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THE SPHEGIDAE OF SOUTH AFRICA

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PART I

With 22 figures

NO comprehensive work dealing with Sandwasps of the Ethiopian region, or of any of its subregions, has yet been published. Certain groups of the family have been very fully monographed by Kohl and Handlirsch. These are, the *Bembex* group, "Die mit *Nysson* und *Bembex* verwandten Grab-wespen," by Handlirsch (1887–1895) and the two monographs on *Ampulex* (1893) and the Sphecinae (1890) by Kohl[1]. Although many new species have been described since their publication, yet those works are still indispensable for the study of the genera with which they are concerned. The genus *Tachytes* has been revised by R. E. Turner, and a few short papers by the latter author, by Dr H. Brauns and by Peter Cameron complete the list of the larger and recent works which relate to the South African Sphegidae. For the rest, the descriptions of species are scattered through numerous entomological journals, of which many are not easily available to the general student. Moreover, the majority of the descriptions of the older authors are insufficient, lacking in definition or based too much on colour differences to be of much value at the present time. In order, therefore, to lighten the study of our Sandwasps, it seems desirable to put together in monographic form a systematic and descriptive account of all the species now known to us. It will therefore be my endeavour gradually to do this for all the groups of the Sphegidae as defined by Kohl, with the exception of the Bembecinae, Sphecinae and Ampulicinae. The latter, having been so fully treated in the works previously mentioned, require

[1] A bibliography of the more important works dealing with the S. African Sphegidae is given on page 104.

only to be brought up to date by the revision of the analytical keys to the species, and by the addition of descriptions of those species made known since those monographs were published.

In view of the fact that the distribution of some species is very wide, and that not a few species originally recorded from the tropical belt have also been found in the South African region, it seems that the usefulness of this work would be impaired by limiting it to only those species which have been recorded from South Africa. I have, therefore, included all the Ethiopian forms known to me in nature, or of which clear specific descriptions are available.

In 1896, F. F. Kohl laid the foundation of our modern conceptions of the classification of the Sphegidae by the publication of his masterly work, *Die Gattungen der Sphegiden*, which is indispensable to the serious student. In the following pages the diagnoses of the genera and the analytical key to the latter are based mainly on those of Kohl. I have, however, made some additions and alterations, to which the following remarks apply.

The presence or absence of the episternal suture is a character which is emphasised by Kohl and is undoubtedly of importance, but since it is not easily seen in small species and even in large ones, may be obscured by the pilosity and pubescence, I have thought it advisable not to lay too much stress on it in the diagnoses of the genera.

As a generic character the venation of the wings is of great value, but on the other hand, it is of very little use in the differentiation of species. Far too much weight has been placed by some authors on minute differences in the venation for the separation of species, such as the comparative lengths of the abscissae of the radial and cubital veins, and the position of the recurrent veins at their junction with the cubitus. A little consideration will show that these differences, *when not strengthened by other structural characters*, can be of but little value for the distinction of species, for if they be but slight, they fall within the limits of variation common to all species, and if very large, the type of venation characteristic of the genus would be departed from. Moreover, the examination of large series will in nearly all cases show not only that such minor differences are constantly present within a species, but that sometimes the venation may differ on the two wings of the same individual.

In the enumeration of the abdominal segments Kohl adopts a method, which, though strictly correct, is very confusing. The epinotum being morphologically the true 1st abdominal tergite, he numbers the segment succeeding it the 2nd abdominal segment, and since no ventral plate or sternite belonging to the epinotum has yet been demonstrated, he terms the 1st ventral plate, that one which is attached to his 2nd segment. This system of enumeration is needlessly confusing and is followed by hardly any other hymenopterologist. In the following pages the epinotum is treated generally as a part of the thorax, as it appears to the eye, and the segment succeeding it is called the 1st abdominal segment, composed of the 1st tergite and 1st sternite.

The genus *Motes* Kohl cannot, in my opinion, be regarded as more than a subgenus of *Notogonidea*, for reasons which I shall indicate when dealing with species of which it is composed. I am also inclined to the

view that *Notogonidea* itself should be considered as only a subgenus of *Liris*, but for convenience in the determination of species I have retained it as a distinct genus in these pages.

The Sphegidae form the third family of the Fossorial Hymenoptera, and are distinguished in structure from the other two families, the

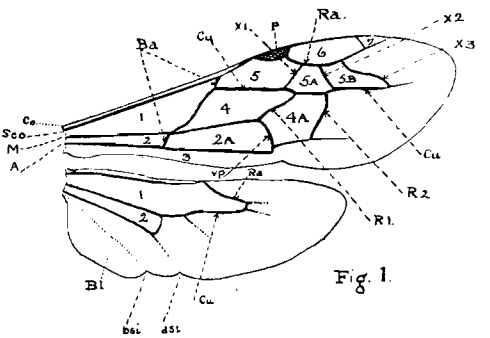

Fig. 1.

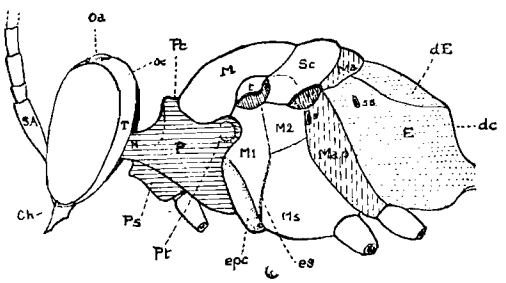

Fig. 1a.

Fig. 1. Front and hind wings. **Co,** costa; **Sco,** subcostal vein; **M,** median vein; **A,** anal vein; **Ba,** basal vein; **Cu,** cubital vein (cubitus); **Ra,** radial vein (radius); **X1, X2, X3,** first, second and third transverse cubital veins; **R1, R2,** first and second recurrent veins; **Vp,** vena postica; **P,** pterostigma; **1,** medial cell; **2,** submedial cell; **2A,** brachial or second submedial cell; **3,** anal cell; **4,** first discoidal cell; **4A,** second discoidal cell; **5, 5A, 5B,** first, second and third cubital cells; **6,** radial cell; **7,** accessory cell of the radial cell; **Bl,** basal lobe of hind wing; **asl,** anal sinus; **bsl,** basal sinus.

Fig. 1 *a*. Head and thorax of a Sphegid. diagrammatic. **SA,** scape; **Oa,** ocellar area; **T,** temple; **ch,** cheek; **oc,** occiput; **P,** PRONOTUM; **Pc,** collar or posterior portion of the pronotum; **Pt,** pronotal tubercle; **N,** neck of pronotum; **Ps,** prosternum; **M,** MESONOTUM; **Sc,** scutellum of mesonotum; **t,** tegula; **epc,** epicnemium, a flattened surface to accommodate the anterior femur (not always present); **M1,** episternum of mesothorax; **M2,** epimerum of mesothorax; **Ms,** sternum of mesothorax (these three parts **M1, M2** and **Ms** and also **Ma, p,** are referred to sometimes collectively as the "mesopleurae" to simplify description); **es,** episternal suture; **Ma,** METANOTUM; **Ma, p,** metapleurae; **E,** EPINOTUM; **dE,** dorsum of epinotum; **dc,** declivity of epinotum; **s,** stigma or spiracle of metathorax; **ss,** stigma of epinotum.

Scoliadae and the Psammocharidae (*olim* Pompilidae) by the short pronotum, which on the dorsal surface does not reach back to the tegulae.

In habits the Sphegidae differ from the other families of the Fossores chiefly in the nature of their prey. Whereas the Psammocharidae prey chiefly, if not exclusively, on spiders (excepting parasitic genera like

Ceratopales), and the Scoliadae prey on Coleopterous larvae, Lepidopterous pupae and sometimes other Aculeate Hymenoptera, the Sphegidae prey on Orthoptera, Diptera, caterpillars, Hemiptera and Hymenoptera, and in only a few species do spiders form the food of the larvae.

Of the habits and prey of our Sphegids very little is known, and indeed the only published observations of which I have any knowledge are those of Dr Brauns in his short papers entitled "Biologisches ueber südafrikanische Hymenopteren." However, the life-histories of many species of European and North American Sphegidae have been admirably portrayed in the pages of Fabre, the Peckhams and others, and it is to them that the reader should turn for fuller information.

The females prey on insects or spiders for the purpose of making provision for their future progeny. The prey is usually paralysed by stings in one or more of the nerve ganglia, but in some cases (Bembex) the prey is killed outright and carried to the larvae as often as is required. In the former case, the requisite number of victims having been obtained and paralysed and stored in a cell, an egg is laid by the mother wasp, who then closes the cell and pays it no further attention. The form and situation of the nests show considerable diversity. The majority of our sandwasps make burrows in the soil, preferably of a sandy nature, but some utilise the deserted burrows which have been made by other insects in wooden logs or dead trees, and a few construct cells of clay.

The material which I have had at my disposal consists of the collections of the Rhodesia Museum, of Dr H. Brauns (Willowmore) and of the Transvaal and Albany Museums. The small collection of the Durban Museum has also been examined. My thanks are particularly due to Dr Brauns for the gift of numerous specimens and for the generous loan of the greater part of his extensive collection which contains the types of so many rare species.

I have also compared many doubtful species with the types in the collection of the British Museum. Unless otherwise indicated, the descriptions in the following pages have been drawn up afresh by myself from material in the collection of the Rhodesia Museum. In a few cases in which the species are unknown to me in nature, I have copied the authors' original descriptions, and in others the description is based on the unique type-specimens belonging to other collections.

All species represented in the Transvaal Museum collection are indicated by the letters T.M. after the descriptions; and in the Rhodesia Museum collection, by the letters R.M.

A LIST OF THE LARGER PUBLICATIONS DEALING WITH THE ETHIOPIAN *SPHEGIDAE*

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KOHL, F. F. Die Hymenopterengruppe der Sphecinen. *Ann. K. K. Nat. Hist. Mus. Wien.* Vol. V, Heft 2, pp. 76–462. 1890.
—— Über *Ampulex* und die damit enger verwandten Hymenopteren Gattungen. *Ibid.* Vol. VIII, Heft 3 and 4, pp. 455–516. 1893.
—— Zur Hymenopterenfauna Afrikas. *Ibid.* Vol. IX, Heft 3 and 4, pp. 281–306. 1894.
—— Die Gattungen der Sphegiden. *Ibid.* Vol. XI, Heft 3 and 4, pp. 233–516. 1896.
TURNER, R. E. A Revision of the Wasps of the Genus *Tachytes* inhabiting the Ethiopian Region. *Ann. Mag. N. H.* Vol. XX (VIII), No. 115, pp. 1–43. 1917.
SMITH, F. *Cat.* Hymenoptera in coll. British Museum, Part 4. 1856.

KEY TO THE ETHIOPIAN GENERA OF *SPHEGIDAE*

(4) 1. Inner margin of eyes deeply sinuate (reniform); radial cell of forewing not appendiculate (*i.e.* the cell is not divided into two by a transverse truncation). If three cubital cells are present, the second is triangular and stalked. Front tarsi without a comb. Middle tibiae with only one spur.

(3) 2. Three cubital cells present; abdomen not elongate, usually more or less constricted between the segments. **Pison** Jurine.

(2) 3. One cubital cell present; abdomen elongate. **Trypoxylon** Latr.

(1) 4. Inner margins of the eyes not deeply sinuate, if slightly so, then three cubital cells are present and the second is not stalked. Front tarsi with or without a comb. Middle tibiae with or without a spur, or with two.

(33), (20) 5. Only one cubital cell present.

(11) 6. Radial cell not appendiculate; middle tibiae with one spur; inner orbits parallel, or convergent towards the vertex.

(8) 7. The pronotal tubercles extend back as far as the tegulae. Pygidial area defined in the ♀. Mandibles not excised on the outer margin. Anterior wing with a very large stigma and only one distinct discoidal cell. Small species. **Ammoplanus** Giraud.

(7) 8. Pronotum short, the tubercles not reaching the tegulae. No pygidial area. Mandibles excised below.

(10) 9. No distinct stigma in forewing; only one closed cubital cell and one discoidal. (Like a small *Salius* in appearance.) **Saliostethus** Brauns.

(9) 10. A small stigma present, and two distinct discoidal cells. **Miscophus** Jurine (*Handlirschii* Kohl group.)

(6) 11. Radial cell appendiculate.

(13) 12. Venation of hindwings almost completely extinguished. The eyes do not quite reach the base of the mandibles. The tubercles of the pronotum reach the tegulae. A distinct pygidial area wanting. Middle coxae almost touching each other (anterior tarsi without a comb). **Nitela** Latreille.

(12) 13. Venation of hindwings distinct. The lower margin of the eyes touching the base of the mandibles. The pronotal tubercles do not reach the tegulae. A distinct pygidial area present. Middle coxae well separated and sunk in the sternum.

(17) 14. The cubital vein extinguished, so that the cubital and discoidal cells appear confluent. Postscutellum with lamellar expansions on each side. Epinotum above produced into a more or less curved or spout-like mucro. (Anterior tarsi with a comb.)

(16) 15. Mandibles not excised on their lower margin. Abdomen conical, the tergites normal. **Oxybelus** Latr.

(15) 16. Mandibles excised on their lower margin. Abdomen oval, the tergites, at the point where they fold under, forming a sharp edge, so that the ventral plates or sternites appear much smaller than in *Oxybelus*. **Oxybelomorpha** Brauns.

(14) 17. Cubital vein not extinguished between the cubital and discoidal cells. Postscutellum and epinotum simple.

(19) 18. Mandibles simple at the apex. ♀ and ♂ with a distinct pygidial area. Abdomen conical. Head and thorax coarsely punctured. **Encopognathus** Kohl.

(18) 19. Mandibles with three teeth at the apex; ♀ with a narrow and excavated pygidial area, the ♂ without a pygidial area; abdomen clavate, the first segment petioliform. Head, mesothorax and abdomen microscopically punctured and dull. **Dasyproctus** Lep.

(5), (33) 20. Two cubital cells present.

(24) 21. Middle tibiae with two spurs. (Two distinct recurrent veins present.)

(23) 22. Abdomen petiolate, the petiole two-jointed, the first joint formed by the sternite only of the first segment, the second joint formed by the tergite of the same. Anterior tarsi with a comb. Claws without teeth. Radial cell not appendiculate. Both recurrent veins enter the second cubital cell. **Sphex** L., subgenus **Coloptera** Lep.

