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Diopsidae (Diptera: Acalyptratae) from Togo and Zaïre

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With 3 Figures

This paper deals with two collections of Diopsidae, one from Togo and the other from Zaïre. The Diopsids from Zaïre were collected by Dr. med. Th. Jilly in Kivu, Lwiro during November and December 1966. This collection consisted of 52 specimens distributed over 13 species. During April 1976, Dr. G. G. M. Schulten collected Diopsidae in Togo from the following places: a river near Sokodé; a small pool near Mango; the Koumongou river near Naboulgou; a ditch near Assahoun; a rice field near Mission Tové and a forest near Palimé. The collection from Togo amounted to 316 specimens distributed over 11 species. In total 22 species, three of which are new, are discussed in this paper. The genus *Diopsina* is also discussed. Both collections, including the types, have been placed in the Stuttgarter Museum.

The following new synonymies were established:

Diopsis nigriceps Eggers (syn. *basalis* Brunetti)

Diopsis fumipennis Westwood (syn. *punctiger* Westwood, *atricapillus* Guérin-Méneville, *fumipennis fascifera* Eggers)

Diopsis absens Brunetti (syn. *finitima kilimandjaroensis* Lindner, *finitima pareensis* Lindner)

Diopsis circularis Macquart (syn. *macquartii* Guérin-Méneville, *aries* Hendel, *globosa* Curran)

Diopsis ornata Westwood (syn. *curva* Bertoloni)

Diopsis pollinosa Adams (syn. *conspicua* Eggers, *munroi* Curran)

Diasemopsis meigenii (Westwood) (syn. *Diopsis subfasciata* Macquart, *Diopsis leucochira* Bezzi)

Diopsina nitida (Adams) (syn. *Phryxodiopsis kaeleana* Séguy)

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The present paper disagrees with the following, previously established, synonymies:

Diopsis macquartii Guérin-Méneville (syn. *circularis* Marcquart, of authors, *conspicua* Eggers)

Diasemopsis (Chaetodiopsis) meigenii (Westwood) (syn. *breviseta* Bezzi)

As new combinations are introduced:

Diopsina nitida (Adams) *(Teleopsis)*
Diopsina africana (Shillito) *(Cyrtodiopsis)*

A number of fungal parasites (*Laboulbeniales:* Ascomycetes) were found on various species. The following species were identified:
Laboulbenia diopsis Thaxter
Rhizomyces circinalis Thaxter
Rhizomyces cornutes Thaxter
Rhizomyces ctenophorus Thaxter
Rhizomyces sp. (several)
Stigmatomyces diopsis Thaxter
Stigmatomyces porrectus Thaxter
Stigmatomyces sp. (several)

Acknowledgements

I am indebted to Prof. Dr. E. Lindner for placing the collection of Dr. Th. Jilly at my disposal; to Prof. Dr. R. K. Benjamin for his help with the identification of the *Laboulbeniales;* and to Dr. J. P. Duffels for comparing some Diopsids with types in the American Museum of Natural History in New York. In this paper data, obtained during five years of Diopsidae research in Malawi, are also used. The research in Malawi was made possible by a grant from Wotro (Netherlands Foundation for the advancement of Tropical Research). I am grateful to Dr. P. J. van Helsdingen and Dr. G. G. M. Schulten for comments on the manuscript; to Ms. V. M. Russell for correction of the English; and to my wife for assistence with the preparation of the manuscript.

Diopsis ichneumonea Linnaeus, 1775

Diopsis ichneumonea Linnaeus, 1775: 5, pl. 1.
Distribution: West Africa (type originating from Guinea or perhaps Sierra Leone). All subsequent recordings of *ichneumonea* should be regarded as doubtful (see below).
Material examined: 2 ♀♀, 2 ♂♂, 1 ? from Palimé, Togo, 17. IV. 1976.

The group of *Diopsis* species with preapical wing spots is probably the most complicated group of all. The problems begin straight away with the type-species of the family: *Diopsis ichneumonea* Linnaeus. In my opinion the problems with *ichneumonea* are due mainly to subsequent authors (Westwood and others) and not to the original description and drawings of Linnaeus. In the drawings of Linnaeus the collar has the same reddish colour as the head, this led Dalman (1817) to extending the description with ‚collari rufescenti'.

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WESTWOOD (1837a), later followed by LINDNER (1962), pointed out that LINNAEUS's description only says ‚thorax niger' and that it is unlikely that he would have omitted to mention the difference in colour of the front of the thorax, if such had been the case. From this, WESTWOOD concluded that the engraving ought not to be too heavily relied upon. Examination of the original drawings reveals that, both in the dorsal as well as the lateral views, the collar is clearly of the same reddish colour as the head, which in my opinion proves that LINNAEUS did not make a mistake. All specimens from Togo have exactly the same reddish colour of the collar as indicated in LINNAEUS's engraving and also have the same quite typical convexity of the lateral sections of the collar and the same elevated darker ridge in the centre of the dorsal part. WESTWOOD also criticised the engraving because it showed the base of the abdomen nearly as darkly coloured as the terminal segments, a feature that was also omitted in the description. The specimens from Togo have the base of the abdomen (the small ‚first' segment) brownish black and the terminal segments (including the apical edge of the ‚third' segment) shining black, leaving the large ‚second' and ‚third' segments orange reddish (the same colour as collar and head). LINNAEUS, in his description, recorded the last two segments to be black and, in the drawings, showed the last three as black.

The specimens of Togo further agree with LINNAEUS's description and drawings in detail (except of course for the description of the antennae — see SHILLITO 1974). The arcuate groove is in some specimens somewhat darker than the other parts of the head. The eyestalks carry a tiny IOB (inner orbital bristle) apically from the middle and a small OOB (outer orbital bristle). The IOB arises from a small tubercle. The thorax is shining black, becoming somewhat pollinose on the lower parts of the pleura. The thorax has a finely granulated structure dorsally. The subapical wing spot is touching the costa and continues into the first posterior cell. The part of the spot in the submarginal cell is somewhat extended proximally. The disc of the wing is slightly infuscated, especially the basal parts of the submarginal and first posterior cells. The legs are yellowish orange with tibia 1, tarsi 1 (especially the last segments) and tibia 3 somewhat darker.

Although *D. ichneumonea* should be once again considered as a species with a red collar, this does not mean that WESTWOOD's *collaris* or *pallida*, which both have a reddish collar, should be considered its synonyms. The various Diopsids with a preapical wing spot and a red collar, which I collected in Malawi and Mozambique, are definitely different, as will be reported in a later paper. It is possible that *D. ichneumonea* is mainly a West African species. Most of the specimens identified by various authors as *ichneumonea* (including EGGERS's var. *ichneumonella* and BRUNETTI's unpublished var. *substriatipes)* should not be considered identical with LINNAEUS' species. The species described by DESCAMPS (1957) as *Diopsis* sp. 3 could be *D. ichneumonea*. The shape and colour of the collar of this *Diopsis* sp. 3 are identical to LINNAEUS's description and drawing, which can not be said of the specimens identified by DESCAMPS as *ichneumonea* (collar shining black and of a different shape). DESCAMPS described the abdomen of his sp. 3 as orange with the first segment brownish and the last segments shining black, which points to a *D. ichneumonea*. It would have been convenient to

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describe one of the specimens from Togo as a neotype of *ichneumonea* but unfortunately all are slightly damaged by ants.

Diopsis nigriceps Eggers, 1925

Diopsis nigriceps Eggers, 1925: 473, pl. 6, fig. 2.
. . . *basalis* Brunetti, 1926b: 77. **syn. nov.**
Distribution: Senegal, Sierra Leone, Zaïre, Burundi, Kenya.
Material examined: 2 ♀♀ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

The two specimens agree in detail with Eggers's description of *nigriceps* as well as Brunetti's description of *basalis*, leaving no doubt about the synonymy. The only difference is that Eggers describes the tarsi as „sepiabraun (die Mitteltarsen bei dem vorliegenden Exemplar abgebrochen), die Endglieder der Vordertarsen ein wenig dunkler" whereas Brunetti states ‚All tarsi black'. In the specimens from Kivu the front tarsi are blackish, the middle tarsi brown and the hind tarsi somewhat darker brown. Brunetti's remark, that the black basal part of the abdomen is the most characteristic feature of the species, is somewhat misleading, since many *Diopsis* species have this. The blackish, narrow head and the wing design are much more characteristic.

According to Brunetti, *D. micronotata* Brunetti and *D. macromacula* Brunetti are allied, the very different shapes of the wing spots at once separating them. This is certainly true for *D. micronotata*, which has two very typical preapical spots. The descriptions of the wings of *macromacula* and *basalis*, however, do show little difference. The description of the abdomen for *macromacula* ‚reddish orange to tip of 3rd segment, thence shining black' is rather confusing. This would mean that the last abdominal segments are black and the base reddish orange, which points to a clear difference between *nigriceps/basalis* and *macromacula*. Specimens of *macromacula* in the British Museum (Natural History) and in the Museum voor Midden-Afrika at Tervuren (‚cotype'), however, have the base of the abdomen black and the rest reddish, which leaves the difference between *nigriceps* and *macromacula* still to be clarified.

