in the middle of the apical margin. The following sternites shining, finely and closely punctured only at the sides, very scantily and coarsely punctured elsewhere.

Median area of clypeus with a blunt tooth on each side. Galea rounded at the apex, not longer than the scape. Second to sixth joints of the flagellum arcuate below, the second a little longer than the third. Vertex broad, the interocular distance there being equal to the length of the second and third joints of the flagellum. Thorax and abdomen slender. The dorsum of the epinotum is a little longer than the scutellum and metanotum combined. Seventh tergite rounded at the apex; eighth sternite fairly broad, shallowly and arcuately emarginate at the apex, the apical angles rounded. Anterior metatarsi with four spines on the outer margin. Inner calcar of hind tibia considerably shorter than the basal joint of the hind tarsus.

De la Rey, Transvaal. January (Dr H. Brauns). Type in R.M. coll.

The distinct puncturation and almost total absence of decumbent pubescence on the thorax sufficiently characterise this species.

T. notabilis Turner. *Loc. cit.* p. 41, ♀, ♂.

♀, 11–13 mm. long. Black; tarsi fuscous-ferruginous, tegulae testaceous. Clypeus and face with golden pubescence. Thorax with a very sparse and dull golden pubescence, not hiding the sculpture; the pilosity yellowish grey, short and sparse. First four tergites with apical bands of yellowish grey pubescence. Pygidial area with reddish golden pubescence.

Vertex dull, with a few large punctures. Mesonotum closely punctate-rugulose; the dorsum of the epinotum more strongly so. Second sternite dull, very finely and closely punctured, the following sternites shining, sparsely and coarsely punctured on the apical margins. Clypeus closely and shallowly punctured, the anterior margin transverse. Galea shorter than the scape. Interocular distance on the vertex equal to the length of the first two joints of the flagellum; the second joint of the latter is a little longer than the third and nearly three times longer than the first. Dorsum of epinotum as long as the scutellum and metanotum combined. Pygidial area triangular, longer than wide at the base, narrowly rounded at the apex. Anterior metatarsus with five spines. Inner calcar of hind tibia as long as the basal joint of the hind tarsus. Wings hyaline, tinged with fuscous, the veins testaceous.

♂, 11 mm. long. Anterior metatarsus with four spines on the outer margin. Second sternite as in the ♀, the following sternites closely and fairly strongly punctured over the apical halves. Seventh tergite broadly rounded at the apex, clothed with pale golden pubescence. Eighth sternite narrow, arcuately emarginate at the apex, the apical angles not dentiform. Otherwise like the ♀.

Nyasaland, Uganda, British East Africa; Bulawayo, March; Barberton, December (Janse).

A rather slender species, especially in the ♂, and easily recognised by the distinct and rugulose sculpture of the thorax.

T. Braunsi Turner. *Ann. Mag. N.H.* xx (8), No. 118, p. 292, ♀, ♂. 1917.

♀, 15.5–17 mm. long. Black; tarsi ferruginous, fuscous towards the base, tegulae pale dirty ochreous. Wings flavo-hyaline, the veins ferruginous. Clypeus and face clothed with greyish silvery pubescence. Thorax clothed with an erect, whitish and rather sparse pilosity, a decumbent pubescence absent except on the mesopleurae in front. First four tergites with apical transverse bands of greyish silvery pubescence; the pygidial area with pale golden pubescence. Vertex, mesonotum and scutellum dull, closely and finely punctured, the dorsum of the epinotum finely reticulate-rugulose. Second sternite dull and finely punctured, the following sternites shining, with a pre-apical row of irregular and coarse punctures. Anterior margin of the clypeus with three teeth on each side of the median area. Galea a little shorter than the scape, wider than long. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. Pygidial area elongate-triangular, narrowly rounded at the apex. Anterior metatarsus with five spines on the outer margin (Turner says four, but an examination of his ♀ cotype shows five on the left, and four on the right metatarsus).

♂, 14 mm. long. Apical margins of the abdominal segments faintly fusco-ferruginous. Vertex distinctly punctured. Interocular distance on the vertex equal to the length of the second joint of the flagellum. Anterior metatarsus with four spines. Seventh tergite broadly rounded at the apex, clothed with pale silvery golden pubescence; eighth sternite shallowly emarginate at the apex, the angles not produced. Otherwise like the ♀.

Willowmore, C.P. November to December (Dr H. Brauns).

The two ♀♀ in my possession are somewhat larger than the type in the B.M. coll., but otherwise similar.

T. bulawayoensis Bischoff. *Arch. f. Naturges.* A 3, p. 68, ♀, ♂. 1913.

♀, 15 mm. long. Black; tarsi dark ferruginous, the basal joint fuscous. Tegulae testaceous. Wings hyaline, faintly tinged with ochreous, the veins ochreous. Face and clypeus clothed with short silvery pubescence. Pilosity of face and thorax whitish, erect and not very abundant. In addition, the thorax has a decumbent pubescence of a dull pale yellow colour, fairly dense. Abdomen with greyish silvery pubescence, denser on the apical margins, where it forms transverse fasciae. Pygidial area clothed with dark reddish golden setae (not reddish brown as stated in Bischoff's description). Posterior tibiae with pale golden pubescence. Clypeus, face, mesonotum and scutellum very closely and finely punctured, the punctures contiguous. Vertex dull, shallowly and sparsely punctured. Anterior margin of the median area of the clypeus convex, depressed and narrowly excised in the middle. Galea about as long as the scape, rounded apically. First joint of the labial palpi slender, as long as the third and fourth combined. Interocular distance on the vertex nearly equal to the length of the first two joints of the flagellum. Second and third sternites dull, closely and finely punctured; the fourth, fifth and sixth shining, coarsely punctured on their apical halves. Pygidial area elongate-triangular, the apex narrowly rounded. Anterior metatarsus with six spines. Inner calcar of hind tibia a trifle longer than the basal joint of the hind tarsus.

Bulawayo and Matopos, S.R. December to March. (R.M. and T.M. colls.)

T. confusa n.sp.

♀, 14 mm. long. This species is very similar to *bulawayoensis*, from which it differs as follows.

Adjacent pubescence on the thorax scantier, almost absent on the dorsum of the epinotum. The pygidial area clothed with fine orange golden pubescence. Sculpture of the thorax more distinct; the mesonotum and scutellum are sharply punctured, the punctures discrete and smaller than the spaces between them; the scutellum more strongly punctured than the mesonotum. The dorsum of the epinotum is very distinctly and transversely reticulate-rugulose (microscopically reticulate only in *bulawayoensis*). The vertex is closely and finely punctured. Second sternite dull all over, closely and finely punctured; third and following sternites shining, coarsely and sparsely punctured over their apical halves.

The interocular distance on the vertex is equal to the length of the second joint of the flagellum. The galea is shorter than the scape, and much more rounded at the apex than in *bulawayoensis*. The pygidial area is narrowly truncate at the apex, not rounded as in the other species. The anterior metatarsus has five spines on the outer margin, and the spur of the hind tibia is not longer than the basal joint of the tarsus.

Bulawayo. December. 1 ♀. (Type in R.M. coll.)

This species may be distinguished from the other allied forms as follows: *argenteovestita* and *transvaalensis* have the interocular space wider; *Distanti* has the pubescence of the tergites and pygidial area of a different colour, and also has a wider interocular space.

T. argenteovestita Cameron. *Ann. Transvaal Mus.* II, p. 130, ♀. 1910.

♀, 13 mm. long. This is very much like *bulawayoensis* but smaller. Thorax without decumbent pubescence. The pubescence on the abdomen brighter, more distinctly silvery. The pygidial area clothed with fine and pale golden pubescence, not with reddish golden setae as in *bulawayoensis*. The vertex, like the mesonotum and scutellum, is distinctly and closely punctured, the punctures on the thorax larger and further apart than in the other species. The dorsum of the epinotum is distinctly, although finely, reticulate-rugulose. The interocular distance on the vertex is greater, being fully equal to the combined length of the second and third joints of the flagellum. Galea shorter than the scape, widely rounded at the apex. Third sternite shining. Inner calcar of hind tibia shorter than the basal joint of the hind tarsus. Wings clear hyaline, the veins ochreous. Otherwise like the ♀ of *bulawayoensis*.

♂, 13.5 mm. long. Puncturation of the vertex, mesonotum and scutellum stronger than in the ♀. Third to sixth joints of the flagellum arcuate beneath. Interocular distance on the vertex equal to the length of the second and third joints of the flagellum, plus half the first. Pygidial area triangular, the apex widely rounded. The second sternite finely punctured at the sides, coarsely so and pilose in the middle. Eighth sternite almost transversely truncate, at the most only feebly emarginate. Anterior metatarsus with four spines. Otherwise like the ♀.

Pietersburg, Transvaal (A. J. T. Janse); Bothaville, O.F.S. (Dr H. Brauns). (R.M. and T.M. colls.)

T. transvaalensis Cameron. *Entomologist*, p. 153, ♀. 1905.

♀, 14 mm. long. Of this species I have one example (Bloemfontein) which by comparison appears to be identical with the specimens under this name in the British Museum collection. The only appreciable differences which I can find between it and *argenteovestita*, apart from size, are the less acute pygidial

area and the colour of the pubescence of that part, which is a shade darker than in *argenteovestita*. The calcar of the hind tibia is also longer, being fully as long as the basal joint of the hind tarsus. The examination of more extensive material might result in having to reduce *argenteovestita* to subspecific rank.

T. inexorabilis Turner. *Ann. Mag. N.H.* xx (8), No. 115, p. 36, ♀, ♂. 1917.

♀, 14 mm. long. Black; tarsi fusco-ferruginous, tegulae testaceous, wings hyaline, faintly tinged with yellow at the base, the veins reddish ochreous, the costa and subcosta dark brown. Clypeus, face and temples clothed with silvery pubescence, tinged with yellow; thorax covered with a decumbent pubescence, dull golden above, paler at the sides, nowhere abundant and not hiding the sculpture. Pilosity on the thorax long and yellowish, most dense on the epinotum. First tergite with a thin yellowish decumbent pubescence and outstanding pilosity. First four tergites with apical fasciae of greyish silvery pubescence. Pygidial area clothed with dark reddish setae. Pubescence on the legs silvery golden.

Vertex dull, with a few large punctures. Mesonotum closely and very finely, the scutellum less finely, punctured; dorsum of epinotum punctate-rugulose. Second and third sternites dull, finely and closely punctured, the following sternites shining and coarsely punctured at the base, finely so and dull on the apical margins. Anterior margin of the clypeus convex, the median area with three minute blunt teeth on each side in front. Galea shorter than the scape, broadly rounded at the apex. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. Dorsum of epinotum as long as the scutellum. Pygidial area triangular, the apex narrowly rounded. Anterior metatarsus with six spines. Inner calcar of hind tibia as long as the basal joint of the hind tarsus.

♂, 12-14 mm. long. Pubescence of face and clypeus golden. Pygidial area clothed with silvery golden pubescence. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. Second and following sternites moderately shining, shallowly and not very closely punctured. Seventh tergite broadly rounded at the apex; eighth sternite shallowly emarginate, the apical angles blunt. Otherwise like the ♀.

Transvaal, Natal, East Africa and Uganda; East London (Dr H. Brauns). (R.M. and T.M. colls.)

T. hirsuta Smith. *Cat. Hymen. B.M.* iv, p. 300, ♂. 1856.

♂, 14-15 mm. long. Apart from size and colour of the pilosity and pubescence, this species does not appear to me to differ greatly from *inexorabilis*. The pilosity is more abundant, especially on the epinotum, and is of a yellower colour. The yellow and adjacent pubescence is more noticeable and fairly dense on the first tergite. The sternites have a fairly long, outstanding and abundant pilosity, pale yellowish on the first four sternites, darker on the rest. The type in the Brit. Mus. coll. is defective, the third and following abdominal segments having been lost, but measurement of the interocular distance in that specimen shows that it is equal to the combined length of the first two joints of the flagellum, and not "scarcely exceeding the length of the second" as stated by Turner. Moreover, in the type the normal number of spines on the front metatarsus is probably six, since on one leg it is five and on the other six. The galea is like that of *inexorabilis*. Second and third sternites closely, shallowly and finely punctured, almost dull, the puncturation closer than in *inexorabilis*. The eighth sternite is a little more deeply and more angularly emarginate, but it is not particularly narrow. Turner describes this segment as narrow, but obviously this observation must be based on the other

specimens which he ascribes to Smith's species, since the type has lost the end of the abdomen.

I ascribe to this species two specimens, ♀ and ♂, taken at De la Rey, Transvaal (Dr H. Brauns). The ♀ is exceedingly like that of *inexorabilis*, and differs from it only in the following features: size somewhat larger, 16.5 mm. long. Costa and subcosta and all the other veins of the wing ochreous. Galea slightly longer and less rounded at the apex. First four sternites finely, closely and evenly punctured, dull. Pygidial area narrower, more acute at the apex and clothed with pale golden hairs.

T. erynnis Turner. *Ann. Mag. N.H.* xx (8), No. 115, p. 37, ♀, ♂. 1917.

♀, 15 mm. long. This species differs from *inexorabilis* ♀ by very little. The wings are more strongly tinged with flavous, especially at the base, and the costa and subcosta are ferruginous, the other veins flavo-ferruginous. The pygidial area is covered with dull reddish golden hairs, and is more elongate and more acute at the apex. The wings are shorter than in *inexorabilis*, not reaching the apex of the abdomen. Otherwise like that species.

“♂, 14 mm. long. Eyes separated on the vertex by a distance scarcely exceeding half the length of the second joint of the flagellum; sternites closely and evenly, but not very minutely punctured; seventh tergite rather narrowly rounded at the apex; eighth sternite narrow, deeply emarginate.”

Transvaal, Natal, Zululand; Salisbury, S.R.

T. instabilis Turner. *Loc. cit.* p. 39, ♀, ♂.

“Very similar to *T. inexorabilis* in both sexes, but the pubescence on the thorax and median segment is golden grey, very short and close lying under sparse, long, erect hairs; the ♂ has the seventh tergite broadly subtruncate at the apex, not rounded, and the eighth sternite much broader, though also emarginate; the punctures of the sternites are distinctly larger. The female differs in the sparse and large punctures of the third, fourth and fifth sternites, which are shining, whereas in *inexorabilis*, except at the extreme base, they are opaque and very minutely and closely punctured; the eyes are a little nearer together on the vertex, being separated by a distance equal to the length of the two basal joints of the flagellum; the wings in both sexes are slightly more yellowish at the base, and the galea is distinctly shorter and broader, being scarcely more than half as long as the scape, whereas in *inexorabilis* it is nearly as long as the scape.

Length ♂ 11 mm., ♀ 12–14 mm.

Hab. Nyasaland, Mlanje (S. A. Neave). January and February.”

The pubescence on the pygidial area in the ♀ is fulvous golden. The interocular distance is the same in both sexes. The male has four spines on the anterior metatarsus, and the female has five. I ascribe to this species two females and a male from Willowmore (Dr H. Brauns), which agree with the description in all particulars except that in the female the pubescence on the thorax is very scanty and grey in colour, without any tinge of golden, and the wings are hyaline throughout.

T. melancholica n.sp.

♂, 13–15 mm. long. Black; tarsi fusco-ferruginous, becoming paler towards the apex. Mandibles castaneous. Apical margins of the abdominal segments fusco-ferruginous. Wings hyaline, pale flavo-hyaline at the base, the veins pale ferruginous. Clypeus and face clothed with silvery pubescence and pilosity. The adjacent pubescence on the thorax yellowish and scanty, absent from the epinotum. The pilosity yellowish silvery. Abdomen with a

thin greyish white pubescence, forming transverse fasciae on the apical margins. The ventral segments with an outstanding and yellowish white pilosity, longest and most abundant on the second sternite. Clypeus and vertex finely punctured, the former closely, the vertex sparsely so. Mesonotum and scutellum closely and finely punctured, the punctures discrete, shallow on the mesonotum, larger and deeper on the scutellum. Dorsum of epinotum closely reticulate-rugulose. Second and following sternites moderately shining, the second to fifth shallowly, irregularly and not closely punctured on the apical halves. Sixth and seventh sternites dull, closely punctured, the seventh with smaller punctures than the sixth. Galea not longer than the scape, its distal lobe only half as long as the scape, broadly rounded at the apex. The median area of the clypeus with three indistinct teeth on each side of the anterior margin. Interocular distance on the vertex small, being barely equal to the length of the second joint of the flagellum. Dorsum of epinotum fully as long as the scutellum and metanotum taken together. Seventh tergite widely rounded at the apex, eighth sternite deeply and almost angularly emarginate, the apical angles acute and dentiform. Anterior metatarsus with four spines.

Victoria Falls. November. 6 ♂♂. Type in R.M. coll. (T.M. coll.).

T. lachesis Turner. *Loc. cit.* p. 40, ♀.

"♀. Nigra; tibiis anticis basi extremo, calcaribus, tarsisque articulis apicalibus fusco-ferrugineis; alis hyalinis, pallidissime flavidulis, venis ferrugineis; fronte clypeoque aureo-pubescentibus; thorace segmentoque mediano griseo-aureo pubescentibus; segmentis dorsalibus 4 basalibus fascia apicali subargenteo-pubescente; area pygidiali fusco-ferrugineo-pubescente. Long. 13 mm."

"♀. Clypeus very broadly rounded at the apex; galea much shorter than the scape; vertex microscopically punctured in the middle, with a few large punctures near the eyes, which are separated on the vertex by a distance equal to the combined length of the two basal joints of the flagellum. Basal joint of the fore tarsi with six spines; spur of the hind tibia longer than the basal joint of the hind tarsus. Median segment scarcely longer in the middle than the scutellum, with a shallow, but distinct longitudinal sulcus. Sternites 3-5 shining, with large sparse punctures, smooth at the base. Pygidial area broadly rounded at the apex.

Hab. Nyasaland, Mlanje (S. A. Neave). February."

