

## A revision of the African species of *Oxycarenum* (Hemiptera : Lygaeidae)

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With 45 Text-figures

### SYNOPSIS

A taxonomic revision of the African species of *Oxycarenum* Fieber is given. Keys are provided to the three subgenera and 36 species now recorded from Africa, of which two subgenera are here erected and 17 species described as new to science. Some new morphological characters of diagnostic value are described, and emphasis is placed on structures in the male genitalia. Host plants and distribution data are given for all the species occurring in Africa.

### I. INTRODUCTION

THE species of the genus *Oxycarenum* Fieber, 1837 (Lygaeidae, Oxycareninae) are of some importance as pests of cotton and other malvaceous crops. Slater (1964a), in his catalogue of the Lygaeidae of the world, listed 39 species, 21 of which were recorded from Africa. In the present work the known African species are redescribed and 17 new species are added to the African fauna. Certain taxonomic variations in the male genitalia have been utilised to augment specific distinctions previously based on coloration only. Colour was however found to be of great importance in separating the species. External features that can be defined quite easily have been mainly used, and recourse to fine structures, requiring dissection, has been confined to separations when more obvious characters are absent.

Living material of several African species was obtained through the kindness of a number of entomologists. Preserved material was obtained from numerous collections, principally those of the British Museum (Nat. Hist.) (Br. Mus.), and the following museums have generously loaned types and other material: Muséum National d'Histoire Naturelle, Paris (Paris Mus.); Musée Royal de l'Afrique Centrale, Tervuren, Belgium (Tervuren Mus.); Museo Civico di Storia Naturale, Genoa (Genoa Mus.); Universitetets Zoologiske Museum, Copenhagen (Copenhagen Mus.); Narodni Museum, Prague (Prague Mus.); Naturhistoriska Riksmuseet, Stockholm (Stockholm Mus.); Zoologische Sammlung des Bayerischen Staates, Munich (Munich Mus.).

Holotypes were examined whenever possible; when these are known to have been lost or destroyed, neotypes have been designated.

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Body measurements were made on dried pinned specimens with a binocular microscope and a micrometer eyepiece. Whenever material was available, five specimens of each sex were measured, and in some species measurements were made on individuals from different localities. The lengths of the head, pronotum and scutellum were determined dorsally along the median line. The width of the head was taken across the compound eyes including their diameter. The width of the pronotum was that of its broadest part.

All drawings were made to scale, with a square graticule fitted into the eyepiece of a stereoscopic binocular microscope, from dried pinned specimens. Those of the genitalia and other parts separately illustrated were made from dissected, unmounted parts of the body held in a cavity slide in glycerine or terpineol. The genital capsule was drawn in two positions: dorsally, with the posterior edge of the capsule flat on the slide and the proctiger and parameres *in situ*, to illustrate the shape of the dorsal opening; and posterodorsally, after removing the parameres, the proctiger and the aedeagus to show the subgenital plates. The right paramere was also drawn in two positions: posteriorly, to show the thickness of the blade, and ventrally, with the inner edge of the blade horizontal, to illustrate the lobe process on the blade and the nodules on the shank.

The distribution given for each species is based on the material examined by the author; other localities are attributed to the appropriate authors.

## II. MORPHOLOGY OF THE MALE GENITALIA OF *Oxycarenus*

Some studies have previously been made on the male genitalia of a few species of *Oxycarenus*: Singh-Pruthi (1925) described the male genitalia of *O. laetus* Kirby; Hoberlandt (1943) compared the parameres of *O. pallens* (Herrich-Schäffer) and *O. luteolus* Hoberlandt; Ashlock (1957) described the aedeagus and parameres of *O. hyalinipennis* (Costa) and Kumar (1961) the aedeagus of *O. laetus*. The figures in these earlier studies of *Oxycarenus* are unfortunately devoid of fine details, the aedeagus being frequently drawn in the non-expanded condition; they are therefore inadequate as a basis for the present study, in which the male genitalia were found to be of value in defining the species. A generalised account of the detailed morphology of the outer male genitalia (as defined by Dupuis & Carvalho, 1956) is therefore given below.

Detailed studies of the genitalia were initially based on a study of freshly killed material. Copulating pairs were instantly killed in boiling water, and the posterior halves of their abdomens detached and treated in warm 10 per cent. potassium hydroxide; the sexes were then carefully separated. The majority of the species studied were, however, available only as dried, pinned material. In these cases the pygophore was carefully removed from the body, softened in hot water for 10 minutes and then transferred to warm 10 per cent. potassium hydroxide; the solution was repeatedly changed until the muscles had cleared.

It was found that the aedeagus could not be satisfactorily inflated by alternate use of 10 per cent. potassium hydroxide and distilled water, as suggested by Ashlock (1957) and Ahmad (1965), and careful dissection by hand was found to be inevitable, although parts of the aedeagus were sometimes damaged. While still in warm potassium hydroxide, the anterior edge of the pygophore was held with the point of fine watchmakers' forceps, and the parameres and the ring-like posterior abdominal segments were gently pulled off. The aedeagus, if not partially inflated, looks like a short tube (the phallosome) with the thin distal part of the vesica protruding. The basal part of the vesica was held, and a gentle and brisk pull fully distended all parts of the aedeagus. This procedure often completely detached the aedeagus from the pygophore. The aedeagus should be handled with extreme care, otherwise the vesica and its lobe and appendages will be damaged.

The dissected parts were stained with 1 per cent. mercurochrome in water, washed in distilled water and dehydrated by passing them through the usual series of ethyl alcohol solutions. Satisfactorily stained specimens were transferred to terpeneol. In this liquid they were examined, subsequently preserved in small vials and attached to the pins of their respective specimens.

### *The pygophore*

In the genus *Oxycarenus*, the pygophore is somewhat solid, strongly sclerotised, symmetrical and rounded. The posterodorsal opening is almost divided into two

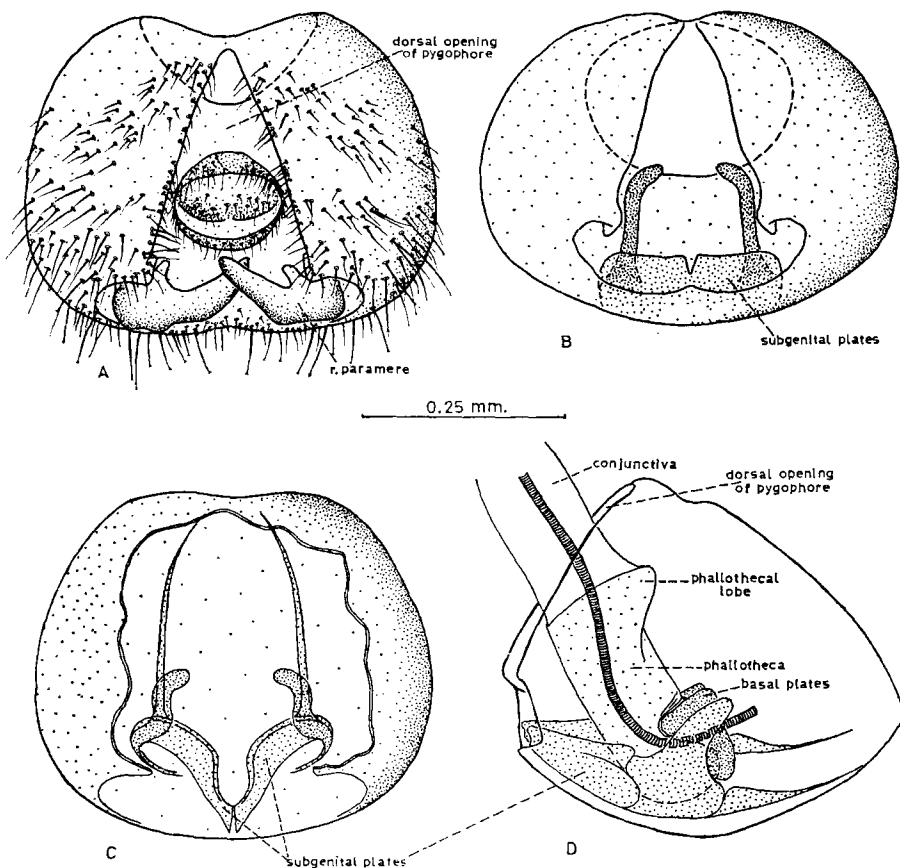
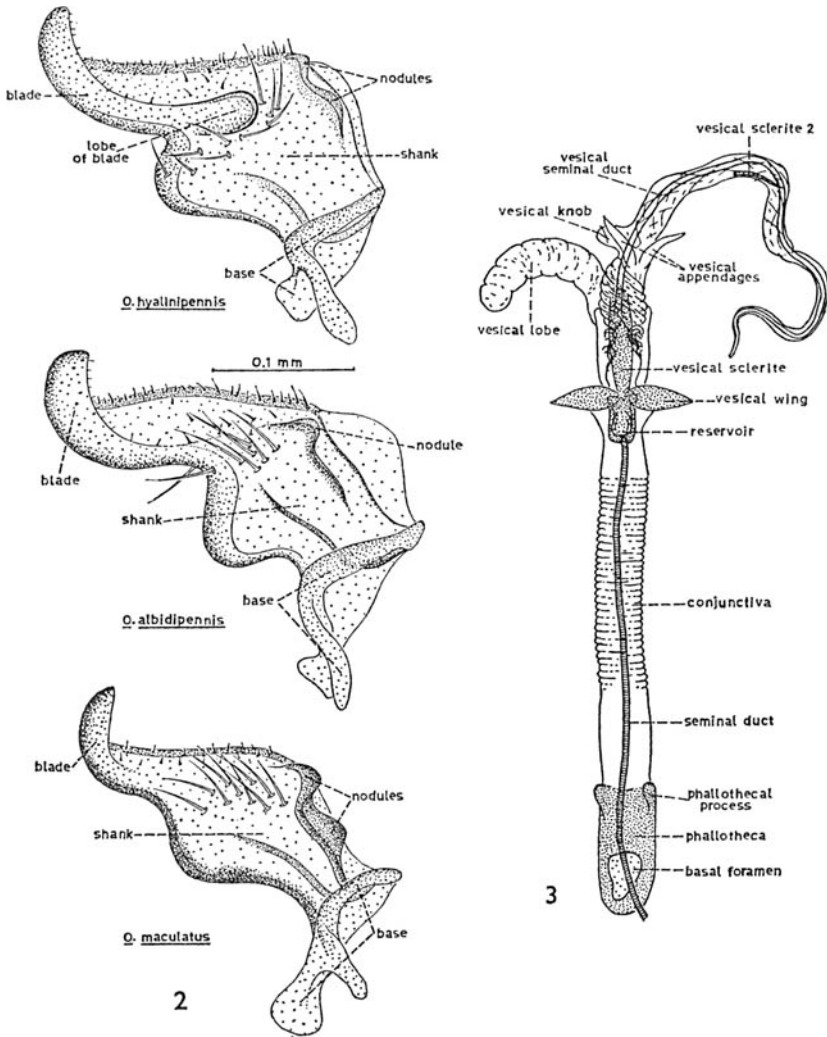


FIG. 1.—The pygophore of *Oxycarenus hyalinipennis* (Costa): A, dorsal view; B, posterodorsal view (parameres and aedeagus removed, hairs omitted); C, dorsal view (parameres and aedeagus removed); D, lateral view (parameres removed, aedeagus inflated).

parts by two tongue-like processes projecting inwardly from the lateral margins of the opening. The posterior part of the opening is transversely elongate, with rounded ends where the parameres are situated. The dorsal part is highly variable in shape and is of great importance in separating the species. It may be triangular (e.g. *O. hyalinipennis*, fig. 1, A), cupola-shaped (e.g. *O. izzardi* sp. n., fig. 40, C) or arch-like (e.g. *O. dudgeoni* Distant, fig. 28, C). The lateral margins of the dorsal opening are of various shapes, being straight in some species and curved or twisted in others. In this dorsal part of the opening the tenth and eleventh segments are located around the anus. The posterior edge of the pygophore may be straight (e.g. *O. maculatus*

Stål, fig. 41, B) or more or less curved with a median notch (e.g. *O. fieberi* Stål, fig. 13, B).

The pygophore is partially covered with a moderate number of short, simple hairs dorsally and on the lateral edges of the opening (fig. 1, A). Around the posterior opening longer and stouter simple hairs are intermingled, especially on the posterior edge, with a few much longer coronate hairs.



FIGS. 2-3.—(2) Right parameres of *Oxycareus* spp. (3) Diagrammatic representation of the aedeagus of the genus *Oxycareus*.

On the floor of the pygophore, the articulatory apparatus is located. The chief components are the two subgenital plates that together form a V-shaped structure when viewed dorsally (fig. 1, C), with the point of connection either close to the posterior margin of the pygophore (e.g. *O. hyalinipennis*), or a little further from the margin (e.g. *O. fieberi*). Each subgenital plate is grooved laterally where a paramere articulates; it is also connected interiorly to an arm-like structure attached at its tip to the articulatory apparatus of the phallotheca (the basal plates), forming a pivot to facilitate the articulation of the aedeagus (fig. 1, D). The outline of the subgenital

plates varies according to the angle of view. A posterodorsal view was found to be the most convenient to illustrate the various shapes characteristic of the different species. In this position, the subgenital plates form a transverse structure, with a median groove or notch (fig. 1, B); the upper edge is considerably variable in form and is often diagnostic for the species.

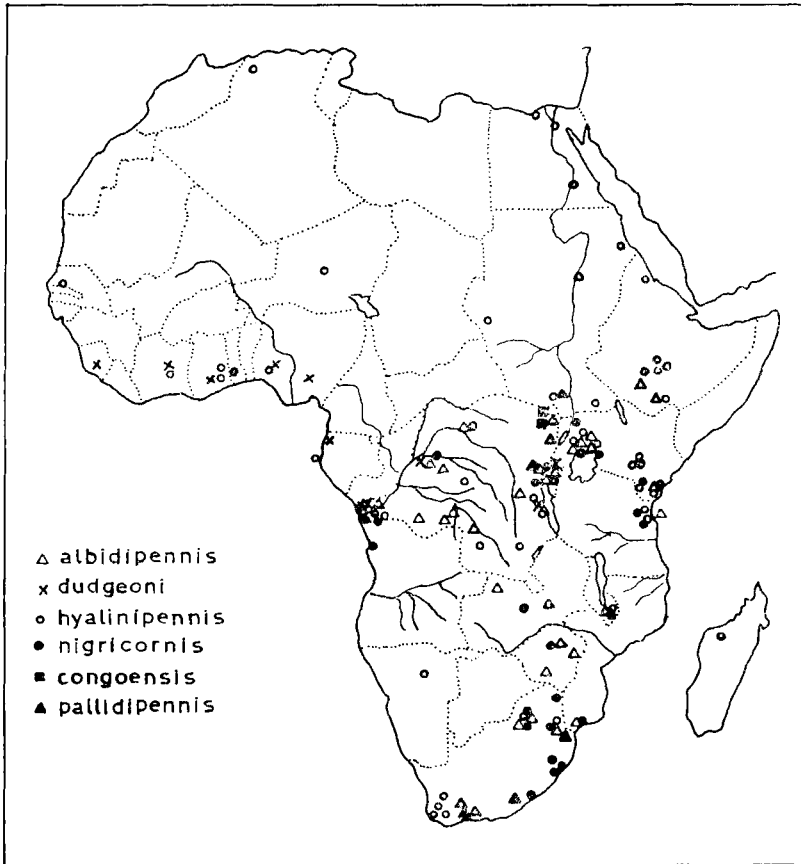


FIG. 4.—Distribution map of *Oxycarenus* spp.

#### *The parameres*

The parameres are symmetrical, and each can be differentiated into three main parts: the basal part, the shank and the blade. The basal part is located internally and is connected to the cavity in the subgenital plate. The shank, which forms the main body of the paramere, is broad and thick, and often bears one or two nodules near its inner margin. The shank bears a number of stout, simple hairs, usually 7–12, near its connection with the blade. The blade appears as a long, curved, apically pointed or rounded structure of variable stoutness, sometimes bearing a lobe on the upper side, and a few minute sensory hairs especially on the edges and outer side.

Three main shapes of paramere could be recognised in the present work (fig. 2):

(1) Rather strong and robust; blade thick, rounded apically and provided with a lobe; shank and blade more or less at an angle to one another (e.g. *O. hyalinipennis*, fig. 2, A).

(2) Same structure as in (1) but blade without lobe (e.g. *O. albidipennis* Stål, fig. 2, B).

(3) Rather thin and slender; blade long, pointed apically and without a lobe; shank comparatively small and almost in same plane as blade (e.g. *O. maculatus*, fig. 2, C).

The presence or absence of a lobe on the blade, and to some extent the number of nodules on the shank of the parameres, were used in separating the species.



FIG. 5.—Distribution map of *Oxycareus fieberi* Stål.

### *The aedeagus*

The aedeagus is an elongate slender tube, mostly membranous with some more or less sclerotised parts. It could usually be differentiated into three parts: phallosheca, conjunctiva and vesica. When not extended, the conjunctiva and the basal third of the vesica are telescoped inside the phallosheca. Figure 3 shows a diagrammatic view of a fully distended aedeagus of *Oxycareus*.

The phallosheca is a highly sclerotised tube with a closed rounded base, characterised by the presence of two latero-dorsal processes on the distal margin. The ejaculatory duct passes through a dorsal inverted, pear-shaped opening near the base. The articulation of the aedeagus in the space between the subgenital plates is facilitated by the smooth rounded base of the phallosheca and the support of the arm-like structure situated medially on each of the subgenital plates.

The conjunctiva is a long membranous tube; its basal part, which is as long as the

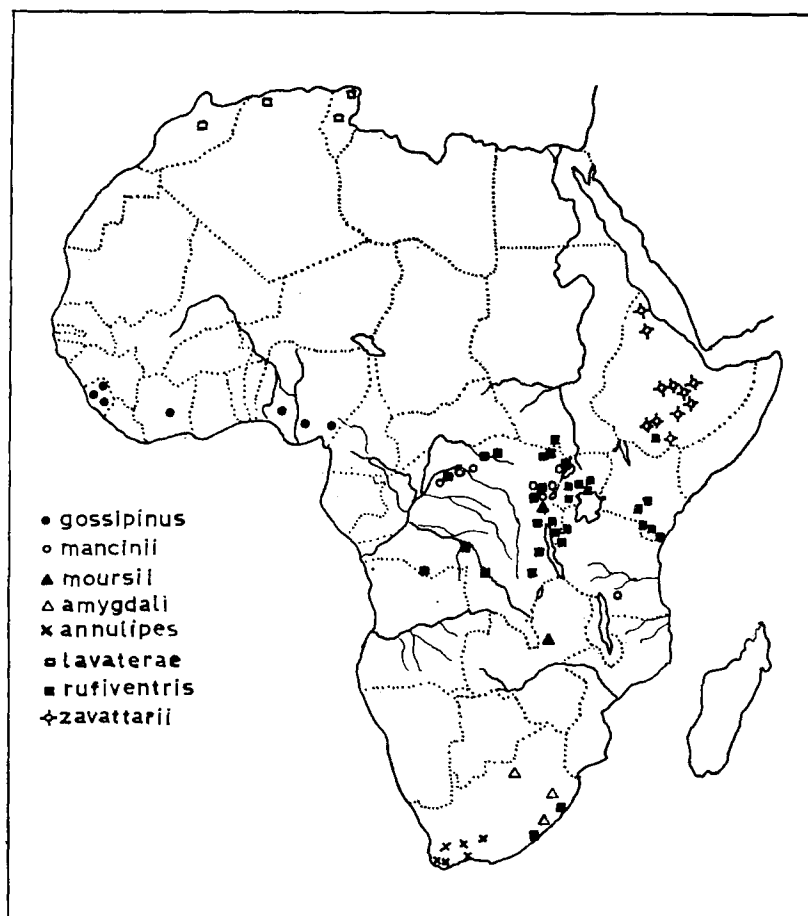


FIG. 6.—Distribution map of *Oxycareus* spp.

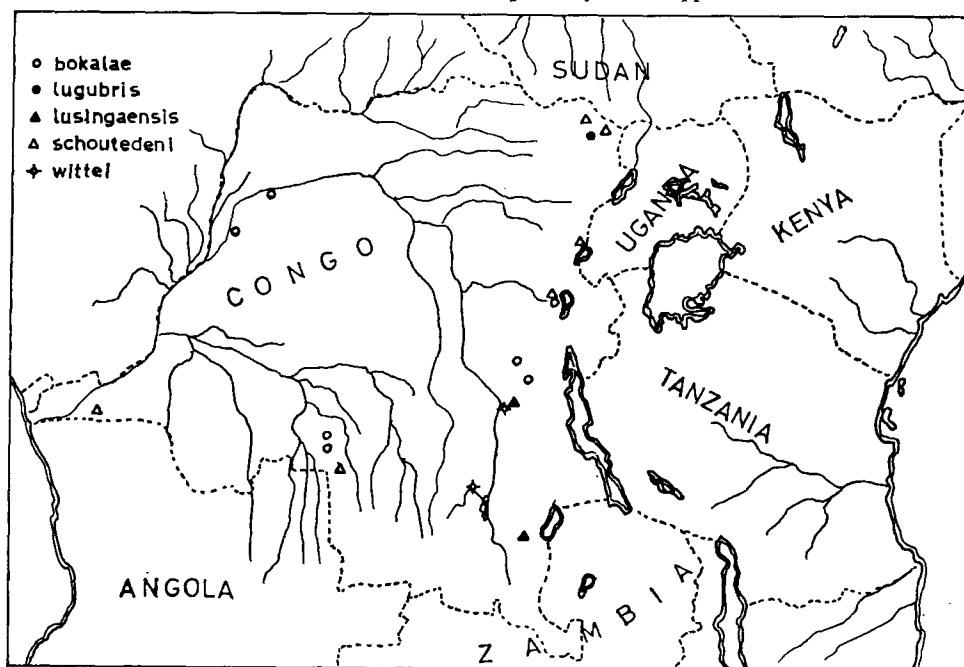


FIG. 7.—Distribution map of *Oxycareus* spp.

phallosome, is smooth and fits exactly inside the latter when not inflated. The major part is long, wrinkled and, in the resting condition, its thin walls are somewhat convoluted. The distal part is short and smooth. The conjunctiva is delimited distally by the ejaculatory reservoir (Singh-Pruthi, 1925). In the species of *Oxycareus* studied, the conjunctiva is without lobes, sclerites or spines. No appreciable differences between the species could be traced, except in the relative length, which may be long (e.g. *O. rufiventris* (Germar), fig. 14, G) or short (e.g. *O. brunneus* sp. n., fig. 32, G).

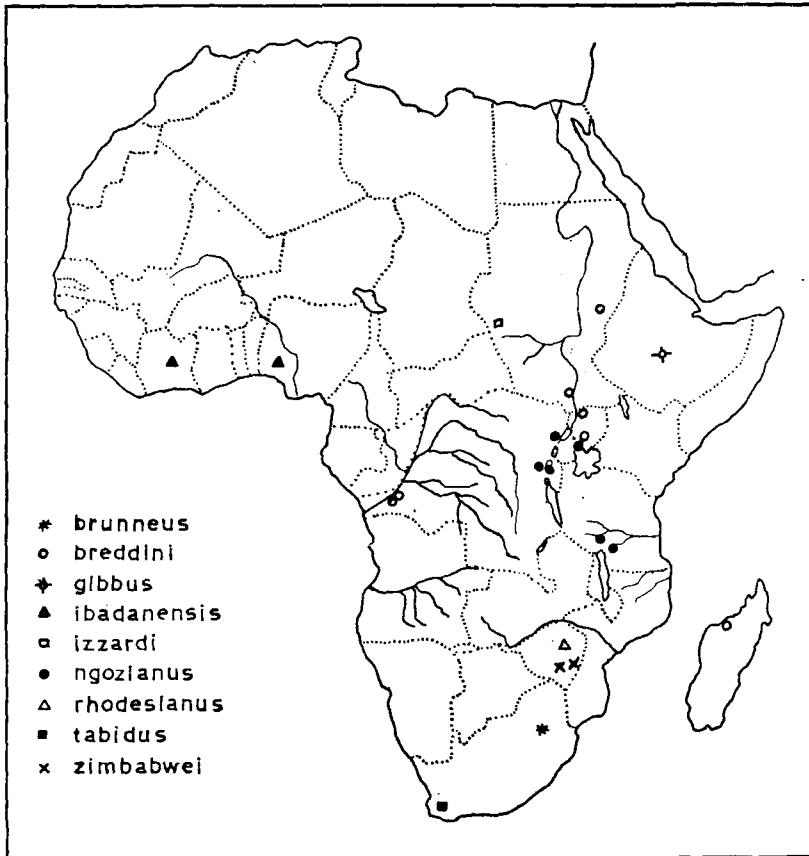


FIG. 8.—Distribution map of *Oxycareus* spp.

The ejaculatory reservoir is a highly sclerotised structure at the base of the vesica, attached internally to the conjunctiva by a thin membrane. The various parts of the reservoir recognised by Bonhag & Wick (1953) in *Oncopeltus* are not distinct in *Oxycareus* but are fused, forming an oblong bowl-shaped structure.

The seminal duct is a flexible, narrow tube running through the entire length of the aedeagus and terminating at the secondary gonopore. The proximal part, running through the phallosome and conjunctiva as far as the reservoir, is thin and characterised by a striated appearance as if formed by numerous rings. The distal part, from the upper boundary of the reservoir to the secondary gonopore, is thicker, less flexible, more or less straight walled and without the ring-like striations. In the resting position the proximal part of the duct is coiled inside the phallosome.

The vesica is a long tubular organ, divisible into three parts. The basal third, which includes the ejaculatory reservoir, is wide with many wrinkles. It bears a pair of sclerotised expansions, the vesical wings, and a strong flattened sclerite, beneath



which passes the vesical seminal duct. The vesical wings are more or less spindle-shaped and vary slightly in size; they may be long (e.g. *O. hyalinipennis*, fig. 21, G) or short (e.g. *O. albidipennis*, fig. 26, G), and in *O. pallens* (fig. 44, G) the tips of the wings are distinctly curled. Normally the vesical wings lie flat against the dorsolateral surface of the conjunctiva, but when the aedeagus is fully extended the wings become clearly spread. The vesical sclerite is usually long, straight and parallel-sided (e.g. *O. albidipennis*, fig. 26, G, and *O. lavaterae* (F.), fig. 11, G). In few species it is broad (e.g. *O. brunneus*, fig. 32, G) or basally indented (e.g. *O. fieberi*, fig. 13, G). In the species of *Euoxycarenus* subgen. n. two rather small membranous appendages are found dorsally on the distal end of the basal third of the vesica (fig. 44, H). In the

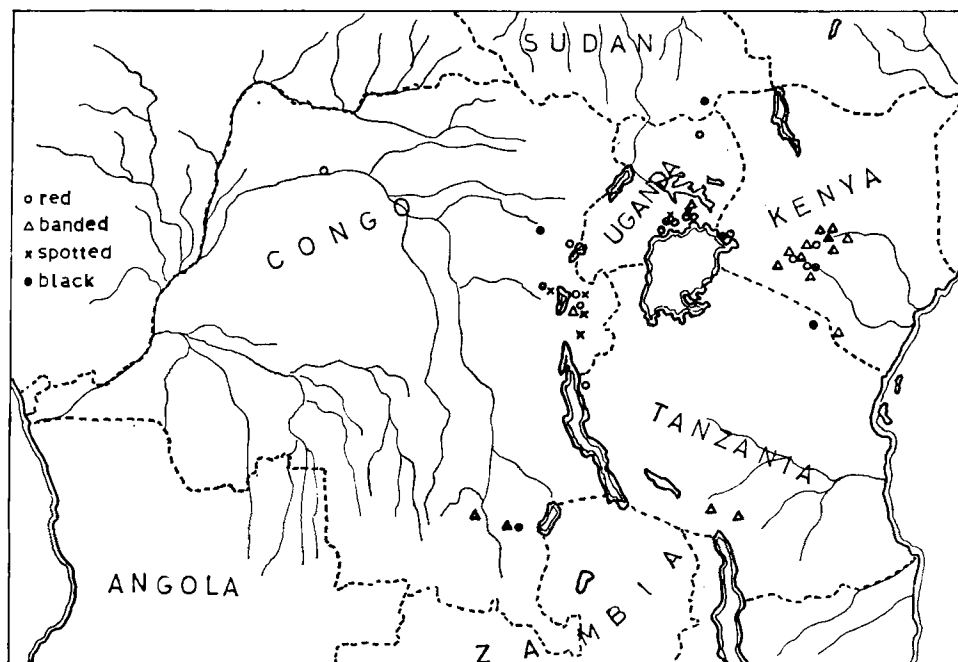


FIG. 9.—Distribution map of *Oxycarenus multiformis* sp. n.

species of *Pseudoxycarenus* subgen. n. a single characteristic large and curved vesical lobe occurs ventrally on the basal third of the vesica (fig. 41, H). The median region commences where the vesica turns dorsally over the basal third; it is a slightly widened, somewhat wrinkled and unpigmented tube. In *O. pallens* the median region of the vesica starts with a small ventral knob (fig. 44, H). In the subgenus *Pseudoxycarenus* a long thin sclerite (the second vesical sclerite) is located apically (fig. 41, G). The third and terminal region of the vesica is a long, thin, tubular structure, slightly coiled and ending at the secondary gonopore.

The vesica, when not in use, lies with its basal third inside the conjunctiva (and consequently inside the phallosheca) and its ejaculatory reservoir close to the basal apparatus. The remaining parts protrude from the distal boundary of the phallosheca, and bend dorsally.

### III. GEOGRAPHICAL DISTRIBUTION AND HOST PLANTS

The genus *Oxycarenus* is widespread throughout the world and may be found in most places where suitable host plants occur, with the exception of North America (Slater, 1964a). In Africa 36 species are now recognised and their geographical distribution and host plants are given in Table I.

In the Mediterranean subregion, only four species are recorded: *O. pallens*, *O. lavaterae*, *O. castaneus* Bergevin and *O. hyalinipennis*. The first two, at least, are recorded from the Palearctic region. *O. hyalinipennis* is a cosmopolitan species that extends into all the African regions, as well as occurring in the Palearctic, Oriental and Neotropical regions.

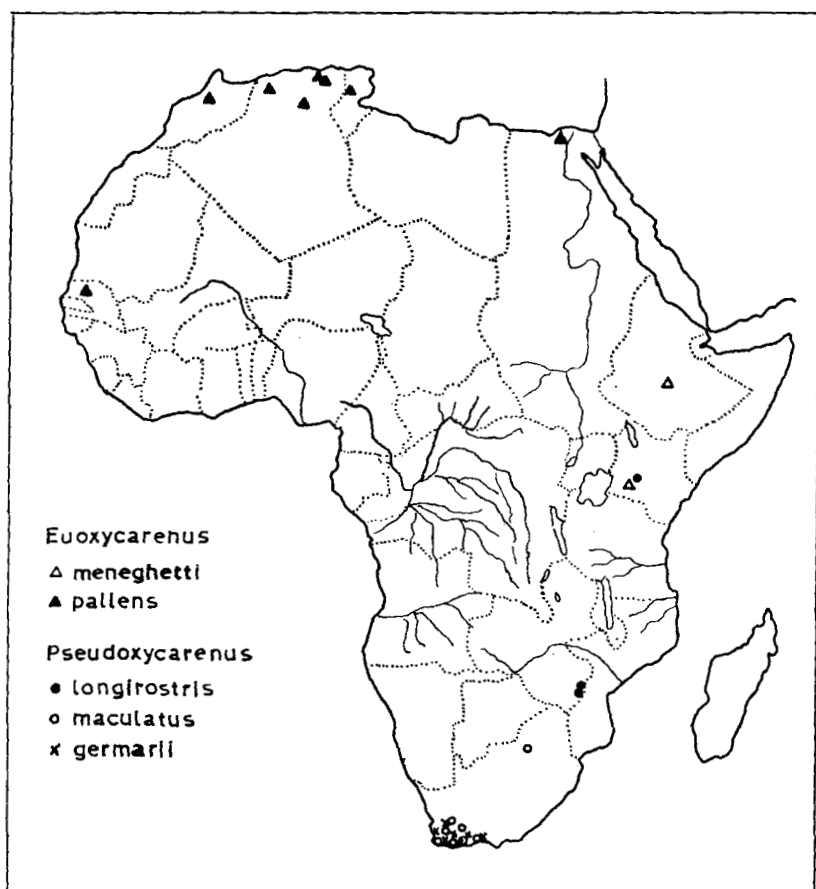


FIG. 10.—Distribution map of species of subgenera *Euoxycarenus* and *Pseudoxycarenus*.

The west African subregion is dominated by seven species: *O. gossipinus* Distant, *O. ibadanensis* sp. n., *O. breddini* Bergroth, *O. dudgeoni*, *O. rufiventris*, *O. fieberi* and *O. hyalinipennis*. The first two species are confined to this subregion, and *dudgeoni* extends further east into the East African subregion (Uganda, East Congo). *O. fieberi* is present in the Congo and westwards in Nigeria, Ghana and Sierra Leone, as an extension of its occurrence in the East African and South African subregions. The occurrence of *O. rufiventris* in western Congo demarcates the extreme limit of its range. *O. breddini* has been described from the extreme south-west of the Congo near Leopoldville; it has also been found in Uganda, southern Sudan, east Congo and Madagascar. Mancini (1948) also recorded it in Somalia. *O. hyalinipennis* is found in the whole subregion.

The east African subregion is much richer than the others, the following 25 species having been recorded: *O. izzardii* sp. n., *O. zavattarii* Mancini, 1939a, *O. meneghetti* Mancini, 1956, *O. gibbus* sp. n., *O. schoutedeni* sp. n., *O. congoensis* sp. n., *O. lugubris* (Motschulsky), 1859, *O. multiformis* sp. n., *O. ngozianus* sp. n., *O. bokalae* sp. n.,

*O. mancinii* sp. n., *O. lusingaensis*, sp. n., *O. wittei* sp. n., *O. longirostris* sp. n., *O. zimbabwei* sp. n., *O. moursii* sp. n., *O. rhodesianus* sp. n., *O. hyalinipennis*, *O. rufiventris*, *O. dudgeoni*, *O. pallidipennis* (Dallas), 1852, *O. fieberi*, *O. albidipennis*, *O. nigricornis* sp. n., and *O. breddini*. The first 17 species are confined to this subregion and are here arranged according to their distribution from the north-eastern areas southwards. *O. rufiventris* and *O. albidipennis* are found in the whole region and extend into the South African subregion, *O. rufiventris* occurring along the eastern coast and *albidipennis* extending as far as Cape Province. *O. nigricornis* covers the eastern areas of the subregion (Kenya, Tanzania) and spreads southwards to Pondoland in South Africa. *O. pallidipennis* occurs in east Congo near Lake Edward, and also in the South African subregion.

The following 12 species occur in the South African subregion: *O. annulipes* (Germar) *O. germarii* Fieber, *O. maculatus*, *O. tabidus* Stål, *O. brunneus* sp. n., *O. amygdali* Distant, *O. pallidipennis*, *O. albidipennis*, *O. fieberi*, *O. hyalinipennis*, *O. nigricornis* and *O. rufiventris*. The first six species occur only in this subregion. *O. annulipes*, *O. germarii*, *O. maculatus* and *O. tabidus* are restricted to the Cape Province, but *O. pallidipennis* occurs in Cape Province and the Transvaal, as well as in the Congo. *O. amygdali* is represented mainly in the north-eastern areas of the subregion; it has also been reported from Somalia (Mancini, 1948).

In the Malagasy subregion, *O. breddini* and *O. hyalinipennis* are the only species to have been found.

TABLE I.—Geographical distribution and host plants of the species of *Oxycarenum*

Species	Zoogeographical region	Distribution and host plants
<i>albidipennis</i>	East African	Congo ( <i>Gossypium</i> ), Ethiopia, Kenya, Malawi, Rhodesia, Sudan ( <i>Gossypium</i> ), Tanzania, Uganda ( <i>Gossypium</i> , <i>Lubera</i> ?, <i>napon</i> ?), Zambia, Zanzibar
	South African	Mozambique ( <i>Anacardium</i> ), S. Africa ( <i>Dombeya</i> )
<i>amygdali</i>	South African	S. Africa ( <i>Malva</i> , <i>Amygdalus persicae</i> , <i>Pyrus malus</i> )
<i>annulipes</i>	South African	S. Africa ( <i>Amygdalus persicae</i> )
<i>bokalae</i>	East African	Congo ( <i>Gossypium</i> ), Zanzibar ( <i>Gossypium</i> )
<i>breddini</i>	West African	Congo
	East African	Somalia (Mancini, 1948), Sudan ( <i>Sterculia</i> ), Uganda ( <i>Sterculia</i> )
	Malagasy	Madagascar
<i>brunneus</i>	South African	S. Africa
<i>castaneus</i>	Mediterranean	Tunisia
<i>congoensis</i>	East African	Congo
<i>dudgeoni</i>	West African	Congo ( <i>Gossypium</i> ), Gabon, Ghana, Ivory Coast, Nigeria, Sierra Leone
	East African	Congo ( <i>Gossypium</i> , <i>Eriodendron</i> ), Uganda ( <i>Eriodendron</i> )
<i>fieberi</i>	West African	Congo, Dahomey, Gabon, Ghana ( <i>Sida</i> ), Nigeria ( <i>Gossypium</i> ), Sierra Leone ( <i>Cola</i> , <i>Gossypium</i> , <i>Hibiscus</i> )
	East African	Angola, Congo ( <i>Gossypium</i> ), Ethiopia, Kenya, Sudan, Tanzania, Uganda ( <i>Gossypium</i> , <i>Hibiscus</i> , <i>Triumfetta</i> )
	South African	S. Africa
<i>germarii</i>	South African	S. Africa
<i>gibbus</i>	East African	Ethiopia
<i>gossypinus</i>	West African	Ivory Coast, Nigeria, Sierra Leone
<i>hyalinipennis</i>	Mediterranean	Algeria, Egypt ( <i>Gossypium</i> , <i>Hibiscus</i> , <i>Althea</i> , malvaceous plants, <i>Sterculia</i> ), Tunisia ( <i>Althea</i> )
	West African	Congo, Ghana, Ivory Coast, Niger, Nigeria, Senegal
	East African	Angola, Congo, Ethiopia, Kenya ( <i>Gossypium</i> ), Malawi, S.W. Africa, Sudan ( <i>Gossypium</i> , <i>Abutilon</i> , <i>Hambuck</i> ?), Tanzania, Uganda ( <i>Gossypium</i> )
	South African	Bechuanaland, Sao Tome, S. Africa, S.W. Africa
	Malagasy	Madagascar
<i>ibadanensis</i>	West African	Ivory Coast, Nigeria

TABLE I—continued

Species	Zoogeographical region	Distribution and host plants
<i>izzardii</i> .	East African	Sudan
<i>lavaterae</i> .	Mediterranean	Algeria, Morocco, Tunisia ( <i>Althea</i> )
<i>longirostris</i> .	East African	Rhodesia, Kenya
<i>lugubris</i> .	East African	Congo
<i>lusingaensis</i> .	East African	Congo
<i>maculatus</i> .	South African	S. Africa
<i>mancinii</i> .	East African	Congo ( <i>Hibiscus mutabilis</i> ), Tanzania
<i>meneghetti</i> .	East African	Ethiopia, Kenya
<i>moursii</i> .	East African	Congo, Tanzania, Zambia
<i>multiformis</i> .	East African	Congo, Kenya ( <i>Gossypium</i> , <i>Pavonia</i> , <i>Sida</i> , <i>Euryops</i> , <i>Amygdalus</i> ), Sudan, Tanzania, Uganda ( <i>Gossypium</i> , <i>Abutilon</i> , <i>Hibiscus</i> )
<i>ngoianus</i> .	East African	Congo, Tanzania, Uganda
<i>nigricornis</i> .	East African	Angola, Congo, Kenya, Malawi, Rhodesia ( <i>Lactuca</i> ), Tanzania, Uganda ( <i>Gossypium</i> ), Zambia
	South African	Mozambique ( <i>Anacardium</i> ), S. Africa ( <i>Gossypium</i> )
<i>pallens</i> .	Mediterranean	Algeria, Egypt, Morocco, Senegal ( <i>Solanum tuberosum</i> ), Tunisia
<i>pallidipennis</i> .	East African	Congo
	South African	S. Africa
<i>rhodesianus</i> .	East African	Rhodesia
<i>rufiventris</i> .	West African	Congo
	East African	Congo ( <i>Gossypium</i> ), Ethiopia, Kenya, Sudan ( <i>Gossypium</i> ), Tanzania, Uganda ( <i>Gossypium</i> , <i>Hibiscus gossypinus</i> , <i>H. cannabinus</i> , <i>Triumfetta</i> , <i>Lubera</i> ?)
<i>schoutedeni</i> .	South African	S. Africa
<i>tabidus</i> .	East African	Congo
	South African	S. Africa
<i>wittei</i> .	East African	Congo
<i>zavattarii</i> .	East African	Ethiopia ( <i>Cordia</i> , <i>Ocimum</i> , Compositae), Somalia (Mancini, 1953)
<i>zimbabwei</i> .	East African	Rhodesia

Of the 31 African species belonging to the subgenus *Oxycareus*, *hyalinipennis* (fig. 4) is evidently the most widespread species and is found in all the African zoogeographical regions. *O. fieberi* (fig. 5) is widespread but is not recorded from the Mediterranean subregion. A few species are present in two or three subregions: for example *O. breddini* (fig. 8) is found in the West African, East African and Malagasy subregions; *O. dudgeoni* (fig. 4) is common in the whole West African subregion and also in the Congo and Uganda in the East African subregion; and *O. rufiventris* (fig. 6) is distributed in the East and South African subregions. Most of the species are restricted to one subregion, as shown in Table I.

Species belonging to the subgenus *Pseudoxycareus* (fig. 10) are found in South Africa, Rhodesia and Kenya. The subgenus *Euoxycareus* has two species, one confined to the Mediterranean subregion and the other to the East African subregion in Ethiopia and Kenya (fig. 10).

The identification of some species might be confirmed on geographical grounds. For instance, *O. gossypinus* occurs in the West African subregion in Sierra Leone, Ivory Coast and Nigeria (fig. 6), whereas *O. mancinii*, which is closely similar to it especially in coloration, is found in the East African subregion in Tanzania and the Congo (fig. 6). The two similar species *O. fieberi* and the black form of *O. multiformis* provide another example: *O. fieberi* is widespread in the West, East and South African subregions (fig. 5), whereas *O. multiformis* occurs only in the north-eastern parts of the East African subregion in Uganda, Kenya, Tanzania, East Congo and South Sudan (fig. 9). *O. annulipes*, which used to be confused with the banded form of *O. multiformis*, is recorded only from South Africa (fig. 6), whereas the latter is found around the lake sources of the Nile River in Uganda, Kenya, Tanzania and the Congo as stated above (fig. 9).

### Host Plants

Kirkpatrick (1923), while studying the life history of *O. hyalinipennis* in Egypt, showed that feeding on seeds of various malvaceous plants, such as *Gossypium*, *Hibiscus* and *Althaea* or of other closely related plants, e.g. *Sterculia*, was essential for breeding to take place. His studies also showed that the presence of the insects on other plants, especially during the resting stage (November to May or June in Egypt), is only accidental or temporary. Neither feeding nor breeding took place on these "hosts", which could be recognised by the undamaged condition of the plants when the insects were shaken off.