Diopsis rubriceps Eggers, 1925

Diopsis rubriceps Eggers, 1925: 474.
Distribution: Burundi
Material examined: 1 ♂ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

The type of this species comes from Usumbura in Burundi, quite close to Kivu. The specimen from Kivu has an arcuate groove with the same colour as the rest of the head, as mentioned by Eggers (this character might however be a variable one — cf. *D. ichneumonea)*. The scutellum is flat and finely granulated, with some brown shining through its black colour. The scutellar spines are somewhat short (twice the length of the scutellum) as in Eggers's description. Legs and wing pattern also comply. The part of the preapical spot in the submarginal cell is proximally extended. The base of the abdomen is not black as described by Eggers but dark brown, the rest of the abdomen being brown. The specimen from Kivu has the relatively pronounced hairiness (especially of the front

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femora) mentioned by EGGERS as an essential character of this species. The *D.? rubriceps* recorded by LINDNER (1962) from Cameroon and South Africa are not identical to the specimen from Kivu. LINDNER's specimens lack the hairiness, have longer scutellar spines and very dark wing spots.

Diopsis macrophthalma Dalman, 1817

Diopsis macrophthalma Dalman, 1817: 5, fig. 1b.
. . . *longicornis* Macquart, 1835: 486.
. . . *thoracica* Westwood, 1837a: 306, pl. 9, fig. 15.
Diasemopsis macrophthalma, Eggers, 1916 (see also CURRAN 1931a, SÉGUY 1955, STEYSKAL 1972).

Distribution: Senegal, Niger, Guinea, Sierra Leone, Ivory Coast, Nigeria, Cameroon, Zaïre, Somali, Ethiopia, Uganda, Kenya, Tanzania, Zanzibar, Zambia, Malawi, Mozambique, Zimbabwe, Swaziland.

Material examined: 80 ♀♀, 94 ♂♂ from Sokodé, Mango, Koumongou river, Assahoun and Mission Tové in Togo, 7.—15. IV. 1976.

As has already been indicated by van BRUGGEN (1961) and SHILLITO (1971), *D. thoracica* and *D. longicornis* should be regarded as synonyms of *D. macrophthalma*. I therefore have proposed elsewhere (in press) to use the name *D. macrophthalma* in future, although *D. thoracica* has been a well established name especially in applied literature. The reference by DALMAN to a small bristle on the tip of the scutellar spines has led several authors to regard *macrophthalma* as a *Diasemopsis*. The rest of DALMAN's description, however, clearly indicates that *macrophthalma* is an older name for *D. thoracica*. The bristle mentioned by DALMAN should consequently be considered an error; or perhaps he meant one of the hairs growing on the scutellar spines.

Of the specimens collected 15 ♀♀ and 17 ♂♂ were infected by *Laboulbeniales*. All of the 15 ♀♀ carried *Laboulbenia diopsis* Thaxter (on average four, especially on the head, but also on the dorsal abdomen and legs). One ♀ also had 18 *Stigmatomyces porrectus* Thaxter on the wing. All ♂♂ also had *L. diopsis* (on average eight, especially on the head) and one ♂ had an additional four *Rhizomyces ctenophorus* Thaxter on the head.

Diopsis servillei Macquart, 1843

Diopsis servillei Macquart, 1843: 395, pl. 32, fig. 2.
. . . *affinis* Adams, 1903: 45.

Distribution: Senegal, Chad, Cameroon, Sudan, Kenya, Tanzania, Zambia, Malawi, Mozambique, Zimbabwe.

Material examined: 1 ♀ from Koumongou river, Naboulgou, Togo, 9. IV. 1976. 1 ♂ from Mission Tové, Togo, 15. IV. 1976.

Diopsis sp.

Diopsis sp.
Material examined: 1 ♂ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

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This species is closely related to *Diopsis absens* Brunetti 1926b, from which it is distinguished by the lack of black on the arcuate groove, the lack of a transversal black band on the abdomen (there is only some black at the base of the abdomen), and the presence of an OOB. *Diopsis absens* is a rather variable species. The colour of the scutellum can vary from reddish to black. The black stripe on the abdomen is sometimes just visible or can occasionally cover almost the whole abdomen. The absence of an OOB is an important characteristic of *absens*, as emphasized by Brunetti and is also true for specimens from Malawi. The relation between *absens* and *Diopsis finitima* Eggers 1916 is not yet clear but the subspecies *finitima kilimandjaroensis* Lindner 1954 and *finitima pareensis* Lindner 1954 should be regarded as forms of *D. absens*. The specimens from Kivu could be identical to the species described by Descamps (1957) as *Diopsis* sp. 1. Descamps' species is obviously also related to *D. absens* but is distinguished by the presence of an OOB. As the specimen from Kivu is in a rather poor condition the description of a new species has to be based on Descamps's material.

Diopsis apicalis Dalman, 1817

Diopsis apicalis Dalman, 1817: 211.

. . . *tenuipes* Westwood, 1837a: 298, pl. 9, fig. 5.

Distribution: Sierra Leone, Senegal, Ivory Coast. Togo, Nigeria, Cameroon, Zaïre, Ethiopia, Uganda, Tanzania, Zambia, Malawi, Mozambique, Zimbabwe, South Africa.

Material examined: 3 ♀♀, 1 ♂ from Kivu, Lwiro, Zaïre, XI./XII. 1966. 12 ♀♀, 23 ♂♂ from Sokodé, Mango and Mission Tové, Togo. 7.—15. IV. 1976.

This species has been one of the obstacles in diopsid taxonomy. The problem of the synonymy has largely been solved by Lindner (1962). Westwood (1837a) distinguished *tenuipes* mainly on the ground of the longer eyestalks. In my collection of more than 10 000 *D. apicalis* from Malawi the eye span varied from 3.8 to 11.3 mm and the ratio eyespan/bodylength from 0.8 to 1.5, which clearly proves the uselessness of that character. The large variability found in this species (also pointed out by Lindner 1962) partly explains the confusion which existed around this species. In my collection from Malawi, some *D. apicalis* are even to be found with a reddish instead of black scutellum. Another aspect is the likely confusion with related species such as *phlogodes* Hendel, *fumipennis* Westwood, *lindneri* (sp. nov.) and other, undescribed species (see below). Eggers (1925) mentioned various differences in his *tenuipes* specimens, but since he also stated that his material came partly from the forest and partly from the savannah, there is little doubt that there were *D. phlogodes* (a forest species) among his specimens.

Brunetti (1926a) stated that *D. tenuipes* is often mistaken for *apicalis*. He separated *apicalis* from *tenuipes* by the markedly incrassate front femora in *apicalis* and by the disc of the wing which according to him is definitely stated (sic!) to be quite hyaline in *apicalis*. However Dalman's and Westwood's descriptions agree with each other quite well in these characters. Curran (1928b)

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disagreed strongly with BRUNETTI's observations and stated that *apicalis* and *tenuipes* have to be distinguished by the length of the eyestalks. He however added that if the difference in eyestalk length is not a valid difference, *tenuipes* should be regarded as a synonym of *apicalis,* and his own species identified as *tenuipes* would in that case be an unnamed species. It seems more than likely that the species BRUNETTI regarded as *D. apicalis* is identical to *Diopsis* sp. 2 of DESCAMPS (1957). DESCAMPS named as differences between his *Diopsis* sp. 2 and *D. tenuipes* the shorter eyestalks and the incrassate anterior femora and he described the disc of the wing as hyaline. DESCAMPS mentioned as difference between *tenuipes* and *apicalis* (which he did not collect) the shorter eyestalks of *apicalis.* He, however, saw no reason to identify his *Diopsis* sp. 2 as *apicalis,* which also leads to the conclusion that his *Diopsis* sp. 2 and the specimens identified by BRUNETTI (1926a) as *apicalis* are as yet an unnamed species.

For the differences between *apicalis* and *tenuipes* listed by SPEISER (1910) and SÉGUY (1955) see LINDNER (1962).

Of the *D. apicalis* from Zaïre one ♀ carried a specimen of *Laboulbenia diopsis* Thaxter on the head. Of the *D. apicalis* from Togo 2 ♀♀ carried each 1 specimen of *L. diopsis* on the scutellar spines and one ♂ had 14 *L. diopsis* on the head and legs and 3 *Rhizomyces circinalis* Thaxter on the ventral side of the abdomen.

Diopsis fumipennis Westwood, 1837

Diopsis fumipennis Westwood, 1837a: 302, pl. 9, fig. 9.
... *punctiger* Westwood, 1837a: 302.
... *atricapillus* Guérin-Méneville, 1837—1844 (vol. 2b): pl. 103, fig. 9. **syn. nov.**
... *fumipennis fascifera* Eggers, 1925: 475. **syn. nov.**

Distribution: Senegal, Niger, Chad, Guinea, Sierra Leone, Ivory Coast, Cameroon, Congo R. P., Zaïre, Ethiopia, Tanzania, Malawi, Mozambique, Zimbabwe, South Africa.