It is incorrect to describe the pubescence of the thorax as greyish golden, it is actually a dull deep golden, and the pilosity is short and pale ochreous. There is also a golden tinge on the abdominal pubescence. The second sternite is very closely, finely and evenly punctured, and fairly dull. The galea is wider than long.

T. versatilis Turner. *Loc. cit.* p. 34, ♀, ♂.

♀, 16-18 mm. long. Black; tegulae testaceous, spines on the tarsi grey. Face and clypeus with greyish silvery pubescence; dorsum of thorax (including the epinotum) with a tomentose and deep fulvous golden pubescence, at the sides and below the pubescence is scantier and paler, the pronotal collar has pale silvery pubescence. First four tergites with apical bands of silvery pubescence; the pygidial area covered with reddish brown setae. Wings subhyaline, narrowly and faintly infusate at the apex, the veins ferruginous. Vertex coarsely and closely punctured. Abdomen closely and distinctly punctured, more sparsely and more coarsely at the base of the tergites than at the apex; second sternite shining, nearly as sparsely and coarsely punctured as the third and fourth.

Clypeus feebly emarginate in the middle of the anterior margin, with three blunt teeth on each side in front. Galea broadly rounded at the apex, somewhat shorter than the scape. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. Pygidial area subtriangular, the apex widely rounded. Anterior metatarsus with six spines.

♂, 14 mm. long. Interocular distance a little greater than the length of the second joint of the flagellum. Seventh tergite trapezoidal, covered with reddish golden pubescence. Eighth sternite arcuately emarginate at the apex, the apical angles subacute. Second ventral segment shining, with larger punctures than in the ♀. Anterior metatarsus with five or six spines (in the type of the ♂ one of the spines appears to me to have been broken off, so that the full number may be six).

Nyasaland and Uganda.

T. habilis Turner. *Loc. cit.* p. 35, ♂.

"♂. Niger; tarsi subtus, calcaribusque fusco-ferrugineis; tegulis testaceis; alis hyalinis, pallidissime flavidulis, venis fulvis; fronte clypeoque aureo-pubescentibus; thorace segmentoque mediano griseo-aureo-pubescentibus; segmentis dorsalibus 4 basalibus fascia apicali griseo-argenteo-pubescente. Long. 15 mm."

"♂. Clypeus broadly rounded at the apex; galea shorter than the scape; vertex minutely and closely punctured; eyes separated on the vertex by a distance about equal to the combined length of the two basal joints of the flagellum. Basal joint of fore tarsus with eight spines. Median segment at least half as long again as the scutellum, without a longitudinal sulcus on the dorsal surface. Sternites subopaque, very closely and finely punctured, with long sparse pubescence. Seventh tergite very broadly rounded at the apex, clothed with silver pubescence, slightly tinged with gold. Eighth sternite broadly rounded or subtruncate at the apex, the angles not produced.

Hab. Nyasaland, S.E. shore of Lake Nyasa, between Fort Maguire and Fort Johnstone (S. A. Neave). March."

T. disputabilis Turner. *Loc. cit.* p. 39, ♂.

♂, 11 mm. long. Black; tarsi reddish ochreous, the basal joint fuscous above. Tegulae testaceous. Wings hyaline, the veins ochreous at the base, becoming fuscous towards the apex. Clypeus and face with a pale brassy pubescence. Thorax with a pale yellowish white pilosity and a dull, pale brassy pubescence; the latter not dense and absent from the dorsum of the epinotum. First four tergites with greyish pubescence slightly tinged with golden, forming transverse apical fasciae. Seventh dorsal segment with pale yellowish silvery pubescence. Vertex and mesonotum microscopically punctured, the scutellum a little less finely, the dorsum of the epinotum microscopically reticulate. Second sternite dull, closely and very finely punctured, the third to sixth sternites shining, closely and fairly strongly punctured over their apical halves; the seventh dull, closely and finely punctured. Galea much shorter than the scape, rounded at the apex. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. Seventh tergite long, rounded at the apex; eighth sternite emarginate, the apical angles dentiform. Anterior metatarsus with four spines. Inner spur of hind tibia a little longer than the basal joint of the hind tarsus.

♀ (hitherto undescribed), 12 mm. long. The joints of the middle and hind tarsi fuscous, with ferruginous bases. Pubescence of face and clypeus silvery. Pygidial area clothed with dark reddish brown setae. Punctuation of the vertex, mesonotum and scutellum a little sharper than in the ♂. Pygidial area

elongate-triangular, the apex moderately rounded. Anterior metatarsus with five spines. Otherwise like the ♂.

Nyasaland, January; Sawmills, S.R. (Arnold), December. (R.M. coll.)

T. megaera Turner. *Loc. cit.* p. 40, ♀.

"♀. Nigra; tarsi subtus articuloque apicali supra, calcaribusque ferrugineis; tegulis testaceis; alis basi flavidulis, apice hyalinis, venis ferrugineis; fronte clypeoque argenteo-pubescentibus; thorace segmento medio albedo-pubescentibus; segmentis dorsalibus 4 basalibus fascia apicali griseo-argenteo-pubescente; area pygidiali fusco-ferrugineo-setosa. Long. 13 mm."

"♀. Clypeus broadly subtruncate at the apex, the apical margin deflexed; vertex very closely microscopically punctured; eyes separated on the vertex by a distance about equal to the length of the second joint of the flagellum. Galea shorter than the scape. Basal joint of the fore tarsus with five spines; spur of the hind tibia as long as the basal joint of the hind tarsus. Thorax closely and minutely punctured; second sternite and the third, fourth and fifth sternites on the apical margin closely and minutely punctured; the three latter shining at the base, with large scattered punctures. Pygidial area triangular, rather narrowly rounded at the apex.

Hab. Gold Coast."

T. Silverlocki Turner. *Loc. cit.* p. 42, ♀.

♀, 9-10 mm. long. Black; basal joint of anterior tarsi fuscous, the remaining joints ferruginous; the middle and hind tarsi with the apical two or three joints fusco-ferruginous; calcaria ferruginous, the spines on the legs whitish. Wings hyaline, the veins brown. Face and clypeus with silvery pubescence. Pubescence on the thorax and abdomen greyish silvery, fairly scanty, longer on the apical margins of the first four abdominal segments, where it forms transverse fasciae. Pilosity of the thorax greyish white, nowhere plentiful, longer and more abundant on the sides of the epinotum. Pygidial area clothed with brownish golden and coarse pubescence. Head and thorax very finely and closely punctured, the epinotum microscopically rugulose above. Second sternite dull, closely and microscopically punctured, the third and following sternites shining, their apical margins closely and finely punctured. Interocular distance on the vertex equal to the combined length of the first two joints of the flagellum. Pygidial area elongate-triangular, the apex narrowly rounded. Anterior metatarsus with five spines. Inner calcar of hind tibia distinctly longer than the basal joint of the hind tarsus.

Victoria Falls, December to January; N. Rhodesia and British E. Africa.

T. pulchricornis Turner (Fig. 41 h). *Loc. cit.* p. 39, ♂, ♀.

♂, 12 mm. long. Black; tarsi ferruginous, fourth to ninth joints of the flagellum pale ochreous below. Clypeus and face with very pale golden pubescence. Pubescence on the thorax and abdomen and seventh tergite pale brassy silvery, forming distinct apical fasciae on the first four tergites. Pilosity greyish, fairly dense on the sides of the mesonotum and epinotum. Head and thorax closely and microscopically punctured, the dorsum of the epinotum somewhat rugulose. Second and following sternites shining, the second more finely punctured than the following four. Galea short, shorter than the scape, broadly rounded at the apex. Interocular distance on the vertex equal to the length of the two basal joints of the flagellum. Seventh tergite wide, broadly truncate at the apex; eighth sternite widely and arcuately emarginate, the apical angles acute. Anterior metatarsus with four spines. Wings pale flavo-hyaline, the veins testaceous.

♀, 13 mm. long. Pilosity and pubescence on the thorax yellower than in the ♂. Third to fifth joints of all the tarsi ferruginous, the first and second joints darker. All the joints of the flagellum black. Pygidial area triangular, acute at the apex, clothed with dark fulvous pubescence. Second sternite dull, closely and microscopically punctured, the third and following sternites shining, sparsely and coarsely punctured. Interocular distance on the vertex equal to the length of the second joint of the flagellum. Anterior metatarsus with five spines. Otherwise like the ♂.

Nyasaland, Mlanje. March.

A variety has the abdominal fasciae dull golden in both sexes.

T. obliqua Smith. *Cat. Hymen. B.M.* iv, p. 281, ♂. 1856. Turner, *Ann. Mag. N.H.* xx (8), No. 118, p. 291. 1917.

This species is unknown to me. Turner's remarks are as follows.

"This is a *Tachytes* somewhat allied to *Silverlocki* Turner. The posterior ocelli are not as long as in most species of the genus. Eighth sternite rounded at the apex."

Smith's description is too indefinite to be worth quoting.

TACHYTELLA Brauns.

Verh. Zool. Bot. Ges. Wien, lvi, pp. 43-59. 1906.

CHARACTERS. ♂. Scapes flattened and triangularly dilated. Face with weak longitudinal and transverse tori as in *Notogomidea*. Ocelli as in that genus. Pronotum a little lower than the mesonotum, not linear above posteriorly, but with a distinct collar. Thorax pubescent as in *Tachysphex* spp. Dorsum of epinotum swollen and inflated on each side posteriorly. The posterior margins of the sixth, seventh and eighth ventral segments of the abdomen with fringes of long hairs. Anterior femora not excised below. Otherwise like *Tachysphex*.

T. aureo-pilosa Brauns (Fig. 43). *Loc. cit.* supra.

♂, 13 mm. long. Black; mandibles, scapes, middle of clypeus in front, tegulae, tibiae and tarsi and first two abdominal segments, red. Anterior femora, except a black spot on the upper surface near the base, and the apices of the middle and hind femora, ferruginous. Base of the mandibles, the clypeus and the lower part of the face with a dense, short and silvery pubescence. The whole thorax clothed with a very short and close pubescence, golden above, silvery on the ventral surface, similar to that of *Tachysphex Panzeri*. Margins of the first to fifth abdominal segments with transverse fasciae of very fine silvery pubescence, the fimbriae of the sixth to eighth ventral segments rufo-fuscous. Head and thorax dull, microscopically punctured. Abdomen dull above, microscopically coriaceous, the last dorsal segment distinctly punctured. The ventral surface of the abdomen shining and smooth, except near the sides of the segments which are very finely punctulate. Legs finely pubescent. Anterior margin of the clypeus feebly convex, produced in the middle into a short and acute tooth; the median area distinctly bicarinate. Scapes com-

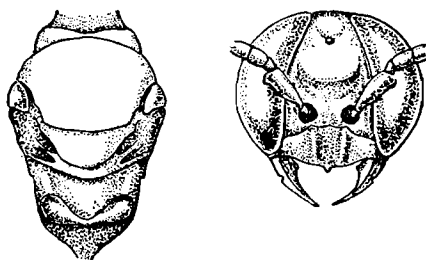


Fig. 43. Thorax and head of *Tachytella aureo-pilosa*.

pressed, triangularly dilated upwards; second, third and fourth joints of the flagellum subequal, the second not quite twice as long as the first, all the joints fairly short. The mandibles not toothed internally, the outer margin excised, but not so deeply as in *Tachysphex*. Interocular distance on the vertex a little less than the length of the second and third joints of the flagellum. The vertex is slightly depressed behind the ocellar area; the face margined at the sides with feeble longitudinal tori, but the transverse torus (present in *Notogonidea*, etc.) is almost obsolete, owing to the two planes of the face meeting at a more obtuse angle. An impressed median line extends from the anterior ocellus to near the base of the clypeus. Temples well developed, about one-third as wide as the eyes when seen from the side. The collar of the pronotum is a little shorter in the middle than at the sides, which are subangular. Dorsum of epinotum short, only half as long as the mesonotum, two and two-thirds wider at the base than long in the middle. The lateral swellings extend down the very oblique declivity, so that, seen from above, the epinotum is strongly convex on each side. The space on the dorsum of the epinotum, between the swellings, is triangular and slightly depressed. A deep median sulcus extends from the brow half-way down the declivity. Eighth sternite quadrate, the apical margin shallowly excised; seventh tergite trapezoidal, shining and strongly punctured. Legs short, feebly spinose, the tarsal joints rather short. The spur of the hind tibia shorter than the basal joint of the hind tarsus. There is no tarsal comb on the front legs. Wings hyaline, the veins brown. The venation is not unlike that of *Tachysphex*, but the third cubital cell is not produced into a tongue-like extension beyond the end of the radial cell, but is somewhat rounded at its lower and outer corner. The first and third abscissae of the radius subequal, the second a little more than half as long as the third, and not quite twice as long as the distance between the recurrent veins on the cubitus.

Willowmore, C.P. 1 ♂. January. Type in coll. Brauns.

In my opinion this is a very distinct genus, and not merely a subgenus of *Tachysphex* as suggested by Dr Brauns. It is, however, annectant between *Tachysphex* and *Notogonidea*.

LARRA Fab.

Ent. Syst. II, p. 220. 1793.

CHARACTERS. Head wider than the thorax. Eyes reaching the base of the mandibles, their inner margins convergent above. Face with a longitudinal torus or swelling on each side parallel to and near the inner orbits, and a transverse torus below the anterior ocellus. Below the transverse torus, which is generally interrupted in the middle, the face is deeply and rather narrowly excavated in the middle as far down as the level of the antennal sockets. Behind the transverse torus there is a "suprafrontal" area bounded at the sides by the upper part of the longitudinal tori, and behind by two curved, impressed and shining lines which extend from the inner orbits and meet in the middle behind the posterior ocelli. At their junction they meet a longitudinal, median and impressed line which extends back over the vertex and rarely reaches the occiput. The ocelli are not situated on a raised area; the anterior ocellus is round, small and flat, the posterior ocelli elongate and very indistinct. Mandibles excised on the lower margin, the inner margin edentate, the apex acute. Clypeus short, broad and fairly flat. Pronotum with a posterior raised portion or collar, hardly lower than the mesonotum; in some species the collar may be almost linear above. No epicnemium; episternal suture distinct. Epinotum vertical at the sides and behind, the dorsum more or less of the shape of a parallelogram, without a dorsal field. Abdomen in the ♀

usually glabrous except for the marginal bands of pubescence, thinly pubescent in the ♂. A triangular pygidial area present in the ♀, without pubescence and without terminal spines.

Front wing; radial cell appendiculate, the accessory cell usually distinct. Three cubital cells present, the first about as large as the other two combined, the second more or less hexagonal, considerably narrower on the radius than on the cubitus, receiving both recurrent veins, the third oblique and produced outwards on the cubitus towards the outer margin of the wing. The basal vein arises not far beyond the end of the submedial cell, the latter much longer than the brachial.

Hind wing; the cubitus arises well beyond the end of the submedial cell; the basal lobe very long, extending far beyond the submedial cell and ending near the anal emargination.

Legs stout and pubescent; femora distinctly swollen in the ♀; tibiae strongly spinose in the ♀, especially the middle pair, feebly spinose in the ♂. In some species the anterior tibiae are without spines excepting the usual apical ones. Posterior tibiae not longitudinally carinate. Claws unarmed. Punctuation of the body fairly strong.

Scapes often compressed apically so as to form a trenchant edge in front.

Distribution. Both hemispheres.

The prey consists of Orthoptera, chiefly grasshoppers.

The following species, being unknown to me in nature, have been omitted from the key: *rubella* Smith, *memnonia* Smith, *pallipes* Smith, *Vollenhovia* Ritsema and *diversa* Walker.

KEY TO THE SPECIES OF *LARRA* ♀♀.

- (2) 1. Small species, less than 10 mm. long; abdomen microscopically and sparsely punctured, the apical margins of the segments without pubescent fasciae at the sides. **mundula** Kohl
- (1) 2. Larger species, more than 10 mm. long; abdomen either impunctate or with distinct and fine punctures.
- (6) 3. Pronotal collar not linear above; apical half of the epinotal dorsum wider than the basal; first five tergites shining and impunctate (Fig. 44 B, b).
- (5) 4. First and second abdominal segments red, the rest black. **proditor** Kohl
- (4) 5. Abdomen black, the sixth and apical half of the fifth segments red. **erythropyga** Turner
- (3) 6. Pronotal collar very short, almost linear above; dorsum of epinotum parallel-sided, not wider at the apex than at the base; abdomen finely punctured (Fig. 44 A, a).
- (8) 7. Legs and first two joints of the flagellum reddish ochreous; interocular distance on the vertex slightly less than the length of the first two joints of the flagellum. **bulawayoensis** Bischoff
- (7) 8. Legs ferruginous, flagellum entirely black; interocular distance on the vertex equal to the length of the first two joints of the flagellum. **outeniqua** Brauns

KEY TO THE ♂♂.

- (2) 1. The supra-frontal area margined behind by a wide and deeply impressed groove; the posterior half of the ocellar area distinctly tumid. **impressifrons** Arnold
- (1) 2. The supra-frontal area margined behind only by a narrow and shallow line; the posterior half of the ocellar area not distinctly tumid.
- (4) 3. First two abdominal segments red, the rest black. **proditor** Kohl
- (3) 4. Abdomen black.

- (6) 5. Dorsum of epinotum punctato-rugose; 11.3 mm. long.
bulawayoensis Bischoff
 (5) 6. Dorsum of epinotum transversely rugoso-striate, not distinctly punctured between the rugae; 8.7 mm. long.
bulawayoensis, race *occidentalis* Arnold

L. proditor Kohl. *Ann. Soc. Ent. Belg.* xxxv, p. 15, ♂. 1891.

Kohl (*L. pseudanathema*), *Ann. K.K.N.H. Mus. Wien*, p. 296, ♀. 1894.

Bischoff (*L. semirubra*), *Arch. f. Naturges.* p. 75, ♀. 1913.