Kirkpatrick's list of host plants of *O. hyalinipennis* in Egypt includes the malvaceous *Gossypium*, *Hibiscus*, *Malva*, *Althaea*, *Pavonia*, *Sida*, *Sphaeralcea*, *Abutilon* and the sterculiaceae *Sterculia*. He also listed the following places as favourite sites for the resting bugs: tree trunks, undersides of leaves of trees, pods of leguminous plants, dried flower heads of plants growing on canal banks, among the roots of grasses, under the sheath leaves of maize and sugar cane, and other places such as cracks in telegraph poles or wooden posts, old nests of *Polistes* and the crevices between the strands of barbed wire. The writer has also observed aggregations of adults of *hyalinipennis* during winter on leaves of mango (*Mangifera indica*), guava (*Psidium guajava*) and *Citrus* trees.

It seems unlikely that *Oxycarenus* would feed on many of the host plants referred to by some authors and collectors. For example, *O. amygdali* was reported as damaging leaves of peach trees and as being responsible for destroying apple blossoms in South Africa (data for syntypes and other specimens in the British Museum (Nat. Hist.), and *O. annulipes* has also been recorded as injurious to peaches in South Africa (Distant, 1905). It could be argued that the insects in their need for moisture might damage the leaves and blossoms. This may be true; but the writer, on various occasions in Egypt, has observed large numbers of *hyalinipennis* aggregating inside the flower buds of cotton without any obvious injury to the plants.

The following list includes the host plants of *Oxycarenus* in Africa that have been recorded for specimens examined during this work:

Malvaceae: *Abutilon* sp., *Cola acuminata* (kola), *Eriodendron* sp. (kapok), *Gossypium* (cotton), *Hibiscus cannabinus*, *H. esculentus* (okra), *H. gossipinus*, *Pavonia schimperiana*, *Sida schimperiana*.

Sterculiaceae: *Dombeya* sp., *Sterculia cineria*.

Tiliaceae: *Triumfetta macrophylla*.

Anacardiaceae: *Anacardium occidentale* (cashew).

Rosaceae: *Amygdalus persica* (peaches), *Pyrus malus* (apples).

Boraginaceae: *Cordia abyssinia*.

Labiatae: *Ocimum grandiflorum* (= *Becium*).

Solanaceae: *Solanum tuberosum* (potato).

Compositae: *Euryops* sp., *Lactuca* (lettuce).

The first three families belong to the order Malvales and are, most probably, the only true host plants.

## IV. TAXONOMY

### Genus *Oxycarenus* Fieber, 1837

*Stenogaster* Hahn, 1835 : 15–16 (preocc.) nec Solier, 1833; Germar, 1837 : 141; Herrich-Schäffer, 1850 : 192, 213–16.

*Oxycarenus* Fieber, 1837 : 339–40 nom. nov. pro *Stenogaster* Hahn; Fieber, 1852 : 461–2; Stål, 1865 : 150; Stål, 1872 : 50; Distant, 1904 : 43; Horvath, 1912 : 609; Priesner & Alfieri, 1953 : 53; Stichel, 1958 : 141, 328; Slater, 1964a : 665–7; Slater, 1964b : 42–43.

*Maruthus* Distant, 1910 : 44–45; Horvath, 1912 : 609 (syn.)

Type-species: *Stenogaster tardus* Hahn, 1835 = *Acanthia lavaterae* Fabricius, 1787. Monobasic for *Stenogaster*.

The earlier workers described species of *Oxycareus* under different genera. For example Fabricius (1787) described *O. lavaterae* under *Acanthia*, and then removed it in 1803 to the genus *Lygaeus*. Gmelin (1790) and Turton (1800) placed it under *Cimex*. Costa (1847) described *O. hyalinipennis* under *Aphanus*. These and others are valid generic names.

Hahn (1835) erected the genus *Stenogaster* to include one species, *S. tardus*. No generic morphological characters were given, and the diagnosis was based on general coloration of the species. Germar (1837) described two species from South Africa: *S. annulipes* and *S. rufiventris*. Herrich-Schäffer (1850) separated *Stenogaster* by the four parallel, almost straight veins on the membrane and, sometimes, a fifth indistinct vein along the outer margin. He erected one species, *S. pallens*, and keyed and described nine species (five of which were subsequently transferred to other genera). Dallas (1852) added *S. pallidipennis* and Mulsant (1852) *S. collaris*.

Meanwhile, Fieber (1837) established the genus *Oxycareus*, giving a detailed description and figures for *Stenogaster* Hahn, a name that was preoccupied by the coleopteran *Stenogaster* Solier, 1833. He described nine species; seven of these were subsequently transferred to other genera, and *O. spitzii* was synonymised with *O. modestus*. Fieber (1852) redescribed the genus and 16 species of *Oxycareus*, nine of which were subsequently transferred to other genera; of his four new species only *bicolor* and *germarii* are still recognised. The genus was characterised mainly by having the rostrum long, at least reaching the hind coxae; the fore coxal cavities close together, those of the mid and hind coxae widely separated; and the fore femora with one stout and several small spines.

Stål (1854, 1855, 1865, 1872, 1874) described and keyed the Lygaeid subfamilies, genera and species, and added four new African species of *Oxycareus*: *maculatus*, *albidipennis*, *fieberti* and *tabidus*. He described some new generic characters, more particularly the first antennal segment being shorter than the apex of the head, and the wider than long scutellum.

The subfamily Oxycareninae was first introduced as Oxycarenida by Stål (1862) and was characterised by having the head narrow; the eyes small and subglobular; the distal cell of the hind wing without hamus; and the thorax without carina. Stål (1872) added some new characters: the antenniferous tubercles very close to the bucculae; the posterior legs distinctly separated; the exterior margin of the corium distinctly projecting over the abdomen; and the abdominal spiracles ventral.

The name Oxycareninae was first used by Distant (1904); he separated the subfamily from others found in India by the non-incrassate anterior femora and by the extension of the rostrum considerably beyond the anterior coxae. Distant (1904) and Villiers (1952) described the genus *Oxycareus*, but did not add much to its characters. Schouteden (1912) keyed its African species, and Stichel (1958–59) those of Europe.

Priesner & Alfieri (1953) in their study of the Heteroptera of Egypt separated the genus *Oxycareus* by its long genal plates, and two large and a few smaller teeth on the fore femora. Ashlock (1957) described the phallus of *O. hyalinipennis* as an example for the subfamily Oxycareninae. He pointed out the two lateral processes of the phallotheca, the uncoiled vesica, the reduced ejaculatory reservoir, but overlooked the vesical wings and mistook the vesical sclerite for a ring sclerite. Slater & Hurlbutt (1957) found that the hind wings in the Oxycareninae are distinguished by having intervannals, and by the absence of a hamus, and that the intervannals in *Oxycareus* are basally fused. Stichel (1957) separated the genus *Oxycareus* from the other genera of Oxycareninae by the first antennal segment, which does not surpass the apex of the head; he keyed and described the European species. China & Miller (1959) separated the Oxycareninae by the position of the abdominal spiracles (the second is dorsal and the third to the seventh are ventral), the non-laminate lateral margins of the pronotum and the widely laminate lateral margins of the corium.

Slater (1964b) described the Oxycareninae of South Africa. He characterised the subfamily mainly by the position of the spiracles, the presence of intervannals, the absence of a hamus and the widely separated hind coxae. Slater (*t.c.*) also mentioned the absence of trichobothria, but Scudder (1963) had indicated the presence of 11 pairs on the abdomen which the present author was able to confirm.

General colour yellowish to brownish or blackish; sometimes bright red colours on pronotum, corium, abdomen.

Head triangular, width across eyes less than posterior margin of pronotum. One pair of ocelli present, posteromedian to compound eyes. Rostrum long, extending at least to hind coxae and at most beyond apex of hemelytra; first segment reaching to three-quarters length of head. Antennae filiform, slender, shorter or subequal to half length of body; first segment shorter than or just reaching apex of head; second segment usually longest, fourth segment stoutest.

Pronotum trapezoid, wider than long, lateral margins straight or sinuate. Scutellum comparatively small, wider than long. Fore legs stout; femora somewhat swollen, with 3 or 4 spines, the fourth, if present, separated and some little distance from the other three which are close together, apical spine smallest with obtuse tip and a thin long hair; coxae closely approximated. Mid and hind legs slender, moderately long; coxae of both pairs widely separated; tibiae unicolorous or annulate. Hemelytra more or less hyaline, wider and longer than abdomen; corium thickened, usually opaque; exocorium wide, different or similar to corium in colour, apex rounded and usually with a spot, or pointed without spot; clavus coriaceous with three long rows of punctures, middle row shorter; membrane hyaline, colourless or with brownish to blackish hues, with five longitudinal veins; corio-membranal line straight or distinctly curved. Hind wings hyaline, veins rarely pigmented, intervannals present, hamus absent.

Abdomen more or less flattened; dorsum with two orifices of larval odoriferous glands as short slits medially in the sutures between segments 4 and 5, and 5 and 6; connexivum with distinct segmentation; venter varying in colour, sutures between segments 3 and 4, and 4 and 5, indistinct except laterally, sixth and seventh segments in male with a dense row of fine hairs except medially and laterally. Abdominal spiracles present, the second being dorsal, and the third to seventh ventral. Trichobothria present, three pairs on third and fourth abdominal segments medially, three pairs on sixth segment laterally, and two pairs on seventh segment also laterally.

In the male, abdomen tapering slightly towards the posterior extremity, ninth segment forming a genital capsule, or pygophore characterised by having a posterodorsal opening, bearing a paramere on each side; parameres crossed, slightly variable in structure. Female larger than male, separated from the latter by the readily visible ovipositor.

#### Key to subgenera of *Oxycarenus*

- 1 Body dorsoventrally flattened; head longer than length of pronotum; rostrum longer than body or at least reaching fifth abdominal segment; annulation present on hind tibiae; vesical lobe very prominent (fig. 41); second vesical sclerite present (fig. 41) . . . *Pseudoxycarenus* subgen. n. (p. 147)
- Body not dorsoventrally flattened; head shorter than length of pronotum; rostrum short, not exceeding fifth abdominal segment; annulation present on mid and hind tibiae (or rarely absent); vesical lobe absent; second vesical sclerite absent . . . . . 2
- 2 Lateral margins of pronotum straight; corio-membranal line distinctly curved; distal angle of corium pointed; spot at apex of exocorium absent; distance from apex of head to apical angle of clavus subequal to that from apical angle of clavus to apex of membrane; vesica with two membranous appendages dorsally . . . *Euoxycaenus* subgen. n. (p. 153)
- Lateral margins of pronotum sinuate; corio-membranal line more or less straight; distal angle of corium rounded; spot at apex of exocorium present; distance from apex of head to apical angle of clavus much longer than that from apical angle of clavus to apex of membrane; vesical membranous appendages absent . . . . . *Oxycarenus*

#### Subgenus *Oxycarenus* s. str.

Body not flattened. Distance from apex of head to apical angle of clavus longer than half the total length of body.

Head somewhat thick, usually slightly longer than wide, shorter than length of pronotum, black, sometimes brown; rostrum moderately long, reaching fourth abdominal segment in male and fifth segment in female; antennae comparatively long (ratio of length of antennae to length of body in male, 44.4 to 50.3; in female, 43.9 to 49.4), variable in colour, black or brown or with second segment lighter; first segment hardly reaching apex of head; fourth segment usually shorter than second.

Pronotum with lateral margins more or less sinuate, variable in coloration: fore femora with four spines (rarely with three); mid and hind tibiae annulate (rarely unicolourous); corium and exocorium variable in colour, spot at apex of exocorium present; corio-membranal line more or less straight, forming a rounded angle with costal margin.

Abdomen variable in coloration, yellowish, brownish, black or red with posterior segments black.

Male genitalia.—Pygophore rounded with dorsal opening variable: triangular, cupola-shaped or wide with arch; posterior margin of pygophore straight or with median notch; subgenital plates in posterodorsal view variable: rectangular or triangular, sometimes with lateral or median projections. Aedeagus long or short, vesica without lobes, vesical wings moderate to long; vesical sclerite long, straight, rarely broad or indented. Parameres strong, long; blade apically rather rounded, with or without lobe; shank with one or two nodules.

Type-species: *Stenogaster tardus* Hahn.

The subgenus *Oxycareus* includes the great majority of the species belonging to the genus *Oxycareus* (31 out of the 36 African species) and occurs in all the zoogeographical regions in Africa, although a number of its species are apparently isolated geographically. Other species are more widely distributed and occur in more than one subregion, but *O. hyalinipennis* is the only species that is known to occur in all the African regions.

#### Key to species of subgenus *Oxycareus*

- 1 Fore femora with three spines . . . . . 2
- Fore femora with four spines . . . . . 5
- 2 Pronotum uniform brown; antennae dark brown with second segment paler . . . . . *zimbabwei* sp. n. (p. 143)
- Pronotum not uniformly coloured, anterior half at least with a darker band; antennae yellowish with fourth segment dark . . . . . 3
- 3 Pronotum noticeably much broader posteriorly than anteriorly; venter dark brown; first antennal segment dark brown . . . . . *gibbus* sp. n. (p. 144)
- Pronotum only slightly broader posteriorly than anteriorly; venter ochreous; first antennal segment light yellowish-brown . . . . . 4
- 4 Pronotum light yellow ochre with light brown band; fore femora with fourth vestigial spine; without spot at apex of exocorium *tabidus* Stål (p. 145)
- Pronotum orangish-yellow with anterior half orangish-brown; fore femora without fourth vestigial spine; spot at apex of exocorium present  
*izzardii* sp. n. (p. 146)
- 5 General colour brownish; head reddish or brownish; pronotum unicolourous sometimes with darker markings . . . . . 6
- General colour black or black and red; head black; pronotum unicolourous or with darker band . . . . . 10
- 6 Antennae dark brown; spot at apex of exocorium distinct . . . . . 7
- Antennae with at least second segment light brown; spot at apex of exocorium faint . . . . . 8
- 7 Venter brownish-red to red, sides and apex brown; corium white; clavus light yellowish with terminal margin, commissure, apical angle dark brown; blade of paramere without lobe . . . . . *breddini* Bergroth (p. 139)
- Venter brownish-black; corium brownish-yellow; clavus blackish-brown, median area lighter; blade of paramere with lobe . . . . . *ngoziianus* sp. n. (p. 140)
- 8 Scutellum reddish-brown; opening of pygophore wide with long arch (fig. 36, C); posterior edge of pygophore straight; subgenital plates in posterodorsal view oblong with wide median notch and two projections laterally; blade of paramere with lobe . . . . . *rhodesianus* sp. n. (p. 142)



- Scutellum dark brown; opening of pygophore cupola-shaped or rounded arch; posterior edge of pygophore curved, with median notch; subgenital plates in posterodorsal view triangular with more or less deep median notch; blade of paramere without lobe . . . . . 9
- 9 Fourth antennal segment longer and stouter than second; corium yellowish with median area suffused with brown; prosternum blackish-brown; venter blackish-brown, dorsal opening of pygophore cupola-shaped  
*brunneus* sp. n. (p. 137)
- Fourth antennal segment shorter than second; corium wholly yellowish; prosternum dark reddish-brown; venter orangish to yellowish with dark apex; dorsal opening of pygophore wide with rounded arch  
*ibadanensis* sp. n. (p. 138)
- 10 Corium reddish . . . . . 11
- Corium not reddish . . . . . 19
- 11 Mid and hind tibiae not annulate . . . . . 12
- Mid and hind tibiae annulate, at least faintly . . . . . 13
- 12 Pronotum bright orange; corium bright orange, spot at apex of exocorium small . . . . . *rufiventris* (Germar) (p. 103)
- Pronotum black; corium red; spot at apex at exocorium large  
*zavattarii* Mancini (p. 99)
- 13 Pronotum unicolourous black or red . . . . . 14
- Pronotum black and red . . . . . 17
- 14 Pronotum red. . . . . (red form) *multiformis* sp. n. (p. 115)
- Pronotum black . . . . . 15
- 15 Tibiae blackish-brown, faintly annulate with light brown; corium dark red with black coloration along radius and distal margin; exocorium red  
*lavatae* (F.) (p. 97)
- Tibiae brownish-black, distinctly and widely annulated with white; corium red, exocorium yellowish . . . . . 16
- 16 Membrane light to dark brown; venter red as far as fifth abdominal segment; subgenital plates in posterodorsal view triangular, high, with deep notch (fig. 13); blade of paramere without lobe . . . *fieberi* Stål (p. 100)
- Membrane colourless; venter red as far as sixth abdominal segment; subgenital plates in posterodorsal view transversely rectangular; blade of parameres with lobe . . . . . (black form) *multiformis* sp. n. (p. 113)
- 17 Pronotum red with anterior half entirely black; clavus medially brownish; subgenital plates in posterodorsal view triangular; blade of paramere without lobe . . . . . *annulipes* (Germar) (p. 107)
- Pronotum red with black band on anterior half, or black with lateral red marks; clavus black; subgenital plates in posterodorsal view transversely rectangular; blade of paramere with lobe . . . . . 18
- 18 Pronotum red with black band on anterior half  
(banded form) *multiformis* sp. n. (p. 116)
- Pronotum black with two large red spots laterally  
(spotted form) *multiformis* sp. n. (p. 117)
- 19 Pronotum entirely orange-red or with black anterior half . . . . . 20
- Pronotum black, sometimes tinged with brown . . . . . 23
- 20 Pronotum brownish-orange with a transverse black band on anterior half . . . . . 21
- Pronotum entirely brownish-orange . . . . . 22
- 21 Venter blackish-brown with central area dark sanguineous; subgenital plates in posterodorsal view rectangular with two projections laterally; blade of paramere without lobe . . . . . *amygdali* Distant (p. 110)

- Venter to sixth abdominal segment orangish-red with median area yellowish, sides and posteriorly black; subgenital plates in posterodorsal view triangular with deep apical notch; blade of paramere with lobe  
*moursii* sp. n. (p. 109)
- 22 Venter to sixth abdominal segment bright reddish-brown, sides and posteriorly black; subgenital plates in posterodorsal view rectangular with median depression; blade of paramere with lobe *mancinii* sp. n. (p. 112)
- Venter to sixth abdominal segment reddish-yellow, posteriorly dark brown; subgenital plates in posterodorsal view rectangular with two long projections medially; blade of paramere without lobe *gossipinus* Distant (p. 105)
- 23 Clavus unicolourous whitish or slightly ochreous; dorsal opening of pygophore triangular . . . . . 24
- Clavus dark brown to black, sometimes with median area whitish; dorsal opening of pygophore wide, with arch . . . . . 26
- 24 Antennae brownish-black, basal two-thirds of second segment and basal third of third segment light yellow-brown; pronotum blackish-brown with anterior margin and posterior half tinged with brown  
*hyalinipennis* (Costa) (p. 117)
- Antennae entirely brownish-black to black; pronotum black . . . . . 25
- 25 Venter to sixth abdominal segment red, sides and posteriorly black . . .  
*pallidipennis* (Dallas) (p. 122)
- Venter black . . . . . *nigricornis* sp. n. (p. 120)
- 26 Venter mainly orange-red . . . . . 27
- Venter not red . . . . . 28
- 27 Clavus blackish-brown with median area whitish; subgenital plates in posterodorsal view semicircular; posterior edge of pygophore with median notch . . . . . *albidipennis* Stål (p. 126)
- Clavus unicolourous brownish-black; subgenital plates in posterodorsal view rectangular with two projections medially; posterior edge of pygophore nearly straight . . . . . *congoensis* sp. n. (p. 129)
- 28 Head wider than long; corium white with basal half and anal margin black  
*dudgeoni* Distant (p. 131)
- Head longer than wide, at least subequal; corium yellowish, sometimes with brown colorations . . . . . 29
- 29 Corium unicolourous yellowish; blade of paramere with lobe . . . . . 30
- Corium with brownish coloration; blade of paramere without lobe . . . . . 31
- 30 Venter to sixth abdominal segment yellowish-ochre, posteriorly brownish-black; subgenital plates in posterodorsal view with two moderate projections medially . . . . . *schoutedeni* sp. n. (p. 125)
- Venter brownish-black with median area slightly lighter; subgenital plates in posterodorsal view with two projections laterally *bokalae* sp. n. (p. 124)
- 31 Membrane hyaline, tinged with light brown . . . . . *lusingaensis* sp. n. (p. 135)
- Membrane dark chocolate brown, white adjacent to corium . . . . . 32
- 32 Corium whitish-yellow with dark brown triangular patch between radius and corio-membranal line; white strip on membrane along corio-membranal line; ratio of pronotum length to width 72 : 95  
*wittei* sp. n. (p. 134)
- Corium brownish-black with basal third white; white strip on membrane adjacent to apical angle of corium; ratio of pronotum length to width 85 : 35 . . . . . *lugubris* (Motschulsky) (p. 133)

*O. castaneus* Bergevin is not included in the key (see p. 147).

*Oxycarenus (Oxycarenus) lavaterae* (Fabricius) (fig. 11)*Acanthia lavaterae* Fabricius, 1787 : 278; Fabricius, 1794 : 70.*Cimex lavaterae* Gmelin, 1790 : 2125; Turton, 1800 : 610.*Lygaeus lavaterae* Fabricius 1803 : 240.*Aphanus lavaterae* Brullé, 1835 : 388.*Stenogaster tardus* Hahn, 1835 : 16, 113; Amyot & Serville, 1843 : 255; Costa 1843 : 44.*Heterogaster lavaterae* Herrich-Schäffer, 1835 : 46.*Oxycarenus tardus* Fieber, 1837 : 342; Fieber, 1852 : 465.*Anthocoris lavaterae* Blanchard, 1840 : 133.*Aphanus tardus* Costa, 1847 : 185.*Stenogaster lavaterae* Jaquelin-Duval, 1849 : xvi; Herrich-Schäffer, 1850 : 214.*Stenogaster sculus* Herrich-Schäffer, 1850 : 214; Fieber, 1861 : 205 (syn.).*Oxycarenus lavaterae* Dohrn, 1859 : 35; Fieber, 1861 : 205; Puton, 1886 : 24; Stichel, 1958 : 152-3, 328; Slater, 1964a : 680-3.

General colour red and black. Characterised by the black hues along radius and distal margin of dark red corium, and by the wide opening of pygophore.

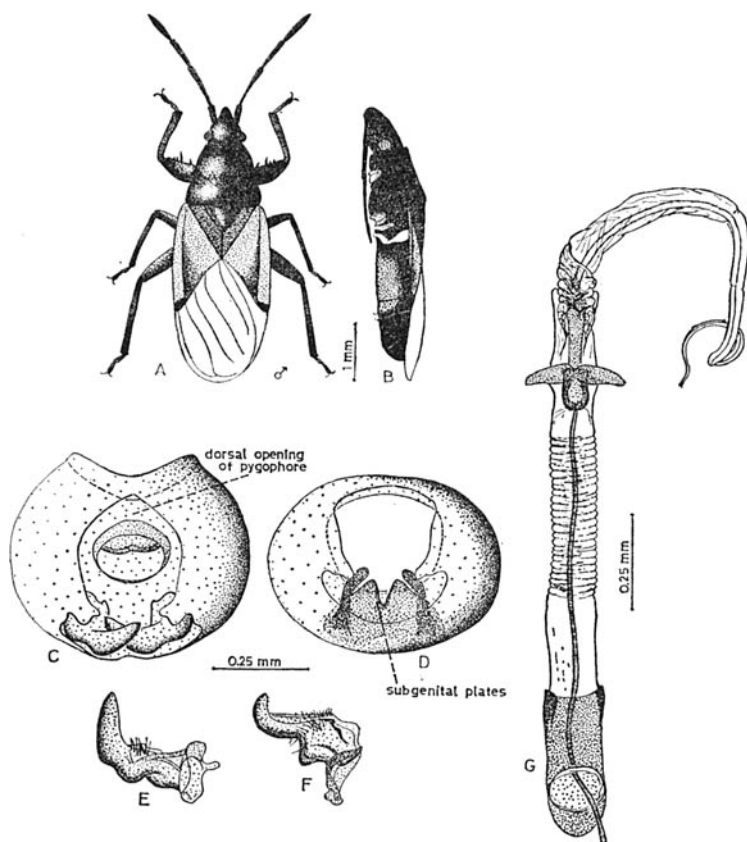


FIG. 11.—*Oxycarenus lavaterae* (F.): A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

**Measurements (in mm.).—Male** (N. Africa): body length 4.82 (4.71–4.94); head length 0.83, width across eyes 0.77; antennae: segment I—0.38, II—0.74, III—0.59, IV—0.70; rostrum length 2.49, pronotum length 1.00, width 1.40; scutellum length 0.48, width 0.62. **Female** (N. Africa): body length 5.53 (5.19–5.92); head length 0.97, width across eyes 0.87; antennae: segment I—0.42, II—0.89, III—0.67, IV—0.75; rostrum length 3.03; pronotum length 1.13, width 1.61; scutellum length 0.56, width 0.77.

Head black; rostrum black, with third segment reaching mid-coxae, fourth segment extending beyond hind coxae; antennae black.

Pronotum black, lateral margins sinuate, posterior margin slightly concave; prosternum black; scutellum black; meso- and metasterna black; acetabula whitish; femora black; fore femora with

four spines; fore tibiae dull brown; mid and hind tibiae blackish-brown, faintly annulated with light brown; tarsi brown, third segment blackish; corium dark red, with blackish hues along radius and distal margin; exocorium dark red, with spot at apex oblong, black; clavus brownish-black; membrane yellowish, hyaline.

Abdomen dorsally red, connexivum black, venter to segment six red, laterally and posteriorly black.

Male genitalia.—Pygophore with dorsal opening wide, arch cupola-shaped (fig. 11, C), posterior edge curved with distinct median notch; subgenital plates in posterodorsal view triangular with deep wide apical notch (fig. 11, D). Aedeagus (fig. 11, G) fairly long, thick; vesica without lobes; vesical wings short; vesical sclerite long, slender. Parameres (fig. 11, E, F) large, strong, blade without lobe; shank broad, with two nodules (one indistinct).

*Specimens examined*.—TUNISIA: type (♀) of *Lygaeus lavatae* Fabricius, Vahl, Mûs. L. nt. Lünd (Copenhagen Mus); 3 ♂, 2 ♀, Carthage (G. C. E. Champion Coll. 1927 : 409) (Br. Mus.); 1 ♂, 1 ♀, 5.xii.1893 (Saunders Coll. 1910 : 357) (Br. Mus.);

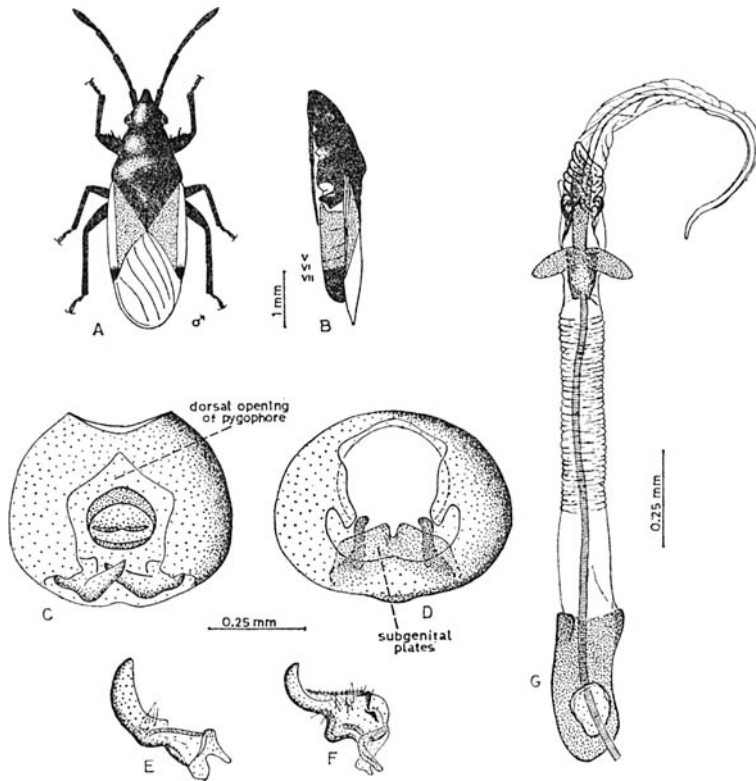


FIG. 12.—*Oxycarenus zavattarii* Mancini: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

2 ♂, 8 ♀, env. de Tunis, 1902 (*A. Weiss*) (Paris Mus.); 1 ♀, Sidi ben Hassan (Noualhier Coll. 1898) (Paris Mus.). ALGERIA: 1 ♂, 1 ♀ (Saunders Coll. 1910 : 357) (Br. Mus.); 2 ♂, 3 ♀, Rippon (Distant Coll. 1911) (Br. Mus.); 2 ♂, 1 ♀, between Mostaganem and Arzeu, 8.v.1937 (*A. H. G. Alstom and N. D. Simson*) (Br. Mus.); 3 ♂, 1 ♀, (Puton Coll.) (Paris Mus.); 1 ♂, 1 ♀, Bone (Puton Coll.) (Paris Mus.). MOROCCO: 1 ♂, 2 ♀, Middle Atlas, 10.v.1961, dead moss on river bank (*P. N. Lawrence*) (Br. Mus.).

*Distribution*.—The range of this species in Africa is limited to the northern areas of the Mediterranean subregion, but it has never been recorded from Libya or Egypt. It might extend to Sierra Leone (Walker, 1872) but its existence in the Congo (Mayné & Ghesquière, 1934; Courteaux, 1922) is doubtful (fig. 6).

*Oxycarenus (Oxycarenus) zavattarii* Mancini (fig. 12)*Oxycarenus zavattarii* Mancini, 1939a : 211-2; Mancini, 1939b : 162; Slater, 1964a : 692.*Oxycarenus zavattarii unicolor* Mancini, 1939b : 162; Mancini, 1956 : 82; Slater, 1964a : 692.

General colour red and black. Characterised by the red corium and abdomen, the black head, pronotum, and antennae, the unicolourous black tibiae, the triangular shape of subgenital plates in posterodorsal view and the absence of lobes on blades of parameres.

*Measurements (in mm.)*.—*Male* (Ethiopia): body length 4.43 (4.13–4.64); head length 0.78, width across eyes 0.72; antennae: segment I—0.33, II—0.64, III—0.51, IV—0.61; rostrum length 2.27; pronotum length 0.95, width 1.27; scutellum length 0.46, width 0.58. *Female* (Ethiopia): body length 4.92 (4.72–5.47); head length 0.87, width across eyes 0.79; antennae: segment I—0.36, II—0.71, III—0.55, IV—0.65; rostrum length 2.65; pronotum length 0.99, width 1.40; scutellum length 0.48, width 0.66.

Head black; rostrum black with third segment reaching hind coxae, fourth segment extending to third or fourth abdominal segment; antennae black, with first segment reaching apex of head.

Pronotum black, lateral margins slightly sinuate; prosternum black; scutellum black; meso- and metasterna black; acetabula white, proximally black; femora black; fore femora with four spines; tibiae black, not annulate; tarsi brownish-black; corium red, opaque; exocorium yellow with spot at apex big, brownish-black; clavus black; membrane hyaline.

Abdomen dorsally red; connexivum red; venter to fifth segment red, posteriorly black.

Male genitalia.—Pygophore with dorsal opening wide with curved arch (fig. 12, C), posterior edge of pygophore curved with a median notch; subgenital plates in posterodorsal view triangular with wide angle and apical notch (fig. 12, D). Aedeagus (fig. 12, G) long; vesica without lobe; vesical wings moderately long; vesical sclerite long, straight. Parameres (fig. 12, E, F) large, long; blade slender without lobe; shank broad, with two distinct nodules.

*Specimens examined*.—ETHIOPIA: type (♂) of *O. zavattarii*, nei Borana, A.O.I., Javello, 15–30.iv.1937 (*Miss E. Zavattari*) (Genoa Mus.); 2 ♂, 3 ♀, same data as type (Br. Mus.); paratypes, 1 ♂, 1 ♀, Megd, 3–7.v.1937 (Br. Mus.); type (♀) of *O. zavattarii unicolor* Mancini, Harrar, v.1937, Mochi (Genoa Mus.); 3 ♂, 2 ♀, nei Borana, A.O.I., Javello, 15–30.iii.1937 (*Miss E. Zavattari*) (Genoa Mus.); 1 ♂, 2 ♀, Harrar, v.1937, Mochi (Genoa Mus.); 4 ♂, 5 ♀, Sagan Omo, A.O.I., Megd, 18.ix.1939 (*Miss E. Zavattari*) (Genoa Mus.); 1 ♂, 1 ♀, Sagan Omo, A.O.I., Omo, 13.viii.1939 (*Miss E. Zavattari*) (Genoa Mus.); 5 ♂, 6 ♀, Eritrea, Asmara, v.1937, 29.xii.1939, 29.xii.1940 (*F. Vaccaro*) (Genoa Mus.); 1 ♂, Arussi Occ., Aselle, i.1940 (*Patrizi*) (Genoa Mus.); 1 ♂, Addis Ababa, Filloa, vi.1941 (*Meneghetti*) (Genoa Mus.); 1 ♂, Env. de Harrar, Lac Aramaya, 1903 (*Mission du Bourg de Bozas*) (Paris Mus.); 1 ♀, Addis Ababa, vi.1905 (*M. de Rothschild*) (Paris Mus.); 1 ♂, 2 ♀, Entre Dire Dauoa et Harrar, iii.1905 (*M. de Rothschild*) (Paris Mus.); 9 ♂, 2 ♀, Haramay, 1905 (*M. de Rothschild*) (Paris Mus.); 1 ♂, 1 ♀, Mt. Chillalo, Digala, circa 9500 ft., 27.ix, 26.xi.1926 (*H. Scott*) (Br. Mus.); 1 ♂, 2 ♀, Maraquo, 26.vi.1914 (*O. Kovacs*) (Br. Mus.); 1 ♂, 1 ♀, Waloma Prov., Mt. Damota, 10,000 ft., 4–6.xi.1948 (*H. Scott*) (Br. Mus.); 10 ♂, 11 ♀, Nr. Addis Alle, circa 8000 ft., 18.ix.1926 (*J. Omer-Cooper*) (Br. Mus.); 5 ♂, 5 ♀, Djem Djem Forest, circa 8000 ft., 8.x.1926 (*H. Scott*) (Br. Mus.); 1 ♂, Doukham, 6500–7000 ft., 19.x.1926, flowers of a tree *Cordia abyssinica* (*H. Scott*) (Br. Mus.); 1 ♂, Wachacha Ravine, near Addis Ababa, 8000 ft., 9.ix.1926 (*H. Scott*) (Br. Mus.); 4 ♀, Mulu, above Muger Valley, circa 8000 ft., 20.xii.1926 (*H. Scott*) (Br. Mus.); 1 ♀, Waloma Pr. Soddu, 6800 ft., 27.x.1948, beaten from flowers of Compositae (*H. Scott*) (Br. Mus.); 1 ♂, 2 ♀, Waloma Pr., Mt. Damota, circa 9600–10,000 ft., 5.xi.1948 (*H. Scott*) (Br. Mus.); 5 ♂, 1 ♀, Simien Warqa, W. side of Mai Shaha valley, 9400 ft., 16.xii.1952, shaken from a somatic shrub, *Ocimum grandiflorum* (*H. Scott*) (Br. Mus.); 2 ♀ (Coll. Kalroown) (Prague Mus.).

*Distribution*.—This species seems to be restricted to Ethiopia, and was also recorded in Somalia (Mancini, 1953) (fig. 6).

*Variation*.—In some specimens the venter laterally and the connexivum are black. In a large number of specimens the exocorium is red, uniform with the colour of the corium, and not yellow as described.

*Comparative note*.—The species resembles *O. fieberi* Stål and the black form of

*O. multiformis* sp. n., but differs in having totally black tibiae. It is separated from *multiformis* by the lack of a lobe on the blade of the parameres and by the triangular shape of the subgenital plates (rectangular in *multiformis*). It is distinguished from *fieberti* by the straight lateral margins of the dorsal opening of pygophore (fig. 12, C) and by the straight long vesical sclerite (in *fieberti* the lateral margins are curved (fig. 13, C) and the vesical sclerite is broad and indented at the base).

**Taxonomic note.**—Mancini (1939b) described the subspecies *O. zavattarii unicolor* from Ethiopia for a specimen with a red exocorium instead of yellow as in the typical species, selected from material including *O. zavattarii* collected in Harrar. This alone does not satisfy the meaning of a subspecies (Mayr, 1963, p. 348). Moreover, the paratypes of *zavattarii* in the British Museum and the Genoa Museum include specimens with entirely yellow exocorium and others with the proximal half reddish. There do not seem to be any geographical differences, the range of the two variants being restricted to Ethiopia and Somalia. In structure, male genitalia and colour (except the exocorium), the two are not distinguishable. I regard *O. z. unicolor* Mancini as an infrasubspecies and not a subspecies.

### *Oxycarenus (Oxycarenus) fieberti* Stål (fig. 13)

*Oxycarenus fieberti* Stål, 1855 : 35; Stål, 1865 : 151; Schouteden, 1912 : 316; Mancini, 1939a : 210; Odhiambo, 1957 : 236–7; Slater, 1964a : 672; Slater, 1964b : 143–5.

General colour black and red. Characterised by the black pronotum, the red corium, the venter being red to fifth segment and black posteriorly, the triangular shape of subgenital plates and the absence of lobes on blades of parameres.

**Measurements (in mm.).**—Male (S. Africa): body length 3.58 (3.56–3.62); head length 0.64, width across eyes 0.71; antennae: segment I—0.28, II—0.53, III—0.44, IV—0.55; rostrum length 2.07; pronotum length 0.86, width 1.08; scutellum length 0.36, width 0.51. Female (S. Africa): body length 4.10 (4.03–4.24); head length 0.78, width across eyes 0.77; antennae: segment I—0.30, II—0.63, III—0.46, IV—0.56; rostrum length 2.43; pronotum length 0.97, width 1.26; scutellum length 0.40, width 0.55.

Head black; rostrum black with third segment reaching to hind coxae, fourth segment to fourth abdominal segment; antennae black.

Pronotum black, lateral margins slightly sinuate; prosternum black; scutellum black; meso- and metasterna black; acetabula white, proximally blackish; femora black; fore femora with four spines; tibiae brownish-black; mid and hind tibiae annulated with yellowish-white centrally; tarsi blackish-brown; corium red, opaque; exocorium yellow with spot at apex small, blackish-brown; clavus brownish-black; membrane semi-hyaline, more or less brownish.

Abdomen dorsally brownish-red; connexivum dark brown; venter to fifth segment red, segments 6–9 black.

Male genitalia.—Pygophore with dorsal opening wide with low arch, lateral margins conspicuously curved inwards (fig. 13, C); posterior edge curved with median notch; subgenital plates in postero-dorsal view almost triangular with deep apical notch (fig. 13, D). Aedeagus (fig. 13, G) short; vesica without lobes; vesical wings rather broad; vesical sclerite broad, indented at base. Parameres (fig. 13, E, F) strong; blade short, thick, without lobe; shank broad, with two nodules.

**Specimens examined.**—SOUTH AFRICA: lectotype ♂, Caffraria (J. Wahlb.) Allotypus, No. 67/66 (head glued to label; antennae, hemelytra missing; abdomen pinned) (Stockholm Mus.); 2 ex, paralectotypes, same data as lectotype, No. 68, 69 (abdomina missing) (Stockholm Mus.); 1 ♂, 1 ♀, Durban, Bell Marley (Dist. Coll. 1911 : 383) (Br. Mus.); 5 ♂, 4 ♀, Durban, 1902 (*F. Muir*) (Sharp Coll. 1905) (Br. Mus.); 3 ♂, Port St. John, 5–30.iv.1923 (*R. E. Turner*) (Br. Mus.); 1 ♂, Port St. John, Pondoland, 1.v–30.vi.1923 (*R. E. Turner*) (Br. Mus.); 13 ♂, 10 ♀, Natal, Verulan, 1897 (Dr. Brauns Coll.) (Br. Mus.); 1 ♀, Transvaal, Johannesburg, 1904–46 (*J. P. Cregoe*) (Br. Mus.); 1 ♀, Zululand, Eshowe, vi.1926 (*R. E. Turner*) (Br. Mus.); 1 ♀, Zululand, Gingindhlovu, 22.v.1926 (*R. E. Turner*) (Br. Mus.). ANGOLA: 1 ♂, 1 ♀, Bangala (Coll. Skulina) (Prague Mus.). TANZANIA: 1 ♂, Lake Nyassa, 1600 ft. Matemo Village, 30.viii.1959, (*Cambridge E. African Exp.*) (Br. Mus.); 1 ♂, Kigoma, ix.1918 (*R. Mayné*) (Tervuren Mus.). KENYA: 1 ♂, Meru, vii.1943, C.I.E. Coll.

N.9795, (det. G. C. E. Scudder, 1960) (Br. Mus.); 1 ♂, 1 ♀, Kitale, Uasin Gishue, 1932 : 33, 2100 m. (*Mission de L'Omo C. Arambourg (P. A. Chappuis & R. Jeannel)*) (Paris Mus.). DAHOMEY: 1 ♂, Env. de Porto Novo, 1909 (*Waterlot*) (Paris Mus.). GABON: 1 ♂, Libreville, v. 1936 (J. Prinot Coll.) (Paris Mus.); 1 ♀, Libreville, vii. 1904 (*Mission Chari-Chad (J. Decoise)*) (Paris Mus.). UGANDA: 3 ♂, 3 ♀, Kampala, 24.vi.1921, on Luvrimsu (*H. Hargreaves*) (Br. Mus.); 21 ♂, 18 ♀, Kampala, 4.viii.1921 on *Hibiscus gossypinus* (*H. Hargreaves*) (Br. Mus.); 1 ♂, 5 ♀, Nationdive, 4.i.1921 (*H. Hargreaves*) (1 ♀ det. Uvarov, 1 ♀ det. Scudder) (Br. Mus.); 1 ♂, Kampala, 27.viii.1921, on fruit of *Triumfetta macrophylla* (*H. Hargreaves*) (Br. Mus.); 1 ♂, 1 ♀, Kampala, 8.ii.1926 (*G. L. R. Hancock*) (Br. Mus.); 3 ♂, 2 ♀, Bugondo Teso, 2.i.1922

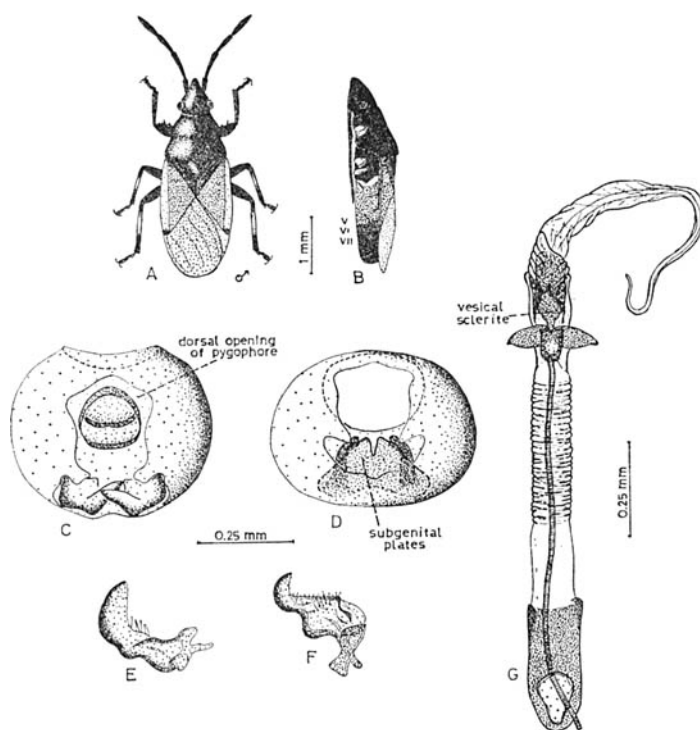


FIG. 13.—*Oxycarenus fieberi* Stål: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

on cotton (*H. Hargreaves*) (det. Uvarov) (Br. Mus.); 1 ♀, Ruwenzori Range, Namwamba valley, 10,000 ft., xii. 1934–i. 1935 (*B.M.E. Afr. Exp. (T. H. E. Jackson)*) (Br. Mus.); 1 ♂, Kampala, Gov. Plant., 1925 (*G. L. E. Hancock*) (Br. Mus.); 2 ♀, near Kampala, 4000 ft., partly forest, 12.vii.1911 (*S. A. Neave*) (Br. Mus.); 5 ♂, 1 ♀, near Mpumu, 4000 ft., 14.vii.1911 (*S. A. Neave*) (Br. Mus.); 1 ♂, 1 ♀, near Kakindu, Banks of Nile, 3400 ft., 24.viii.1911 (*S. A. Neave*) (Br. Mus.); 1 ♀, Mt. Kokanjero, S.W. of Elgon, 6400 ft., 7.viii.1911 (*S. A. Neave*) (Br. Mus.); 2 ♂, Kampala, 1921 (*H. Hargreaves*) (det. W. E. China, 1927) (Stockholm Mus.); 1 ♂, Kampala, 4.viii.1921, on *Hibiscus gossypinus* (*H. Hargreaves*) (Stockholm Mus.). ETHIOPIA: 1 ♂, 1 ♀, Maraco, 8.iv.1915 (*O. Kovaks*) (Br. Mus.); 1 ♂, Mulu, above Muger Valley, circa 8000 ft., 18–23.xii.1926 (*H. Scott*) (Br. Mus.); 2 ♂, nei Borana, A.O.I., Arero, iv. 1937 (*Miss. E. Zavattari*) (Genoa Mus.); 1 ♂, 2 ♀, 1899 (*Mission de Bauchamps (Ch. Michel & M. Potter)*) (Paris Mus.). SUDAN: 1 ♂, East Sudan, Gura, R. 7500, viii.1929 (*R. E. Dent*) (Br. Mus.). NIGERIA: 2 ♂, 1 ♀, Ibadan, S.N., infesting cotton (*G.C.D.*) (Br. Mus.). GHANA: 2 ♂, 1 ♀, Tafo, 6.i.1943, on *Sida* sp. (*H. H. Box*) (Br. Mus.).