Material examined: 7 ♀♀, 7 ♂♂ from Kivu, Lwiro, Zaïre, XI./XII. 1966. 5 ♀♀, 2 ♂♂ from Sokodé, Togo, 7. IV. 1976.

The synonymy of *punctiger* with *fumipennis* has been mentioned earlier (FEIJEN in press). As difference between the two WESTWOOD species *fumipennis* and *punctiger* the black scutellar spines belonging to *trentepohlii* have been used several times (BRUNETTI 1926a, SÉGUY 1953). WESTWOOD already mentioned the similarity between *fumipennis* and *punctiger* and the gradual differences he mentioned in size, blackness of the thorax and infuscating of the alar disc fall well within the range of variation of this somewhat variable but unmistakable (only species with a black head, yellow scutellar spines and apical wingspot) species. Because of this same variation, there is no reason to distinguish the variety *fascifera* Eggers in *D. fumipennis* (see also LINDNER 1962).

GUÉRRIN-MÉNEVILLE's description of *atricapillus* is rather short, but the following characteristics give sufficient information to recognize it as a *fumipennis:* black head; slender legs of a yellowish colour with tibia 1 and the distal part of tibia 3 and tarsi brownish; wings somewhat infuscated and with a small brown

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apical spot; scutellar spines large and yellow with a black tip. The description and drawing of this species given by WESTWOOD (1837b) is wrong with regard to the apical wing spot which in GUÉRIN's drawing and description is a distinct spot, whereas WESTWOOD only mentions and depicts a small infuscated edge at the tip of the wing. WESTWOOD only saw GUÉRIN's manuscript.

LINDNER (1962) remarked that later investigations would perhaps show that *fumipennis* and *apicalis* have a closer relationship, but the morphological differences (see also the discussion under *phlogodes*) and the differences in habitat (*fumipennis* is more a forest species, like *phlogodes*) establish *fumipennis* and *apicalis* as clearly distinct species.

Of the specimens from Togo 1 ♀ carried 51 specimens of *Stigmatomyces diopsis* Thaxter. Of the flies from Zaïre 2 ♀♀ and 4 ♂♂ carried Laboulbeniales (2 ♀♀ with resp. 14 and 2 specimens of *Stigmatomyces porrectus* Thaxter on the wing, 2 ♂♂ with resp. 7 and 1 specimens of *Rhizomyces cornutes* Thaxter on the ventral surface of the abdomen, 1 ♂ with 2 *R. cornutes* on the ventral surface of the abdomen and 4 *Stigmatomyces* sp. on the legs and 1 ♂ with 10 *S. porrectus* on the legs.

Diopsis lindneri sp. nov.

Diopsis lindneri sp. nov. Figures 1a, 2a, 3a.

Type material: 1 ♀ holotype, 1 ♂ paratype from Sokodé, Togo, 7. IV. 1976. 1 ♀ paratype from Mango, Togo, 8. IV. 1976. Collector Dr. G. G. M. SCHULTEN. It is my pleasure to name this species in honour of Prof. Dr. E. LINDNER.

Measurements: eyespan holotype 8,2 mm, ♂ paratype 7,6 mm, ♀ paratype 7,8 mm; length of the body 8,1 mm, 6,5 mm, 8,2 mm resp.; length of wing 6,2 mm, 4,7 mm, 6,4 mm resp.; length of scutellar spine 1,8 mm, 1,5 mm, 1,7 mm resp.

Head: light reddish brown, shining, ocellar tubercle and arcuate groove black, front smooth, sides of face only slightly convergent, strong facial teeth; eyestalks light reddish brown, broad apical part black pollinose, IOB small but strong, OOB slightly larger than IOB; antennae light brown, somewhat pollinose, arista black, subdorsal; eyes reddish; head and stalks with regularly distributed white hairs.

Thorax: shining black (including collar and scutellum), a very small pollinose stripe above the scutoscutellar suture, anteriorly of the intra scutal suture dorso-laterally a little pollinosity; lateral section of the collar, first (except for the most dorsal part) and third pleural segment, katepimeron 2, subalares and postnotum gray pollinose; the large second pleural segment shining black with almost no pollinosity; strong pleurotergal spines light brown, shining, pointing in the same direction as scutellar spines; scutellar spines long and straight, 3x lenght of scutellum, diverging at an angle of about 65°, glossy light brown with black apical points; thorax with sparse long white hairs, especially above the intra scutal suture and below the wing base.

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Wing: except for the base covered with microchaetae, which give it a greyish appearance, veins brown, 3rd longitudinal vein apically from junction with 2nd vein darker brown, 5th vein also somewhat darker, reaching the margin; disc infuscated, especially around anterior cross-vein and central third of 3rd vein and somewhat less around apical parts of 2nd, 4th and 5th vein and posterior cross-vein; large brownish apical spot, in submarginal cell extending to halfway tip of marginal cell and wingtip, in 1st posterior cell pointing towards the centre, reaching level of tip of the marginal cell, in the 2nd posterior cell only a small anterior apical part forms part of the spot; in the submarginal cell, between the tip of the marginal cell and the apical spot, and in the centre of the first posterior cell, distally of the apical spot, are 2 conspicuous whitish spots; halteres white.

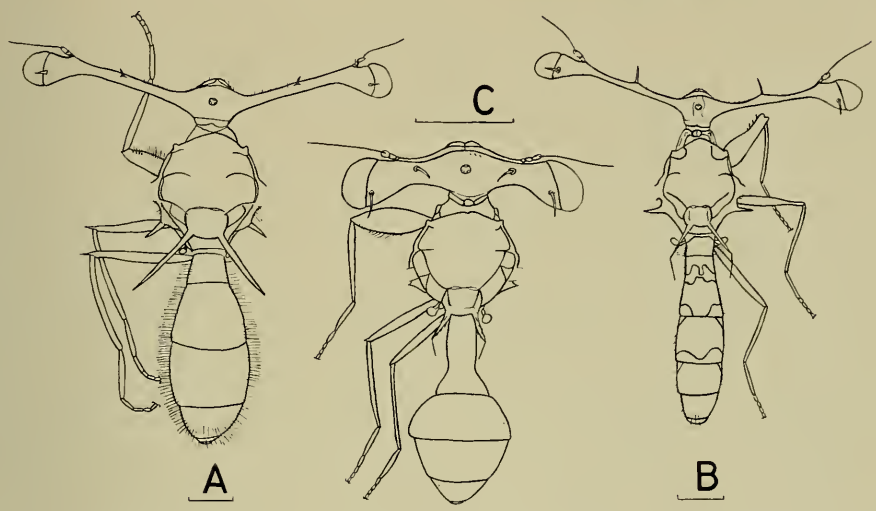

Figure 1. Dorsal view of A) *Diopsis lindneri,* B) *Diasemopsis jillyi,* C) *Diopsina schulteni.* Scale unit 1 mm.

Legs: coxa 1, trochanter 1 and femur 1 light brown, tibia 1 dark brown, distal part somewhat lighter, tarsi 1 dark brown, femur 1 only slightly incrassate; coxa 2, trochanter 2 and distal part of femur 2 very light brown, femur 2 further light brown, tibia 2 and tarsi 2 slightly darker; coxa 3, trochanter 3 and femur 3 light brown, lateral sides of distal part of tibia 3 dark brown, tarsi 3 dark brown; distal part of coxa 1 pollinose; pulvilli whitish, apical half of claws black; all legs with white hairs, especially on femur 1, metatarsi of all legs covered with a white to light brown pubescence on ventral side, hairs on tarsi black; at the apical end of femur 1 two rows of about 8 small black spines.

Abdomen: dorsally reddish brown, shining; ventrally light brown with brownish lateral spots at the posterior ends of the segments; lateral parts with many long white hairs; shape moderately clavate in ♀, in ♂ more slender.

The holotype carried 12 *Laboulbenia diopsis* Thaxter on the scutellar spines.

The species is closely related to *D. apicalis,* from which it is distinguished by the different wing pattern (in *apicalis* the apical spot is more rounded, the disc

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less infuscated and no white spots distally of the apical spot are present), the pollinosity of the thorax (in *apicalis* the scutellum is pollinose and the shining spot on the pleura only comprises a round section above the base of coxa 2) and the hairiness (*apicalis* having less and shorter hairs, especially on femur 1). Under *D. trentepohlii* a key is given to distinguish the African *Diopsis* species with a large apical wing spot.

Diopsis phlogodes Hendel, 1923

Diopsis phlogodes Hendel, 1923: 37.
... *cruciata* Curran, 1934: 15.

Distribution: Benin, Cameroon, Fernando Po, Zaïre, Uganda, Kenya, Malawi, Mozambique, Zimbabwe.

