If the two groups are regarded as distinct genera, however, some character other than the presence or absence of setulæ behind the occipital row would need to be found in conjunction with the host difference, for the type-species of *Argyrophylax* (*A. albincisa* (Wiedemann)) falls into group I on the basis of its pyralid host but into group II on the basis of its lack of black setulæ behind the occipital row ; thus not all *Argyrophylax* fall readily into one group or the other and it appears best to assign all to the one genus—at least until more material is available and there is more knowledge of the biological relationships with the hosts.

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1963

NOTES ON BOTH SEXES OF SOME TROPICAL SPECIES OF *CERIAGRION* SELYS (ODONATA).

By Elliot Pinhey,

The National Museum, P.O. Box 240, Bulawayo, Southern Rhodesia.

The following notes refer mainly to the Continental African species of *Ceriagrion* Selys (1876), or those species in the National Museum, Bulawayo. It is not an easy genus in which to study the females. In this sex the "epaulettes" (vide Balinsky, 1958), the mesothoracic gripping points for the anal appendages of the males will be considered for their value in distinguishing species. The males have black smears behind the mesostigmal lamina but no depression.

Ceriagrion glabrum (Burmeister), 1839 (Fig. 1).

Ceriagrion glabrum (Burmeister), 1839, *Handb.* **2**: 821

Very variable in size and even in coloration, but racial distinctions are limited. Material from Natal, Moçambique, Nyasaland, Southern and Northern Rhodesia, Katanga (Southern Congo), Equatorial Congo, Moyen Congo, Uganda and Kenya (as well as Madagascar, Mauritius and Seychelles). Those from the Ruwenzori region of the Congo and from Ketta Forest in the Moyen Congo appear to represent a uniform subspecies which is described below.

Ceriagrion glabrum glabrum (Burmeister) (Fig. 1).

Males. Generally reddish brown on the dorsum of the thorax, orange yellow ventrally, and orange-red (when mature) on the abdomen. Pterostigma a parallellogram framed with yellowish (occasionally brown) veins, the centre pale (to dark) brown, finely edged with yellow. Wings hyaline to distinctly yellowish. The tenth segment of the abdomen, characteristically raised posteriorly into a dorso-lateral ridge, may be armed with from two to five teeth per ridge, this number even varying on each side in a single individual. Superior appendage short, curving on each side in a single individual. Superior appendage short, curving downwards ; inferior more robust, longer, with curved hook and ventro-posterior swelling. Abd. 27–35 mm., hw. 18–24 mm.

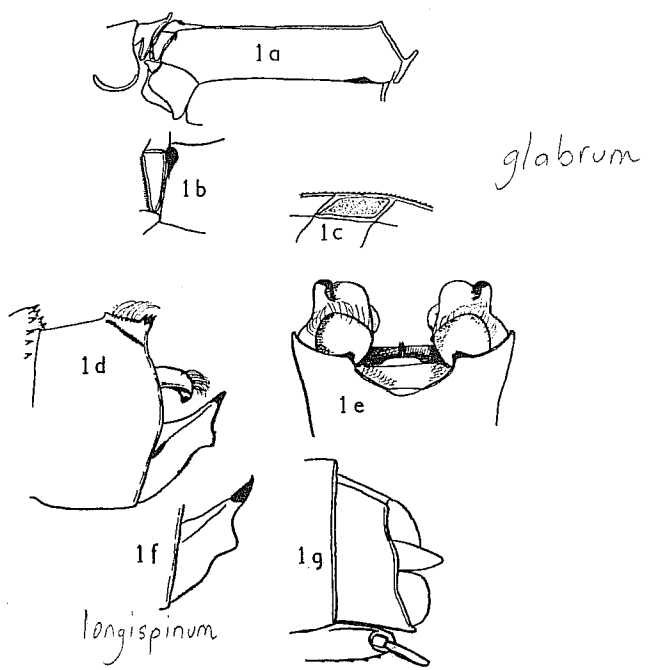
Females. Body brown, sometimes tinted with reddish, especially the abdomen ; thorax often dull green dorsally, and more yellowish below. Back of prothorax gently and evenly curved. Wings and pterostigma very similar to male. Epaulettes small, rounded or elliptical, situated on mesepisternum just behind a ridge on the mesostigmal lamina. Markings on thorax consist of mere traces of dots near dorsal ends of humeral and second lateral suture.

Ceriagrion glabrum longispinum subsp. nov. (Fig. 1 f).

As large as the largest specimens of the nomino-typical subspecies.

Holotype male. (Mature ; Ketta Forest.) Face, frons, legs, thorax and ventral surface of abdominal segments 1–2 orange-yellow ; dorsum of head reddish brown, abdomen orange-red, darker on posterior segments. Inferior anal appendage with longer curved apical hook, hence the name. Wings yellowish. Pterostigma and venation black ; centre of pterostigma deep brown. Anal vein leaves margin at Ac. Abd. 35·5 mm., hw. 22 mm.