SIERRA LEONE: 1 ♂, 2 ♀, Blama, 11.v.1928, dead leaf end of kola (*E. Hargreaves*) (det. Uvarov) (Br. Mus.); 2 ♂, Njala, 21.i.1925, malvaceous host (*E. Hargreaves*) (Br. Mus.); 1 ♂, 1 ♀, Grima, 3.xi.1924 (*E. Hargreaves*) (Br. Mus.); 1 ♂, 1 ♀, Mapote, 10.ii.1921, malvaceous host (*E. Hargreaves*) (det. B. Uvarov) (Br. Mus.); 5 ♂, 2 ♀, Musaia, 5–23.viii.1963 (*N. Wilding*) (Br. Mus.); 2 ♀, Noala, 29.ix.1922, on *Hibiscus* (*E. Hargreaves*) (Br. Mus.). CONGO: 1 ♂, 5 ♀, Ruanda, Gitarama, 1850 m. terr. Nyanza, i.1953 (*P. Basilewsky*) (Tervuren Mus.); 2 ♂, 2 ♀, Ruanda, Kibungu, 2.ii.1953, 1500 m. (*P. Basilewsky*) (Tervuren Mus.); 1 ♂, Ruanda, Mahembe, 13–15.i.1953, 1400 m. terr. Nyanza (*P. Basilewsky*) (Tervuren Mus.); 2 ♀, Kindu, 28.xii.1911 (*L. Burgeon*) (Tervuren Mus.); 2 ♂, 2 ♀, Coquilhatville, le soir a table, 9.vii.1909 (*Voyage de S.A.R. le prince Albert 1909*) (Tervuren Mus.); 9 ♂, 5 ♀, Matadi 12.ix.1910 (*Bequaert*) (Tervuren Mus.); 1 ♀, Congo de Lemba, iv.1911 (*R. Mayné*) (Tervuren Mus.); 3 ♂, 1 ♀, Labule, 13.iii.1911 (*L. Burgeon*) (Tervuren Mus.); 1 ♂, 1 ♀, Seke, 20.vi.1911 (*R. Mayné*) (Tervuren Mus.); 6 ♂, 2 ♀, Mugatura, ix.1930 (*Ch. Seydel*) (Tervuren Mus.); 1 ♂, 2 ♀, Bokala, vii–viii.1913 (*J. Maes*) (Tervuren Mus.); 4 ♂, 7 ♀, Nyangwe, v.1913, v.1918 (*R. Mayné*) (Tervuren Mus.); 2 ♂, 4 ♀, Baskasi, ix.1920 (*P. Vanderijst*) (Tervuren Mus.); 1 ♂, Faradje: augodra, 19.ii.1930 (*A. Collart*) (Tervuren Mus.); 1 ♀, Ituri Nioka, 23.viii.1931 (*J. Vrydagh*) (Tervuren Mus.); 1 ♂, Luebo, viii.1921, Malvaceae (*Ghesquière*) (Tervuren Mus.); 1 ♂, 2 ♀, Haute Uele, Walsa, xi.1919 (*L. Burgeon*) (Tervuren Mus.); 1 ♂, 2 ♀, Kisamtu, 1919 (*P. Vanderijst*) (Tervuren Mus.); 1 ♂, 1 ♀, Equateur, Flandria, vii.1930 (*R. P. Hulstaert*) (Tervuren Mus.); 1 ♀, Haute Uele, Moto, 1920 (*L. Burgeon*) (Tervuren Mus.); 6 ♂, 1 ♀, Tasi, 23.i.1918 (*R. Mayné*) (Tervuren Mus.); 17 ♂, 7 ♀, Eala, iii.1921 (*Ghesquière*) (Tervuren Mus.); 1 ♀, Kivu, Mulungu, v.1935 (*J. V. Leroy*) (Tervuren Mus.); 1 ♂, de Luebo à Luluabourg, 1921 (*J. Ghesquière*) (Tervuren Mus.); 2 ♀, Nyangwe, 20.viii.1920, parasite de coton (*Ghesquière*) (Tervuren Mus.); 5 ♂, 3 ♀, Kisantu, 1924–32 (*R. P. Vanderyst*) (Tervuren Mus.); 2 ♂, Stanleyville, 18.iii.1928 (*A. Collart*) (Tervuren Mus.); 1 ♂, Luebo, 19.viii.1921 (*H. Schouteden*) (Tervuren Mus.); 1 ♂, Basongo, x.1921 (*L. Achten*) (Tervuren Mus.); 3 ♂, 3 ♀, Eala, 1917 (*R. Mayné*) (Tervuren Mus.); 1 ♀, Elisabethville, 10.vii.1920 (*J. Leroy*) (Tervuren Mus.); 1 ♀, Ituri, Maine d'Odongo, 12.iii.1929 (*A. Collart*) (Tervuren Mus.); 14 ♂, 6 ♀, Kinshasa, ix.1920 (*P. Vanderijst*) (Tervuren Mus.); 14 ♂, 10 ♀, Haute Uele, Paulis, 9.x.1947 (*P. L. G. Benoit*) (Tervuren Mus.); 4 ♂, 5 ♀, Lokandu, iii.1939 (*Marée*) (Tervuren Mus.); 1 ♂, Bukavu, viii.1931 (*Miss O. Mackie*) (Br. Mus.); 1 ♂, 3 ♀, near Bukavu, viii.1931 (*J. Ogilvie*) (Br. Mus.); 2 ♂, 2 ♀, Aba (Coll. Baum) (Prague Mus.); 1 ♀, Oubangui Chari (Coll. Skulina) (Prague Mus.); 3 ♂, 2 ♀, Brazzaville, vii.1904 (*Mission Chari-Chad (Dr. J. Decorse)*) (Paris. Mus.); 2 ♂, 3 ♀, Rutshuru, vi.1937, No. 4525 (*J. Ghesquière*) (Tervuren Mus.).

*Distribution*.—Angola, Congo, Dahomey, Ethiopia, Gabon, Ghana, Kenya, Nigeria, Sierra Leone, South Africa, Sudan, Tanzania, Uganda. This species appears to be widely distributed in nearly all the Ethiopian Region. Its range extends from Sierra Leone in the west to Ethiopia in the east and southward to South Africa. It is not found in the Mediterranean subregion or the Sahara (fig. 5).

*Variation*.—Stål (1855) described *O. fieberi* from South Africa as having a dark brown membrane; in 1865 he described the membrane as colourless, hyaline. However, the examination of the lectotype and paratypes described in 1865 showed that the membrane is faintly brownish. The examination of numerous specimens from South Africa and other localities showed that the membrane varies from faintly brown to dark brown. In the Tervuren Museum, five specimens collected from Rutshuru in eastern Congo are characterised by having both the corium and the venter to the fifth segment yellow ochre instead of being red. The male genitalia from these specimens agree completely (in the shape of the dorsal opening of pygophore the subgenital plates, the parameres and the basally indented vesical sclerite) with the genitalia of *fieberi* with red coloration.



*Comparative note.*—*O. fieberi* might be confused with the black form of *O. multiformis* sp. n., but can be separated by having a red venter up to the fifth abdominal segment (red to the sixth segment in *multiformis*). The male genitalia also exhibit various differences, as discussed in detail on p. 82. Hancock (1926) had reported two sizes of *O. fieberi* from Uganda; in fact, the small size only is *fieberi* and the larger one must be the black form of *O. multiformis*.

*Taxonomic note.*—According to an official letter from the Riksmuseum of Stockholm, the type series of *O. fieberi* was "subject to an accident". The series sent to me consisted of four specimens: (1) two pairs of hind legs, bearing labels: Caffraria, J. Wahlb., *fieberi* Stål, Typus, lectotype by J. A. Slater, No. 66; (2) 1 ♂, head detached, bearing labels: Caffraria, J. Wahlb., Allotypus, *Oxycarenus fieberi* Stål, No. 67; (3, 4) 2 ex (abdomina missing), bearing labels: Caffraria, J. Wahlb., paratypus, Nos. 68, 69. When Slater (1964b) designated a male as the lectotype, he also said that the female bore an Allotypus label. This label is now placed on a male; as it is the only relatively undamaged specimen of the type series and as it shows the red coloration of the venter which is characteristic and separates *O. fieberi* from the closely similar species *O. multiformis* (the black form), it should be considered the lectotype. The other two specimens are labelled paralectotypes.

*Oxycarenus (Oxycarenus) rufiventris* (Germar) (fig. 14)

*Stenogaster rufiventris* Germar, 1837 : 141; Herrich-Schäffer, 1850 : 214.

*Oxycarenus rufiventris* Fieber, 1852 : 466; Stål, 1865 : 150-1; Walker, 1872 : 126; Stål, 1874 : 141; Schouteden, 1912 : 316-7; Slater, 1964a : 691; Slater, 1964b : 147.

General colour black and orange. Characterised by the bright orange pronotum, corium and venter, the black antennae and legs, the absence of annulation on tibiae, the triangular shape of subgenital plates and the absence of lobes on blade of each paramere.

*Measurements (in mm.).*—Male (Kenya): body length 4.55 (4.40-4.70); head length 0.81, width across eyes 0.82; antennae: segment I—0.35, II—0.75, III—0.55, IV—0.65; rostrum length 2.37; pronotum length 1.08, width 1.44; scutellum length 0.45, width 0.69. Female (Kenya): body length 5.49 (5.29-5.59); head length 0.97, width across eyes 0.91; antennae: segment I—0.41, II—0.92, III—0.64, IV—0.69; rostrum length 3.32; pronotum length 1.19, width 1.63; scutellum length 0.56, width 0.81.

Head black; rostrum black, with third segment extending to beyond mid-coxae, fourth segment reaching third to fourth abdominal segment; antennae black, with first segment reaching apex of head.

Pronotum bright orange, anterior and posterior edges brownish, lateral margins sinuate; prosternum orange, anterior margin brownish; scutellum black; meso- and metasterna black; acetabula white; femora black; fore femora with four spines; fore tibiae blackish-brown, mid and hind tibiae black, not annulate; tarsi black; corium bright orange, slightly yellowish proximally, brown at base opaque; exocorium broad, yellowish, with spot at apex small, dark brown; clavus black; membrane hyaline.

Abdomen dorsally orangish-brown; connexivum orange; venter to dense rows of hairs on segment seven orange, posteriorly black.

Male genitalia.—Pygophore with dorsal opening somewhat wide, high arched and lateral margins convexed (fig. 14, C), posterior edge curved with median notch; subgenital plates in posterodorsal view triangular with deep wide notch and rounded apices (fig. 14, D). Aedeagus (fig. 14, G) very long; vesica without lobe; vesical wings comparatively small; vesical sclerite long, straight. Parameres (fig. 14, E, F) strong; blade without lobe; shank with two distinct nodules.

*Specimens examined.*—UGANDA: 22 ♂, 19 ♀, Kampala, 27.viii.1921, on fruit of *Triumfetta macrophylla* (H. Hargreaves) (Br. Mus.); 23 ♂, 19 ♀, Kampala, 4.viii.1921, on *Hibiscus gossypinus* (H. Hargreaves) (Br. Mus.); 1 ♂, Matundwe, 4.i.1921 (H. Hargreaves) (Br. Mus.); 3 ♂, Iganga Busago, 24.i.1922, on cotton (H. Hargreaves) (Br. Mus.); 8 ♂, 6 ♀, Serere Teso, 5.i.1922, on *Lubera* (H. Hargreaves) (Br. Mus.); 10 ♂, 10 ♀, Soroti Teso, 7.i.1922, on *Lubera* (H. Hargreaves) (Br. Mus.); 1 ♂, 1 ♀, Bugondo Teso, 2.i.1922, on cotton (H. Hargreaves) (Br. Mus.); 3 ♂ Bugaya Busogo, 31.xii.1921, on cotton (H. Hargreaves) (Br. Mus.); 2 ♂, 1 ♀, Kampala, Gov. Plant., 1925, on *Hibiscus cannabinus* (G. L. R. Hancock) (Br. Mus.); 2 ♂, 2 ♀, Kampala 8.ii.1926 (G. L. R. Hancock) (Br. Mus.); 1 ♀, Kadunguru, Eastern Prov.,

1-10.i.1914 (*C. C. Gowdey*) (Br. Mus.); 1 ♂, 1 ♀, Nr. Masindi, 3500 ft., 15.xii.1911 (*S. A. Neave*) (Br. Mus.); 1 ♂, 1912 (*R. Tyffe*) (Br. Mus.); 1 ♂, Entebbe, 2.v.1910 (det. *Uvarov*) (Br. Mus.); 1 ♂, 3 ♀, Kampala, 13.ix.1918 (Br. Mus.); 2 ♀, Kadunguru, 17.xii.1913 (Br. Mus.); 2 ♂, 2 ♀, Bussu Busogo, 1910, (*E. Bayon*) (Genoa Mus.); 2 ♂, Kampala, 1908 (*E. Bayon*) (Genoa Mus.); 1 ♂, 1 ♀, Kampala, 27.viii.1921, on fruits of *Triumfetta macrophylla* (*H. Hargreaves*) pres. by Imp. Bur. Ent. Brit. Mus., 1922-50 (det. W. E. China, 1937) (Genoa Mus.). KENYA: 5 ♂, 3 ♀, Jombeni Hills, v.1947 (*van Someren*) (det. N. C. E. Miller) (Br. Mus.); 9 ♂, 5 ♀, W. slopes of Kenya, on Meru-Nyeri Rd., 6000 to 8500 ft., 16-23.ii.1911 (*S. A. Neave*) (Br. Mus.); 1 ♂,

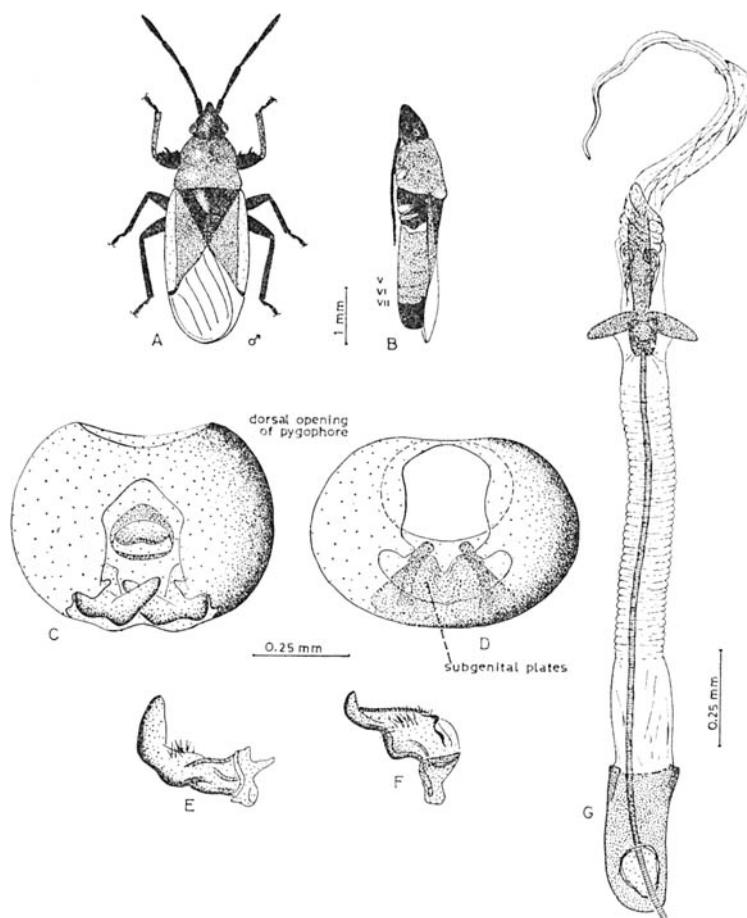


FIG. 14.—*Oxycarenus rufiventris* (Germar): A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

1 ♀, Taveta Forest, viii. 1947 (*Miss M. Steele*) (Br. Mus.); 1 ♀, Teita Hills (S), viii. 1947 (*van Someren*) C.I.E. Coll. No. 10720 (Br. Mus.); 4 ♂, 2 ♀, Mombasa, Lubero, 36 K.m. S., viii.1932 (*L. Burgeon*) (Tervuren Mus.). SUDAN: 2 ♂, 3 ♀, Mongalla Prov. Amade, 14.i.1925, on cotton (*H. H. King*) (det. *B. Uvarov*) (Br. Mus.). SOUTH AFRICA: 1 ♂, 2 ♀, Natal, Verulam, 4.vii.1897 (Dr. Brauns Coll.) (Br. Mus.); 6 ♂, 4 ♀, Port St. John, Pondoland, various dates, v-vi. 1923, v.1924 (*R. E. Turner*) (Br. Mus.). TANZANIA: 14 ♂, 15 ♀, Kibengo, vii.1918 (*R. Mayné*) (Tervuren Mus.); 4 ♂, 2 ♀, Kigoma, ix.1918 (*R. Mayné*) (Tervuren Mus.). ETHIOPIA: 1 ♂, 1 ♀, L. Horadaks, 1.vi.1914 (*O. Kovacs*) (Br. Mus.); 3 ♂, 8 ♀, 1899 (*Mission de Bauchamps* (*Ch. Michel*)).

& M. Potter) (1 ♀ det. Scudder, 1960) (Paris Mus.). CONGO: 6 ♂, 2 ♀, Ruanda, env. Astrida, 1954–55 (*G. Foucart*) (Tervuren Mus.); 2 ♂, 1 ♀, Urundi, Kanyinya, vii. 1947 (*Dames de Mari*) (Tervuren Mus.); 1 ♂, San Kuru, Gandajika, 1950 (*P. de Froncquen*) (det. G. G. E. Scudder, 1962) (Tervuren Mus.); 18 ♂, 8 ♀, Wombali, ix. 1913 (*P. Vanderijst*) (Tervuren Mus.); 5 ♂, 7 ♀, Bokala, vii–viii. 1913 (*J. Maes*) (Tervuren Mus.); 1 ♀, Beni á Lesse, fin vii. 1911 (*Murtula*) (Tervuren Mus.); 1 ♀, Baskasi, vii. 1913 (*P. Vanderijst*) (Tervuren Mus.); 1 ♀, Amadi (brusse), 27–28.v. 1913 (*P. van den Plas*) (Tervuren Mus.); 4 ♂, 5 ♀, Gandajika, Lomami, 3.xi. 1934, recolté sur cotonnier, fleurs et boutons (*Mme. O. Soyer*) (Tervuren Mus.); 1 ♂, 1 ♀, Uele, Nepoko, Dungu, 4.iii. 1932 (*J. Vrydagh*) (Tervuren Mus.); 1 ♂, 1 ♀, Kibali, Ituri, Adranga, 7.viii. 1931 (*H. J. Bredo*) (Tervuren Mus.); 1 ♀, Haute Uelé Watsa, xi. 1919 (*L. Burgeon*) (Tervuren Mus.); 1 ♀, Dungu, iii. 1920 (*P. van den Plas*) (Tervuren Mus.); 1 ♀, Kibenga, Baraka, vii. 1918 (*R. Mayné*) (Tervuren Mus.); 1 ♀, Katanga, Nyonga, v. 1925 (*G. F. de Witte*) (Tervuren Mus.); 1 ♂, 1 ♀, Plaine Lac Edward (N. Parc Albert), xi. 1932 (*Hoier*) (Tervuren Mus.); 1 ♂, 1 ♀, Rutshuru, 2.vi. 1938 (*J. Ghesquière*) (Tervuren Mus.); 1 ♂, Lubero, 23–24.viii. 1932 (*L. Burgeon*) (Tervuren Mus.); 4 ♂, 2 ♀, Niemba, Kalembe, Lembe, vii. 1918 (*R. Mayné*) (Tervuren Mus.); 16 ♂, 4 ♀, Mulongo (Niunzu), 20–30.v. 1930 (*P. Gerard*) (Tervuren Mus.); 1 ♀, Kibali, Ituri : Kilo, 14.iii. 1932 (*G. du Soleil*) (Tervuren Mus.); 2 ♂, 5 ♀, Lac Albert, Kasenyi, iv. 1938 (*H. J. Bredo*) (Tervuren Mus.); 1 ♀, Urira, viii. 1931 (*I. D. A. Cockerell*) (Br. Mus.).

*Distribution*.—East and West Congo, Ethiopia, Kenya, South Africa, Sudan, Tanzania, Uganda. This species is found in the East African subregion especially around the lakes forming the sources of the Nile River; it extends to Western Congo. It is also found in South Africa (fig. 5).

*Note*.—My attempts to obtain information on Germar's type, which is supposed to be in Lemberg, U.S.S.R., have been unsuccessful.

*Comparative note*.—*O. rufiventris* resembles *O. multiformis* (the red form) to some extent, but in *rufiventris* the mid and hind tibiae are completely black, the pronotum is bright orange, the parameres are without lobes and the subgenital plates in a posterodorsal view are rounded. In *multiformis* (the red form) the mid and hind tibiae are brownish-black, annulated with yellow, the pronotum is brownish-red, the parameres are with lobes, and the subgenital plates are transversely rectangular.

### *Oxycarenum (Oxycarenum) gossipinus* Distant (fig. 15)

*Oxycarenum gossipinus* Distant, 1906 : 269–70; Distant, 1909 : 279; Aulmann, 1911 : 272–3; Schouteden, 1912 : 316–7; Slater, 1964a : 673.

General colour black and reddish. Characterised by the orangish-red pronotum, the yellowish corium, the pigmented veins of hind wings, the rectangular shape of subgenital plates with two long projections medially, and the absence of lobes on blade of each paramere.

*Measurements (in mm.)*.—*Male* (Sierra Leone): body length 4.05 (3.87–4.14); head length 0.67, width across eyes 0.73; antennae: segment I—0.28, II—0.62, III—0.47, IV—0.58; rostrum length 2.25; pronotum length 0.90, width 1.18; scutellum length 0.38, width 0.54. *Female* (Sierra Leone): body length 4.63 (4.44–4.75); head length 0.89, width across eyes 0.80; antennae: segment I—0.32, II—0.70, III—0.52, IV—0.61; rostrum length 2.73; pronotum length 1.01, width 1.32; scutellum length 0.43, width 0.59.

Head black; rostrum black with third segment reaching hind coxae, fourth segment extending to third abdominal segment; antennae black.

Pronotum orange-red with posterior half yellowish, lateral margins slightly sinuate; prosternum orange-red, with anterior median area blackish; scutellum black; meso- and metasterna blackish-brown; acetabula whitish; femora blackish-brown; fore femora darker, with four spines; fore tibiae yellowish-brown; mid and hind tibiae brown, annulated with white; tarsi brown, third segment darker; corium yellowish, semi-transparent; exocorium yellowish-white, with spot at apex brown; clavus brownish-black; membrane hyaline; hind wings venation pigmented.

Abdomen dorsally red; connexivum brownish-red; venter reddish-yellow to sixth segment, posteriorly dark brown.

Male genitalia.—Pygophore with dorsal opening wide with high arch (fig. 15, C); posterior edge with median notch; subgenital plates in posterodorsal view oblong with two conspicuous, long

projections medially (fig. 15, D). Aedeagus (fig. 15, G) fairly long; vesica without lobes; vesical wings slender; vesical sclerite long, straight. Parameres (fig. 15, E, F) strong; blade short, thick, without lobe; shank broad, with two nodules, one indistinct.

*Specimens examined*.—SIERRA LEONE: lectotype ♂, Mayomba, ii.1906 (*Dudgeon*) (Distant Coll., 1911) (det. O. Samy, 1967) (Br. Mus.); paralectotype ♂, same data as lectotype (det. O. Samy, 1967) (Br. Mus.); 2 ♂, 1 ♀, Rangahun, i.1909 (*Dudgeon*) (Distant Coll., 1911) (Br. Mus.); 1 ♂, Njala, 23.ii.1926 (*E. Hargreaves*) (det. Uvarov) (Br. Mus.); 2 ♂, 1 ♀, near Pokuma, 2.ii.1925, okra seed pods (*E. Hargreaves*) (Br. Mus.);

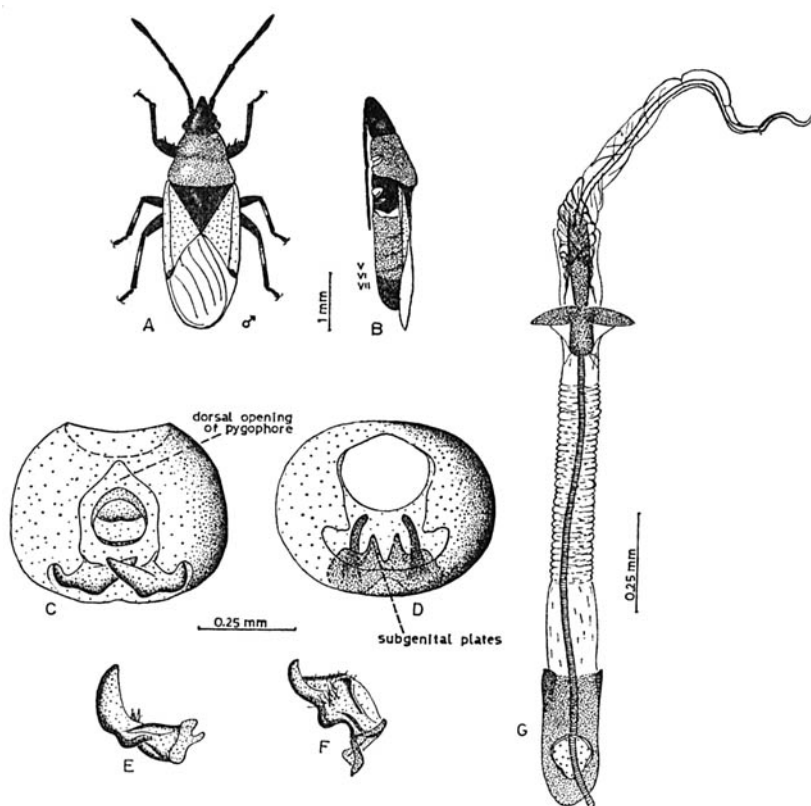


FIG. 15.—*Oxycarenus gossipinus* Distant: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

3 ♂, 2 ♀, Ngiverbu, 16.ii.1925, on cotton (*E. Hargreaves*) (Br. Mus.); 1 ♂, Rangahun, i.1909 (*Dudgeon*) (det. W. E. China, 1939) (Genoa Mus.). IVORY COAST: 2 ♂, 3 ♀, Bouake (*P. Coleno*) (det. J. W. Evans, 1947, *O. lavaterae*) (Br. Mus.). NIGERIA: 1 ♀, Ibadan (*Dudgeon*) (Distant Coll., 1911—383) (Br. Mus.); 1 ♂, Bamanda, 17.xii.1955 (*Exped. Mus. G. Frey, Nigeria-Kamerum, Bechyne* 1955—56) (Br. Mus.); 3 ♂, 5 ♀, Ubiaja, 8.iii.1922 (*A. W. J. Pomeroy*) (det. Uvarov) (Br. Mus.); 5 ♂, 5 ♀, Ibadan, University farm, 30.vii.1965, on cotton (*T. A. Taylor*) (Samy Coll.) (Br. Mus.).

*Distribution*.—Ivory Coast, Nigeria, Sierra Leone. The range of this species is limited to the western parts of the West African subregion (fig. 6).

*Variation*.—In a sample of *O. gossipinus* from Nigeria, sent by Dr. T. A. Taylor, some specimens have a blackish-brown, instead of colourless, membrane. In every other detail, and especially in the male genitalia, there is no difference between the two variants.

*Comparative note.*—This species is so close to *O. mancinii* that it is hard to distinguish between them. The main difference lies in the male genitalia: in *gossipinus* the lobe on the blade of each paramere is absent and the subgenital plates have two prominent projections medially, whereas in *mancinii* the subgenital plates are rectangular with a depression on each side.

*Taxonomic note.*—Distant (1906), in his original description of the species, did not indicate the sex of his specimen; however, the type specimen in the British Museum (Nat. Hist) consists of two males glued on to one label. I take this opportunity to designate one male as lectotype of *Oxycarenum gossipinus* Distant, and the other male as paralectotype. Necessary labels have been attached to the specimens.

*Oxycarenum (Oxycarenum) annulipes* (Germar) (fig. 16)

*Stenogaster annulipes* Germar, 1837 : 141; Herrich-Schäffer, 1850 : 214.

*Oxycarenum annulipes* Fieber, 1852 : 465; Stål, 1874 : 142; Schouteden, 1912 : 316; Distant, 1914 : 241.

*Oxycarenum exitiosus* Distant, 1905 : 169; Theobald, 1906 : 29; Schouteden, 1912 : 316; Distant, 1914 : 241; Slater, 1964a : 671; Slater, 1964b : 147 *syn. n.*

General colour red and black. Characterised by the anteriorly black and posteriorly brownish-red pronotum, the brownish-red corium, the triangular shape of subgenital plates in a posterodorsal view and the absence of lobe on blade of parameres.

*Measurements (in mm).*—Male (S. Africa): body length 4.49 (4.33–4.69); head length 0.80, width across eyes 0.78; antennae: segment I—0.32, II—0.63, III—0.47, IV—0.59; rostrum length 2.16; pronotum length 0.98, width 1.35; scutellum length 0.44, width 0.58. Female (S. Africa): body length 4.99 (4.66–5.25); head length 0.87, width across eyes 0.84; antennae: segment I—0.37, II—0.74, III—0.56, IV—0.66; rostrum length 2.47; pronotum length 1.09, width 1.46; scutellum length 0.48, width 0.65.

Head black; rostrum black with third segment reaching hind coxae, fourth segment extending to fourth abdominal segment; antennae black.

Pronotum with anterior half black, posteriorly brownish-red, lateral margins sinuate; prosternum black with lateral parts of epimeron brownish-red, posterior margin light brown; scutellum black; meso- and metasterna black; acetabula whitish, proximally brownish; femora black; fore femora with four spines; fore tibiae dull blackish-brown; mid and hind tibiae dark brown annulated with white medially; tarsi brown, third segment darker; corium brownish-red; exocorium yellowish with spot at apex black; clavus dark brown, median area reddish-brown; membrane hyaline.

Abdomen dorsally red; connexivum black; venter to sixth segment bright red, laterally and posteriorly black.

Male genitalia.—Pygophore with dorsal opening fairly wide with rounded arch (fig. 16, C); posterior edge with distinct median notch; subgenital plates in posterodorsal view triangular with deep wide notch (fig. 16, D). Aedeagus (fig. 61, G) long; vesica without lobes; vesical wings moderate; vesical sclerite long, straight. Parameres (fig. 16, E, F) robust; blade curved, broad, without lobe; shank broad with two nodules.

*Specimens examined.*—SOUTH AFRICA: type of *O. exitiosus* Distant (2 ♀ glued to one label), Sea Point, injurious to peach, No. 1423 (*J. Garlick*) (Distant Coll., 1911–383) (Br. Mus.); 1 ♂, 2 ♀ (Distant Coll., 1911–383) (Br. Mus.); 1 ♂, Cape Peninsula, Camps Bay, iv. 1920 (*R. E. Turner*) (Br. Mus.); 1 ♂, Cape Prov., Ceres, xi. 1920 (*R. E. Turner*) (Br. Mus.); 1 ♂, 6 ♀, Cape Town, Lion's Head, v. 1920 (*R. E. Turner*) (Br. Mus.); 2 ♀, Cape Prov., Middelburg, damaging peaches (det. G.A.K.M., *O. exitiosus*) (Br. Mus.); 1 ♂, 1 ♀, Cape Prov., vii. 1914 (Coll. D. J. Le Roux) (Br. Mus.); 1 ♀, Cape Prov., Matjiesfontein, 14–27. xi. 1928 (*R. E. Turner*) (Br. Mus.); 1 ♀, Cape Prov., Mossel Bay, ii. 1922 (*R. E. Turner*) (Br. Mus. 1922–97) (Genoa Mus.); 1 ♂, Cape Town, Lion's Head (*R. E. Turner*) (1920–253 (det. W. E. China, 1937) (Genoa Mus.).

*Distribution.*—This species seems to be confined to the Cape Province, in the extreme south-west of S. Africa (fig. 6).

*Biological note.*—As with *O. amygdali*, there is much doubt as to the reputed damage to peaches by this species.

*Comparative note.*—*O. annulipes* might be confused with *O. amygdali* and *O. multififormis* (banded form), but the red corium separates it from *amygdali* (yellowish

corium). The triangular shape, with a deep wide apical notch, of the subgenital plates and the lack of lobes on the blades of parameres separate it from both species.

*Taxonomic note.*—According to Horn (1926), Germar's types are supposed to be in Lemberg Museum, U.S.S.R. (previously Lvov Mus.). My attempts to obtain information on the type of *Stenogaster annulipes* was, however, unsuccessful. A neotype of this species has not been designated, as the type may still be in Lemberg.

Distant (1905) in his original description of *O. exitiosus* stated “. . . corium testaceous . . . the lateral margins to corium sometimes distinctly lutescent”. Later (Distant, 1914) he separated this new species from *O. annulipes* (Germar) on the

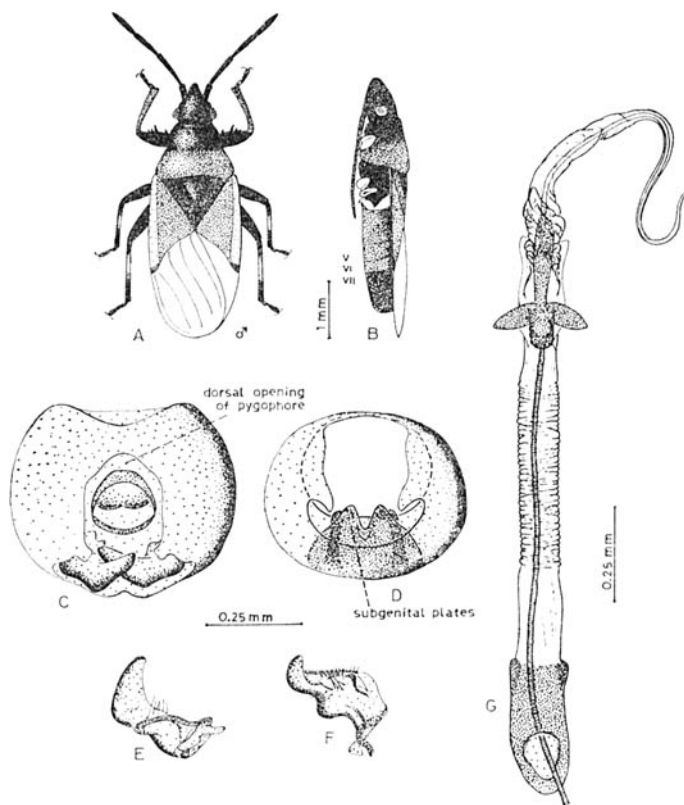


FIG. 16.—*Oxycarenus annulipes* (Germar): A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

coloration of the exocorium. In *O. exitiosus* this was lutescent, and he presumed (not having seen the specimen) that it was red in *O. annulipes*. In fact, the exocorium in the type of *exitiosus* is yellowish “lutescent”, but in many other specimens from the Cape Province it is brownish-red, similar to the corium. Examination of the male genitalia of both “varieties” with red or yellowish exocorium showed their complete similarity.

Schouteden (1912) ran *annulipes* and *exitiosus* in one couplet in his key to the African *Oxycarenus*. Slater (1964b : 147) approached the true synonymy, saying “I had originally considered this species (*O. exitiosus*) as conspecific with *annulipes* (Germar) and from the published descriptions would still so consider it”. Unfortunately he did not pursue the matter, and in his catalogue regarded them as two separate species, synonymising *albidipennis* Stål with *annulipes* Germar, which is proved to be incorrect (p. 129).

*O. exitiosus* Distant should therefore be synonymised with *O. annulipes* (Germar).

*Oxycarenus (Oxycarenus) moursii* sp. n. (fig. 17)

General colour of the species is black, red and whitish. Characterised by the black band on anterior half of red pronotum, the yellow corium, the wide dorsal opening of pygophore, the triangular shape of subgenital plates and the absence of a lobe on blade of each paramere.

*Measurements (in mm.).—Male* (Congo): Body length 5.05 (5.00–5.10); head length 0.85, width across eyes 0.77; antennae: segment I—0.37, II—0.83, III—0.65, IV—0.71; rostrum length 3.09; pronotum length 1.11, width 1.40; scutellum length 0.47, width 0.61. *Female* (Congo): body length 5.92 (5.79–6.08); head length 0.99, width across eyes 0.86; antennae: segment I—0.43, II—0.89, III—0.68, IV—0.78; rostrum length 3.59; pronotum length 1.23, width 1.63; scutellum length 0.59, width 0.74.

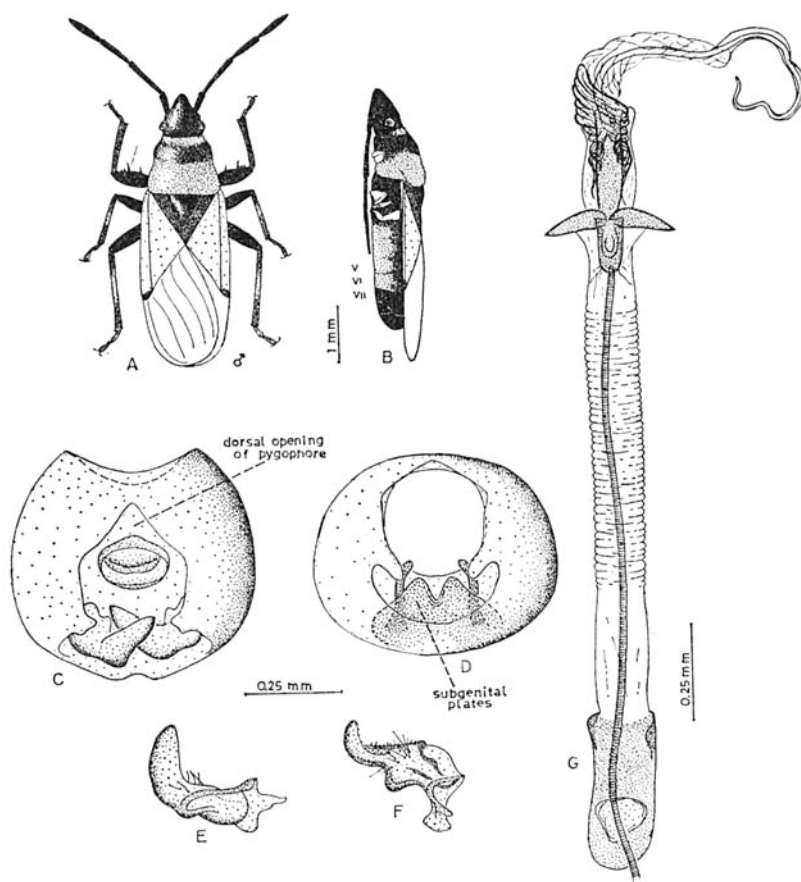


FIG. 17.—*Oxycarenus moursii* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

Head black; rostrum black with third segment reaching beyond hind coxae, fourth segment extending to fourth abdominal segment; antennae black.

Pronotum orangish-red, anterior half with transverse band black; lateral margins sinuate, prosternum black with epimeron brownish-red; scutellum black; meso- and metasterna black; acetabula white, proximally blackish; femora black; fore femora with four spines (rarely five); tibiae brownish-black; mid and hind tibiae annulated with yellowish-white; tarsi blackish-brown; corium yellowish, hyaline; exocorium yellowish, with spot at apex large, distinct, black; clavus brownish-black; membrane hyaline.

Abdomen dorsally brownish-red; connexivum black; venter to sixth abdominal segment orangish-red with median area yellowish, laterally and posteriorly black.

Male genitalia.—Pygophore with dorsal opening wide, pointed-arched and lateral margins straight (fig. 17, C); posterior edge curved with median notch; subgenital plates in posterodorsal

view triangular with deep apical notch (fig. 17, D). Aedeagus (fig. 17, G) long; vesica without lobe; vesical wings comparatively small; vesical sclerite long. Parameres (fig. 17, E, F) strong; blade without lobe; shank with two distinct nodules.

*Holotype* ♂.—CONGO: Kivu, Lacs Mokoto, 31.viii.1937 (*J. Ghesquière*) (Tervuren Mus.). *Paratypes*: 1 ♂, 3 ♀, same data as holotype (Tervuren Mus.).

*Other specimens examined*.—TANZANIA: 1 ♀, Uwemba b. Njombe, 2000 m., 13.xi.1958 (*G. Lindemann*) (Munich Mus.). ZAMBIA: 2 ♂, 1 ♀, Serenje Distr, Chitambo, N.E. of Kapiri Mpocho, 11.viii.1946 (*D. M. Mackey*) (det. R. J. Izzard 1946, *O. exitiosus*) (Br. Mus.).

*Distribution*.—The species is distributed in the East African subregion in East Congo, Tanzania and Zambia (fig. 6).