(22) 23. Abdomen subpetiolate, the petiole one-jointed and formed by both the sternite and tergite of the first segment. Anterior tarsi without a comb. Radial cell appendiculate. Claws unidentate. The first recurrent vein enters the first, the second enters the second cubital cell. **Ampulex** Jur., subgenus **Rhinopsis** Westw.

(21) 24. Middle tibiae with one spur.

(26) 25. Radial cell appendiculate. (Second cubital cell sessile and receiving both recurrent veins.) **Gastrosericus** Spinola.

(25) 26. Radial cell not appendiculate.

(28) 27. Second cubital cell stalked. Mandibles excised on the lower margin. **Miscophus** Jurine.

(27) 28. Second cubital cell sessile. Mandibles entire.

(32) 29. Two distinct recurrent veins present.

(31) 30. Posterior tibiae without spines. No pygidial area. Abdomen subpetiolate. **Passaloecus** Shuckard.

(30) 31. Posterior tibiae spinose. A triangular pygidial area defined. Abdomen not petiolate. **Diodontus** Curtis.

(29) 32. Only one recurrent vein present, entering the first cubital cell. (Abdomen petiolate; the ♀ with a more or less distinct pygidial area; the ventral plate of the eighth abdominal segment in the ♂ produced into a spine.) **Stigmus** Jurine.

(5), (20) 33. Three cubital cells present.

(35) 34. Labrum exserted, exceptionally large, rostriform or snout-like, the exposed portion at least as long as the clypeus. (Tarsal comb always present in the ♀; both recurrent veins received by the second cubital cell; stigma of wing small and indistinct; at least the posterior pair of ocelli flat; middle tibiae with two spurs, one of them sometimes very fine and not easily perceived.) **Bembex** Latr.

(34) 35. Labrum normal and covered by the clypeus, or if exserted, shorter than the clypeus.

(79) 36. Middle tibiae with one spur.

(38) 37. Abdomen petiolate, the petiole composed of the sternite only of the first segment; seventh ventral plate of the ♂ produced into a long curved spine. (Mandibles entire; epicnemium well developed; stigma of wing large; first recurrent vein enters the second cubital cell, the second enters the second or third cubital cell.) **Psenulus** Kohl.

(37) 38. Abdomen with or without a petiole; if with one, then it is formed by both the dorsal and ventral plates of the first segment.

(44) 39. Radial cell not appendiculate, or if apparently so, then the mandibles are entire and the ocelli normal, round and convex.

(43) 40. Second cubital cell stalked.

(42) 41. Recurrent veins received by the second and third cubital cells. Abdominal segments constricted at the apical margins, the first segment more so than the rest, sharply delimited from them, and sometimes almost petioliform. Mandibles not excised on the lower margin. **Cerceris** Latr.

(41) 42. Recurrent veins received by the first and second cubital cells. Abdominal segments not constricted. Mandibles excised on the lower margin. **Paranysson** Guerin (*Helioryctes* Smith).

(40) 43. Second cubital cell sessile. **Philanthus** Fabr.

(39) 44. Radial cell appendiculate; ocelli normal, or flattened and indistinct. Mandibles, excepting *Liris* and some species of *Solierella* and *Palarus*, always excised on the lower margin.

(50) 45. Posterior ocelli normal, *i.e.* more or less hemispherical.

(47) 46. The third cubital cell as wide on the radius as on the cubitus or even wider. The third transverse cubital vein meets the radius near the end of the radial cell. **Palarus** Latr. pr. parte.

(46) 47. The third cubital cell narrower on the radius than on the cubitus. The third transverse cubital vein meets the radius some distance away from the end of the radial cell.

(49) 48. Second cubital cell not stalked. Pronotal dorsum tuberculate at the sides and in the middle in our single species. A distinct pygidial area present in the ♀. Legs spinose. (Mandibles excised on the lower margin.) **Lyroda** Say.

(48) 49. Second cubital cell stalked. Pygidium conical, without a defined dorsal area. (Mandibles with or without an excision on the lower margin.) **Solierella** Spinola.

(45) 50. Posterior ocelli flat, elongate and indistinct.

(52) 51. Basal lobe of hindwing much shorter than its submedial cell; the third cubital cell as wide on the radius as on the cubitus, or wider. (Second cubital cell with or without a stalk; mandibles with or without an excision on the lower margin; pygidial area distinctly defined in both sexes.) **Palarus** Latr.

(51) 52. Basal lobe of hindwing large, as long as, or longer than the submedial cell. Third cubital cell narrower on the radius than on the cubitus. Mandibles always excised on the lower margin.

(56) 53. First abdominal segment elongate, longer than wide, subpetiolate.

(55) 54. Face with a round central swelling *behind* the anterior ocellus. Pronotum depressed below the level of the mesonotum, its anterior portion or neck, of normal length. (Anterior margin of median area of clypeus with four teeth; tarsi and hind femora normal.) **Parapiagetia** Kohl.

(54) 55. Face without a central swelling, but with weak longitudinal tori margining the inner orbits of the eyes and with a more or less distinct transverse torus below the anterior ocellus. Pronotum depressed below the mesonotum. Tarsi long, the posterior femora emarginate behind at about the basal third and one angle of the

emargination produced into a tooth, strong in the ♂, often blunt in the ♀, or as in *P. Kohli*, altogether wanting. **Piagetia** Ritsema.

(53) 56. First abdominal segment neither elongate nor subpetiolate.

(70) 57. Face with longitudinal tori margining the inner orbits of the eyes.

(59) 58. Second cubital cell stalked. (Mandibles excised on the lower margin, the inner margin without teeth. Pronotum very short, depressed below the level of the mesonotum. Anterior tibiae spinose. Pygidial area naked. Second ventral plate of abdomen without a median longitudinal ridge.) **Larraxena** Smith.

(58) 59. Second cubital cell not stalked.

(63) 60. Mandibles without an excision on the lower margin.

(62) 61. Mandibles with a tooth on the inner margin behind the middle and a strong tooth near the apex. Posterior margins of the abdominal segments depressed. Pygidial area (♀) and dorsal surface of abdomen distinctly punctured, and apart from long exserted hairs, naked and shining. Anterior tibiae not spinose. Posterior tibiae not longitudinally carinate. **Paraliris** Kohl.

(61) 62. Mandibles in the ♂ with one dentiform angle near the base, in the ♀ with two, no tooth near the apex. Posterior margins of abdominal segments normal. Pygidial area (♀) clothed with short hairs, and its apical margin with a row of short setae. Abdomen often densely pubescent above. Anterior tibiae usually spinose. Posterior tibiae longitudinally carinate. **Liris** Fabr.

(60) 63. Mandibles excised on the lower margin.

(65) 64. Mandibles in the ♂ without teeth on the inner margin; scape triangularly dilated; sides of the epinotal dorsum swollen and convex, the declivity not vertical; sixth to eighth ventral segments with long fimbriae. **Tachytella** Brauns.

(64) 65. Mandibles in the ♂ with teeth on the inner margin; scapes and spinotum normal, ventral segments without fimbriae.

(67) 66. Mandibles with one or two teeth on the inner margin behind the middle and near the base. Pygidial area with a row of setae at the apex, often not easily observable. (Pronotum short, depressed below the level of the mesonotum. Pygidial area pubescent, rarely glabrous. Anterior tibiae rarely spinose. Posterior tibiae longitudinally carinate. Claws long, rarely dentate. Second ventral plate with a median longitudinal ridge and a flattened and dull area on each side of the same.) **Notogonidea** Rohwer (*Notogonia* Costa).

(66) 67. Mandibles without teeth on the inner margin. Pygidial area glabrous, without apical bristles. Posterior tibiae without longitudinal carinae. Second ventral plate simple.

(69) 68. Claws with a tooth near the middle. Pronotum less depressed below the level of the mesonotum. Anterior tibiae not spinose, the sides of the pygidial area in the ♀ parallel, or nearly so. **Notogonidea**, subgenus **Motes** Kohl.

(68) 69. Claws unarmed, not very long. Anterior tibiae sometimes spinose. Sides of pygidial area convergent behind. **Larra** Fab.

(57) 70. Face without longitudinal tori margining the inner orbits of the eyes.

(74) 71. Face with a central swelling below the anterior ocellus.

(73) 72. Central swelling more or less pyramidal, dull and punctured. Radial cell widely truncate, hardly longer than wide; third cubital cell very small and stalked on the cubitus. Anterior femora of the ♂ excised below near the base. **Kohliella** Brauns.

(72) 73. Central swelling round, convex and shining. Epicnemium present. Abdomen coarsely punctured. Radial cell not very short, third cubital cell sessile, not small. Pygidial area, ♀, ♂, glabrous. (Tarsal comb of ♀ composed of long, flexible cilia.) **Prosopigastra** Costa.

(71) 74. Face without a central swelling, at the most with two little tubercles above the antennae. Abdomen not coarsely punctured.

(76) 75. Tarsal comb of ♀ composed of stiff and fairly short spines. Anterior femora of ♂ rarely excised below. Pygidial area in both sexes densely pubescent or bristly. Posterior ocelli elongate, flattened and retort-shaped. **Tachytes** Panzer.

(75) 76. Tarsal comb of ♀ composed of long, flexible and thin cilia. Anterior femora of ♂ nearly always more or less excised below near the base. Pygidial area naked. Posterior ocelli flattened, oval or pyriform.

(78) 77. Sixth tergite deeply emarginate; sting-sheath exposed. **Schistosphex** Arnold.

(77) 78. Sixth tergite entire; sting-sheath hidden. **Tachysphex** Kohl.

(36) 79. Middle tibiae with two spurs.

(85) 80. Radial cell appendiculate.

(82) 81. The first recurrent vein enters the first, the second enters the third cubital cell. First abdominal segment petioliform in its basal half. Prothorax exceptionally lengthened, the neck being nearly always as long as wide. Apical half of abdomen in the ♀ compressed laterally, acuminate. No pygidial area. No tarsal comb. The posterior abdominal segments in the ♂ often much shortened. **Ampulex** Jurine.

(81) 82. The first recurrent vein either enters the first cubital cell or is interstitial with the first transverse cubital vein, the second recurrent enters the second cubital cell, or, both enter the second (*e.g. Astata erythropyga* Brauns). First abdominal segment not petioliform. Abdomen never compressed. A tarsal comb present.

(84) 83. Pronotal tubercles not reaching the tegulae. Labrum large, in greater part exposed. Epinotum with a well defined dorsum. **Kohlia** Handlirsch.

(83) 84. The pronotal tubercles reach the tegulae. Labrum not exposed. Epinotum without a distinctly defined dorsal area. (In the ♂ the eyes meet on the vertex and are unequally faceted, the upper two-thirds having larger facets than the lower third. **Dimorpha** Panzer (*Astata* Latr.).

(80) 85. Radial cell not clearly appendiculate, although it may sometimes not end at the costal margin.

(95) 86. Basal lobe of hindwing very large, extending beyond the submedial cell. Abdomen petiolate, the petiole formed only by the ventral plate of the first segment.

(88) 87. The second recurrent vein usually enters the third cubital cell; if interstitial, then the first abdominal tergite is semiconical; if it enters the second cubital cell, then the first recurrent enters the first cubital cell. Tarsal comb may or may not be present. (Last joint of antenna truncate.) **Chlorion** Latr. (*Sphex* L.).

(87) 88. The second recurrent vein enters the second cubital cell or is interstitial with the second transverse cubital vein; in the latter case the first tergite is elongate, and if not so then the ♀ lacks a tarsal comb.

(90) 89. No tarsal comb. Last joint of antenna not truncate. (Claws without a tooth.) **Sceliphron** Klug.

(89) 90. A tarsal comb present. Last joint of antenna truncate. (Claws with one or two teeth or with none.)

(94) 91. First tergite of abdomen subdilated posteriorly, more or less pyriform, the petiole proper one-jointed, composed only of the first sternite.

(93) 92. Claws bidentate; third cubital cell widest in the middle, barrel-shaped. **Sphex**, subgenus **Parapsammophila** Tasch.

(92) 93. Claws unarmed, rarely unidentate; third cubital cell not barrel-shaped. **Sphex**, subgenus **Psammophila** Dahlb.

(91) 94. First tergite of abdomen elongate, hardly thicker than the first sternite and of nearly the same length, and with it forming a two-jointed petiole. Claws unarmed. **Sphex** L. (*Ammophila* Kirby).

(86) 95. Basal lobe of hindwing, when such is present, short, not extending beyond the submedial cell. Abdomen not petiolate, or if so, the petiole is one-jointed and not formed by the sternite alone.

(97) 96. Claws toothed, often bifid. Pygidial area never present. Pronotum long. Tarsal comb absent. Posterior abdominal segments in the ♀ compressed laterally, the apex of the abdomen acuminate. In the ♂ the fourth and following abdominal segments are much shortened, the end segments invaginated into the fourth. The recurrent veins enter the second and third cubital cells.
Dolichurus Latr.

(96) 97. Claws unarmed. Pygidial area usually present. Abdomen neither compressed in the ♀, nor shortened in the ♂. Pronotum normal, or if elongate, then the second cubital cell is stalked.

(99) 98. Second cubital cell stalked. Distance of the radial cell from the point where the basal vein meets the subcosta is less than the length of the radial cell. Dorsum of epinotum with spines or tubercles at the posterior corners. (Stigma of wing very small. The second cubital cell receives both recurrent veins.) **Nysson** Latr.

(98) 99. Second cubital cell not stalked, or if so (some species of *Stizus*) then the distance of the radial cell, from the point where the basal vein meets the subcosta, is much longer than the radial cell itself. Recurrent veins received either by the second, or by the first and second cubital cells.

(101) 100. Stigma of wing well developed. Labrum not, or only very slightly, exposed. (Pygidial area usually present. Epinotum unarmed. The second cubital cell usually receives both recurrent veins.)
Gorytes Latr.

(100) 101. Stigma of wing small, hardly observable. Labrum very large, in great part exposed.

(103) 102. The distance of the radial cell from the point where the basal vein meets the subcosta is at least as great as the length of the radial cell, often much greater. In the ♂ the seventh ventral segment is furnished with three spines. In the ♀ the pygidial area is absent or only feebly indicated on the apical part of the segment.
Stizus Latr.

(102) 103. The distance of the radial cell from the point where the basal vein meets the subcosta is distinctly shorter than the length of the radial cell.

(105) 104. Ocelli almost flat and not quite round. Mandibles unarmed.
Kohlia Handl.