Fig. 1.



1. *Ceriagrion glabrum* (Burmeister). a–c. ♀, prothorax and dorsal part of synthorax ; mesostigmal lamina and adjacent part of mesepisternum ; pterostigma. d–e. ♂ (Nuanetsi) 10th abdominal segment and anal appendages from left ; anal appendages from above. f. ♂ (Ruwenzori) subsp. *longispinum* ssp. nov. inferior appendage from left. g. ♀ abdominal terminalia from left.

Allotype female. (Mature ; Ketta Forest.) Postclypeus, frons, vertex, dorsal surface of thorax and abdomen dark ferruginous. Rest of face brownish yellow ; lower sides of thorax and base of abdomen greenish yellow. Wings and pterostigma as in male. Epaulettes as in nomino-typical race.

Paratypes of both sexes very similar. Type series from Ketta Forest, Moyen Congo, February 1959. Holotype, allotype, two paratype males in National Museum, Bulawayo ; one paratype of each sex will go to the British Museum (Natural History). Other examples are from the western slopes of Mount Ruwenzori, in the Congo. This subspecies, apart from being larger than average *glabrum* and more uniform in colour, has blacker venation and pterostigma ; and the apical hook of the inferior anal appendage of the male is longer.

Ceriagrion suave Ris (Fig. 2).

Ceriagrion suave Ris, 1921, *Ann. S. Afr. Mus.* **18**: 316.

Material from Southern and Northern Rhodesia, Kenya, Tanganyika. More uniform in colour and size than *glabrum* (Burm.).

Male. Epistome, frons, thorax reddish brown above, vertex darker, abdomen redder. Tenth segment without distal ridge and spines ; appendages rather like *glabrum* but inferiors less robust, not longer than superiors. Venation brown, wings hyaline or smoky yellowish ; pterostigma pale brown to reddish. Anal vein leaves margin at Ac. Abd. 28–36 mm., hw. 18–23 mm.

Female. Duller, more brownish on body and pterostigma. Epaulette very similar to *glabrum* but slightly more circular, much less blackened. Back of prothorax very slightly trilobed.

Ceriagrion moorei Longfield, 1952 (Fig. 3).

Ceriagrion moorei Longfield, 1952, *Proc. R. ent. Soc. Lond.* (B) **21**: 44.

Material from Northern Rhodesia, Northern Nigeria, Northern Uganda, Northern Congo, Katanga, Southern Tanganyika, Victoria Falls.

Both sexes similar to *suave* in colour, size-variation, wings and epaulettes. Superior appendage shorter. It is probably a form of *suave* Ris.

Ceriagrion platystigma Fraser, 1941 (Fig. 6).

Ceriagrion platystigma Fraser, 1941, *Proc. R. ent. Soc. Lond.* (B) **10**: 63.

Material from Uganda and Northern Rhodesia.

Male. Usually larger in size than *suave*, the body generally distinctly redder ; larger black spots on humeral and second lateral suture. Wings usually hyaline, venation brown. Pterostigma distinctly red, almost rhomboidal in shape. Superior anal appendages short, inferior longer, with long curved hook. Abdomen 35–36 mm., hw. 21–23 mm.

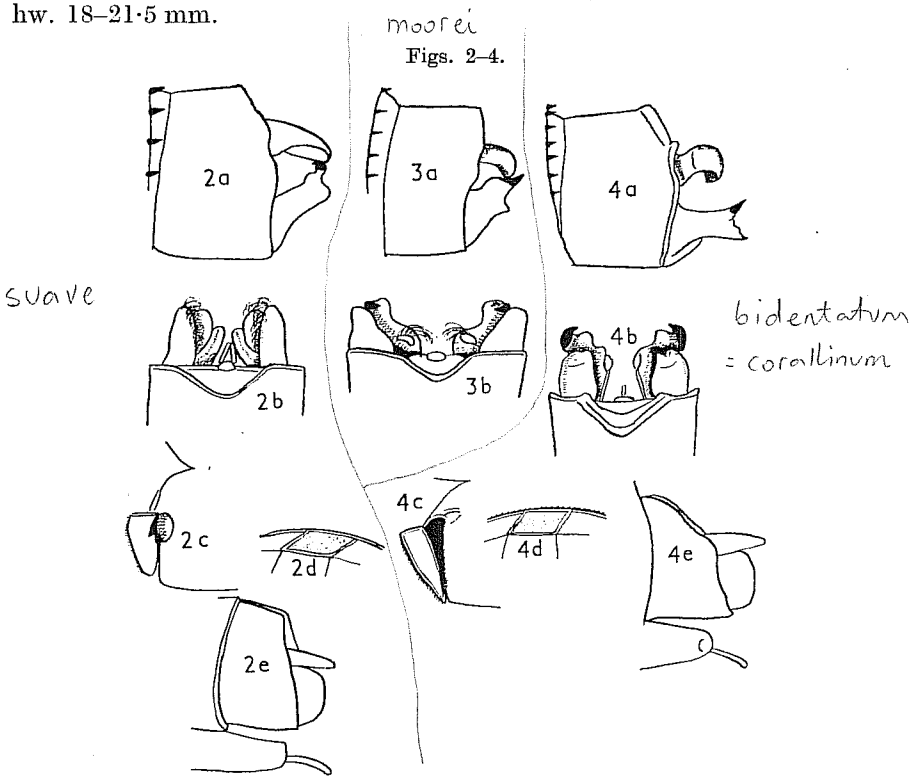
Female. Browner, often slightly larger than male. Epaulette rounded, very slightly more dorsal in position than in *glabrum*. Abdomen up to 38 mm., hw. up to 25 mm. Back of prothorax gently and evenly curved. Abdomen with disto-lateral black spots.

