

The Ethiopian Representatives of the Genus Galesus (Proctotrupoidea), with Descriptions of new Species. By G. E. J. NIXON.

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THE present paper is based mainly on material collected by Mr. R. E. Turner in South Africa, and presented by him to the British Museum, in which the types of all new species herein described are contained.

GALESUS, Hal.

Curtis, Brit. Ent., Hymen. vol. iii. (no. 341).

The characters of the genus may be briefly summarized as follows:—

Frons with two to five projections or teeth, its surface between the anterior ocellus and the prominence on which the antennæ are inserted almost perpendicular. Face horizontal or oblique, on both sides with a deep, broad, longitudinal furrow. Mandibles long, toothed, directed backwards and prolonged into the form of a beak. Maxillary palpi 5-jointed, labial palpi 3-jointed. Antennæ 14-jointed in the ♂, 12-jointed in the ♀. Scape apically with two lateral lamellæ, which partly conceal the pedicel. Parapsidal furrows (notauli) always present, divergent anteriorly. Scutellum with two large pits anteriorly, a narrow longitudinal groove on each side, and with two or more smaller pits on its posterior margin (according to Kieffer rarely only the two anterior pits present). Wings without distinct venation, apically either with or without an excision, in life longitudinally folded as a rule. Legs with the femora and tibiæ apically clavate. Abdomen basally with a longitudinal medial sulcus.

Type of the genus, *Galesus fuscipennis*, Hal.

Distribution.—Palearctic, Nearctic, Neotropical, Indian, and Ethiopian regions.

Kieffer divides this genus into two subgenera—*Galesus* (sensu str.) and *Schizogalesus* (André, Spec. Hym. Eur. v. 10, p. 832)—which he distinguishes as follows:—

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|---|------------------------|
| Second joint of funicle of ♂ shorter than first. Notauli widened posteriorly, where they are separated from each other by about their own breadth. Wings, as a rule, longitudinally folded or excised at their apex | <i>Schizogalesus</i> . |
| Second joint of funicle of ♂ longer than first. Notauli posteriorly separated from each other by about two to three times their own breadth. Wings seldom longitudinally folded or excised at their apex | <i>Galesus</i> . |

The species herein described would appear to fall within the subgenus *Schizogalesus*, which, in its applicability to the Ethiopian species at present known, may be further diagnosed as follows:—

Anterior margin of frons always with two pairs of projections, the external and internal. The internal projections are sometimes

not defined as such, but their position is always determined by the anterior limit of the carinæ, which extend forwards from the posterior ocelli. Occiput always margined, so that the head behind is sharply truncated. Notauli usually much dilated posteriorly, where they are as wide as the adjacent scutellar hollows, and form with these a continuous channel of equal depth throughout. Scutellum always with at least five hollows, which, however, seldom offer specific peculiarities. Sulcus of second tergite usually extending about one-third to one-half the length of the segment.

In the following keys, *G. conradti*, Kieff., is omitted, this species, unfortunately, not being represented in the collection of the British Museum; its description, however, is given.

Females.

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| 1. Antennal prominence produced and deeply notched, so as to appear armed with two or more teeth ... | 2. | |
| Antennal prominence unarmed; at the most feebly emarginate | 3. | |
| 2. Antennal prominence armed with two teeth, ninth joint of funicle not, or hardly, thicker than third; head not longer than broad | | <i>bidens</i> , sp. n. |
| Antennal prominence armed with four teeth; ninth joint of funicle considerably thicker than third; head much longer than broad | | <i>quadridens</i> , sp. n. |
| 3. First two joints of funicle and perhaps also the third, above, smoother and much more shining than following joints. Head behind the eyes with several large punctures arranged more or less in a row | | <i>inquisitor</i> , sp. n. |
| First two joints of funicle otherwise | 4. | |
| 4. Antennal club 3-jointed, very distinct | | <i>distinctus</i> , sp. n. |
| Antennal club with more than three joints, or not distinct | 5. | |
| 5. Area in front of anterior ocellus conspicuously flat and more or less rectangular; its anterior margin quite straight | | <i>rectangularis</i> , sp. n. |
| Area in front of anterior ocellus not rectangular; its anterior margin strongly produced forwards and forming an angulation | 6. | |
| 6. Notauli dilated posteriorly, where they are as wide, or nearly so, as the adjacent scutellar hollows anteriorly | 8. | |
| Notauli of nearly equal width throughout and certainly not as wide posteriorly as the adjacent scutellar hollows anteriorly | 7. | |
| 7. Vertex with two somewhat ill-defined raised lines, which arise from between the posterior ocelli and the eyes and converge towards the occipital margin; head strongly narrowed behind and not longer than broad | | <i>abdominalis</i> , sp. n. |
| Vertex without such raised lines; head nearly parallel-sided and longer than broad | | <i>longiceps</i> , sp. n. |
| 8. Lateral margins of frons continued backwards as a carina, or at least as a complete row of punctures posteriorly, round behind the eyes to as far as the genal line | 12. | |
| Lateral margins of frons not thus continued | 9. | |