♀, 15.5–17 mm. long. Black; first two abdominal segments dark red. Wings brown, darkest near the base, with a faint violaceous tint. Head, thorax and legs with a fine, whitish and somewhat outstanding pubescence, sparse and not hiding the sculpture. First to fifth abdominal segments with streaks of longer pubescence on their lateral apical margins. First ventral segment subopaque, with a thin, whitish pubescence, the apical margin of the second narrowly pubescent, the apical margins of the remaining segments with a few long hairs, otherwise the abdomen is smooth, glabrous and very shining. Sides of face and clypeus closely and finely, the median area of the clypeus sparsely and more coarsely punctured, the rest of the vertical portion of the face smooth and very shining, with only a few large punctures near the inner margins of the longitudinal tori. Vertex, pro-mesonotum and scutellum closely and strongly punctured, the punctures on the vertex and mesopleurae larger and more widely spaced. Metanotum widely and closely punctured. Dorsum and declivity of the epinotum closely and fairly strongly punctured (the punctures sometimes less close towards the apex), and also with fine and interrupted striae between the punctures, the sides of the epinotum similarly sculptured, but a little finer and with oblique striae. Anterior margin of the clypeus moderately convex. Vertex wide, the eyes only moderately convergent above, the distance between them on the vertex equal to the length of the first two joints plus half of the third joint of the flagellum. Scape compressed from side to side, finely punctured at the base, smooth and shining at the apex; first joint of flagellum twice as long as wide and more than half as long as the second; the latter is one-third longer than the third joint and nearly three times longer than wide at the apex. Pronotum well exposed, its collar about three and a half times wider than long, rounded in front, the sides vertical. Thorax somewhat narrow, the mesonotum wider than long, and with the scutellum, about as long as the dorsum of the epinotum. The latter has a median longitudinal carina not quite reaching the apex; it is widest in its apical half, as wide there as long in the middle, its posterior angles rounded; the sides and declivity vertical, the latter two-thirds as long as the dorsum. Abdomen oblongo-ovate. Pygidial area smooth, shining, marginate laterally, narrowly truncate at the apex, about one-third longer than wide at the base. Tibiae and tarsi strongly spinose. Radial cell roundly truncate, the accessory cell poorly defined. First and second abscissae of the radius of equal length, each about one-third shorter than the third, and a little longer than the space on the cubitus between the recurrent veins.

♂, 12–15 mm. Pubescence longer and more abundant than in the ♀, especially on the clypeus, face, epinotum and abdomen. The latter is dull, finely punctured and pubescent all over, the pubescence longer at the sides and on the apical margins, forming distinct transverse and whitish fasciae. The dorsum of the epinotum more closely punctured and more strongly striate transversely than in the ♀. Collar of pronotum linear above, sloping downwards and forwards immediately from the pro-mesonotal suture. Antennal joints shorter than in the ♀; the interocular distance on the vertex is equal to a little

more than the length of the first three joints of the flagellum. Legs feebly spinose. Wings paler than in the ♀, pale brown, and paler over the basal than the apical half. Abscissae of the radius variable; in two of the specimens before me the second is shorter than the first. Seventh tergite rounded at the apex.

Bulawayo, December to March; Natal; West Africa.

A decidedly scarce insect. I have examined the type of the ♂ and the cotype of the ♀ (*pseudanathema* Kohl) in the collection of Dr Brauns. (R.M. coll.)

L. mundula Kohl. *Ann. K.K.N.H. Mus. Wien*, ix, p. 296, ♀. 1894.

♀, 0.5 mm. long. Black; the mandibles, clypeus in front, the scape, pedicellus and first joint of the flagellum ferruginous, tarsi dark brownish red. Almost glabrous, but there is a little greyish pubescence on the mesopleurae. Face smooth and shining, vertex of head and upper surface of thorax dull, the sides of the epinotum and the whole abdomen shining. Abdomen smooth, sparsely and microscopically punctured. Vertex, mesonotum and mesopleurae strongly punctured, the pronotum finely and more closely so. Dorsum of the epinotum transversely striate, reticulate-punctate between the striae, the sides finely punctate. Pygidial area with a few fine punctures, narrow and twice as long as wide at the base. Clypeus feebly punctured, its anterior margin arcuate. Second joint of the flagellum nearly two and a half times longer than wide in the middle. The interocular distance on the vertex is equal to the length of the first two joints of the flagellum. Dorsum of epinotum about one and a half times longer than wide in the middle. Wings pale fuscous.

Sherbro Island, W. Africa (Dr H. Brauns).

The description given above is based on an examination of the type in coll. Brauns.

L. erythropyga Turner (Fig. 44 B, b). *Ann. Mag. N.H.* xvii (8), No. 99, p. 251, ♀. 1916.

♀, 17–20 mm. long. Black; sixth and apical half of the fifth abdominal segments red. Wings fuscous brown, with a faint violaceous tinge. Pubescence scanty, greyish on the face and clypeus, greyish yellow and short on the dorsum of the thorax, more abundant and longer on the lower surface of the thorax and on the legs. Second to fifth abdominal segments with small tufts of decumbent greyish pubescence at the sides, and a thin fringe of the same on the apical margins below. Clypeus dull, closely and fairly finely punctured. Lateral tori and face as far as the transverse sulcus behind the ocellar area, closely, sharply and finely punctured; behind the sulcus the punctures are larger and more widely spaced, becoming again closer and smaller on the back of the head. Thorax dull, closely punctured above, the spaces between the punctures somewhat shining. Sides of pronotum, mesopleurae and sides of epinotum shining, the mesopleurae more coarsely and sparsely punctured than the mesonotum, the sides of the pronotum very finely punctured. Dorsum and declivity of the epinotum sharply striato-punctate, the sides punctured almost as strongly as the mesopleurae. Abdomen shining, almost

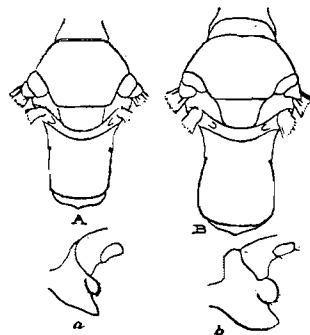


Fig. 44. A. thorax of *Larra outemiqua*; a. pronotum of *Larra outemiqua*. B. thorax of *Larra erythropyga*; b. pronotum of *Larra erythropyga*.

impunctate. Pygidial area triangular, marginate laterally, rounded at the apex, nearly smooth. Anterior margin of clypeus transverse. First joint of the flagellum twice as long as wide, very little shorter than the third, about two-thirds the length of the second. Scape and first joint of the flagellum punctured and shining, the rest pubescent and dull. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. Posterior ocelli obsolete. The transverse line behind the ocellar area not deeply impressed in the middle to form a pit. Pronotum well exposed, with a distinct collar, the dorsal face of which is about four and a half times wider than long, rounded anteriorly. Dorsum of epinotum a little wider posteriorly than at the base, as wide there as long in the middle, very little longer than the mesonotum. First and second abscissae of the radius of equal length, the third a little longer. Anterior tibiae with a row of strong spines; middle and hind tibiae strongly spinose.

Near Lake Chilwa, Nyasaland.

L. bulawayoensis Bischoff. *Arch. f. Naturges.* p. 73, ♀, ♂. 1913.

♀, 13.5 mm. long. Black; mandibles, clypeus, scape and first two joints of the flagellum, tegulae and all the femora, tibiae and tarsi reddish ochreous. Wings pale smoky brown, darker towards the apical margin. Face almost glabrous, vertex, occiput and thorax with a yellowish grey, fine and very inconspicuous pubescence. Abdomen with a scanty, very fine or almost pruinose pubescence on the first three segments. Clypeus dull, microscopically punctured. Face smooth, shining and almost impunctate. Vertex shining, sharply and fairly finely punctured. Thorax dull, the pronotum very finely, the mesonotum, scutellum and metanotum closely punctured, the punctures smallest on the metanotum. Dorsum of epinotum finely and transversely striato-punctate, the sides exceedingly finely punctulate, the declivity transversely striate. Abdomen very finely and thinly punctured, the first three segments subopaque, the rest shining. Pygidial area shining, with a few large punctures, sharply marginate laterally, the margins convex outwardly, the apex rounded, almost twice as long as wide at the base. Ventral surface of the abdomen shining, very finely punctured, and also with a few large punctures near the apical margins, the last segment closely punctured below and at the sides near the apex. Anterior margin of the clypeus arcuate. Scares and first joint of the flagellum shining, the remaining joints dull and finely pubescent. The first joint of the flagellum is twice as long as wide, four-fifths the length of the second, the latter not longer than the third. The interocular distance on the vertex is equal to the length of the first joint plus two-thirds of the second joint of the flagellum. The transverse impression behind the ocellar area is deepened into a pit in the middle. Pronotal collar linear above, sloping steeply downwards from the pro-mesonotal suture. Mesonotum about one-third wider across the tegulae than long in the middle, as long as the dorsum of the epinotum. The latter is nearly parallel-sided, as wide as long in the middle. The abdomen is lanceolate-ovate, narrow, three times longer than wide. Anterior tibiae with spines only at the apex. Radial cell abruptly truncate. First and second abscissae of the radius subequal, the fourth equal to the first and second combined.

♂, 11.3 mm. long. Scape and first joint of flagellum ferruginous, otherwise coloured like the ♀. Pubescence longer, especially on the abdomen, which is dull, finely and closely punctured. Clypeus and face with pale silvery pubescence. The dorsum of the epinotum is more clearly transversely striated than in the ♀. Median area of the clypeus slightly produced, the anterior margin of the clypeus being shallowly concave on each side of the median area.

Interocular distance on the vertex equal to the length of the first and second joints plus half of the third joint of the flagellum. The first joint is two-thirds as long as the second, and the latter is very little longer than the third. Wings paler than in the ♀, the abdomen also less elongate. Otherwise like the ♀.

Bulawayo. January to March. A very rare species, only two males and one female having been taken within the last eleven years. Type in R.M. coll.

L. bulawayoensis, race *occidentalis* n.r.

♂, 8.7 mm. long. This differs from the type of the species only by its smaller size and by the sculpture of the dorsum of the epinotum. This is fairly strongly and transversely striate, without punctures between the striae except on the lateral margins. The interocular distance on the vertex is a trifle greater and the red colour of the legs darker.

Cameroons, W.A. (Dr H. Brauns). Type in R.M. coll.

L. outeniqua Brauns (Fig. 44 A, a), nom. in litt.

♀, 12.5 mm. Closely allied to *bulawayoensis*. Black; mandibles, lower margins of the scapes, all the femora, tibiae and tarsi, and extreme apex of last sternite, ferruginous. Wings pale smoky, the veins black. Scape and first joint of the flagellum smooth and shining, the rest of the flagellum dull and punctulate. Clypeus moderately shining, finely punctured on the posterior half, the anterior half with a few large punctures. Infrafrontal area smooth and very shining, the suprafrontal area closely punctured. Thorax dull, pronotum, metanotum and sides of the epinotum closely and finely punctured, the scutellum and mesonotum more strongly punctured. Dorsum of epinotum finely and transversely rugoso-striate and finely punctured between the rugae, the declivity transversely and very finely rugoso-striate. Abdomen shallowly and minutely punctured above, moderately shining, the segments impressed over their apical third, the ventral surface smooth, shining and very sparsely punctured. Pygidium shallowly and sparsely punctured with large punctures. Legs smooth, shining, microscopically punctured. Thorax with a thin, erect and greyish pubescence. Abdomen with marginal bands of thin, decumbent and whitish pubescence, more conspicuous at the sides than in the middle. Pubescence on the legs more or less golden.

Anterior margin of clypeus arcuate. Scapes somewhat compressed, with a trenchant edge in front. Second joint of the flagellum a little longer than the third, not quite twice as long as the first. The interocular distance on the vertex is equal to the length of the first two joints of the flagellum. Pronotal collar almost linear above. Mesonotum with a shallow median and longitudinal impression which does not reach the anterior or posterior margins. Dorsum of epinotum moderately convex transversely, as long as wide, the declivity subvertical, the brow rounded. Calcaria of posterior tibiae long. Legs strongly spinose. Anterior metatarsi with a short comb of four spines.

George, C.P. (Dr H. Brauns). Type in coll. Brauns.

L. impressifrons n.sp.

♂, 12.5 mm. long. Black; mandibles, clypeus, scapes and first two joints of the flagellum, front and middle pair of legs, and posterior tarsi ferruginous; the middle femora black at the base, the posterior tibiae ferruginous on their apical halves below; third and fourth joints of the flagellum fusco-ferruginous. Tegulae testaceous. Wings fusco-hyaline, the veins dark brown. Head and thorax with silvery pubescence, somewhat yellowish on the dorsum of the thorax, dense only on the lower face, clypeus and inferior angles of the declivity of the epinotum. Legs and abdomen with a thin greyish pubescence, forming

transverse fasciae on the apical margins of the first four tergites. Anterior third of the median area of the clypeus shining, with large scattered punctures, the rest of the clypeus dull, closely and finely punctured. Face dull, closely and fairly finely punctured; the vertex more sparsely punctured and nitidulous; the occiput closely and shallowly punctured. Mesonotum and mesopleurae closely and strongly punctured, almost dull, the punctures deep; the scutellum finely, the metanotum exceedingly finely and closely punctured. Metapleurae almost smooth. Dorsum of the epinotum dull, strongly reticulate-rugose, the declivity dull and finely rugose, the sides with very superficial, oblique striae, the spaces between the striae strongly punctured, at the base shining and finely punctured only. Abdomen dull, very minutely and fairly closely punctured. Clypeus slightly produced in the middle. Interocular distance on the vertex very little greater than the length of the first two joints of the flagellum; the second joint of the flagellum is about half as long again as the first, not longer than the third. The suprafrontal area is margined behind by a deep and wide groove which extends from eye to eye, and is continued at the orbits into the deep groove which follows the margins of the eyes as far as the middle of the temples. Thorax noticeably narrow; the mesonotum is only a trifle wider across the tegulae than long in the middle; the metanotum and epinotum together are as long as the mesonotum. The dorsum of the epinotum is as long as wide in the middle, and seen from above, the lateral margins from the stigmata onwards are moderately convex. Abdomen lanceolate, two and three-quarter times longer than wide. First abscissa of the radius twice as long as the second, the fourth as long as the second and third combined. The accessory cell long and distinctly defined. Legs feebly spinose.

Inyanga, S.R. December. 1 ♂. Type in the R.M. coll.

I have not seen the types of the following species and can only quote the original descriptions, which are far too short and too vague to make the recognition of the species possible.

L. Vollenhovia Rits. *Tijdschr. v. Entom.* xvii, p. 194, ♂. 1874.

"This species is closely related to *L. rubella* Smith, but can be easily distinguished from it by the lack of the dark margin on the wing, and the black at each side of the first segment of the abdomen. The ♂ from which the following description is made has a length of a little more than 9 mm. The head is black, broader than the thorax, and closely covered with fine points and a coarse greyish silvery pubescence. The mandibles are clear brownish red, the palpi dirty brown red, but the latter at the base black. Antennae black, and the scape is covered in front with silvery pubescence. The face and vertex are provided with impressions which are difficult to describe. The thorax is black; pro- and mesothorax together with scutellum and postscutellum closely covered with fine punctures, in the fresh condition it is probably entirely covered with greyish and somewhat glossy hairs, of which in my specimen only here and there traces are to be seen. The metathorax, which appears to be nearly vertically truncate posteriorly, is about as long as the pro- and mesothorax together. It is provided with transverse striae, and especially posteriorly covered with silvery glossy hairs. The sides are parallel, while the posterior face is provided in the middle with a narrow longitudinal carina; the posterior part of the tegulae, the venation and the stigma are brown, and the wings slightly fuscous. The legs and spurs of the tibiae are black and frosted with silvery pubescence. The spines on the legs and claws are bright brown; the abdomen is shorter than the thorax, brownish red in colour and especially on the posterior margins of the segments is covered with fine silvery pubescence."

Guinea, W. Africa.

From the description, especially in regard to the pubescence, this species is probably a *Notogonidea*.

L. rubella Smith. *Cat. Hymen. B.M.* iv, p. 280, ♀. 1856.

"Female. Length 5 lines.—Head, thorax and legs black; the face covered with bright silvery pubescence; the base of the mandibles and cheeks thinly covered with silvery pubescence; the palpi, mandibles and scape in front obscurely ferruginous. The mesothorax and scutellum closely punctured, the metathorax coarsely rugose; the wings subhyaline, their apical margins with a broad fuscous cloud, the nervures and tegulae dark ferruginous. Abdomen dark red, the basal segment more or less black at the sides; the apical margins of the segments with fasciae of silvery pubescence.

Hab. Fernando Po. (Coll. W. W. Saunders.)"

L. memnonia Smith. *Cat. Hymen. B.M.* iv, p. 281, ♀. 1856.

"Female. Length 7 lines.—Black; the face covered with silvery pubescence, the mandibles obscurely rufo-piceous, the apical joints of the palpi pale testaceous. The thorax covered with a fine silvery pile, as well as the legs; the tarsi and apex of the tibiae ferruginous; the wings fulvo-hyaline, the nervures and tegulae behind rufo-testaceous; the scutellum smooth and shining; the metathorax finely transversely striate, and having a central abbreviated carina not extending to the verge of the truncation, the striae coarser at the sides, the truncation also coarsely striated. The apical margins of the segments of the abdomen with fasciae of changeable silvery pile."

Hab. Egypt; Senegal.

This is probably a *Notogonidea*.

L. pallidipes (*L. pallipes*) Smith. *Cat. Hymen. B.M.* iv, p. 282, ♂. 1856.

"Male. Length 4 lines.—Black, and covered with a grey silky pile; the face densely covered with bright silvery pubescence; the palpi, mandibles and scape ferruginous. The mesothorax and scutellum closely punctured; the metathorax transversely rugose; a central longitudinal carina extends to the verge of the truncation; the sides of the metathorax obliquely strigose; the wings subhyaline and iridescent, the nervures and tegulae pale rufo-testaceous; the legs pale ferruginous, the coxae and trochanters fuscous; the apical margins of the segments of the abdomen slightly depressed."