*Comparative note*.—*O. moursii* is closely similar to *O. amygdali* in coloration, but can be distinguished by the clear cut edges of the black band on the pronotum and by the male genitalia as shown in the table below:

Character	<i>O. moursii</i>	<i>O. amygdali</i>
Anterior half of pronotum	Orangish-red with black band	Black, slightly brownish-orange on anterior margin
Venter	Orangish-red to sixth abdominal segment	Dark blackish-brown with median area dark sanguineous
Subgenital plates in postero-dorsal view	Triangular with deep apical notch (fig. 17, D)	Transversely rectangular with two projections laterally (fig. 18, D)
Lobe on blade of parameres	Present	Absent

This species is named after Dr. A. A. Moursi, entomologist and Under-secretary of State, Ministry of Agriculture, Cairo, for his contribution to the progress of entomology and for his continuous encouragement to the entomologists in Egypt.

#### *Oxycarenum (Oxycarenum) amygdali* Distant (fig. 18)

*Oxycarenum amygdali* Distant, 1914 : 241; Mancini, 1948 : 220; Slater, 1964a : 667; Slater, 1964b : 143.

General colour red and black. Characterised by the black anterior half of orangish-red pronotum, the yellowish-white corium, the very wide dorsal opening of pygophore and the presence of a lobe on blade of each paramere.

*Measurements (in mm.)*.—*Male* (S. Africa): body length 4.12 (3.87–4.46); head length 0.75, width across eyes 0.73; antennae: segment I—0.32, II—0.60, III—0.47, IV—0.61; rostrum length 1.90; pronotum length 0.91, width 1.20; scutellum length 0.40, width 0.55. *Female* (S. Africa): body length 5.14 (4.94–5.30); head length 0.89, width across eyes 0.86; antennae: segment I—0.36, II—0.76, III—0.57, IV—0.67; rostrum length 2.57; pronotum length 1.11, width 1.46; scutellum length 0.51, width 0.69.

Head black; rostrum black, segment three reaching to mid-coxae, segment four to third abdominal segment; antennae black.

Pronotum with anterior half black, slightly brownish-orange on anterior margin. Anteriorly brownish-orange, lateral margins sinuate; prosternum black, lateral angles and posterior margin brownish-orange; scutellum black; meso- and metasterna black; acetabula white with blackish to reddish margins; femora black; fore femora with four spines; fore tibiae blackish-brown; mid and hind tibiae black, broadly annulated with white centrally; tarsi dark brown, third segment blackish; corium yellowish, hyaline; exocorium yellowish with spot at apex large, distinct, black; clavus black, distally brownish; membrane hyaline.

Abdomen dorsally sanguineous; connexivum blackish-brown; venter dark blackish-brown with median area dark sanguineous.

*Male genitalia*.—Pygophore with dorsal opening very wide with pointed arch (fig. 18, C); posterior edge with median shallow curve; subgenital plates in posterodorsal view oblong with two projections laterally (fig. 18, D). Aedeagus (fig. 18, G) long; vesica without lobes; vesical wings moderate; vesical sclerite long, straight. Parameres (fig. 18, E, F) robust; blade short, broad, with a lobe; shank with one nodule.



*Specimens examined*.—SOUTH AFRICA: type (♀), Transvaal, Amersfoort 28.xi.1913, 1914—361 (no wings) (Br. Mus.); 1 ♀, same data as type (Br. Mus.); 1 ♀ locality data as type, destroying apple blossoms early in season (labelled *O. amygdali*, Dist.) (Br. Mus.); 1 ex, Amersfoort, 28.xi.1913, damaging leaves of peach trees (Br. Mus.); 1 ♂, Amersfoort, Bethal, 8.x.1914, damaging apple blossoms early in season (labelled *O. amygdali* Dist.) (Br. Mus.); 7 ♂, 7 ♀, [probably Verulam], Mooi River (*H. Smith*) *Malva* (Dr. Brauns Coll. 1897–98) (Br. Mus.); 1 ♀, Pretoria, 28.v.1902 (*C. J. Swierstra*) (Br. Mus.).

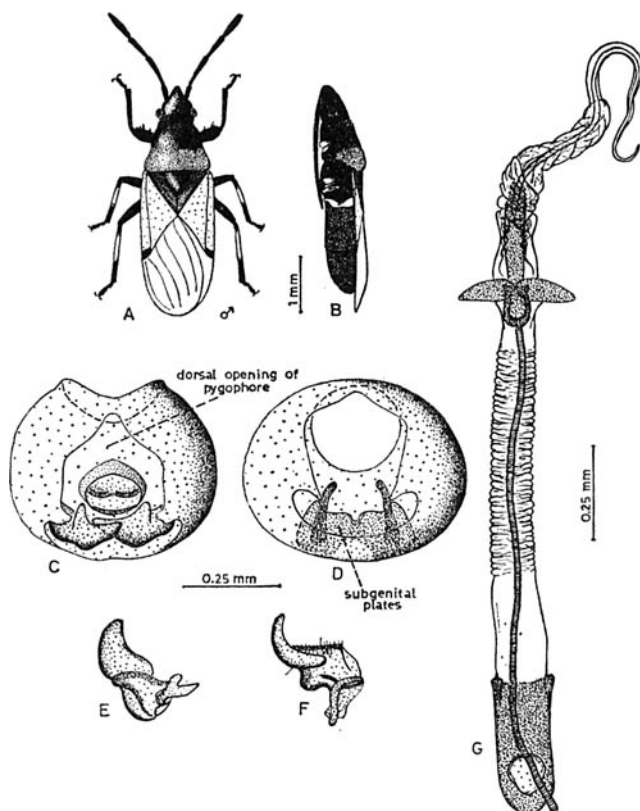


FIG. 18.—*Oxycarenus amygdali* Distant: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

*Distribution*.—The range of *O. amygdali* is limited to the north-eastern parts of S. Africa; it was also recorded from Somalia by Mancini (1948) (fig. 6).

*Biological note*.—It is very doubtful that this insect damages leaves of peach trees and destroys apple blossoms in S. Africa, as these do not provide any sort of food. More likely, the insects were just passing part of their quiescent period on these trees.

*Comparative note*.—This species is very similar to *O. moursii* in the general coloration, but differs in having the venter dark blackish-brown; the subgenital plates rectangular; and the blade of the parameres without lobe. In *moursii* the venter is orangish-red to the sixth segment, the subgenital plates are triangular and the lobe on the blade of the parameres is present. The species might also be confused with *O. annulipes* and *O. multiformis* (the banded form), but can easily be separated by the yellowish-white corium (red in the other two species).

*Trans. R. ent. Soc. Lond.* **121** (4). Pp. 79–165, 45 figs. 1969.

*Oxycarenus (Oxycarenus) mancinii* sp. n. (fig. 19)

General colour black and red. Characterised by the brownish-red pronotum, the yellow corium and exocorium, the presence of a lobe on the parameres and by the rectangular shape of subgenital plates.

*Measurements (in mm.)*.—*Male* (Tanzania): body length 3.95; head length 0.75, width across eyes 0.68; antennae: segment I—0.30, II—0.59, III—0.48, IV—0.58; rostrum length 2.22; pronotum length 0.81, width 1.11; scutellum length 0.39, width 0.52. *Female* (Tanzania): body length 4.57; head length 0.86, width across eyes 0.81; antennae: segment I—0.35, II—0.71, III—0.54, IV—0.63; rostrum length 2.55; pronotum length 1.00, width 1.25; scutellum length 0.42, width 0.57.

Head black; rostrum black with third segment reaching mid-coxae, fourth segment extending beyond hind coxae; antennae black, with first segment reaching apex of head.

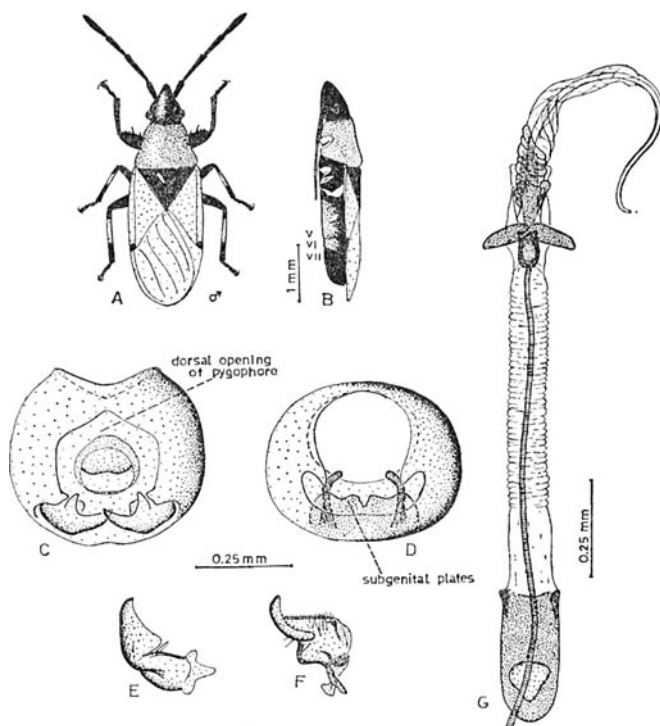


FIG. 19.—*Oxycarenus mancinii* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

Pronotum brownish-red (a small black spot between calli), lateral margins sinuate; prosternum brownish-red with anterior median triangle black; scutellum black; meso- and metasterna black; acetabula ivory white; femora brownish-black; fore femora with four spines; fore tibiae blackish-brown; mid and hind tibiae brownish-black, annulated with yellow; tarsi blackish-brown; corium yellow ochre, pallid; exocorium yellow ochre, pallid, with spot at apex large, distinctly brownish-black; clavus brownish-black; membrane transparent, light brown.

Abdomen dorsally brownish-red; connexivum brownish-black; venter to segment 6 bright reddish-brown to dark brown, laterally and segments 7 to 9 black.

*Male genitalia*.—Pygophore with very wide dorsal opening and short lateral margins (fig. 19, C); posterior edge slightly curved with median notch; subgenital plates in posterodorsal view transversely rectangular with a depression on each side (fig. 19, D). Aedeagus (fig. 19, G) moderately long; vesica without lobe; vesical wings moderate; vesical sclerite straight. Parameres (fig. 19, E, F) robust; blade strong, with lobe; shank wide with one nodule.

*Holotype* ♂, TANZANIA: Uwemba b. Njombe, 8.xi.1958, 2000 m. (*C. Lindemann*) (Munich Mus.). *Paratype*, 1 ♀, same data as holotype, 13.xi.1958 (Munich Mus.).

*Other specimens examined.*—CONGO: 8 ♂, 8 ♀, Ituri, Blukwa, 11.i–2.ii.1929 (*A. Collart*) (Tervuren Mus.); 1 ♀, Eala, 1922 (*M. Gossens*) (Tervuren Mus.); 3 ♀, Eala, 3.iv.1921, *Hibiscus mutabilis* (*Ghesquière*) (Tervuren Mus.); 1 ♀, Terr. Lisala, 1.iv.1937 (*Leantovitch*) (Tervuren Mus.); 2 ♂, Ruwenzori, Kurukwata, 10.vi.1935 (*H. J. Bredo*) (Tervuren Mus.); 1 ♂, Logo, 14.vii.1937 (*H. J. Bredo*) (Tervuren Mus.); 1 ♂, Beni a Lesse, fin vii.1911 (*Murtula*) (Tervuren Mus.); 1 ♂, 4 ♀, Bokala, vii–viii.1913 (*J. Maés*) (Tervuren Mus.).

*Distribution.*—The species is found in eastern Tanzania and the Congo (fig. 6).

*Comparative note.*—This new species is very similar to *O. gossipinus* in coloration, but the male genitalia differ sufficiently to separate the two. The following table will aid in separating the two species:

Character	<i>O. mancini</i>	<i>O. gossipinus</i>
Hind wing venation	Unpigmented	Pigmented
Subgenital plates in postero-dorsal view	Rectangular with a depression on each side (fig. 19, D)	Rectangular with two median conspicuous projections (fig. 15, D)
Lobe on blade of parameres	Present	Absent
Distribution	The Congo, Tanzania	Sierra Leone, the Ivory Coast, Nigeria

The species is named in honour of Dr. C. Mancini of the Museo Civico di Storia Naturale, Genoa.

### *Oxycarenus (Oxycarenus) multiformis* sp. n. (fig. 20)

General colour of the species red and black. Characterised by the red corium and yellowish exocorium, the red venter to sixth abdominal segment, the wide dorsal opening of pygophore, the rectangular shape of subgenital plates, and the presence of a lobe on blade of each paramere.

This is a polymorphic species, of which four different colour forms are recognised. The difference between the forms lies in the colour of the pronotum and to some extent that of the prosternum. The black form, being the recessive colour, is described in full.

#### *The black form*

*Measurements (in mm.).*—*Male* (Uganda): body length 4.08 (3.91–4.23); head length 0.74, width across eyes 0.72; antennae: segment I—0.32, II—0.63, III—0.47, IV—0.56; rostrum length 2.37; pronotum length 0.92, width 1.19; scutellum length 0.44, width 0.58. *Female* (Uganda): body length 4.61 (4.44–4.78); head length 0.81, width across eyes 0.79; antennae: segment I—0.36, II—0.71, III—0.52, IV—0.60; rostrum length 2.86, pronotum length 0.98, width 1.13; scutellum length 0.47, width 0.63.

Head black; rostrum black, with third segment reaching hind coxae, fourth segment extending to third abdominal segment; antennae black, first segment reaching apex of head.

Pronotum (fig. 20) black, lateral margins sinuate; prosternum black; scutellum black; meso- and metasterna black; acetabula white, proximal margins black; femora black; fore femora with four spines; tibiae brownish-black; mid and hind tibiae annulated with yellowish-white; tarsi blackish-brown; corium red; exocorium light yellowish-white, with spot at apex distinct, black; clavus black; membrane hyaline.

Abdomen dorsally orangish-red; connexivum orangish-red; venter orangish-red to sixth abdominal segment, posteriorly black.

Male genitalia.—Pygophore with wide dorsal opening, arch pointed and convexed (fig. 20, C); posterior edge of pygophore slightly curved with median notch; subgenital plates in posterodorsal view transversely rectangular with median notch (fig. 20, D). Aedeagus (fig. 20, G) long; vesica without lobe; vesical wings short; vesical sclerite long, straight. Parameres (fig. 20, E, F) robust; blade thick, with a lobe; shank with one nodule and another, indistinct.

*Holotype* ♂, UGANDA, Kampala, Kawanda Res. St., 13.i.1965, on *Hibiscus esculentus* (Samy Coll.) (Br. Mus.). *Paratypes*: 5 ♂, 5 ♀, same data as holotype (Br. Mus.).

*Other specimens examined*.—UGANDA: 1 ♀, Ounyoro Meridional, i.1909 (*Ch. Alluaud*) (Paris Mus.). KENYA: 5 ♂, 5 ♀, Kismu, 15.viii.1965, on cotton (*T. J. Crowe*) (Samy Coll.) (Br. Mus.); 1 ♀, Nairobi, x.1929 (*G. A. K. Marshall*) (Br. Mus.); 1 ♂, Afr. Or. Angl., Nairobi, Wa-Kikoyou et Masai, viii.1904 (*Ch. Alluaud*) (det. G. G. E. Scudder, 1960, *O. fieberi*) (Paris Mus.). CONGO: 1 ♀, Ituri forest, 3000 ft.,

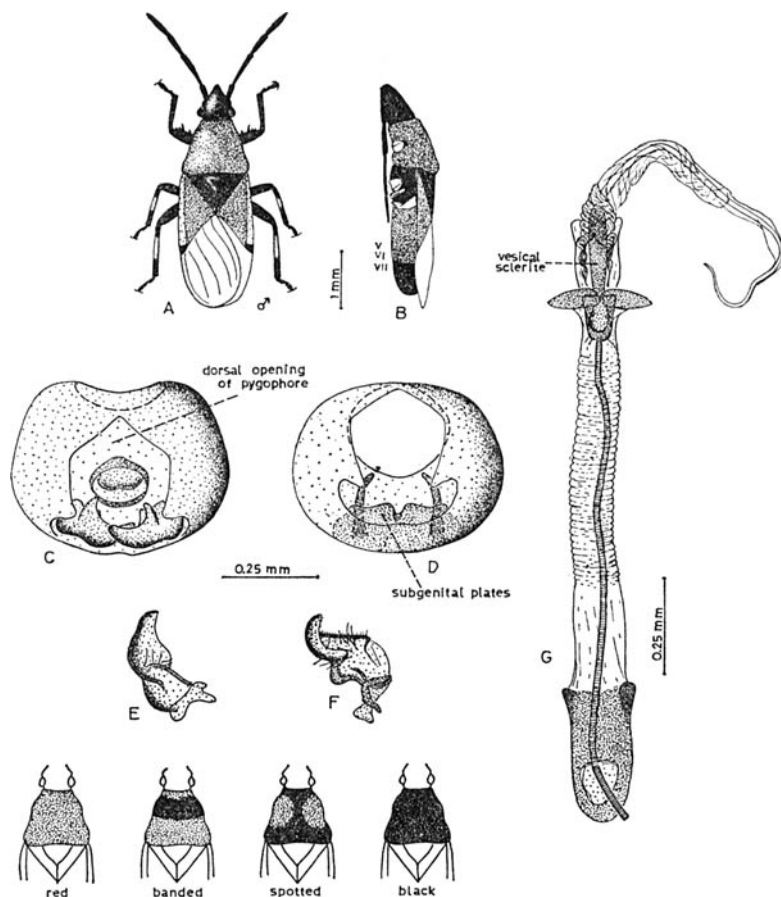


FIG. 20.—*Oxycarenus multiformis* sp. n.: A, B, red form, dorsal and lateral views (pronotum of each colour form shown at bottom of figure); C, pygophore, dorsal view; D, the same, postero-dorsal view; E, F, right paramere; G, aedeagus.

40 miles N.N.E. of Beni, 12.ix.1959 (*Cambridge E. African Exp. B.M.* 1966 : 50) (Br. Mus.); 1 ♂, Ruin, Mukana, 16.viii.1932 (*H.G.J.*) (Br. Mus.). SUDAN: (S.E. Sudan), 1 ♂, 1 ♀, Didinga Dist., Nagichot, 6700 ft., xii.1925–i.1926 (*G. D. H. Carpenter*) (Br. Mus.). TANZANIA: 2 ♂, 3 ♀, Kilimandjaro, Marangu, 1500 m., 8–9.x.1952 (*Lindmann & Pavlitzki*) (1 ♂ det. G. G. E. Scudder 1960, *O. fieberi*) (Munich Mus.); 1 ♂, Afr. Or. All., Kilimandjaro, Kiboscho, 1904 (*Ch. Alluaud*) (Paris Mus.).

*Distribution*.—The Congo, Kenya, Sudan, Tanzania, Uganda. The range of this black form of *O. multiformis* is limited to the eastern central regions of Africa around Lake Victoria (fig. 9.).

*Comparative note.*—This black form of the new species and *O. fieberi* are very difficult to separate by casual comparison of external coloration, but they can be distinguished by the following tabulated characters:

Characters	<i>O. multiformis</i> (black form)	<i>O. fieberi</i>
Total length . . . . .	♂ 3.91–4.23 mm. ♀ 4.33–4.78 mm.	♂ 3.56–3.62 mm. ♀ 4.03–4.24 mm.
Venter . . . . .	Red to sixth abdominal segment	Red to fifth abdominal segment
Subgenital plates in postero-dorsal view	Transversely rectangular (fig. 20, D)	Triangular (fig. 13, D)
Vesical sclerite . . . . .	Long, slender, straight	Somewhat broad, indented at base (fig. 13, G)
Membrane . . . . .	Hyaline	More or less brownish
Lobe on blade of parameres .	Present	Absent

### *The red form*

Similar to the black form in body measurements and male genitalia. Coloration also similar, except: pronotum (fig. 20) brownish-red; prosternum brownish-red with anteromedian triangle black.

*Paratypes:* 5 ♂, 5 ♀, UGANDA: Kampala, Kawanda Res. St., 13.i.1965, on *Hibiscus esculentus* (Samy Coll.) (Br. Mus.).

*Other specimens examined.*—UGANDA: 6 ♂, 8 ♀, Iganga Busoga, 24.i.1922, on cotton (*H. Hargreaves*) (Br. Mus.); 3 ♂, 1 ♀, Kampala, Gov. Plant., 1925, on *Abutilon* (*G. L. K. Hancock*) (Br. Mus.); 1 ♂, Busso Busoga, ii.1909 (*E. Bayon*) (Genoa Mus.) (det. R. J. Izzard, *O. exitiosus*) (Br. Mus.); 1 ♂, 1 ♀, 1912 (*R. Tyffe*) (Br. Mus.); 1 ♂, 1 ♀, Entebbe, xii.1912 (*C. C. Gowdey*) (Br. Mus.); 1 ♂, Kaliro (*H. Hargreaves*) (Br. Mus.); 1 ♀, Nomwenda Busoga, 23.xii.1921, on cotton (*H. Hargreaves*) (Br. Mus.); 2 ♀, Msis, iii.1911 (*Hayer*) (Tervuren Mus.). KENYA: 1 ♀, Nairobi, x.1929 (*G. A. K. Marshall*) (Br. Mus.); 1 ♀, Nyeri, 29.ix.1937, on *Sida schimperiana* (*H. Wilkinson*) (Br. Mus.); 5 ♂, 5 ♀, Kismu, 17.viii.1965, on cotton (*T. J. Crowe*) (Samy Coll.) (Br. Mus.); 5 ♂, 5 ♀, Nairobi, 29.vi.1965 (*T. J. Crowe*) (Samy Coll.) (Br. Mus.); 2 ♂, Nairobi, 1660 m., Mission de l'Omo C. Arambourg (*P. A. Chappuis & R. Jeannel*) (Paris Mus.); 1 ♂, Afr. Or. Angl. (Wa-Kikuyou), Riviere Tchania (Paris Mus.); 1 ♀, Onjoro O. Nyoro, Masai (B.E.A.), i.1913 (*G.B.*) (Paris Mus.); 1 ♂, 1 ♀, Afr. Or. Angl. (Wa-Kukouyou et Masai) (Paris Mus.); 1 ♀, Nairobi, 1904 (*Ch. Alluaud*) (det. G. G. E. Scudder, *O. rufiventris*) (Paris Mus.). CONGO: 1 ♂, Beni à Lesse, fin. vii.1911 (*Murtula*) (Tervuren Mus.); 2 ♂, 1 ♀, Ter. Lisala, 1.iv.1937 (*Leontovitch*) (Tervuren Mus.); 1 ♀, Ituri, Blukwa, 20.xii.1928 (*A. Collart*) (Tervuren Mus.); 1 ♀, Lugarama, Ribundu, 24.vi.1951, 1400 m. (*A. E. Bertrand*) (Tervuren Mus.); 4 ♂, 9 ♀, Ter. Nyanza, Gitarama, i.1953, 1850 m. (*P. Basilewsky*) (Tervuren Mus.); 1 ♂, Ter. Bumba, Gatsibu, 1800 m., 8.ii.1953 (*P. Basilewsky*) (Tervuren Mus.); 1 ♂, Ter. Ruhengari, Kagogo, 1900 m., 29.i.1953 (*P. Basilewsky*) (Tervuren Mus.); 1 ♂, Ter. Nyanza, Nduga (Cheff.), ii.1953 (*P. Basilewsky*) (Tervuren Mus.). TANZANIA: 1 ♂, 1 ♀, Kigoma, ix.1918 (*R. Mayné*) (Tervuren Mus.).

*Distribution.*—The red form occurs mainly in Uganda and the Congo (Ruanda) around Lake Victoria, and to a lesser degree in Kenya and Tanzania (fig. 9).

*Comparative note.*—This red form of *O. multiformis* might be confused with *O. gossipinus*, but can be distinguished by the following tabulated characters:

Character	<i>O. multiformis</i> (red form)	<i>O. gossipinus</i>
Corium . . . . .	Red	Yellow
Exocorium . . . . .	Whitish	Yellow
Veins on hind wing . . . . .	Plain	Dark
Subgenital plates in postero-dorsal view	Transversely rectangular	Transversely rectangular with two median conspicuous projections
Lobe on blade of parameres .	Present	Absent
Distribution . . . . .	East African subregion	West African subregion

*The banded form*

Similar to the other forms in body measurements and male genitalia. The coloration is also similar except: pronotum (fig. 20) brownish-red, anterior half with a transverse black band; prosternum black, with distal and proximal angles brownish-red.

*Paratypes*: 5 ♂, 5 ♀, KENYA: Nairobi, 29.vi.1965 (*T. J. Crowe*) (Samy Coll.) (Br. Mus.).

*Other specimens examined*.—KENYA: 2 ♂, Nanyuki, 5500 ft., xii.1926, Pr. B.M., 1931—487 (*A. F. J. Gedy*) (Br. Mus.); 1 ♂, Kinangop, iii.1930 (*Turner*) (Br. Mus.); 2 ♂, 5 ♀, Jombeni Hills, v.1947 (*V. G. L. van Someren Coll.*) (Br. Mus.); 2 ♂, 4 ♀, Nairobi, Nyeri, circa 6500 ft., 1947 (*Miss M. Steele*) (Br. Mus.); 1 ♀, Limuru, 1921, on peach (*H. E. Box*) (Br. Mus.); 1 ♀, Kabete, 7.ix.1921 (*H. E. Box*) (det. Uvarov, *Oxycareus* sp.) (Br. Mus.); 1 ♂, Embu, 17.vii.1936, on *Pavonia schimperiana* (*H. Wilkinson*) (Br. Mus.); 4 ♂, Nyeri, 29.ix.1937, on *Sida schimperiana* (*H. Wilkinson*) (det. B. Uvarov, 1938, *Oxycareus* sp.) (Br. Mus.); 1 ♀, Ngare, Narok, 6000 ft., 30.xii.1931 (*A. C. Luckman*) (Br. Mus.); 1 ♂, 1 ♀, Aberdare Range, Mt. Kinangop, 8000 ft., 17.x.1934 (*J. Ford*) (Br. Mus.); 5 ♂, Nairobi, x.1929 (*G. A. K. Marshall*) (Br. Mus.); 1 ♂, Embu, 12.ix.1914 (*G. St. J. O. Browne*) (labelled *O. amygdali*) (Br. Mus.); 1 ♀, Meru, vii.1943 (det. G. G. E. Scudder, 1960, *O. exitiosus*) (Br. Mus.); 1 ♀, Jombeni Hills (*V. G. L. van Someren Coll.*) (Br. Mus.); 1 ♂, 1 ♀, Nanyuki (*van Someren*) (Br. Mus.); 1 ♂, 4 ♀, W. Slopes of Kenya, on Meru Nyeri Rd., 6000–8000 ft., 16–23.ii.1911 (*S. A. Neave*) (Br. Mus.); 1 ♂, Mt. Kenya, Timau, Embori, 8700 ft., 28.vii.1949, on flowers of *Euryops* sp. (*J. A. Riley*) (Br. Mus.); 1 ♀, E. Foot & Slopes, Aberdare Mt., 7000–8000 ft., 24–27.ii.1911 (*S. A. Neave*) (Br. Mus.); 4 ♂, 7 ♀, Afr. Or. Angl. (Rift Valley), Naivasha, 1900 m., xii.1911 (*Alluaud & Jeannel*) (♀ det. R. Jeannel, *O. lavaterae*) (Paris Mus.); 3 ♂, 2 ♀, Afr. Or. Angl., Nairobi (forest), Wa-Kikouyou et Masai, 1904 (*Ch. Alluaud*) (1 ♂ det. G. G. E. Scudder, *O. exitiosus*) (Paris Mus.); 1 ♀, Afr. Occ. Angl., Taveta, 750 m., iii.1912 (*Ch. Alluaud & Jeannel*) (Paris Mus.); 1 ♂, 1 ♀, Afr. Or. Angl. Escarpment (Wa-Kikouyou), viii.1904 (*Ch. Alluaud*) (Paris Mus.); 1 ♂, 2 ♀, Afr. Or. Angl., 1906 (*M. de Rothschild*) (Paris Mus.). UGANDA: 1 ♀, Budongo forest, 7.ii.1935 (*F. W. Edwards*) (Br. Mus.). TANZANIA: 1 ♂, Mbeya Mt., 7000 ft., 5.viii.1959, trees and herbs on grass slopes (Br. Mus.); CONGO: 1 ♂, 1 ♀, Muchii, 18.viii.1932 (*H.C.J.*) (Br. Mus.); 1 ex, Mukana, 16.viii.1922 (*H.C.J.*) (Br. Mus.); 2 ♀, Ruanda, Ter. Nyanza, Gitarama, i.1953, 1850 m. (*P. Basilewsky*) (Tervuren Mus.).

*Distribution*.—Eastern Congo, Kenya, Tanzania and Uganda (fig. 9).

*Variation*.—In some specimens from Kenya the fore femora possess five spines, others do not show any annulation on the tibiae, and in a very few specimens the corium and exocorium are uniformly red. The male genitalia, however, are typical.

*Comparative note*.—The banded form of *multiformis* used to be confused with *amygdali* and *annulipes* (or rather with its synonym *exitiosus*), as judged by the many misidentified specimens seen in some museums. *O. moursii* might be also confused with this group of species characterised by the black band on the reddish pronotum. In addition to differences in the male genitalia, *multiformis* can easily be separated from *amygdali* and *moursii* by its red corium (yellowish-white in the latter two species); it can be separated from *annulipes* by the following tabulated characters:

Character	<i>O. multiformis</i> (banded form)	<i>O. annulipes</i>
Anterior half of pronotum	Orangish-brown with transverse black band	Black
Subgenital plates in postero-dorsal view	Transversely rectangular with median notch (fig. 20, D)	Triangular with deep apical notch (fig. 16, D)
Lobe on blade of paramere	Present	Absent

*The spotted form*

Exactly similar to the other three colour forms in measurements and male genitalia. The coloration is also similar except: pronotum (fig. 20) black to brownish-black with two lateral large spots brownish-red; prosternum black with two lateral small spots brownish-red, posterior margin yellowish.

*Paratypes*: 5 ♂, 5 ♀, UGANDA: Kampala, Kawanda Res. St., 13.i.1965, on *Hibiscus esculentus* (Samy Coll.) (Br. Mus.).

*Other specimens examined*.—UGANDA: 2 ♂, 2 ♀, Kampala, Gov. Plant., 1925, on *Abutilon* (G. L. Hancock) (Br. Mus.); 1 ♂, 1 ♀, Kampala, 8.ii.1926 (G. L. R. Hancock) (Br. Mus.); 3 ♂, 2 ♀, Igonga Busoga, 24.i.1922, on cotton (*H. Hargreaves*) (Br. Mus.); 1 ♂, Msisi, iii.1911 (*Bayer*) (Tervuren Mus.). CONGO (RUANDA): 1 ♂, 1 ♀, Ter. Kisenyi, Kayove, 2000 m., 14.ii.1953 (*P. Basilewsky*) (det. Schouteden 1953, *O. hyalinipennis*) and (det. J. A. Slater 1960, *O. exitiosus*) (Tervuren Mus.); 2 ♂, 5 ♀, Ter. Nyanza, Gitarama, 1850 m., i.1953 (*P. Basilewsky*) (Tervuren Mus.); 1 ♀, env. Astrida, 1954/1955 (*G. Foucart*) (Tervuren Mus.); 2 ♂, Ter. Biumba, Gatsibu, 1800 m., 8.ii.1953 (*P. Basilewsky*) (Tervuren Mus.).

*Distribution*.—Eastern Congo, Uganda (fig. 9).

*Comparative note*.—*Oxycarenus annulipes* (= *exitiosus*) might be confused with this form, but the two spots laterally on the pronotum and the other characters, tabulated under the banded form, would easily separate this spotted form of *multiformis* from *annulipes*.

*Oxycarenus (Oxycarenus) hyalinipennis* (Costa) (fig. 21)

*Aphanus tardus* var. *hyalinipennis* Costa, 1847 : 184–5.

*Oxycarenus leucopterus* Fieber, 1852 : 466; Baerensprung, 1860 : 11 (syn.); Dohrn, 1859 : 35; Baerensprung, 1860 : 11 (*hyalinipennis* as syn.); Fieber, 1861 : 206; Puton, 1869 : 17 (*hyalinipennis* as syn.).

*Oxycarenus cruralis* Stål, 1856 : 196–7; Puton, 1886 : 24 (syn.); Stål, 1865 : 151–2; Walker, 1872 : 125; Stål, 1874 : 141.

*Cymus cincticornis* Walker, 1870 : 2379; Puton, 1890 : 234 (syn.); Bergroth, 1887 : 147.

*Oxycarenus hyalinipennis* Costa, 1875 : 6; Puton, 1890 : 234; Distant, 1910 : 44; Aulmann, 1911 : 271–2; Kirkpatrick, 1923 : 1–107; Bergevin, 1932 : 253–4; Mancini, 1956 : 82; Ashlock, 1957 : 418; Stichel, 1958 : 153; Slater, 1964a : 674–9.

General colour black and white. Characterised by the light brown coloration of basal two-thirds and basal third of second and third antennal segments respectively, the light ochreous clavus, the triangular shape of dorsal opening of pygophore, and presence of a lobe on blade of each paramere.

*Measurements (in mm.)*.—*Male* (Egypt): body length 3.82 (3.48–4.03); head length 0.72, width across eyes 0.67; antennae: segment I—0.29, II—0.57, III—0.44, IV—0.52; rostrum length 2.17; pronotum length 0.81, width 1.12; scutellum length 0.40, width 0.63. *Female* (Egypt): body length 4.41 (4.06–4.63); head length 0.76, width across eyes 0.73; antennae: segment I—0.33, II—0.65, III—0.49, IV—0.55; rostrum length 2.46; pronotum length 0.91, width 1.26; scutellum length 0.46, width 0.75.

Head black; rostrum black with first segment and joints brownish, third segment extending beyond mid-coxae, fourth segment reaching third abdominal segment; antennae brownish-black, basal two-thirds of second segment and basal third of third segment light yellowish-brown.

Pronotum blackish-brown with anterior and posterior margins brown to light brown, lateral margins slightly sinuate, prosternum black, posterior margin whitish; scutellum black; meso- and metasterna black; acetabula white; femora black; fore femora with four spines; fore tibiae light brown; mid and hind tibiae dark brown, annulated with yellowish-white; tarsi light brown, third segment darker; corium yellowish-white; exocorium yellowish-white with spot at apex small, light brown; clavus light ochre with three rows of pores slightly distinct; membrane hyaline.

Abdomen dorsally reddish-brown; connexivum dark brown; venter dull brown with median area lighter, posteriorly blackish.

Male genitalia:—Pygophore with dorsal opening triangular with narrow pointed angle (fig. 21, C); posterior edge straight without notch; subgenital plates in posterodorsal view transversely rectangular with median notch (fig. 21, D). Aedeagus (fig. 21, G) moderately long; vesica without lobe; vesical wings long; vesical sclerite straight, long. Parameres (fig. 21, E, F) long; blade in same plane as body, long, tapering; with a lobe; shank small, with two nodules (one less distinct).

*Specimens examined*.—SOUTH AFRICA: type of *Oxycarenus cruralis* Stål, 1 ex., Cap. B. Spei, Victorin, No. 61–66 (abdomen missing) (Stockholm Mus.). 1 ♀, Cape

Prov., Worcester, 27–30.iii.1921 (*R. E. Turner*) (Br. Mus.); 1 ♂, Cape Prov., Camps Bay, ix.1920 (*R. E. Turner*) (Br. Mus.); 1 ♀, Cape Prov., Ceres, xi.1920 (*R. E. Turner*) (Br. Mus.); 4 ♂, 2 ♀, Transval, Tonetti, 8.x.1926 (*J. S. Taylor*) (Br. Mus.); 1 ♀, Barberton, 14.vi.1926 (*J. S. Taylor*) (Br. Mus.). MALAWI: 1 ♀, Matewali, 28.x.1913 (Br. Mus.); 2 ♂, 3 ♀, Mpimbe, 29.xi.1914 (*L. Mason*) (Br. Mus.). TANZANIA: 3 ♂, Tanga, 6.iii.1936 (*N. L. Krauss*) (Br. Mus.); 1 ♀, Dar-es-Salaam, 26.xii.1913 (det. Uvarov) (Br. Mus.); 3 ♀, Mamella Farm, E. side of Mt. Meru, 6500 ft., ii.1952 (*N. L. H. Krauss*) (Br. Mus.). UGANDA: 1 ♂, Bugondo, Teso, 2.i.1922, on cotton (*Hargreaves*) (Br. Mus.); 6 ♂, 4 ♀, Lira, xii.1926 (*G. L. R. Hancock*) (Br. Mus.); 2 ♂, 3 ♀, Lango,

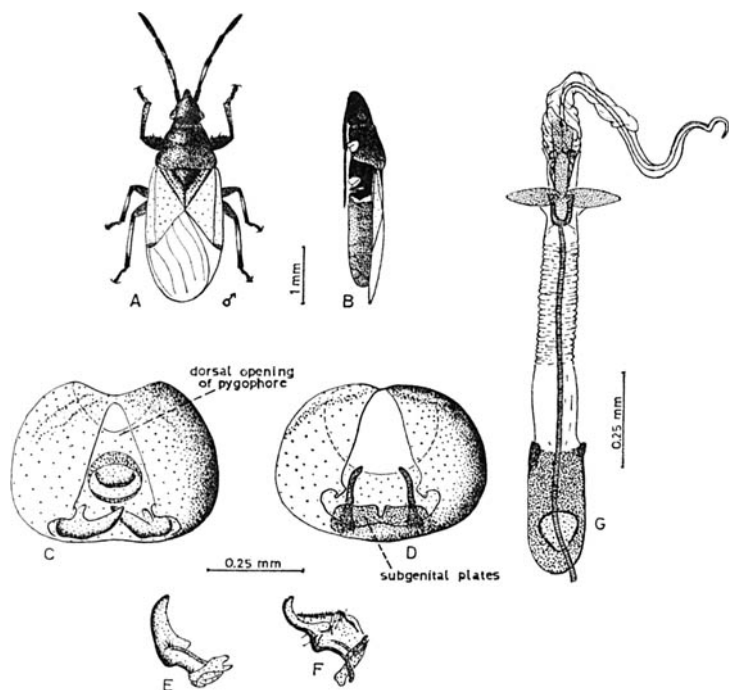


FIG. 21.—*Oxycarenus hyalinipennis* (Costa): A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

same data; 1 ♂, Soroti, 7.i.1922 (Coll. H.H.) (Br. Mus.); 1 ♂, 1 ♀, West Nile exp. cotton, ii.1925 (*H. Hargreaves*) (Br. Mus.). KENYA: 3 ♂, 2 ♀, Embu, 1934, on cotton (*F. B. Notley*) (det. Uvarov, 1935) (Br. Mus.); 1 ♀, Nairobi, vii.1937, caught on Comp. 166 (*V. G. L. van Someren*) (det. W. E. China, 1941) (Br. Mus.); 1 ♂, 2 ♀, Taveta Forest, viii.1947 (*Miss M. Steele*) (Br. Mus.); 1 ♂, 2 ♀, Diani Beach, 25 m. S. Mombasa, 25–30.ii.1953 (*E. S. Brown*) (Br. Mus.); 1 ♀, on Meru-Nyeri Rd., 6000–8500 ft., 16–23.ii.1911 (*S. A. Neave*) (Br. Mus.). SUDAN: 1 ♂, 2 ♀, Tokar, 26.iii.1913 (*H. H. King*) (W.T.R.L. Ent. Coll. C 2223–5, B.M. 1966–197) (Br. Mus.); 1 ♀, Khwarbeat Delta, 23.iv.1924 (*H. B. Johnston*), from Hambuck dry seed capsule (Br. Mus.); 1 ♂, 1 ♀, Wang Thar, 2.xii.1933 (*W. N. G. Sherrett*) (S.G. Ent. Coll. C 14552–3) (Br. Mus.); 1 ♂, 3 ♀, Opari Mongalla, 6.iii.1929, *Abutilom* sp. (*W. Ruttledge*) (S.G. Ent. Coll. C 10052–5) (Br. Mus.); 1 ♂, 1 ♀, Didinga Distr., Nagichot, 6700 ft., xii.1925–i.1926 (*G. D. H. Carpenter*) (Br. Mus.); 2 ♂, 1 ♀, Khartoum, 11.ix.1926, on Hambuk (*H. W. Bedford*) (det. Uvarov) (Br. Mus.); 10 ♂, 12 ♀, W. Darfur, W. Jebel Murra, Karanga, 1932 (*M. Steele*) (Br. Mus.); 2 ♂, 4 ♀, N. Jebel Murra, Killing 7000 ft., 7.iv.1932 (*Miss M. Steele*) (Br. Mus.); 5 ♂, 7 ♀, Kalibonyon, 5.ii.1944 (*J. Bisbee*) (Br. Mus.). TOGO: 1 ♂, Bismarckburg, Dr. Kraatz (Paris Mus.). NIGERIA: 1 ♀ (*Dudgeon*) (Dist. Coll. 1911–383) (Br. Mus.); 9 ♂, 7 ♀, Ibadan, 1907 (*Dudgeon*) (Br.