9. Second tergite, at least on its apical half, and especially on its deflexed portions apically, conspicuously punctate. Fifth joint of funicle evidently nearer in width to sixth than to fourth, so that a well-developed 6-jointed club is formed. Second tergite impunctate; at the most with inconspicuous, mostly setigerous punctures apically; fifth joint of funicle intermediate in width between sixth and fourth, so that no 6-jointed club is formed *magnificus*, sp. n.
10. Shortest distance between the eyes and the occipital margin not greater than shortest width of the eyes themselves; sixth joint of funicle evidently nearer in width to seventh than to fifth, so that a 5-jointed club is formed *modestus*, sp. n.
- Shortest distance between the eyes and the occipital margin somewhat greater than the shortest width of the eyes themselves; sixth joint of funicle intermediate in width between fifth and seventh, so that no 5-jointed club is formed ... 11.
11. Vertex not longitudinally carinate *turneri*, sp. n.
- Vertex longitudinally carinate throughout its entire length [*ceps*, var. n. *turneri*, var. *carinatus*]
12. Apical half of second tergite conspicuously punctate, the punctures shallow and not all setigerous *muscidorum*, Dodd.
- Second tergite impunctate; at the most with inconspicuous, mostly setigerous punctures on its apical fourth 13.
13. Legs entirely red or yellowish red; at least the pedicel reddish; often first four joints of funicle entirely red *silvestrii*, Kieff.
- Legs with at least the coxae and femora black; pedicel and funicle without red coloration *difficilis*, sp. n.

Males.

1. Antennal prominence produced and armed with four blunt teeth; sometimes it appears only weakly trisinate; legs mostly black *quadridens*, sp. n.
- Antennal prominence, if produced, at the most emarginate 2.
2. Antennal prominence produced and somewhat deeply emarginate. Second to twelfth joint of funicle cylindrical, thickly clothed with pale adpressed hairs, and contrasting strongly with the much shorter, shining black pedicel *bidens*, sp. n.
- Antennal prominence hardly produced, and at the most, very feebly emarginate 3.
3. Wings apically unexcised 4.
- Wings apically excised, or at any rate notched ... 7.
4. Lateral margins of frons continued backwards, as a carina, round behind the eyes to as far as the genal line; legs entirely red [*nigricornis*, var. n. *silvestrii*, Kieff., var. 5.
- Lateral margins of frons not thus continued *punctulatus*, Kieff.
5. Apical two-thirds of second tergite densely punctate. Second tergite impunctate; at the most with inconspicuous setigerous punctures at its apex; head longer than broad 6.

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| 6. Vertex not longitudinally carinate | <i>turneri</i> , sp. n. |
| Vertex longitudinally carinate throughout its entire length | [<i>iceps</i> , var. n. |
| 7. Lateral margins of frons continued backwards, as a carina, round behind the eyes to as far as the genal line | <i>turneri</i> , var. <i>carinati-</i> |
| Lateral margins of frons not thus continued | 8. |
| 8. Apical two-thirds of second tergite conspicuously punctate, the punctures closer and more conspicuous on the deflexed portions of the tergite. Second tergite impunctate; at the most with inconspicuous, mostly setigerous punctures..... | 10. |
| 9. Legs entirely red; funicle reddish | <i>muscidorum</i> , Dodd. |
| Legs black; funicle black | 9. |
| 10. Funicle conspicuously reddish | <i>silvestrii</i> , Kieff. |
| Funicle black | <i>difficilis</i> , sp. n. |
| 11. First joint of funicle longer, and above smoother, and more shining than any of those joints following; head behind the eyes usually with several large punctures arranged more or less in a row | <i>rectangularis</i> , sp. n. |
| First joint of funicle without such a combination of characters; head behind the eyes without large punctures | 11. |
| 12. Vertex with two somewhat ill-defined raised lines, which arise from between the posterior ocelli and the eyes and converge towards the occipital margin; head strongly narrowed behind and not longer than broad | <i>inquisitor</i> , sp. n. |
| Vertex without such raised lines; head not much narrowed behind, and longer than broad | 12. |
| | <i>abdominalis</i> , sp. n. |
| | <i>longiceps</i> , sp. n. |

Galesus quadridens, sp. n.

♀. Black. Mandibles reddish towards their apex. Legs with the tibiae and tarsi red, the coxae and femora nearly black.