Hab. Africa.

The descriptions of *L. abdominalis* Guérin (Lefebure, *Voy. Abyss.* vi, p. 358, 1848) and of *L. obscura* Magretti (*Amm. Mus. Civ. Genoa*, xxi, p. 585, ♂, 1884) are valueless, being confined almost entirely to an account of the colour and pubescence. *L. obscura* is probably a *Notogonidea*.

LARRAXENA Smith.

Ann. Mag. N.H. (2), vii, p. 30. 1851.

CHARACTERS. Like those of *Larra*, of which this is hardly more than a subgenus, but with the following differences.

Pronotum very short, without a collar behind, depressed below the level of the mesonotum, and sloping subvertically from the pro-mesonotal suture. Second cubital cell stalked. Claws fairly long.

Only two species are known, the other, *L. princeps* Smith, being a South American insect.

L. dux Kohl (Fig. 45). *Ann. K.K.N.H. Mus. Wien*, vii, p. 220, ♀. 1892.
Ibid. ix, p. 306, ♂. 1894.

♀, 18 mm. long. Head and thorax, anterior coxae, middle and hind coxae inwardly, and antennae, excepting the first three joints, black; the scape, first and basal half of the second joints of the flagellum, mandibles, legs and abdomen, ferruginous (pale burnt sienna); wings pale fuscous, with a violaceous lustre, the veins black. Clypeus, face and back of the head with a thin, greyish silvery pubescence, thorax with very short and sparse pale brownish pubescence. Abdomen nearly glabrous, the first segment with a little pubescence near the base, the legs with thin yellowish pubescence. Head and thorax, excepting the epinotum, strongly punctured, the punctures deep but not large, the spaces between them shining.

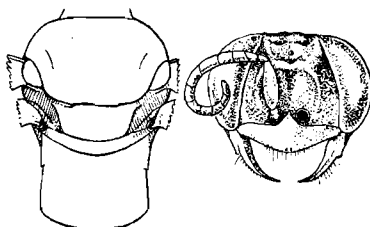


Fig. 45. Thorax and head of *Laraxena dux*.

The puncturation of the clypeus, sides of face, lateral margins of the mesonotum and on the metanotum closer than elsewhere; these parts are dull. Dorsum and declivity of the epinotum dull, the former closely reticulate, the sides smooth and shining anteriorly and below, obliquely striated and sparsely punctured posteriorly. Abdomen shining; first segment very sparsely and finely, the basal half of the second more closely punctured, the remaining segments smooth and impunctate; the apical margins of the segments shallowly impressed; the pygidial area elongate-triangular, a little longer than wide at the base, the apex narrowly rounded, sparsely pilose, feebly convex and marginate at the sides.

Inner margins of the mandibles without teeth, the apex acute, the outer margin excised near the base and fringed with a row of short hairs. Clypeus broad, fairly flat, the anterior margin convex. Scapes thickest a little above their base, the second joint of the flagellum about half as long again as the first, very little longer than the third. Interocular distance on the vertex about equal to the length of the first two joints of the flagellum. Face with longitudinal tori on each side connected by a less pronounced transverse torus below the flat anterior ocellus, as in *Notogonidea*. The posterior ocelli are small and elongate. Pronotum very short, linear above posteriorly. Mesonotum as long as the metanotum and epinotum taken together; a short, oblique and impressed line lies on each side near the lateral margins. A median, longitudinal, thin and shallow line runs from the back of the mesonotum to the epinotum, whence it is continued almost to the brow of the declivity. The latter is feebly marginate; dorsum of epinotum nearly parallel-sided, slightly widened posteriorly, one and a half times wider at the base than long, the sides and declivity vertical. First abdominal segment vertical at the base, the abdomen stout, widest across the second segment, where it is wider than the thorax across the tegulae. Femora distinctly swollen; all the tarsi and the middle and hind tibiae strongly spinose, the anterior tibiae with a row of feeble spines on its upper side, the anterior metatarsus with several spines irregularly spaced on its outer half. First and second abscissae of the radius subequal, each a little longer than the third; the first and second transverse cubital cells coalesce before meeting the radius, thereby forming a short stalk to the second cubital cell; the recurrent veins received in the proximal half of that cell.

♂, 14.5 mm. long. Only the first and second joints of the antennae ferruginous. Puncturation on the mesonotum somewhat coarser than in the ♀.

Abdomen dull, distinctly but finely pubescent, finely and not very closely punctured, the first segment more sparsely punctured than the rest. Pygidial area trapezoidal, the apical margin feebly concave, more strongly punctured than the rest of the abdomen. Interocular distance on the vertex equal to a trifle more than the length of the first two joints of the flagellum. The joints of the latter are shorter than in the ♀, the second nearly twice as long as the first. Legs not so strongly spinose. Otherwise like the ♀. (Described from the type of the ♂, coll. Brauns.)

Batta, W. Africa; Bulawayo. May. A very rare species, of which I have found only two females in the last ten years.

In the shape of the face and epinotum this genus does not differ from *Larra*; in fact, the only marked difference lies in the petiolate second cubital cell; the short pronotum, devoid of a posterior raised portion or collar, is a feature also present in some species of *Larra*.

NOTOGONIDEA Rohwer.

(*Notogonia*) A. Costa. *Ann. Mus. Zool. Napoli*, pp. 80 and 82. 1867.

Rohwer. *Proc. Ent. Soc. Washington*, XIII, p. 234. 1911.

(It is unfortunate that Costa's name for the genus, so long in use, must be abandoned, since it is pre-occupied for a genus of Crustaceans.)

CHARACTERS. Eyes reaching the base of the mandibles. Anterior ocellus round and convex, posterior ocelli flat, elongate and placed close together, almost touching. Mandibles excised on their lower margins, the inner margin with one or two teeth, the apex simple.

Face with longitudinal and transverse tori as in *Larra*, but the introfrontal area is pubescent, not glabrous and shining as in *Larra*. Pronotum short, usually linear above posteriorly and depressed below the level of the mesonotum but sometimes with a short collar. No epicnemium; episternal suture distinct. Epinotum more or less parallel-sided, nearly vertical at the sides and behind, without a dorsal field. Abdomen with fine pubescence, often arranged in a chequered pattern on each segment. Punctuation of the body usually fine. Second sternite subcarinate in the middle at the base, with a dull, round and flattened area on each side of the carina. Pygidial area distinct in the ♀, its sides convergent apically, covered with fine pubescence or stiff hairs or glabrous, the apical edge often margined with a row of short spines. Pygidial area rarely distinct in the ♂. Legs fairly long, tibiae and tarsi strongly spinose, the posterior tibiae longitudinally carinate. Tarsal comb in the ♀ composed of long spines or cilia. Claws usually long, rarely dentate. The hind femora in the ♂ are often bluntly angulated near the base. The suprafrontal area is not defined posteriorly by a deep biconcave line or groove as in *Larra*, but only by a thin, shallow and open V-shaped line, which rarely reaches the orbits on either side.

Distribution. Both hemispheres. These sand-wasps prey chiefly on crickets.

In the introduction to Part I, I expressed the view that the genus *Motes* Kohl could not be maintained, a view which has been strengthened by further consideration of the genus *Notogonidea*. (In the key to the genera, p. 108, paragraph (66) 67, an error needs correction. The last line of the paragraph "Second ventral plate simple" applies only to *Larra*, and not to *Motes* which has that segment formed as in *Notogonidea*.) Kohl erected the genus on the species *N. odontophora* and *N. cyphononyx*, basing the separation chiefly on the following characters. Absence of teeth on the inner margin of the mandibles; presence of teeth on the claws; narrow and almost parallel-sided pygidial area,

without apical setae. However, some undoubted species of *Notogonidea*, e.g. *croesus*, *Neavei*, *dentipes* and *denticulata* have teeth on the claws, and a narrow and subparallel-sided pygidial area is not wanting in some others, e.g. *griseola*, and the terminal setae are very poorly developed in yet others. Yet another character, the absence of a pile or pubescence on the abdomen, is also not always applicable, since *N. bidentata*, a species which on the strength of the other characters would certainly be placed under *Motes*, has a cinereous pile on the first three tergites. There remains, therefore, only one character, the absence of teeth on the inner margins of the mandibles, which serves to separate the species of the *Motes* group from *Notogonidea* proper, a character which it shares with *Larra*. However, they cannot be placed with the latter genus, on account of the structure of the epinotum, in which the dorsum is narrower at the apex than at the base. In the following pages I shall therefore include in *Notogonidea* all the species which have hitherto been assigned to *Motes*.

For the separation of the species, the following are the more important characters in the ♀. The shape of the pygidial area; the character of the pubescence of that area; the colour of the wings and of the pubescence on the body; the structure of the claws, whether armed with teeth or not; the interocular distance on the vertex; and the sculpture of the dorsum of the epinotum.

In the ♀ the pubescence of the pygidial area is sometimes worn away by use in her digging operations, but rarely so completely as to lead one to mistake it for one of those species in which that segment is naturally naked. Of far less value for the separation of the species are characters based on the shape of the clypeus, the venation, the spines on the anterior tarsi and the strength of the longitudinal carinae on the posterior tibiae. In the male sex there is far less differentiation than in the female.

The species of the *sepulchralis* group form a complex of closely allied forms, difficult to distinguish. I do not think it is possible to include them all under the one name *sepulchralis* Gerst., without making the definition of that species too vague to be of use, and moreover, there is some uncertainty in my own mind as to the identity of Gerstaecker's species. His description is totally inadequate, consisting of not more than a sentence briefly describing the colour and pubescence. An examination of his type is essential, but as I have not seen it and do not know where it is to be found, I have based my recognition of the species on the specimens in the Brit. Mus. coll. which have been so named by Mr R. E. Turner.

KEY TO THE SPECIES OF *NOTOGONIDEA* ♀♀.

- (24) 1. Wings dark fuscous, or flavo-hyaline and with or without a fuscous apical margin.
- (9) 2. Wings dark fuscous, sometimes flushed with violet.
- (6) 3. Large species, more than 13 mm. long.
- (5) 4. Median area of clypeus subrectangularly produced in front; pygidial area very coarsely punctured; wings dark, with a strong violaceous lustre; 21 mm. long. Gowdeyi Turner
- (4) 5. Median area of clypeus produced very little beyond the lateral pieces; pygidial area closely and more finely punctured; wings paler, barely violaceous; 18 mm. long. nugax Kohl
- (3) 6. Smaller species, not more than 13 mm. long.
- (8) 7. Anterior tarsi with short simple spines; scapes red. rufoscapa Cameron
- (7) 8. Anterior tarsi with a comb composed of long, flattened spines (slightly concave in transverse section); scapes black. ciliata Smith

- (2) 9. Wings flavo-hyaline, with or without a fuscous apical margin.
- (13) 10. Tarsal claws armed with a tooth near the middle.
- (12) 11. Wings very pale flavo-hyaline; scapes, tegulae, anterior tibiae and middle and hind tibiae underneath, ferruginous; 14 mm. long.
dentipes Turner
- (11) 12. Wings strongly flavo-hyaline, with a dark apical border; scapes and tibiae blackish; 20 mm. long, or more.
croesus Smith
- (10) 13. Claws unarmed.
- (17) 14. Whole body with a strongly golden pubescence, which on the abdomen is similar to that of *Liris haemorrhoidalis*; all the legs bright ferruginous.
- (16) 15. Antennae long and slender; interocular distance on the vertex equal to the length of the second joint of the flagellum; 16 mm. long.
pseudoliris Turner
- (15) 16. Antennae not very long and slender; interocular distance equal to the length of the second plus half of the third joint of the flagellum; 21 mm. long.
primania Kohl
- (14) 17. Pubescence not strongly golden.
- (21) 18. At least a part of the abdomen red.
- (20) 19. First three and the greater part of the fourth abdominal segments black, the two apical segments, the legs, scapes and first two joints of the flagellum, red.
bembesiana Bischoff
- (19) 20. Abdomen red, the second and third tergites moderately infuscated.
sericosoma Turner
- (18) 21. Abdomen entirely black.
- (23) 22. Legs all black; wings strongly flavo-hyaline.
irrorata Smith
- (22) 23. Posterior femora red; wings pale flavo-hyaline.
solstitialis Smith
- (1) 24. Wings hyaline, or very pale fusco-hyaline, sometimes with a darker apical margin.
- (30) 25. All the legs (excluding the coxae and trochanters) red.
- (27) 26. Abdomen in greater part fusco-ferruginous; dorsum of the epinotum with strong, elliptical and concentric rugae.
Braunsi Arnold
- (26) 27. Abdomen black; dorsum of epinotum with fine transverse striae.
- (29) 28. Pygidial area with pale greyish golden pubescence, the apical setae yellow.
thysanomera Kohl
- (28) 29. Pygidial area with brownish pubescence, the apical setae dark red.
thysanomera, race *usambarensis* Cameron
- (25) 30. Legs not entirely red.
- (38) 31. Inner margins of the mandibles edentate; claws armed with teeth (*Motes* Kohl).
- (33) 32. Claws with two small teeth placed side by side near the middle of the claw.
bidentata Arnold
- (32) 33. Claws with only one tooth.
- (37) 34. Interocular distance on the vertex equal to the length of the first two joints of the flagellum or very nearly so; abdomen with some red colour.
- (36) 35. Interocular distance slightly less than the length of the first two joints of the flagellum, but equal to that of the second and third; apical segment of the abdomen red.
odontophora Kohl
- (35) 36. Interocular distance equal to a little more than the length of the first two joints of the flagellum; abdomen all red, the first and second segments sometimes partially infuscated.
cyphononyx Kohl
- (34) 37. Interocular distance on the vertex less than the length of the first and second joints of the flagellum, but equal to that of the third; abdomen black.
rugifera Turner
- (31) 38. Inner margins of the mandibles with one or two teeth.
- (42) 39. Claws armed with one tooth near the middle.
- (41) 40. Femora and tibiae ferruginous; 11 mm. long.
denticulata Turner
- (40) 41. Femora and tibiae black; 16 mm. long.
Neavei Turner

- (39) 42. Claws unarmed.
- (44) 43. Dorsum of epinotum coarsely reticulate-rugose transversely.
nigricans Wlk., race *palumbula* Kohl
- (43) 44. Sculpture of the dorsum of epinotum not coarsely reticulate-rugose.
- (50) 45. Pygidial area glabrous.
- (47) 46. Pygidial area very shining, finely and sparsely punctured, long and narrow, at least two and a half times longer than wide at the base.
pompiliiformis Panzer
- (46) 47. Pygidial area shorter.
- (49) 48. Pygidial area black, dull, finely and closely punctured at the base, the apical half with larger and sparser punctures; anterior margin of clypeus obtusely angulated in the middle; 16 mm. long. *simulatrix* Arnold
- (48) 49. Pygidial area pale ferruginous, shining, with widely spaced, large and deep punctures; anterior margin of clypeus nearly straight, with a narrow excision in the middle; 7.5 mm. long. *miscophoides* Arnold
- (45) 50. Pygidial area not entirely glabrous, at least the apical fourth pubescent.
- (54) 51. Small species, 8 mm. long, or less; legs feebly spinose.
- (53) 52. Second joint of the flagellum one and a half times longer than the first; tarsi pale ferruginous, the basal joints fuscous towards the base; dorsum of epinotum finely coriaceous, with a few wavy longitudinal rugae superimposed; pubescence scanty on the thorax, and on the abdomen confined to the apical margins of the first three tergites.
minima Arnold
- (52) 53. Second joint of the flagellum twice as long as the first; tarsi blackish, the apical joint reddish; dorsum of epinotum microscopically reticulate-rugulose; pubescence long and abundant on the thorax; the first four tergites with wide pubescent fasciae covering the apical halves of the segments.
gracilicornis Arnold
- (51) 54. Larger species, more than 11 mm. long; legs strongly spinose.
- (56) 55. Pygidial area nearly twice as long as wide at the base, subelliptical, rounded at the apex, densely clothed all over with a fine, silky, pale brownish yellow pubescence, completely obscuring the sculpture; 16 mm. long. *griseola* Arnold
- (55) 56. Pygidial area shorter, subtriangular, with the apex rounded or truncate, not covered with dense silky pubescence, but with short decumbent setae (plainly recognisable with a magnification of 25 diameters).
- (60) 57. Only the first three tergites with apical fasciae of silvery pile.
- (59) 58. Dorsum of epinotum finely, evenly and transversely striated; pygidial area black, with eight black apical spines. *felina* Arnold
- (58) 59. Dorsum of epinotum microscopically reticulate, without striae; extreme apex of pygidial area fusco-ferruginous, with six apical spines of the same colour. *angustiventris* Arnold
- (57) 60. First four tergites with apical fasciae of silvery pile (dorsum of epinotum sculptured very much like that of *N. felina* but more closely striated).
sepulchralis Gerst.

N. Gowdeyi Turner (Fig. 46). *Trans. Ent. Soc. London*, p. 751, ♀, ♂. 1913.

♀, 21 mm. long. Black; mandibles at the base, the anterior half of the median area of the clypeus, and the scapes, dark ferruginous; tarsi piceous; wings dark fuscous with a strong violaceous lustre. Face and temples with thin greyish pubescence, the rest of the head and the thorax with sparse brownish hairs, the sides and declivity of the epinotum with brownish yellow and fairly long pilosity. Abdomen bare. Head and thorax dull. Anterior margin of the median area of the clypeus coarsely and sparsely punctured, the rest of the head microscopically and closely punctured. Mesonotum and scutellum very finely and closely punctured, the mesonotum with a raised line on each side, between the middle and outer margin and extending back to

near the base. Dorsum of the epinotum and also the declivity transversely and finely rugoso-striate, reticulate between the rugae. Sides of thorax microscopically sculptured. Abdomen smooth, with a slight gloss; sixth segment coarsely punctured above and below, its pygidial area longer than wide at the base, clothed with dark reddish brown bristles.