Material examined: 3 ♀♀ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

As Curran remarks, this species looks very much like *D. apicalis,* but the presence on the mesonotum of a very broad longitudinal and transverse band of cinereous pollen (forming a cross) distinguishes it at once. In the field, the two large glossy black spots, formed by this cross below the intra scutal sutures, especially attract the eye. *D. fumipennis* and *D. eisentrauti* Lindner have exactly the same pollinose cross on the thorax, but *D. fumipennis* is distinguished by its black head, and *D. eisentrauti* by its white anterior tarsi. Although *D. phlogodes* is for instance in Malawi one of the most numerous species, it has not often been cited in literature. This is probably due to the fact that it has often been confused with *D. apicalis (D. tenuipes),* to which it bears a strong, but superficial, resemblance. In the museums it is often to be found under one of these names. However, for morphological as well as ecological reasons, *D. phlogodes* should be regarded as closely related to *D. fumipennis* and not to *D. apicalis. D. phlogodes* is an inhabitant of rainforests and other wet forests and *D. apicalis* is a species of the savannah (rice fields, boards of small rivers and lakes, etc.).

The synonymy of *cruciata* with *phlogodes* has already been mentioned briefly (Feijen in press). The descriptions of Hendel and Curran agree well with each other. Hendel's description is probably only inaccurate when he states: scutellum, its spines and those of the thorax, the abdomen and legs yellow-red. The scutellum itself is namely black pollinose with, as Curran says, ‚pollen of scutellum becoming brown apically'. In their keys Séguy (1955) and Lindner (1962) mention, as difference between *apicalis* and *phlogodes,* that the first femur is slender in *apicalis* and incrassate in *phlogodes.* Hendel, however, states for *phlogodes:* femur hardly incrassate. In fact the femur of *apicalis,* although not swollen, is thicker than that of *phlogodes.*

Diopsis trentepohlii Westwood, 1837

Diopsis trentepohlii Westwood, 1837b: 546, pl. 28, fig. 6.

Distribution: Senegal, Guinea, Togo, Cameroon, Zaïre.

Material examined: 1 ♂ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

This species has often been confused with *D. fumipennis* (see under *fumipennis).*

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This specimen was parasitized by a young stage of *Rhizomyces* sp.

The various African *Diopsis* species with a large apical wing spot can be distinguished in the following way:

1 pollinose cross on the thorax 2
— dorsal thorax shining 5
2 head black 3
— head brown 4
3 scutellar spines and legs yellowish . . . . *fumipennis (punctiger)*
— scutellar spines thick and black, wing spot dark . . . . *trentepohlii*
4 anterior tarsi brown . . . . . *phlogodes (cruciata)*
— anterior tarsi white . . . . . *eisentrauti*
5 femur 1 very incrassate, disc hyaline . . . *Diopsis* sp. 2 of DESCAMPS
— femur 1 moderately incrassate, disc infuscated 6
6 scutellum pollinose, wing spot rounded . . . . *apicalis (tenuipes)*
— scutellum shiny, two white spots before apical wing spot . . *lindneri*

This key does not deal with *D. assimilis* Westwood 1837a and *D. abdominalis* Westwood 1837a of which the origin is unknown. LINDNER (1962) identified specimens from Cameroon as belonging to *assimilis*. His specimens are characterized by their red-brown scutellum. In his drawings WESTWOOD certainly showed the scutellum as red-brown but his description clearly states: ‚prothorax et scutellum obscurè picea'. LINDNER's specimens have an apical wing spot which is pointed towards the disc, whereas WESTWOOD stated ‚maculâ apicali rotundatâ nigra' (as also shown in the drawings). LINDNER's specimens are anyway clearly distinct from the species mentioned in the key above. If *assimilis* and *abdominalis* prove to be African species, they can be included in the key using as characters for *assimilis* — thorax pollinose ‚haud nitidus', head brown, scutellar spines yellow, F1 incrassate, disc infuscated, abdomen yellow-brown — and for *abdominalis* — thorax pollinose (?), head brown, scutellar spines and metathoracic spines black, abdomen blackbrown —. WESTWOOD was not fully convinced of the validity of *abdominalis*, but to me the differences he mentioned between *assimilis* and *abdominalis* seem to be valid.

The *Diopsis* species with a small apical wing spot as *finitima* Eggers, and *surcoufi* Séguy and various as yet undescribed species from Malawi I consider as belonging to a different group, characterized by its slender body form and relatively short stalks (this group also includes the species *absens* Brunetti and *micronotata* Brunetti).

Diopsis circularis Macquart, 1835

Diopsis circularis Macquart, 1835: 486.
. . . *macquartii* Guérin-Méneville, 1837—1844 (vol. 3b): 554.
. . . *aries* Hendel, 1923: 39. **syn. nov.**
. . . *globosa* Curran, 1931b: 9. **syn. nov.**

Distribution (including distribution of *D. circularis* wrongly identified under other names): Senegal, Cameroon, Zaïre, Kenya, Angola, Malawi, South Africa (not in Asia!).

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Material examined: 2 ♀♀, 1 ♂ from Sokodé, Togo, 7. IV. 1976.

This species has been one of the most complicated species in the Diopsidae history, MACQUART (1835) originally described the species ‚Des Indes', later (1843) followed by ‚De Java' and in 1846 he stated that *circularis* also occurs at the Cape (South Africa). VAN DER WULP has been the only one who, since MACQUART recorded *D. circularis* from Java. From his description (e. g. four brown fasciae on the wing, and the form of the head) it is, however, clear that his specimens do not belong to *circularis*. VAN DER WULP himself was not completely convinced of his identification stating: MACQUART's description and drawings seem to fit my specimens. He thought, however, that MACQUART's bad drawings together with the differences in the drawings of 1835 and 1843) would explain the variations (especially in the banding of the wings). From the fact that 1) MACQUART's description clearly fits an African species, 2) MACQUART later mentioned *circularis* as also occuring in Africa and 3) *D. circularis* has never been recorded again from Asia (except for the wrong identification by VAN DER WULP), it should be clear that *D. circularis* is an African species only. VAN DER WULP stated that MACQUART more often made wrong statements about the origin of species described by him. In fact MACQUART made the same mistake with another Diopsid, as *Diopsis subfasciata*, described by him from Java (and since then never again recorded), is no doubt a synonym of the African *Diasemopsis meigenii* (see under *meigenii*).

MACQUART's original 29 word description is rather inadequate but his extended description of 1843 gives enough information to recognize the species. The abdomen he describes as black, which should be extended to: glossy black with only the last small visible dorsal segment pollinose. In his original description he described the legs with ‚genoux et tarses antérieurs et intérmediares fauves'. In his extended description he changed this to ‚pieds noir; cuisses antérieures fauves, plus ou moins brunâtres, a extrémité fauves; jambes postérieures terminées par une pointe, tarses fauves'. In my specimens from Malawi the anterior legs are red-brown with coxa darker and femur reddish, while the other legs are brown with lighter coloured tarsi. In the specimens from Togo the legs, as a whole, are darker but with the same pattern (1st leg brown, coxa darker, femur ligther; 2nd and 3rd leg dark brown, tarsi lighter). The specimens SÉGUY (1955) identified as *curva* with 1st leg reddish, also probably belonged to *circularis*.

GUÉRIN-MÉNEVILLE (1837—1844) stated that his new species *macquartii* had to be placed ‚entre' *D. ornata* and *D. circularis*. Although he also had *D. circularis* in his collection, he did not point out any difference with this species. Perhaps he considered the difference in locality (Java and Senegal) enough reason for describing *macquartii*. STEYSKAL (1972) only considered *circularis* of authors (African records) as synonymous with *macquartii*.

It is not clear where SÉGUY got the information that *macquartii* has two lateral greyish spots on the abdomen, which would place *macquartii* in synonymy with *pollinosa* Adams. The description of the leg colour (with the lighter coloured femur 1), however, also points in the direction of *circularis*. GUÉRIN-MÉNEVILLE described the wings of *macquartii* as identical to those of *circularis*. There are, however, some small but clear differences between the wings of *cir-*

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cularis and *pollinosa*. The fasciae of *circularis* are darker and somewhat broader than in *pollinosa*. The part of the first fascia in the marginal cell forms in *pollinosa* a light coloured triangle with the base on the auxiliary vein, while in *circularis* this part is much darker and forms a real band. The second fascia is larger in *circularis* and more circular, especially the part in the posterior cell is more extended apically. The third fascia is in both species connected to the ligther coloured apical spot. In *pollinosa* this fascia is somewhat variable (see under *pollinosa)* but it does extend posteriorly only halfway to the 2nd posterior cell, whereas in *circularis* it extends to the posterior wing margin. In *circularis* is the 3rd band broken up into three parts, one in the marginal and submarginal cell and one each in the 1st and 2nd posterior cell.