Head: considerably longer than broad, narrow, nearly parallel-sided. Width across the eyes about equal to that of the thorax. Shortest distance between the eyes and the occipital margin almost twice as long as the shortest width of the eyes themselves. Frons: external projections long and acute; behind each of the internal projections there is a sharp tooth; the margin in front of the anterior ocellus straight, the distance between its mid-point and the ocellus slightly less than diameter of ocellus. Antennal prominence: strongly produced beyond the antennal insertions and armed with four teeth, the two inner ones short and blunt, the two outer ones very long and sharp, slightly divergent. Antennae: scape apically with two sharp teeth; pedicel shining and coarsely sculptured; funicle considerably, but gradually, thickened towards its apex; first joint one and a half times as long as wide, sculptured very much as is the pedicel; fourth and fifth slightly longer than broad; joints 6-9 more or less transverse. Mandibles very long and curved.

Thorax: somewhat narrowed and flattened. Wings apically deeply excised.

Abdomen: second tergite rather narrow, impunctate.

Length: 3.3-3.8 mm.

♂. Legs nearly black, except tarsi, which are reddish.

Head: distinctly though not conspicuously narrowed behind, and but little longer than broad, the shortest distance between the eyes and the occipital margin being equal to, or a little longer than, the shortest width of the eyes themselves. Frons: projections as in ♀. In front of the anterior ocellus there is no straight margin; the frons slopes almost perpendicularly from the ocellus down to the antennal insertions; the intervening space is often quite smooth, its surface not always broken by carinæ extending from its mid-point to the internal projections. Antennal prominence: less developed than in ♀; rectangularly produced and armed with four blunt teeth of equal length; sometimes the teeth are so blunt that it appears only weakly trisinate. Antennæ: scape as in ♀; pedicel half as long as first joint of funicle; funicle somewhat coarsely sculptured; first joint twice as long as wide; second slightly produced on its lower side, in length about equal to third; joints 3-11 cylindrical, twice as long as wide.

Thorax: less flattened than in ♀ and not noticeably narrowed. Wings apically with or without an excision.

Abdomen: second tergite less narrowed than in ♀.

Length: 3.5 mm.

Natal (Van Reenen, Kloof); Orange Free State (Harrismith); Zululand (Gingindhlova).

Characterized by the development of the antennal prominence, which in the ♀ is a striking feature.

Galesus bidens, sp. n.

♀. Black. Mandibles sometimes reddish towards their apex.

Legs red or brownish red; coxæ and femora darker.

Head: broader than long, not much narrowed posteriorly; shortest distance between the eyes and the occipital margin about as great as the shortest width of the eyes themselves. Frons: its margin between the internal projections sometimes straight, but usually with a small medial obtuse angulation. Antennal prominence: projection on which antennæ are inserted strongly produced and deeply emarginate, so as to be armed with two long stout teeth, whose outer side appears arched at the actual point of the antennal insertion. Antennæ: scape distally armed with two strong teeth; pedicel shining, shorter than first joint of funicle; funicle hardly thickened towards its apex; ninth joint not, or hardly, wider than third; first about twice as long as its greatest width; second shorter than first; fourth and fifth a little longer than broad; joints 6-9 as long as broad; tenth twice as long as broad.

Thorax: mesonotum strongly arched anteriorly. Areæ of pro-podeum roughly sculptured. Wings apically excised. Scutellum subconvex, with a weak longitudinal ridge.

Abdomen: second tergite impunctate except for the usual fine, inconspicuous, and mostly setigerous punctures towards its apex.

Length: 2.8-3.5 mm.

♂. *Head*: rather more transverse than in ♀, the shortest distance between the eyes and the occipital margin being sometimes considerably less than the shortest width of the eyes themselves. Antennal prominence less strongly produced, seen from above, appearing only rather deeply emarginate, the two rounded teeth formed, evenly curved on their outer side. Antennæ: pedicel black, smooth, and shining, half as long as first joint of funicle; funicle pale, owing to its thick clothing of pale adpressed hairs, and contrasting strongly with the pedicel; first joint twice as long as its greatest width; joints 2-11 cylindrical, twice as long as wide, slightly decreasing in length and breadth towards apex of funicle.

Length: 3.2-3.5 mm. Otherwise like the ♀.

Cape Province (Mossel Bay).

Characterized in both sexes by the emarginate antennal prominence and also in the ♀ by the filiform funicle.

Galesus inquisitor, sp. n.

♀. Black. Tarsi and apex of tibiæ reddish.

Head: slightly longer than, or as long as, broad; hardly narrowed posteriorly. Shortest distance between the eyes and the occipital margin greater than the shortest width of the eyes themselves. Face behind the eyes usually with several large punctures, which are arranged more or less in a row. Frons: its margin between the internal projections parallel with the occipital margin. This margin on each side of the well-developed blunt medial tooth is represented by two high ridges, which, when seen from above, form a slight angle at their junction with this tooth. Area in front of the anterior ocellus more or less flat. Antennæ: scape apically with three blunt teeth; seen from in front, the pedicel and first two joints of funicle, and perhaps also the third, smooth and strongly shining, clothed with long scattered hairs; these joints contrast strongly with those following, which in comparison appear quite dull; first joint of funicle about twice as long as wide, a little longer than pedicel; second not much longer than wide; third and fourth nearly moniliform; fifth nearer in size to sixth than to fourth; sixth wider than fifth; joints 5-9 more or less transverse, with the tenth forming a strongly thickened 6-jointed club.