Median area of clypeus large, produced in front, its anterior margin transverse, with a narrow median excision. Interocular distance on the vertex hardly more than twice as long as the first joint of the flagellum. Antennae noticeably long and slender, the second joint longer than the third, fully three times longer than the first. Dorsum of the epinotum as long as the mesonotum, as long as wide at the base, without a median carina, the edge between it and the declivity slightly raised in the middle. Spines on the legs blackish, the anterior metatarsus with six long spines. First abscissa of the radius longer than the second or third, the latter a little longer than the second, the distance between the recurrent veins on the cubitus equal to the second abscissa of the radius.

♂, 14 mm. long. Antennal joints shorter than in the ♀, the eyes separated on the vertex by a distance equal to the length of the two basal joints of the flagellum; apex of the dorsal segment with a very indistinct marginal band of greyish pubescence; apical dorsal segment closely punctured; shallowly emarginate at the apex."

Entebbe, Uganda.

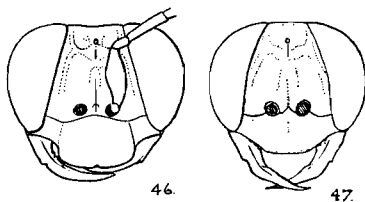


Fig. 46. Head of *N. Gowdeyi*.

Fig. 47. Head of *N. nugax*.

N. nugax Kohl (Fig. 47). *Ann. K.K.N.H. Mus. Wien*, ix, p. 302, ♂. 1894.

N. pilosifrons Turner. *Ann. Mag. N.H.* xvii (8), No. 99, p. 252, ♀. 1916.

N. Dixeyi Bingham. *Trans. Ent. Soc. London*, p. 377. 1912.

♀, 16–17 mm. long. Very similar to *irrorata* Smith. Black; the tarsi piceous. Sometimes the scape, the tarsi, front and middle tibiae at the base and apex, and the apex of the pygidium are dark reddish. Wings dark fuscous with a very faint violaceous sheen, the veins black. Head with golden pubescence as in *irrorata*. Mesonotum with a thin dark brownish yellow or brown pubescence on its margins. Epinotum with very short, pale yellowish grey pubescence on the sides and declivity. Abdomen with pruinose fasciae on the first three tergites as in *irrorata*. Sculpture as in that species, but the pygidial area is smooth and shining at the base, closely and fairly strongly punctured elsewhere, the apex more widely truncate than in *irrorata*, and furnished with a row of eight reddish brown setae. Otherwise like *irrorata*.

♂, 12–13 mm. long. The colour of the legs and scapes is variable. It may be all black, or the extent of the red may range so far that all the legs, excepting the coxae, trochanters and the inner side of the base of the femora, are entirely ferruginous. The second joint of the flagellum is about one-third longer than the first. The interocular distance on the vertex is nearly equal to the length of the first two joints of the flagellum. Last dorsal segment of the abdomen trapezoidal, nearly twice as wide at the base as long, the apical margin transverse and rounded at the corners, finely punctured and pubescent. Wings paler than in the ♀.

Natal; Bulawayo; Nyasaland.

Possibly only a race of *irrorata*.

N. irrorata Smith. *Cat. Hymen. B.M.* iv, p. 284, ♀. 1856.

N. fraudulenta Kohl. *Ann. K.K.N.H. Mus. Wien*, ix, p. 303. 1894.

♀, 16–17 mm. long. Black; the tarsi brownish black. Wings flavo-hyaline, with a pale fuscous apical margin, the veins testaceous. Clypeus and face with dense, pale golden pubescence, temples and vertex with thinner pubescence. Pronotum posteriorly, the mesonotum more especially on its margins, and the epinotum on the sides and the declivity, with thin, pale golden pubescence. Dull, almost smooth, the sculpture microscopic except on the dorsum and declivity of the epinotum which are feebly and transversely striate, and the fifth and sixth sternites, which are shining and fairly coarsely punctured.

Anterior margin of the clypeus convex, shining, with a pre-apical row of large punctures. Second joint of the flagellum about two and a half times longer than the first, very little longer than the third. Interocular distance on the vertex about one and three-quarter times longer than the first joint of the flagellum. The dorsum of the epinotum has a fine median carina which ends before the posterior margin. Apical margins of the first three tergites with transverse fasciae of greyish silvery pile. Pygidial area like that of *N. croesus*. First abscissa of radius about equal to the third, very little longer than the second. The recurrent veins coalesce at their junction with the cubitus.

Senegal to Uganda.

N. rufoscapa Cameron. *Records Albany Mus.* p. 321, ♀. 1905.

♀, 11–12 mm. long. Black; scapes and basal half of the mandibles dark red; tarsi pale ferruginous, the basal joints more or less fuscous; the last three joints of the flagellum dark reddish brown. Wings dark fuscous, the veins black. Lower half of the face and the clypeus with a thin greyish silvery pubescence; thorax with a very scanty greyish pubescence, first three tergites with apical bands of greyish silvery pile. Head and thorax exceedingly finely and closely punctured and dull, the anterior margin of the clypeus depressed and shining. Dorsum of epinotum dull, microscopically reticulate-punctate, the declivity finely and transversely striate and dull, the sides of the epinotum almost smooth and dull, finely striated near the inferior margin; the lateral margins of the dorsum posteriorly and of the declivity superiorly with a few short transverse striae. Abdomen dull above, shining and sparsely punctured below, except the two basal sternites which are more finely punctured and subopaque. Pygidial area subtriangular, the apex rounded, sharply and finely and not very closely punctured, the apex with some black spines. Interocular distance on the vertex almost equal to the length of the first two joints of the flagellum; the second joint two and a third times longer than the first and as long as the third. Dorsum of epinotum as long as the mesonotum, as long as wide at the base. Anterior metatarsi with four spines.

Dunbrody, C.P. (O'Neil); Willowmore, C.P. (H. Brauns).

I have seen the type in the Transvaal Museum's coll. The anterior metatarsi have four spines on the outer margin, and not three as stated by Cameron. An omission of three words in his description requires correction; the sixth line, to make sense, should read as follows: "the 1st transverse cubital and the 1st recurrent *nervure*; the recurrent *nervures* are."

Cameron's type has the recurrent veins united at their junction with the cubitus, but that character is unstable, since in the specimens from Willowmore they are slightly separated.

♂, 9 mm. long. Antennal joints a little shorter than in the ♀. Interocular distance on the vertex equal to twice the length of the second joint of the flagellum. Eighth sternite widely emarginate at the apex; seventh tergite trapezoidal. Otherwise like the ♀.

N. ciliata Smith (Fig. 48). *Cat. Hymen. B.M.* IV, p. 283, ♀. 1856.

♀, 11–12.5 mm. long. Black; the middle third of the mandibles and sometimes the last four tarsal joints dark reddish brown. Wings fusco-hyaline, with a darker apical border beyond the cells. Clypeus and face with dull silvery pubescence, the rest of the head and thorax with a very short greyish pubescence, very sparse on the middle of the thorax, more dense and longer on the sides of the mesonotum and epinotum. Abdomen and legs with a pruinose bloom, denser and forming transverse apical fasciae on the first three tergites. Dull. The head microscopically rugulose-punctate, the thorax very finely and closely punctured, the dorsum and declivity of the epinotum transversely and fairly closely striate, the sides more sharply and sub-vertically striate. The pygidial area is closely punctured, clothed with short golden pubescence, elongate-triangular, the apex rounded and margined with a row of six to eight dark brown setae. Anterior margin of the clypeus convex. Antennal joints fairly short, the first a little more than half as long as the second. Interocular distance on the vertex equal to the length of the first and second joints of the flagellum. Pronotum not abruptly declivous behind as in most species of this genus but with a distinct collar, the outer angles of which are subrectangular. Mesonotum rather short, one and a half times wider than long; dorsum of epinotum one-third longer than the mesonotum, not much wider at the base than long. Legs strongly spinose, the spines black, the inner calcar of the hind tibiae nearly as long as the hind metatarsus. Anterior tarsi with a comb composed of long flattened spines, somewhat concave in cross-section, the basal joint with five spines on the outer margin, the first two of which are short and sometimes not flattened. First and third abscissae of the radius subequal, the second short or about one-third as long as the first.

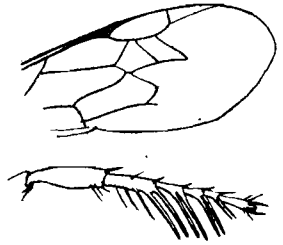


Fig. 48. Wing and foreleg of *N. ciliata*.

♂, 10 mm. long. Antennal joints a little shorter than in the ♀. Pubescence longer and more abundant on the thorax, the transverse fasciae on the abdomen wider and brighter. The interocular distance on the vertex fully as great as in the ♀, about equal to the length of the first three joints of the flagellum. Sides of the epinotum less strongly striated. Spines of the tarsal comb not flattened, the first joint with only four spines on the outer margin. Seventh tergite covered with grey pubescence, rounded at the apex; eighth sternite rounded at the apex and feebly emarginate there in the middle. Otherwise like the ♀.

Natal; Willowmore, C.P.; Bulawayo and Sawmills, S.R. November to February. (T.M. and R.M. colls.)

N. dentipes Turner. *Ann. Mag. N.H.* xx (8), No. 118, p. 294, ♀. 1917.

“♀. Nigra; scapo, tegulis, tibiis anticis, tibiisque intermediis posticisque subtus ferrugineis; clypeo, fronte, mesonotoque lateribus aureo-pubescentibus; segmento mediano sparse, pleuris, segmentisque dorsalibus 1–3 fascia apicali pallide aureo-pubescentibus; area pygidiali fusco-ferrugineo-setoso; alis pallidissime flavo-hyalinis venis ferrugineis. Long. 14 mm.”

“♀. Clypeus shining on the apical margin and subtruncate. Second and third joints of the flagellum subequal; eyes separated on the vertex by a distance not quite equal to the length of the second joint of the flagellum. Thorax subopaque, smooth; median segment very little longer than the breadth in the middle, slightly convex, indistinctly transversely striated, with a low carina from the base not quite reaching the apex, the surface of the posterior truncation with a median sulcus and with transverse striae at the

sides. Abdomen opaque; pygidial area triangular, narrowly rounded at the apex, finely rugose. Tarsal comb short; four spines on the fore metatarsus; a small blunt tooth on the middle of each tarsal unguis. Fourth abscissa of the radius as long as the first, a little longer than the second and third combined; the second very short, but a little longer than the space between the recurrent nervures on the cubitus. Radial cell narrowly truncate at the apex.

Hab. Obuasi, Ashanti (Dr W. M. Graham)."

N. croesus Smith. *Cat. Hymen. B.M.* iv, p. 284, ♀. 1856.

Motes deceptor Turner. *Ann. Mag. N.H.* xvii (8), No. 99, ♀. 1916.

Notogonia deceptor Turner. *Ibid.* xix (8), No. 112. 1917.

Kohl. *Ann. K.K.N.H. Mus. Wien*, ix, p. 300, ♀, ♂. 1894.

♀, 17–20 mm. long. Black; the tarsi and all the spines on the legs dark ferruginous; apical abdominal segment piceous. Wings yellow, with a broad dark fuscous apical border, which also extends over the apex of the hind wing, veins ochreous.

Head, posterior margin of the pronotum, the mesonotum, dorsum and declivity of epinotum clothed with a fairly dense, dark golden pubescence, decumbent on the head and pro-mesonotum, longer, outstanding and somewhat woolly on the epinotum. Legs and the first four tergites with a very fine pale brassy golden pubescence or pile; on the abdomen the pubescence is arranged in a chequered pattern similar to that of *Liris haemorrhoidalis*. The fifth segment with brownish pubescence, the pygidial area triangular, longer than wide at the base, marginate at the sides, clothed with brownish golden pubescence, the apical margin armed with a row of four or five short and dark red spines.

Sides and ventral surface of thorax and the first three sternites with a microscopic yellowish grey pubescence. Dull, microscopically sculptured, the dorsum and declivity of the epinotum transversely striate, the fourth to sixth sternites shining and sparsely punctured. Anterior half of clypeus shining, with a pre-apical row of punctures behind the convex anterior margin, which has a small semicircular excision in the middle. Second joint of the flagellum twice as long as the first, as long as the third. The interocular distance on the vertex not quite equal to the length of the second joint of the flagellum. Mesonotum slightly concave lengthwise in the middle anteriorly. Dorsum of epinotum as long as the mesonotum, and as long as wide at its apex, convex transversely, the declivity subvertical. Anterior metatarsus with 4 long spines. All the claws with a blunt tooth near their middle.

♂, 14 mm. long. Colour of wings paler, ventral surface of abdomen entirely dull, otherwise like the ♀ in sculpture, colour and pubescence. The anterior margin of the clypeus is obtusely angular in the middle. The interocular distance on the vertex is about equal to the length of the second joint of the flagellum. Seventh tergite trapezoidal, clothed with pale golden pubescence, the apical margin shallowly emarginate in the middle. Legs not so strongly spinose as in the ♀, the claws unarmed. Otherwise like the ♀.

Widely distributed. Africa from Gambia to Kenya and south to Natal. (R.M. and T.M. colls.)

N. primania Kohl. *Ann. K.K.N.H. Mus. Wien*, ix, p. 301, ♀. 1894.

♀, 21 mm. long. Black; legs and abdomen ferruginous, anterior margin of clypeus and the mandibles at the base, reddish brown; wings flavo-hyaline, the apical third fuscous and faintly tinged with violaceous. The whole body, excepting the apical abdominal segment, clothed with a dense brassy golden pubescence, similar to that of *Liris haemorrhoidalis*. Head and thorax micro-

scopically and closely punctured. Dorsum and declivity of epinotum strongly and transversely striate, the sides obliquely so. Pygidial area closely punctured, clothed with short, dull and golden brown hairs, intermixed with a few longer and darker hairs, the apical margin with a row of eight dark amber-coloured setae. Anterior margin of the clypeus convex. Interocular distance on the vertex equal to the length of the second and half of the third joints of the flagellum. The second joint is about two and a half times longer than wide. The spines of the anterior tarsi are long and flattened, like those of *N. ciliata*. There are two such spines at the apex of the basal joint, two each on the second and third joints, and two shorter and round ones on the fourth joint (from an examination of the type in coll. Brauns; there are not five flattened spines on the first joint, as stated in Kohl's description, nor can I see any trace of the other three ever having been there). First abscissa of the radius a little shorter than the third, and about three times as long as the second, the latter very little shorter than the space on the cubitus between the recurrent veins.

Here and there on the abdomen there is a tendency for the red colour to merge into black, and probably the colour of the abdominal chitin varies considerably.

Junk River, Liberia. Type in coll. Brauns.

N. pseudoliris Turner. *Trans. Ent. Soc. London*, p. 750, ♀. 1913.

♀, 16 mm. long. Black; the base of the mandibles, the antennae, legs, tegulae, fifth and sixth abdominal segments, bright ferruginous; the apical margins of the first four segments testaceous. Wings flavo-hyaline, the apical third lightly infuscate, the veins testaceous at the base, brown in the fuscous area. Densely clothed with a bright brassy golden pubescence, similar to that of *Liris haemorrhoidalis*, but differing in the arrangement of the pubescence which is not arranged in a chequered pattern, the hairs are directed obliquely outwards from the middle line over the whole segment from base to apex. Head and thorax (under the pubescence) dull, closely and microscopically punctured, the dorsum and declivity of the epinotum transversely and closely striate or aciculate, the sides obliquely and feebly striate.

Antennae long and slender, the second joint of the flagellum as long as the scape, about three times longer than the first, and as long as the third. Anterior margin of the clypeus feebly convex. Interocular distance on the vertex nearly equal to the length of the second joint of the flagellum. Dorsum of the epinotum a little longer than the mesonotum, as long as wide at the base (in the specimen before me, det. Turner, this is the length, and not "much longer than the basal width" as stated in his description). Pygidial area elongate-triangular, narrowly rounded at the apex, closely punctured and sparsely pubescent. Tarsi slender, with thin and short spines, not forming a distinct comb on the anterior tarsi. The inner calcar of the hind tibia black, only half as long as the basal joint of the hind tarsus. Ventral surface of the abdomen dull.

Entebbe, Uganda.

N. bembesiana Bischoff. *Archiv. f. Naturges.* p. 71, ♀, ♂. 1913.

♀, 13-17 mm. long. Black; the scape and first two joints of the flagellum, the legs, the fifth and sixth tergites and sometimes also the apical margin of the fourth, the fifth and sixth and greater part of the fourth sternites, bright ferruginous (pale burnt sienna); the apical margins of the first three abdominal segments more or less reddish brown. The middle and hind coxae and trochanters sometimes entirely red, or more or less marked with black. Spines on the legs ferruginous, the posterior calcaria piceous. Wings flavo-hyaline,

with an apical brown border which extends inwards as far as the base of the radial, second cubital and outer half of the discoidal cells; the veins yellow, brown in the clouded part. Mandibles reddish brown, the apex black. Anterior margin of clypeus ferruginous. Clypeus and face with a yellowish silvery pubescence; back of the head and the thorax with a thin, adpressed and pale yellow pubescence, fairly scanty. Upper surface of the abdomen with a very fine pale greyish golden pubescence. The apical margins of the fourth and fifth tergites and of the second to fifth sternites with a few reddish, exerted hairs. Pygidial area with short reddish hairs, and an apical row of seven or eight setae of the same colour. Head and thorax exceedingly finely and closely punctured, the mesopleurae almost microscopically so, the anterior margin of the clypeus, the vertex, pronotum and mesonotum slightly shining (this feature is masked by the pubescence). Epinotum dull, the sides obliquely and strongly striate, the dorsum and declivity transversely striate, the striae on the dorsum thin and feeble except at the lateral and posterior margins, the spaces between the striae closely reticulate-punctate. Abdomen rugulose, the pygidial area closely punctured with elongate punctures, the third and following sternites slightly shining, sparsely punctured, the punctures increasing in size towards the apical segment. Anterior margin of the clypeus moderately convex. Interocular distance on the vertex equal to the length of the first two joints of the flagellum (not of the second plus half the first as stated by Bischoff, who also incorrectly says that the second joint is longer than the third; they are of equal length).