Ceriagrion bidentatum Fraser, 1941 (Fig. 4).

Ceriagrion bidentatum Fraser, 1941, *ibid.* 64.

Uganda, Southern Nigeria, Katanga, Northern Rhodesia

Male (*Uganda*). Face, thorax and sides of abdominal segments 1–3 green ; abdomen above red. Superior anal appendage typical, curved downwards, shorter than inferior ; inferior with apical hook and a posterior angular point. Venation dark brown, pterostigma a pale brown parallelogram ; wings always hyaline. Arculus more distinctly distal to 2nd Ax than in some other African species. Abd. 28–31 mm., hw. 18–21·5 mm.



2. *Ceriagrion suave* Ris ♂ (Luanshya). a–b. anal appendages from left and from above. ♀ (Nuanetsi). c–e. mesostigmal region ; pterostigma and terminalia of abdomen. 3. *C. moorei* Longfield. ♂ (Northern Nigeria). a–b. anal appendages from left and from above. 4. *C. bidentatum* Fraser (Lake Victoria region of Uganda). ♂ a–b. anal appendages from left and from above. ♀ c–e. mesostigmal region ; pterostigma ; terminalia of abdomen.

Female. Duller in colour but also green on thorax and generally on face. Back of prothorax gently and evenly curved. Epaulettes characteristic, in starting as an elongate smear from ridge on the mesostignal lamina, reaching as far as the end of this plate. Size of female variable. Abd. 29–31 mm., hw. 21–22·5 mm.

Ceriagrion kordofanicum Ris, 1924, (Fig. 5).

Ceriagrion kordofanicum Ris, 1924, *Denkschr. Akad. Wiss. Wien.* **99** : 279

Material from Kenya Coast, near Mombasa.

Male. Small species, fairly uniform in size, with orange face, brown to reddish brown thorax and red abdomen. Superior appendage curved as in other species, slightly longer than inferior, which has a robust apical spine and posterior elongate tooth. Wings hyaline to distinctly smoky yellowish ; venation and pterostigma pale brown. Arculus sometimes well distal to 2nd Ax. Abd. 23–25 mm., hw. 15·5–16·5 mm.

Female. Of similar size, but browner on thorax and abdomen. Epaulette a moderately large elliptical depression. Back of prothorax slightly trilobed.

Ceriagrion Sakejii sp. nov.

Ceriagrion ignitum Pinhey (nec Campion), 1961 (Fig. 8).

Ceriagrion ignitum Pinhey (nec Campion), 1961, *Occ. Pap. Livingstone Mus.* **14** : 20.

Holotype ♂ (*mature*). Labrum orange, clypeus redder, vertex and thorax above strongly reddish ; sides of thorax and the legs yellowish. Abdomen vermilion. Superior appendage short, curved down ; inferior broad, with small apical spine and a distinct posterior tooth. Wings hyaline, venation and pterostigma pale brown, the pterostigma a parallelogram. Arculus distal to second Ax. Abd. 28 mm., hw. 18 mm. In life, thorax green at sides.

Paratype males very uniform in size ; in older examples with fumose wings.

Allotype ♀. Body only slightly less reddish than in ♂. Epaulette rounded. Back of prothorax slightly trilobed. Abd. 28 mm., hw. 18·5 mm.

This species is allied to *suave* and *moorei*, but smaller, distinctly redder. The broader inferior appendage, with stronger posterior tooth separates it. In the female the well defined circular black epaulette helps in diagnosis.