(104) 105. Ocelli normal, round and convex. Mandibles with a tooth before the apex.

(107) 106. Episternal suture and epicnemium absent. Epinotum compressed at the sides, so that the declivity is transversely concave. Cubital vein of hindwing originates a little before the end of the submedial cell. **Handlirschia** Kohl.

(106) 107. Episternal suture and epicnemium present. Epinotum not compressed laterally, the declivity rounded or only feebly concave in its middle portion. Cubital vein of hindwing originates far in front of the end of the submedial cell. Large species, 28–40 mm.
Sphecius Dahlb.

LARRA Group (Kohl)

CHARACTERS. Eyes large, reaching the base of the mandibles, their internal margins usually more or less convergent above. Mandibles usually excised on the lower margin (exceptions: *Liris*, *Paraliris* and some species of *Palarus*). Labial palpi 4-jointed, maxillary palpi 6-jointed. Antennae 12-jointed in the ♀, 13-jointed in the ♂. Ocelli rarely all normal, usually the posterior two are flattened and elongated, and situated on the posterior margin of a more or less round and raised area (the latter sometimes indistinct).

Head nearly always wider than the thorax. Pronotum generally depressed below the level of the mesonotum, the posterior part short, and, in those cases where the anterior portion is much depressed, the dorsal face is reduced to a mere line when viewed from above. The pronotal tubercles do not reach the tegulae. Epicnemium absent or barely defined. A distinct dorsal field rarely defined on the epinotum.

Wings. The anterior wing with three cubital and two discoidal cells, except in *Gastrosericus*, in which only two cubitals are present. Posterior wing. The cubitus always arises well beyond the transverse median, *i.e.* beyond the end of the submedian cell.

Middle tibiae with one spur. Anterior tarsi usually with a distinct comb in the ♀. Pygidial area usually distinct, at least in the ♀.

This group has been divided by Kohl into subgroups, to which are attached at either end certain genera which cannot be placed with certainty in any definite group of the Sphegidae. In the following table the arrangement is substantially the same as Kohl's, but I have added to it the genera *Kohliella* Brauns, *Tachytella* Brauns, and *Schistosphex* Arnold, and following Turner, have placed *Zoyphium* within the *Sericophorus* series.

LYRODA Say

LARRA Group
- Subgroup 1. TACHYTES Panz.
  - GASTROSERICUS Spin.
  - *HOMOGAMBRUS Kohl.
  - PARAPIAGETIA Kohl.
  - PROSOPIGASTRA A. Costa.
  - KOHLIELLA Brauns.
  - TACHYSPHEX Kohl.
  - SCHISTOSPHEX Arnold.
  - TACHYTES Panzer.
  - *ANCISTROMMA Fox.
- Subgroup 2. LARRA Fab.
  - TACHYTELLA Brauns.
  - LARRA Fab. s. str.
  - MOTES Kohl.
  - PARALIRIS Kohl.
  - NOTOGONIDEA Rohwer.
  - LIRIS Fab.
  - PIAGETIA Ritsema.

*LAPHYRAGOGUS Kohl.
*LEIANTHRENA Bingham.
*DINETUS Jurine.
PALARUS Latr.

SERICOPHORUS Sm.
- **Helioryctes* Sm.
- **Sericophorus* Sm.
- **Sphodrotes* Kohl.
- **Zoyphium* Kohl.
- *Paranysson* Guerin.

In the above list the genera marked with an asterisk are not found in the Ethiopian region.

LYRODA Say

Boston Journal of Nat. Hist. I, 4, p. 372. 1837.

CHARACTERS. Eyes large, oval, not emarginate, the inner orbits almost parallel, not convergent to any great extent towards the vertex. Face and vertex wide, without tori or swellings. Ocelli normal, round and convex, spaced in a wide triangle. Mandibles excised on their outer margins. Pronotum depressed and narrowed into a neck in front, the dorsal face of the posterior portion or collar excavated on each side of the middle, thereby forming three more or less backwardly directed humps or tubercles. Epinotum fairly long, the declivity vertical. First abdominal segment (in our only African species) subpetiolate. Pygidial area distinct in the ♀, triangular, pilose and marginate at the sides, in the ♂ trapezoidal. Middle tibiae with one calcar or spur. The tarsi and the middle and hind tibiae spinose. Claws unarmed, pulvilli large. Anterior tarsi with short spines which barely form a comb. Anterior wing with the radial cell truncate and appendiculate; three cubital cells, the first somewhat larger than the other two combined; the second is considerably narrowed towards the cubitus, and the third is only slightly produced outwardly and without the tongue-like extension seen in *Notogonidea* and *Tachysphex*. The basal vein meets the subcostal not far from the pterostigma, being much closer to that than it is in the genera of the *Larra* group s. str. The basal lobe of the hindwing ends at about the middle of the anal margin, so that the basal sinus is some considerable distance from the anal sinus.

This is a small genus comprising nine species, of which one is Australian, one Ethiopian and the rest American. Nothing is known of their life-history.

L. aethiopica Kohl (Figs. 2, 3). *Ann. K. K. Nat. Hist. Mus. Wien.* IX, 294, ♀. 1894.

♀, 10 mm. long. Black; mandibles, last joint of the tarsi, calcaria and spines piceous ferruginous, the last two abdominal segments brownish red.

Clypeus, face, back of the head, the pronotum and mesonotum with a fine pale silvery pubescence which is longest on the clypeus and on the lateral and posterior margins of the pro- and mesonotum; the sides of the epinotum very finely pubescent, a more or less trapezoidal area on the dorsum of the epinotum, the scutellum and metanotum glabrous. Legs and apical margins of the first three abdominal segments with a fine and very short silvery pubescence which forms transverse fasciae on the segments.

Dorsum of epinotum with a fine median carina just reaching the apex, dull, reticulate rugose, the rugae chiefly transverse, the declivity more finely rugose, the sides very finely punctured and also obliquely striate behind at the upper margins; the rest of the thorax and the head dull, very closely and finely punctured. The posterior corners of the epinotum are margined by feeble carinae. Abdomen dull, the sculpture microscopic.

Clypeus wide, its anterior margin convex and (under a high magnification) feebly crenulate, the crenulations produced into three very small teeth on each side. Inner orbits almost parallel, the distance between them on the vertex equal to the combined lengths of the first three joints of the flagellum. Second joint of flagellum a little longer than the third, nearly three times longer than the first. A longitudinal impressed line runs from the back of the clypeus to the anterior ocellus. Ocellar area not tumid. Median tubercle of the pronotum higher than the lateral ones. The suture between the mesonotum and scutellum deeply clathrate. Dorsum of epinotum as long as the mesonotum, its apical third or so sloping more steeply than the rest. Abdomen oblongo-ovate, the first segment subpetiolate, longer than wide across the apical margin. Pygidial

area elongate triangular, about half as long again as wide at the base, clothed with short yellowish hairs which become golden on the apical half, and intermixed with a few long setae. First joint of the anterior tarsi with six short spines. Wings hyaline, feebly smoky. (In the type of the species there is a feeble cloud of darker colour on the second and third cubitals and the second

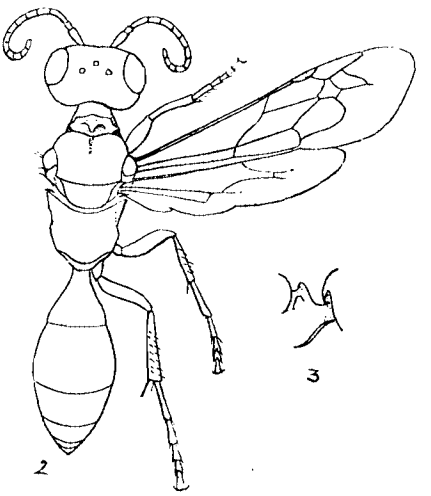

Fig. 2. *Lyroda aethiopica*, ♂.
Fig. 3. Pronotum of same, seen from the side.

discoidal cell, this is absent in the ♀ before me, but present in the ♂.) First abscissa of radius about as long as the third, quite twice as long as the second, which is barely more than half as long as the space between the recurrent veins on the cubitus.

♂ (hitherto undescribed), 8·2 mm. Pubescence of clypeus and face pale golden. The anterior margin of the clypeus has a small rounded tooth in the middle and a dentiform angle on each side of the same, the minute crenulation and lateral teeth of the ♀ being absent. The inner orbits of the eyes as in the ♀, their distance on the vertex equal to a little more than the length of the first four joints of the flagellum. Second joint of the flagellum nearly twice as long as the first, barely longer than the third. The dorsal tubercles on the pronotum stronger than in the ♀. The first abdominal segment is a little longer and narrower at the base than in the ♀. Last dorsal segment widely rounded at the apex, clothed with pale silvery golden, thick and decumbent hairs. Wings with a slight fuscous cloud over the cubitals and second discoidal cells. Otherwise like the ♀.

Sawmills, S. Rhodesia, one ♀, one ♂, on sandy soil. December.

Apparently a very rare insect with a wide distribution, the only other record known to me being that of the type specimen (coll. Brauns), taken at Conakry, W. Africa (1892).

In general appearance not unlike a small *Notogonidea* of the *antaca* Sauss. group.

GASTROSERICUS Spinola

Ann. Soc. Ent. France, VII, 480. 1838.

Paralellopsis Maidl. *Boll. Lab. Zool. Portici*, IX, 147. 1914.

CHARACTERS. Eyes convergent above, or (*Paralellopsis* group) parallel or slightly divergent. Anterior ocellus round, the posterior ocelli flat, elongate and placed obliquely, the vertex transversely impressed behind them. Mandibles excised near the middle of their lower (outer) margins. Antennal joints shorter in the ♂ than in the ♀. Pronotum depressed below the level of the mesonotum. No epicnemium on the mesopleurae. Epinotum without a defined dorsal field, its sides perpendicular, the declivity steep. A well-defined and pubescent pygidial area present in both sexes. Anterior tarsi of the ♀ with a comb composed usually of long, thin and soft cilia. Middle tibiae with one calcar. Claws without teeth, tibiae spinose.

Front wing: the radial cell broadly truncate and with an accessory cell (*i.e.* appendiculate). Two cubital cells, the first much larger than the second; the latter receives both recurrent veins.

Hind wing: the cubitus arises beyond the end of the submedial cell, the basal lobe long, extending beyond the submedial cell.

Hab. Palaearctic, Ethiopian and Oriental regions.

Paralellopsis Maidl, the genotype of which is *P. africanus* (which sinks as a synonym of *G. Neavei* Turner, ♂) cannot be retained as a genus, and can indeed hardly be considered worthy of subgeneric rank. Such forms as *lamellatus* and *Turneri* with their widely spaced eyes only slightly convergent above, and having the second discoidal cell almost stalked, and *laticeps* and *modestus* with parallel inner orbits, stalked discoidal and fine sculpture, make it impossible to define the limits of Maidl's proposed genus.

With the exception of one species, *simplex*, which preys on small crickets, nothing is known about the prey of these small wasps. All the species I have met with have been found nesting in sandy soil and are only to be seen flying about in the hottest sunshine.

KEY TO THE SPECIES OF *GASTROSERICUS*

(26) 1. Inner orbits of eyes more or less convergent above.

(19) 2. Head, thorax and abdomen black, the abdomen sometimes brown in parts, but never red.

(6) 3. Clypeus deeply excised on each side of the median area, the excision almost reaching the posterior margin of the clypeus, the outer corner of the excision produced into a long thin spine which projects horizontally above the base of the mandibles.

(5) 4. ♂ and ♀. Median area of clypeus porrect and lamellate, excised at the apex, the angles of the excision forming acute teeth; the anterior coxae with a thick process which is truncate at its apex and longer than the trochanter. **lamellatus** Turner

(4) 5. ♂. Median area of clypeus triangularly produced, oblique and not porrect, its apex entire; anterior coxae with a low crest ending in a minute triangular and flavous tooth. **bidentatus** Arnold

(3) 6. Clypeus not deeply excised, without lateral spines.

(8) 7. ♂. Clypeus produced into a median, triangular and acute tooth; third and fourth ventral segments with transverse foveae densely fimbriated with golden hairs. **lanuginosus** Arnold

(7) 8. Abdomen without foveae on the third and fourth segments.

(10) 9. Prosternum produced on each side into a curved and acute horn, plainly visible from above. **Swalei** Turner

(9) 10. Prosternum unarmed.

(12) 11. Temples with a tooth on each side below; anterior coxae produced into an oblong, quadrate and thick process, directed outwards (♀). **Turneri** Arnold

(11) 12. Temples unarmed, anterior coxae simple.

(14) 13. Pygidial area impunctate; (second abscissa of radius at least half as long as the first, second discoidal cell not distinctly stalked). **Silverlocki** Turner

(13) 14. Pygidial area punctured.

(16) 15. The recurrent veins coalesce just below their junction with the cubitus, without forming a distinct stalk to the second discoidal cell; (first abscissa of radius twice as long as the second). **karrooensis** Brauns.

(15) 16. The recurrent veins coalesce some distance below their junction with the cubitus, forming a stalk to the second discoidal cell.

(18) 17. Head and thorax dull, closely punctured; collar of pronotum not very short; anterior tibiae and tarsi fuscous. **divergens** Brauns.

(17) 18. Head and thorax less closely punctured, the spaces between the punctures shining; collar of pronotum linear; anterior tibiae and tarsi ochreous; (dorsum of epinotum with a distinct median longitudinal carina). **simplex** Arnold

(2) 19. Abdomen not entirely black.

(21) 20. Temples produced into a triangular tooth below; (first and second abdominal segments ferruginous). **Braunsi** Arnold

(20) 21. Temples unarmed.

(23) 22. Only the first segment of abdomen red, the rest black; pubescence short and silvery-grey. **oraniensis** Brauns.

(22) 23. At least the first three abdominal segments red; pubescence long and of a brassy-silvery tint.

(25) 24. All the abdominal segments red; ♀, 7·5 mm. long; ♂, 6·3 mm. **capensis** Brauns.

(24) 25. Fourth and fifth dorsal segments in the ♀, fourth, fifth and sixth in the ♂, dark brown; ♀, 6 mm. long, ♂ 4·6 mm. **chalcithorax** Brauns

(1) 26. Inner orbits parallel, or slightly divergent above (=subgenus *Paralellopsis* Maidl).