Mus.). GHANA: 2 ♂, 1 ♀, Volta R., vi. 1907 (Br. Mus.); 4 ♂, 3 ♀, Aburi, 1912—13 (W. H. Paterson) (Br. Mus.); 2 ♀, (G. S. Cotterell) (det. Uvarov, *O. dudgeoni*, 1932) (Br. Mus.). IVORY COAST: 5 ♀, Bouake (P. Coleno) (det. J. W. Evans) (Br. Mus.). SENEGAL: 5 ♂, 5 ♀, Bambey (J. Risbec) (det. J. W. Evans) (Br. Mus.). NIGER: 1 ♀, Air Sud, Agadez, vii. 1947 (L. Chopard & A. Villiers) (Br. Mus.). SAO TOME: 5 ♂, 6 ♀, O.U.E.C. Exp. to Sao Tome, B.M. 1950, (G. R. Gradwell & D. Snow) (Br. Mus.). SOUTH-WEST AFRICA: 8 ♂, 13 ♀, Abachaus, Otjiwarango Distr., iv. 1957 (G. Hobohm) (Munich Mus.). CONGO: 1 ♂, Haute Uelé, Moto, 1920 (L. Burgeon) (Tervuren Mus.); 1 ♂, 1 ♀, Baudoinville, fin xi. 1918 (R. Mayné) (Tervuren Mus.); 1 ♀, Lomami: Kamina, 1930 (R. Massart) (Tervuren Mus.); 1 ♂, 1 ♀, Uelé, Dingila, 20.ii. 1933 (J. Vrydagh) (Tervuren Mus.); 11 ♂, 5 ♀, M. Jala, 24. xi. 1918 (R. Mayné) (Tervuren Mus.); 6 ♂, 5 ♀, Congo da Lemba, i. 1913 (R. Mayné) (Tervuren Mus.); 1 ♀, Mayumbo, Makaia N'tete Tuevo, 25. xi. 1915 (R. Mayné) (Tervuren Mus.); 2 ♂, 2 ♀, Bukama, 2. viii. 1923 (Ch. Seydel) (Tervuren Mus.); 3 ♂, 1 ♀, Banana, 2-6. viii. 1920 (H. Schouteden) (Tervuren Mus.); 1 ♂, Matadi, 12. ix. 1910 (Bequaert) (Tervuren Mus.); 1 ♂, Mulongo, 20-30. v. 1930 (P. Gerard) (Tervuren Mus.); 1 ♂, Mulongo (Mafinge), 10-17. vii. 1930 (P. Gerard) (Tervuren Mus.); 2 ♂, N. Ovampoland, Oshi Kango, v-vi. 1948 (C. Koch) (Tervuren Mus.); 1 ♀, Kabambare, vi. 1918 (R. Mayné) (Tervuren Mus.); 4 ♂, 2 ♀, Urundi: Kanna, 26-28. 1926 (H. Schouteden) (Tervuren Mus.); 1 ♂, 3 ♀, Ruiru, Mucuna, 16. viii. 1932 (H.C.J.) (Br. Mus.); 1 ♀, Mu Kuria, 18. vii. 1932 (H.C.J.) (Br. Mus.). ETHIOPIA: 2 ♂, Allemalia Ford, 1. iii. 1936 (J. W. S. Macfie) (Br. Mus.); 2 ♀, Lake Zwai, v. 1914 (O. Kovacs) (Br. Mus.); 1 ♂, Mt. Zukwala, circa 9000 ft., 22. x. 1926 (J. Omer Cooper) (Br. Mus.); 5 ♂, 1 ♀, Mt. Zukwala, circa 9000 ft., 22. x. 1926, beaten from trees near lake shores (H. Scott) (Br. Mus.); 2 ♂, 1 ♀, Mt. Chillalo, forest, circa 9000 ft., 14. xi. 1926 (H. Scott) (Br. Mus.); 1 ♀, Addis Ababa, Filloa 6, 41 (Meneghetti) (Genoa Mus.); 1 ♂, Uesca Ueca, Bosso, Omo, iii. 1940 (Piatrizi) (Genoa Mus.); 2 ♂, 2 ♀, Caschei, Sagan Omo A.O.I., 6. vii. 1939 (Miss E. Zavattari) (Genoa Mus.); 1 ♂, nei Borana, Arero, iv. 1937 (Miss E. Zavattari) (Genoa Mus.); 1 ♂, 2 ♀, Sagan Omo A.O.I., Nargi, 11. viii. 1939 (Miss E. Zavattari) (Genoa Mus.); 2 ♂, 1 ♀, Sagan Omo A.O.I., Omo, 7. viii. 1939 (Miss E. Zavattari) (Genoa Mus.); 2 ♂, 4 ♀, Sagan Omo A.O.I., Gondaraba, 1939 (Miss E. Zavattari) (Genoa Mus.); 2 ♂, 3 ♀, nei Borana A.O.I., Moiata. v. 1937 (Miss E. Zavattari) (Genoa Mus.); 1 ♂, 2 ♀, Sagan Omo A.O.I., Mega, 18. ix. 1939 (Miss E. Zavattari) (Genoa Mus.); 3 ♂, 2 ♀, nei Borana A.O.I., Javello, 15-30. ii. 1937 (Miss E. Zavattari) (Genoa Mus.); 2 ♂, 3 ♀, nei Borana A.O.I., Neghelli, iii-v. 1937 (Genoa Mus.). ERITREA: 1 ♂, 1 ♀, Asmara, 5. v. 1940 (F. Vaccaro) (Genoa Mus.); 1 ♂, 1 ♀, Darfi, 10. ii. 1940 (F. Vaccaro) (Genoa Mus.); 3 ♀, Asmara, 20. iv. 1940 (F. Vaccaro) (Genoa Mus.); 1 ♂, 1 ♀, Foeo, 30. xi. 1928, on cotone (Genoa Mus.). EGYPT: 8 ♂, 5 ♀, 1906 (Fletcher) (Br. Mus.); 1 ♂, 3 ♀, Ghizch, xii. 1901 (F. Morey) (Br. Mus.); 1 ♂, Cairo, No. 63-66 (Stockholm Mus.); 1 ♂, Lovem, No. 62-66 (Stockholm Mus.); 1 ♂, Luxor, xi. 1954 (H. Holbauer) (Munich Mus.); 3 ♂, 2 ♀ (Letourneux) 66-96 (Paris Mus.); 1 ♂, 2 ♀, Ramle, Sidi Gaber, 1881 (Letourneux) (Paris Mus.); 1 ♂, 2 ♀, Le Caire (H. Marmottan Coll.) (Paris Mus.); 1 ♂, Suez (H. Marmottan Coll.) (Paris Mus.); 2 ♂, 4 ♀, Le Caire (Henon, H. Marmottan Coll.) (Paris Mus.); 1 ♀, Egypte (Puton Coll.) (Paris Mus.); 10 ♂, 10 ♀, Cairo, Gizeh, x. 1964, jute (S. M. Debes) (Samy Coll.) (Br. Mus.); ALGERIA: 1 ♂, Tlemcen (Puton Coll.) (Paris Mus.).

*Distribution.*—*O. hyalinipennis* is the most widely distributed species of the genus *Oxycarenus*. It extends from the Mediterranean subregion to the whole Ethiopian region (fig. 4).

*Variation.*—One of the main characters that separates *hyalinipennis* from the closely allied species is its dark brownish-black antennae with the basal two-thirds of the second segment and the basal third of the third segment light brownish-yellow. However, examination of hundreds of specimens from the same locality in Egypt showed that this pattern is variable, the second segment grading from nearly wholly

yellowish to nearly wholly black. The tendency to paler coloration is clearly manifested in the Sudanese regions: the lighter parts in the antennae are light yellow, and the pronotum and scutellum are not black or blackish-brown, but dull ochre with blackish calli. The South-West African species have dark coloration, and even the clavus is slightly brownish instead of light ochre.

*Comparative note.*—Any species with blackish head, pronotum and abdomen, and whitish corium might be confused with *hyalinipennis*. Perhaps the closest to this species are *nigricornis*, *pallidipennis*, *bokalae* and *lusingaensis*. *O. nigricornis* differs in having a completely black antennae, pronotum and abdomen; *pallidipennis* is separated by the red sanguineous abdomen; *bokalae* is distinguished by the wholly black antennae, the blackish-brown clavus, the wide dorsal opening of the pygophore, and the lateral projections on the rectangular shaped subgenital plates; and *lusingaensis* is easily separated by the fourth antennal segment being longer than the second, by the dull brown clavus, and by the different structure of the male genitalia.

*Taxonomic note.*—I have not been able to examine the type specimen, *Aphanus tardus* varietas *hyalinipennis* Costa, presumed to be in the University of Naples, Institute of Zoology, where Costa's types are supposed to be deposited. I have, however, found in the Paris Museum two females determined by Costa. Both are labelled: Naples, Costa, 1–52, *Pachymerus tardus* Hahn var. *hyalinipennis* Costa, det. Costa 1852. Previously, Dr. G. G. E. Scudder had informed me that he could not find the type. I have suggested to him the designation of one of these two females as a neotype and he supported the suggestion. I take the opportunity to designate one female as a neotype of *Oxycaremus* (*Oxycaremus*) *hyalinipennis* (Costa) and the other female as a neoparatype; labels to this effect have been placed on these specimens.

### *Oxycaremus* (*Oxycaremus*) *nigricornis* sp. n. (fig. 22)

General colour black and white. Characterised by the wholly black antennae, pronotum and abdomen, the whitish corium and the dull whitish clavus and by the triangular opening of pygophore with rounded apical angle.

*Measurements (in mm.).* Male: body length 3.73 (3.61–3.86); head length 0.69, width across eyes 0.68; antennae: segment I—0.27, II—0.57, III—0.44, IV—0.52; rostrum length 2.19; pronotum length 0.82, width 1.10; scutellum length 0.43, width 0.55. Female: body length 4.30 (3.97–4.63); head length 0.84, width across eyes 0.74; antennae: segment I—0.33, II—0.67, III—0.52, IV—0.55; rostrum length 2.68; pronotum length 0.91, width 1.23; scutellum length 0.44, width 0.61.

Head black; rostrum black with third segment just reaching hind coxae, fourth segment extending to fourth abdominal segment; antennae black.

Pronotum black, lateral margins sinuate; prosternum black with posterior margin whitish; scutellum black; meso- and metasterna black; acetabula white; femora black; fore femora with four spines; fore tibiae brownish; mid and hind tibiae dark brown, widely annulated with white centrally; tarsi light brown, segment III darker; corium light yellowish-white; exocorium white; spot at apex of exocorium small, distinct blackish-brown; clavus dull white; membrane hyaline.

Abdomen dorsally reddish-brown; connexivum black; venter black.

Male genitalia.—Pygophore with dorsal opening triangular with narrow rounded apical angle (fig. 22, C); posterior edge straight without notch; subgenital plates in posterodorsal view transversely rectangular (fig. 22, D). Aedeagus (fig. 22, G) moderately long; vesica without lobe; vesical wings long; vesical sclerite straight. Parameres (fig. 22, E, F) fairly long; blade long, with a lobe; shank with one nodule.

*Holotype* ♂, KENYA: Kismu, 14.viii.1965 (*T. J. Crowe*) (Samy Coll.) (Br. Mus.).  
*Paratypes*: 5 ♂, 5 ♀, same data as holotype (Br. Mus.).

*Other specimens examined.*—KENYA: 1 ♀, Taveta Forest, viii.1947 (*Miss Steele*) (Br. Mus.); 1 ♂, Near Mombasa, Mtongwe, 28–30.v.1955 (*L. F. Brown*) (Br. Mus.). UGANDA: 2 ♂, 1 ♀, Arua, iv.1923, on cotton boll (*H. Hargreaves*) (Br. Mus.). TANZANIA: 1 ♂, 1 ♀, Tanga, 6.iii.1936 (Br. Mus.); 1 ♂, Rujewo Trial Farm, 3500 ft., 15.viii.1959 (Oxf. Exp.) (Br. Mus.); 1 ♂, 1 ♀, Dar-es-salaam, 26.xii.1913 (det. Uvarov, *Oxycaremus* sp.) (Br. Mus.). MOZAMBIQUE: 7 ♂, 10 ♀, Lgo Marques, on cashew flowers (*E. Santos Oliveira*) (Br. Mus.). SOUTH AFRICA: 2 ♂, Rustenberg, 30.iv.1918,

on cotton (det. G.A.K.M., *O. albidipennis*) (Br. Mus.); 1 ♂, 1 ♀, Zoutpansberg, 1903 (*H. Junod*) (Br. Mus.); 1 ♂, Kruger Nat. Park, x.1931 (*Miss A. Mackie*) (Br. Mus.); 2 ♂, 3 ♀, Barberton, iv-v.1926 (*J. S. Taylor*) (det. Uvarov, 1932, ♂ *O. albidipennis*) (Br. Mus.); 5 ♂, 2 ♀, Barberton, 1938 (*B. L. Mitchell*) (Br. Mus.); 1 ♂, Tonetti, 8.x.1926 (*J. S. Taylor*) (Br. Mus.); 2 ♂, 2 ♀, Durban, 23.viii.1916, on cotton bolls (*C. P. V. D. Merwe*) (1 ♀ det. G.A.K.M., *O. albidipennis*) (Br. Mus.); 2 ♂, Durban, 1905 (*F. Muir*) (Br. Mus.); 4 ♂, 6 ♀, Verulam, 6.vii.1897 (Dr. Brauns Coll.) (Br. Mus.);

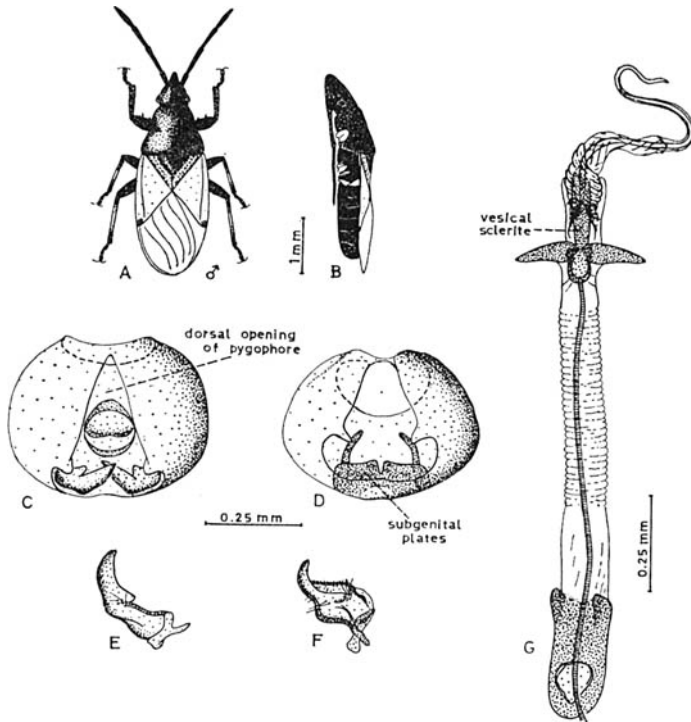


FIG. 22.—*Oxycarenus nigricornis* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

1 ♀, Weenen, xi-xii.1923 (*H. P. Thomasset*) (Br. Mus.); 1 ♂, Pretoria, 12.iii.1905 (*C. J. Swierstra*) (Dist. Coll., 1911) (Br. Mus.); 1 ♂, Port St. John, Pondoland, 10-31.vii.1923 (*R. E. Turner*) (Br. Mus.); CONGO: 1 ♂, 1 ♀, Mayumbe, 1917 (*R. Mayné*) (Br. Mus.); 1 ♀, Urira, viii.1931 (*Miss A. Mackie*) (Br. Mus.); 8 ♂, 10 ♀, Eala, 1917 (*Mayné*) (Tervuren Mus.); 1 ♂, Eala, iii.1921 (*Ghesquiere*) (Tervuren Mus.); 8 ♂, 5 ♀, Kivu, Zon. cotonnière, vii.1924 (*P. Lefevre*) (Tervuren Mus.); 4 ♂, 5 ♀, Congo da Lema, i.1913, 10.ii.1914 (*R. Mayné*) (Tervuren Mus.); 1 ♀, Mtala, 24.xi.1918 (*R. Mayné*) (Tervuren Mus.); 2 ♂, 1 ♀, Banana, 2.viii.1920 (*H. Schouteden*) (Tervuren Mus.); 1 ♀, Boma, viii.1913 (*Bequaert*) (Tervuren Mus.); 1 ♂, Matadi, 12.ix.1910 (*Bequaert*) (Tervuren Mus.); 1 ♂, Matidi, x.1910 (*L. Burgeon*) (Tervuren Mus.). ZAMBIA: 1 ♀, Chilanga (*R. C. Wood*) (Br. Mus.). MALAWI: 1 ♀, 1915 (*C. Mason*) (Br. Mus.); 1 ♂, Mlanje Boma, 2400 ft., 26.iv-5.v.1910 (*S. A. Neave*) (Br. Mus.). ANGOLA: 8 ♂, 5 ♀, Luanda, viii.1949 (*G. R. Gradwell & D. Snow*) (Br. Mus.). RHODESIA: 1 ♂, 1 ♀, Salisbury, lettuce seed (*S. R., Ex. Nyas. Coll.*) (1 ♂ det. M. S. K. Ghouri, *O. albidipennis*) (Br. Mus.); 1 ♀, S.E. Africa, Mashonaland, Marandellas, 1908 (*G. A. K. Marshall*) (Br. Mus.).

*Distribution*.—Angola, Congo, Kenya, Malawi, Mozambique, Rhodesia, South Africa, Tanzania, Uganda, Zambia. The range of this species extends into the East African subregion and the South African subregion (fig. 4).

*Comparative note.*—*O. nigricornis* is very similar to *O. hyalinipennis* but they differ slightly as shown in the following table:

Characters	<i>O. nigricornis</i>	<i>O. hyalinipennis</i>
Antennae . . . . .	Wholly black	Brownish-black, basal two-thirds of segment II and basal third of segment III light yellowish-brown
Pronotum . . . . .	Black	Blackish-brown, anterior margin and posteriorly brown
Spot at apex of exocorium . . . . .	Blackish, distinct, larger than <i>hyalinipennis</i>	Brownish, faint, small
Venter . . . . .	Black	Dull brown, median area lighter
Opening of pygophore . . . . .	Triangular with apical angle rounded	Triangular with apical angle pointed

The two may be conspecific, and many specimens bear the same data from many localities. It would not be surprising if they are freely interbreeding in nature.

*Oxycarenum (Oxycarenum) pallidipennis* (Dallas) (fig. 23)

*Stenogaster pallidipennis* Dallas, 1852 : 582.

*Oxycarenum pallidipennis* Dohrn, 1859 : 35; Walker, 1872 : 125; Stål, 1874 : 142; Schouteden, 1912 : 316-7; Slater, 1964a : 690.

General colour black and ventrally red. Characterised by the blackish head, pronotum, scutellum and antennae, the red sanguineous venter to sixth segment, the triangular opening of pygophore and the rectangular subgenital plates.

*Measurements (in mm.).*—*Male*: body length 3.91 (3.68-4.18); head length 0.75, width across eyes 0.71; antennae: segment I—0.30, II—0.61, III—0.49, IV—0.53; rostrum length 2.05; pronotum length 0.89, width 1.13; scutellum length 0.41, width 0.52. *Female* (S. Africa): body length 4.26 (3.95-4.61); head length 0.83, width across eyes 0.75; antennae: segment I—0.30, II—0.62, III—0.50, IV—0.59; rostrum length 2.31; pronotum length 0.89, width 1.22; scutellum length 0.41, width 0.57.

Head black, bucculae light dull brown; rostrum blackish with third segment extending beyond mid-coxae, fourth segment just beyond hind coxae; antennae brownish-black to black.

Pronotum blackish, posterior half somewhat brownish, lateral margins slightly sinuate; prosternum blackish-brown, medially and posterior margin lighter; scutellum blackish-brown to black; meso- and metasterna dark brown to black; acetabula white; femora blackish-brown to black; fore femora with four spines; mid and hind tibiae blackish-brown, widely annulated with yellow; tarsi dull brown, third segment dark; corium pale ochre, semi opaque; exocorium pale ochre with spot at apex small, brown; clavus dark ochre, proximally and terminal margin somewhat blackish; membrane hyaline, median area faintly brownish.

Abdomen dorsally reddish; connexivum reddish; venter red sanguineous to sixth segment, posteriorly and laterally blackish.

Male genitalia.—Pygophore with dorsal opening triangular with apical angle rounded (fig. 23, C); posterior edge curved with median notch; subgenital plates in posterodorsal view transversely rectangular with median notch (fig. 23, D). Aedeagus (fig. 23, G) long; vesica without lobe; vesical wings long; vesical sclerite straight. Parameres (fig. 23, E, F) moderate size; blade somewhat thin, with a lobe; shank broad, with two nodules (one less distinct).

*Specimens examined.*—SOUTH AFRICA, neotype ♂, Transvaal, Barberton, 1938 (*B. L. Mitchell*) (C.I.E. 1938-417) (Br. Mus.); neoparatypes: 1 ♀, Grahamstown, 4.ix.1911 (*G. Hewitt*) (B.M. 1924-139) (Br. Mus.); 4 ♀, Cape Province, Mossel Bay, iv.1921 (*R. E. Turner*) (Br. Mus.). CONGO: 2 ♂, 1 ♀, Rutshuru, 2.vi.1938 (*J. Ghesquière*) (Tervuren Mus.).

*Distribution.*—The species was recorded from S. Africa and Eastern Congo (fig. 4).

*Taxonomic note.*—The type specimen of this species could not be found in the British Museum and should be considered lost. The three specimens labelled *O. pallidipennis* Dallas in the same museum do not agree with the original description. The exact identification of this species can therefore never be ascertained; however, six specimens, which are the nearest to the description and were collected from S.

Africa (the type locality) were selected from material in the British Museum. I take the opportunity to designate the male as neotype of *O. pallidipennis* (Dallas) and the five females as neoparatypes. Labels to this effect have been placed on the specimens in the British Museum (Nat. Hist.).

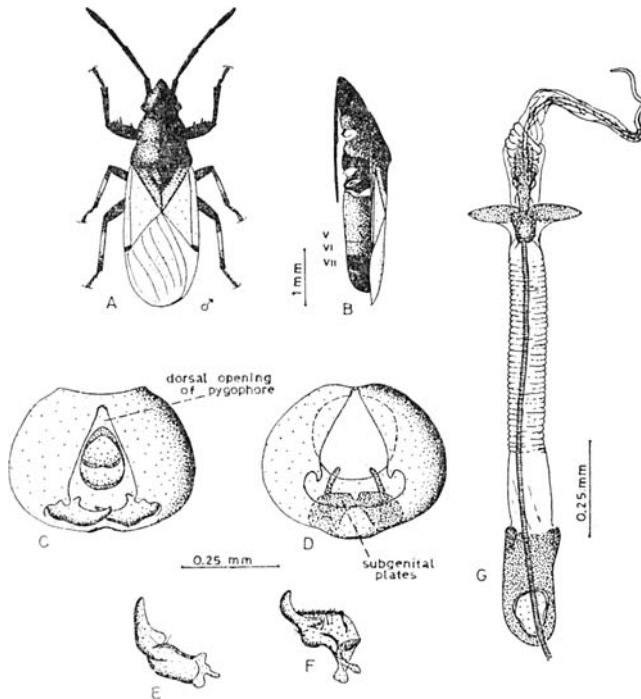


FIG. 23.—*Oxycareus pallidipennis* (Dallas): A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

*Comparative note.*—This species might be confused with *O. hyalinipennis* Costa and *O. albidipennis* Stål. The separating characters are tabulated below:

Character	<i>pallidipennis</i>	<i>hyalinipennis</i>	<i>albidipennis</i>
Antennae . . . . .	Unicolorous black to brownish-black	Brownish-black, second segment except base and basal third of third segment light yellowish-brown	Black
Clavus . . . . .	Dull white	Light ochre	Blackish-brown with median area dull white
Venter . . . . .	Red sanguineous to segment VI, posteriorly and laterally blackish	Dull brown with median area lighter, posteriorly blackish	Orangish-red to segment VI, posteriorly black
Opening of pygophore .	Triangular	Triangular	Wide with rounded arch
Subgenital plates . .	Transversely rectangular	Transversely rectangular	Triangular
Lobe on blade of parameres	Present	Present	Absent

This species is so close to *hyalinipennis* that, but for the wholly black antennae and red sanguineous venter (which distinguish *pallidipennis*), one might consider the two as conspecific.

*Oxycareus (Oxycareus) bokalae* sp. n. (fig. 24)

General colour black. Characterised by the wholly black antennae, the blackish-brown clavus, the brownish-black venter, the wide opening of pygophore, the rectangular subgenital plates with two projections laterally, and the lobe on blade of each paramere.

*Measurements (in mm.).—Male* (Congo): body length 4.11 (4.04–4.16); head length 0.74, width across eyes 0.75; antennae: segment I—0.30, II—0.61, III—0.47, IV—0.55; rostrum length 2.13; pronotum length 0.94, width 1.19; scutellum length 0.45, width 0.55. *Female* (Congo): body length 4.60 (4.38–4.88); head length 0.89, width across eyes 0.78; antennae: segment I—0.34, II—0.72, III—0.53, IV—0.61; rostrum length 2.71; pronotum length 1.03, width 1.35; scutellum length 0.49, width 0.64.

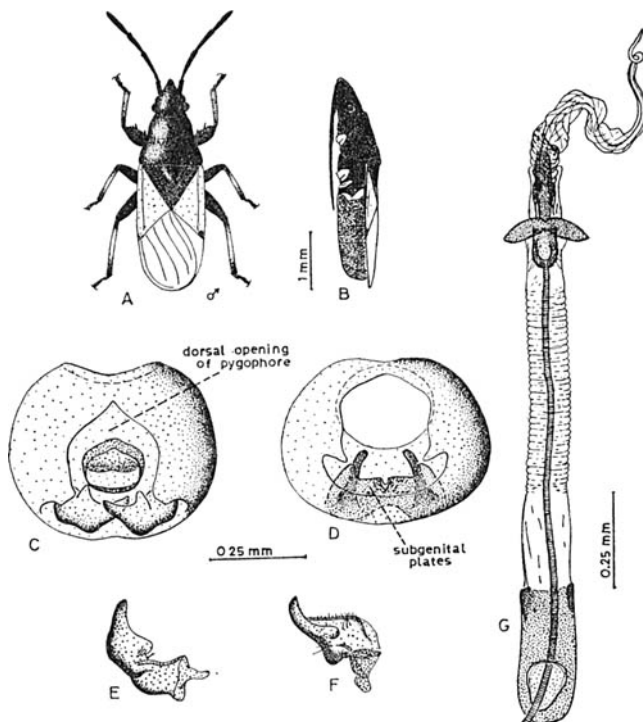


FIG. 24.—*Oxycareus bokalae* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

Head black; rostrum black with third segment reaching hind coxae, fourth segment extending to fourth abdominal segment; antennae black with first segment reaching apex of head.

Pronotum black, posteriorly brownish, lateral margins sinuate; prosternum black; scutellum black; meso- and metasterna black; acetabula white; femora brownish-black; fore femora with four spines; tibiae brown; mid and hind tibiae annulated with brownish-yellow; tarsi brown, third segment darker; corium yellowish-white; exocorium yellowish-white with spot at apex small, dark brown; clavus blackish-brown; membrane hyaline.

Abdomen dorsally red; connexivum blackish-brown; venter brownish-black with median area slightly lighter.

*Male genitalia.*—Pygophore with dorsal opening wide, pointed-arched (fig. 24, C); posterior edge of pygophore slightly curved with median notch; subgenital plates in posterodorsal view rectangular with two projections laterally (fig. 24, D). Aedeagus (fig. 24, G) long, vesica without lobe; vesical sclerite long, straight. Parameres (fig. 24, E, F) short; blade wide at base, with a lobe; shank with two nodules (one slightly distinct), and few hairs.

*Holotype* ♂, CONGO: Bokala, vii–viii. 1913 (*J. Maes*) R. Det., 7634 (Tervuren Mus.). *Paratypes*: 19 ♂, 24 ♀, same data as holotype (Tervuren Mus.).

*Other specimens examined.*—CONGO: 1 ♀, Congo da Lemba, iii. 1913 (*R. Mayné*) (Tervuren Mus.); 1 ♀, Kivu, Karuma à Kabunga, Km. 82 (Mingazi), vii–x. 1951

(*H. Bomans*) (Tervuren Mus.); 1 ♂, 1 ♀, Kabambawe, vi. 1918 (*R. Mayné*) (Tervuren Mus.); 4 ♂, Eala, 29.x.1929, sur coton (*H. J. Bredo*) (Tervuren Mus.); 3 ♂, 4 ♀, de Luebo à Luluabourg, 1921 (*J. Ghesquière*) (Tervuren Mus.); 1 ♀, Kasai-Ipamu, 1922 (*P. Vanderjst*) (Tervuren Mus.); 1 ♀, Nyangwe, 20.viii.1920, coton (*Ghesquière*), R. Det. 7643 A (Tervuren Mus.). ZANZIBAR: 2 ♂, Kokotoni, 26.x.1912, in mature open cotton bolls (*W. M. Aders*) (labelled *Oxycarenum albidipennis* Stål) (Br. Mus.).

*Variation*.—The type and most of the specimens examined have a colourless transparent membrane; in some specimens however the membrane is brownish to blackish-brown, but the male genitalia are exactly the same.

*Distribution*.—The Congo and Zanzibar. The species is found in eastern parts of the West African subregion and extends its range to the East African subregion and Zanzibar (fig. 7).

*Comparative note*.—This new species is very close to *O. hyalinipennis* and *O. nigricornis* in general coloration, but it can be distinguished by the blackish-brown clavus (light ochre and dull white in the other two species). Also the wide opening of pygophore and the rectangular shape of the subgenital plates with two lateral projections distinguish this species; in *hyalinipennis* and *nigricornis*, the opening of pygophore is triangular and the subgenital plates are rectangular and without any projections. *O. bokalae* might also be confused with *O. albidipennis*, *O. pallidipennis* and *O. congoensis*, but the red venter separates these species from *O. bokalae*, which has a brownish black venter.

### *Oxycarenum (Oxycarenum) schoutedeni* sp. n. (fig. 25)

General colour black and yellowish-ochre. Characterised by the yellowish ochre corium, the yellowish ochre venter as far as sixth abdominal segment, the wide dorsal opening of pygophore, the rectangular subgenital plates with two moderate median projections and the presence of a lobe on the blade of each paramere.

*Measurements (in mm.)*.—Male (Congo): body length 4.11; head length 0.77, width across eyes 0.75; antennae: segment I—0.30, II—0.61, III—0.48, IV—0.60; rostrum length 2.24; pronotum length 0.93, width 1.22; scutellum length 0.42, width 0.55. Female (Congo): body length 3.84 (3.71–3.94); head length 0.73, width across eyes 0.73; antennae: segment I—0.27, II—0.57, III—0.46, IV—0.55; pronotum length 0.90, width 1.12; scutellum length 0.38, width 0.51.

Head black; rostrum black with third segment reaching to hind coxae, fourth segment extending to third abdominal segment; antennae black, first segment just shorter than apex of head.

Pronotum black, posteriorly slightly brownish, lateral margins sinuate; prosternum black; scutellum black; meso- and metasterna black; acetabula white; femora black; fore femora with four spines; tibiae brownish-black, mid and hind tibiae annulated with yellowish-white; tarsi brown, third segment darker; corium yellowish-ochre; exocorium yellowish-ochre with spot at apex dark brown; clavus brownish-black; membrane hyaline.

Abdomen dorsally ochre; connexivum dark brown, venter to sixth abdominal segment yellowish-ochre, posteriorly brownish-black.

Male genitalia.—Pygophore with dorsal opening wide with high, convexed arch (fig. 25, C); posterior edge of pygophore with median notch; subgenital plates in posterodorsal view transversely rectangular with two moderate median projections (fig. 25, D). Aedeagus (fig. 25, G) rather long; vesica without lobe; vesical wings moderate; vesical sclerite long, straight. Parameres (fig. 25, E, F) compact; blade with small lobe; shank moderate with two nodules.

*Holotype* ♂, CONGO: Ruwenzori, Kurukwata, 10.vi.1935 (*H. J. Bredo*) (Tervuren Mus.). *Paratype* ♂, same data as holotype (Tervuren Mus.).

*Other specimens examined*.—CONGO: 1 ♂, Kasal, Luisa, 1921 (*L. Achten*) (Tervuren Mus.); 1 ♀, Inkisi, Kisantu, iv–viii.1948 (*van den Broeck*) (Tervuren Mus.); 1 ♀, Dungu, iii.1920 : 7166, (*P. van den Plas*) (Tervuren Mus.); 2 ♀, Kivu, Karuma à Kabunga, Km. 82 (Mingazi), vii–x.1951 (*H. Bomans*) (Tervuren Mus.); 1 ♀, Kisantu, 1932 (*R. P. Vanderyst*) (Tervuren Mus.); 2 ♀, Aba, viii.1938 (*P. Lefèvre*) (Tervuren Mus.).

*Variation*.—In many specimens, the venter is yellowish-ochre, laterally and posteriorly brownish-black; the membrane is more or less brownish.

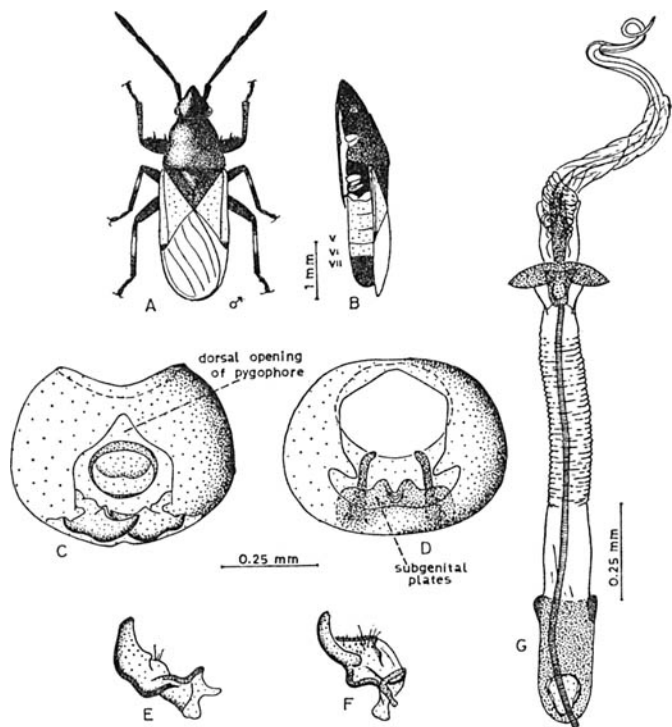


FIG. 25.—*Oxycarenus schoutedeni* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

*Distribution.*—The species is confined to the Congo in the West and East African subregions (fig. 7).

*Comparative note.*—This species might be confused with the *O. fieberi* variants that have a yellowish corium and venter. The following table will aid in their separation:

Character	<i>O. schoutedeni</i>	<i>O. fieberi</i> (variant)
Venter . . . . .	Yellow ochre to sixth abdominal segment	Yellow ochre to fifth abdominal segment
Dorsal opening of pygophore .	Wide with high convex arch, and straight laterally	Wide with low arch and constructed laterally
Subgenital plates in postero-dorsal view	Transversely rectangular with moderate median projections (fig. 25, D)	Almost triangular with deep apical notch (fig. 13, D)
Lobe on blade of paramere .	Present	Absent
Vesical sclerite . . . . .	Long, straight	Broad, indented at base

The species is named after Mr. H. Schouteden of the Musée Royal d'Afrique Central, Tervuren, Belgium, for his valuable contributions to the study of Heteroptera especially of Africa.

*Oxycarenus (Oxycarenus) albidipennis* Stål (fig. 26)

*Oxycarenus albidipennis* Stål, 1855 : 35; Dohrn, 1859 : 35; Stål, 1874 : 141.  
*Oxycarenus hyalinipennis* (Costa); Kuhlitz, 1905 : 80 (misidentification).  
*Oxycarenus boranus* Mancini, 1939a : 211–2 *syn. n.*  
*Oxycarenus annulipes* (Germar); Slater, 1964a : 667; Slater, 1964b : 141 (misidentification).

General colour black with red abdomen. Characterised by the wholly black antennae, the reddish abdomen, the white median area on blackish-brown clavus, the wide opening of pygophore, the triangular shape of subgenital plates in a posterodorsal view, and the lack of lobes on blade of each paramere.



*Measurements (in mm.).—Male* (S. Africa): body length 3.70 (3.47–3.95); head length 0.70, width across eyes 0.69; antennae: segment I—0.28, II—0.54, III—0.42, IV—0.51; rostrum length 2.12; pronotum length 0.83, width 1.07; scutellum length 0.39, width 0.57. *Female* (S. Africa): body length 4.67 (4.62–4.71); head length 0.86, width across eyes 0.80; antennae: segment I—0.35, II—0.69, III—0.52, IV—0.59; rostrum length 2.78; pronotum length 1.04, width 1.38; scutellum length 0.50, width 0.74.

Head black; rostrum black with third segment extending beyond hind coxae, fourth segment reaching to middle of fourth abdominal segment; antennae black.

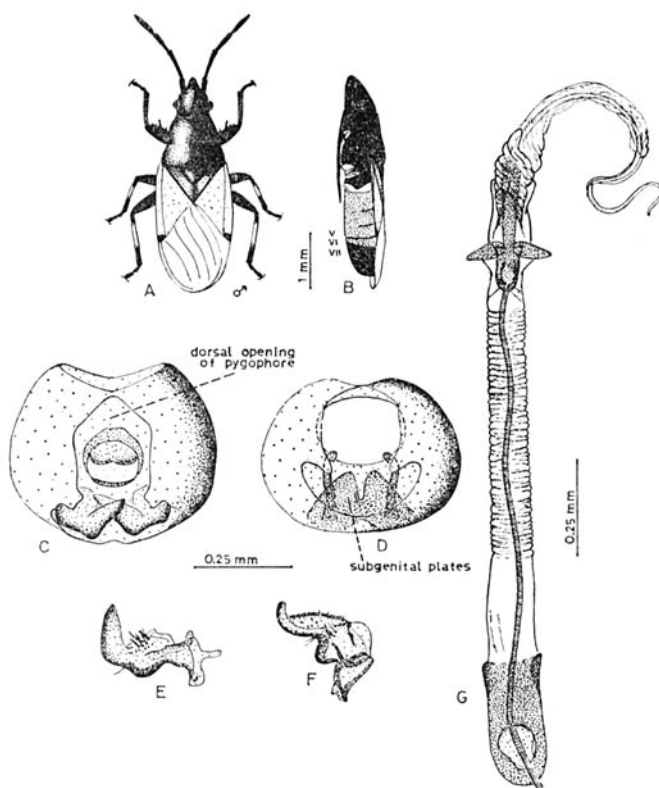


FIG. 26.—*Oxycarenus albidipennis* Stål: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

Pronotum black, lateral margins slightly sinuate; prosternum black with posterior margin yellowish; scutellum black; meso- and metasterna black; acetabula white; femora black; fore femora with four spines; fore tibiae dull brown; mid and hind tibiae black, widely annulated with white centrally; tarsi blackish-brown, third segment darker; corium yellowish-white; exocorium yellowish-white, with spot at apex large, distinct, dark brown; clavus blackish-brown with median area dull white, tinged with brown (fig. 26, A); membrane hyaline.

Abdomen dorsally orangish-red; connexivum orangish-red; venter orangish-red to sixth segment, posteriorly black.

*Male genitalia.*—Pygophore with dorsal opening wide with rounded arch (fig. 26, C); posterior edge curved with median notch; subgenital plates in posterodorsal view triangular with apical deep notch and rounded apices (fig. 26, D). Aedeagus (fig. 26, G) long; vesica without lobes; vesical wings short; vesical sclerite long, straight. Parameres (fig. 26, E, F) strong; blade broad, distinctly curved on shank, without lobe; shank short, broad, with two small nodules.

*Specimens examined.*—SOUTH AFRICA: type (♀ ex) of *Oxycarenus albidipennis* Stål, Caffraria (*J. Wahlb.*), No. 60–66 (missing whole abdomen, antennae, wing) (Stockholm Mus.); 1 ♂, Cape Province, Mossel Bay, i. 1922 (*R. E. Turner*) (Br. Mus.); 1 ♂, 1 ♀, Pretoria, 13.ix.1919, *Dombeya* flowers, (labelled *O. fiberi*) (Br. Mus.); 1 ♀, Transvaal, iv. 1932 (*L. Trichard*) (Br. Mus.); 3 ♂, 8 ♀, Barberton, 1938 (*B. L. Trans. R. ent. Soc. Lond.* 121 (4). Pp. 79–165, 45 figs. 1969.

Mitchell) (Br. Mus.). UGANDA: 7 ♂, 4 ♀, Namwenda, Busoga, 20.xii.1921, on cotton (*H. Hargreaves*) (Br. Mus.); 6 ♂, 6 ♀, Iganga, Busoga, 24.i.1922, on cotton (*H. Hargreaves*) (Br. Mus.); 7 ♂, 5 ♀, Serere, Teso, 5.i.1922, on *Lubera* (*H. Hargreaves*) (Br. Mus.); 3 ♂, 5 ♀, Bugonda, Teso, 2.i.1922 on cotton (*H. Hargreaves*) (Br. Mus.); 1 ♀, Kampala, 17.vi.1922, on napon (Br. Mus.); 1 ♂, 4 ♀, Entebbe (*Gowder*) (Br. Mus.); 1 ♂, 3 ♀, Entebbe, 24.xii.1909 (Br. Mus.); 2 ♂, 1 ♀, Kadunguru, 17.xii.1913 (Br. Mus.); 1 ♂, 2 ♀, Lira xii.1926 (*G. L. R. Hancock*) (Br. Mus.); 1 ♂, Bugwere (Bugiri), 20.ii.1923 (Br. Mus.). KENYA: 1 ♂, 2 ♀, Nr. Mombasa, Mtongwe, 28.v.1933 (*L. F. Brown*) (♂, det. G. G. E. Scudder, 1960, cf. type) (Br. Mus.); 1 ♂, Camp 1 de l'Elgon, Mt. Elgon, Verst Est. 2100 m., Mission de L'Omo, C. Arambourg (*P. A. Chappuis & R. Jeannel*, 1932–33) (det. G. G. E. Scudder, 1962) (Paris Mus.). MALAWI: 1 ♂, Mlanje, 10.v.1913 (*S. A. Neave*) (Br. Mus.). ZAMBIA: 1 ♂, Serenje Dist., Chitamba, N.E. of Kapiri Mposhi, 11.viii.1946 (*D. M. Mackay*) (Br. Mus.); 2 ♂, 4 ♀, Lunga River, xii.1926 (*G. L. R. Hancock*) (Br. Mus.). RHODESIA: 1 ♂, 1 ♀, Salisbury S.R. Ex., lettuce seed (C.I.E. Coll. No. 17884) (Br. Mus.); 1 ♂, Mashonaland, Marandellas, 6.xi.1897 (*G. A. K. Marshall*) (Br. Mus.); 1 ♀, Matopa Hills, v.1932 (*Miss A. Mackie*) (Br. Mus.); 2 ♂, Salisbury, Mashonaland, 1898 (Dr. Brauns Coll.) (Br. Mus.). MOZAMBIQUE: 2 ♂, 3 ♀, Lourenco Marques, on cashew flowers (*E. Santos Oliviera*) (Br. Mus.); 1 ♂, Delagoa Bay (Lourenco Marques), 1897 (Dr. Brauns Coll.) (Br. Mus.). ZANZIBAR: 2 ♂, nr. Mazi Moja, 20.viii–ix.1924 (*H. J. Snell*) (det. B. Uvarov, *O. albidipennis* Stål) (Br. Mus.). SUDAN: 4 ♂, 1 ♀, Mongalla, Kajo Kaji, 19.ii.1929, cotton bolls (*W. Rutledge*) (Ent. Coll. C. 10056–60) Br. Mus. 1966–197) (Br. Mus.). ETHIOPIA: types of *Oxycarenum boranus* Mancini (♂ and ♀), nei Borana A.D.I. Javello, 15–30.iv.1937 (*Miss E. Zavattari*) (Genoa Mus.); 3 ♂, 6 ♀, iii.1937, same data as type (Genoa Mus.); 1 ♀, Sagan Omo, A.O.I., Caschei, 1.vii.1939 (*Miss E. Zavattari*) (Genoa Mus.); 2 ♂, 1 ♀, Sagan Omo A.O.I., Omo, 1.viii.1939 (*Miss E. Zavattari*) (Genoa Mus.); 1 ♀, Sagan Omo A.O.I. Gonderab, 1937 (*Miss E. Zavattari*) (Genoa Mus.); 1 ♂, 1 ♀, cotypes of *Oxycarenum boranus* Mancini, same data as type (Br. Mus., 1947–364) (Br. Mus.); 1 ♂, 1 ♀, paratypes of *O. boranus* Mancini, same data as type (Br. Mus.). CONGO: Urundi, 1 ♀ (Mossa), Mokoronkwe, 1450 m., 12.iii.1953 (*P. Basilewsky*) (Tervuren Mus.); 1 ♀, Ruanda, Gitarama, 1850 m., terr. Nyanza, i.1953 (*P. Basilewsky*) (Tervuren Mus.); 2 ♂, 1 ♀, Luebo, viii.1921, parasite de coton (*J. T. Ghesquière*) (Tervuren Mus.); 2 ♂, 3 ♀, Kivu, zone cotonnière vii.1934, parasite de coton (*P. Lefèvre*) (1 ♂ det. G. G. E. Scudder, 1962) (Tervuren Mus.); 5 ♂, 13 ♀, M. Jala, 24.xi.1918 (*R. Mayné*) (Tervuren Mus.); 1 ♀, Gonda Lundi, ix.1920 (*H. Schouteden*) (Tervuren Mus.); 2 ♂, 3 ♀, Nyangwe, iv.v.1918 (*R. Mayné*) (Tervuren Mus.); 2 ♂, 1 ♀, Plaine, Lac Eduard (N. Parc Albert), xi.1932 (*Hoier*) (Tervuren Mus.); 9 ♂, 7 ♀, Eala, iii.1921 (*Ghesquière*) (Tervuren Mus.); 1 ♀, Haute Uelé: Moto, 1920 (*L. Burgeon*) (Tervuren Mus.); 2 ♂, 1 ♀, Nyangwe, ii.1920, coton (*Ghesquière*) (Tervuren Mus.); 4 ♂, 7 ♀, Bokala, vii–viii.1913 (*J. Maes*) (Tervuren Mus.); 2 ♂, 1 ♀, Kikwit, 1920 (*P. Vanderijst*) (Tervuren Mus.); 1 ♀, Leopoldville, 13.iii.1911 (*Mouchet*) (Tervuren Mus.); 4 ♂, 3 ♀, Lutendele, 12.iii.1914 (*Dubois*) (Tervuren Mus.); 1 ♀, Kivu, Costermansville, 1951 (*H. Bomans*) (Tervuren Mus.); 1 ♂, 1 ♀, Bas-Kasai, ix.1920 (*P. Vanderijst*) (Tervuren Mus.); 1 ♂, Equateur, Bokote (Tervuren Mus.); 2 ♂, 1 ♀, Mele-Nepoke: Dungu, iii.1932 (*J. Vrydagh*) (Tervuren Mus.); 10 ♂, 2 ♀, Gandajika Lomani, 3.xi.1934, recolté sur cottonnier, fleurs et boutons (*Mme D. Soyer*) (Tervuren Mus.); 1 ♂, 1 ♀, Mpala, 13.xi.1918 (*R. Mayné*) (Tervuren Mus.).