Thorax: notauli rather broad throughout, posteriorly as wide as the adjacent scutellar hollows where they touch these. Scutellum subconvex. Wings apically excised.

Abdomen: second tergite with numerous fine scattered un-setigerous punctures over its entire dorsal surface.

Length: 3.5-4 mm.

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♂. Differs from ♀ only in following respects:—

Head: as broad as long, sometimes slightly transverse. Shortest distance between the eyes and the occipital margin about equal to the shortest width of the eyes themselves. *Frons*: sometimes the margin between the internal projections does not run parallel with the occipital, but is produced forward and forms an obtuse angulation. *Antennæ*: pedicel smooth and shining, more than half as long as first joint of funicle; first joint of funicle about twice as long as its greatest width, strongly curved on its lower side, smoother and more shining than any of the following joints, and clothed with long erect scattered hairs; second shorter than first, produced on its lower side; joints 3–11 about one and a half times as long as broad.

Thorax: wings usually apically excised, sometimes only notched. *Length*: 3.3–4 mm.

Cape Province (Mossel Bay, Aliwal North, Port St. John, Ceres); Natal (Van Reenen, Kloof); Orange Free State (Harri-smith).

This species is rendered very distinct by the sculpture of the funicle.

Galesus distinctus, sp. n.

♀. Black. Pedicel and first seven joints of funicle reddish. *Legs* in greater part reddish.

Head: as broad as long. Vertex just before its posterior margin somewhat abruptly, though not conspicuously, narrowed. Eyes behind nearly surrounded by a row of very shallow impressions of irregular shape. Vertex with two large punctures on each side, situated close to its posterior margin. *Frons*: seen from above rectangular; its anterior margin quite straight; its external projections appear right-angled, and, together with the straight margin joining them and the carinæ which extend from them to the posterior ocelli, form a rectangle on whose imaginary basal line the anterior ocellus would stand. This median area of the frons bears a weak longitudinal carina. *Antennæ*: scape without apical teeth; pedicel cylindrical, thicker than first joint of funicle and twice as long as wide; first joint of funicle not much longer than wide; second to sixth moniliform, subequal in length and breadth; seventh slightly thicker than sixth; joints 8–10 much thicker than the preceding, forming a conspicuous 3-jointed club, of which the first and second joints are about as long as wide; the third, one and a half times as long as the preceding joint.

Thorax: mesonotum strongly arched anteriorly. Notauli of nearly equal width throughout and posteriorly not as wide as the adjacent scutellar hollows where they touch these. *Area* of propodeum with much rough sculpture.

Abdomen: second tergite rather swollen, once and two-thirds as long as broad; basal sulcus short, hardly longer than width of petiole.

Length: 2.5 mm.

Cape Province (Mossel Bay). 1 ♀.

Characterized by the 3-jointed antennal club.

Galesus rectangularis, sp. n.

♀. Black. Mandibles reddish towards their apex. Legs in greater part red, coxæ darker or black.

Head: about as long as broad, posteriorly not much narrowed. When the head is seen from above, the space between the eyes and the occipital margin appears straight or gently rounded. Frons: external projections blunt, nearly right-angled; seen from above, the margin joining the internal projections is straight, and, together with the carinæ which extend from these projections to the posterior ocelli, encloses a flat, horizontal, more or less rectangular area. This area appears free, and is raised well above the level of the external projections. Antennæ: pedicel thicker and slightly longer than first joint of funicle; first joint of funicle not quite one and half times as long as its greatest width; second slightly shorter than first; third and fourth slightly longer than wide or moniliform; fifth nearer in size to sixth than to fourth; joints 5-9 transverse, considerably thicker than the preceding joints, with the tenth, forming a 6-jointed club.

Thorax: normal. Wings apically excised.

Abdomen: second tergite impunctate, except for the usual inconspicuous setigerous punctures towards its apex.

Length: 2.5-2.8 mm.

♂. Pedicel and funicle entirely reddish; basal joints of funicle slightly paler.

Head: as broad as long, not strongly constricted behind, the temples rounded. Frons: margin between the internal projections medially angulate; median area flat except for a small depression behind this medial angulation. Antennæ: pedicel two-thirds as long as first joint of funicle; funicle somewhat shining; first joint slightly curved beneath, one and two-thirds as long as its medial width; second widest in middle, as long as first; remaining joints about one and a quarter times as long as wide.

Thorax: wings with a slight notch.

Length: 2.5 mm.

4 ♀♀, 1 ♂. Cape Province (Mossel Bay, Port St. John).