(28) 27. Body entirely black, wings fuscous, puncturation very coarse, temples toothed below in the ♀, unarmed in the ♂. Clypeus produced into a spine in the middle in the ♂, into a truncated lobe in the ♀. **Neavei** Turner

(27) 28. Abdomen more or less red, puncturation not coarse.

(30) 29. ♂. Pubescence brassy-golden, except on the lower half of the face; clypeus produced in the middle into a short triangular spine. **laticeps** Arnold

(29) 30. ♀. Pubescence silvery; clypeus produced in the middle into a very short rectangular lobe. **modestus** Arnold

G. attenuatus Turner, being unknown to me in nature, has not been included in the above key.

G. oraniensis Brauns. *Verh. Zool. Bot. Ges. Wien*, LVI, 51, ♀. 1906.

♀, 7 mm. long. Black, mandibles flavo-testaceous, the apex blackish. First abdominal segment rufous, the apical margins of the segments testaceous. Tarsi brown, anterior tibiae reddish brown, hind tibiae reddish at the apex and with a longitudinal dull flavous streak on the outer side of the basal third.

Face and clypeus silvery pubescent; the rest of the body, including the legs, covered with a very short and fine silvery-grey pubescence, slightly denser above on the apical margins of the abdominal segments and forming

inconspicuous fasciae. Pygidial area smooth, shining, sparsely punctured, elongate triangular, marginate at the sides, glabrous. Ventral segments smooth and shining. The rest of the body microscopically coriaceous-punctate and dull. Wings slightly tinged with yellowish brown, the veins brown.

Anterior margin of the clypeus arcuate. Eyes moderately convergent towards the vertex, the distance between them there equal to the combined lengths of the scape and the first joint of the flagellum. Pronotum not much depressed below the mesonotum. Declivity of epinotum rather oblique, its junction with the dorsum rounded. Tarsal comb composed of five fairly stout spines. Inner calcar of hindleg a little longer than the metatarsus.

Bothaville, O.F.S. Type in coll. Brauns.

G. chalcithorax Brauns., nom. in litt. Brauns.

♀, 6 mm. long. Mandibles flavous, the apices piceous. Head and thorax black, the pronotal tubercles and tegulae dull straw-yellow. Abdomen ferruginous (pale burnt sienna) and paler towards the base, the apical segment brownish red, the base of the fourth and fifth dorsal segments dark brown, the apical margins of all the segments widely flavescent. Tibiae and tarsi ochreous, the outer face of the tibiae lemon-yellow, the apical fourth of all the femora ochreous inwardly, lemon-yellow outwardly, the rest of the femora, the coxae and trochanters black. The clypeus and lower half of the face with a dense silvery pubescence. The upper half of the face, the vertex, temples and the whole thorax, except the neck of the pronotum, clothed with a conspicuous golden or brassy-silvery pubescence, longer and denser on the pronotum and metanotum than elsewhere. Legs and abdomen with a fine silvery pubescence, forming on the latter fairly distinct transverse apical fasciae which are widened laterally. The whole body dull, microscopically punctured. Eyes greenish, slightly convergent towards the vertex, the distance between them there being equal to the combined lengths of the first four joints of the flagellum. Clypeus feebly carinate in the middle, its anterior margin arcuate, with a slight angular notch on each side at about the outer fourth. Pronotum shorter than in *oraniensis*, the anterior face steeper. Declivity of epinotum less oblique than in *oraniensis*. Pygidial area narrower than in that species, shining, with a few elongate punctures, marginate at the sides. Recurrent veins coalescing at their junction with the cubitus, almost forming a short stalk.

♂, 4·6 mm. long. Flagellum pale brown below, tarsi pale ochreous, fourth to sixth abdominal segments black above, brownish red below, their apical margins flavescent, third dorsal segment brownish red on the basal half. Tibiae and apices of the femora of a paler yellow than in the ♀, otherwise like that sex in colour, pubescence and sculpture.

Flagellum stout, none of the joints except the last more than one-fifth longer than wide, the second as long as wide and hardly longer than the first (in the ♀ the second is twice as long as wide at the base). The eyes are barely convergent above, further apart than in the ♀, the distance between them on the vertex being equal to the combined lengths of the scape and first five joints of the flagellum. The middle of the anterior margin of the clypeus obtusely angular, not notched at the sides.

Willowmore, C.P. Type in coll. Brauns.

G. karrooensis Brauns. *Verh. Zool. Bot. Ges. Wien.* LVI, 52, ♀. 1906.

♀, 6·5 mm. long. Black, mandibles flavous except at the apex, the flagellum brown underneath, tarsi and tegulae brown, hind tibiae outwardly pale straw-yellow. Clypeus and lower half of face silvery pubescent, upper part of face

as far as the anterior ocellus with greyish silvery pubescence. The rest of the body dull, the head and thorax very finely and closely punctured, the abdomen rugulose above, clothed with a dense, and very fine, greyish silver pubescence which forms on the abdominal segments transverse apical fasciae. Pygidial area bare, shining, elongate triangular, sparsely punctured, marginate at the sides. Ventral surface of abdomen shining and glabrous. Anterior margin of clypeus arcuate and entire. Eyes convergent towards the clypeus, the distance between them on the vertex being equal to one and one-third of the length of the scape. First joint of flagellum one and a half times longer than wide at the apex, the second joint one-third longer than the first, the third joint one and three-quarter times longer than the first. Pronotum nearly as long as the mesonotum, the dorsal face shorter than the anterior, not much depressed below the mesonotum. The recurrent veins coalesce just below their junction with the cubitus. The first abscissa of the radius twice as long as the second.

Willowmore, C.P. Type in coll. Brauns.

G. capensis Brauns (Fig. 12). *Verh. Zool. Bot. Ges. Wien.* LVI, 49, ♀, ♂. 1906.

♀, 7·5 mm. long. Head and thorax black, mandibles flavous, their apices black. Scapes in front flavous, tegulae, apices of all the femora, the tibiae and tarsi reddish ochreous, the tarsi a little paler; abdomen red (pale burnt sienna). Clypeus and lower half of face densely silvery pubescent, the upper half of the face and the vertex with long and pale golden pubescence; thorax with similar pubescence, exserted and fairly long and dense at the sides, shorter above. Abdomen and legs with a fine, adpressed and pale yellowish pubescence which is slightly denser on the apical third of the first three segments, forming barely perceptible transverse fasciae. Head and thorax dull, the sculpture in greater part hidden by the pubescence; the puncturation is finest on the head; the epinotum is very closely and finely punctured and the scutellum less closely than the mesonotum. Abdomen dull, microscopically punctured. Pygidial area elongate triangular, marginate at the sides, covered with elongate punctures and a few reddish yellow setae. Anterior margin of clypeus convex. Eyes moderately convergent above, the interocular distance on the vertex being equal to the combined lengths of the first four joints of the flagellum. First joint of flagellum as long as wide, the remainder all longer than wide, the second joint two-thirds longer than the first. Dorsal face of the pronotum almost linear. Declivity of epinotum subvertical, its junction with the dorsum obtusely angular. Tibiae and tarsi spinose, the spines pale yellow. Comb of anterior tarsus fairly long and thin. In the front wing the two transverse cubitals, and the two recurrent veins coalesce at the junction with the radius and cubitus respectively. The first abscissa of the radius about one-third longer than the second, the accessory cell quite as long as the radial. The recurrent veins meet the second cubital cell at its proximal third.

♂, 6·3 mm. long. Colour and sculpture as in the ♀, the pubescence similar but distinctly shorter and less abundant. Abdomen more elongate. Eyes less convergent above, the distance between them on the vertex being equal to the length of the first four and half the fifth joints of the flagellum combined. Pygidial area marginate, produced at the apex into a semicircular, porrect and translucent lamella. Otherwise like the ♀.

Willowmore, C.P. November. Type in coll. Brauns (R.M.).

G. lanuginosus n.sp. (Fig. 5).

This species appears to be very closely allied to *G. Waltii* Spin. of the Mediterranean region, but differs from the latter (known to me only from the description) by the greater interocular distance, and by the much coarser puncturation of the head and thorax.

♂, 7·5–9 mm. long. Black, mandibles pale flavous, their apices piceous, the apices of the scapes in front more or less flavous, tegulae ochreous, all the tarsi and the bases of all the tibiae and apices of all the femora pale reddish brown, the tibiae dark brown. Veins of wings reddish ochreous; eyes blackish green; all the abdominal segments with the apical margins testaceous, the apical segment dark brown. Face and clypeus clothed with a long, decumbent and silvery pubescence; vertex, temples, the whole thorax, the coxae and femora outwardly with a long, exserted, somewhat woolly, whitish pilosity, abundant but not hiding the sculpture, least dense on the dorsal surface and on the sides of the epinotum. Abdomen with decumbent greyish pubescence, longer and forming transverse fasciae on the apical margins; on each of the third and fourth ventral plates there is a transverse median fovea densely clothed with a decumbent golden pubescence. Tibiae with fine greyish pubescence.

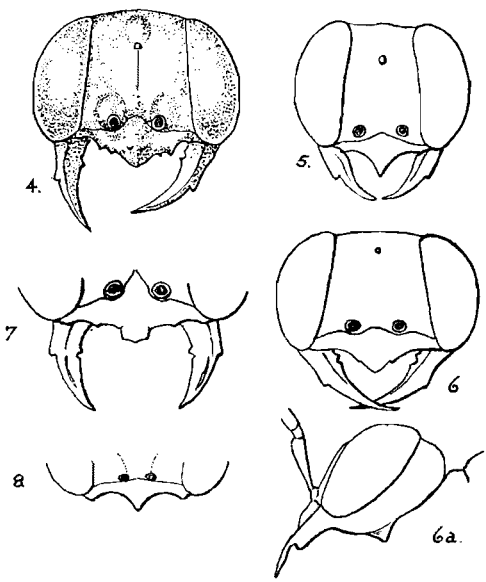

Fig. 4. *Gastrosericus Turneri*, ♀.
Fig. 5. *G. lanuginosus*, ♂.
Fig. 6. *G. Braunsi*, ♀.
Fig. 6 *a*. *G. Braunsi*, side view.
Fig. 7. *G. Neavei*, ♀, clypeus.
Fig. 8. *G. Neavei*, ♂, clypeus.

Clypeus dull and very finely rugulose, except the anterior margin of the median area which is produced into an acute triangular tooth, nearly as long as its basal width (the sculpture and tooth hidden by the dense pubescence). Face dull, closely coriaceous and punctate. Vertex behind the ocelli dull, sparsely and coarsely punctured. Pronotum, mesonotum, scutellum and the sides of the thorax and epinotum closely punctured, dull, the punctures larger and further apart on the mesonotum and scutellum than elsewhere, the spaces between the punctures slightly shining; the dorsum of the epinotum dull, closely reticulate-punctate. Abdomen microscopically punctured, almost dull; pygidial area marginate at the sides, clothed with a few long yellow hairs, broadly truncate apically, the last ventral plate projecting outwards as a semicircular lamella. Eyes only slightly convergent above, the distance between them on the vertex being almost equal to the combined lengths of the first five joints of the flagellum. Joints of flagellum short, none more than one and a half

times longer than wide, the second, third and fourth subequal, the first two-thirds the length of the second. (In *Waltii* the second is almost twice as long as the first.)

Dorsum of epinotum nearly as long as the mesonotum, fully twice as wide at the base as long in the middle. Abdomen oblongo-ovate. Radial cell short, rectangularly truncate; the first abscissa of the radius equal to the second and third combined, the second is very short, as the transverse cubital veins almost meet on the radius. The recurrent veins enter the second cubital cell close together within the proximal half of the cell. Pterostigma reddish brown, the wings hyaline.

Sawmills, S. Rhodesia. October. Numerous males were found flying over a sandy path in the forest. Type in Rhod. Mus. coll. (T.M.).

G. divergens Brauns, nom. in litt. Brauns.

♀, 5–6·3 mm. long. Black, mandibles flavous, their apices black: tegulae and an indistinct streak on the outer side near the base of the front and hind tibiae, dirty straw-yellow; tarsi brown, the apical margins of the abdominal segments narrowly testaceous.

Clypeus and lower half of the face with a dense silvery pubescence, the rest of the body with a fine and sparse greyish pubescence, which, however, is dense on the apical margins of the abdominal segments, forming there transverse fasciae conspicuous only when the insect is viewed obliquely from in front. Pygidial area smooth, shining, sparsely and strongly punctured, elongate triangular in shape and marginate at the sides, the apex with four short reddish setae. The whole body, except the pygidium, dull; head and thorax very finely and closely punctured, the abdomen rugulose. Anterior margin of clypeus convex, with a slight notch on each side at about the outer fourth, the median area with a low swelling which does not reach the anterior margin. A narrow shining line extends from the clypeus to the anterior ocellus. The scape is almost as long as the first three joints of the flagellum; the third joint of the latter is a little longer than the second, and two-thirds longer than the first. The eyes converge towards the vertex, the interocular distance there being equal to the combined lengths of the first three, or first three and half of the fourth joints of the flagellum. The length of the head behind the eyes is equal to the length of the second joint of the flagellum. Posterior ocelli oblongo-ovate, placed a little in front of the posterior margin of a moderately tumid ocellar area. Dorsal face of the collar of the pronotum thin. The junction of the two faces of the epinotum rounded, the declivity oblique, with a deep and shining fovea in the middle of the upper half. Middle and hind tibiae and tarsi spinose, the spines dull yellow. Anterior tarsi with brown spines, five of which compose the comb. In the forewing the first abscissa of the radius is two and a quarter times longer than the second, and a little longer than the third. The second discoidal cell is stalked, owing to the coalescence of the recurrent veins, the stalk is as long as the second abscissa of the radius. The radial cell is rectangularly truncate.

Sawmills, S.R., nesting in loose sand. February. Bulawayo, nesting in hard clayey soil. Type in coll. Brauns (R.M., T.M.).

Allied to *Silverlocki* Turner, from which it differs by its smaller size, the shorter second joint of the flagellum, the greater width between the eyes on the vertex, the pygidial area and the venation, especially of the radial and second discoidal cells.

G. simplex n.sp.

♀ and ♂, 5 mm. long. Very closely allied to *divergens* Brauns, from which it differs chiefly by its smaller size and in the following characters.