Curran (1931b) described the abdomen of *globosa* as wholly shining reddish brown or black which places it in synonymy with *circularis*. He distinguished it from *macquartii*, because *macquartii* should have the 4th, 5th and 6th segments of the abdomen cinereous pollinose.

Dr. Duffels, who compared *D. circularis* with the type of *globosa* noted the similarity in wing markings and colour of the legs. He also noted that *circularis* and *globosa* have a more slender body form, whereas *munroi* Curran (= *pollinosa*) is more compact. *D. circularis* is in general somewhat larger than *pollinosa*. Curran still mentioned that his specimen from Zaïre has the middle and hind femora much darker (a *circularis* characteristic) than in his South African examples. Curran described a minute IOB and a strong OOB for *munroi*. The IOB is, however, often absent.

Although I have not yet seen specimens of *D. aries* in the Naturhistorisches Museum Wien, I am quite convinced that this species of Hendel is also a synonym of *D. circularis*. Hendel's description of the head is especially characteristic of *circularis:* head strikingly wide and large, almost as wide as the thorax and twice as wide as the collar. Hendel noted the OOB but did not see an IOB. The description of the wing agrees well with *circularis*. Hendel did not describe the leg colour in detail. He only described the whole fly as very black with knees and tarsi red-brown and the tarsal segments of the anterior leg darker before the tip. The abdomen he described as dorsally smooth, but only slightly glossy. This last characteristic places *aries* in synonymity with *circularis*.

Diopsis ornata Westwood, 1837

Diopsis ornata Westwood, 1837b: 549, pl. 28, fig. 12 (replacement name for *Diopsis fasciata* Guérin-Méneville).
. . . *fasciata* Guérin-Méneville, 1837—1844 (vol. 2b): pl. 103, fig. 8.
. . . *curva* Bertoloni, 1861: 46, pl., fig. 3. **syn. nov.**

Distribution: Senegal, Sierra Leone, Ivory Coast, Cameroon, Zaïre, Uganda, Tanzania, Malawi, Mozambique, South Africa.

Material examined: 3 ♀♀, 6 ♂♂ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

This species is easily recognized by the four dark fasciae (including the apical spot) of the wing. Bertoloni's description of *curva* fits that description in detail. Séguy (1938 and 1955) no doubt identified the wrong species as *D. curva*.

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In his key SÉGUY distinguished *ornata* from *curva* by stating that in *curva* the preapical (3rd) fascia is not distinct from the apical spot. However, BERTOLONI clearly stated that the wing of *curva* has four fasciae and that the 3rd (preapical) fascia is separated from the second and from the last (4th) fascia by white spaces. SÉGUY separated his *curva* from the Diopsids he identified as *macquartii* and *circularis* by its reddish front legs. BERTOLONI, however, described the legs of *curva* as dark and slightly lighter than the black body. Further I have collected *D. ornata* in the same region (Inhambana, Mozambique), where the type of *curva* comes from.

The species identified by SÉGUY as *curva* is likely to have been *D. circularis* (see also under *D. circularis*). As the *D. curva* mentioned by DESCAMPS (1957) were identified by SÉGUY, this identification was probably incorrect.

D. ornata has a small OOB and a miniscule IOB. Both bristles are however often lacking. Of the nine specimens collected in Kivu 2 ♂♂ had, instead of the normal black-brown legs (with slightly lighter tarsi than the rest of the leg), light brown legs with the femur slightly lighter than the other segments. Although I have never observed this trait before (neither in the hundreds of *D. ornata* I collected in Malawi) I can for the moment consider these two specimens only a variety of *D. ornata*, as other significant differences with *ornata* could not be found.

One of the ♂♂ with black legs carried two species of *Laboulbeniales:* 12 specimens of *Rhizomyces* sp. on the ventral part of the abdomen and one specimen of *Stigmatomyces* sp. on the thorax.

Diopsis pollinosa Adams, 1903

Diopsis pollinosa Adams, 1903: 45.
. . . *conspicua* Eggers, 1925: 480, pl. 9, fig. 6. **syn. nov.**
. . . *munroi* Curran, 1929: 13. **syn. nov.**

Distribution: Tanzania, Malawi, Zimbabwe, South Africa.

Material examined: 2 ♀♀, 7 ♂♂ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

This species can be distinguished from *D. ornata* by its three dark fasciae. There is no separation between the 3rd fascia and the ligther coloured apical spot. This species is distinguished from *D. circularis* by its abdomen. The abdomen of *pollinosa*, as described by ADAMS, is black with the first segment grey pollinose, the 2nd and 3rd segments shining with lateral grey pollinose spots and the remaining segments wholly gray pollinose. The abdomen of *circularis* is wholly glossy black. The abdomen of *ornata* is black with lateral gray pollinose spots on the 3rd segment and the last segments gray pollinose. ADAMS described the legs of *pollinosa* as reddish brown, anterior tibia dark brown, anterior metatarsus testaceous, other joints brown and middle and posterior tarsi pale brown. The legs of the specimens from Kivu agree reasonably well with this description. In these specimens the anterior legs are somewhat lighter brown than the dark-brown middle and posterior legs. The tibia and tarsi of the anterior legs are somewhat darker than the rest of these legs and of the middle and posterior legs the tarsi are somewhat lighter.

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In my collection from Malawi I initially distinguished two forms of *pollinosa* differing in leg colour and wings. As there was some overlap in these characteristics and no differences could be found in the male genitalia, it was decided to regard the characteristics leg colour and wings as somewhat variable in *pollinosa*. In the first form all legs were dull brown with only the tibia and tarsi of the anterior leg somewhat darker. In the second form tibia and femur of the anterior leg were brown with the coxa and tarsi lighter, whereas the middle and posterior legs were dark-brown with lighter coloured tarsi.

Only Eggers (1925), in his description of *conspicua* mentions an OOB and a very small IOB, but these bristles as in *ornata* are often lacking.

Séguy (1955) mentions *conspicua* as a synonym of *macquartii*. Séguy distinguished his *macquartii* from *circularis* by the abdomen, which has two lateral grey spots in *macquartii* and is glossy in *circularis*. Furthermore he stated that the wing markings are darker in *circularis*. Steyskal (1972) placed *circularis* (of authors) in synonymity with *macquartii* and consequently also placed *conspicua* in synonymity with *circularis*. Both Guérin-Méneville and Macquart described the abdomina of their species (resp. *macquartii* and *circularis*) as black and did not mention grey lateral spots. This is not likely to be an omission, because these spots are quite obvious. The descriptions of the leg colours give additional evidence as both Guérin-Méneville and Macquart mention for their specimens a brown (Guérin-M.) or red-brown (Macquart) femur of the first leg as compared with darker brown or black middle and posterior legs. Eggers described the first femur of *conspicua* as brown to black-brown. Therefore *conspicua* should not be regarded as a synonym of *circularis/macquartii* but as a synonym of *pollinosa*. The descriptions of *pollinosa* and *conspicua* fit each other well. Only in the leg colour are there some minor differences, but these are of the same type as the differences I found in Malawi.

Curran (1929 and 1931b) described two new species in the *Diopsis* group with banded wings. Unfortunately he only refers to *macquartii* in his descriptions and not to the species of Adams, Eggers and Hendel. His description of *munroi* is rather short. The description of the abdomen (shining black with gray pollinose spots on the 2nd and 3rd segment) places his species in synonymity with *pollinosa* (although these spots are somewhat larger in *pollinosa*). He described the eyestalks as without bristles, but the small bristles of *pollinosa* are easily lost. The legs he described as castaneous with reddish tarsi which, being a rather short description, does not contradict those of *pollinosa* and *conspicua*. His diagnosis of the wing — brown, the basal fourth hyaline, three fasciae whitish — is rather unlucky, as this would indicate an *ornata*. From his key (1928b) it is, however, clear that he knows the difference between *ornata* and *macquartii*. With the 3rd whitish fascia Curran probably meant the light apical spot. Dr. Duffels who examined the paratypes of *munroi* stated that the 3rd dark fascia was not a continuous band but consisted of three clearly separated spots.

In my *pollinosa* from Malawi this also proved to be a variable character with some flies having a more or less continuous band and others a band divided into three parts.

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One of the ♀♀ collected in Kivu carried Laboulbeniales (six specimens of *Rhizomyces* sp. on the ventral side of the abdomen).

In this paper the number of African *Diopsis* species with banded wings, is reduced to three species, which can be distinguished in the following way:

1 one whitish fascia apically of the median brown spot 2
— two whitish fasciae apically of the median brown spot, one pair of lateral spots on the abdomen . . . . . *ornata*
2 abdomen glossy black . . . . . *circularis*
— abdomen with two pairs of lateral spots . . . . . *pollinosa*

Whether it is worth-while to introduce a new genus for this small group still has to be considered. The relationship especially with the other blackish *Diopsis* species (e. g. *gnu* Hendel) has still to be studied.

Diasemopsis fasciata (Gray, 1832)

Diopsis fasciata Gray, 1832: 773, pl. 123, fig. 3.
Diasemopsis fasciata, Brunetti, 1926a: 173.