The ♀ of this species is characterized by the shape of the median area of the frons. The ♂ is very like that of *silvestrii*, Kieff., from which, however, it is readily distinguishable by the absence of a carina round the eyes.

Galesus abdominalis, sp. n.

♀. Black. Pedicel reddish apically. Legs red, except for the coxæ, femora, and hind tibiæ, which are nearly black.

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Head: as long as broad, posteriorly strongly narrowed and somewhat rounded. **Frons:** medial projection well developed; median area not differing materially from that of *silvestrii*, Kieff. **Between the anterior ocellus and the paired ocelli there is a transverse ridge, and behind this, lying between the posterior ocelli, is another, shorter one.** **Vertex:** from a point midway between the posterior ocelli and the eyes there arise, apparently as a continuation of the outer lateral margins of the frons, two raised lines, which converge towards the occipital margin; these raised lines are anteriorly quite distinct, but posteriorly become somewhat ill-defined, and on each of them, a little before they reach the occipital margin, lies a deep pit. **Antennæ:** pedicel a little longer than wide, thicker than first joint of funicle; funicle gradually thickened towards its apex; first joint nearly two and a half times as long as its greatest width; second and third subequal in length, about one and a half times as long as wide; fourth and fifth but little longer than wide; sixth to ninth more or less transverse; tenth a little shorter than first.

Thorax: notauli rather shallow, very little widened posteriorly and not as wide as the adjacent scutellar hollows where they touch these. **Scutellum:** between the tegulæ and the large anterior hollows is a narrow longitudinal groove of irregular outline, whose posterior end lies very close to the anterior end of the large lateral grooves. **Wings** apically excised.

Abdomen: petiole twice as long as wide. Second tergite long, narrow, rather more than twice as long as broad; basal sulcus forked almost at its inception, and continuing as two shallow, though rather wide, furrows to about the middle of the segment; these furrows diverge very slightly and apically become indistinct and irregular in outline. On each side of the dorsal surface of the second tergite there extends from near the base to about two-thirds of its length a faint band of extremely shallow confluent punctures of irregular shape, giving the abdomen the appearance of having been slightly scratched along each side.

Length: 4 mm.

♂. Differs from ♀ only in the following respects:—**Antennæ:** entirely black; pedicel slightly more than half as long as, and thicker than, first joint of funicle; funicle smooth and rather strongly shining; first joint nearly two and a half times as long as its greatest width; second joint twice as long as wide, slightly curved beneath; third hardly shorter than second; joints 4–11 gradually decreasing in length, about one and a half times as long as wide.

Abdomen: petiole two and a half times as long as wide.

Length: 4 mm.

Cape Province (Port St. John).

A very distinct species, characterized at once by the sculpture of the vertex and the forked abdominal sulcus.

Galesus magnificus, sp. n.

♀. Black. Mandibles red towards the apex. Legs obscure red; coxæ and femora sometimes darker.

Head: about as broad as long; very little narrowed posteriorly; shortest distance between the eyes and the occipital margin less than the shortest width of the eyes themselves. Eyes not surrounded with a carina. Frons with a sharp medial tooth, and with its median area resembling that of *silvestrii*, Kieff. Antennæ: scape apically with three teeth; pedicel shining, more than half as long as first joint of funicle; funicle strongly thickened apically, its first three joints more roughly sculptured than those following; first joint slightly less than twice as long as its greatest width; second, one and a quarter to one and a half times as long as wide; third slightly shorter than second; fourth slightly thicker than third and as long as wide; fifth as long as wide, nearer in size to sixth than to fourth; joints 6-9 transverse; fifth to tenth forming a well-developed 6-jointed club. Mandibles rather long. Vertex with four somewhat indistinct punctures, two on each side, situated near its posterior margin.

Thorax: lateral lobes of mesonotum slightly depressed. Area of propodeum smooth and shining. Wings apically excised.

Abdomen: second tergite conspicuously punctate over its apical half or two-thirds; these punctures are larger and more numerous on the deflexed portions of the segment.

Length: 4.2 mm.

2 ♀♀. Cape Province (Port St. John); Natal (Kloof).

Characterized by the absence of a carina round the eyes and by the punctate abdomen.

Galesus modestus, sp. n.

♀. Black. Tegulæ posteriorly reddish. Legs reddish, coxæ and femora sometimes darker.

Head: slightly transverse, rather strongly narrowed behind; shortest distance between the eyes and the occipital margin less than the shortest width of the eyes themselves. Frons: lateral margins of the acute external projections continued backwards to a point on a level with the posterior margin of the eyes; median area of the frons as in *silvestrii*, Kieff. Antennæ: pedicel slightly more than half as long as first joint of funicle; funicle not strongly thickened towards its apex; first four joints narrow, cylindrical, equal in width; first joint nearly three times as long as wide, narrower than pedicel; second and third subequal in length, nearly twice as long as wide; fourth and fifth a little shorter than third, but fifth slightly thicker than fourth; sixth nearer in size to seventh than to fifth, though not conspicuously so; joints 6-9 distinctly longer than wide, forming with the tenth a weakly-developed 5-jointed club.