Flagellum dull ochreous beneath, all the tibiae and tarsi, the mandibles, tegulae in front, and the pronotal tubercles, pale ochreous or straw-yellow. Pubescence of thorax and abdomen silvery, not greyish as in *divergens*. Thorax, excepting the epinotum, and the abdomen slightly shining, the scutellum and metanotum distinctly shining. The puncturation is much stronger and less close than in *divergens*. In that species the sculpture of the head and thorax is almost reticulate-punctate, whereas in this species the spaces between the punctures on the head and thorax (the epinotum excepted), are fully as wide as the punctures themselves, and shining. The epinotum is more closely punctured than the rest of the thorax, and has a distinct median carina on the dorsum which reaches to the brow of the declivity. Pygidial area in the ♀ shining, very sparsely and finely punctured at the sides; in the ♂ more coarsely punctured and narrowly emarginate at the apex. Ventral surface of abdomen almost shining and glabrous (pubescent in *divergens*), more coarsely and less closely punctured than in that species. The interocular distance on the vertex in the ♀ is equal to the combined lengths of the first three joints of the flagellum; in the ♂ to that of the first four and half the fifth. In the ♀ the second joint of the flagellum is nearly twice as long as the first (in *divergens* it is only one-third longer). In both sexes the collar of the pronotum is much shorter than in *divergens*, and the apical margins of the abdominal segments are more widely testaceous. Otherwise like that species.

Wittington Estate, Inyanga district, S.R., 3600 ft. One ♀, four ♂♂. On a sandy path. The prey is a small larval cricket (*Tridactylus* sp.) about 8 mm. long. Type in R.M. coll. (T.M.).

At Khami, S.R., several specimens of a slight variety of this species were taken. The ♂♂ are similar, but the ♀ differs from the type of the species in having the second joint of the flagellum a little shorter, or barely half as long again as the first, and in the more strongly punctured pygidium, which is also less acute at the apex.

G. Turneri n.sp. (Fig. 4).

♀, 8 mm. long. Black, mandibles excepting their piceous apices, a broad streak on the outer side of all the tibiae and the extreme apices of the femora, lemon-yellow; tegulae testaceous-ochreous, apical margins of the abdominal segments narrowly fusco-testaceous. Clypeus and excavated area of the face clothed with a dense pale golden pubescence, the rest of the head and dorsum of the thorax with a microscopic and brownish pubescence; sides and sternal surface of the thorax, sides of the epinotum, pronotum and lateral margins of the mesonotum with longer and whitish pubescence, exserted on the epinotum, oblique elsewhere. Abdomen and legs with a pruinose pubescence; on the abdomen this pubescence forms narrow apical fasciae, plainly visible when viewed from behind, and on the rest of each segment it is set in contrary directions so as to produce a chequered pattern. Anterior margin of clypeus shining, the rest of the head and the whole thorax dull, very finely and closely punctured, the punctures a little larger on the mesonotum and scutellum. Abdomen dull above, microscopically punctured, the ventral surface smooth and shining on the third and succeeding segments, the first and second only nitidulous. Pygidial area shining, sparsely but strongly punctured, elongate triangular, the apex narrowly rounded, the sides marginate, the ventral surface punctured.

Mandibles moderately long, acute, furnished with a small angular tooth on the inner margin near the base. Median fourth of clypeus produced and obtusely angular, on each side of the projecting portion the anterior margin carries two small teeth (see Fig. 4). The lower third of the face, between the

antennal sockets and the eyes, is excavated, and the inner margin of the excavation is extended upwards as a raised line parallel to the inner orbits and as far as the level of the anterior ocellus. From the latter to the base of the clypeus is a shining and impressed line. The eyes are only slightly convergent above, the distance between them on the vertex being equal to the length of the first four plus half the fifth joints of the flagellum. The second joint of the latter is half as long again as the first. Temples at their lower fourth armed with a short triangular tooth, plainly visible from the side. Dorsum of epinotum a little shorter than the declivity, about one and a half times longer than the scutellum. Abdomen fairly deeply constricted between the first and second segments, and slightly so between the second and third. Anterior coxae produced into an oblong, quadrate and thick process, directed outwards. Middle and hind tibiae with pale yellow spines, the posterior calcar a little longer than the metatarsus; anterior metatarsus with five stout and long reddish spines. Wings hyaline, the veins brown. Radial cell rectangularly truncate, the first abscissa about equal to the third, nearly three times longer than the second,

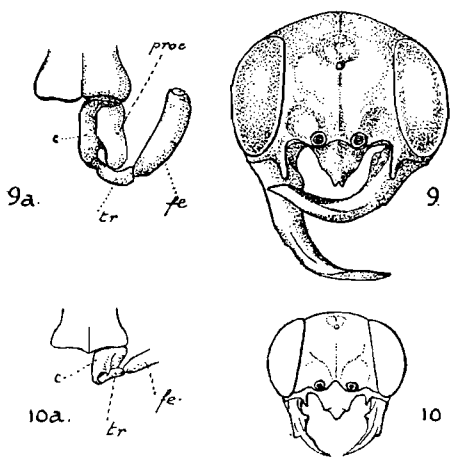

Fig. 9. *G. lamellatus*, ♀. Fig. 9 *a*. Anterior of coxa of same seen from below.
Fig. 10. *G. bidentatus*, ♂. Fig. 10 *a*. Anterior coxa of same, seen from below.

and the latter is only a little longer than the distance between the two recurrent veins on the cubitus.

Hillside, Bulawayo, one ♀, November; Victoria Falls, one ♀, November. Type in R.M. coll. Although very different in sculpture and colour, this species shows a relationship to *G. Neavei* Turner in the presence of the toothed temples, the slight convergence above of the inner orbits, and the deep constriction between the first and second abdominal segments.

G. lamellatus Turner (Figs. 9, 9 *a*). *Ann. Mag. N.H.* IX (VIII), 421, ♀, ♂. 1912.

♀, 7–8·5 mm. long. Black, pronotal tubercles, tegulae, the outer side of all the tibiae and the inner face of the posterior tibiae, and the apex of the protuberance of the anterior coxae, pale lemon-yellow. Mandibles flavo-testaceous, their apices reddish; the apical margins of the abdominal segments narrowly brown; the tarsi pale reddish brown.

Clothed all over with a decumbent and brilliant silvery pubescence, which is particularly dense on the face and head behind the eyes, on the pro-mesothorax, sides of epinotum and apical margins of the abdominal segments; on the latter it forms transverse bands plainly visible when viewed from behind.

Head and thorax dull, very closely and finely punctured, the dorsum of the epinotum exceedingly finely coriaceous. Abdomen above, dull and microscopically sculptured, below, shining, sparsely and finely punctured; pygidial area glabrous, moderately shining, sparsely punctured, longer than wide at the base. Mandibles very long, broad at the base, the apical half not gradually narrowed but of equal width almost to the apex, strongly incurved towards the apex which is oblique and fairly acute; the outer margin of the mandible is deeply excised, the inner not dentate, but furnished with a broad angle near the base. Clypeus in the form of a porrect, subhorizontal lamella, convex transversely, narrowed towards the apex which is deeply emarginate, the angles of the emargination forming a tooth on each side. The anterior margin of the head on each side of the lamella is deeply and arcuately excised as far as the base of the antennae and produced into a long, stout spine which is obliquely truncate and projects over the base of the mandibles. Eyes large, moderately convergent above, the distance between them on the vertex being equal to the combined length of the first four and half the fifth joints of the flagellum; second joint of the latter half as long again as the third. A sharply impressed median line extends from the base of the clypeus to the anterior ocellus, and another from the middle of the ocellar area to the back of the head. The temples are a little more than half as broad as the eyes. Anterior coxae produced beneath into a thick process which is widest at the base, somewhat compressed in the apical half and truncate at the apex; the process is longer than wide at its base and longer than the trochanter. Anterior edge of the collar of the pronotum sharply marginate. Dorsum of epinotum with a median longitudinal carina which does not reach the apex. Anterior metatarsus with a comb composed of five thin spines. First abscissa of radius about one-third shorter than the third, and about one and a half times longer than the second; the recurrent veins meet just before their junction with the cubitus. Wings hyaline, the veins brown.

♂, 7 mm. long. Like the ♀ but the temples are not so broad. The interocular distance on the vertex is equal to the length of the first four joints of the flagellum.

Sawmills, S.R., Nov. to April, nesting in the sandbanks of the Umgusa River (R.M., T.M.).

G. bidentatus n.sp. (Figs. 10, 10 *a*).

♂, 5·5 mm. long. Head and thorax black, abdomen dark brown, the apical margins widely flavo-testaceous, the mandibles and last three joints of all the tarsi pale ochreous, the first two joints pale brown; the pronotal tubercles, the tooth on the anterior coxa, the tegulae and upper surface of all the tibiae, lemon-yellow; femora brownish black. Sculpture and pubescence like that of *lamellatus*, but the pubescence is less abundant.

Mandibles acute at the apex, gradually acuminate, not broad and subulate at the apex as in *lamellatus*, and when closed their apices do not extend beyond the bases of the opposed mandible as in *lamellatus*. The median area of the clypeus is produced into an oblique and subtriangular lobe, the apex of which is declivous. On each side of the median area the clypeus is deeply excised and the outer corner of the excision is produced into a thin tooth or spine, pointing forwards, as in *lamellatus*. The interocular distance on the vertex is equal to the length of the first four joints of the flagellum. The lower surface of the anterior coxae is furnished with a low crest ending posteriorly in a small yellow tooth. Dorsum of epinotum relatively longer, and the brow of the declivity less angular than in *lamellatus*. Otherwise like the ♂ of that species.

Sawmills, S.R., one ♂, December. Type in R.M. coll.

G. Silverlocki Turner. *Ann. Mag. N.H.* IX (VIII), 422, ♀. 1912.

♀, 8 mm. long. Colour, sculpture and pubescence like that of *lamellatus*, but the pubescence is a little less brilliant and less dense, the lemon-yellow streak on the anterior tibiae narrower, and the last three joints of all the tarsi ferruginous. The dorsum of the epinotum is less finely sculptured, almost rugulose in the middle. Pygidial area very shining, impunctate, elongate triangular, twice as long as wide at the base, narrower than in *lamellatus*.

Mandibles long, very slender and gradually narrowed to the sharp apex, falciform, excised on the outer margin, the inner margin without teeth. Anterior margin of clypeus convex. Second joint of flagellum half as long again as the third, twice as long as the first. Eyes strongly convergent above, the distance between them on the vertex equal to the length of the second joint of the flagellum. The temples are narrower than the eyes. An impressed median longitudinal line extends from the clypeus to the anterior ocellus, thence over the ocellar area to the back of the head. Dorsal face of pronotal collar rounded and curving gradually downwards in front, not marginate and horizontal as in *lamellatus*. Anterior coxae simple. Dorsum of epinotum longer than in *lamellatus*. Wings hyaline, slightly tinged with ochreous, the veins brownish yellow. The venation is similar to that of *lamellatus*. Comb of anterior metatarsus composed of five long, thin and brown spines.

Pakasa, N. Rhodesia (Silverlock); Upper Luangwa River, Niamadzi River, N.R. (Neave); Sawmills, S.R., nesting in the same situations as *lamellatus* (R.M., T.M.).

G. Swalei Turner. *Ann. Mag. N.H.* XVII (VIII), 258, ♀. 1916.

"♀. Nigra, pallide aureo-pilosa; tegulis macula basali, femoribus apice tibiisque extus flavis; tegulis apice testaceis; tarsis fuscis; mandibulis fusco-ferrugineis; alis hyalinis; venis fuscis; prosterno utrinque acute cornuto. Long. 7 mm."

"♀. Eyes moderately convergent towards the vertex, separated on the vertex by a distance equal to about twice the length of the scape; front very broad, clypeus and lower part of the face covered with short silver pubescence. Eyes separated from the posterior margin of the head by a distance equal to about half the length of the scape. Prosternum produced on each side into a stout, acute, curved horn, plainly visible from above. Median segment (epinotum) shorter than the mesonotum, strongly narrowed to the apex. The whole insect opaque, with pale golden pubescence thinly distributed, becoming denser on the pronotum, median segment, and behind the eyes, and forming apical bands on the dorsal segments of the abdomen. Pygidial area triangular, punctured and bare. Second abscissa of the radius very short; the two recurrent nervures meeting before joining the cubitus.

Hab. Lonely Mine, S. Rhodesia (H. Swale), January.

Easily distinguished by the extraordinary horns of the prosternum; otherwise it superficially resembles the West African *G. attenuatus* Turner, but has the median segment shorter and the eyes much farther apart on the vertex, in the latter feature resembling *G. lamellatus* Turner and forming a link between the usual strongly convergent eyes of *Gastrosericus* and the parallel eyes of *Paralellopsis*."

This species is unknown to me in nature. The type is in the British Museum coll.

G. attenuatus Turner. *Ann. Mag. N.H.* IX (VIII), 423, ♀. 1912.

"♀. Nigra, argenteo-pilosa; mandibulis (apice excepto) tibiis subtus tarsis segmentisque dorsalibus apice testaceo-brunneis; tibiis supra tegulisque flavis;

callis humeralibus flavo-marginatis; alis, hyalinis, subiridescentibus, venis fusco-ferrugineis; clypeo apice subtruncato vel subemarginato. Long. 7 mm."

"♀. Very near *G. Silverlocki* described above, but differs in the clypeus, which is subtruncate and very shallowly emarginate at the apex; in the slenderer form; the median segment is three times as wide at the base as at the apex, only twice as wide in *Silverlocki*, the first abscissa of the radius is three times as long as the second, and the eyes are a little more widely separated on the vertex, though much nearer in this character to *Silverlocki* than to *lamellatus* and *capensis*. The median segment shows indistinct transverse striae near the middle.

Hab. Volta River, Gold Coast (G. C. Dudgeon)."

Type in the British Museum coll.

G. Braunsi n.sp. (Figs. 6, 6 *a*).

♀, 7·3–8 mm. Black, mandibles pale yellow, the apices black, upper third of the scape in front dirty yellow. Tibiae and front and middle tarsi pale ferruginous, the posterior tarsi brown, all the tarsi with a streak of lemon-yellow on the outer side. Apical third of the anterior and middle femora, and extreme apex of hind femora, ferruginous; anterior margin of clypeus, tegulae and posterior margin of pronotal tubercles, flavous. First two segments of abdomen ferruginous, the apical margins of all the segments except the last, widely flavo-testaceous. Pygidial area piceous, shining, sparsely but strongly punctured, triangular, subacute at the apex, sharply marginate at the sides, a little longer than wide at the base.