Holotype, allotype and five paratype males in National Museum, one paratype ♂ will go to the British Museum (Natural History). The name ' sakeji ' is taken here strictly after the school of that name in North Mwinilunga District, Northern Rhodesia. The principal, Mr. L. R. Hess, and his pupils, have sent very interesting insects from that area for study, including some of the specimens of this new species.

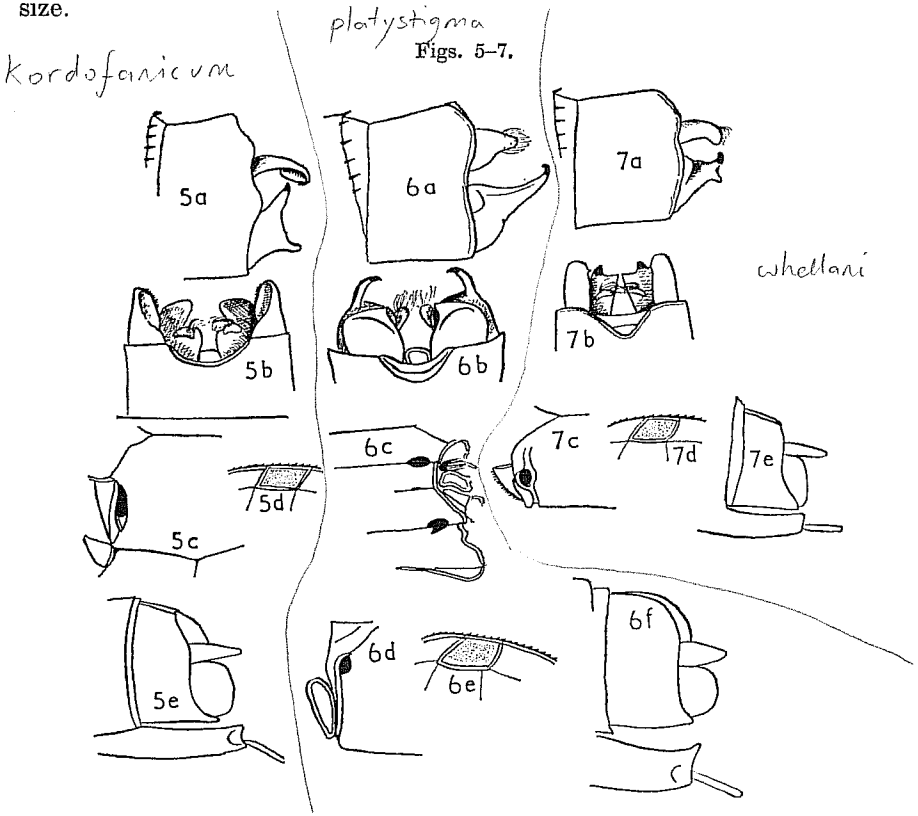
Ceriagrion whellani Longfield, 1952 (Fig. 7).

Ceriagrion whellani Longfield, 1952, *Proc. R. ent. Soc. Lond.* (B) **21** : 42.

Material : N. Rhodesia, S. Rhodesia, Sierra Leone, Central African Republic.

A smaller, rather paler, species than *bidentatum*.

Male. Labrum orange, clypeus and vertex palish brown with green tint ; thorax pale green ; abdomen orange-red. Appendages of equal length, the superiors downturned, inferior with hook and posterior tooth. Venation brown, pterostigma paler ; wings slightly saffronated in basal half, later yellowish fumose entirely. Arculus occasionally well distal to second Ax. Abd. 26–27·5 mm., hw. 17–17·5 mm. Fairly uniform in size.



Figs. 5–7.

5. *Ceriagrion kordofanicum* Ris (Mombasa). ♂ a–b. anal appendages from left and from above. ♀ c–e. mesostigmal region ; pterostigma ; terminalia of abdomen. 6. *C. platystigma* Fraser. ♂ a–c. anal appendages from left and from above ; upper part of synthorax from left. ♀ d–f. mesostigmal region ; pterostigma ; terminalia of abdomen. 7. *C. whellani* Longfield (Abercorn). ♂ a–b. anal appendages from left and from above. ♀ c–e. mesostigmal region ; pterostigma ; terminalia of abdomen.

Female. Of similar size. Face greenish yellow ; frons above, vertex and mesepisterna dark greenish brown, sides of thorax pale green ; abdomen pale reddish, more ferruginous distally. Pterostigma darker. Epaulette small, rounded, slightly more lateral in position. Back of prothorax rather distinctly trilobed, more prominently curved in middle than laterally.

Ceriagrion rubellocerinum Fraser, 1947 (Fig. 10).

Ceriagrion rubellocerinum Fraser, 1947, *Trans. R. ent. Soc. Lond.* **98** : 28.

Material : Southern Nigeria.