Distribution: Senegal, Guinea, Sierra Leone, Benin, Nigeria, Cameroon, Fernando Po, Zaïre, Kenya, Malawi, Mozambique, South Africa.

Material examined: 2 ♀♀ from Assahoun, Togo, 11. IV. 1976, 1 ♀ from Palimé, Togo, 17. IV. 1976.

Diasemopsis jillyi **sp. nov.**

Diasemopsis jillyi sp. nov. Figures 1b, 2b, 3b.

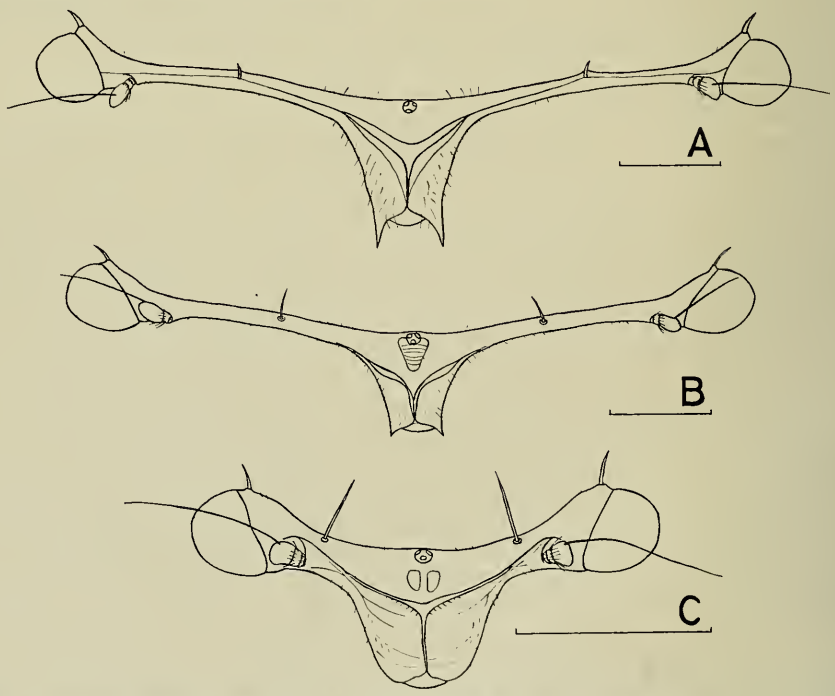

Figure 2. Anterior view of head of A) *Diopsis lindneri*, B) *Diasemopsis jillyi*, C) *Diopsina schulteni*. Scale unit 1 mm.

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Type material: 1 ♂ holotype, 1 ♂ paratype from Kivu, Lwiro, Zaïre, XI./XII. 1966. The species is named in memory of Dr. Th. JILLY, its collector.

Measurements: eyespan holotype 7,4 mm, paratype 7,4 mm; length of body 7,4 mm, 7,1 mm resp.; length of wing both 5,7 mm; length of scutellar spines both 1,1 mm.

Head: darkbrown to black, pollinose; post occiput, post occipital ridge, ocellar tubercle and frons directly in front of it, shining black; frons with about eight transversal ridges enclosed by two ridges running from laterally of the ocellar tubercle to the centre of the arcuate groove; arcuate groove, except for centre, and dorsal part of facial sulcus glossy brown; ventral edge of face and facial teeth brownish, sides of face moderately convergent, facial teeth short but distinct, eyestalks brown pollinose, broad apical part black pollinose; IOB moderately long, OOB shorter and stronger, both on small tubercle; antennae light brown, arista black, dorsal; eyes dark brown (in paratype more reddish); face and stalks with white hairs.

Thorax: black with a greyish brown pollinose covering (including scutellum), collar shining black, intrascutal suture and suture around prescutal lobe shining black; pleura pollinose; pleurotergal spines strong, brown, pointing in lateral direction; scutellar spines long (2½x scutellum), brown, distal half pollinose, diverging at an angle of about 65°, apical bristle about half the lenght of the spine; one pair of prescutellar bristles, only some sparse whitish hairs on lateral sides of thorax and on the scutellum.

Wing: hyaline, covered with small microchaetae, only a very small edge at the tip of the submarginal and 1st posterior cell slightly infuscated; 5th vein not reaching the margin; halteres white.

Legs: coxa 1 white to light brown, trochanter 1 and femur 1 brown, tibia 1 and metatarsus 1 dark brown, other tarsi 1 somewhat lighter; coxa 2, trochanter 2 and femur 2 light brown, apical third of femur 2 darker, tibia 2 and tarsi 2 brown; third leg identical to 2nd leg, central section of tibia 3 somewhat lighter; ventral side of metatarsi (especially 1 and 3) with many short hairs; femur 1 incrassate, apical half of femur 1 with two outer rows of four big spines and two inner rows of small spines; all legs with short white hairs, on femur 1 some long hairs.

Abdomen: base (small first segment) black pollinose, large ‚second' segment black with, before the distal end, a very irregular band with a constriction in the centre; the band is of a silvery grey shining pollinosity as the other spots on the abdomen; at the apical end of the second segment two lateral spots, connected with two small distal spots on the ‚third' segment, third segment black also with two lateral spots at the apical end, these spots are connected in the middle; the apical spots on the third segment are connected with two distal lateral spots on the fourth segment; the 4th, 5th, 6th and 7th segments are black pollinose, except for the distal centre of the 4th segment, which is black; ground colour of ventral abdomen brown but covered with a greyish white pollinosity, except for the segment anteriorly of the genital region; lateral sides of ventral abdomen with three pairs of brown spots; external genitalia yellowish; laterally around abdomen sparse white hairs; shape of abdomen slender.

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This species is characterised by its black head, with typical frons and brown markings, by its distinct facial teeth, its black collar, practically hyaline wings and by the markings of the dorsal abdomen. Following CURRAN's (1931a) key (which can only be used with great care) only *robusta, terminata (furcata), elongata, longipedunculata* and *disconcertata* have facial teeth and a black or brown collar. Of these *elongata* and *disconcertata* have a reddish head and non-uniformous wings. The two *Diasemopsis* species of MACQUART — *terminata* and *furcata* — should be considered ‚species incertae sedis', owing to the completely inadequate descriptions (both 43 words long). *D. robusta* is distinguished by its robust form and the four small spots on the abdomen. *D. longipedunculata* has very long eyestalks and a reddish head. Of the species not included in CURRAN's key or later described, none have the combination of facial teeth, black collar and hyaline wings.

Diasemopsis subfuscata Brunetti, 1926

Diasemopsis subfuscata Brunetti, 1926b: 79.

Distribution: Zaïre

Material examined: 1 ♀ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

D. subfuscata is one of the many *Diasemopsis,* which never have been recorded after their original description. BRUNETTI's type is from Beni in Zaïre which is quite close to the origin of the present specimen. It seems likely that many *Diasemopsis,* often having a strong preference for rainforests and mountainous regions, have a more limited distribution than many *Diopsis* species. *D. subfuscata* belongs to the group of *Diasemopsis* without facial teeth, but has, as BRUNETTI remarked, ‚lower corners of head rather angular'. The specimen from Kivu has a long IOB and an OOB of about half the lenght of the IOB. BRUNETTI did not mention anything about these bristles. The scutellar spines are 2½x the length of the scutellum and only slightly divergent. BRUNETTI only said that the spines were longer than in *furcata.* The apical bristles are less than half the length of the spines. The apical bristles in BRUNETTI's specimen were broken off. Colour of head, thorax, abdomen, legs and wing (uniform) are identical to those in BRUNETTI's description. The front femora are somewhat incrassate. BRUNETTI compared the species with *Diopsis furcata* Macquart, which he misspelt as *fuscata,* hence the name *subfuscata.*

Diasemopsis sp.

Diasemopsis sp.

Material examined: 1 ♀ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

This species has no facial teeth, the lower corners of the head are rounded. The species further has a brown head, strong IOB, blackish thorax, blackish abdomen with faint spots and unmarked wings. I could not match it to any of the existing descriptions. As it is only a single specimen and in a rather poor condition (having for instance only three legs) I do not consider it worth-while to describe it as a new species.

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Diasemopsis jeanneli Séguy, 1938

Diasemopsis jeanneli Séguy. 1938: 357.
Distribution: Ethiopia, Kenya, Tanzania.
Material examined: 1 ♀, 2 ♂♂ from Kivu, Lwiro, Zaïre, XI./XII. 1966.

Séguy's description should be extended with: collar more shining than rest of thorax, last three segments of anterior tarsi whitish. This species is clearly related to various other *Diasemopsis* species with an infuscated apical part of the wing as described by Curran and Brunetti, e. g. *Diasemopsis fuscivenis* (Brunetti).