Dull, microscopically punctured or coriaceous. Face and temples covered with a fine silvery pubescence. Vertex and thorax with a very fine, but not dense, pubescence, of a silvery or slightly brassy tinge. Legs and abdomen with thin silvery pubescence, forming the usual transverse bands on the apical margins of the abdomen. Mandibles acuminate, the inner margin with a small tooth near the base. Median area of clypeus triangularly produced, the apex rounded, feebly carinate longitudinally in the middle. Eyes feebly convergent above, the interocular distance on the vertex being equal to the length of the first four joints of the flagellum, and hardly less than two-thirds of the distance between them across the clypeus. Second joint of flagellum about twice as long as the first, and as long as the third. Temples narrower than the eyes, produced below into a triangular lamelliform tooth, wider at its base than long. Anterior coxae with a subconical tubercle in front, which is blunt at the apex, directed forwards, and shorter than the trochanter. Dorsal face of pronotal collar short, merging by a curve into the declivous anterior face. Dorsum of epinotum not carinate, merging gradually into the declivity, which has a median longitudinal groove. Abdomen fairly distinctly constricted between the first three segments. Wings hyaline, tinged with yellow, the veins brown. First abscissa of radius fully as long as the third, about two and a half times as long as the second. The recurrent veins meet just before their junction with the cubitus, in some specimens a little sooner, so as to form a single veinlet which makes the second discoidal cell petiolate.

♂, 5·5 mm. long. Scapes in front pale yellow, apical segment of abdomen reddish, sparsely pilose and finely punctured. Upper half of face with golden pubescence, the pubescence on the thorax longer than in the ♀, otherwise like that sex in colour, sculpture and pubescence. Inner orbits of the eyes parallel, the distance between them on the vertex equal to about the combined lengths of the first six joints of the flagellum. The tooth on the temples is very small, hardly perceptible. The anterior coxae simple and flat. Otherwise like the ♀.

Sawmills, S.R. and Victoria Falls, November to February, nesting in sandy, grassy soil. Type in R.M. coll. (T.M.).

G. Neavei Turner (Figs. 7, 8). *Trans. Ent. Soc. London*, p. 754, ♀. 1913.
Paralellopsis africanus Maidl (=♂). *Boll. Lab. Zool. Portici*, IX, 147. 1914.

♀, 7·5–9 mm. long. Black, a longitudinal streak of pale lemon-yellow on the posterior tibiae, the last joint of the tarsi ferruginous, apical two-thirds or more of the wings dark fuscous and slightly violaceous, the veins black.

Head and thorax dull, the abdomen slightly shining above. Head and thorax very coarsely and closely punctured, less closely on the mesonotum than on the head, the sides of the epinotum more finely and more distantly punctured, the middle of its dorsum more or less transversely rugulose as well as punctured. Abdomen finely and closely punctured above, shining and very delicately punctured below. Pygidial area triangular, narrowly rounded at the apex, sharply marginate at the sides, punctured evenly with large, elongate punctures from which arise golden or silvery golden setae. Clypeus and lower half of face with a pale silvery, long, thin and decumbent pubescence, the rest of the head and thorax with a thin, whitish and exserted pilosity, longest and most abundant on the sides and declivity of the epinotum. Abdomen and legs with thin, greyish and adpressed pubescence, not forming distinct bands on the abdomen.

Mandibles short and thick, acute at the apex, deeply excised on the outer margin and with a small tooth on the inner margin near the base. Clypeus produced in front into a short, subrectangular lobe, and on each side of same, half way between it and the cheeks, into a small tooth (see Fig. 7). Inner orbits parallel, or even slightly divergent above, the distance between them on the vertex being equal to the length of the first six joints of the flagellum combined. The second joint of the flagellum is almost twice as long as the first, and as long as the third. Anterior ocellus somewhat flattened and, like the posterior ocelli, indistinctly defined; a median impressed line extends from the posterior margin of the ocellar area to the occipital margin. Temples about half as wide as the eyes, armed below with a short and obtuse tooth. Declivity of epinotum oblique, its brow rounded, longitudinally sulcate in the middle. First abdominal segment as long as wide at the apex, about two and a half times wider there than at the base, or subpetiolate, the second segment slightly constricted at the base.

The second discoidal cell stalked, owing to the recurrent veins coalescing before meeting the cubitus. The stalk is about as long as the second abscissa of the radius. The first abscissa is as long as the third and two and a half times longer than the second. The spines on the legs are pale yellowish-white, the anterior metatarsus armed with six short and acute spines. The last tarsal joint is somewhat swollen, the pulvilli large.

♂, 6–7 mm. long. Temples unarmed. Clypeus produced in the middle into a triangular and acute tooth, the margins on each side of same concave. Otherwise like the ♀.

This ♂ agrees with the description of *africanus* Maidl. As it was taken at the same time and place as several females, I have no doubt that it is the ♂ of *Neavei* Turner. The absence or reduction of the tooth on the temples would appear to be characteristic of the ♂ sex in this genus, cf. *Braunsi*, ♂.

At my request Mr Turner re-examined the type of his species and confirmed the existence of certain inaccuracies in his description. The clypeus is formed as I have described it, and is not "broadly rounded at the apex"; moreover, the dorsum of the epinotum is rugulose only in the middle.

British East Africa (Neave); Bulawayo, Sawmills and Victoria Falls, S.R., flying about amongst grass and low vegetation, probably in search of small Orthoptera (R.M., T.M.).

G. modestus n.sp. (Figs. 11, 11 *a*).

♀, 5·5 mm. long. Head and thorax black, mandibles pale ochreous, ferruginous at the apex. Lobe of the median area of clypeus ferruginous. Pronotal tubercles and tegulae reddish yellow. Tibiae and tarsi pale ferruginous, a longitudinal streak of lemon-yellow on the outer sides of all the tibiae. Coxae and trochanters piceous, the femora fusco-ferruginous, becoming paler outwardly and towards the apex which is pale yellow. Scapes brown, ochreous at the apex. First abdominal segment ferruginous, with a small and indistinctly defined cloud of brown on each side; the second and following segments blackish or dark brown, margined with ferruginous, the latter colour merging gradually into the flavo-testaceous apical margins. Pygidial area castaneous, glabrous, shining, coarsely and sparsely punctured, marginate at the sides, half as long again as wide at the base, the apex subacute.

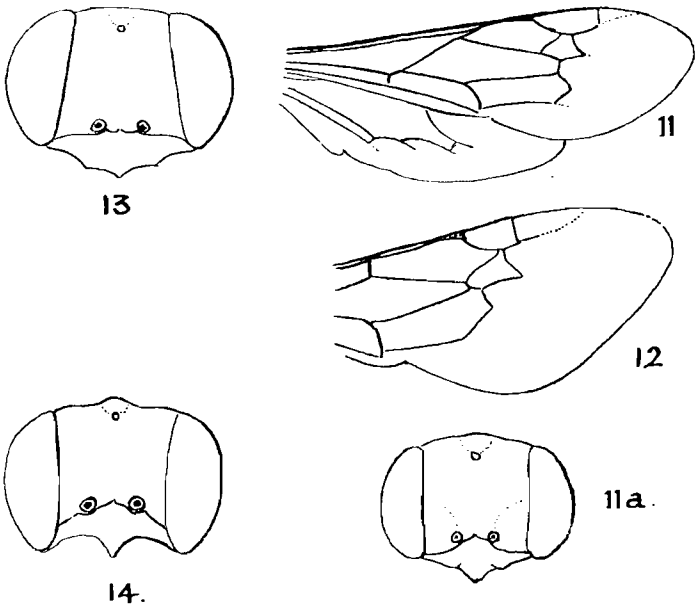

Fig. 11. *G. modestus*, wing.
Fig. 11 *a*. *G. modestus*, head.
Fig. 12. *G. capensis*, wing.
Fig. 13. *G. chalcithorax*.
Fig. 14. *G. laticeps*.

Dull, closely, finely and rather unevenly punctured all over, the epinotum evenly and more strongly punctured than the rest. Pubescence on the lower half of the face dense and silvery, on the rest of the head and on the thorax less dense, somewhat coarser and of a brassy silvery tint. Pubescence on the abdomen less fine, greyish silvery, forming very indistinct apical bands. Median area of clypeus produced in the middle into a short lobe which is rectangular at each corner and feebly tuberculate in the middle. Inner orbits of the eyes parallel, the interocular distance on the vertex being equal to the length of the scape plus the length of the first four joints of the flagellum. The second joint of the latter is hardly longer than the third, about three-quarters longer than the first, all the joints fairly short and thick.

Dorsal face of pronotal collar convex from front to back. Mesonotum broad; dorsum of epinotum short, nearly three times wider at the base than

long in the middle, oblique and merging gently into the declivity, and with a fine median carina which reaches the brow of the declivity. Abdomen not constricted between the segments. Wings hyaline, with an apical pale fuscous border, the veins brown. The recurrent veins coalesce before entering the cubitus, the stalk to the second discoidal cell so formed being as long as the second abscissa of the radius. The first abscissa is quite two and a half times as long as the second, and not much shorter than the third. Anterior metatarsi with five short, whitish spines.

Sawmills, S.R. December. Type in R.M. coll.

G. laticeps n.sp. (Fig. 14).

♂, 6·3 mm. long. Head and thorax black, the mandibles excepting the ferruginous apices, clypeus, front and middle tibiae and tarsi, posterior tibiae externally, tegulae and posterior margin of pronotal tubercles, pale lemon-yellow. The anterior and middle tibiae with a streak of pale red on the anterior face. Coxae, trochanters and femora black, the apices of all the latter pale yellow; tarsi fusco-ferruginous. Scapes lemon-yellow, with a black patch on the basal half of their inner sides. First and second segments of abdomen ferruginous, the third brownish black, its apical margin ferruginous, the fourth and fifth black with the apical margins narrowly flavous, the sixth black at the base, its apical half yellow; the seventh yellow; the second to seventh sternites brown, with flavo-testaceous margins.

Lower half of face and base of the mandibles with silvery pubescence, the rest of the head and the thorax with a brilliant brassy-golden pubescence; the pubescence on the abdomen of the same colour but less abundant, except on the apical margins where it forms transverse bands. Dull, closely and microscopically punctured, the epinotum more coarsely punctured, the abdomen microscopically rugulose.

Anterior margin of median area of clypeus obtusely angular, ending in a short and acute tooth in the middle. Eyes subparallel, slightly divergent above and below, the interocular distance on the vertex equal to the length of the scape and first three joints of the flagellum combined. The first joint of the flagellum two-thirds as long as the second, the third joint about one-third longer than the second, all the joints thick and not very much longer than wide, the third and fourth slightly concave above. Temples two-thirds as wide as the eyes. Head broad, two-thirds wider than the mesonotum across the tegulae. Dorsal face of pronotal collar with obtusely angular shoulders; dorsum of epinotum not carinate in the middle, longer than in *modestus*, being about half as long as wide at the base. Abdomen somewhat elongate, three times longer than wide, fairly clearly constricted between the first and second segments; the pygidial area punctured, widely rounded at the apex. Wings and venation as in *modestus*. Spines on the legs whitish yellow, the anterior metatarsus with three short spines.

Victorial Falls, S.R. Type in R.M. coll.

This species might be the ♂ of *modestus*, in spite of the different form of the clypeus, since such difference also occurs in *Neavei* and *chalcithorax*. However, the differences in the shape of the epinotum, the puncturation and colour incline me to keep it separate.

PROSOPIGASTRA A. Costa

Ann. Mus. Zool. Napoli, IV, 88. 1868.

CHARACTERS. Head wider than the thorax. Inner margins of the eyes convergent above, more so in the male than in the female. Anterior ocellus convex and normal, posterior ocelli flat, elongate and indistinct, the ocellar

area round and tumid. Between the anterior ocellus and the antennal sockets is a more or less round, shining and convex swelling or tubercle. Mandibles excised on the outer margin, the inner margin with a tooth near the base. Pronotum deeply depressed below the level of the mesonotum, its collar very short. Epinotum short, with a marginate dorsal field. First tergite with a longitudinal edge or carina on each side below (where it folds over on the ventral surface). Pygidial area fairly distinct, glabrous.

Front wing: radial cell appendiculate; three cubital cells present, the first larger than the other two, the second narrower on the radius than on the cubitus and receiving both recurrent veins; the basal vein originates some distance beyond the end of the submedial cell. Hind wing: the cubitus arises beyond the submedial cell.

Legs weak; tarsal comb composed of long, thin and flexible cilia. Middle tibiae with one spur. Claws small, unarmed. Body coarsely punctured.

Hab. Palaearctic and Ethiopian regions.

These insects make shallow and oblique burrows, which end in three to six small chambers, provisioned with immature Pentatomid bugs.

KEY TO THE SPECIES OF *PROSOPIGASTRA*

(4) 1. ♂♂. Eyes very close together on the vertex; first abdominal segment with a dense band of silvery pubescence above near the base; mesopleurae armed with two or three spines or tubercles.

(3) 2. Abdomen black and dull, very closely punctured, except the depressed apical margins which are shining, more coarsely and sparsely punctured. **Mocsaryi** Brauns

(2) 3. Abdomen moderately shining, the first two segments red, much less closely punctured, the apical margins hardly differentiated by less close puncturation. **carinata** Arnold

(1) 4. ♂♂, a considerable space between the eyes on the vertex.

(6) 5. Abdomen black in both sexes, the apical margins of the segments more or less testaceous. ♂♂, lower margin of mesopleurae produced into a blunt tooth in front, and an acute and downwardly directed one behind; ♀, abdomen strongly punctured. **capensis** Brauns

(5) 6. ♂♂. Mesopleurae very feebly bidentate; the abdomen black with the apical margins of the segments testaceous. ♀♀, at least the first three abdominal segments red, the first with a basal black patch on each side; shining and much more finely punctured. **Neavei** Turner

P. Mocsaryi Brauns (Figs. 16, 16 *a*).

♂, 6 mm. long. Black, mandibles except at the tips, tibiae, tarsi, apices of the femora and the tegulae, ochreous; ventral surface of the abdomen and the apical margins of its dorsal segments, piceous; upper half or more of the eyes bice-green. Wings tinged with ochreous.