*Distribution*.—Congo, Ethiopia, Kenya, Malawi, Mozambique, Rhodesia, S. Africa, Uganda, Zambia, Zanzibar. This species seems to be distributed in the whole East African subregion, the south-eastern parts of the West African subregion and the South African subregion (fig. 4).

*Comparative note*.—This species resembles *O. congoensis* and *O. bokalae*, but it can be separated by the blackish-brown clavus with the dull white median area

(uniformly blackish-brown in the other two species) and by the triangular shape of the subgenital plates in a posterodorsal view (narrow rectangular with two median long projections in *congoensis*; and rectangular with two lateral projections in *bokalae*).

*Taxonomic note.*—Slater (1964a) has synonymised *O. annulipes* Germar with *O. albidipennis* Stål. For both species the original and subsequent descriptions differ considerably. Stål (1855) in his original description said that *albidipennis* is "black, hemelytra white, hyaline, black spot at apex of corium, abdomen red, margin and apex black". Stål (1865) again said "Black, pubescent, hemelytra white hyaline, clavus and apical angle of corium black; venter except lateral margin and apical part sanguineous". Germar (1837), in his description of *O. annulipes*, stated "Black, thorax posteriorly and hemelytra red, abdomen beneath sanguineous", and "Head conical, punctate, black. Antennae black. Thorax oblong, subconical, without median transverse impression, black anteriorly, red posteriorly. Hemelytra red, apical spot black, membrane white. Pectus black. Abdomen beneath sanguineous, shining; apex truncate, black." Fieber (1852), Schouteden (1912) and Distant (1914) all agreed that the pronotum of *annulipes* is anteriorly black and posteriorly red, and that the hemelytra or the corium are red.

This throws doubt on the validity of the type specimen of *O. annulipes* Germar in the British Museum (Nat. Hist.), as its pronotum is wholly black, the corium is white and the abdomen beneath is black. A verbal discussion with Dr. W. E. China has clarified the situation. Dr. China said that Mr. C. F. Drege's collection from Cape of Good Hope was presented to the British Museum, and a single specimen was identified as *Stenogaster annulipes* Germar. Dallas (1852) and Walker (1872) recorded it in their catalogues, but neither mentioned it as the type. However, some years later, the species mentioned by Dallas and Walker was found; Distant believed it to be the type and thus it was labelled. The label is not Germar's, but handwritten by Mr. R. J. Izzard of the British Museum.

Most probably, Slater was misled by this so-called "type" specimen, more especially as the specimens of *O. albidipennis* in the British Museum were mixed material of this species and others resembling the supposed *annulipes*. Slater (*personal communication*) agrees with these conclusions. Examination of the type of *O. albidipennis* shows that this species has, for example, a black pronotum, a light yellowish-white corium and exocorium and a blackish-brown clavus with the median area dull white, which indicate that it cannot be synonymised with *annulipes* as described by Germar.

It can be concluded from the above arguments that the synonymy of *O. albidipennis* Stål with *O. annulipes* Germar should be considered incorrect; *O. albidipennis* is therefore reinstated.

However, the so-called type specimen of *annulipes* Germar in the British Museum is neither the true *O. annulipes* nor is it *O. albidipennis*, but a third species, *O. nigricornis* sp. n., which is described on p. 120. A label to the effect that this specimen is not Germar's type has been added to it.

Examination of the male genitalia of *O. boranus* Mancini leaves no doubt of its synonymy with *O. albidipennis*, as they agree in coloration and in the other characters examined.

### *Oxycarenus (Oxycarenus) congoensis* sp. n. (fig. 27)

General colour black with reddish venter. Characterised by the brownish-black clavus, the yellowish-ochre corium, the bright orangish-red venter, the wide dorsal opening of pygophore, the two median prominent projections on rectangular subgenital plates, and the lack of lobes on blades of parameres.

*Measurements (in mm.).*—Male (Congo): body length 4.12 (3.96–4.28); head length 0.80, width across eyes 0.75; antennae: segment I—0.30, II—0.63, III—0.49, IV—0.57; rostrum length 2.54; pronotum length 0.94, width 1.18; scutellum length 0.14, width 0.54. Female (Congo): body length 4.61 (4.57–4.63); head length 0.81, width across eyes 0.85; antennae: segment I—0.34, II—0.73, III—0.55,

IV—0.61; rostrum length 2.84; pronotum length 1.05, width 1.44; scutellum length 0.52, width 0.73.

Head black; rostrum brownish-black, with third segment extending to hind coxae, fourth segment reaching third abdominal segment; antennae black with first segment reaching apex of head.

Pronotum brownish-black, calli black, lateral margins distinctly sinuate; prosternum blackish; scutellum black, with median area brownish; meso- and metasterna black; acetabula white; femora black; fore femora dark brown with four spines; tibiae dark brown, mid and hind tibiae annulated with white; tarsi brown, third segment darker; corium yellowish-ochre; exocorium yellowish-ochre with spot at apex big, distinct, dark brown; clavus brownish-black; membrane whitish hyaline.

Abdomen dorsally red; connexivum dark brown; venter to row of hairs on seventh abdominal segment orangish-red, laterally and posteriorly brownish-black.

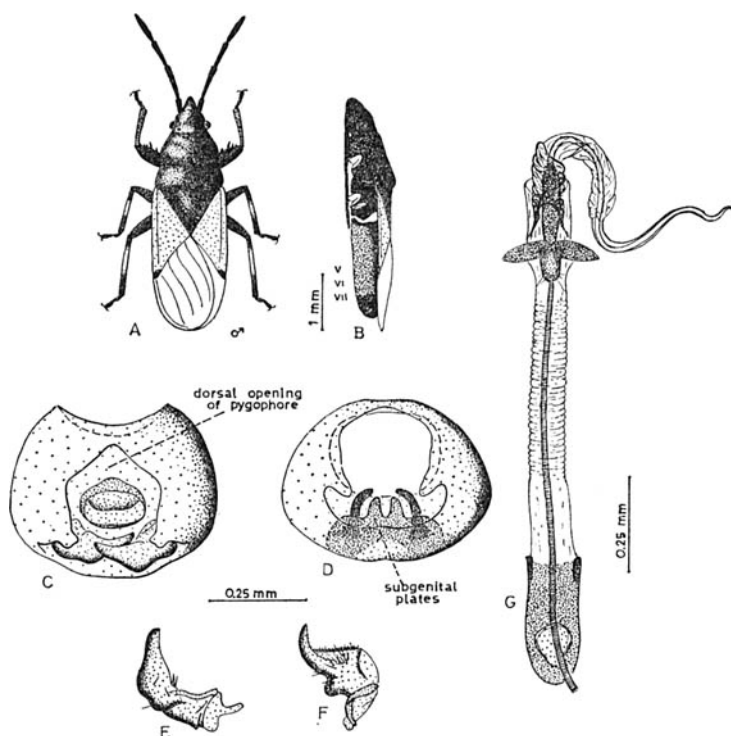


FIG. 27.—*Oxycarenus congoensis* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

Male genitalia.—Pygophore with dorsal opening wide with slightly convexed arch (fig. 27, C); posterior edge nearly straight without median notch; subgenital plates in posterodorsal view rectangular with two prominent projections medially (fig. 27, D). Aedeagus (fig. 27, G) long; vesica without lobe; vesical sclerite long, straight, somewhat broad. Parameres (fig. 27, E, F) short, robust; blade short, without lobe; shank broad with one indistinct nodule.

*Holotype* ♂, CONGO: Alto Uelle, Dungu, iv. 1927 (*F. S. Patrizi*) Museo Civico di Genova (misidentified by R. J. Izzard, 1952, *Oxycarenus boranus*) (Br. Mus.). *Para-type* ♂, same data as holotype (Br. Mus.).

*Other specimens examined*.—CONGO: 1 ♀, Haute Uelé, Watsa, xi. 1919 (*L. Burgeon*) (Tervuren Mus.); 2 ♀, Bambesa, 14. iii. 1933 (*J. Vrydagh*) (Tervuren Mus.).

*Distribution*.—The species seems to be rare and is restricted to the North East of the Congo (fig. 4).

*Comparative note.*—This species might be confused with *O. albidipennis* and *O. pallidipennis*, but they differ in the following characters:

Character	<i>O. congoensis</i>	<i>O. albidipennis</i>	<i>O. pallidipennis</i>
Clavus . . . .	Brownish-black	Blackish-brown, median area white	Dark ochre, proximally and terminal margin blackish
Dorsal opening of pygophore	Wide	Wide	Triangular
Subgenital plates in posterodorsal view	Rectangular with two projections medially	Triangular with rounded sides	Rectangular
Lobe on blade of parameres	Absent	Absent	Present

*Oxycarenus (Oxycarenus) dudgeoni* Distant (fig. 28)

*Oxycarenus dudgeoni* Distant, 1906 : 269; Schouteden, 1912 : 316; Odhiambo, 1957 : 236–7; Slater, 1964a : 671.

General colour black and white. Characterised by the black coloration at base and along anal margin of corium, the long tapering abdomen, the small size of spines on fore femora especially the

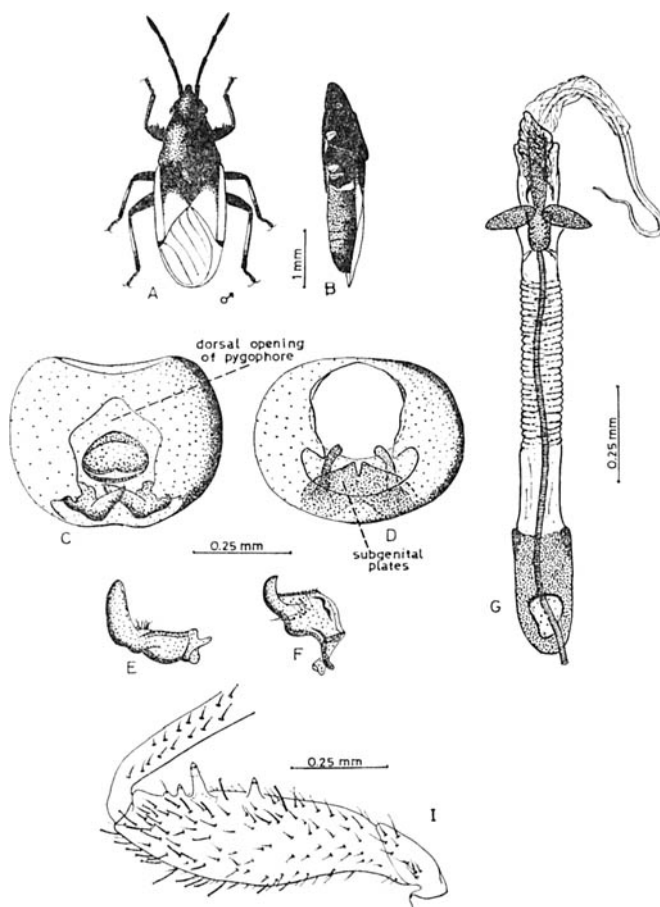


FIG. 28.—*Oxycarenus dudgeoni* Distant: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus; I, fore femur.

distal two, the triangular shape of subgenital plates in a posterodorsal view, and by the absence of lobes on blades of parameres.

*Measurements (in mm.).*—*Male* (Nigeria): body length 3.92 (3.79–4.08); head length 0.65, width across eyes 0.73; antennae: segment I—0.27, II—0.54, III—0.42, IV—0.51; rostrum length 2.05; pronotum length 0.98, width 1.19; scutellum length 0.40, width 0.59. *Female* (Nigeria): body length 4.42 (4.25–4.98); head length 0.73, width across eyes 0.80; antennae: segment I—0.30, II—0.63, III—0.46, IV—0.55; rostrum length 2.60; pronotum length 1.05, width 1.13; scutellum length 0.44, width 0.64.

Head black; rostrum black with third segment reaching mid-coxae, fourth segment extending beyond hind coxae; antennae black.

Pronotum black with lateral margins sinuate, distinctly forming two lobes, anterior half with moderately developed calli forming two globular lobes; prosternum black with posterior margin light brown; scutellum black; meso- and metasterna black; acetabula white; femora black; fore femora with four spines, distal two comparatively small (fig. 28, I); fore tibiae brown; mid and hind tibiae dark brown, broadly annulated with white; tarsi brown, third segment dark; corium yellowish-hyaline, basal half and along anal margin black; exocorium white, row of pores on inner margin black, with spot at apex small, brown; clavus brownish-black; membrane hyaline.

Abdomen long, tapering, dorsally brown; connexivum black; venter dull yellowish-brown, laterally and posteriorly black. Rows of hairs on segments 6, 7 light, not conspicuous.

*Male genitalia.*—Pygophore with dorsal opening wide with smooth low arch (fig. 28, C); posterior edge curved with median notch; subgenital plates in posterodorsal view wide triangular with median deep notch (fig. 28, D). Aedeagus (fig. 28, G) moderately long; vesica without lobe; vesical wings fairly long; vesical sclerite slender, long. Parameres (fig. 28, E, F) robust; blade short, without lobe; shank broad with two nodules.

*Specimens examined.*—SIERRA LEONE: type (♀), Mayamba, ii.1906 (*Dudgeon*) (Distant Coll. 1911 : 383) (Br. Mus.); 1 ♂, same data as type (Br. Mus.). NIGERIA: 19 ♂, 23 ♀, Ibadan, vi.1907 (*G. C. Dudgeon*) (Br. Mus.); 1 ♀, Enugu 22.x.1955 (*Exp. Mus. G. Frey-Nigeria-Cameroun, Bechyne* 1955–56) (Br. Mus.); 4 ♀ (*A. W. J. Pomeroy*, 1925–575) (Br. Mus.); 3 ♂, 1 ♀, Ibadan, ca. i–vi.1954 (*H. Stenholt Clausen*) (Copenhagen Mus.). IVORY COAST: 5 ♀, Bouake (*P. Coleno*) (Br. Mus.). GHANA: 4 ♂, 4 ♀, Aburi, 1914 (*W. H. Patterson*) (Br. Mus.). GABON: 2 ♀, Libreville, iv.1931 (Coll. J. Prinot) (Br. Mus.). CONGO: 1 ♀, Albertville, ix.1931 (*Miss A. Mackie*) (Br. Mus.); 9 ♂, 9 ♀, Kivu: Costermansville, 20.ii.1951, parasite de Kapokier (*H. Bomans*) (Tervuren Mus.); 4 ♂, 7 ♀, Eala, 29.x.1929, coton (*H. J. Bredo*) (Tervuren Mus.); 2 ♂, 2 ♀, Eala, viii.1930 (*J. Vrydagh*) (Tervuren Mus.); 10 ♂, 5 ♀, Mayumbe, Lundu, 25.i.1925 (*A. Collart*) (Tervuren Mus.); 3 ♀, Kivu, Rutshuru, 1931 (*Taramelli*) (Tervuren Mus.); 1 ♂, 2 ♀, Nyangwe, iii.1918 (*R. Mayné*) (Tervuren Mus.); 1 ♀, Kisantu, 1919 (*P. Vanderjst*) (Tervuren Mus.); 1 ♂, Eala, 1917 (*R. Mayné*) (Tervuren Mus.); 1 ♂, Bas Uelé, vii–viii.1920 (*L. Burgeon*) (Tervuren Mus.); 1 ♀, Kisantu, 1927 (*R. P. Vanderyst*) (Tervuren Mus.); 1 ♀, Benza-Masola, 12–15.vi.1911 (*R. Mayné*) (Tervuren Mus.); 8 ♂, 7 ♀, Congo de Lemba, iv.1926, i–ii.1913 (*R. Mayné*) (Tervuren Mus.). UGANDA: 3 ♂, 9 ♀, Kampala, 17.vi.1929, on kapok (det. W. E. China) (Br. Mus.); 57 ♂, 81 ♀, distr. Toro, Bumado, 1000 m., 18.i.1954, sur fruit Kapokier (*R. P. M. J. Celis*) (Tervuren Mus.).

*Distribution.*—The Congo, Gabon, Ghana, Ivory Coast, Nigeria, Sierra Leone, Uganda. The range of this species extends mainly in the West African subregion to the extreme western parts of the East African subregion (fig. 4).

*Comparative note.*—*O. dudgeoni* is easily distinguished by the yellowish corium with the basal half and along the anal margin black. It might be confused with *O. hyalinipennis*, but the corium of this species is uniformly yellowish-white. *O. dudgeoni* has the antennae black, pronotum black, dorsal opening of pygophore wide with smooth low arch, posterior edge of pygophore curved with a median notch, and the parameres with lobes. *O. hyalinipennis* has the antennae brownish-black, with basal third of second segment and basal third of third segment yellowish-brown, pronotum blackish-brown with anterior and posterior margins brown to light brown, dorsal opening of pygophore triangular, posterior edge of pygophore straight without notch, and parameres without lobes.

*Oxycarenum (Oxycarenum) lugubris* (Motschulsky) (fig. 29)*Stenogaster lugubris* Motschulsky, 1859 : 108-9.*Oxycarenum lugubris* Stål, 1874 : 141; Distant, 1901 : 475; Distant, 1904 : 44; Bergroth, 1917 : 99; Horvath, 1926 : 136; Slater, 1964a : 684-5.*Rhopalus? funeralis* Kirby, 1891 : 97; Distant, 1901 : 475 (syn.).*Corizus? funeralis* Lethierry & Severin, 1894 : 117.*Oxycarenum limbatipennis* Breddin, 1899 : 20-21; Bergroth, 1917 : 99 (syn.).*Oxycarenum funeralis* Breddin, 1899 : 174-5.

General colour brownish-black and whitish. Characterised by the brownish-black corium with the basal third and exocorium white, the triangular shape of subgenital plates with wide deep apical notch, the wide opening of pygophore and the lack of lobe on blades of parameres.

*Measurements (in mm.).—Male* (Congo): body length 4.26; head length 0.77, width across eyes 0.76; antennae: segment I—0.32, II—0.65, III—0.51, IV—0.65; rostrum length 2.42; pronotum length 0.99, width 1.16; scutellum length 0.44, width 0.51. *Female* unknown.

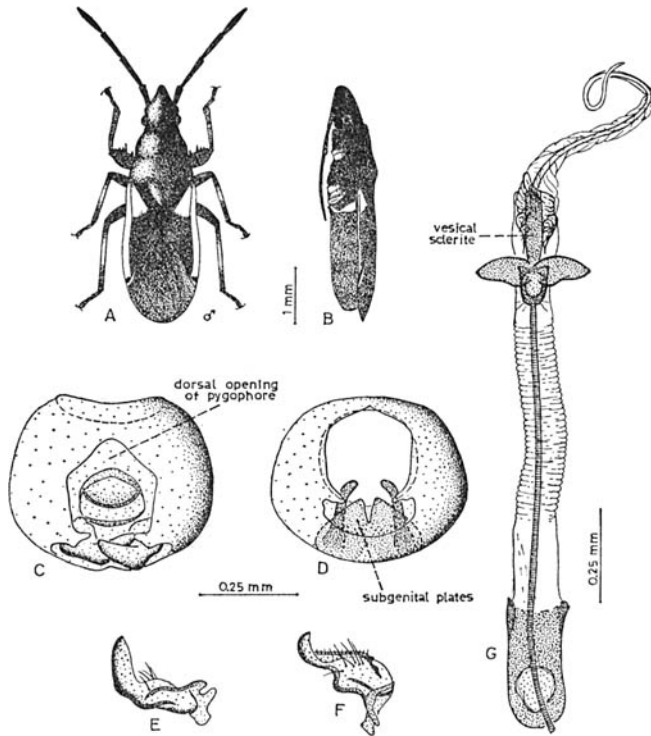


FIG. 29.—*Oxycarenum lugubris* (Motschulsky): A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

Head black; rostrum dark brown, with third segment reaching mid-coxae, fourth segment extending to just beyond third abdominal segment; antennae black.

Pronotum black, slightly brownish posteriorly, lateral margins sinuate; prosternum black; scutellum brownish-black; meso- and metasterna black; acetabula whitish, proximally black; femora brownish-black; fore femora with four spines; tibiae dark brown; mid and hind tibiae annulated with white; tarsi brown with third segment darker; corium brownish-black with basal third white; exocorium white with spot at apex small dark brown; clavus brownish-black; membrane brownish-black, adjacent to apical angle of corium white.

Abdomen dorsally brown; connexivum blackish; venter dark brown.

*Male genitalia.*—Pygophore with dorsal opening wide with high and slightly convexed arch (fig. 29, C); posterior edge of pygophore curved with median notch; subgenital plates in posterodorsal view triangular with deep wide notch, forming two lobes (fig. 29, D). Aedeagus (fig. 29, G) moderately long; vesica without lobe; vesical wings somewhat broad, vesical sclerite long, straight. Parameres (fig. 29, E, F) robust; blade without lobe; shank with two nodules and few long hairs.

*Specimens examined*.—CEYLON: type (♂) of *Rhopalus? funeralis* Kirby (Green Coll., 1926) (Br. Mus.). CONGO: 1 ♂, Haute Uelé, Walsa, xi.1919 (*L. Burgeon*) (det. G. G. E. Scudder, 1962, *O. maculatus*) (Tervuren Mus.).

*Distribution*.—The species was described from Ceylon and is recorded also from Formosa, India, Java, Lombok, New Caledonia and Philippines in the Oriental region. This is the first time it has been recorded from the Ethiopian region in the Congo.

*Comparative note*.—This species resembles *O. wittei* and, to some extent, *O. maculatus*. It differs from *wittei* in having a tapering pronotum, a different pattern of coloration on the hemelytra and a wide dorsal opening of pygophore, as shown in the table given below. It can easily be separated from *maculatus* by the thick head and pronotum, the shorter rostrum, the white exocorium and especially by the lack of the vesical lobe. The difference between those three species can be tabulated as follows:

Character	<i>O. lugubris</i>	<i>O. wittei</i>	<i>O. maculatus</i>
Head	Thick, shorter than pronotum	Thick, shorter than pronotum	Flattened, longer than pronotum
Rostrum	Reaching third abdominal segment	Reaching hind coxae	Reaching fifth abdominal segment
Corium	Brownish-black, basal third white	Whitish-yellow with dark brown triangular patch between radius and corio-membranal line	Dark brown with white band near base
Exocorium	White	Very light brown	Dark brown with white band near base
Membrane	Brownish-black, white around apical angle of corium	Dark chocolate brown, white strip adjacent to distal margin of corium	Dark brown with white band adjacent to distal margin of corium
Mid-tibiae	Annulated	Faintly annulated	Not annulated
Dorsal opening of pygophore	Wide with high arch (fig. 29, C)	Cupola shaped (fig. 30, C)	Wide with rounded arch and long lateral margin (fig. 41, C)
Vesical lobe	Absent	Absent	Present

***Oxycareus (Oxycareus) wittei* sp. n. (fig. 30)**

General colour black to dark chocolate brown with white areas on corium. Characterised by the dark chocolate brown triangular patch between the radius and corio-membranal line, the dark chocolate brown membrane, except for a white strip adjacent to the corium, and by absence of lobes on blades of parameres.

*Measurements (in mm.)*.—Male (Congo): body length 3.69 (3.57–3.77); head length 0.63, width across eyes 0.65; antennae: segment I—0.23, II—0.45, III—0.35, IV—0.51; rostrum length 1.54; pronotum length 0.85, width 1.18; scutellum length 0.41, width 0.55. Female (Congo): body length 4.18; head length 0.70, width across eyes 0.72; antennae: segment I—0.27, II—0.49, III—0.33, IV—0.56; rostrum length 2.03; pronotum length 0.93, width 1.20; scutellum length 0.37, width 0.56.

Head black; rostrum black with third segment reaching to mid-coxae, fourth segment extending to hind coxae; antennae black.

Pronotum black, lateral margins strongly sinuate; prosternum black; scutellum black; meso- and metasterna black; acetabula dull brown; femora black; fore femora with four spines (fig. 30, I); fore tibiae brownish-black; mid tibiae black, faintly annulated with brown centrally; hind tibiae black widely annulated with yellowish-dull white; tarsi blackish-brown; corium whitish-yellow with large triangular patch between radius and corio-membranal line dark chocolate brown; exocorium very light brown, slightly darker adjacent to triangular patch on corium, with spot at apex distinct dark brown; clavus brownish-black; membrane dark chocolate brown, strip adjacent to distal margin of corium whitish-hyaline.

Abdomen dorsally dark brown; connexivum black; venter black.

Male genitalia.—Pygophore with dorsal opening cupola shaped (fig. 30, C); posterior edge slightly curved; subgenital plates in posterodorsal view triangular with deep narrow apical notch (fig. 30, D). Aedeagus (fig. 30 G) fairly long; vesica without lobe; vesical wings small; vesical sclerite long. Parameres (fig. 30, E, F) small; blade without lobe; shank long with two nodules.



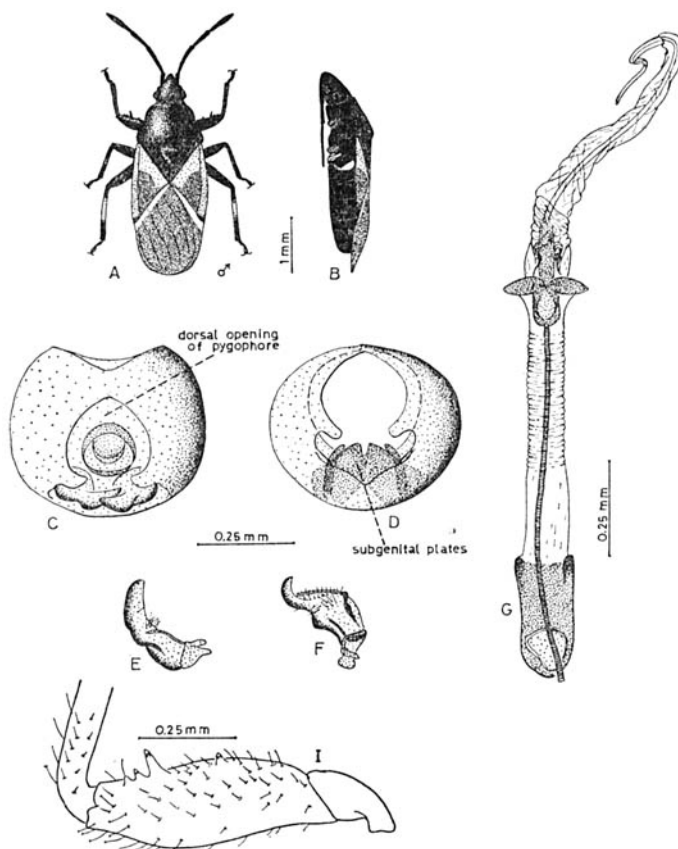


FIG. 30.—*Oxycarenus wittei* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus; I, fore femur.

*Holotype* ♂, CONGO: Kabwekanono, p.t.s. Lufwa, 1815 m., 25. iv. 1949 (*Miss G. F. de Witte*) 2577a (Inst. Parc Nat. Congo Rwanda, Brussels). *Paratypes*: 1 ♂, 2 ♀, Lusinga, 1750 m., 23–30. iv. 1949 (*Miss G. F. de Witte*) (Inst. Parc Nat. Congo Rwanda, Brussels and J. A. Slater Coll.).

*Distribution*.—The species occurs only in the Congo.

*Comparative note*.—This species might be confused with *O. lugubris* but is distinguished by the characters tabulated on p. 134.

***Oxycarenus (Oxycarenus) lusingaensis* sp. n. (fig. 31)**

General colour blackish-brown. Characterised by its small size and dull coloration, by the fourth antennal segment being longer than the second, and the cupola-shaped dorsal opening of the pygophore.

*Measurements (in mm.)*.—Male (Congo): body length 3.14 (3.09–3.17); head length 0.54, width across eyes 0.58; antennae: segment I—0.23; II—0.39, III—0.30, IV—0.47; rostrum length 1.54; pronotum length 0.68, width 0.92; scutellum length 0.31, width 0.45. *Female* (Congo): body length 3.24 (3.20–3.27); head length 0.59, width across eyes 0.57; antennae: segment I—0.24, II—0.41, III—0.32, IV—0.50; rostrum length 1.70; pronotum length 0.66, width 0.89; scutellum length 0.31, width 0.46.

Head black; rostrum dark brown with third segment reaching to mid-coxae, fourth segment extending beyond hind coxae; antennae brownish-black, median third of second segment brown, fourth segment stouter and longer than second segment.

Pronotum dull brown, anterior half with transverse band over calli black, lateral margins sinuate; prosternum black with posterior margins and posterior angles light brown; scutellum dark brown; meso- and metasterna brownish-black; acetabula white; femora dark brown; fore femora with four spines (fig. 31, I); fore tibiae brown; mid and hind tibiae dark brown, widely annulated with white centrally; tarsi brown, third segment dark; corium pale brownish-yellow with median area darker; exocorium pale brownish-yellow, spot at apex very small indistinct, light brown; clavus dull brown; membrane hyaline flecked with light brown.

Abdomen dorsally dark brown; connexivum dark brown; venter dark brown.

Male genitalia.—Pygophore with dorsal opening cupola-shaped, wide (fig. 31, C); posterior edge curved with median notch; subgenital plates in posterodorsal view triangular with rounded sides and apical small notch (fig. 31, D). Aedeagus (fig. 31, G) short; vesica without lobe; vesical wings moderate with rounded apices; vesical sclerite straight. Parameres (fig. 31, E, F) small; blade slender, pointed apically, without lobe; shank short with one small nodule.

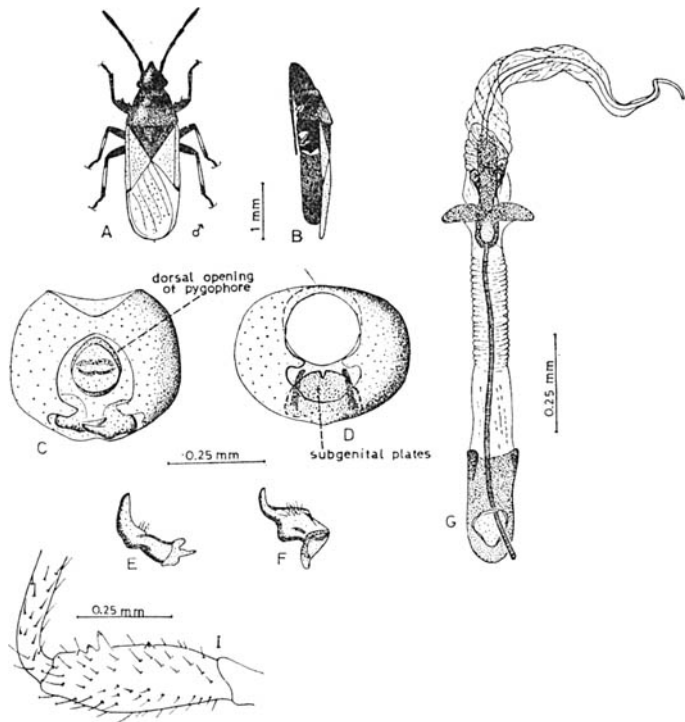


FIG. 31.—*Oxycarenus lusingaensis* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus; I, fore femur.

*Holotype* ♂, CONGO: Lusinga, 1760 m., 23.iv.1949 (*Miss G. F. de Witte*) 2560a (Inst. Parc Nat. Congo Rwanda, Brussels). *Paratypes*: 7 ♂, 8 ♀, same data as holotype (Inst. Parc Nat. Congo Rwanda, Brussels and J. A. Slater Colls.); 2♂, 6♀ Mukana, 1810 m. 22–23.iv.1949 (*Miss G. F. de Witte*) (Inst. Parc Nat. Congo Rwanda, Brussels and J. A. Slater Colls.); 1 ex, Mbuye-Bala, 1750 m., 24–31.iii.1948 (*Miss G. F. de Witte*) (Inst. Parc Nat. Congo Rwanda, Brussels).

*Distribution*.—The species is only recorded from the Congo.

*Comparative note*.—This species is closely related to *O. hyalinipennis*, differing in addition to the very small size and the much shorter labium by the following characters:

Character	<i>O. lusingaensis</i>	<i>O. hyalinipennis</i>
Third antennal segment . . . . .	Wholly brownish-black	Brownish-black with basal third light yellowish-brown
Fourth antennal segment . . . . .	Stouter and longer than second segment	Shorter than second segment
Clavus . . . . .	Dull brown	Light ochre
Dorsal opening of pygophore . . . . .	Cupola-shaped, wide (fig. 30, C)	Triangular (fig. 21, C)
Subgenital plates in postero-dorsal view . . . . .	Triangular with rounded sides (fig. 30, D)	Transversely rectangular (fig. 21, D)
Parameres . . . . .	Blade without lobe; shank with one small nodule	Blade with lobe; shank with two nodules (one less distinct)

*Oxycareus (Oxycareus) brunneus* sp. n. (fig. 32)

General colour brown and yellow. Characterised by the stouter and longer fourth antennal segment, the four spines on fore femora, the triangular shape of subgenital plates and the lack of lobes on blades of the parameres.

*Measurements (in mm.).—Male* (S. Africa): body length 3.25; head length 0.58, width across eyes 0.65; antennae: segment I—0.25, II—0.39, III—0.32, IV—0.50; rostrum length 1.41; pronotum length 0.74, width 1.04; scutellum length 0.37, width 0.44. *Female* (S. Africa): body length 3.44; head length 0.63, width across eyes 0.68; antennae: segment I—0.24, II—0.40, III—0.34, IV—0.50; pronotum length 0.74, width 1.09; scutellum length 0.38, width 0.50.

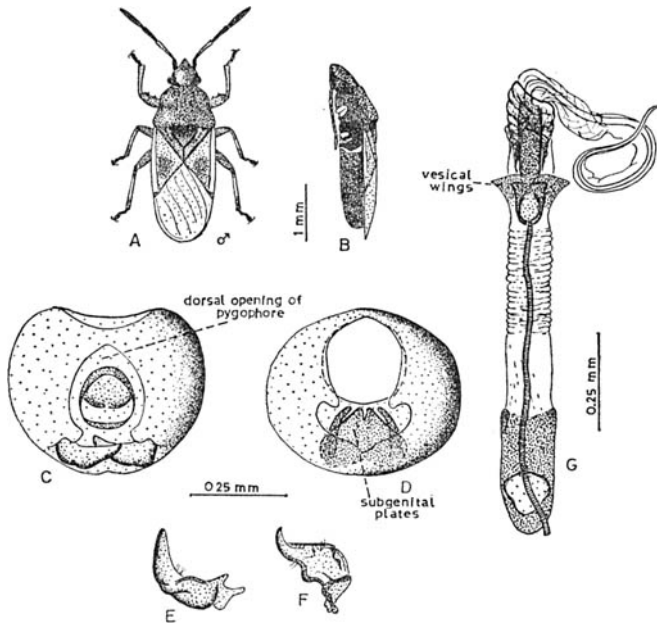


FIG. 32.—*Oxycareus brunneus* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

Head reddish-brown, around compound eyes and all underside of head blackish-brown; rostrum short, brown, with third segment reaching mid-distance between fore and mid-coxae, fourth segment just reaching hind coxae; antennae dark brown, second segment except base light brown, fourth segment longer, stouter than other segments.

Pronotum reddish-brown with anterior lobe broad and more reddish, lateral margins sinuate; prosternum black-brown with posterior margin light brown; scutellum reddish-brown becoming darker basally; meso- and metasterna blackish-brown; acetabula white; femora blackish-brown to brown; fore femora with four spines, apical spine very small; fore tibiae light brown; mid and hind tibiae brown, annulated with yellow; tarsi light brown; corium yellowish with median area light brown, semi-hyaline; exocorium yellowish, with spot at apex indistinct or very faint, brownish; clavus light brown; membrane semi-transparent, suffused with light brownish.

Abdomen dorsally reddish-brown; connexivum blackish-brown; venter blackish-brown.

*Male genitalia.*—Pygophore with dorsal opening somewhat wide, arch cupola shaped (fig. 32, C); posterior edge curved with median notch; subgenital plates in posterodorsal view triangular with narrow notch apically (fig. 32, D). Aedeagus (fig. 32, G) short, robust; vesica without lobes; vesical wings short very broad; vesical sclerite strong. Parameres (fig. 32, E, F) fairly long; blade short without lobe; shank broad with two nodules.

*Holotype* ♂, SOUTH AFRICA: (Dr. Brauns Coll. 1897–98) (Br. Mus.). *Paratypes*: 2 ♀, same data as holotype (Br. Mus.).

*Distribution.*—The species is restricted to South Africa.

*Comparative note.*—This species might be confused with *O. zimbabwei* but can be separated by the four spines on the fore femora and by the fourth antennal segment longer than second (*zimbabwei* with three spines, and fourth and second antennal

segments subequal). It also resembles *O. ngozianus* but differs in having the second antennal segment light brown, the clavus light brown, the blade of the paramere with a lobe, and the subgenital plates in posterodorsal view triangular (see p. 142).

***Oxycarenus (Oxycarenus) ibadanensis* sp. n. (fig. 33)**

General colour brown. Characterised by the light yellowish-brown coloration of second segment and basal third of third antennal segment, the light brown clavus and the absence of lobe on blade of each paramere.

*Measurements (in mm.).—Male (Nigeria):* body length 3.91; head length 0.78, width across eyes 0.72; antennae: segment I—0.30, II—0.58, III—0.43, IV—0.53; rostrum length 2.22; pronotum length 0.93, width 1.22; scutellum length 0.40, width 0.59. *Female (Ivory Coast):* body length 4.49; head length 0.86, width across eyes 0.78; antennae: segment I—0.32, II—0.67, III—0.50, IV—0.57; rostrum length 2.74; pronotum length 1.02, width 1.31; scutellum length 0.45, width 0.57.

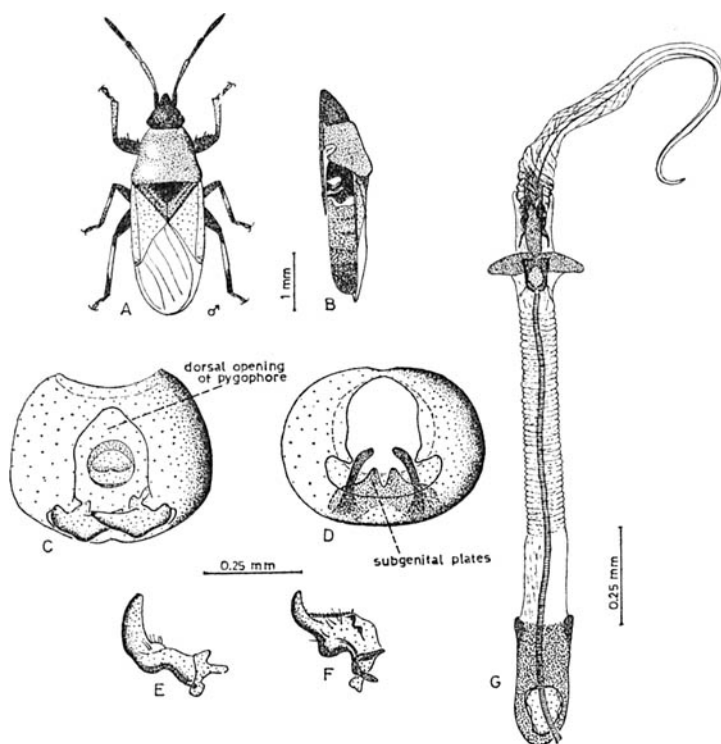


FIG. 33.—*Oxycarenus ibadanensis* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

Head reddish-dark brown, ventral side darker; rostrum brown, with third segment extending just beyond mid-coxae, fourth segment reaching third abdominal segment; antennae dark brown, with second segment and basal third of third segment light yellowish-brown, first segment reaching apex of head.

Pronotum reddish-brown, posterior half lighter; lateral margins sinuate; prosternum dark reddish-brown; scutellum dark brown; meso- and metasterna dark brown; acetabula white; femora dark brown; fore femora with four strong, distinct spines; fore tibiae light yellowish-brown; mid and hind tibiae brown, broadly annulated with yellowish-white; tarsi light yellowish-brown, third segment brown; corium yellowish; exocorium yellowish with spot at apex very small, faint, light brown; clavus yellowish, basally darker; membrane hyaline.

Abdomen dorsally brownish-red; connexivum light brown; venter orangish to yellowish; posteriorly dark brown.

Male genitalia.—Pygophore with dorsal opening wide with rounded arch and lateral margins straight (fig. 33, C); posterior margin curved with median notch; subgenital plates in posterodorsal view triangular with deep wide apical notch forming two projections (fig. 33, D). Aedeagus (fig. 33, G)

long; vesica without lobe; vesical wings moderately long; vesical sclerite somewhat broad, long, straight. Parameres (fig. 33, E, F) strong: blade without lobe; shank with two nodules.

*Holotype* ♂, NIGERIA: Ibadan (*Dudgeon*) (Dist. Coll., 1911 : 383) (Br. Mus.).  
*Paratypes*.—1 ♀, same data as holotype (Br. Mus.); 1 ♀, IVORY COAST: Bouake (*P. Coleno*) (B.M. 1948—536 labelled *Oxycarenus hyalinipennis*) (Br. Mus.).

*Distribution*.—This is a West African species, and is found only in Nigeria and the Ivory Coast (fig. 8).

*Comparative note*.—*O. ibadanensis* could be confused with *O. breddini*, but it can be separated by its smaller size and by the light yellowish-brown second and basal third of the third antennal segments; the whole antenna is dark brown in *breddini*.

*Oxycarenus (Oxycarenus) breddini* Bergroth (fig. 34)

*Oxycarenus breddini* Bergroth, 1905 : 380-1; Schouteden, 1912 : 315-6; Mancini, 1948 : 220; Slater, 1964a : 670.