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Thorax: lateral lobes of mesonotum slightly depressed. Area of propodeum smooth and shining, the carinæ dividing them all clearly defined. Wings apically excised.

Abdomen: second tergite impunctate, less than twice as long as broad.

Length: 3-3.5 mm.

2 ♀♀. Cape Province (Port St. John).

Characterized by the narrow, cylindrical, basal joints of the funicle.

Galesus turneri, sp. n.

♀. Black. Legs in greater part red, coxæ sometimes darker.

Head: longer than broad, very strongly but gradually narrowed posteriorly; the shortest distance between the eyes and the occipital margin distinctly greater than the shortest width of the eyes themselves. The occipital margin forms a sharp ridge and is entirely free from an edging of punctures. Frons: external projections small, acute; median area of frons formed by the same arrangement of carinæ as in *silvestrii*, Kieff., but differing much in aspect; the frons medially is rather strongly produced forwards, its middle projection represented only by the point of the acute angulation formed by the carinæ which extend from the internal projections; these two carinæ are high and well developed, and seen from the side appear nearly straight; the ocelli are situated well back on the vertex, so that this median area appears somewhat longer than wide and exposes a smooth, conspicuously large surface, which is in great part quite flat. Vertex strongly convex in the region of the ocelli. Cheeks with a conspicuous tuft of pale hair. Antennæ: pedicel about one and a half times as long as wide; funicle gradually thickened towards its apex; first joint nearly three times as long as its greatest width; second about two-thirds as long as first; third a little shorter than second, rather more than one and a half times as long as wide; fourth thicker than third, distinctly, though not much longer than wide; fifth intermediate in size between fourth and sixth; joints 5-9 more or less moniliform; tenth nearly twice as long as ninth; apical six joints all rather strongly separated.

Thorax: lateral lobes of mesonotum rather strongly depressed. Sides of scutellum posteriorly often quite straight, lateral grooves often abbreviated and their posterior limits not clearly defined. Propodeum with a well-developed, conspicuous A-shaped carina. Wings apically excised.

Abdomen: petiole in comparison with second tergite very narrow. Second tergite impunctate, broad, about one and three quarters as long as wide, medially strongly convex, apically somewhat flattened.

Length: 4-4.2 mm.

♂. Pedicel red. Otherwise like the ♀ in colour.

Head: less long than in ♀; the frons less developed; the

internal projections not clearly defined; the carinæ which enclose the median area less pronounced. Antennæ: pedicel half as long as first joint of funicle; funicle rendered pale by the adpressed pubescence which clothes it; its sculpture obscured; first joint basally narrowed, nearly three times as long as its greatest width; joints 2-11 cylindrical; second two and a half times as long as wide; remaining joints decreasing slightly in length to the eleventh.

Thorax: wings apically unexcised.

Length: 4 mm.

Cape Province (Mossel Bay, Port St. John).

Galesus turneri, var. *carinaticeps*, var. n.

♀. Differs from typical *turneri* as follows:—Vertex with a sharply defined longitudinal carina, which extends from the anterior ocellus to the occipital margin. Upper half of fore wings when folded thickly clothed with blackish pubescence, and contrasting rather strongly with the paler, only normally pubescent, lower half.

♂. Like the ♀, but the wings evenly pubescent all over. The antennæ differ slightly from those of typical *turneri*, in that the joints of the funicle do not decrease in length towards its apex, though there is a marked decrease in their width.

Cape Province (Mossel Bay). 1 ♀, 2 ♂♂.

The long posteriorly narrowed head and the form of the antennæ render this species very distinct in the typical form. The carinate vertex is a striking feature of its variety.

Galesus longiceps, sp. n.

♀. Black. Mandibles reddish towards their apex. Legs in greater part black; trochanters, intermediate and front tibiæ, and tarsi reddish.

Head: nearly parallel-sided, considerably longer than broad; the shortest distance between the eyes and the occipital margin nearly twice as long as the shortest width of the eyes themselves. Frons: external projections long, acute, slightly divergent; a tooth behind each of the internal projections. Antennæ: scape distally with two teeth, its lateral lamellæ two-thirds its own length; pedicel two-thirds as long as first joint of funicle; funicle gradually thickened towards its apex; first joint twice as long as its greatest width; second and third subequal in length, two-thirds as long as first; fourth a little shorter than third and slightly thicker; fifth intermediate in width between fourth and sixth, a little longer than sixth; joints 6-9 slightly transverse. Mandibles very long. Occipital margin of head evenly edged with punctures.