Male. Face pale green. Head above dark ferruginous, synthorax almost black above, with traces of what appear (in preserved example) to be short red antehumeral stripes. Lower sides of thorax pale blue-green. Abdomen pale bluish on basal segments, black dorsally on 3–6 and two-thirds of 7, terminal segments and appendages red. Tenth segment dorsally with distal margin deeply invaginated and strengthened by curved, toothed ridges. Superior appendage pyriform, provided with an inferior lobe terminating in an apical hook ; inferior longer, robust, with apical hook but no posterior swelling or tooth. Wings faintly fumose, venation dark brown ; pterostigma blackish, a short parallelogram but nearly rhomboidal. Ac distal to petiole. Abd. 33 mm., hw. 20 mm. Fraser gives 38 mm. and 22·5 mm. respectively.

Female. Very similar. Darker on base and terminal segments of abdomen. Latero-distally the dark markings form black segmented spots. Head with traces of red postocular spots. Pterostigma brown, that on forewing shorter than that on hindwing which is nearer a parallelogram. Back of prothorax trapezoidal. Epaulette scarcely developed, merely a depression close to medial suture of thorax, and therefore much more dorsal than in other species examined. Size similar to male.

Ceriagrion citrinum Campion, 1914 (Fig. 9).

Ceriagrion citrinum Campion, 1914, *Ann. Mag. nat. Hist.* **14** : 278.

Material : Southern Nigeria.

Male. Labrum and two-thirds of the abdomen pale yellow ; head above and thorax green ; distal segments of abdomen darkish brown. Superior appendage short, curved down ; inferior ending in a blunt tooth and posteriorly angled ; inferior longer than superior. Wings hyaline, saffronated at base ; venation brown, pterostigma paler. Abd. 28 mm., hw. 18 mm. Campion gives 25·5 mm. and 16·5 mm., respectively. No female in National Museum.

Ceriagrion bakeri Fraser, 1941 (Fig. 11).

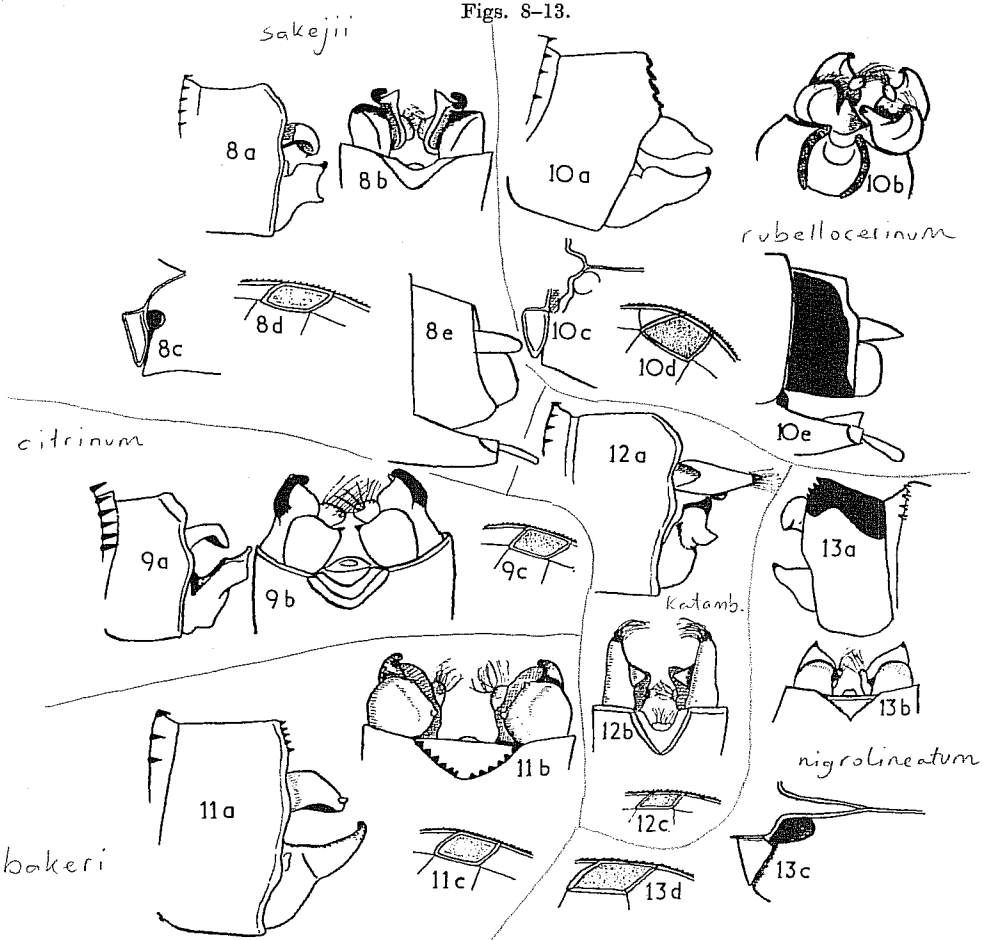
Ceriagrion bakeri Fraser, 1941, *Proc. R. ent. Soc. Lond.* (B) **10** : 61.