General colour brownish. Characterised by the two reddish-brown spots laterally on anterior half of pronotum, the whitish clavus with apex and commissure dark brown, the low triangular shape of subgenital plates with deep wide apical notch and the absence of lobe on blade of each paramere.

*Measurements (in mm.)*.—*Male* (Madagascar): body length 4.87 (4.77-5.03); head length 1.00, width across eyes 0.88; antennae: segment I—0.39, II—0.77, III—0.58, IV—0.65; rostrum length 3.53; pronotum length 1.07, width 1.41; scutellum length 0.54, width 0.68. *Female* (Madagascar): body length 6.33 (6.30-6.39); head length 1.17, width across eyes 1.06; antennae: segment I—0.48,

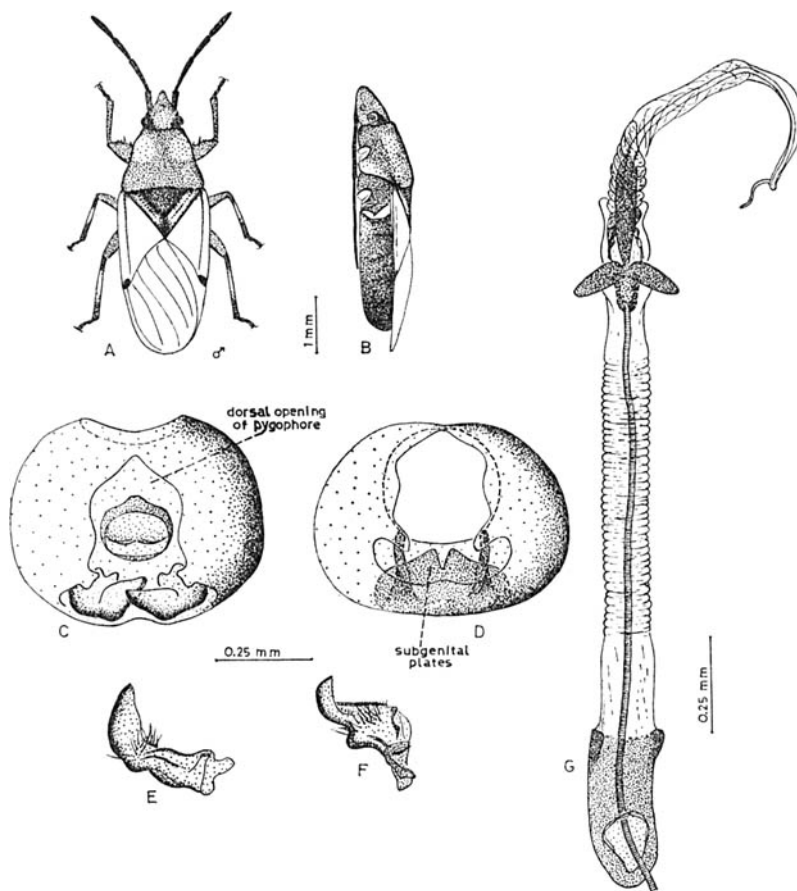


FIG. 34.—*Oxycarenus breddini* Bergroth: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

II—1.05, III—0.72, IV—0.73; rostrum length 4.94; pronotum length 1.32, width 1.75; scutellum length 0.62, width 0.85.

Head reddish-brown, around compound eyes, posteriorly, lower side dark brown; rostrum dark brown, second segment reaching mid-distance between fore and mid-coxae, third segment reaching third abdominal segment, fourth segment extending to fifth or sixth abdominal segment (in female, rostrum is much longer); antennae dark brown.

Pronotum dark brown with two big spots laterally on anterior half reddish-brown, lateral margins sinuate; prosternum dark brown; scutellum dark brown; meso- and metasterna blackish-brown; acetabula whitish; femora brown, lighter at tips; fore femora with four spines; fore tibiae brown, slightly lighter medially; mid and hind tibiae dark brown, annulated with yellowish; tarsi brown, third segment darker; corium yellowish, hyaline; exocorium yellowish with spot at apex big, distinct, dark brown; clavus yellowish with terminal margin, commissure and apical angle dark brown; membrane hyaline.

Abdomen dorsally light reddish-brown; connexivum dark brown; venter light brown, laterally and posteriorly darker.

Male genitalia.—Pygophore with dorsal opening wide, rounded arch and lateral margins convexed (fig. 34, C); posterior edge of pygophore curved with median notch; subgenital plates in posterodorsal view low triangular with deep wide apical notch forming two big projections (fig. 34, D). Aedeagus (fig. 34, G) long, strong; vesica without lobe; vesical wings moderate; vesical sclerite long, straight. Parameres (fig. 34, E, F) strong blade without lobe; shank with two prominent nodules and several long hairs.

*Specimens examined*.—Neotype ♀, CONGO: Kinshasa, ix.1920 (*P. Vanderijst*) (Tervuren Mus.); 1 ♂, Congo da Lemba, i.1913 (*R. Mayné*) (Tervuren Mus.); 7 ♂, 19 ♀, Leopoldville, 13.x.1935 (*J. Ghesquière*) (Tervuren Mus.). MADAGASCAR: 5 ♂, 5 ♀, Region du Nord-Ouest, Majunga, 3–4.vi.1901 (*Ch. Alluaud*) (Paris Mus.). UGANDA: 3 ♂, 1 ♀, Moyo, Madi, 10.vi.1936, common on fruit of *Sterculia cineria* (*A. S. Thomas*) (B.M. 1950–96) (Br. Mus.); 1 ♂, Mu Kura, Teso, 20.i.1936, in capsules of *Sterculia cineria* (*A. M. Gynn*) (Br. Mus.). SUDAN: 2 ♂, 2 ♀, Rossires Fung, 10.xi.1926, swarming on *Sterculia* (WTLR. Ent. Coll. C 2210, H, 12, 14) (*W. Rutledge*) (Br. Mus.); 3 ♂, 2 ♀, KajoKajo, Mongalla, 26.ii.1929, in open *Sterculia* pods on tree, (Ent. Coll. C 10048–51) (*W. Rutledge*) (Br. Mus.); 2 ♂, 1 ♀, Koheiti, Rosieres, i.1926, (WTLR, C. 2213, 15, 16) (*Menzies*) (Br. Mus.).

*Distribution*.—Congo, Madagascar, Sudan, Uganda. The species was described from Kinshasa in the extreme west of the Congo, and is also found in the East African subregion in Uganda and Sudan (also recorded from the Somal: Mancini, 1948). It extends its range to Madagascar (fig. 8).

*Variability*.—Specimens from Uganda tend to be much smaller in size, less reddish than the specimens from Congo or Madagascar, and the rostrum is comparatively shorter.

*Comparative note*.—*O. breddini* is very close to *O. ibadanensis* but can easily be distinguished by having all of the antennal segments dark brown (dark brown, with the second segment and the basal third of the third segment light yellowish-brown in *ibadanensis*).

*Taxonomic note*.—Mr. Antti Jansson of the Zoological Museum of the University of Helsinki has kindly written to say that he did not find the type of *O. breddini* Bergroth or any other African material of *Oxycarenum* and considers it lost. However, during this work, a female from the type locality (Kinshasa) was found in the Musée Royal de l'Afrique Centrale, Tervuren, Belgium. I take the opportunity to designate this female as the neotype of *O. breddini* Bergroth; a label to this effect has been placed on this specimen.

### *Oxycarenum (Oxycarenum) ngozianus* sp. n. (fig. 35)

General colour reddish-brown. Characterised by the totally brownish-black antennae, the blackish markings medially, anteriorly and posteriorly on reddish-brown pronotum, the rectangular shape of subgenital plates and the presence of a lobe on blade of each paramere.

*Measurements (in mm.)*.—Male: body length 3.58 (3.52–3.63); head length 0.65, width across eyes 0.66; antennae: segment I—0.27, II—0.48, III—0.36 (IV missing); rostrum length 2.14; pronotum

length 0.78, width 1.07; scutellum length 0.36, width 0.47. *Female*: body length 3.77 (3.71–3.83); head length 0.70, width across eyes 0.66; antennae: segment I—0.29, II—0.52, III—0.40, IV—0.53; rostrum length 2.37; pronotum length 0.79, width 1.07; scutellum length 0.34, width 0.43.

Head reddish-brown, around and posterior to compound eyes, underside of head black; rostrum blackish-brown, with third segment extending to just beyond mid-coxae, fourth segment reaching third abdominal segment; antennae brownish-black, with first segment reaching apex of head.

Pronotum reddish-brown, medially, on anterior and posterior margins blackish marking; lateral

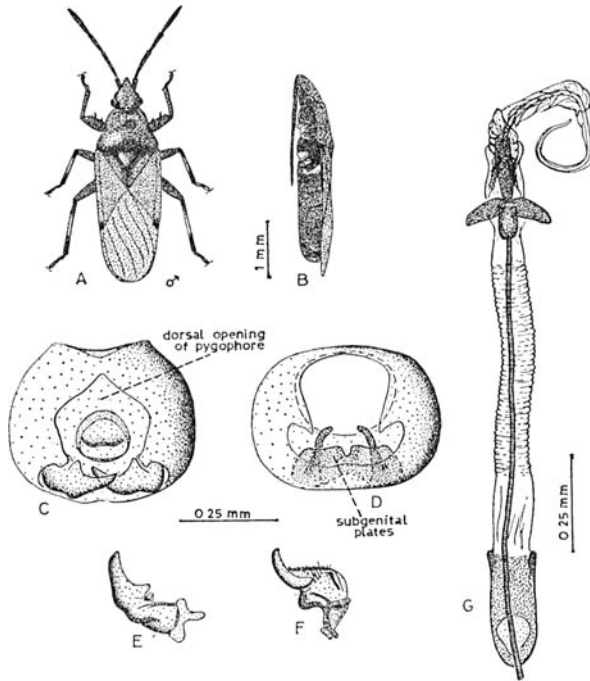


FIG. 35.—*Oxycarenus ngozianus* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

margins sinuate; prosternum blackish-brown; scutellum light reddish-brown, basally blackish-brown; meso- and metasterna blackish-brown, acetabula yellowish-white; femora dark brown; fore femora with four spines; fore tibiae brown; mid and hind tibiae brown, annulated with yellow; tarsi brown; corium brownish-yellow; exocorium brownish-yellow with spot at apex distinct, dark brown; clavus blackish-brown, median area lighter; membrane light brown.

Abdomen dorsally reddish-brown; connexivum blackish-brown; venter brownish-black.

*Male genitalia*.—Pygophore with dorsal opening distinctly wide and the arch high, comparatively wider (fig. 35, C); posterior edge curved with median notch; subgenital plates in posterodorsal view transversely rectangular (fig. 35, D). Aedeagus (fig. 35, G) long, thin; vesica without lobe; vesical wings moderate; vesical sclerite straight. Parameres (fig. 35, E, F) moderately strong; blade slightly curved, with lobe; shank wide, with one nodule.

*Holotype* ♂, CONGO: Ruanda Urundi, Ngozi Crater, 6500 ft., 33° 34' E, 9° 01' S, 1–2.viii.1959, low herbage (*Cambridge E. African Exped.* B.M. 1960–50) (Br. Mus.). *Paratype* ♂, Tshibinda, vii.1931 (*Miss A. Mackie*) (B.M. 1948–536) (Br. Mus.).

*Other specimens examined*.—CONGO: 1 ♂, Rutshuru, 2.vi.1938 (*J. Ghesquière*), Mus. Congo (Tervuren Mus.). TANZANIA: 1 ♀, Mbeya Mountain, 7000 ft., 33° 25' E, 8° 48' S, 5.viii.1959, trees and herbage on grass slopes (*Cambridge E. African Exp.* B.M. 1960–50) (Br. Mus.); 1 ♂, 3 ♀, Uwemba b. Njombe, 2000 m., 11–13.xi.1958 (*C. Lindemann*) (Munich Mus.). UGANDA: 1 ♀, Ruwenzori Range, Namwendwa Valley, 6500 ft., xii.1934–i.1935 (*B.M.E. Afr. Exp.* (F. W. Edwards) B.M. 1935–203) (Br. Mus.).

*Distribution*.—This is an East African species, its range being restricted to the area around Lake Edward, Lake Kivu and Lake Nyasa in Uganda, Tanzania and eastern Congo (fig. 8).

*Comparative note*.—This species is very close to the brown group of species, especially *O. rhodesianus*, *O. brunneus* and *O. zimbabwei*. The following table separates these species:

Character	<i>O. ngozianus</i>	<i>O. rhodesianus</i>	<i>O. brunneus</i>	<i>O. zimbabwei</i>
Antennae . . .	Totally brownish-black	Brown, second segment medially and base of third segment light brown	Dark brown, second segment except base light brown	Dark brown, second segment light brown
Spines on fore femora . . .	4	4	4	3
Clavus . . .	Blackish-brown, median area lighter	Light yellowish-brown	Light brown	Brown
Paramere . . .	With lobe	With lobe	Without lobe	Male unknown
Subgenital plates .	Rectangular	Oblong with two projections laterally	Triangular with narrow notch apically	Male unknown
Median notch on posterior edge of pygophore	Present	Absent	Present	Male unknown

***Oxycareus (Oxycareus) rhodesianus* sp. n. (fig. 36)**

General colour brownish-orange and yellow. Characterised by the brown antennae with second segment medially and base of third segment very light brown, the light yellowish brown clavus, the rectangular subgenital plates with projections laterally, and the presence of a lobe on blade of each paramere.

*Measurements (in mm.)*.—*Male* (Rhodesia): body length 3.47 (3.33–3.55); head length 0.64, width across eyes 0.66; antennae: segment I—0.27, II—0.46, III—0.38, IV—0.49; rostrum length 1.77; pronotum length 0.76, width 1.06; scutellum, length 0.36, width 0.47. *Female* (Rhodesia): body length 3.83; head length 0.74, width across eyes 0.72; antennae: segment I—0.32 (segments II–IV missing); rostrum length 2.18; pronotum length 0.80, width 1.15; scutellum length 0.43, width 0.55.

Head light orangish-brown, around and posterior to compound eyes, underside of head blackish-brown; rostrum brown, with third segment reaching to mid-coxae, fourth segment to just beyond hind coxae; antennae brown, second segment light brown except base and apex, third segment light brown at base.

Pronotum light orangish-brown, lighter on posterior half, lateral margins sinuate; prosternum darker especially around acetabulae; scutellum reddish-brown, basally dark brown; meso- and metasterna dark brown; acetabula yellowish; femora orangish-brown; fore femora with 4 spines; fore tibiae light brown; mid and hind tibiae light brown, widely annulated with white; tarsi light brown, third segment darker; corium light whitish-yellow; exocorium whitish-yellow with spot at apex slightly darker; clavus light yellowish-brown; membrane transparent whitish yellow.

Abdomen dorsally brown; connexivum brown; venter light yellowish-brown.

*Male genitalia*.—Pygophore with dorsal opening wide, high arched and lateral margins curved (fig. 36, C); posterior edge of pygophore curved without notch; subgenital plates in posterodorsal view rectangular with two conspicuous projections laterally (fig. 36, D). Aedeagus (fig. 36, G) long; vesica without lobe; vesical wings moderate; vesical sclerite long, tapering basally. Parameres (fig. 36, E, F) strong; blade with lobe; shank broad, with one distinct nodule.

*Holotype* ♂, RHODESIA: Mashonaland, Salisbury, 1898 (Dr. Brauns Coll.) (Br. Mus.). *Paratypes*: 6 ♂, 3 ♀, same data as holotype (Br. Mus.).

*Distribution*.—The species seems to be restricted to Rhodesia (fig. 8).

*Comparative note*.—The species resembles *O. ngozianus* in many respects, but differs in having two projections laterally on the subgenital plates and a straight posterior edge of the pygophore; in *ngozianus*, the subgenital plates are without projections and the posterior edge has a median notch.



The species is also close to *O. laetus* Kirby but they differ as follows:

Character	<i>O. rhodesianus</i>	<i>O. laetus</i>
Rostrum	Short, reaching hind coxae	Long, reaching fifth abdominal segment
Opening of pygophore	Wide with high arch	Triangular
Subgenital plates in postero-dorsal view	Rectangular with two projections laterally	Rectangular without projections

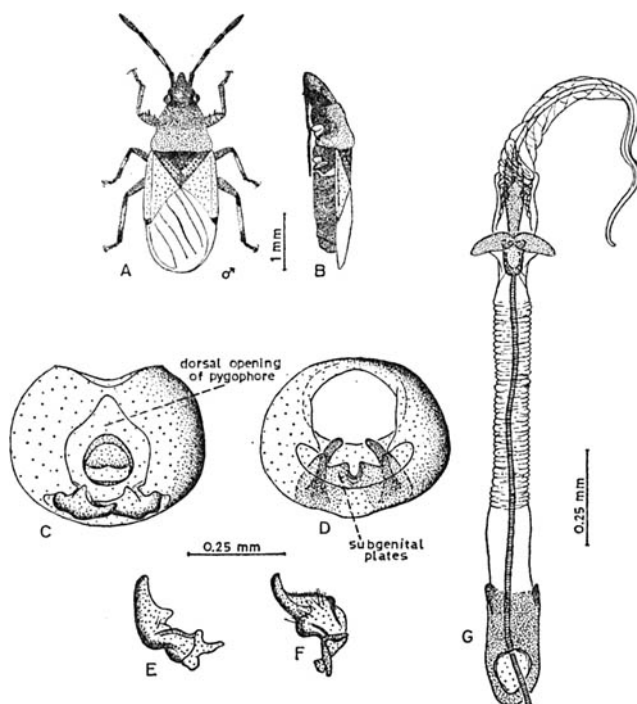


FIG. 36.—*Oxycarenus rhodesianus* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus.

***Oxycarenus (Oxycarenus) zimbabwei* sp. n. (fig. 37)**

General colour brown. Characterised by the three distal spines on the fore femora not so strong, and the brown clavus.

*Measurements (in mm.).—Male:* unknown. *Female (Rhodesia):* body length 3.65 (3.55–3.74); head length 0.61, width across eyes 0.69; antennae: segment I—0.25, II—0.45, III—0.32, IV—0.48; rostrum length 1.81; pronotum length 0.80, width 1.12; scutellum length 0.38, width 0.54.

Head reddish-brown, around compound eyes darker, posteriorly and under side of head blackish; rostrum blackish-brown, with third segment reaching to mid-coxae, fourth segment extending to fourth abdominal segment; antennae dark brown, second segment light brown, first segment reaching apex of head, third segment comparatively very short.

Pronotum reddish-brown, posterior lobe yellowish; lateral margins sinuate; prosternum blackish; scutellum reddish-brown becoming blackish at basal third; meso- and metasterna blackish-brown; acetabula whitish; femora brown; fore femora with three distal spines; tibiae light brown, mid and hind tibiae annulated with yellowish-brown, tarsi light brown, third segment darker; corium yellowish-white suffused medially with light brown; exocorium yellowish-white, with spot at apex very small, light brown; clavus brown; membrane faintly brownish.

Abdomen dorsally reddish-brown; connexivum dark brown; venter dark brown.

*Holotype* ♀, RHODESIA: Zimbabwe, near Fort Victoria, ix.1931 (*Miss A. Mackie*) (Br. Mus.). *Paratype:* 1 ♀, Umtali, Vumba, v.1932 (*Miss A. Mackie*) (Br. Mus.).

*Distribution.*—The species seems to be restricted to Rhodesia.

*Comparative note.*—This species might be confused with *O. brunneus*, *O. ngozianus* and *O. rhodesianus*, but is characterised at least by having only three spines on the fore femora; other separating characters are tabulated on p. 142.

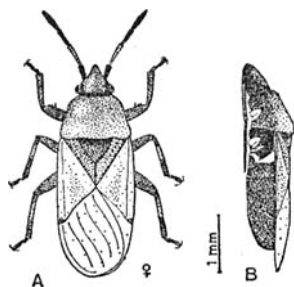


FIG. 37.—*Oxycareenus zimbabwei* sp. n.: A, dorsal view; B, lateral view.

***Oxycareenus (Oxycareenus) gibbus* sp. n. (fig. 38)**

General colour brown. Characterised by the pronotum noticeably broader posteriorly than anteriorly, thick, distinctly arched with anterior foramen (and head) inclined downwards, the brown femora with apex and base yellowish, the three spines on fore femora with proximal spine comparatively large, and the dark brown antennae with second and third segments yellowish.

*Measurements (in mm.).*—Male unknown. Female (Ethiopia): length 3.14; head length 0.54, width across eyes 0.64; antennae: segment I—0.18, II—0.37, III—0.30, IV—0.37; rostrum length 1.46; pronotum length 0.78, width 1.08; scutellum length 0.36, width 0.52.

Head thick, yellowish-brown, underside darker, around compound eyes dark brown; rostrum dark brown with third segment extending to mid-coxae, fourth segment reaching third abdominal segment; antennae dark brown with second and third segments yellowish.

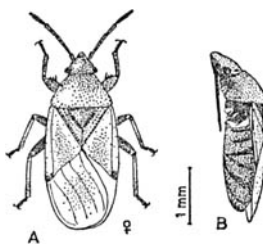


FIG. 38.—*Oxycareenus gibbus* sp. n.: A, dorsal view; B, lateral view.

Pronotum thick, noticeably broader posteriorly than anteriorly, yellowish-brown becoming ochreous on posterior half, lateral margins sinuate; prosternum dark brown, epimeron ochre; scutellum light brown, proximally darker; meso- and metasterna dark brown; acetabula white; femora brown, apex and base yellowish; fore femora strong, thick, with three distal spines; tibiae yellowish, mid and hind tibiae faintly annulated with white; tarsi yellowish-brown, third segment darker; corium semi-hyaline, yellowish, medially light brown; exocorium yellowish with spot at apex brown; clavus ochre with anal angle brownish; membrane misty-white, median area brownish.

Abdomen dorsally brown; connexivum dark brown; venter dark brown.

*Holotype* ♀, ETHIOPIA: plains N.W. of Lake Zwai, 5500–6000 ft., 31.x–1.xi.1926 (*H. Scott*) (Br. Mus.).

*Distribution.*—The species seems to be very rare, and may be restricted to Ethiopia (fig. 8).

*Comparative note.*—This species is very close to *O. tabidus* and *O. izzardii* but differs as follows:

Character	<i>O. gibbus</i>	<i>O. tabidus</i>	<i>O. izzardii</i>
Pronotum . . . . .	Noticeably broader posteriorly than anteriorly	Moderately broader	Moderately broader
Femora . . . . .	Brown with the apex and base yellowish	Light yellowish brown with apex yellowish	Uniformly light brown
Spines on fore femora . .	Three, proximal spine comparatively large	Three, and one vestigial	Three, proximal one moderately large
Spot at apex of exocorium . . . .	Present	Absent	Present
First antennal segment .	Dark brown	Yellowish-brown	Yellow
Venter . . . . .	Dark brown	Dark ochre with brownish colorations	Light brownish-ochre

Although the species is only known from one female specimen, many features are so characteristic that it has seemed justifiable to describe it as new.

*Oxycarenus (Oxycarenus) tabidus* Stål (fig. 39)

*Oxycarenus tabidus* Stål, 1865 : 152; Walker, 1872 : 125; Stål, 1874 : 141; Schouteden, 1912 : 316, 318; Slater, 1964a : 692; Slater, 1964b : 146.

General colour light yellow ochre. Characterised by its small size, by the fore femora having 3 distal spines and a vestigial fourth, the annulated tibiae, and one nodule on each side of shank of parameres.

*Measurements (in mm.)*.—*Male* (S. Africa): body length 2.73; head length 0.44, width across eyes 0.55; antennae: segment I—0.21, II—0.38, III—0.31, IV—0.42; rostrum length 1.22; pronotum length 0.67, width 0.87; scutellum length 0.24, width 0.37. *Female* (S. Africa): body length 2.94; head length 0.52, width across eyes 0.55; antennae: segment I—0.23, II—0.40, III—0.33, IV—missing; rostrum length 1.38; pronotum length 0.69, width 0.92; scutellum length 0.27, width 0.39.

Head coarsely wrinkled, light yellowish-brown; rostrum short, light brown with second segment not reaching fore coxae, third segment extending to mid-distance between fore and mid-coxae, fourth segment dark brown not reaching hind coxae; antennae light yellowish-brown with fourth segment stouter and longer than other segments, dark brown, first segment reaching apex of head.

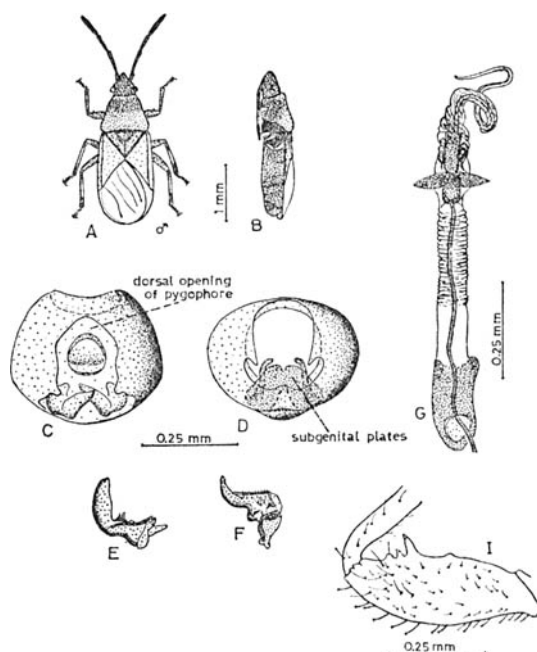


FIG. 39.—*Oxycarenus tabidus* Stål: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus; I, fore femur.

Pronotum light yellow ochre, anterior half with light yellowish-brown band, lateral margins slightly sinuate; prosternum light yellow ochre with episternum and around acetabula yellowish-brown; scutellum light yellowish-brown, proximally dark brown; meso- and metasterna dark brown; acetabular yellowish-white; femora light yellowish-brown, distally yellowish; fore femora with three distal spines, only proximal spine large, strong, fourth spine vestigial (fig. 39, I); tibiae yellow; mid and hind tibiae faintly annulated with white; tarsi yellow; corium yellowish-white, opaque; exocorium yellowish-white without spot at apex; clavus light yellow ochre; membrane yellowish-hyaline.

Abdomen dorsally brownish; connexivum brownish; venter dark ochre with brownish colorations.

Male genitalia.—Pygophore with dorsal opening wide, high arched, lateral margins slightly convexed (fig. 39, C), posterior edge straight; subgenital plates in posterodorsal view triangular with deep notch and blunt apices (fig. 39, D). Aedeagus (fig. 39, G) short; vesica without lobe; vesical wings comparatively long; vesical sclerite broad. Parameres (fig. 39, E, F) slender; blade bent sharply on shank, without lobe; shank with two nodules, one on each side.

*Specimens examined*.—SOUTH AFRICA: type (♀), Cape B. spei, Thorey (labelled, lectotype, J. A. Slater) (Stockholm Mus.); 1 ♂, same data as lectotype (labelled Typus) (Stockholm Mus.).

*Distribution*.—This is a rare species and is restricted to the Cape Province, South Africa (fig. 8).

*Comparative note*.—*O. tabidus* resembles *O. gibbus* and *O. izzardi*, but is characterised by having the fore femora with a vestigial fourth spine, the spot at the apex of the exocorium absent, and the dorsal opening of the pygophore wide (see pp. 145, 147).

***Oxycareus (Oxycareus) izzardi* sp. n. (fig. 40)**

General colour orange and yellowish-ochre. Characterised by the three spines on fore femora, the head slightly wider than long, the triangular shape of subgenital plates in posterodorsal view, and the absence of lobes on blades of parameres.

*Measurements (in mm.)*.—Male (Sudan): body length 2.66; head length 0.51, width across eyes 0.54; antennae: segment I—0.16, II—0.29, III—0.27 (segment IV missing); rostrum length (?); pronotum length 0.60, width 0.86; scutellum length 0.25, width 0.34. *Female* not known.

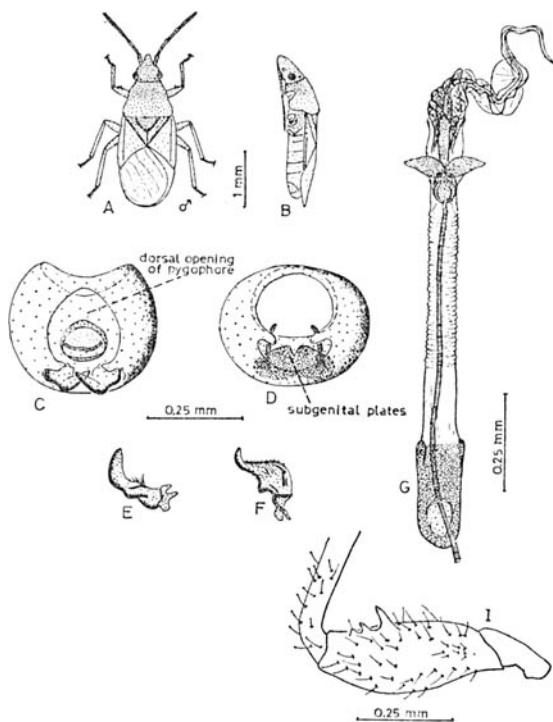


FIG. 40.—*Oxycareus izzardi* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, aedeagus; I, fore femur.

Head orangish-brown; rostrum light, third segment not reaching mid-coxae, fourth segment extending to hind coxae, dark brown; antennae light yellowish-brown, fourth segment brown, lighter at base, with first segment not reaching apex of head.

Pronotum orangish-brown with posterior half orangish-yellow, lateral margins slightly sinuate; prosternum orangish-brown to orangish-yellow; scutellum orangish-brown; meso- and metasterna orangish-brown; acetabula white; femora light brown; fore femora with three spines, proximal one comparatively large (fig. 40, I); fore tibiae yellowish-white; mid and hind tibiae light yellowish-brown, widely annulated with yellowish-white; tarsi light yellowish-brown; corium yellow ochre; exocorium yellow ochre with spot at apex small, orangish-yellow; clavus yellow ochre; membrane hyaline, with median area faintly brownish.

Abdomen light brown; connexivum light brown; venter light brownish-ochre.

Male genitalia.—Pygophore with dorsal opening cupola shaped (fig. 40, C); posterior edge straight, without notch; subgenital plates in posterodorsal view triangular with deep, wide apical notch (fig. 40, D). Aedeagus (fig. 40 G) moderately long; vesica without lobe, median third with helicoid process; vesical wings large; vesical sclerite straight, slender. Parameres (fig. 40, E, F) small; blade without lobe; shank with two nodules.

*Holotype* ♂, SUDAN: W. Darfur, Jebel Murra, Killing, 7000 ft., 7.iv.1932 (*Miss M. Steele*), B.M. 1933—612 (Br. Mus.). *Paratype*: 1 ex. same data as holotype (det. R. J. Izzard, *Oxycarenum* sp. new to B.M.) (Br. Mus.).

*Distribution*.—The species is represented by two specimens collected from the Sudan (fig. 8).

*Comparative note*.—This species is very close to *O. gibbus* and *O. tabidus* but they differ as tabulated on p. 145. Differences in the male genitalia of *O. izzard* and *O. tabidus* are as follows:

Character	<i>O. izzard</i>	<i>O. tabidus</i>
Opening of pygophore	Rounded cupola-shaped (fig. 40, C)	Wide with high arch (fig. 39, C)
Nodules on shank of parameres	Two, close together (fig. 40, F)	Two, one on each side (fig. 39, F)
Vesical sclerite	Long, slender	Broad

I have the pleasure of naming this species after Mr. R. J. Izzard of the British Museum (Nat. Hist.), who was the first to note its distinction.

#### *Oxycarenum (Oxycarenum) castaneus* Bergevin

*Oxycarenum castaneus* Bergevin, 1932 : 255–6; Stichel, 1958 : 154; Slater, 1964a : 670.

I had the opportunity of examining Bergevin's collection of Hemiptera in the Paris Museum; unfortunately, the type of *Oxycarenum castaneus* could not be found, and there was no other specimen labelled as such by subsequent workers.

The species was first described in 1932 from one female collected at Nefta, south Tunisia; no other material was mentioned. The original description includes the following diagnostic characters:

Dorsally light brown, ventrally dark brown. Antennae reddish-brown with the fourth segment dark brown. Fore femora with few spines; tibiae light yellowish-brown without annulation. Corium, clavus, membrane brownish-yellow; spot at apex of corium brown. Total length of female 5 mm.

These characters would run the species to the subgenus *Oxycarenum*, but they are not adequate enough to nominate any of the new species described in this work as *castaneus*, especially as none of them was from the same locality or even from the Mediterranean subregion (*i.e.* complied with the provision in paragraph (C) (5) of Article 75 of the Code).

#### Subgenus *Pseudoxycarenum* subgen. n.

Body dorsoventrally flattened. Distance from apex of head to apical angle of clavus longer than half length of body. Head prolonged, longer than length of pronotum, black; rostrum longer than body, at least reaching fifth abdominal segment; antennae moderately long (ratio of length of antennae

to length of body in male, 39.6–47.7; in female, 38.2–48.5); first antennal segment more or less shorter than apex of head.

Pronotum flattened, lateral margins distinctly sinuate; black or slightly brownish; scutellum black; acetabula black or dark brown; fore femora with four spines; fore and mid-tibiae unicolourous; hind tibiae brownish, annulated centrally with yellowish-white; corium brown to blackish-brown with transverse whitish band near base; exocorium brown to blackish-brown with transverse white band near base; spot at apex of exocorium present, or fused with dark coloration of exocorium; clavus brown to black; corio-membranal line slightly curved; membrane brown to dark brown, with white band, more or less broad, at base adjacent to distal margin of corium.

Abdomen flattened, broad, ventrally dark brown to black.

Male genitalia.—Pygophore dorsal opening wide with lateral margins more or less curved medially (figs. 41–43, C); posterior edge of pygophore straight, usually without median notch; subgenital plates in posterodorsal view triangular with median notch (figs. 41–43, D). Aedeagus strong; vesica with curved prominent lobe placed ventrally at apex of basal third; vesical wings long; vesical sclerite long, broad, tapering at base; second vesical sclerite present at apex of middle third, narrow, long, pointed. Parameres slender; blade long, pointed, without lobe; shank small with two nodules.

Type-species: *Oxycarenas maculatus* Stål.

This is a very distinctive subgenus, although represented in this work by only three African species. Some of the diagnostic characters appear to vary in the different species: for example, the characters related to the length of head, length of rostrum, shape of pronotum and others as indicated in the descriptions of the species and the comparative notes. The group as a whole is blackish-brown, with two white bands on the hemelytra. Its distribution is limited to the South African subregion and to Kenya in the East African subregion.

#### Key to species of subgenus *Pseudoxycarenus*

- 1 First antennal segment nearly reaching apex of head; second segment medially and third segment basally light yellowish-brown; third segment of rostrum reaching to hind coxae; lateral margins of dorsal opening of pygophore with median constriction (fig. 43, C) . . . *germarii* (Fieber) (p. 151)
- First antennal segment much shorter than apex of head; antennae black or with second segment faintly brownish; third segment of rostrum reaching at least third abdominal segment; lateral margins of dorsal opening of pygophore slightly convex (figs. 41, 42, D) . . . . . 2
- 2 Rostrum reaching fifth to seventh abdominal segment; second antennal segment faintly brownish; hind tibiae distinctly annulated with yellow; white bands on hemelytra wide . . . . . *maculatus* Stål
- Rostrum protruding posteriorly beyond apex of abdomen in male and beyond hemelytra in female; second antennal segment black; hind tibiae faintly annulated with brown; whitish bands in hemelytra narrow  
*longirostris* sp. n. (p. 150)

#### *Oxycarenus* (*Pseudoxycarenus*) *maculatus* Stål (fig. 41)

*Oxycarenus maculatus* Stål, 1854 : 235; Stål, 1858 : 247; Stål, 1865 : 152; Walker, 1872 : 125; Stål, 1874 : 141; Distant, 1901 : 475; Schouteden, 1912 : 317; Slater, 1964a : 685; Slater, 1964b : 145–6.

*Anthocoris subcruciatu*s Walker, 1872 : 151–2; Distant, 1901 : 475 (syn.).

General colour blackish-brown with white bands on hemelytra. Characterised by two white bands, one near base of corium and the second at base of membrane adjacent to distal margin of corium, by its flattened body, the prolonged head which is 1.2 times length of pronotum, the annulated hind tibiae, and the presence of a prominent vesical lobe.

*Measurements (in mm.)*.—*Male* (S. Africa): body length 5.12 (4.59–5.85); head length 1.11, width across eyes 0.69; antennae: segment I—0.33, II—0.69, III—0.50, IV—0.66; rostrum length 3.73; pronotum length 0.93, width 1.22; scutellum length 0.51, width 0.59. *Female* (S. Africa): body length 5.53 (5.15–6.04); head length 1.16, width across eyes 0.75; antennae: segment I—0.35, II—0.75, III—0.58, IV—0.70; rostrum length 4.39; pronotum length 0.98, width 1.35; scutellum length 0.55, width 0.70.

Head flattened, much prolonged, black; rostrum fairly long, black, with third segment reaching third abdominal segment, fourth segment extending to fifth abdominal segment; antennae black with second segment faintly brownish, first segment distinctly shorter than apex of head.

Pronotum flattened, black, anterior half longer and little narrower than posterior half, lateral margins sinuate; prosternum black; scutellum black; meso- and metasterna black; acetabula black, distally whitish on mid and hind acetabula; femora brownish-black; fore femora with four spines; fore and mid-tibiae blackish-brown; hind tibiae blackish-brown, annulated with yellow to light brown; tarsi brown, third segment darker; corium and exocorium dark brown with white band near base, spot at apex of exocorium fused in corium coloration; clavus blackish-brown; membrane dark brown with white band adjacent to distal margin of corium.

Abdomen dorsally reddish-brown; connexivum black; venter black.

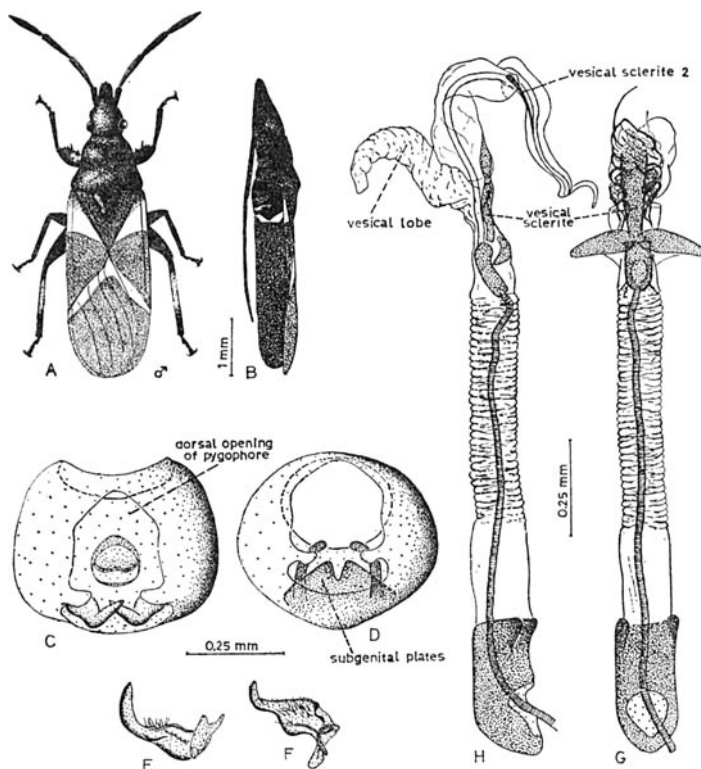


FIG. 41.—*Oxycarenus maculatus* Stål: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, H, aedeagus.

Male genitalia.—Pygophore with dorsal opening wide with long lateral margins and rounded arch (fig. 41, C); posterior edge slightly curved, without notch; subgenital plates in posterodorsal view triangular with deep apical notch (fig. 41, D). Aedeagus (fig. 41, G, H) long; vesica with curved lobe; vesical wings long; vesical sclerite long, straight; second vesical sclerite present, thin, long. Parameres (fig. 41, E, F) thin, long; blade short, without lobe; shank comparatively large, with two nodules; base large.

*Specimens examined*.—SOUTH AFRICA: type (♀ ex) Cap. B. Sp., Kimb., No. 70/66 (missing: whole abdomen, r. ant. segs. 2–4, l. ant. segs. 3, 4, parts of wings, rostrum seg. 4) (Stockholm Mus.); paratypes: 2 ♂, 2 ♀, same data as type, No. 71–74/66 (Stockholm Mus.); 1 ♂, type of *Anthocoris subcruciatu*s Walker, 1872, Cape—12 (Br. Mus.); 1 ♀, Cape—12 (Br. Mus.); 1 ♂, 1 ♀, Cape (Dist. Coll., 1911 : 383) (Br. Mus.); 1 ♂, 1 ♀, Cape of Good Hope, Table Mt., 1906 (*W. Bevins*) (det. Scudder 1960, cf. type) (Br. Mus.); 2 ♂, 2 ♀, Cape Town, Lion's Head, v–vi.1920 (*R. E. Turner*) (Br. Mus.); 2 ♂, 2 ♀, Cape Peninsula, Camps Bay, ix–20.x.1920 (*R. E. Turner*) (Br. Mus.); 5 ♂, 5 ♀, Cape Province, Ceres, different dates: 27.x.1920, 1–12.xi.,

xii. 1924, i, ii. 1925 (*R. E. Turner*) (Br. Mus.); 2 ♂, 1 ♀, Cape Province, Mossel Bay, x. 1921, 16–28. iv. 1928, viii. 1930 (*R. E. Turner*) (Br. Mus.); 1 ♂, Cape Province, Swellendam, xi. 1933 (*R. E. Turner*) (Br. Mus.); 1 ♂, Cape Town, Milnerton, i. 1926 (*R. E. Turner*) (Br. Mus.); 1 ♀, Cape Province, Doorn River, xi. 1931 (*Mrs. L. Oquilvia*) (Br. Mus.); 1 ♂, 3 ♀, Cape Province, Paarl Mt., ii. 1932 (*Miss A. Mackie*) (Br. Mus.); 2 ♂, Pretoria, 2. iii. 1926 (*H. K. Munro*) (det. Uvarov) (Br. Mus.); 1 ♂, 2 ♀, Cap. bon sp., Ecklong (♂ labelled: Lügens, F. Germ.) (Copenhagen Mus.).

*Distribution*.—This species seems to be confined to the Cape Province in S. Africa (fig. 10).

*Comparative note*.—*O. maculatus* is very close to *O. longirostris*, but can be distinguished by the shorter rostrum, the broader white bands on the hemelytra and the other characters tabulated under *O. longirostris*.

***Oxycareus (Pseudoxycareus) longirostris* sp. n. (fig. 42)**

General colour blackish-brown with whitish bands on hemelytra. Characterised by the much protruding head (1.4 times length of pronotum), the very long rostrum which extends beyond apex of hemelytra in females, the flattened body, the two white bands on the hemelytra, and the black antennae.

*Measurements (in mm.)*.—*Male* (Kenya): body length 4.87 (4.73–5.16); head length 1.12, width across eyes 0.64; antennae: segment I—0.28, II—0.59, III—0.47, IV—0.59; rostrum length 4.68; pronotum length 0.82, width 1.14; scutellum length 0.42, width 0.52. *Female* (Kenya): body length 5.52 (5.18–5.60); head length 1.24, width across eyes 0.70; antennae: segment I—0.32, II—0.67, III—0.52, IV—0.60; rostrum length 5.56; pronotum length 0.88, width 1.22; scutellum length 0.48, width 0.55.