Collar of pronotum obsolete in the middle, distinct at the sides, with sub-rectangular shoulders. Mesonotum nearly one and a half times wider across the tegulae than long in the middle; the epinotum not much narrowed posteriorly, a little longer than the mesonotum and as long as wide in the middle. Pygidial area one-third longer than wide at the base, the apex rather widely rounded. Inner calcar of the hind tibia nearly as long as the hind metatarsus. Legs strongly spinose, the anterior pair with a distinct tarsal comb composed of flattened and long spines, of which there are five on the basal joint. Radial cell widely truncate, the first and third abscissae of the radius subequal, the second less than half as long as the first, and usually shorter than the space on the cubitus between the recurrent veins.

♂, 12-15 mm. long. Wings paler than in the ♀. Scape and first joint of the flagellum, or sometimes only the scape, ferruginous. Pubescence on the thorax more yellowish, longer and more tomentose than in the ♀, especially on the epinotum. Shoulder of the pronotum less angular than in the ♀. Seventh tergite widely rounded at the apex, eighth sternite narrowly excised in the middle. Legs less strongly spinose. Otherwise like the ♀.

Bembesi, Bulawayo, Sawmills, Matopos and Driefontein, S.R. October to January. Type in Berlin Museum. (R.M. and T.M. colls.)

N. sericosoma Turner. *Trans. Ent. Soc. London*, p. 752, ♀. 1913.

"♀. Nigra; mandibulis, clypeo apice, antennis, tegulis, pedibus, abdomine, segmentis dorsalibus secundo tertioque modice infuscatiss, ferrugineis; alis pallide flavo-hyalinis, limbo apicali pallide infuscat, venis testaceis, capite, thorace, abdomineque pallide aureo-sericeis. Long. 13 mm."

"♀. Clypeus subtruncate at the apex, not emarginate in the middle. Second joint of the flagellum equal in length to the third, about two and a half times as long as its breadth in the middle. Eyes separated on the vertex by a distance half as great again as the length of the second joint of the flagellum. Comb of the fore tarsi long and stout, six spines on the outer margin of the basal joint. Median segment finely transversely striated, the apex almost

smooth, the sides finely striated, the segment longer than its breadth at the base, slightly convex, and without a median carina. Sixth dorsal segment closely punctured and covered with very fine pale golden pubescence. Tarsal ungues long, without a tooth. Second abscissa of the radius nearly as long as third; first recurrent nervure received distinctly nearer to the basal angle of the second cubital cell than to the second recurrent nervure. The whole dorsal surface except the middle of the median segment is covered more or less closely with very fine pale golden pubescence, which in some lights becomes almost silvery.

Hab. British East Africa, near Wangi, coast of mainland (S. A. Neave). February. Type in B.M."

N. solstitialis Smith. *Cat. Hymen. B.M.* iv, p. 283, ♀. 1856.

N. cnemophila Cameron. Sjöstedt, *Kilimandjaro-Meru Exped.* p. 288, ♀. 1910.

♀, 17 mm. long. Black; the posterior femora ferruginous. Clypeus and face with short and dense silvery pubescence, the rest of the body and legs covered with a dense and exceedingly fine pruinose bloom, somewhat yellowish on the mesonotum and epinotum, and forming more conspicuous transverse and silvery grey fasciae on the apical margins of the abdominal segments. Wings flavo-hyaline, the apical third moderately fuscous, the veins ochreous. The spines on the middle and hind legs dark reddish brown. Dull, microscopically punctured; the epinotum obliquely striate at the sides, transversely on the declivity and dorsum, the striae on the latter almost effaced except on the lateral margins. Last three sternites sparsely punctured and shining, the pygidial area finely and closely punctured, dull and clothed with short golden hairs. Anterior margin of the clypeus moderately convex. Second joint of the flagellum two-thirds longer than the first, and as long as the third. The interocular distance on the vertex is about equal to the length of the second joint of the flagellum. Dorsum of epinotum as long as the mesonotum, as long as wide across the middle, the lateral margins behind the stigmatic orifices slightly convex; a median longitudinal line extends from its base to a little beyond the middle. Pygidial area elongate-triangular, about twice as long as wide at the base, the apex narrowly rounded.

First abscissa of the radius almost as long as the second and third combined. Legs moderately spinose.

♂, 9 mm. long. Wings paler than in the ♀. Pubescence on the face and clypeus yellowish silvery. Second joint of the flagellum shorter than the third. Interocular distance on the vertex a little longer than the length of the first two joints of the flagellum. Pygidium trapezoidal, clothed with yellowish grey pubescence. Otherwise like the ♀.

Bulawayo, February to June; Natal. (R.M. and T.M. colls.)

N. cnemophila Cameron is only a small form of this species, differing in nothing but size (♀ 12 mm. long).

N. Braunsi n.sp.

♀, 11 mm. long. Head and thorax black, mandibles, palpi, anterior margin of the clypeus, scapes and all the legs, rusty red; the coxae black, the tegulae testaceous. Abdomen dark brownish red, the first two segments with a narrow median longitudinal and diffuse blackish band, the third blackish excepting its apical margin. Wings hyaline, the apical margin very faintly fuscous. Head and thorax with a short yellowish silvery pubescence, longer on the clypeus, lower half of face and posterior angles of the epinotum, thin and inconspicuous elsewhere. Legs and abdomen with a very fine greyish white pubescence, longer and forming faint transverse fasciae on the apical margins of the first

three tergites. Dull, the head and thorax microscopically and closely punctured, the anterior margin of the clypeus impressed and shining, the space between the longitudinal tori on the face almost impunctate and shining; sides of epinotum obliquely, the declivity transversely striate and dull, the striae stronger and farther apart on the posterior upper angles of the sides; the dorsum of the epinotum dull, coriaceous, with a more or less concentric and subelliptical rugosity superimposed. Abdomen dull above, the third to sixth sternites moderately shining and sparsely punctured. Pygidial area closely punctured and dull, except at the base where it is shining, sparsely punctured and almost glabrous, the apical margin with a row of brownish setae. Anterior margin of clypeus convex. Second joint of the flagellum not quite twice as long as the first, very little longer than the third. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. Pronotum depressed, linear above posteriorly, without a collar. Thorax fairly narrow, the mesonotum barely one-third wider than long; the epinotum as long as the mesonotum and as long as wide in the middle. The dorsum of the epinotum is distinctly convex transversely. Abdomen narrow, lanceolate, the pygidial area twice as long as wide at the base, the apex truncate. Legs moderately spinose, the calcar of the hind tibia two-thirds the length of the hind metatarsus. Anterior metatarsi with four short spines. First three abscissae of the radius subequal, the fourth not quite as long as the other three combined.

Salisbury, S.R. (G. A. K. Marshall), ex. coll. Brauns. Type in R.M. coll.

In the narrow thorax, the shining infrafrontal space and the shape of the epinotum this insect has the facies of a *Larra*, but the pygidial row of spines and the distinct pair of teeth on the inner margin of the mandibles and the longitudinal carinae on the posterior tibiae place it in the genus *Notogonidea*.

N. thysanomera Kohl. *Ann. K.K.N.H. Mus. Wien*, ix, p. 302, ♂. 1894.

♀, 11 mm. long. Black; the tegulae reddish yellow, all the legs (excluding the coxae and trochanters) bright ferruginous; the lower surface of the scapes reddish piceous. Wings hyaline, with a narrow fuscous apical border, the veins brown. Clypeus and lower half of the face with bright silvery pubescence. The rest of the head and thorax with a very fine and inconspicuous pubescence, yellowish grey on the mesonotum, dull white elsewhere. Abdomen with a pruinose pubescence, more silvery on the apical halves of the segments where it forms transverse fasciae, more conspicuous when viewed from behind. Pygidial area with short and dull golden hairs, the apical margin with a row of reddish yellow setae. Anterior margin of clypeus smooth and shining, the rest of the head in front closely and very finely punctured and dull, the back of the head rugulose. Mesonotum, scutellum and metanotum closely and finely punctured and dull, except the scutellum which is slightly shining, the mesopleurae finely rugulose. Epinotum dull, the dorsum widely and transversely striate, with a few anastomoses and a feeble median longitudinal carinula not reaching the apex; the sides of the epinotum obliquely striate on the anterior half, the declivity irregularly and transversely striate.

Abdomen above microscopically rugulose-punctate, the fourth and fifth segments more strongly punctured, the pygidial area three-quarters longer than wide at the base, slightly shining and strongly punctured. The ventral surface of the abdomen, except the first two sternites, slightly shining, finely punctured, with a few larger punctures interspersed. Interocular distance on the vertex a little less than the length of the first two joints of the flagellum; the second joint a little longer than the third. Dorsum of epinotum as long as the mesonotum, and as long as wide in the middle. The pygidial area rounded

at the apex. First and third abscissae of the radius subequal, the second two-thirds as long as the first.

♂, 9–10.5 mm. long. Colour, sculpture and pubescence as in the ♀, except the anterior femora which are red only over the apical third or fourth, and the middle and hind femora which are black on the basal half. The anterior and middle femora have a fine and outstanding whitish pubescence on their inner sides. The posterior femora are bluntly angulated a little distance from the base. Interocular distance on the vertex about equal to the length of the first two joints of the flagellum. The dorsum of the epinotum is more delicately sculptured than in the ♀. Ventral surface of abdomen almost dull, the apical segment narrowly excised in the middle. The first abscissa of the radius usually longer than the third, but the venation varies not a little. Otherwise like the ♀.

Gaboon, West Africa; S. Rhodesia and Natal. (R.M. and T.M. colls.)

N. thysanomera, race *usambarensis* Cameron.

N. usambarensis. Sjöstedt, *Kilimandjaro-Meru Exped.* p. 288, ♀. 1910.

This is only a race of *thysanomera*, from which it differs by the shorter interocular distance, which is a little less than the length of the second joint of the flagellum, and by the brownish pubescence of the pygidial area, the apical setae being dark red.

Mfongosi, Zululand (W. E. Jones). S.A.M. coll.

N. bidentata n.sp. (Fig. 49 a, b).

♀, 11.2 mm. long. Black; tarsi ferruginous, the basal joint over the greater part black. Pubescence on the clypeus and face silvery grey, on the rest of the head, the pro-mesonotum, declivity of epinotum and legs, very fine and grey. Abdomen with a pruinose pubescence similar to that of *N. sepulchralis*, which this insect strongly resembles. The whole body, except the anterior margin of the clypeus, dull; the head and pro-mesonotum closely and finely punctulate, the epinotum sculptured like that of *odontophora* Kohl, the abdomen including the pygidial area without sculpture, unless microscopic. Anterior margin of clypeus feebly convex. Second joint of the flagellum half as long again as the first, as long as the third but shorter than the fourth. Interocular distance on the vertex a trifle shorter than the length of the first two joints of the flagellum. Pronotum linear above posteriorly, without the lateral angles present in *odontophora*. Proportions of epinotum as in that species. Posterior tarsi long, one and three-fifths as long as the tibia; the claws of all the legs long, nearly as long as the last tarsal joint, and furnished with two small teeth set side by side a little behind the middle of the claw.

Wings hyaline, faintly fuscous, the venation similar to that of *odontophora*.

Bulawayo. July. Type in R.M. coll. This and the three following species would be placed in the genus *Motes* according to Kohl.

N. odontophora Kohl. *Ann. K.K.N.H. Mus.* ix, p. 298, ♀. 1894.
(*Motes*). *Ibid.* xi, p. 351. 1896.

♀, 13 mm. long. Black; mandibles, anterior margin of the clypeus, scapes, the first four joints of the flagellum and the fifth underneath, the apex of the posterior tibiae inwardly, the apical margin of the third, and the whole of the

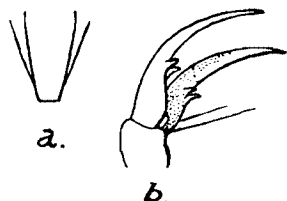


Fig. 49. Pygidium and claws of *N. bidentata*. a. $\times 16$, b. $\times 30$.

fourth to sixth abdominal segments, ferruginous; the tarsi reddish brown, the tegulae ferruginous behind. Face and clypeus with fine silvery pubescence. Thorax and apical margins of the first three tergites with an exceedingly fine or almost pollinose pubescence, on the epinotum a little longer and outstanding. Head and pro-mesothorax slightly shining, very finely and closely punctured. Epinotum rugose above, the rugae emphasised transversely, dull between the rugae, the sides fairly closely and obliquely striate, the declivity transversely so. Abdomen smooth and very shining, the first and second segments a little duller than the rest. Pygidial area narrow, its lateral margins subparallel, transversely truncate at the apex, feebly punctured.

Anterior margin of the clypeus feebly convex. Second joint of the flagellum about one-third longer than the first. Interocular distance on the vertex a little less than the length of the first two joints of the flagellum. The pronotum not linear above posteriorly, but with a distinct collar of which the lateral angles or shoulders are fairly prominent and rounded. Dorsum of epinotum parallel-sided, as long as wide, with a median longitudinal carinula which does not reach the apex. Abdomen lanceolate and fairly long. The claws of all the tarsi with a tooth near the middle. Wings very pale fusco-hyaline, a little darker beyond the second cubital cell. First abscissa of the radius nearly twice as long as the second, the latter a little shorter than the third, and as long as the space on the cubitus between the recurrent veins.

Anterior metatarsi with three or four short spines on the outer margin; the posterior tibiae distinctly longitudinally carinate on upper outer side. (Described from the type.)

Conakry, West Africa. Type in coll. Brauns.

A ♂ from Zululand (S.A. Mus. coll.) which I place with this species has the hind tibiae longitudinally carinate, the claws unarmed, and the fourth to seventh abdominal segments and the apical margin of the third, red. Scapes red in front, the flagellum black.

N. cyphononyx Kohl. *Loc. cit.* p. 299, ♀.

♀, 13 mm. long. Black; first three segments of the abdomen dark castaneous red, with an indistinct transverse band of black behind the apical margin of the first segment, and a spot on each side of the second, or, as in the type of the species, the whole abdomen red. Head and thorax clothed with a very fine, short and yellowish grey pubescence, not obscuring the sculpture, somewhat longer and silvery on the clypeus and face. Abdomen with a little whitish pubescence on the apical margins of the first three segments. Head, pro- and mesothorax, very finely, closely but distinctly punctured, slightly shining between the punctures. Dorsum of epinotum dull, transversely and fairly coarsely rugose, the sides closely and finely striate, between the rugae rugulose-punctate; a median longitudinal carinula extends from the base as far as the middle. Abdomen dull, microscopically rugulose-punctate. Anterior margin of clypeus feebly convex. Interocular distance on the vertex equal to a little more than the length of the first two joints of the flagellum (in the only specimen which I have seen, it is not more than the first two). Pygidial area narrow, the sides almost parallel, about twice as long as wide, microscopically punctured (appearing smooth to the naked eye), marginate laterally, truncate at the apex. Wings faintly fusco-hyaline, darker towards the apex. Second and third abscissae of the radius subequal, each shorter than the fourth. The claws of all the tarsi with a short tooth near the middle.

Chutes de Samlia, W. Africa; Salisbury. 1 ♀ (G. A. K. Marshall), coll. Brauns.

N. rugifera Turner. *Ann. Mag. N.H.* 1 (9), No. 5, p. 362, ♀. 1918.

"♀. Nigra; femoribus posticis ferrugineis; tarsi subtus brunneis; alis hyalinis, leviter infumatis, venis fusco-ferrugineis; unguiculis denticulatis. Long. 11 mm."

"♀. Clypeus clothed with delicate silver pubescence; third joint of flagellum twice as long as the first, the second distinctly shorter; eyes separated on the vertex by a distance about equal to the length of the third joint of the flagellum. Pronotum obliquely depressed, with a shallow longitudinal median line, the middle of the hind margin level with the mesonotum. Thorax opaque, scutellum and postscutellum shining. Median segment longer than broad, narrowed towards the apex; the dorsal surface coarsely, rugosely, transversely striated, with a distinct longitudinal carina; the sides of the segment closely obliquely striated; the face of the posterior truncation indistinctly transversely striated, with a deep median sulcus. Tergites 1-3 with a broad but ill-defined apical band of dull whitish pubescence; sixth tergite bare, delicately punctured, narrow, the sides converging towards the apex, which is very narrowly truncate; second sternite not swollen at the base. Radial cell obliquely truncate at the apex; first abscissa of the radius as long as the second and third combined. Tarsal unguis long, with a well-defined tooth near the middle. Comb of fore metatarsus almost obsolete."

Hab. Mabira Forest, Uganda.

N. denticulata Turner. *Ann. S.A. Mus.* xvii, Part 6, p. 496, ♀. 1920.

"♀. Nigra; palpis brunneis; mandibulis fusco-ferrugineis, apice nigris; femoribus tibiisque ferrugineis; tarsi calcaribusque fuscis, tergitis tribus basalibus fascia obscura apicali albido-sericea; alis sub-hyalinis, apice late fusco-hyalinis, venis fuscis; unguiculis in medio denticulatis. Long. 11 mm."

"♀. Clypeus and face clothed with short silver pubescence; clypeus short, the anterior margin almost transverse and narrowly depressed. Second joint of flagellum a little longer than the third; eyes separated on the vertex by a distance equal to the length of the second joint of the flagellum. Pronotum not reaching the level of the mesonotum; median segment slightly convex on the dorsal surface, opaque, finely, indistinctly and transversely striated, much longer than broad, the posterior truncation almost vertical, with a median longitudinal sulcus, the sides transversely striated, the striae obsolete in the middle and at the apex, the sides of the segment opaque and smooth, with delicate oblique striae in front. Sixth tergite subtriangular, the sides distinctly longer than the base, very narrowly rounded at the apex and clothed with sparse pale fulvous setae; the surface beneath the setae rather deeply punctured. Comb of the anterior tarsi not very long, the metatarsus with four spines. Inner spine of the hind calcaria equal to three-quarters of the length of the hind metatarsus. Tarsal unguis with a small tooth close to the middle. Second abscissa of the radius very short, not half as long as the third; radial cell rather narrowly truncate at the apex."