Face, excepting the median tubercle and ocellar area, covered with a long, and rather sparse, silvery pubescence. Thorax with whitish pilosity, scanty except at the sides. Abdomen microscopically pubescent, the first segment with a band of long, decumbent and silvery pubescence around the margin of the vertical basal face; seen from in front, this band is plainly apparent. Legs with a fine white pubescence. Clypeus and face, excepting the shining and sparsely punctured median tubercle and ocellar area, fairly closely and finely punctured, the clypeus more coarsely than the face. The temples very shining and almost impunctate. Pro-, meso- and metathorax shining and sparsely punctured. Dorsum of epinotum with a distinctly defined and marginate field, shining, striato-rugose and with a median longitudinal carina which does not reach the posterior margin; the declivity and dorsum outside

the dorsal field finely punctate, the sides rugulose. Abdomen above dull, very closely, evenly and finely punctured, the impressed apical margins shining, sparingly and coarsely punctured. The ventral surface is only moderately shining, finely and loosely punctured. The first segment is vertically truncate at the base, the vertical face slightly concave, shining and longitudinally impressed in the middle. Fourth and fifth ventral segments with a low transverse carina across the middle.

Anterior margin of the median area of the clypeus concave, ending on each side in a dentiform angle. (What appears to be a subrectangular lobe in the centre is, I believe, the labrum, very closely applied or even fused to the clypeus.) Eyes almost touching each other on the vertex, the distance between them being less than half the length of the first joint of the flagellum. Anterior coxae at the base produced into a foliaceous triangular lobe, parallel with the ventral surface of the thorax and directed backwards. Seen from the side, these expansions appear as backwardly directed and slightly curved teeth.

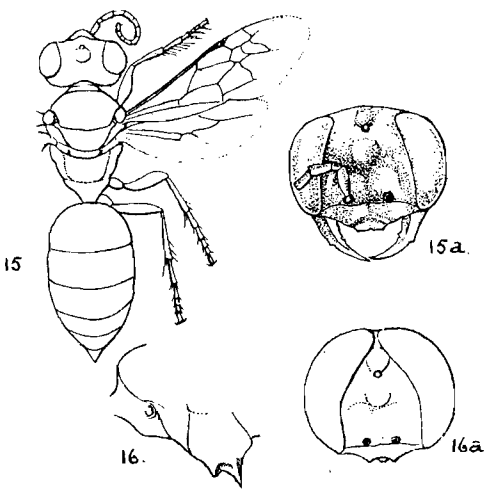

Fig. 15. *Prosopigastra Neavei*, ♀. Fig. 15 *a*. Head of same.
Fig. 16. *P. Mocsaryi*, ♂, head.
Fig. 16 *a*. Lateral view of mesopleura of *Mocsaryi*.

The mesopleurae on their lower half bear three teeth pointing downwards, the anterior two shorter and less acute than the posterior; the inner tooth of the anterior pair is longer than the outer, and the latter is not easily visible except when looked at from below. Dorsum of epinotum fairly long, as long as the scutellum and metanotum combined; its dorsal field is one and a half times wider at the base than long. Wings hyaline, veins and pterostigma yellowish brown; first and second abscissae of the radius subequal, very little shorter than the third; the fourth very short, and in some specimens obsolete, owing to the third transverse cubital vein being interstitial with the truncating vein of the radius.

Willowmore, C.P. January. Type in coll. Brauns (R.M.).

P. carinata n.sp. (Figs. 18, 18 *a*).

♂, 6–7·5 mm. long. Head and thorax black, the first two and the last segments of the abdomen dark ferruginous, the third to sixth segments piceous with their apical margins rufo-testaceous. Mandibles, excepting their black

apices, the tips of the mesopleural spines and all the tibiae and tarsi, ferruginous; the tibiae with a pale cream-yellow spot outwardly at the base, the femora black, the apical fifth of the posterior pair ferruginous above. Face and clypeus nitidulous, finely punctured, the median tubercle and the ocellar area shining, the former almost impunctate, the latter sparsely and coarsely punctured. Temples and occiput shining, finely and sparsely punctured. Mesonotum, scutellum, metanotum and mesopleurae shining, coarsely and distantly punctured, the mesosterna shining and very finely, sparsely punctured. Dorsum of epinotum rugose, the rugae curving outwards posteriorly on each side from the median longitudinal carinula, the sides of the epinotum obliquely, the declivity transversely rugoso-striate. The abdomen moderately shining, finely and fairly closely punctured, less closely on the apical margins. Femora shining and sparsely punctured. Face and clypeus covered with a somewhat coarse, outstanding, silvery and not very dense pubescence; the median tubercle, ocellar area, vertex and temples glabrous. Thorax with a fairly sparse, exserted, whitish or silvery pilosity, which however, is absent on the dorsum of the epinotum and on the mesosternum. Abdomen above with a very fine, decumbent and pale golden silvery pubescence, denser on the first segment above the basal declivity, and on the base of the second segment. Legs and mandibles with sparse exserted pilosity.

Anterior margin of the median area of the clypeus concave, with a median and obtusely bidentate lobe in the middle, the lateral angles fairly acute. Eyes strongly convergent above, but behind the ocellar area slightly divergent, the interocular space immediately behind the ocellar area on the vertex being equal to the length of the first joint of the flagellum, and near the occipital margin equal to the second joint. The latter is barely longer than the third, and about a quarter longer than the first. Anterior coxae produced posteriorly into short acute spines. Mesopleurae produced below into two strong spines, the anterior one longer and blunt, and bearing a short tooth near its base (not easily seen except from in front or from behind). The spines in the larger examples are much larger than in *capensis* Brauns, but they are subject to some variation, and usually in the smaller specimens (6 mm.) are much reduced. Dorsum of epinotum as long as the scutellum and metanotum together, the declivity vertical. Fourth sternite with a strong and prominent transverse carina near the base, not reaching the lateral margins of the segment; the fifth sternite with a similar but lower carina. Seventh tergite feebly emarginate at the apex, the lateral angles bluntly produced. Wings hyaline, veins brown; the radial cell abruptly truncate; the first and third abscissae of the radius subequal and each a little longer than the second, the fourth abscissa only half as long as the third.

Sawmills, S.R. Lonely Mine and Victoria Falls, S.R. Type in R.M. coll.

A distinct species, but allied to *Mocsaryi* Brauns.

P. Neavei Turner (Figs. 15, 15 *a*). *Ann. Mag. N.H.* XIX (VIII), 325, ♀ (nec ♂). 1917.

♀, 6·2–6·6 mm. long. Black, first three and basal fourth of the fourth abdominal segment ferruginous, the remaining segments piceous, but occasionally the red colour extends over the first five segments, more rarely also on the sixth. Upper part of the eyes blackish green in life, shading to black below. Wings faintly tinged with yellow. Tarsi dark brown. Mandibles ferruginous with the base and apex black. Side of clypeus and of face below the median tubercle densely pubescent, the pubescence slightly exserted and silvery grey. Thorax with a thin, exserted and grey pubescence. Legs and

abdomen with a very fine and silvery grey pubescence, sparse except on the sides of the apical margins of the segments.

Head very shining, the clypeus sparsely and coarsely punctured, the median tubercle and sides of face up to the level of the anterior ocellus very smooth and almost impunctate; the face between the antennal sockets closely and finely, the vertex deeply and loosely punctured. Thorax shining, the prothorax and metanotum finely, the mesothorax coarsely and sparingly punctured, the punctures larger than those on the vertex. Epinotum with a distinctly defined dorsal field which is reticulate-rugose and twice as wide as long; the sides of the epinotum widely striato-rugose, the declivity closely and finely rugose and somewhat dull. Abdomen finely and closely punctured, moderately shining, the punctures becoming increasingly smaller towards the apex of the abdomen. Pygidial area triangular, shining, very sparingly and finely punctured, not marginate laterally. Legs shining.

Clypeus arcuately deflexed towards the apex, the anterior margin feebly

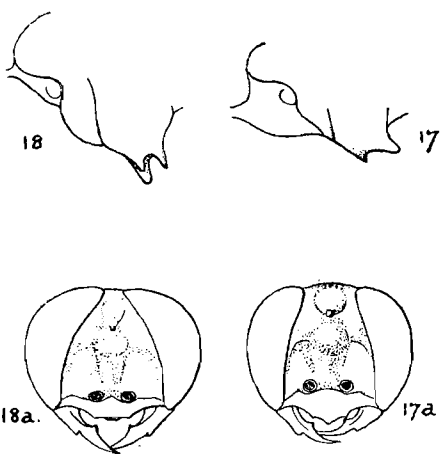

Fig. 17. *Prosopigastra capensis*, ♂, lateral view of mesopleura.
Fig. 17 *a*. Head of same.
Fig. 18. *P. carinata*, ♂, lateral view of mesopleura.
Fig. 18 *a*. Head of same.

excised in the middle and angularly notched on each side. The eyes are only slightly convergent above, separated on the vertex by a distance equal to a little less than three times the length of the second joint of the flagellum. The second and third joints of the flagellum of equal length. The median swelling above the antennae is large and plainly protruding when the head is viewed from above.

Junction of declivity and dorsum of epinotum almost rectangular. Middle and hind tibiae and tarsi spinose, the spines yellowish. Anterior tarsi with a comb composed of long, black and thin cilia. In the front wing the first abscissa of the radius is equal to the third, slightly longer than the second, which is a little longer than the fourth.

♂, 5·5–6·2 mm. long. Black, hind tarsi dark brown, tegulae testaceous, apical margins of all the abdominal segments narrowly rufo-testaceous. Sculpture and pubescence as in the ♀, but the puncturation is somewhat closer on the mesonotum, and the face is more densely pubescent and more extensively so, extending as far as the middle of the ocellar area; the latter more

distinct than in the ♀. The distance between the eyes on the vertex is equal to the length of the first three joints of the flagellum, or even to the first three plus half the fourth. Seventh dorsal segment rounded at the apex, the apical sternite widely emarginate and with the lateral angles produced into short teeth. Wings hyaline.

Nyasaland and N.E. Rhodesia (Neave); Bulawayo and Salisbury, S.R.; June and July. Nesting in hard clayey soil. The burrow is oblique, about three inches long and an inch or so below the surface at its end, where it branches into several chambers, in each of which are stored about half a dozen immature Pentatomid bugs. The egg is laid at the base of the abdomen of the bug.

Specimens of Rhodesian origin were identified by Mr Turner as belonging to this species. The male described by him was incorrectly assigned to this species. It should also be noted that his description of the ♀, in regard to the width between the eyes, is also incorrect, the width being barely three times the length of the second joint of the flagellum, and not four times as stated therein (R.M., T.M.).

P. capensis, Brauns (Figs. 17, 17 *a*). *Verh. Zool. Bot. Ges. Wien.* LVI, 55, ♀, ♂. 1906.

♀, 7–8 mm. long. Black, mandibles ferruginous, tarsi brown, apical margins of all the abdominal segments narrowly testaceous. Clypeus and the sides of the lower half of the face covered with greyish silvery pubescence, the rest of the head, thorax and abdomen with very fine pubescence, more or less yellowish grey on the thorax, and silvery on the sides of the apical margins of the abdominal segments, forming almost complete transverse bands.

Median tubercle of the face smooth and shining, the face dull, punctured, closely and finely so at the sides and below, the punctures becoming gradually larger and more distant towards the moderately shining vertex; clypeus produced and obtusely tridentate in the middle, the middle portion sparsely punctured and shining. Scape and first two joints of the flagellum punctured and shining. Back of the head behind the eyes shining, finely and sparsely punctured. Mesonotum and scutellum shining, sparsely and fairly finely punctured. Metanotum densely punctured and dull in the middle, longitudinally striate at the sides. Dorsal field of epinotum sharply marginate, reticulate-rugose, the sides striato-rugose and punctate in between, the declivity coriaceous and rugose, with a median longitudinal sulcus. Pronotum dull and densely punctulate. Mesopleurae shining, coarsely and sparsely punctured. Abdomen closely and fairly strongly punctured (but the punctures smaller than those on the vertex and mesonotum), more finely on the depressed apical margins; the ventral segments shining and less closely punctured than the dorsal. Pygidial area trapezoidal, feebly marginate at the sides, the apex rounded, shining and almost impunctate. Wings brownish, the veins black. Legs feebly spinose, tarsal comb composed of long, black cilia. Eyes moderately convergent above, the distance between them on the vertex equal to twice the length of the scape. First abscissa of the radius shorter than the second, the latter very nearly as long as the third; the distance between the recurrent veins on the cubitus nearly as great as the length of the first abscissa of the radius.

♂. Eyes a little more convergent above, the distance between them on the vertex being equal to one and two-thirds the length of the scape. The sides of clypeus and face up to the anterior ocellus, and the space between the latter and median tubercle more densely pubescent, the pubescence silvery. Mandibles flavous, the tooth and apex blackish. The lower edge of the mesopleurae is produced into a blunt tooth in front, and into a longer and more acute one

behind, directed backwards. The fourth sternite has a transverse ridge on each side in front of the apical margin. Otherwise like the ♀.

Willowmore, C.P. Type in coll. Brauns.

PARAPIAGETIA Kohl

Verh. Zool. Bot. Ges. Wien. XXXIV, 263. 1884.

CHARACTERS. Head wider than the thorax. Inner margins of the eyes convergent above. Ocellar area round and very tumid, the ocelli situated on its periphery; the anterior ocellus is round and convex, the posterior flattened, elongate and most indistinct. Mandibles excised on their lower margins. Clypeus short, wide and flat, the anterior margin sometimes toothed in the ♀. Pronotum not elongate, much depressed below the level of the mesonotum. First segment of abdomen subpetiolate, the second hardly wider behind than long. Pygidial area distinct.

Front wing: radial cell appendiculate; three cubital cells, the first a little larger than the other two combined, the second narrower on the radius than on the cubitus and receiving both recurrent veins, the third oblique.

Hind wing: the cubitus arises beyond the end of the submedial cell; the basal lobe extends beyond the end of the submedial cell. Tarsal comb present in the ♀. Legs stout and strongly spinose; middle tibiae with one spur; claws unarmed and long.

Hab. Palaearctic and Ethiopian regions.

KEY TO THE SPECIES OF *PARAPIAGETIA*

(4) 1. First abdominal segment longer than wide across the apical margin.

(3) 2. Shining, almost glabrous. Median area of clypeus slightly produced, its anterior margin arcuate, rectangular at the sides in the ♀: pygidial area in the ♂ deeply and arcuately emarginate at the apex. **vernalis** Brauns.