Material : N. Nigeria, N. Rhodesia.

Male (N. Nigeria) : Face whitish to pale greyish green ; vertex darker ; thorax greenish ; abdomen orange red at base to deeper red distally. Tenth segment with a row of distal teeth. Superior appendage curved, toothed ; inferior longer, with blunt tooth, and rather like *rubellocerinum*. Wings hyaline, venation black, pterostigma a parallelogram, dark brown. Abd. 31–32 mm., hw. 23 mm.

No female in National Museum.

Figs. 8–13.



8. *Ceriagrion sakejii* sp. nov. (Mwinilunga). ♂ a–b. anal appendages from left and from above. ♀ c–e. mesostigmal region ; pterostigma ; terminalia of abdomen. 9. *C. citrinum* Campion. ♂ (Lagos) a–c. anal appendages from left and from above ; pterostigma. 10. *C. rubellocerinum* Fraser (Lagos). ♂ a–b. anal appendages from left and from above. ♀ c–e. mesostigmal region ; pterostigma ; terminalia of abdomen. 11. *C. bakeri* Fraser. ♂ (Northern Nigeria) a–c. anal appendages from left and from above ; pterostigma. 12. *C. katamborae* Pinhey. Type ♂ (Zambezi) a–c. anal appendages from left and from above ; pterostigma. 13. *C. nigrolineatum* Schmidt (Madagascar). ♂ a–b. anal appendages from right and from above. ♀ c–d. mesostigmal region ; pterostigma.

Ceriagrion katamborae Pinhey, 1961 (Fig. 12).

Ceriagrion katamborae Pinhey, 1961, *Occ. Pap. Livingstone Mus.* **14** : 20

Material : Holotype ♂, Zambezi River.

Male. Face pale reddish, vertex and thorax darker ; abdomen vermilion. Superior appendage elongate, conical porrect, terminating in setæ and long hairs and having a broad interior tooth at about halfway. Inferior ending in spine and having a broad angular, posterior tooth. Wings hyaline, venation brown, pterostigma a parallelogram, pink internally. Forewing 11–12 Px. Abd. 27·5 mm., hw. 17 mm.

Female unknown.

Two species indigenous to Madagascar are represented but in only one of them are both sexes present :—

Ceriagrion nigrolineatum Schmidt (in Fraser), 1949 (Fig. 13).

Ceriagrion nigrolineatum Schmidt (in Fraser), 1949, *Mem. Inst. sci. Madagascar* (A) **3**:22.

Male (from Ambatondrazaka). A large species, largely bright yellow. Entire face and frons yellow ; vertex and occiput dark brown, with large green postocular spots. Thorax above dark purplish brown, becoming paler at sides. Legs yellow, with brown exterior line on femora. Wings very faintly fumose ; pterostigma a brown parallelogram. Anal vein leaves margin at Ac. Abdominal segments 1–5 yellow, with fine reddish brown mid-dorsal line, spreading laterally before distal end of segment. Segment 6 yellow on basal half, distally brown, with black patch at distal end ; 7–10 all black on dorsum. Inferior appendage slightly longer than superior, the latter curved downwards, and having apical tooth. Inferior with apical but no posterior tooth. Abd. 33 mm., hw. 20 mm.

Female (Tananarive). Yellow areas duller ; brown areas increased ; postclypeus and dorsum of frons brown ; dorsal thoracic brown not reaching quite to humeral suture, the sides green ; black dots at upper ends of humeral and second lateral sutures. Epaulettes very large, blackened, very dorsal in position. Abdomen with continuous blackish dorsal band on all segments. Cerci very short. Abd. 34 mm., hw. 22 mm.

Key to Continental males of species discussed above.

1. Synthorax dorsally green..... 2.
   Synthorax orange, reddish or brown..... 5.
2. Abdomen in mature condition mainly pale yellow, the distal segments dark brown. Distal margin of abdomen 10 without raised teeth. Abdomen under 30 mm. long, the inferior anal appendage longer than the superior..... *citrinum* Campion.
   Abdomen orange-red to red..... 3.
3. Pterostigma dark brown. Abdomen over 30 mm. long. 10th segment with prominent posterior teeth. Inferior appendage massive, longer than superior and without any posterior swelling..... *bakeri* Fraser.
   Pterostigma pale brown. Abdomen usually less than 30 mm. but may be longer ; 10th segment without prominent distal teeth. Inferior appendage with distinct posterior tooth..... 4.
4. Abdomen 28–31 mm. long. Inferior appendage longer than superior, the apical hook robust..... *bidentatum* Fraser.
   Abdomen 26–27·5 mm. long. Anal appendages of about equal length ; apical hook of inferior appendage small.. *whellani* Longfield.
5. 10th abdominal segment with prominent raised or invaginated, sclerotized, toothed distal margin..... 6.
   10th segment without strong sclerotization or raised teeth on distal margin..... 8.