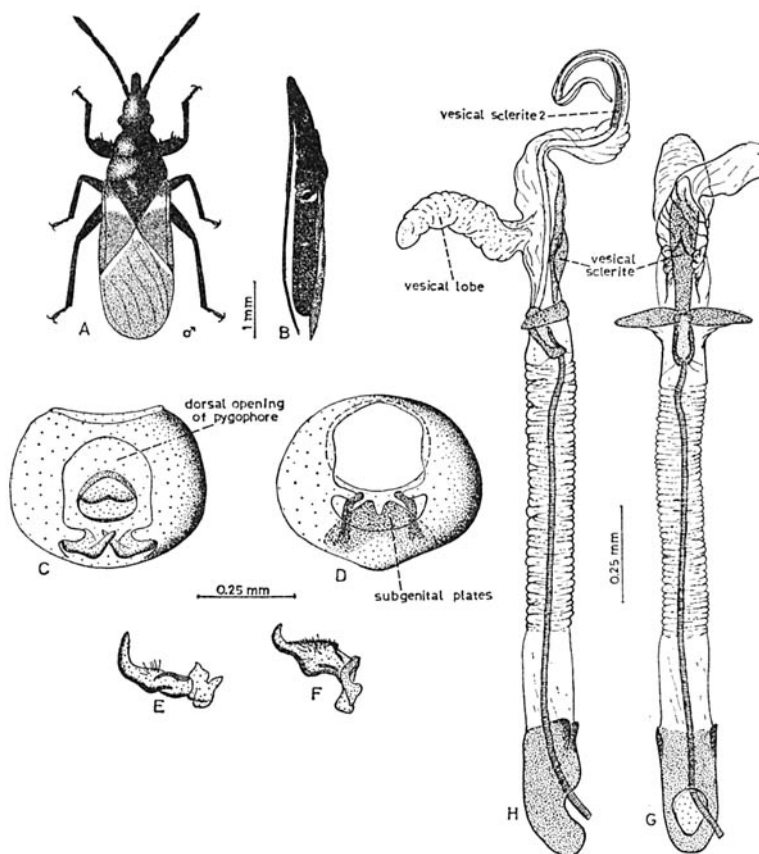


FIG. 42.—*Oxycareus longirostris* sp. n.: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, H, aedeagus.



Head flattened, much prolonged, 1.4 times length of pronotum, black; rostrum black, very long, with first segment reaching base of head, second segment to hind coxae, third segment reaching abdominal segment 6, fourth segment extending just beyond end of abdomen in male and apex of hemelytra in female; antennae black with first segment much shorter than apex of head.

Pronotum black, flattened, elongate, tapering from posterior to anterior margins, with lateral margins slightly sinuate; prosternum black; scutellum black; meso- and metasterna black; acetabula dark brown, slightly whitish on hind ones; posterior lobes of metapleura brownish; femora black; fore femora with four spines; fore and mid-tibiae black; hind tibiae black faintly annulated with brownish medially; tarsi brown, third segment nearly black; corium dark brown with transverse whitish band near base; exocorium narrow with a constriction near base, dark brown with white band near base; spot at apex of exocorium fused in dark coloration; clavus black; membrane dark brown with white band at base adjacent to distal margin of corium.

Abdomen dorsally dark reddish; connexivum black; venter black.

Male genitalia.—Pygophore with dorsal opening almost quadrangular with wide arch (fig. 42, C; posterior edge straight without median notch; subgenital plates in posterodorsal view triangular with deep apical notch (fig. 42, D). Aedeagus (fig. 42, G, H) long, strong; vesica with curved conspicuous lobe ventrally (fig. 42, H); vesical wings long; vesical sclerite long, straight; second vesical sclerite thin (fig. 42, G). Parameres (fig. 42, E, F) flattened, pointed apically; blade very thin, short, without lobe; shank broad, with two nodules (one indistinct); base broad.

*Holotype* ♂, KENYA: Mt. Kenya, Kathita River, 9900 ft., 10. viii. 1949 (J. A. Riley) (Br. Mus.). *Paratypes*: 6 ♂, 6 ♀, same data as holotype (Br. Mus.).

*Other material examined*.—RHODESIA: 2 ♀, Mashonaland, 6 miles E. of Odzi R., 29. x. 1897 (G. A. K. Marshall) (Br. Mus.); 1 ♂, Mashonaland, Umtali, 1897 (Dr. Brauns Coll.) (Br. Mus.).

*Distribution*.—The range of this species is limited to Kenya and Rhodesia (fig. 10).

*Comparative note*.—In general appearance, this species resembles *O. maculatus*, but they can be separated as follows:

Character	<i>O. longirostris</i>	<i>O. maculatus</i>
Antennae . . . .	Black	Black with base of second segment brownish
Rostrum . . . .	Surpassing apex of abdomen in male, beyond hemelytra in female	Reaching fifth to seventh abdominal segment
Pronotum . . . .	Elongated, anterior lobe noticeably narrower than posterior lobe	Nearly quadrangular, anterior lobe slightly narrower than posterior lobe
Ratio length pronotum : length head	Male 73.2, female 70.0	Male 83.8, female 84.5
Hind tibiae . . . .	Faintly annulated with brown	Annulated with yellow
Hemelytra . . . .	Slender with constriction near base; white band on membrane very narrow	Broader without constriction; white band broader
Distribution . . . .	Kenya, Rhodesia	South Africa (Cape Province)

### *Oxycarenus (Pseudoxycarenus) germarii* Fieber (fig. 43)

*Oxycarenus germarii* Fieber, 1852 : 39; Stål, 1874 : 142; Schouteden, 1912 : 316-7; Slater, 1964a : 672; Slater 1964b : 143.

*Anthocoris proximus* Walker, 1872 : 152. *syn. n.*

*Oxycarenus proximus* Distant, 1901 : 475; Distant, 1904 : 43-44; Slater, 1964a : 690-1.

General colour blackish-brown with white bands on corium and membrane. Characterised by the flattened body, the light brownish second antennal segment, the first antennal segment reaching to apex of head, the fairly long rostrum reaching to fourth or fifth abdominal segment, and the prominent lobe on vesica.

*Measurements (in mm.)*.—*Male* (S. Africa): body length 3.79 (3.51-4.08); head length 0.76, width across eyes 0.64; antennae: segment I—0.28, II—0.57, III—0.43, IV—0.53; rostrum length 2.30; pronotum length 0.76, width 1.05; scutellum length 0.37, width 0.59. *Female* (S. Africa): body length 4.25 (4.08-4.64); head length 0.82, width across eyes 0.72; antennae: segment I—0.31, II—0.67, III—0.49, IV—0.59; rostrum length 3.01; pronotum length 0.83, width 1.21; scutellum length 0.44, width 0.59.

Head black, coarsely punctured; rostrum blackish-brown, with third segment reaching abdominal segment 2, fourth segment extending to abdominal segment 4 or 5; antennae dark brown, with second segment light yellowish-brown except at base and distal third, third segment light brown at base, first segment reaching apex of head.

Pronotum flattened, posteriorly slightly wider than anterior lobe, brownish-black with anterior lobe black, lateral margins sinuate; prosternum black; scutellum black; meso- and metasterna black; acetabula black; femora blackish-brown; fore femora with four distinct spines; fore and mid-tibiae brown; hind tibiae brown, annulated with yellowish-white; tarsi brown, third segment darker; corium brown with transverse white band near base; exocorium brown with white band near base with spot at apex little darker; clavus brown with three complete rows of pores; membrane semi-transparent, brown with broad white band at base adjacent to distal margin of corium.

Abdomen dorsally brownish-red; connexivum blackish, venter blackish-brown.

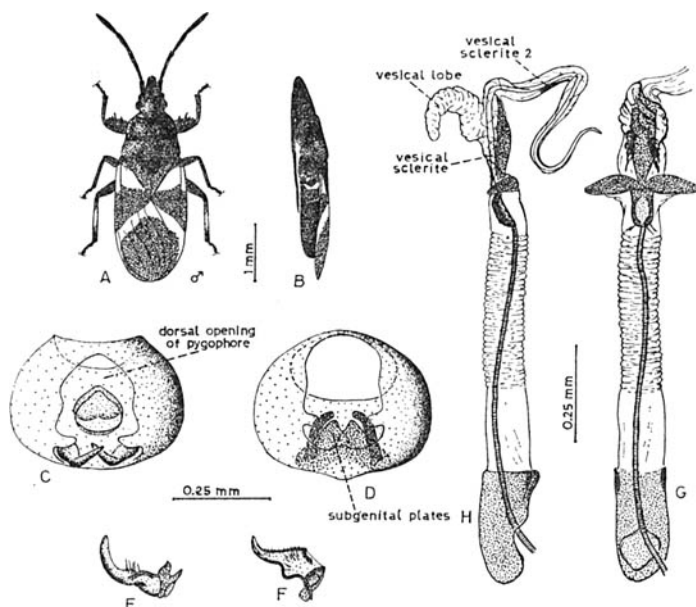


FIG. 43.—*Oxycarenus germarii* Fieber: A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, H, aedeagus.

Male genitalia.—Pygophore with dorsal opening wide, wide-arched, with lateral margins recurved (fig. 43, C); posterior edge straight; subgenital plates in posterodorsal view triangular with wide notch (fig. 43, D). Aedeagus (fig. 43, G, H) short, comparatively thick; vesica with curved prominent lobe; vesical wings long; vesical sclerite broad, tapering at base; second vesical sclerite narrow, long, pointed. Parameres (fig. 43, E, F) slender; blade long, pointed, without lobe; shank small, with two nodules.

*Specimens examined*.—Type of *Anthocoris proximus* Walker (♂), 47/14 (from India) (Br. Mus.). SOUTH AFRICA: 1 ♀, Cape, labelled: *Oxycarenus maculatus* Stål (Dist. Coll., 1911—383) (Br. Mus.); 1 ♀ (Dist. Coll., 1911—383) (Br. Mus.); 2 ♀, C. T. Kasteels P. 5. xi. 1911 (*K. H. Bernard*) (Br. Mus.); 1 ♂, C. G. Hope (*C. Darwin*) (Darwin. Coll., 1855—119) (Br. Mus.); 1 ♀, C.T., Lion's Head, 2—11. vi. 1920 (*R. E. Turner*) (Br. Mus.); 1 ♀, C. Prov., George, 27. vi—1. vii. 1920 (*R. E. Turner*) (Br. Mus.); 5 ♂, 1 ♀, C. Prov., Mosselbaai, iv—ix. 1921 (*R. E. Turner*) (Br. Mus.); 1 ♂, 2 ♀, C. Prov., Ceres, i. 1921 (*R. E. Turner*) (Br. Mus.); 3 ♂, 1 ♀, C. Prov. Ceres, i—iv. 1925 (*R. E. Turner*) (Br. Mus.); 1 ♀, C. Town, Milnerton, ii. 1926 (*R. E. Turner*) (Br. Mus.); 1 ♀, C. Prov., Swellendam, ii. 1932 (*R. E. Turner*) (Br. Mus.); 1 ♀, C. Prov., Robertson Pass, nr. Mossel Bay 2000 ft., 4. ix. 1932 (*R. E. Turner*) (Br. Mus.).

*Distributions*.—This species seems to be confined to the Cape Province in South Africa, apart from its occurrence in India (fig. 10).

*Comparative note.*—This species resembles *O. maculatus* and *O. longirostris* in having a flattened body, and general blackish coloration with white bands on the corium and membrane. It can be separated by the first antennal segment, which nearly reaches the apex of the head, the light yellowish-brown basal two-thirds of the second antennal segment, the shorter rostrum, which extends to the fourth or fifth abdominal segment, and by the nearly square pronotum.

*Taxonomic note.*—Although the type of *Oxycareus germarii* Fieber, 1852, was not seen, the original and subsequent descriptions were enough to distinguish the species. The type specimen of *Anthocoris proximus* Walker, 1872, in the British Museum (Nat. Hist.), which was transferred to *Oxycareus* by Distant (1901), was examined in the course of this work and found to be conspecific with *O. germarii* Fieber.

### Subgenus *Euoxycareus* subgen. n.

Body not flattened. Distance from apex of head to apical angle of clavus subequal to half length of body. Head shorter than length of pronotum, differing in colour from pale ochre to dark brown; rostrum rather short reaching to hind coxae, hardly exceeding third abdominal segment; antennae rather short (ratio of length of antennae to length of body in male, 36.1–37.0; in female, 33.2–35.6).

Pronotum distinctly tapering from posterior to anterior margins, lateral margins straight, ochreous in colour with darker transverse band on anterior half; fore femora with three distal spines; tibiae unicolorous yellowish to brown, rarely annulated; corium and exocorium yellowish to ochreous; corio-membranal line distinctly curved and forming an acute pointed angle with the costal margin; spot at apex of exocorium absent; clavus yellowish to brownish; membrane white or yellowish.

Abdomen ochreous to dark brown.

*Male genitalia.*—Pygophore with dorsal opening rounded cupola-shaped (fig. 44, C), posterior edge of pygophore straight without notch; subgenital plates in posterodorsal view triangular with median notch. Aedeagus long; vesica without lobe but with two small membranous appendages dorsally and a knob ventrally; vesical wings long with curled tip; vesical sclerite long, straight. Parameres thin; blade short, thin, without lobe; shank without nodules.

Type-species: *Stenogaster pallens* Herrich-Schäffer.

Although only two representatives of this subgenus were available for the present study, they were sufficient to provide distinctive characters. One species is undoubtedly Palaearctic, and the other occurs in the East African subregion, in Ethiopia and Kenya.

### Key to species of subgenus *Euoxycareus*

- 1 Rostrum short, extending just beyond hind coxae, corium yellowish,  
venter light ochre and laterally and posteriorly brownish  
*pallens* (Herrich-Schäffer)
- Rostrum long, reaching fourth abdominal segment, corium brownish ochre,  
venter dark brown. . . . . *meneghetti* Mancini (p. 155)

### *Oxycareus (Euoxycareus) pallens* (Herrich-Schäffer) (fig. 44)

*Stenogaster pallens* Herrich-Schäffer, 1850 : 215–6.

*Stenogaster collaris* Mulsant & Rey, 1852 : 121–2; Dohrn, 1858 : 228 (syn.).

*Oxycareus collaris* Dohrn, 1859 : 35; Horvath, 1875 : 44; Puton, 1886 : 24 (second ed.).

*Oxycareus pallens* Fieber, 1861 : 205–6; Puton, 1879 : 307–8; Hoberlandt, 1943 : 46–47; Priesner &

Alfieri, 1953 : 53; Stichel, 1958 : 154, 328; Slater, 1964a : 688–90.

*Oxycareus luteolus* Hoberlandt, 1943 : 46–47; Stichel, 1958 : 154–5 and 328; Slater, 1964a : 685  
syn. n.

General colour pale ochre except for the head, band on pronotum and base of scutellum, which vary simultaneously from orangish to dark brown. Characterised by the darker band on pronotum, the three spines on fore femora, the curved corio-membranal line which forms an acute angle with costal margin, the lack of spot at base of exocorium and the two dorsal appendages on vesica.

*Measurements (in mm.).—Male* (Algeria and Senegal): body length 3.75 (3.71–3.77); head length 0.64, width across eyes 0.60; antennae: segment I—0.22, II—0.40, III—0.35, IV—0.42; rostrum length 1.63; pronotum length 0.71, width 1.04; scutellum length 0.38, width 0.48. *Female* (Algeria and Senegal): body length 4.16 (3.90–4.44); head length 0.72, width across eyes 0.65; antennae: segment I—0.24, II—0.43, III—0.37, IV—0.44; rostrum length 1.92; pronotum length 0.76, width 1.11; scutellum length 0.41, width 0.51.

Head dark blackish-brown; rostrum dark brown, with third segment reaching mid-coxae, fourth segment extending just beyond hind coxae; antennae dark brown with second segment except apex, basal third of third segment ochreous. Distance from apex of head to apical angle of clavus subequal to half length of body.

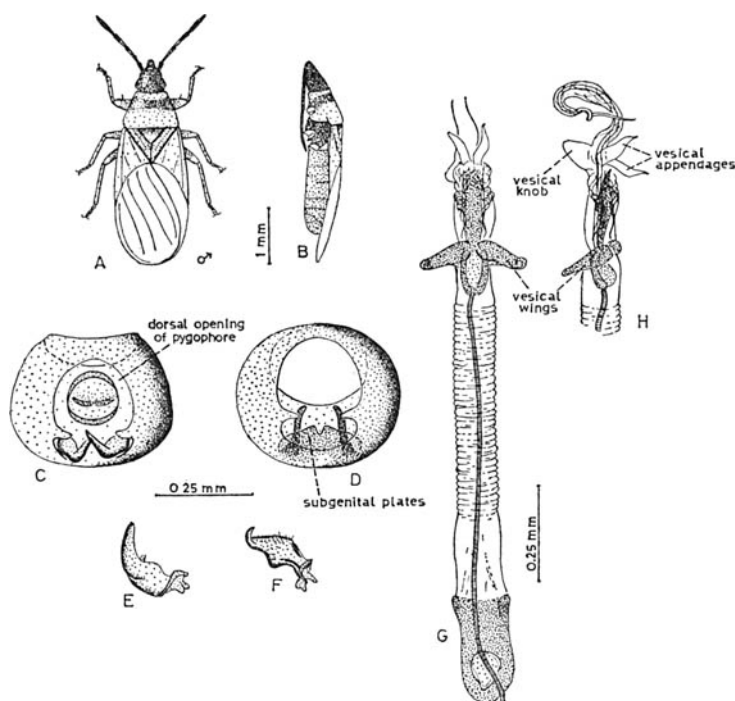


FIG. 44.—*Oxycarenus pallens* (Herrich-Schäffer): A, dorsal view; B, lateral view; C, pygophore, dorsal view; D, the same, posterodorsal view; E, F, right paramere; G, H, aedeagus.

Pronotum light ochre with dark blackish-brown transverse band on anterior half; lateral margins not sinuate; prosternum light ochre with dark brown transverse band on anterior half; scutellum light ochre, dark brown at base; meso- and metasterna brownish-black; acetabula yellowish-white; femora light brown, apical third yellowish; fore femora with three distal spines, only proximal spine big, other distal two very small; tibiae not annulated, yellowish; tarsi yellowish; corium yellowish; exocorium yellowish, without spot at apex; clavus yellowish with three rows of little dark pores; corio-membranal line curved forming acute angle with costal margin; membrane hyaline.

Abdomen dorsally brownish, connexivum brownish, venter light ochre, laterally and posterior segments brownish, most segments with dark markings.

*Male genitalia.*—Pygophore with dorsal opening wide, cupola-shaped (fig. 44, C); posterior edge straight without notch; subgenital plates in posterodorsal view triangular with apical notch, low (fig. 44, D). Aedeagus (fig. 44, G, H) long, slender; vesica without lobe, with two dorsal appendages and a ventral knob; vesical wings long with curled apices; vesical sclerite long, straight. Parameres (fig. 44, E, F) thin; blade short, thin without lobe; shank comparatively big without nodules.

*Specimens examined.*—TUNISIA: Type of *O. luteolus* Hoberlandt (♂), Le Kef, Tunis c., Exp. Obenb. (Prague Mus.); paratype of *O. luteolus* (♀), same data as type (Prague Mus.). ALGERIA: 2 ♂, Biskra (G.C.C.) (Champion Coll., 1927) (Br. Mus.); 1 ♀, Batna, same data (Br. Mus.); 1 ♂, Philippeville, same data (Br. Mus.); 2 ♀,

Biskra (D. Martin) (H. Marmottan Coll., 1914) (Paris Mus.); 1 ♀, Tlemcen (H. Marmottan Coll., 1914) (Paris Mus.). SENEGAL: 1 ♂, 2 ♀, Bambey, 27.iv.1943, on potato (J. Risbec) (Br. Mus.).

*Distribution*.—Algeria, Egypt (Oshanin, 1910), Morocco (Lindberg, 1932), Senegal and Tunisia. This is a Mediterranean species, distributed along the North African coast (fig. 10).

*Variation*.—The head, the band on the pronotum and the base of scutellum are always much darker than the general colour of the insect, and are uniform in each specimen. These dark parts grade from light brown to nearly black. Ferrari (1884) cited the lighter coloration of *O. pallens* as an example of the natural protective mimicry; he said that the nymphs and adults were found feeding on *Centaurea splendens* and could not easily be distinguished from the plant.

In many instances light and dark specimens were recorded from the same locality, such as the two females from Biskra, Algeria in the Paris Museum. The male genitalia of species with light and dark coloration were identical in every detail examined.

When Dr. Hoberlandt sent me the type and paratype of *O. luteolus*, he expressed his doubts on its specific status. Re-examination and inflation of the male genitalia showed quite clearly its identity with *O. pallens* in the parameres, the subgenital plates and the aedeagus. The very dark and very pale coloration of head, band and scutellum cannot be regarded as an invariable specific character, because there are many intermediate specimens. I therefore synonymise *O. luteolus* Hoberlandt with *O. pallens* (Herrich-Schäffer).

*Oxycarenus (Euoxycarenus) meneghetti* Mancini (fig. 45)

*Oxycarenus meneghetti* Mancini, 1956 : 83–84; Slater, 1964a : 686.

General colour ochre and brown. Characterised by the dark band on anterior half of pronotum, the curved corio-membranal line which forms an acute angle with the costal margin, the lack of spot at apex of exocorium, and the three spines on fore femora.

*Measurements (in mm.)*.—Male:—unknown. Female (Kenya): body length 4.69; head length 0.76, width across eyes 0.72; antennae: segment I—0.26, II—0.47, III—0.41, IV—0.49; rostrum length 2.47; pronotum length 0.87, width 1.29; scutellum length 0.48, width 0.59.

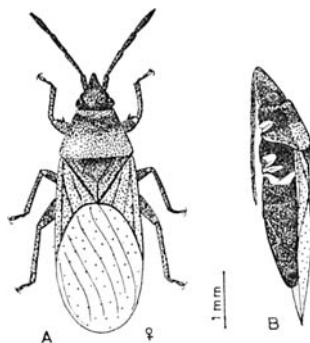


FIG. 45.—*Oxycarenus meneghetti* Mancini: A, dorsal view; B, lateral view.

Head brown, around eyes, posteriorly, lower side except bucculae dark; bucculae yellowish; rostrum black with third segment reaching hind coxae, fourth segment extending to fourth abdominal segment; antennae dark brown, second segment light brown, with first segment just reaching apex of head, second and fourth segments subequal.

Pronotum ochre with dark brown transverse band on anterior half; lateral margins straight; prosternum dull brown with epimeron blackish-brown; scutellum blackish-brown, lighter at apex; meso- and metasterna nearly black; acetabula white tinged with brown; femora dark brown, lighter

at tips; fore femora with three distal spines; hind tibiae widely annulated with yellow; tarsi light brown, third segment darker; hemelytra much longer than abdomen; corium light ochre; corial veins prominent and darker; corio-membranal line distinctly curved; exocorium light ochre, without spot at apex; clavus brownish-ochre; membrane yellowish-hyaline. Distance from apex of head to apical angle of clavus subequal to half length of body.

Abdomen dorsally brown; connexivum dark brown; venter blackish-brown.

*Specimens examined*.—ETHIOPIA: type (♀), Addis Ababa, Filoa, vi. 1941 (*Meneghetti*) (Genoa Mus.). KENYA, 1 ♀, Aberdare Range, Mt. Kinangop, 9000 ft., 1. xi. 1934 (*B.M.E. Afr. Exp. (F. W. Edwards)* B.M. 1935—203) (Br. Mus.).

*Distribution*.—The species seems to be very rare, only the type from Ethiopia and another female specimen from Kenya (fig. 10) being known.

## V. DISCUSSION

Dissection of males showed that the genus *Oxycarenus* includes species with morphological differences greater than would have been expected in one apparently homogenous group of species. These findings have indicated the necessity of revising the characters on which Fieber (1837) and subsequent workers have established this genus. The main generic characters described by Fieber (1837) can be summarised as follows:

1. Rostrum long, reaching at least hind coxae, with first segment enclosed in the gular plates.
2. Second antennal segment subequal to fourth.
3. Fore coxal cavities close, mid and hind coxae widely separated.
4. Pronotum truncated cone-shaped, long, broader than head, sinuate.
5. Fore femora with one stout curved spine, and several small ones.
6. Tarsi three-segmented, second segment shorter, third segment longer than first.

Subsequently Fieber and other workers added the following new generic external characters:

7. Second antennal segment longer than each of the others (Fieber, 1852).
8. Pronotum wider than long (Fieber, 1861).
9. First antennal segment not surpassing apex of head (Stål, 1865).
10. Bucculae prolonged, often reaching base of head; scutellum broader than long (Stål, 1865).
11. Second segment of labium extending caudad at least to the fore coxae (Slater, 1964b).

Some of these generic characters have been found to be too restricted. For example, the second antennal segment is sometimes shorter than the fourth segment (*e.g. lusingaensis* and *brunneus*); the head in some instances is longer than the pronotum (*e.g. maculatus* and *longirostris*) and the number of spines on the fore femora is either three (*e.g. pallens*) or four (*e.g. lavaterae*). Some characters, on the other hand, are not well defined; the rostrum, for example, as originally described, is long, reaching at least the hind coxae (Fieber, 1836); in the present work it has been found sometimes just reaching the hind coxae (*e.g. dudgeoni*) or moderately long, reaching the mid-abdomen (*e.g. fieberi*) or extremely long, extending beyond the apex of the abdomen (*e.g. longirostris*).

During the course of this work it has been found that other structures differ within this group, providing a number of key characters. For example, the corio-membranal line is either curved (*e.g. pallens*) or more or less straight (*e.g. fieberi*); the distal angle of the corium is sometimes acute, pointed and without a spot (*e.g. meneghetti*) or comparatively wide, apically rounded and with a spot (*e.g. lavaterae*).

The male genitalia especially present distinct differences in almost every part. For example the vesical lobe, which is present and well developed in some species (e.g. *germarii*), is completely absent in others (e.g. *albidipennis*); the blade of the parameres either carries a lobe (e.g. *amygdali*), or the lobe is absent (e.g. *rufiventris*). The dorsal opening, the posterior margin of the pygophore, the subgenital plates and the vesical sclerites are also characters that provide taxonomic variation within the group.

These morphological differences were assessed by a rough adaptation of a quantitative evaluation method, as adopted by Ghauri (1962), Gilliomee (1964) and Afifi (1967) in studies on Coccoidea, in which the characters are regarded as being of equal importance; those shared by any two species are counted, and the total numbers are considered as indices of the degree of affinity. The method is not free from criticism, and especially so in the present work, as only the main characters were taken into consideration. However, it serves to exhibit general relationships between the subgenera and the species.

In Table II the characters are numbered, and their different conditions are coded 1, 2 or 3; the condition of these characters in each species is shown in Table III. Table IV shows the number of the characters shared by every two species in the form of a matrix. Three species: *meneghetti*, *gibbus* and *zimbabwei* are described from females, and thus the four male characters could not be included. The numbers corresponding to their shared characters were corrected to the nearest whole number by multiplying them by the factor

$$\frac{17}{13} = 1.3.$$

TABLE II.—List of characters separating species of *Oxycarenum*

1. General shape in lateral view: (1) dorsoventrally flattened; (2) not flattened.
2. Relative lengths of head and pronotum: (1) head longer or equal; (2) head shorter.
3. Relative length of rostrum: (1) at least reaching abdominal segment V; (2) reaching abdominal segment III–IV; (3) reaching hind coxae.
4. Lateral margins of pronotum: (1) sinuate; (2) straight.
5. Number of spines on fore femora: (1) four; (2) three.
6. Annulation of tibiae: (1) absent; (2) present on hind tibiae; (3) present on mid and hind tibiae.
7. Corio-membranal line: (1) straight; (2) curved.
8. Distal angle of corium: (1) rounded; (2) pointed.
9. Spot at apex of corium: (1) absent; (2) present or fused.
10. Vesical lobe: (1) present; (2) absent.
11. Second vesical sclerite: (1) present; (2) absent.
12. Parameres: (1) pointed; (2) rounded.
13. Lobe on blade of paramere: (1) present; (2) absent.
14. Relative length of body to length from apex of head to apex of clavus: (1) body less than twice as long; (2) body two or more times as long.
15. Subgenital plates in a posterodorsal view: (1) rectangular; (2) triangular.
16. Opening of pygophore: (1) triangular; (2) cupola-shaped; (3) wide.
17. Vesical appendages: (1) present; (2) absent.

Examination of Table IV shows quite clearly that the species studied can be divided into three subgenera by a number of well-defined characters. Although the subgenus *Euoxycarenum* is represented by two species only, one of them described from females, it was found distinct enough to constitute a separate taxon. The Table also suggests that the subgenus *Oxycarenum* is much closer to *Pseudoxycarenum* than to *Euoxycarenum* and that *Pseudoxycarenum* is very far from *Euoxycarenum*. The characters distinctly separating these new subgenera are given in Table V.

The relationships between the species revealed by this method (Table IV) should be regarded as provisional, as they are based on only a few selected characters, mostly

subgeneric, and also because many of the distinct specific characters are not included. Basically, the species that share all of the tested characters are supposed to be very closely related, and this would be confirmed if each had a similar relationship to the other species studied. This close relationship might however change as soon as specific characters were included. It is also possible that the discovery of additional characters, for instance in the fields of biology and biochemistry, may result in drastic changes.

TABLE III.—*The condition of 17 characters in species of Oxycarenus*  
(see Table II)

Species	Character																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 <i>meneghetti</i> .	2	2	2	2	2	1	2	2	1	2	2	1	—	2	—	—	—
2 <i>pallens</i> .	2	2	3	2	2	3	2	2	1	2	2	1	2	2	2	2	1
3 <i>germarii</i> .	1	1	1	1	1	2	1	1	2	1	1	1	2	1	2	3	2
4 <i>longirostris</i> .	1	1	1	1	1	2	1	1	2	1	1	1	2	1	2	3	2
5 <i>maculatus</i> .	1	1	1	1	1	2	1	1	2	1	1	1	2	1	2	3	2
6 <i>tabidus</i> .	2	2	3	1	2	1	1	1	1	2	2	2	2	1	2	3	2
7 <i>izzardii</i> .	2	2	3	1	2	3	1	1	2	2	2	1	2	1	2	2	2
8 <i>pallidipennis</i> .	2	2	3	1	1	3	1	1	2	2	2	2	1	1	1	1	2
9 <i>nigricornis</i> .	2	2	2	1	1	3	1	1	2	2	2	2	1	1	1	1	2
10 <i>hyalinipennis</i> .	2	2	2	1	1	3	1	1	2	2	2	2	1	1	1	1	2
11 <i>zimbabwei</i> .	2	2	2	1	2	1	1	1	2	2	2	2	—	1	—	—	—
12 <i>rhodesianus</i> .	2	2	3	1	1	3	1	1	2	2	2	2	1	1	1	3	2
13 <i>mancinii</i> .	2	2	3	1	1	3	1	1	2	2	2	2	1	1	1	3	2
14 <i>lusingaensis</i> .	2	2	3	1	1	3	1	1	2	2	2	1	2	1	2	2	2
15 <i>gibbus</i> .	2	2	2	1	2	3	1	1	2	2	2	2	—	1	—	—	—
16 <i>schoutedeni</i> .	2	2	2	1	1	3	1	1	2	2	2	2	1	1	1	3	2
17 <i>bokalae</i> .	2	2	2	1	1	3	1	1	2	2	2	2	1	1	1	3	2
18 <i>ngoianus</i> .	2	2	2	1	1	3	1	1	2	2	2	2	1	1	1	3	2
19 <i>amygdali</i> .	2	2	2	1	1	3	1	1	2	2	2	2	1	1	1	3	2
20 <i>multiformis</i> .	2	2	2	1	1	3	1	1	2	2	2	2	1	1	1	3	2
21 <i>wittei</i> .	2	2	3	1	1	3	1	1	2	2	2	2	2	1	2	2	2
22 <i>congoensis</i> .	2	2	2	1	1	3	1	1	2	2	2	2	2	1	1	3	2
23 <i>gossipinus</i> .	2	2	2	1	1	3	1	1	2	2	2	2	2	1	1	3	2
24 <i>zavattarii</i> .	2	2	2	1	1	1	1	1	2	2	2	2	2	1	2	3	2
25 <i>rufiventris</i> .	2	2	2	1	1	1	1	1	2	2	2	2	2	1	2	3	2
26 <i>breddini</i> .	2	2	1	1	1	3	1	1	2	2	2	2	2	1	2	3	2
27 <i>brunneus</i> .	2	2	3	1	1	3	1	1	2	2	2	2	2	1	2	3	2
28 <i>lavatae</i> .	2	2	3	1	1	3	1	1	2	2	2	2	2	1	2	3	2
29 <i>dudgeoni</i> .	2	2	3	1	1	3	1	1	2	2	2	2	2	1	2	3	2
30 <i>albidipennis</i> .	2	2	2	1	1	3	1	1	2	2	2	2	2	1	2	3	2
31 <i>annulipes</i> .	2	2	2	1	1	3	1	1	2	2	2	2	2	1	2	3	2
32 <i>feberi</i> .	2	2	2	1	1	3	1	1	2	2	2	2	2	1	2	3	2
33 <i>moursii</i> .	2	2	2	1	1	3	1	1	2	2	2	2	2	1	2	3	2
34 <i>lugubris</i> .	2	2	2	1	1	3	1	1	2	2	2	2	2	1	2	3	2
35 <i>ibadanensis</i> .	2	2	2	1	1	3	1	1	2	2	2	2	2	1	2	3	2

Table IV shows some of these relationships; for example, the group of species *ibadanensis*, *lugubris*, *moursii*, *feberi*, *annulipes* and *albidipennis* are shown to be very close. They share all the 17 characters, and the similarity in their relationships with the remaining species is nearly complete. However, *ibadanensis* is more closely related to *brunneus* and *breddini*, if coloration is taken into consideration, *lugubris* is more closely related to *wittei*, and *albidipennis* more closely related to *congoensis* than to this group. Another example is the group of *brunneus*, *dudgeoni* and *lavatae*, which appear to be very close, but are in fact far from being so: *brunneus* is closer to *ibadanensis*; *dudgeoni* is nearer to *congoensis* and *albidipennis*; and *lavatae* is closely related to *rufiventris* and *zavattarii*.



TABLE IV.—The characters shared by each pair of species

TABLE 21. The characters shared by each pair of species																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Examination of Table IV also shows that, among the species of the subgenus *Oxycarenum*, the two species *izzardi* and *tabidus* are the nearest to subgenus *Euoxycarenum*.

TABLE V.—*Characters separating the subgenera of Oxycarenum s. lat.*

Characters	Subgenus <i>Pseudoxycarenum</i>	Subgenus <i>Euoxycarenum</i>	Subgenus <i>Oxycarenum</i>
General shape, in lateral view	Flattened	Not flattened	Not flattened
Relative lengths of head and pronotum	Head longer	Head shorter	Head shorter
Relative length of rostrum	Longer than body or at least reaching fifth abdominal segment	Extending beyond hind coxae, and not longer than fifth abdominal segment	Reaching third to fourth abdominal segment
Lateral margins of pronotum	Distinctly sinuate	Straight	More or less sinuate
Number of spines on fore femora	4	3	4 (occasionally 3)
Annulation of tibiae	Present on hind tibiae	Absent (rarely present on mid and hind tibiae)	Almost always present on mid and hind tibiae
Corio-membranal line	Almost straight	Distinctly curved	Almost straight
Distal angle of corium	Rounded	Pointed	Rounded
Spot at apex of exocorium	Faint or fused in general dark coloration	Absent	Present (rarely absent)
Vesical appendages	Absent	Two small membranous appendages, dorsally	Absent
Vesical lobe	Present, well developed, ventrally	Absent	Absent
Second vesical sclerite	Present	Absent	Absent
Parameres	Apically pointed, blade without lobe	Apically pointed, blade without lobe	Apically rounded, blade with or without lobe
Relative length of body to length from apex of head to apex of clavus	Body less than twice as long	Body two or more times as long	Body less than twice as long
Ratio length of antennae : length of body	Male: 39·6–47·7 Female: 38·2–48·5	Male: 36·1–37·0 Female: 33·2–35·6	Male: 44·4–50·3 Female: 43·9–49·4

#### *Taxonomic Significance of the Characters*

The characters that were found to be of taxonomic significance in *Oxycarenum* are discussed below. Some of these operate at the subgeneric level, and others are significant at the specific level.

#### *Size*

The size varies to some extent, even within individuals in the same species, according to some environmental factors. The influence of locality, for example, is apparent in *O. hyalinipennis*, which was available from several localities. However, some species in the same subgenus are distinctly smaller than others (e.g. *O. fieberi* is smaller than *O. lavaterae*, and *O. germarii* is smaller than *O. maculatus*).

### The head

With the exception of the subgenus *Pseudoxycarenum*, the head is moderately large, triangular in dorsal view with pointed apex and shorter than the pronotum. The first antennal segment at the most reaches the apex of the head but does not surpass it. In the subgenus *Pseudoxycarenum*, the head is elongated, straight with broad apex, longer than the pronotum and dorsoventrally flattened. The degree of development of the tylus separates species of the same subgenus: it may be short (*O. germarii*), relatively long (*O. maculatus*) or long (*O. longirostris*). The first antennal segment is more or less short, and does not reach the apex of the head in this subgenus.

The antennae provide taxonomically important characters, especially the length of the second segment relative to the fourth; in the majority of species it is longer (e.g. *gossipinus*, *rufiventris*) and sometimes subequal (e.g. *maculatus*, *pallens*) or shorter (e.g. *lusingaensis*, *brunneus*). The rostrum also affords another character at the subgeneric and the specific levels: its excessive length separates the subgenus *Pseudoxycarenum*, and its comparative lengths differentiate the species.

### The thorax

The shape of the pronotum and the varying degree of sinuation in the lateral margins can be used as supplementary characters to separate subgenera. In the subgenus *Euoxycarenum*, the lateral margins are straight, whereas in the other subgenera they are more or less sinuate.

### The legs

One of the important characters at the subgeneric level is the number of spines on the fore femora: there are three in the subgenus *Euoxycarenum* and four in the two subgenera *Pseudoxycarenum* and *Oxycarenum* (except *zimbabwei*, *gibbus*, *tabidus*, *izzardii*). The annulation of the tibiae is also characteristic: in the subgenus *Pseudoxycarenum*, the tibiae of the hind legs are annulated; those of the middle and hind legs in the subgenus *Oxycarenum* are distinctly annulated (except *rufiventris*, *zavattarii*, *zimbabwei*).

### The hemelytra

The hemelytra afford a number of important characters, operating at the subgeneric and the specific levels. The acute distal angle of the corium, the absence of a spot at the apex of the exocorium and the distinctly curved corio-membranal line distinguish the subgenus *Euoxycarenum*. The presence of two white bands, one on the corium and the other at the base of the membrane, separate the subgenus *Pseudoxycarenum*. At a specific level, coloration of the corium is important: it is sometimes red (e.g. *feberi*, *rufiventris*), or yellowish (e.g. *mancinii*, *amygdali*), and there are other slight variations.

### The male genitalia

A number of the most important characters, separating subgenera and species, are provided by the male genitalia. The presence of a prominent vesical lobe and second vesical sclerite are characteristic of the subgenus *Pseudoxycarenum*. Some characters can be used on the specific level to separate one species from the whole group, especially among the closely related species; the indented basal part of the vesical sclerite, for example, distinguishes *O. feberi* from the similar *O. multiformis* (black form). In most instances one important character, supplemented with other details, provides sufficient differentiation.

*The pygophore.*—The shape of the dorsal opening of the pygophore is evidently of considerable importance, especially at the specific level. The circular cupola shape is a specific feature of *O. pallens*. In the subgenus *Pseudoxycareus*, the distinct middle constriction of the opening identifies *germarii*. In the subgenus *Oxycareus*, its triangular shape separates the closely related small group *hyalinipennis*, *pallidipennis* and *nigricornis* from the other members of the subgenus. Other shapes are shared by more than one species, which can, however, be separated by other characters; for example, both *O. gossipinus* and *O. multiformis* (red form) have a wide dorsal opening with a pointed arch, but the shape of the subgenital plates is characteristic of each. The presence of a median notch on the posterior edge of the pygophore can also be used as a supplementary character separating species. The general shape of the subgenital plates in a posterodorsal view is an important character separating species, especially when used in combination with other characters. Two main shapes are commonly recognised: transversely rectangular or triangular, each with a median or apical notch. These two shapes are, however, subject to various modifications. In the species with rectangular-shaped subgenital plates, the following modifications occur:

- (a) The typical simple case is represented by the straight upper edge of the subgenital plates with a median notch (e.g. *hyalinipennis*, fig. 21, D).
- (b) The upper edge is recurved, forming a shallow curve on each side (e.g. *mancinii*, fig. 19, D).
- (c) Both ends of the rectangular structure have a conspicuous projection (e.g. *amygdali*, fig. 18, D).
- (d) Two median projections are present, forming a deep notch (e.g. *gossipinus*, fig. 15, D).

The species with triangular-shaped subgenital plates, on the other hand, show the following modifications:

- (a) The typical case is represented by a rather high triangular shape of the subgenital plates with straight sides (e.g. *brunneus*, fig. 32, D).
- (b) The two sides of the triangle are curved outwardly, with a small apical notch (e.g. *lusingaensis*, fig. 31, D).
- (c) The two sides of the triangle are slightly curved inwardly, with a deep, wide apical notch (e.g. *annulipes*, fig. 16, D).
- (d) The apex of the triangle is rather blunt, with small median notch (e.g. *tabidus* fig. 39, D).

*The parameres.*—The general structure of the parameres varies only slightly in the genus. Nevertheless, they provide a number of important characters separating subgenera and species. The slender blade of the paramere with a pointed apex and the complete absence of lobes are characteristic of subgenus *Pseudoxycareus*. Another significant feature is the presence of a lobe on the blade of the parameres; this character was found to be important in separating very closely related species: for example, it is present in *O. multiformis* (black form), but absent in *O. fieberi*. Other characters are the number of nodules and hairs on the shank of the paramere; sometimes, however, the nodules are not distinctly developed, and the hairs are scattered without any apparent pattern, so that these characters have hardly been used. The taxonomic importance of the basal part of the paramere is very hard to determine, since its structure is of a complex shape and its appearance varies considerably according to the angle of view. Whenever the parameres are provided with a lobe on the blade, the subgenital plates are rectangular (e.g. *hyalinipennis*, *multiformis*, *mancinii*); and when these lobes of the paramere are absent, the subgenital plates are more prominent and often take a triangular shape (e.g. *albidipennis*, *rufiventris*, *fieberi*).

*The aedeagus.*—A number of rather important characters, separating subgenera and species, are provided by the aedeagus. The presence of a well developed lobe on the vesica and a second vesical sclerite distinguish the subgenus *Pseudoxycarenus*. The two small vesical appendages separate the subgenus *Euoxycarenus*. The shape of the vesical sclerite characterises some species within the subgenus *Oxycarenus* (e.g. the indented sclerite in *feberi*). The shape of the vesical wings distinguishes some species: those in *hyalinipennis*, for example, are comparatively long, whereas in *pallens* they have curled tips, and in *brunneus* are very short and rather indistinctly separated from the apical part of the conjunctiva. Generally speaking the phallosome, the conjunctiva, the reservoir and the vesical sclerite only rarely seem to offer any such remarkable differences between the species. For example, the conjunctiva in *brunneus* is comparatively short and wide, and the vesical sclerite is indented in *feberi*.

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