Diasemopsis meigenii (Westwood, 1837)

Diopsis meigenii Westwood, 1837b: 548, pl. 28, fig. 9—10.
... *subfasciata* Macquart, 1843: 395, pl. 32, fig. 3.
(Described from Java!) **syn. nov.**
... *leucochira* Bezzi, 1908b: 387. **syn. nov.**
Diasemopsis meigenii, Brunetti, 1926a: 173.
Chaetodiopsis meigenii, Séguy, 1955: 1108.
Material examined: 1? from Palimé, Togo, 17. IV. 1976.
Distribution: Senegal, Guinea, Sierra Leone, Ivory Coast, Ghana, Nigeria, Cameroon, Zaïre. Ethiopia, Tanzania, Zambia, Malawi, Mozambique, Zimbabwe, South Africa.

The description of *subfasciata* fits that of *meigenii* in detail. The only reason why this has not been pointed out before must be that Macquart mentioned Java as the origin of his species. The species has never since been recorded. Since Macquart also mentioned a wrong origin for *circularis*, there is no doubt that *subfasciata* is an African species and a synonym of *meigenii*. Macquart described *subfasciata* as being without IOB, but this bristle is small and easily overlooked or lost.

Lindner (1962) named *Diasemopsis breviseta* Bezzi 1908a as a synonym of *meigenii*. Lindner himself remarked that Bezzi described the front tarsi of *breviseta* as black, whereas the white front tarsi of *meigenii* are one of its most striking characteristics (also in the field). For this reason *breviseta* cannot be a synonym of *meigenii*, although it is certainly a species related to *meigenii*. By coincidence one of the other two species described by Bezzi, *D. leucochira*, is a synonym of *meigenii*. Although the description of *leucochira* is not more than a diagnosis, it mentions all important characteristics of *meigenii* (including the white front tarsi).

Séguy (1955) created for *meigenii* the genus *Chaetodiopsis*. Following the remarks of Van Bruggen (1961) and Shillito (1971) I see no reason at present to maintain this genus, although I do consider *meigenii* for morphological and ecological reasons a rather aberrant *Diasemopsis*.

Sphyracephala beccarii (Rondani, 1873)

Diopsis beccarrii Rondani, 1873: 289.
Sphyracephala beccarii, Bezzi, 1908b: 166.

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... *africana* Karsch, 1887: 380.

Distribution: Algeria, Cameroon, Zaïre, Ethiopia, Tanzania, Rwanda, Malawi, Mozambique, Zimbabwe, Namibia, South Africa.

Material examined: 1 ♂ from Mission Tové, Togo, 15. IV. 1976.

Diopsina schulteni sp. nov.

Diopsina schulteni sp. nov. Figures 1c, 2c, 3c.

Type material: 1 ♀ holotype from Sokodé, Togo, 7. IV. 1976. The species is named after its collector Dr. G. G. M. SCHULTEN.

Measurements: eyespan 2,5 mm, length of body 3,8 mm, length of wing 2,6 mm, length of scutellar spine 0,4 mm.

Head: Shining brown, ocellar tubercle black, frons darker brown and somewhat pollinose, two vague depressions in front of ocellar tubercle; arcuate groove narrow and black, on the ventral edge of the arcuate groove about seven small grooves on both sides of the face, pointing in latero-ventral direction; whole head strongly built, corners of face rounded, no facial teeth; eyestalks short and strong, glossy brown, broad apical part shining black; IOB long and strong, pointing upward, OOB shorter, pointing backward, both arising from a small tubercle; antennae brown pollinose, tip of last segment black pollinose, edge of second segment with row of about 12 small bristles, arista long and black, subdorsal; eyes dark, reddish underneath; head with some small, sparse hairs.

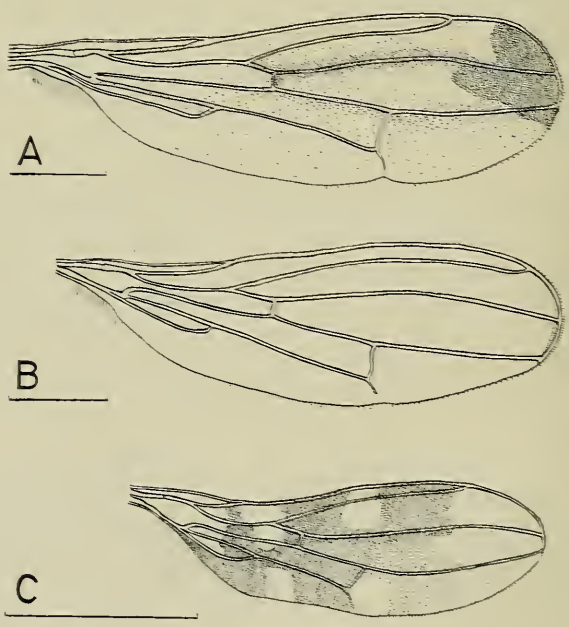

Figure 3. Wing of A) *Diopsis lindneri*, B) *Diasemopsis jillyi*, C) *Diopsina schulteni*. Scale unit 1 mm.

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Thorax: shining brown (including collar), scutellum also shining brown, but anterior part pollinose; pleurae also shining brown, only base of 3rd leg pollinose; pleurotergal spines small, yellowish, pointing laterally; scutellum distinctly convex, deeper than long (as in all *Diopsina* species); scutellar spines small, 1½x scutellum, distal half whitish, apical half brown, except for lighter tip, spine with about six short bristle-like hairs with distinct warts, apical bristle just shorter than spine, spines diverging at an angle of 45°, spines turning slightly upward and outward; thorax almost bare, a small white hair occasionally, no other bristles.

Wing: except for base, covered with microchaetae; mainly greyish brown, base hyaline except for base of axillary cell; at basal third a band of three light spots, the anterior spot in the marginal cell hyaline, the central spot in the first basal cell and anterior part of discal cell and the posterior spot in 3rd posterior cell not hyaline, this band of three spots is interrupted by a dark band around the 5th vein; in the centre of the wing two light spots, an anterior one in the marginal and submarginal cells and a posterior one at the base of the 2nd posterior cell; the apical sixth of the wing much lighter, borderd by a subapical band of three light spots, one each in the submarginal, 1st posterior and 2nd posterior cells; halteres white.

Legs: coxa 1, trochanter 1 and femur 1 glossy brown (as thorax), femur 1 moderately incrassate, tibia 1 and tarsi 1 lighter brown; 2nd and 3rd leg light brown, preapical part of femora 2 and 3 somewhat darker; on apical third of femur 1 two rows of 10 small black spines; apical spines on femora 2 and 3 very small; ventral side of tarsi with many small white hairs; all legs with sparse black hairs, on ventral side of femur 1 somewhat more and longer; pulvilli white, claws dark.

Abdomen: strongly clavate, 1st segment slender, apical end of 2nd segment extended laterally, 3rd segment 3x broader than 1st segment, width of 4th and subsequent segments diminishing again to apical tip; colour shining brown, 1st segment somewhat pollinose; lateral and apical parts with a few small white hairs; ventral abdomen shining brown.

This *Diopsina* is characterized by its small, compact built, the absence of facial teeth, the absence of bristles on the thorax (except for the apical bristles of the scutellar spines), its baldness, the small pleurotergal spines and short scutellar spines, its glossy brown colour and the lighter apical sixth of the wing. For the relationship with the other *Diopsina* see below.

The genus *Diopsina*

Diopsina has up to now been considered a monotypical genus with as only representative *Diopsina ferruginea* Curran 1928a. The fact that *Diopsina* has for so long been considered a monotypical genus is due to confusion at the generic level. Similarities between *Diopsina* and other genera have been previously indicated by Shillito (1940) and Van Bruggen (1961) (the convergence between *Diopsina ferruginea* and *Cyrtodiopsis africana*), and Shillito (1972) (the synonymy between *Diopsina* and *Phryxodiopsis*). A fourth genus involved in the

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mix-up around *Diopsina* is *Teleopsis* with *Teleopsis nitida* Adams 1903. SHILLITO (1971) mentioned this last species as certainly not a *Teleopsis*.

Examining the short but clear description of *Teleopsis nitida* reveals this species as congeneric, but not conspecific with *Diopsina ferruginea*, leading to *Diopsina nitida* **comb. nov.** The difference between *ferruginea* and *nitida* is, firstly the colour — reddish yellow in *ferruginea* and brown to black in *nitida*. I collected some *Diopsina nitida* in Malawi and am quite certain that the *Diopsina ferruginea* of VAN BRUGGEN (1961) also belongs to *nitida* (VAN BRUGGEN described the scutellum as dark brown, though paler than thorax and abdomen). CURRAN mentioned for *ferruginea* ‚hair on the mesonotum arranged in rows', *nitida* has only some sparse hairs on the mesonotum. CURRAN's drawing (1928b), however, does not show these rows. Both species have three pairs of strong bristles on the mesonotum. *Diopsina ferruginea* bears a pair of long black discal bristles on the scutellum. As the scutellar spines were broken off in CURRAN's type it is possible that one pair of discal bristles also disappeared. *Diopsina nitida* however has, in undamaged specimens, 2 pairs of discal bristles. VAN BRUGGEN described his specimens as ‚scutellum with bristles'. Comparing the wing drawings of CURRAN (1928b) and VAN BRUGGEN there is also some difference in the wings; the hyaline spot in the apical part of the 1st basal cell being in a different position. The measurements mentioned in ADAM's description have obviously been mixed-up. I hope to discuss *D. nitida* in more detail in my following paper on Diopsidae from Malawi.