6.	Synthorax and most of abdomen almost black above, terminal segments of abdomen red. 10th segment of abdomen with deeply invaginated dorso-posterior margin (almost horse-shoe shaped). Superior appendage with large and prominent interior tooth, hooked at apex ; inferior massive, but with short hook. Abdomen at least 33 mm. Pterostigma almost rhomboidal.....	*rubellocerinum* Fraser.
	Synthorax orange to reddish brown, abdomen orange red. 10th segment of abdomen with raised distal, toothed ridge, the teeth being dorso-lateral in position. Superior appendage rounded, with no more than a minute sub-apical tooth. Pterostigma an elongate parallelogram..	7.
7.	Venation yellowish brown (rarely brown), pterostigma normally pale brown. Apical hook on inferior appendage moderate. Abdomen 27–35 mm.....	*glabrum glabrum* (Burmeister).
	Venation and pterostigma black. Apical hook of inferior appendage elongate. Abdomen 35·5 mm.....	*glabrum longispinum* ssp. nov.
8.	Pterostigma almost square or rhomboidal, distinctly red in colour. Abdomen 35–36 mm. Prominent black thoracic spots on humeral and second lateral suture. Inferior appendage longer than superior, without any posterior swelling or tooth and with the apical hook very long	*platystigma* Fraser.
	Pterostigma an elongate parallelogram, rarely red in colour. Abdomen usually less than 35 mm. Inferior appendage often shorter or at most only slightly longer than the superior and always with a distinct posterior swelling or tooth	9.
9.	Abdomen 25 mm. or less, hindwing under 17 mm. Inferior appendage slightly shorter than superior and with its posterior tooth developed far distant from the apical hook	*kordofanicum* Ris.
	Abdomen 27 mm. or more. The posterior tooth or swelling on inferior appendage developed close to commencement of apical hook.....	10.
10.	Pterostigma internally distinctly pink or red. Superior appendage distinctly longer than inferior, directed horizontally and having a large triangular inner tooth halfway along its length. Inferior appendage with a broad posterior tooth	*katamborae* Pinhey.
	Pterostigma light brown internally. Superior appendage curved downwards, shorter or not longer than inferior appendage ; the inferior with a sharp tooth or a rounded swelling	11.
11.	Vertex and thorax distinctly red. Arculus distinctly distal to second Ax. Inferior appendage slightly longer than superior and broad ; a sharp posterior tooth.....	*sakeji*, sp. nov.
	Vertex and thorax brown to brownish red. Arculus normally at or close to second Ax. Inferior appendage posteriorly with more of a swelling than a tooth.....	*suave* Ris and *moorei* Longfield.

Key to Continental females.

If the male key seems difficult to clarify in the later species mentioned in it, the females have less characters still from which to choose. It is necessary to rely on the epaulettes in part of the key.

1.	Pterostigma nearly square or rhomboidal in forewing. Abdominal segments exhibiting distinct distal black spots. Epaulettes situated more dorsally than meso-stigmal lamina and close to mid-dorsal carina. Abdomen at least 34 mm. long.....	2.
	Pterostigma an elongate parallelogram. Epaulettes situated more laterally. Abdomen without distal black spots on the segments.....	3.
2.	Back of prothorax evenly curved. Abdomen not blackish dorsally. Epaulette black, rounded.....	*platystigma* Fraser.
	Back of prothorax trapezoidal, narrowing posteriorly. Abdomen blackish dorsally. Epaulette a mere depression, not blackened.....	*rubellocerinum* Fraser.
3.	Thorax distinctly green.....	4.
	Thorax brown or reddish.....	6.
4.	Back of prothorax distinctly trilobed, the middle portion more curved than the lateral ones. Abdomen about 25 mm. Epaulette circular and situated more laterally, nearly half way along the mesostigmal lamina.....	*whellani* Longfield.
	Back of prothorax almost or quite evenly and gently curved. Epaulette starting near upper end of mesostigmal lamina	5.
5.	Thorax distinctly green. Abdomen 29–31 mm. Epaulette very elongate, running along behind whole length of mesostigmal lamina.....	*bidentatum* Fraser.
	Thorax brownish green. Abdomen 29–35. Epaulette rounded or elliptical, only near upper end of lamina....	*glabrum* (Burmeister) and ssp. *longispinum* ssp. nov.).
6.	Small species, abdomen 23–25 mm. Only 10 Px. Back of prothorax slightly trilobed. Epaulette very elongate, the blackened portion extending half way down the mesostigmal lamina	*kordofanicum* Ris.
	Larger, abdomen at least 28 mm. 11–12 Px. Epaulette circular or a small ellipse.....	7.
7.	Epaulette circular but not very black, only darkened along the raised edge near mesostigmal lamina. Thorax pale reddish brown. Back of prothorax very slightly bilobed. Abdomen 28–36 mm.....	*suave* Ris and *moorei* Longfield.
	Epaulette well blackened.....	8.
8.	Abdomen 28 mm. Thorax reddish brown. Back of pro-thorax slightly trilobed. Epaulette circular, situate just below upper end of lamina.....	*sakejii* sp. nov.
	Abdomen 30–35 mm. Thorax brown. Back of prothorax gently and evenly curved. Epaulette elliptical, situate at upper end of lamina.....	*glabrum* (Burmeister) and *longispinum* ssp. nov.