Thorax: rather strongly flattened. Notauli of nearly equal width throughout, posteriorly not as wide as the adjacent scutellar hollows where they touch these.

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Abdomen: second tergite long, narrow, impunctate.

Length: 3.5 mm.

♂. Head: shorter than in ♀, as long as broad, slightly narrowed behind; shortest distance between the eyes and the occipital margin about equal to the shortest width of the eyes themselves. **Frons:** external projections not strongly produced, nearly right-angled; ocelli placed far forward; surface of frons between the anterior ocellus and the medial projection almost perpendicular. **Antennæ:** pedicel two-thirds as long as first joint of funicle; funicle somewhat roughly sculptured; first joint narrower than the following, one and two-thirds as long as its greatest width; second a little shorter than first, widest in the middle; joints 3-9 cylindrical, decreasing slightly in length and width, all about one and a half times as long as wide.

Thorax: not markedly flattened.

Abdomen: second tergite long, narrow, with many unsetigerous punctures on its apical dorsal fourth.

Length: 3.8 mm.

Cape Province (Port St. John, 1 ♀; Mossel Bay, 1 ♂).

Characterized by the shape of the head, which in the ♀ is a very striking feature.

Galesus silvestrii, Kieff.

Boll. Laborat. Zool. Portici, v. 7, p. 91 (♂ ♀) (1913).

♀. Black. Pedicel and first four joints of funicle reddish or sometimes the same colour as the legs. Legs entirely bright red or reddish yellow.

Head: slightly transverse, posteriorly strongly constricted. **Frons:** its anterior margin seen from above with an acute medial tooth; this tooth is situated much lower down on the frons than the internal projections, and viewed from the side forms the apex of a longitudinal keel, which extends down the vertical surface of the frons to as far as the antennal insertions; from this medial tooth run two sharp ridges to the internal projections, and from thence run two others to the posterior ocelli; the area thus enclosed is evenly concave, and its anterior margin forms an acute angulation. **Antennæ:** pedicel brighter in colour and more shining than first joint of funicle; first joint of funicle nearly twice as long as wide; second considerably shorter than first; third but little longer than wide; fifth nearer in size to sixth than to fourth; joints 5-9 more or less transverse, much thicker than preceding joints, and together with the tenth forming a 6-jointed club. Lateral margins of frons continued backwards as a carina round behind the eyes to as far as the genal line; posteriorly this carina is margined on its inner side with large puncture-like impressions, separated by short costæ. Vertex often with four punctures, two on each side.

Thorax: normal. Propodeum with its areæ smooth and shining. Wings apically excised.

Abdomen: Second tergite virtually impunctate; at the most with inconspicuous setigerous punctures towards its apex.

Length: 2.5-3 mm.

♂. Differs from the ♀ only in the antennæ, which, with exception of the scape, are brownish red or reddish, the pedicel and first few joints of the funicle paler as a rule; pedicel more than half as long as first joint of funicle; funicle somewhat smooth and shining; first joint nearly twice as long as its greatest width; second slightly shorter than first, beneath weakly carinate for about two-thirds of its length, the joint widest at the point where this carina ends; joints 3-11 about one and a half times as long as wide.

Length: 2.5-3 mm.

S. Nigeria (Olokomeji, parasite of *Ceratitis anona*, Graham). Gold Coast (Aburi, parasite of *Ceratitis nigerrima*, Bezzi). Dahomey (Kotomou, parasite of *Ceratitis giffardi*, Bezzi). Cape Province (Mossel Bay, Worcester); S.W. Africa (Okahandya).

This species is characterized in both sexes by the entirely bright red legs and by the carina surrounding the eyes.

Galesus silvestrii, var. *nigricornis*, var. n., ♂.

Distinguishable from typical ♂ by the following characters:—

Funicle darker, nearly black, less shining than in typical *silvestrii*; somewhat roughly sculptured, joints 3-11 nearly twice as long as wide. Wings apically without an excision.

Cape Province (Mossel Bay). 4 ♂♂.

Galesus silvestrii, var. *robustior*, Silv.

Bull. Laborat. Zool. Portici, v. 8, p. 127, ♀ (1913).

"♀. Distinguishable from typical *silvestrii*, Kieff., by its colour and size. Black. Antennæ entirely black. Wings with a more distinct brownish tinge. Legs brownish red, coxæ black. Clubs of the femora blackish brown. Length 4 mm."

French Guinea (Konakry, parasite of *Ceratitis punctata*, Wiedemann).

Galesus difficilis, sp. n.

♀. Black. Legs reddish except coxæ and femora, which are black.

Head: slightly longer than broad. Details of frons as in *silvestrii*, Kieff. Lateral margins of frons produced in the same way as in *silvestrii*, Kieff. This carina posteriorly is represented only by a complete row of punctures, and does not project strongly if the head is viewed from above. Antennæ: pedicel shorter than first joint of funicle, shining; first joint of funicle nearly twice

as long as wide; second distinctly though not much longer than wide; third slightly shorter than second; fourth as long as wide; fifth nearer in size to sixth than to fourth; joints 5-9 transverse, together with the tenth forming a strongly thickened club.