Hab. Stella Bush, Durban (Marley). November and January. Type in the S.A. Mus. coll.

N. Neavei Turner. *Ann. Mag. N.H.* xx (8), No. 118, p. 294, ♀. 1917.

"♀. Nigra; mandibulis, apice excepto, tarsisque fusco-ferrugineis; alis sordide hyalinis, venis nigris; fronte, clypeo, segmentisque dorsalibus 1-3 fascia indistincta apicali argenteo-pubescentibus; unguiculis dente armatis. Long. 16 mm."

"♀. Clypeus opaque, the apical margin shining and very narrowly and shallowly excised in the middle; eyes separated on the vertex by a distance

equal to about two-thirds of the length of the second joint of the flagellum. Mesonotum opaque, pruinose; with a delicate impressed line from the middle of the anterior margin, not reaching more than halfway to the middle of the segment; a similar short impressed line on each side before the tegulae. Scutellum smooth and slightly shining. Median segment longer than broad, margined at the apex; transversely striated, the striae distinct at the base, obsolete on the apical half; a very delicate longitudinal carina from the base not reaching the apex; the surface of the posterior truncation with a deep median sulcus, transversely striated at the sides, the striae obsolete in the middle. Abdomen pruinose; pygidial area rather broadly truncate at the apex, finely rugose, sparsely clothed with very short pubescence which changes according to the light from fuscous to pale golden, a few strong fuscous setae on the apical margin. Basal sternites pruinose; the second at the base with the usual structure of the genus. Comb of the anterior tarsus rather short, the basal joint with four spines; tarsal unguis long, with a small triangular tooth near the middle. First abscissa of the radius as long as the second and third combined, the fourth longer than the first; radial cell narrowly truncate at the apex; recurrent nervures very narrowly separated on the cubitus."

Hab. Mlanje, Nyasaland (S. A. Neave). December. Type in B.M. coll.

This species at a rough glance is deceptively like *N. sepulchralis* Gerst. However, the wings are a little darker, and the toothed claws sufficiently distinguish it from that species.

N. nigricans Walker, race *palumbula* Kohl. *List of Hymen. in Egypt*, p. 21, ♀. 1871.

Kohl. *Ann. K.K.N.H. Mus. Wien*, ix, p. 304, ♂. 1894.

N. punctipleura Cameron. Sjöstedt, *Kilimandjaro-Meru Exped.* p. 285, ♂. 1910.

♀, 7.5–8 mm. long. Black; wings hyaline, faintly fuscous over the apical third. Clypeus, face and back of the head with silvery pubescence, thorax with a very short, scanty and whitish pubescence; abdomen and legs with a thin and inconspicuous pruinose pubescence, not forming apical fasciae on the former.

Head and pronotum above fairly dull, microscopically and closely punctured, the sides of the pronotum finely rugose. Mesonotum dull, closely, finely but distinctly punctured; the mesopleurae nitidulous, sparsely and finely punctured. Scutellum and metanotum nitidulous and more finely punctured than the mesonotum. Dorsum and declivity of the epinotum reticulate-rugose, the rugae emphasised transversely, the sides obliquely striate. Abdomen nitidulous. Pygidial area closely and finely punctured, the sculpture hidden by a dense yellowish pubescence, the apical margin with a row of five or six short spines. Anterior margin of the clypeus transverse. Antennae fairly short, the second joint about half as long again as the first, and as long as the third. Interocular distance on the vertex equal to the length of the second joint of the flagellum plus half the first. Mesonotum one and a half times wider than long; epinotum as long as the mesonotum, a little shorter than wide in the middle, the dorsum with a median carinula which barely reaches the apex. Legs short and stout, moderately spinose; the anterior tarsi without a distinct comb, the metatarsus with a row of four spines on the outer margin. Second and third abscissae of the radius subequal, the fourth a little longer than the first, and nearly as long as the second and third together.

♂, 6 mm. Colour, sculpture and pubescence as in the ♀. Anterior margin of the clypeus slightly produced in the middle into a short lobe, angular on each side. Interocular distance on the vertex slightly less than the length of the first three joints of the flagellum. The second joint of the flagellum is a

little longer than the first and about as long as the third. Otherwise like the ♀.

Hab. West Africa to East Africa, and south as far as the Karroo.

I have not seen a specimen of the typical species, but Turner (*Ann. Mag. N.H.* ix (8), No. 112, p. 319) says of *palumbula* that "this is merely the tropical subspecies of *nigricans*; the pygidial area of the female is narrower." He also synonymises Kohl's *sculpturata* (*Ann. K.K.N.H. Mus. Wien*, vii, p. 221, ♂, 1892) with Walker's species.

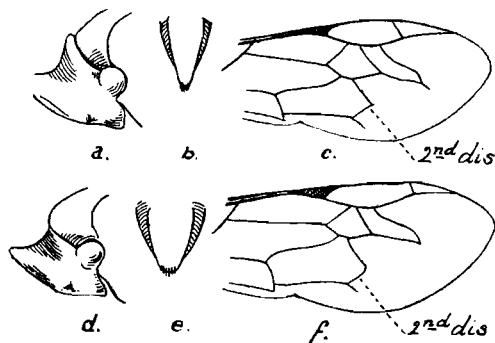


Fig. 50. a. pronotum, b. pygidium, c. apical half of front wing. *N. simulatrix*.
d. pronotum, e. pygidium, f. apical half of front wing. *N. sepulchralis*.

N. sepulchralis Gerst. (Fig. 50 d, e, f). *Monatsb. Akad. Wiss. Berlin*, p. 510, ♀. 1857.

N. argyropyga Costa. *Atti. Accad. Sc. Napoli*, vii, p. 16, ♀, ♂. 1875.

N. radialis Sauss. *Soc. entom.* ii, p. 17, ♂. 1887.

N. ancara Sauss. *Mitth. Schweiz. entom. Ges.* viii, p. 260, ♀. 1891.

N. antaca Sauss. *Hist. Madagascar*, xx, p. 505, ♀. 1892.

N. transvaalensis Cameron. *Ann. Trans. Mus.* ii, pp. 131-2. 1910.

N. brevicarinata Cameron. *Ibid.*

N. pretoriensis Cameron. *Ibid.*

N. erythrotoma Cameron. *Sjöstedt, Kilimandjaro-Meru Exp.* p. 286. 1910.

N. massaica Cameron. *Ibid.*

♀, 13-15 mm. long. Black; the tarsi reddish brown, the basal joint usually darker towards the base. Wings hyaline, slightly smoky, with a narrow apical fuscous border beyond the cells. Clypeus and face, back of the head and anterior femora below, with dense silvery pubescence, the thorax with a scanty and greyish pubescence, fairly short, and on the mesonotum confined to the lateral margins. Legs and abdomen pruinose, the abdomen with apical fasciae of greyish silvery pubescence on the first four tergites. Pygidial area covered with short, decumbent and yellowish grey setae, with a few long and finer hairs intermixed, the apical margin with a row of six reddish spines. Dull, microscopically and closely punctured; the dorsum of the epinotum very finely, closely and transversely-striate, dull and reticulate between the striae, the sides of the epinotum dull, microscopically and closely punctulate, the declivity finely and transversely aciculate, with a few short transverse rugae at the sides above. First three sternites dull, very finely and closely punctured, the fourth shining and finely punctured, the fifth and sixth very shining, sparsely and coarsely punctured. Anterior margin of the clypeus convex, slightly shining, with a feeble and very narrow median excision. Interocular distance on the

vertex about as long as the second joint of the flagellum; the second joint not quite twice as long as the first. Dorsum of epinotum as long as the mesonotum and as long as wide in the middle. Pygidial area widely rounded at the apex, elongate-triangular, about half as long again as wide at the base. The venation is variable, but as a rule the first abscissa of the radius is about as long as the second and third combined, the second much shorter than the third. Legs with reddish spines, the anterior metatarsi with four spines on the outer margin.

♂, 9–10 mm. long. Pubescence shorter than in the ♀, on the abdomen less silvery and forming narrower apical bands. The puncturation of the head and thorax is very fine but nevertheless less close and more distinct than in the ♀. The epinotum is much less distinctly striated. First joint of the flagellum two-thirds the length of the second. Interocular distance on the vertex equal to the length of the second and third joints of the flagellum. Apical dorsal segment of the abdomen widely truncate at the apex. Tarsi darker than in the ♀, almost black. Inner calcar of hind tibia three-quarters the length of the hind metatarsus. Otherwise like the ♀.

The commonest species of the genus in South Africa. Widely distributed throughout tropical and South Africa.

I have seen the types of Cameron's *transvaalensis*, *brevicarinata* and *pretoriensis* in the Transvaal Mus. coll., and his other two species *erythrotoma* and *massaica* have been synonymised with *sepulchralis* by Turner (B.M. coll.) (B.M. and T.M. colls.)

N. pompiliformis Panzer, race *intermedia* n.r. *Faun. Ins. Germ. Init.* 106, Heft 17. 1808.

♀, 9.5–10 mm. Very similar to *sepulchralis*, which it resembles in colour and pubescence. Apart from its smaller size and more slender shape, it differs from *sepulchralis* as follows.

Antennae more slender, the first joint of the flagellum half as long as the second, the latter a little longer than the third. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. In *sepulchralis* the pronotum has no collar, whereas in this species there is a short but distinct collar, raised in the middle and with rounded subrectangular shoulders. The epinotum is narrower, being a little longer than wide in the middle (as long as wide in *sepulchralis*). The dorsum of the epinotum is closely and transversely rugulose, with a few wavy longitudinal rugae on each side of the median carinula which is well-defined. The posterior margin of the dorsum and the declivity are transversely striate, the sides obliquely and closely striolate. The mesonotum has a distinct median impressed line which does not quite reach the middle of the segment. Only the first three tergites have apical fasciae of silvery pubescence; the abdomen is narrower and more lanceolate than in *sepulchralis*. The pygidial area is narrower, lanceolate, fully two and a half times longer than wide at the base, narrowly truncate at the apex, glabrous, shining, fairly strongly but sparsely punctured, the apical margin with a row of six black spines. Fourth to sixth sternites shining, the fourth and fifth on their apical halves, the sixth over its whole surface, strongly punctured. The inner calcar of the hind tibia is barely half as long as the hind metatarsus. The third cubital cell is less produced towards the apex of the wing, and is hardly longer on the cubitus than the second cubital cell (distinctly longer in *sepulchralis*).

♂, 5–7 mm. long. Interocular distance on the vertex equal to the length of the first two joints of the flagellum. The second joint of the flagellum as long as the third and nearly twice as long as the first. Pronotum with the collar

very feebly developed, almost linear above posteriorly. Apical dorsal valve widely rounded at apex, the eighth sternite shallowly emarginate in the middle at the apex. Otherwise like the ♀.

Bulawayo, Salisbury, S.R.; Johannesburg, Willowmore, C.P. (R.M. and T.M. colls.)

This form is placed with *pompiliformis* i.sp. in the Brit. Mus. collection, but should be given subspecific rank. It is clear from Kohl's description of *pompiliformis* that this African form differs in important particulars as follows:

In the type of the species the interocular distance is less, being only as long as the second joint of the flagellum; the meso- and metapleurae are longitudinally rugulose or striate (in *intermedia* microscopically and closely punctured only), and the pygidial area has a cinereous pubescence. Moreover, the mesonotum lacks the median longitudinal impression which is present in *intermedia*, and also in *N. nigrita* Lep., another European species closely allied to *pompiliformis*. The latter is widely distributed, being found over the greater part of Southern Europe, West Asia and North Africa.

N. simulatrix n.sp. (Fig. 50 a, b, c).

♀, 16 mm. long. Deceptively like *sepulchralis*, from which it differs only in the following features:

The apical fasciae of silvery grey pile are confined to the first three tergites. The pygidial area is glabrous, slightly shining, finely and closely punctured at the base, the apical half and the lateral margins with sparser and large punctures, narrower and more elongate than in *sepulchralis*, three-fifths longer than wide at the base, the apex narrowly rounded, with five small reddish spines. The anterior margin of the clypeus is obtusely angular in the middle and not excised there. The antennal joints are more slender, and the interocular distance on the vertex is greater, being equal to the length of the second joint of the flagellum plus two-thirds of the first joint. The pronotum has a short but distinct collar, higher in the middle than at the sides. The epinotum is relatively shorter and more parallel-sided than in *sepulchralis*; the dorsum is dull, microscopically coriaceous-rugulose, with a median longitudinal carinula not reaching the middle, the posterior half at the sides with strong transverse rugae which do not extend inwards as far as the middle third; these rugae are continued over the sides obliquely where they become finer and closer; the declivity is dull, coriaceous-rugulose, the lateral margins with strong transverse rugae which are continued round to the sides of the segment for a short distance. The second recurrent vein is sharply angulated at about its middle (rounded in *sepulchralis*). The tarsal joints of the hind legs, especially the penultimate, are more slender and more deeply bifid.

Springvale, S.R. October. 1 ♀. Type in R.M. coll.

N. griseola n.sp. (Fig. 51 a).

♀, 16 mm. long. This is another species exceedingly like *sepulchralis*. Like that species it has apical pubescent fasciae on the first four tergites, but the fasciae are brighter, silvery instead of greyish silvery, and their posterior boundaries are more sharply defined. In addition, it differs also in the following characters:

The tarsi are darker, and the veins of the wings, excepting the costa and subcosta, are brownish ochreous, not fusco-ferruginous. The median excision of the clypeus is almost obsolete. The epinotum is shaped like that of *simulatrix*, more parallel-sided than in *sepulchralis*; its dorsum and declivity are microscopically reticulate-rugulose, the sides microscopically rugulose and without striae; the dorsum has a median longitudinal carinula nearly reaching the apex,

and a few short, feeble and transverse rugae near the base. The posterior lateral angles of the dorsum and the superior lateral angles of the declivity have a few short and strong rugae, shorter than in *simulatrix*, and not reaching inwards as far as the middle third of the dorsum.

Abdomen more elongate than in *sepulchralis*. The pygidial area is much narrower, nearly parallel-sided or semi-elliptical like the species of the "Motes" group, nearly twice as long as wide at the base, closely and finely punctured, densely clothed with fine, silky, pale brownish yellow pubescence, which entirely obscures the sculpture; the apex rounded and with numerous very minute brownish spines. The spines on the tibiae are black, not ferruginous as in *sepulchralis*, and the second recurrent vein is less rounded than in that species, which it otherwise resembles.

Bulawayo. May to July. 4 ♀♀.

(R.M. and T.M. colls. Type in the R.M. coll.)

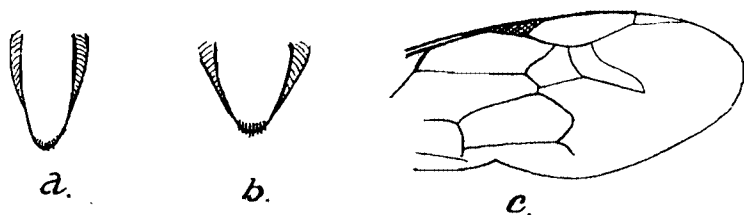


Fig. 51. a. pygidium of *N. griseola*, $\times 9$; b. pygidium of *N. felina*, $\times 16$; c. apical half of fore wing of *N. felina*, $\times 9$.

N. felina n.sp. (Fig. 51 b, c).

♀, 10–11 mm. long. This is another of the *sepulchralis* group. Black; tarsi pale ferruginous, the basal two-thirds of the anterior metatarsus fusco-ferruginous. Wings hyaline, with a narrow fuscous apical border which is darker than in *sepulchralis*, the veins blackish brown. Pubescence like that of *sepulchralis* but only the first three tergites have apical fasciae. The coarse decumbent pubescence of the pygidial area is less dense, greyer than in *sepulchralis* and intermixed with more numerous fine blackish hairs; the apical margin has a row of eight black spines. The spines on the tibiae are black, on the tarsi fusco-ferruginous. Clypeus, face, mesonotum and scutellum finely punctured, the punctures larger and farther apart than in *sepulchralis*, especially on the mesonotum and scutellum where the punctures are much smaller than the spaces between them (almost contiguous in *sepulchralis*). The dorsum of the epinotum is transversely striated, the striae stronger and farther apart than in *sepulchralis*, the spaces between almost smooth or at least not reticulate; there is a median carinula which does not extend beyond the middle of the segment; the declivity is slightly shining, widely and strongly striate transversely, the sides obliquely and very finely striolate or aciculate, the striae somewhat stronger in the middle; the posterior lateral angles of the dorsum have a few short rugae which do not extend over the sides nor reach the middle third of the dorsum. The pygidial area is relatively longer and less convex-sided than in *sepulchralis*. The spines on the anterior tarsi are more acuminate and longer. The antennal joints are more slender; the interocular distance on the vertex is equal to the length of the second joint of the flagellum. A deep sulcus extends from the anterior ocellus to the middle of the transverse torus; this sulcus is also present in *sepulchralis*, but in that species it is shallow and much narrower. The recurrent veins coalesce before their junction with the

cubitus, and in most cases sufficiently far away as to form a short stalk to the second discoidal cell; the second recurrent vein is rounded outwardly as in *sepulchralis*.

♂, 7.5–9 mm. long. Colour, sculpture and pubescence as in the ♀. Interocular distance on the vertex very nearly equal to the length of the first two joints of the flagellum. Seventh tergite like that of *sepulchralis* ♂, from which it may easily be distinguished by the colour of the tarsi, the sculpture and the venation.

Bulawayo, 4 ♀♀ and 8 ♂♂, March to July; Durban, 1 ♂; Sundays River, 1 ♂. (R.M. and T.M. colls. Types in the R.M. coll.)