(2) 3. ♀. Densely pilose on the epinotum. Median area of clypeus produced, truncate, the truncation forming a vertical and transversely oval area bounded by a raised margin which is interrupted above in the middle; ♂, pygidial area rounded at the apex. **capensis** Brauns.

(1) 4. First abdominal segment wider than long.
capensis Brauns. var. *rhodesianum* Arnold

P. capensis Brauns. *Deutsch. Ent. Zeitschr.* p. 666, ♀, ♂. 1910.

♀, 7 mm. long. Black, mandibles testaceous, their apices black. Legs, reddish yellow, the anterior femora at the base above and all the coxae and trochanters, black. Tegulae testaceous. Wings hyaline, veins and pterostigma testaceous.

Sides of clypeus and of lower third of face, and the temples clothed with long, silvery pubescence. Dorsum of thorax almost glabrous, the sides of the mesonotum anteriorly, the mesopleurae and sides of epinotum with a sparse, exserted and silvery pilosity. Abdomen with an exceedingly fine, almost powdery, greyish pubescence, very sparse; the testaceous apical margins with longer and silvery pubescence which forms indistinct transverse bands. The pygidial area with yellowish and decumbent bristles. Shining, the head very sparsely, finely and shallowly punctate, with a few larger punctures on the vertex. Median area of clypeus sparsely and coarsely punctured. Mesonotum and scutellum apparently impunctate, but under a high magnification these are seen to be exceedingly finely and sparsely punctured, with here and there a larger puncture. Sides of pronotum sharply and transversely striate. Epinotum very finely and transversely striate, the declivity similarly sculptured

but with punctures between the striae and with a cuneiform median and shining fovea. Abdomen impunctate.

Median area of clypeus produced, its apex narrowly emarginate in the middle and with a prominent transverse torus just behind the anterior margin. On each side of the produced area the margin is armed with two small teeth and from them is continued in a concave curve towards the base of the mandibles. Eyes moderately convergent above, the distance between them on the vertex being equal to three and a third times the length of the second joint of the flagellum. A narrow impressed line extends from the clypeus to the anterior ocellus, and a narrow U-shaped gutter lies behind the ocellar swelling. Second joint of the flagellum twice as long as the first. First segment of the abdomen longer than its apical width.

Second abscissa of the radius equal to the first, or very nearly so, and equal to the space on the cubitus between the two recurrent veins.

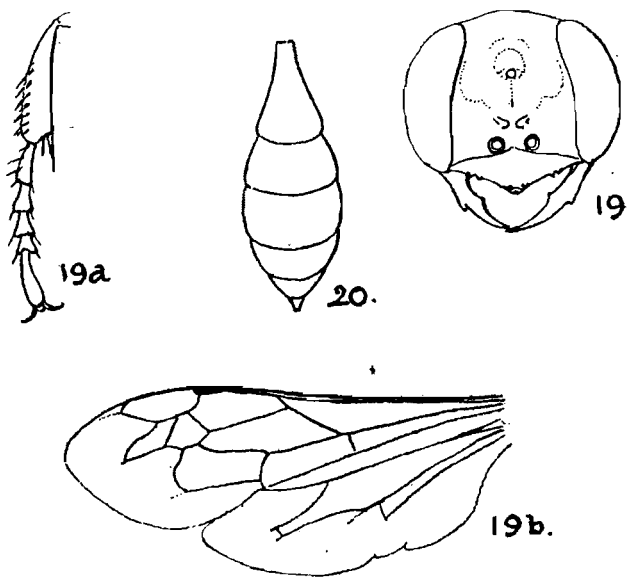

Fig. 19. *Parapiagetia capensis* var. *rhodesianum*, ♀, head.
Fig. 19 *a*. The same, posterior tibia and tarsus. Fig. 19 *b*. The same, wing.
Fig. 20. *P. vernalis*, ♀, abdomen.

Last tarsal joints very long, that of the front pair of legs two-thirds as long as the metatarsus, those of the middle and hind legs longer than the metatarsus. Anterior metatarsal comb composed of six stiff yellow spines. The middle and hind tibiae and tarsi with yellow spines.

♂, 5–7 mm. long. Colour as in the ♀, but all the femora, excepting their apices, are black. The pilosity is finer but more abundant than in the ♀, and on the thorax somewhat woolly. The sculpture as in the ♀ but more superficial, the striae on the epinotum being almost obsolete. Median area of clypeus triangularly produced and ending in a stout tooth. Otherwise like the ♀.

Willowmore, C.P. December to February. Type in coll. Brauns.

var. *rhodesianum*, v.n. (Figs. 19, 19 *a*, 19 *b*)

♀, 9·5 mm. long. Colour, sculpture, pilosity and pubescence as in the type of the species, excepting the wings which are tinged with ochreous, and the

legs, which are of a darker yellow. It is also larger than the type of the species, and differs also in having the first abdominal segment wider at the apical margin than it is long.

Sawmills, S.R. February. Nesting in loose sandy soil.

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

var. *ferox*, v.n.

♀, 11·5 mm. long. This differs from the type of the species by its much greater size, and by having the first three abdominal segments pale ferruginous, the apical margins of the fourth and fifth segments flavo-testaceous, and the apical segment ferruginous.

Victoria Falls, S.R. Type in R.M. coll.

P. vernalis, Brauns (Fig. 20). *Deutsch. Ent. Zeitschr.* p. 667, ♀, ♂. 1910.

♀, 6·3 mm. long. Black, tibiae, tarsi and tegulae reddish ochreous, mandibles ferruginous, their apices black. Wings hyaline, veins and pterostigma brown.

Face microscopically and shallowly punctured. Vertex and temples impunctate. Pronotum longitudinally striolate; epinotum shining, its sides finely and vertically striate, the dorsum very shallowly, sparsely and transversely striate, the declivity exceedingly finely punctured and longitudinally sulcate in the middle. The rest of the thorax and the abdomen, impunctate and shining. Sides of epinotum with an outstanding, whitish and not dense pilosity; elsewhere the pubescence is microscopic.

Pygidial area triangular, rounded at the apex, sparsely and very shallowly punctured. Median area of clypeus slightly produced, its anterior margin arcuate, ending on each side rectangularly. Eyes convergent above, the interocular space on the vertex being equal to about the length of the first three joints of the flagellum. A fine impressed line extends downwards from the anterior ocellus to a little pit just above the antennal sockets, and below the pit there is a low transverse torus. First abdominal segment one and a half times longer than wide behind. The whole abdomen oblongo-ovate, narrower and relatively longer than in *capensis*. Second and third abscissae of the radius equal, both a little longer than the first, the latter as long as the distance between the recurrent veins on the cubitus.

♂, 6 mm. long. Median area of clypeus ending in front in a sharp triangular tooth. Face finely but distinctly punctured. Mesonotum and scutellum very sparsely and finely punctured, the dorsum of the epinotum more distinctly strigose than in the ♀. First segment of abdomen narrower than in the ♀, twice as long as wide behind. Pygidium coriaceous, reddish, the apex deeply and arcuately emarginate. Otherwise like the ♀.

Willowmore, C.P. Type in coll. Brauns.

KOHLIELLA Brauns.

Deutsch. Ent. Zeitschr. p. 668. 1910.

CHARACTERS. ♂. Eyes large, reaching the base of the mandibles below, convergent above. Anterior ocellus round, the posterior ocelli flat and elongate. Face with a low pyramidal swelling below the anterior ocellus, the upper part of the swelling more or less excavated. Mandibles excised on the lower margin, the inner margin with two teeth, one near the base, the other not far from the apex. Temples narrow. Pronotal collar depressed below the level of the mesonotum. No epicnemium. Thorax with the build of a *Tachysphex*. Abdomen with eight ventral and seven dorsal plates; no pygidial area

present. The abdomen is rather narrow at the base, not unlike that of *Parapiagetia*, but is not petiolate, and unlike *Prosopigastra*, is very finely punctured. Legs thin, feebly spinose, the anterior femora excised below near the base. Middle tibiae with one calcar.

Front wing: radial cell short and widely truncated; the first transverse cubital vein angulated inwards in the middle; the second cubital cell narrower on the radius than on the cubitus, roughly pentagonal, the third cubital cell very small, with a short stalk on the cubitus, shaped like a tuning-fork (see Fig. 21 *b*).

K. alaris Brauns (Figs. 21, 21 *a*, 21 *b*). *Loc. cit.* p. 669, ♂.

♂, 6 mm. long. Black, tarsi ferruginous. Tegulae testaceous; the apical margins of the abdominal segments flavo-testaceous. Wings hyaline, the veins brown. Sides of clypeus and the face up to about the level of the anterior ocellus covered with a coarse, brassy pubescence; the edges of the median swelling more or less bald. Back of the head, mesonotum at the sides, mesopleurae, and epinotum (excepting the dorsum), with long whitish pubescence, outstanding and longer on the epinotum than elsewhere. Abdomen with

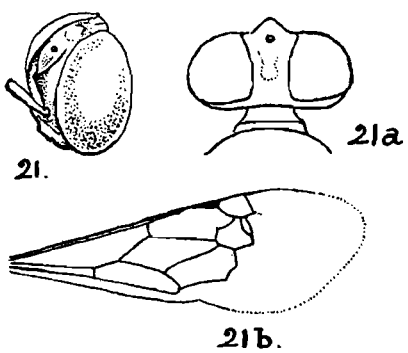

Fig. 21. *Kohliella alaris*, ♂, head, side view.
Fig. 21 *a*. The same, head, seen from above. Fig. 21 *b*. The same, wing.

streaks of very inconspicuous and short pubescence on the apical margins. Tibiae and tarsi finely pubescent, the femora almost glabrous, smooth and shining.

Clypeus shining, with a few large punctures; face and median swelling closely punctured and dull, the vertex behind the ocelli moderately shining, sparsely and very finely punctured. A short median groove extends from the occipital margin forwards, but does not reach the posterior ocelli. Promesonotum, scutellum and metanotum finely and closely punctured, slightly shining between the punctures, the metanotum more closely punctured and duller. Epinotum dull, microscopically and transversely rugulose or striolate. Abdomen nitidulous, microscopically punctulate. Ventral plates smooth and shining, towards the apex of the abdomen sparsely and feebly punctured.

Median area of clypeus wide and convex, a little produced or lobed, the lobe with a small median excision and subdentate on each side. Antennae moderately long and slender, the 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 second joint plus half of the first. Pronotal collar linear above. Mesonotum one-third wider across the tegulae

than long, distinctly longer than the epinotum. Scutellum convex. Dorsum of epinotum twice as wide at the base as long in the middle. Eighth ventral plate of abdomen flat, rounded at the apex; the seventh tergite transversely truncate, shining and sparsely punctured. Spines on the legs whitish, the anterior metatarsus with five, and the following joints each with one, long cilia.

Willowmore, C.P. November. Type in coll. Brauns. Modderfontein, January, leg. Brauns, in my collection.

This is a remarkable insect, easily recognised by the peculiar venation. It appears to combine the characters of *Prosopigastra*, *Tachysphex*, and in the abdomen, of *Parapiagetia*.

SCHISTOSPHEX gen. nov.

CHARACTERS. ♀. Sixth tergite deeply emarginate, the angles of the emargination dentiform, the pygidial area about two-thirds the length of the tergite and indistinctly defined by feeble, oblique margins on each side; the sixth sternite longer than the tergite and projecting beyond it, the sting-sheath exposed.

In all other characters exactly like *Tachysphex*.

Type of genus, *S. Breijeri*.

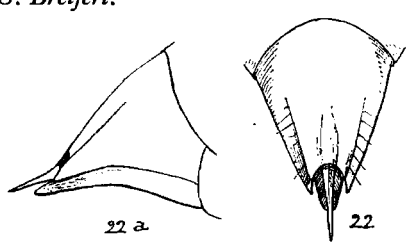

Fig. 22. *Schistosphex Breijeri*, ♀, apex of abdomen.
Fig. 22 *a*. The same, seen from the side.

S. Breijeri, sp.n. (Figs. 22, 22 *b*).

♀, 16·5 mm. long. With a few minor exceptions, this species bears a striking resemblance to *Tachysphex Marshalli* Turner in colour and sculpture.

Black, mandibles excepting their piceous apices, a transverse and oblong spot on the middle of the clypeus, the scape and first two joints of the flagellum, the tegulae, sixth abdominal segment and the legs, pale ferruginous; the coxae, trochanters and the base, more or less, of the middle and hind femora, black. Face, sides of the clypeus and back of the head covered with short, pale golden pubescence, not very dense; thorax with a short, outstanding and inconspicuous, brownish pubescence. Abdomen microscopically pubescent above, not forming transverse bands on the apical margins; apical margins of the sternites with a few long hairs. Median area of clypeus shining, with a few large and shallow punctures, the lateral pieces of the clypeus, the face and vertex, dull, closely and finely punctured. The back of the head very finely and distantly punctured. Thorax dull, finely, very shallowly and fairly closely punctured; dorsum of epinotum microscopically reticulate, with a few longitudinal rugae on its basal half, the sides of the epinotum obliquely, and fairly closely striolate, the declivity coarsely and transversely striate, longitudinally grooved in the middle, the brow marginate. Abdomen dull above, the sculpture microscopic, the ventral surface very finely punctured, with a few larger punctures scattered over the sixth sternite; the pygidial area very finely

rugulose, with a few shallow punctures on each side, feebly excavated lengthwise in the middle posteriorly.

Median area of clypeus somewhat gibbose, its anterior margin convex and feebly sinuate in the middle, armed on each side with two very short teeth or blunt angles. Second joint of flagellum as long as the third, three times longer than the first, which is as long as wide. The interocular distance on the vertex is equal to the length of the second joint of the flagellum. Temples narrow, about one-third of the lateral width of the eyes. On the vertex the eyes do not quite reach to the back of the head. The dorsum of the epinotum is as long as the mesonotum, moderately convex transversely, the declivity vertical.

Anterior tarsi with a comb composed of long, pointed and fairly stiff cilia, of which there are eight on the metatarsus.

Wings fusco-violaceous, the veins black. Radial cell rounded apically, the accessory cell distinct; second and third abscissae of the radius subequal, each a little longer than the first.

Kraaifontein, Transvaal (leg, Dr H. G. Breijer). Type in Transvaal Museum coll.

It is possible that the specimen is somewhat worn and that in the fresh state the clypeus is entirely pubescent.