Thorax: normal. Wings apically excised.

Abdomen: basal sulcus of second tergite distinct to about the middle of the segment, thence continued as a weakly impressed broken line to the apex. Second sternite apically closely punctate.

Length: 2.7 mm.

♂. Antennæ entirely black. Legs to the naked eye quite black; on examination the tarsi are seen to be dark reddish or piceous.

Head: as broad as long. Antennæ: pedicel shorter than first joint of funicle, shining; funicle somewhat roughly sculptured, clothed with short semi-erect brownish hairs; first joint twice as long as its greatest width, evenly curved beneath; second equal in length to first, usually carinate beneath to about half-way; joints 3-11 cylindrical, subequal in length, decreasing slightly in width after the seventh; basal joints one and two-thirds as long as wide, apical joints proportionately longer.

Length: 2.8 mm.

Cape Province (Mossel Bay, Transkei); Zululand (Mtunzini).

In structure remarkably like *G. silvestrii*, Kieff., and perhaps only a race of that species. The colour, however, especially the black legs of the male, render it superficially quite distinct.

Galesus muscidorum, Dodd.

Trans. Ent. Soc. Lond. p. 381, ♀ (1919).

♀. Differs from that of *silvestrii*, Kieff., most noticeably in its larger size and its length, which is 4 mm.

The legs are variable in colour, either entirely dark red, with only the coxæ black, as in the type, or with the femora sometimes infuscate as in the South African examples. Antennæ entirely black, in structural detail like those of *silvestrii*, Kieff.

Abdomen: apical two-thirds of second tergite conspicuously punctate. In South African examples the punctures tend to become larger and more numerous on the deflexed portions of the tergite.

♂ (hitherto undescribed):—

Head: distinctly transverse. Seen from above the eyes appear conspicuously prominent; the distance between the external projections of the frons about equal to half the distance across the eyes. Antennæ: scape apically nearly truncate, its lateral lamellæ hardly produced; pedicel slightly more than half as long as the first joint of funicle; funicle entirely black, clothed with short stiff hairs which in no way obscure its somewhat rough sculpture; first joint twice as long as its greatest width; second slightly shorter, widest apically; joints 3-11 cylindrical, decreasing slightly

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in width towards apical end of funicle, the basal joints one and two-thirds as long as wide. Eyes surrounded by a carina as in *silvestrii*, Kieff.

Abdomen: second tergite on its deflexed portions apically more densely punctured than in ♀.

Length: 3-8 mm.

Type bred from Muscid puparium in breeding-ground of *Glossina palpalis*, R. D., Uganda (*G. D. H. Carpenter*).

Cape Province (Port St. John); Natal (Kloof). 3 ♀♀, 1 ♂.

Galesus punctulatus, Kieff.

Berlin. Ent. Z. r. 51, p. 301, ♂ (1907).

♂. Black. Pedicel reddish. Legs dark red; coxæ dusky.

Head: slightly transverse, strongly narrowed behind. Antennæ: pedicel slightly more than half as long as first joint of funicle. First joint of funicle two and a half times as long as wide; second with a slight excavation on its basal fourth, otherwise cylindrical, twice as long as wide; joints 3-11 subequal in length decreasing slightly in width towards apex of funicle, twice as long as wide. Wings without an excision.

Abdomen: apical half of second tergite densely punctate and thickly clothed with long decumbent hairs.

Length: 3.5 mm.

Natal.

Galesus conradti, Kieff.

Ergeb. Zentr.-Afr. Exp. v. 3, fasc. 2, p. 8, ♀ (1910).

The following is a translation of Kieffer's description of the species:—

"♀. Black. Head somewhat oblong, smooth, rounded behind, in front with three teeth. Vertex with two punctures, which are separated from the ocelli and the occipital margin by an equal distance; a row of punctures surrounds the eyes, another borders the occipital margin. Frons with three impressions; antennal prominence emarginate. Scape straight, apically gradually thickened, with two sharp teeth on the medial edge of its apex, which is laterally obliquely truncated, joint 2 but little longer than 3, 3-8 somewhat oblong, then nearly moniliform, 9-12 gradually thickened, 12 twice as long as the preceding joint. Mesonotum somewhat flattened. Parapsidal furrows not widened posteriorly. Scutellum with six hollows, the two anterior ones oval and oblique. Wings extending beyond the abdomen, hyaline, with an excision. Legs red, coxæ and clubs of the femora and tibiæ black. Petiole somewhat longer than broad, with longitudinal striæ; sulcus of the second tergite extending beyond the basal third of the abdomen. Length 3 mm."

Cameroon.