The following are some remarks on the epaulettes of females of a few oriental species :

C. aurantiacum Fraser, 1923, *J. Bombay nat. Hist. Soc.* 29 : 748.

Fraser (1933 : 324) considered this to be a race of *C. olivaceum* Laidlaw (1914).

Epaulette very small, rounded, not fully blackened, situate near upper end of mesostigmal lamina. India.

C. coromandelianum (Fabricius), 1798, *Ent. Syst. Suppl.* 287.

Epaulettes circular, applied to *raised adjacent* lappets at the ventral end of the median carina. A black line extends down the side from there. India.

C. melanurum Selys, 1876, *Bull. Acad. Belg.* (2) 42 : 529.

Epaulette large, circular, starting at upper end of lamina and the black extending laterally to end of lamina. Japan.

List of Ethiopian species not examined.

Ceriagrion annulatum Fraser, 1955 (Katanga).
C. auritum Fraser, 1951 (Madagascar).
C. corallinum Campion, 1914 (Sierra Leone).
C. hamoni Fraser, 1955 (Congo).
C. ignitum Campion, 1914 (Ghana).
C. madagazureum Fraser, 1949 (Madagascar).
C. oblongulum Schmidt, 1949 (Madagascar).
C. sanguinostigma Fraser, 1955 (Congo).
C. villiersi Fraser, 1951 (Togo).

SUMMARY.

This paper attempts to distinguish the tropical members of the genus *Ceriagrion* Selys, utilizing keys for both sexes of most of the continental African species. The difficulties in distinguishing the females, which are so uniform in characters, is partly surmounted by a study of Balinsky's ' epaulettes '.

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AFRICAN HIGH MOUNTAIN BARKBEETLES.

219. CONTRIBUTION TO THE MORPHOLOGY AND TAXONOMY OF THE SCOLYTOIDEA.

By KARL E. SCHEDL,
Lienz, Osttirol, Austria.

MR. J. BALFOUR-BROWNE of the British Museum of Natural History has sent to me an accumulation formed by Dr. Scott some 30 years ago of various collections from the arborescent *Senecio* and *Lobelia* of high peaks of East Africa such as Mounts Kenya, Elgon, Ruwenzori, Muhavera, and Kinangop in the Aberdare Range, for identification. This collection also contained a few species apparently not connected with the hosts mentioned before but occurring in the same region, among them one new species.

By far the greatest number of specimens belong to the genus *Thamnurgus* Eichh. but according to the records given below the species involved are not restricted to one or other host genus but one and the same species has been collected on *Lobelia* and on *Senecio* in the same region. *Thamnurgus lobeliae* Egg. and *Th. senecionis* Schedl seem to be the only species following their host plants to their upper limit of about 14,000 feet. From the same region originates *Mimiophthorus ruwenzoriensis* n. sp. living in *Senecio erioneuron*. Quite interesting is also one specimen of *Scolytoplatypus kivuensis* Schedl found in the Ruwenzori Range at an altitude of 8,650 feet in the region of *Philippia longifolia*.

From the records given below it can be observed that several species of *Thamnurgus* may occur in high peaks widely separated from each other exactly as this is the case with their host plants. The following species have been found in the collection.

Hapalogenius subseriatus Schedl.

UGANDA, RUWENZORI RANGE : Semliki Forest, 28. viii.–3. ix. 1952, (*D. S. Fletcher*).

Semliki Forest, Hot Springs, 2,750 ft., 22. viii.–3. ix. 1952 (*D. S. Fletcher*).

The original description of this species has been based on the female. The male has the front more convex, the asperities of the pronotum are larger and the area covered by them is much wider, the elytral declivity is dull on the interstices and each one of them shows a regular row of fine transverse rugæ.