N. angustiventris n.sp.

♀, 12–13 mm. long. Similar to *sepulchralis* but smaller, and easily distinguished, even to the naked eye, by its slenderer form and the narrower and more lanceolate abdomen. It differs from *sepulchralis* as follows:

Only the first three tergites have silvery pubescent fasciae on their apical margins. The puncturation of the head and mesonotum is a little stronger and less close. The dorsum of the epinotum is dull, finely but distinctly reticulate and without transverse striae except one or two very short ones near the extreme base. The extreme posterior lateral angles have a few short transverse rugae at the junction of the sides with the dorsum; the declivity is dull, transversely but not closely striato-rugose.

Abdomen narrow; fourth sternite as coarsely and sparsely punctured as the fifth and sixth, and, like them, very shining. The pygidial area is more finely punctured, narrower, three-quarters longer than wide at the base, the extreme apex rounded and fusco-ferruginous, with six small spines of the same colour. Spines on the tibiae black, on the tarsi fusco-ferruginous; the middle and hind tarsi are fusco-ferruginous, but the fore tarsi are darker, almost brown. The third transverse cubital vein is almost straight, not convex inwardly above as in *sepulchralis*.

♂, 7–8.5 mm. long. Tarsi black, wings faintly fusco-hyaline, darker than in the ♀. The sculpture is stronger and the punctures on the head and thorax deeper; the reticulation of the dorsum of the epinotum sharper, almost reticulate-punctate; the dorsum has also a few low and interrupted transverse rugae in the middle. The interocular distance on the vertex is equal to the length of the first two joints of the flagellum. Pubescent fasciae on the abdomen confined to the first three tergites as in the ♀. The latter feature distinguishes this species in the male sex from that of *sepulchralis*, to which it bears the closest resemblance.

Bulawayo. 7 ♀♀, 5 ♂♂. November to July. (R.M. and T.M. colls. Type in R.M. coll.)

N. miscophoides n.sp. (Fig. 52 a).

♀, 7.5 mm. long. Black; all the tarsi except the basal three-fourths of the first and the apical half of the fifth joints, pale yellowish red; mandibles ferruginous in the middle, last four joints of the flagellum yellowish brown underneath; pygidium and apical half of the penultimate segment red. Wings hyaline, with a faint fuscous cloud over the medial and submedial cells and another fuscous cloud over the cubital-discoidal cells. Dusted over with a very short and inconspicuous grey pubescence, a little longer on the face and clypeus; the abdomen with narrow and very faint apical fasciae on the first two tergites. Head and pro-mesonotum dull, the anterior margin of the clypeus shining. Scutellum, metanotum and pygidial area shining, the rest of the body dull. Head, mesonotum, scutellum and metanotum microscopically

and closely punctured, the pronotum rugulose, the dorsum of the epinotum closely and finely coriaceous-reticulate, with some longitudinal rugae superimposed, which are confined to the middle; the sides of the epinotum obliquely, and the declivity transversely, striolate. Pygidial area glabrous, triangular, a little longer than wide at the base, sparsely and strongly punctured, the apex rounded and furnished with a row of four dark ferruginous spines. Anterior margin of clypeus transverse, with a very small excision in the middle. Scape fairly long, as long as the first two joints of the flagellum; the second joint of the latter is twice as long as the first and a trifle longer than the third. Pronotum with a very short collar behind; the promesonotal suture deeply impressed. Dorsum of epinotum as long as the mesonotum, and as long as wide in the middle. First three sternites closely and finely punctured, feebly shining, the fourth finely but more sparsely punctured than the first three, the fifth and sixth shining, strongly and sparsely punctured. Calcar of hind tibia nearly as long as the metatarsus. The spines on the legs not long, the anterior metatarsus with four spines on the outer margin. Radial cell short, the second and third abscissae of the radius subequal, the fourth nearly half as long again as the third, the first shortest; the third cubital cell short, two-thirds shorter than the second, and not extending beyond the truncation of the radial cell, less than twice as long on the cubitus as on the radius.

A small species with the habitus of a *Miscophus*.

Bulawayo. July. 1 ♀. Type in R.M. coll.

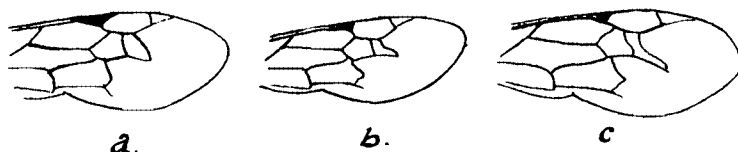


Fig. 52. Apical half of fore wing of: (a) *N. miscophoides*, (b) *N. minima*, (c) *N. gracilicornis*. $\times 9$.

N. minima n.sp. (Fig. 52 b).

♀, 6.5 mm. long. Very much like *N. miscophoides* from which it differs as follows:

The tarsi are a little darker. The wings pale fusco-hyaline, becoming darker towards the apex, without dark clouding at the base or on the cubito-discoidal area. The abdomen has very inconspicuous apical fasciae of silvery pubescence on the first three tergites, and is entirely black, including the pygidium. The pygidial area is finely and closely punctured, its apical half with short grey pubescence, the apex narrowly truncate and with four short yellowish brown spines. Third joint of the flagellum a little longer than the second, the latter half as long again as the first. Interocular distance the same as in *miscophoides*. The dorsum of the epinotum is more strongly rugose, the fundamental sculpture coriaceous only, not reticulate as well as in *miscophoides*. The second recurrent vein is angulated in the middle (convex only in *miscophoides*), and the third cubital cell is narrower, twice as long on the cubitus as on the radius. The first four sternites are very finely and closely punctured and only slightly shining, the fifth and sixth very shining, strongly and sparsely punctured.

♂, 5.5 mm. long. Tarsi entirely black. Sculpture of the head and thorax stronger than in the ♀, especially the dorsum of the epinotum which is reticulate-rugose. The first four tergites have narrow apical bands of greyish silvery pubescence. Interocular distance on the vertex equal to the length of the second and third joints of the flagellum. Otherwise like the ♀.

Hopefontain, S.R., August, 2 ♀♀; Bulawayo, June, 1 ♂. Type in R.M. coll.

N. gracilicornis n.sp. (Fig. 52 c).

♀, 7 mm. long. Black; the last two or three joints of the tarsi blackish red above, pale red below. Head and thorax with greyish silvery pubescence, fairly dense on the face, clypeus, sides and ventral surface of the thorax, scanty on the dorsum of the epinotum, mesonotum and scutellum. Abdomen with wide apical fasciae of similar pubescence on the first four tergites. Dorsum of epinotum dull, microscopically reticulate-rugulose, the declivity transversely, closely and finely striate and dull. The rest of the thorax and the head microscopically rugulose-reticulate. Interocular distance on the vertex a little greater than the length of the second joint of the flagellum. The latter is twice as long as the first, three times longer than its apical width, the whole flagellum distinctly slender. Pronotum not quite linear above posteriorly, but with a very short collar which is not much higher in the middle than at the sides. Dorsum of epinotum a little longer than the mesonotum and as long as wide in the middle. First four sternites dull, microscopically rugulose, the fifth shining, coarsely and sparsely punctured, the sixth shining, coarsely and closely punctured. Pygidial area like that of *sepulchralis* in sculpture, shape and pubescence, with six spines on the apical margin. Spines and calcaria of the legs black, the inner calcar of the hind tibia almost as long as the hind metatarsus.

Wings hyaline, with an apical fuscous border, the veins dark brown; the second recurrent vein obtusely angulated in the middle.

Bulawayo. April. 1 ♀. Type in R.M. coll.

PARALIRIS Kohl.

Verh. Zool. Bot. Ges. Wien, xxxiii, p. 361. 1883.

CHARACTERS. Anterior ocellus subconvex and indistinct; the posterior ocelli elongate, flattened and very indistinct. Mandibles without an excision on the outer margin, the inner margin with a dentiform angle before the middle and a blunt tooth near the apex. Pronotum somewhat triangular, deeply depressed below the level of the mesonotum at the sides and only slightly so in the middle. No epicnemium; episternal suture distinct. Epinotum wider than long, steep but not vertical behind. Pygidial area defined, glabrous and without spines on the apical margin. Second sternite as in *Notogonidea*.

Wings like those of *Notogonidea*, but the submedial cell is not much longer than the brachial, and the recurrent veins are closely approximated at their entrance into the second cubital cell. Posterior tibiae not longitudinally carinate, the anterior tibiae spined only at the end, the spine on the inner margin behind the middle, which is present in *Notogonidea* and *Liris*, being absent. The apical margins of the first four tergites depressed. Otherwise like *Notogonidea*.

Distribution. S. Africa.

P. Kriechbaumeri Kohl. *Loc. cit.* ♀, p. 362.

♀, 15 mm. Black. Body and legs covered with fine, outstanding, long greyish white hairs. Wings tinged with brown and with a violaceous lustre. Clypeus large, flat, its anterior margin slightly raised in the middle, with a small excision. Infrafrontal area of the face smooth and shining. Interocular distance on the vertex equal to the length of the second joint of the flagellum; the latter is about three times as long as the first joint. Thorax elongate and somewhat flattened. Mesothorax shining, sparsely punctured. Legs long, the tibiae cylindrical, not longitudinally carinate. Third and fourth tarsal joints

of the front and middle legs not longer than wide, the two together as long as the last joint. Dorsum of the epinotum closely and transversely striate, the sides smooth and shining, punctured above at their junction with the dorsum. The abdominal segments, especially the last, sparsely punctured above; the puncturation of the sternites denser and very coarse. Pygidial area elongate-triangular, smooth, shining and sparsely punctured."

Cape. Type in the Munich Museum.

LIRIS Fab.

Syst. Piez. p. 227. 1804.

CHARACTERS. Mandibles not excised on the outer margin; inner margin bidentate in the ♀, unidentate in the ♂. Otherwise just like *Notogonidea*, which indeed might be treated as a subgenus of *Liris*.

KEY TO THE SPECIES OF LIRIS.

- (2) 1. Whole body clothed with a dense brassy golden pubescence.
haemorrhoidalis Fab.
- (1) 2. Pubescence not brassy golden.
- (4) 3. Mesonotum with a dense and deep fulvous pubescence, the abdomen black, with a scanty pruinose pubescence. Anterior margin of clypeus convex, not produced in the middle.
diabolica Smith
- (3) 4. Pubescence of thorax scanty and entirely black; median area of the clypeus produced.
atropos Grib.

L. haemorrhoidalis Fab. *Syst. Piez.* p. 198. 1804.

♀, 18–23 mm. long. Black; mandibles except their apices, scape and first three joints of the flagellum, apical half of the fifth and the whole of the sixth abdominal segments above (and more or less also at the sides and below), and all the legs, ferruginous; the coxae and trochanters, and basal inner half of the middle and hind femora, black. Head, pro-mesonotum, scutellum, metanotum and dorsal surface of the abdomen clothed with a very dense, adpressed and short pubescence, of a brassy golden colour, somewhat darker on the thorax than on the abdomen, in fresh specimens obscuring the sculpture. On the abdomen the pubescence is arranged in a chequered pattern not unlike that of *Tachytes mira*, *observabilis*, etc. The legs have the same brassy pubescence, but much less dense.

The pubescence on the mesopleurae merges into a greyish golden below. The first sternite and the flattened areas on each side of the second sternite dull and finely pubescent, the rest of the ventral segments shining and sparsely punctured. The epinotum is finely and transversely rugulose above and on the declivity, clothed with a paler and somewhat woolly pubescence, the sides dull, bare and obliquely striated, the striae strongest above near the dorsum. The rest of the body is microscopically punctured. Wings flavo-hyaline, with a fuscous marginal band beyond the radial cell which also extends over the hind wing; the veins ferruginous. Anterior margin of the clypeus convex. Scapes fairly long, a little longer than the first and second joints of the flagellum combined. The first joint of the flagellum is one and a half times longer than wide, the remaining joints all considerably longer than wide, the second twice as long as the first. Interocular distance on the vertex not quite equal to the length of the second joint of the flagellum. Temples well developed, seen from the side, about one-third as wide as the eyes. Pronotum without a collar, it slopes steeply downwards from the suture, where it is angular and highest in the middle. The suture between the scutellum and metanotum deeply im-

pressed. Dorsum of epinotum about as long as wide, convex transversely, the lateral margins between the stigmata and apex also convex, the sides and declivity subvertical. The dorsum of the epinotum has a median longitudinal impressed line extending from the base to the apex, and the oblique striae of the sides extend over the outer third of the dorsum. Pygidial area sharply marginate at the sides, roundly truncate at the apex, elongate-triangular, about half as long again as wide at the base, densely pubescent, the apical margin beset with a row of very small spines. All the tarsi and the middle and hind tibiae strongly spinose, the posterior tibiae tricarinate longitudinally. The anterior tibiae with a row of a few short spines on its apical half. Claws long. The recurrent veins coalesce at their junction with the cubitus.

♂, 10.5–16 mm. long. Colour, sculpture and pubescence as in the ♀, but the pubescence is slightly paler. All the joints of the flagellum longer than wide; the interocular distance on the vertex nearly equal to the length of the first two joints of the flagellum. The second joints of the posterior tarsi are dilated and flattened, half as wide as long, the inner margin convex. Sixth and seventh tergites covered with thin yellowish pubescence, the seventh arcuately emarginate at the apex. Otherwise like the ♀.

A common and widely distributed species, and also one of the most beautiful of the Larrinae. It is distributed from the Mediterranean region to the Cape. Both sexes are very partial to the honey-dew of aphides and may often be seen on plants infested with those insects. They also frequent the flowers of an Asclepiad, *Pentacrinum insipidum*. They are very active insects, and even when sunning themselves are ever on the alert, bobbing the head up and down in a very characteristic manner, ready to fly away on the instant. I have never taken it with its prey, which doubtless is an Orthopteran.

L. diabolica Smith. *Ann. Mag. N.H.* XII (4), p. 294, ♀. 1873.

L. opipara Kohl. *Ann. K.K.N.H. Mus. Wien*, IX, p. 297. 1894.

L. violaceipennis Cameron. *Sjöstedt, Kilimandjaro-Meru Exp.* 8, p. 285. 1910.

♀, 21–24 mm. long. Black; scape and first three to five joints of the flagellum and the anterior pair of legs, dark ferruginous. The rest of the flagellum more or less piceous. Head and mesonotum and posterior margin of the pronotum clothed with a dense adpressed and dark fulvous pubescence, entirely obscuring the sculpture, and fading to golden in worn specimens. Wings dark fuscous, with a strong violaceous lustre, the veins black. Epinotum with a very fine and sparse greyish brown pubescence. The rest of the body and legs with a microscopic pruinose bloom, very inconspicuous. Mesonotum, scutellum and metanotum microscopically punctured and slightly shining. Epinotum dull, microscopically coriaceous, the sides and declivity sparsely and obliquely striated, the striae extending over the lateral margins of the dorsum. Abdomen nitidulous, impunctate. Pygidial area shaped like that of *haemorrhoidalis*, clothed with dark chestnut-red pubescence, and with an apical row of dark red and short spines. Anterior margin of the clypeus convex, with a very small and narrow median excision. Second joint of the flagellum twice as long as the first, very little longer than the third. Interocular distance on the vertex is equal to the length of the second joint of the flagellum. Pronotum without a collar posteriorly. Mesonotum as long as the epinotum. The dorsum of the latter is about one-fifth wider across the stigmata than long in the middle, the brow of the declivity bordered by a thin raised margin. All the tarsi with a thin fulvous pubescence. Neuration of the wings similar to that of *haemorrhoidalis*. Third to fifth sternites finely and sparsely punctured, the punctures increasing in size towards the apex of the fifth, the sixth finely and fairly closely punctured.

♂, 15.5–18 mm. long. Median area of clypeus slightly produced, its anterior margin transverse with rectangular corners. The pubescence on the abdomen more pronounced than in the ♀, forming pale greyish transverse apical fasciae. The seventh tergite arcuately emarginate at the apex. Wings slightly paler than in the ♀.

Fairly common. S. Rhodesia, Natal and Transvaal. (R.M. and T.M. colls.)

L. atropos Gribodo (Fig. 53). *Mem. Accad. Sc. Bologna* (5), IV, p. 134, ♀. 1894.
L. africana Turner. *Ann. Mag. N.H.* xx (8), p. 295, ♀. 1917.

♀, 21 mm. long. Black; mandibles dark ferruginous, their apices black; tarsi dark brown. Wings fuscous, with a steely-blue tinge. Face and clypeus with a yellowish silvery pubescence. Epinotum with a very thin and exceedingly fine brownish pubescence. Abdomen dull, pruinose, with faint greyish apical transverse fasciae on the second, third and fourth tergites. Pygidial area elongate-triangular, narrowly truncate at the apex, covered with a dense piceous pubescence, the sides with a few long and exserted hairs, the apex with a row of stiff setae.

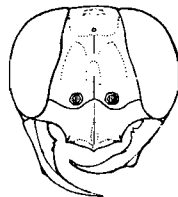


Fig. 53. Head of *Liris atropos*.

Head and thorax microscopically and closely punctured. Epinotum dull, microscopically reticulate-coriaceous, transversely and rather feebly striate on the dorsum, vertically so on the upper half of the sides, transversely on the declivity, which is distinctly marginate all round. Ventral surface of abdomen sparsely and finely punctured. Median area of clypeus produced, carinate from base to apex, the carina ending in a minute angle on the apical margin, which is angular at each side. Interocular distance on the vertex equal to a little more than twice the length of the first joint of the flagellum; the second joint is almost twice as long as the first, very little longer than the third. Pronotum vertical behind, without a collar. Dorsum of epinotum as long as the mesonotum and scutellum combined, as long as wide at the apex, with a low median carina not reaching the apex. First abscissa of the radius as long as the second and third combined; the recurrent veins coalesce on the cubitus. All the tibiae and tarsi strongly spinose, the anterior metatarsus with four long spines on the outer margin.

Bulawayo, December to February; De la Rey, Transvaal (Brauns). (R.M. coll.)

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