CURRAN's type of *ferruginea* lacked the scutellar spines, which is rather unfortunate, as form, length, hairs and bristles of the scutellar spines are important characteristics in the genus *Diopsina*. SHILLITO (1940) extended CURRAN's description with a drawing of the scutellum with scutellar spines. He also indicated that CURRAN had confirmed, that the specimen from which this drawing was made, was congeneric with the type of *Diopsina*. A note accompaning this specimen in the British Museum states, however, that CURRAN did not consider it as conspecific, which leaves the scutellar spines of *ferruginea* as still undescribed. SÉGUY (1955) wrongly assumed *Diopsina* to be without scutellar spines, which led him to the introduction of the genus *Phryxodiopsis* with, as sole representative, *Phryxodiopsis kaeleana*. SÉGUY's description of this species clearly shows it to be a synonym of *Diopsina nitida*. The description of the colour ‚Brun noir luisant, pleures d'un brun roux' is very typical for *nitida*. SÉGUY mentioned one pair of bristles and one pair of lateral hairs for the scutellum. SÉGUY also mentioned the strong bases of the IOB and OOB, which are quite typical for *nitida*, especially the base of the IOB, which ADAMS described as a rather enlarged black tubercle. CURRAN's figure of *ferruginea* does not show them, and in the other *Diopsina* species the base of the IOB is not so strong either.

In 1940 SHILLITO described the first representative of the genus *Cyrtodiopsis* in Africa: *Cyrtodiopsis africana*. He mentioned the close resemblance to *Diopsina ferruginea*, but considered them generically distinct. VAN BRUGGEN (1961) also considered the resemblance between these two species as a case of convergence. The seven *D. ferruginea* from Ethiopia mentioned by LINDNER (1962) proved to be *C. africana*. In his latest key SHILLITO (1971) distinguished *Diopsina*

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from *Cyrtodiopsis* by the pair of discal bristles of *Diopsina*. Of the various *Diopsina* mentioned in this paper, *nitida* has two pairs of discal bristles, *ferruginea* probably only one pair, *schulteni* none and a species I still have to describe from Malawi also none, which makes the use of the discal bristles as a generic character difficult. The curved scutellar spines and the strong IOB are characters of *Cyrtodiopsis* which are also found in *Diopsina*. The typical hairiness of *Cyrtodiopsis* as shown in *C. africana* is also found in the *Diopsina* to be described from Malawi. This species is closely related to *C. africana*, distinguished by its deep black colour. This species also has a strong apical bristle on the scutellar spines, which is not mentioned for *africana*, although SHILLITO (in litt.) stated later that it has an apical bristle of about ½ the spine length. The absence (or very weak presence) of this bristle is a characteristic of *Cyrtodiopsis*. On each of the scutellar spines, *africana* and the species from Malawi, have about 20 long black hairs, whereas *nitida* and *schulteni* have about 6 short bristles.

I do not regard the differences in bristles and hairs between *C. africana* and the various *Diopsina* as generic. The similarities in form of head, thorax (especially scutellum and scutellar spines), abdomen and wing pattern are so large, that this should be regarded as a case of close relationship and not of convergence. This leaves the problem, whether *Cyrtodiopsis* and *Diopsina* are synonyms, still to be solved. A comparison between the four *Diopsina* (to be extended to six, see below) and the ten *Cyrtodiopsis* from Asia and Malagasy will have to be made to judge whether it is better to combine them into one genus. *Diopsina* Curran and *Cyrtodiopsis* Frey were both described in 1928. *Diopsina* is from 15th September but since I do not yet know the exact date of FREY's publication, the question of the priority has still to be solved.

Until these generic problems are solved I regard *Diopsina* as an African genus closely related to *Cyrtodiopsis*. The genus *Diopsina* then counts the following species.

Diopsina nitida (Adams, 1903) *(Teleopsis)*. **comb. nov.**
Distribution: Senegal, Cameroon, Malawi, Zimbabwe, South Africa.
kaelena SÉGUY, 1955 *(Phryxodiopsis)*. **syn. nov.**

Diopsina ferruginea Curran, 1928a (Type-species). Distribution: Zaïre.

Diopsina africana (Shillito, 1940) *(Cyrtodiopsis)*. **comb. nov.**
Distribution: Ethiopia, Uganda.

Diopsina schulteni **sp. nov.** Distribution: Togo.

Diopsina sp. (still to be described from Malawi).

Diopsina sp. (a brachypterous species from South Africa, still to be described by Dr. B. R. STUCKENBERG — in litt. —).

The first 4 species can be distinguished in the following way:

1 large pleurotergal and scutellar spines, hairy 2
— small pleurotergal and scutellar spines, rather bald . . . *schulteni*
2 discal bristles 3
— no discal bristles, very hairy . . . . . *africana*
3 one pair of discal bristles, reddish ferruginous . . . . *ferruginea*
— two pairs of discal bristles, black, IOB with strong tubercle . . *nitida*

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Bibliography

ADAMS, C. F. (1903): Dipterological Contributions. — Kansas Univ. Sci. Bull. 2: 21—47.

BERTOLONI, G. (1861): Illustrazione dei prodotti naturali del Mozambico. — Mem. Accad. Sci. Ist. Bologna 12: 41—60.

BEZZI, M. (1908a): Diagnoses d'espèces nouvelles de Diptera d'Afrique. — Ann. Soc. Ent. Belg. 52: 374—388.

— (1908b): Ditteri Eritrei raccolti dal Dott. ANDREINI e dal Prof. TELLINI. Parte 2. — Bull. Soc. Ent. 39: 1—199.

BRUGGEN, A. C. van (1961): In HANSTROM, B., BRINK, P., and RUDEBECK, G., eds. — South African Animal Life, Results of the Lund Univ. Exped. in 1950—1951, vol. 8: 415—439.

BRUNETTI, E. (1926a): Notes on some Belgian Congo Diptera. — Rev. Zool. Bot. Afr. 13: 165—173.

— (1926b): New species of Diopsidae (Diptera) from the Belgian Congo. — Rev. Zool. Bot. Afr. 14: 73—84.

CURRAN, C. H. (1928a): New Stratiomyidae and Diopsidae from the Belgian Congo (Diptera). — Am. Mus. Novit. 324: 1—5.

— (1928b): Diptera of the American Museum Congo Expedition. Part III. — Bull. Am. Mus. Nat. Hist. 58: 167—187.

— (1929): Nineteen new Diptera from Africa. — Am. Mus. Novit. 340: 1—15.

— (1931a): Descriptions of new species of *Diasemopsis* Rondani (Diopsidae, Diptera). — Am. Mus. Novit. 463: 1—17.

— (1931b): Twelve new Diptera. — Am. Mus. Novit. 492: 1—13.

— (1934): Notes and descriptions of African Diptera. — Am. Mus. Novit. 710: 1—16.

DALMAN, J. W. (1817): Anmärkningar vid slägtet *Diopsis* jemte beskrifningar och teckningar på trenne nya arter. — K. Svensk. Vetensk. Akad. Handl. 38: 211—219.

DESCAMPS, M. (1957): Recherches morphologiques et biologiques sur les Diopsidae du Nord-Cameroun. — Minist. de la France d'Outre Mer, Dir. Élev. For., Sect. Techn. Agr. Trop., Bull. Sci. no. 7: 1—154.

EGGERS, F. O. (1916): On some new and incompletely known species of the family Diopsidae from British East Africa. Nauch. Rez. Zool. Eksped. prof. V. A. Dogelja i I. I. Sokolova v Brit. Vostoch. Afr. i Ungandu v 1914 godu, 1: 3—32.

— (1925): Diopsiden aus Deutsch-Ostafrika. — Zool. Jahrb. (Abt. Syst.) 49: 469—500.

FEIJEN, H. R. (in press): Diopsidae in the Chilwa plain.

FREY, R. (1928): Philippinische Dipteren. V. Fam. Diopsidae. — Notulae Ent. 8: 69—77.

GRAY, G. (1832): In GRIFFITH, E. — The animal kingdom arranged in conformity with its organization by the Baron CUVIER, etc. Vol. 15: 796 pp., pls. 74—126.

GUÉRIN-MÉNEVILLE, F. E. (1837—1844): Iconographie du regne animal de G. CUVIER. Paris, 7 vols. (Diopsidae in vols. 2b and 3b).

HENDEL, F. (1923): Afrikanische Diopsiden (Diptera). — Wien. Ent. Ztg. 40: 33—42.

KARSCH, F. (1887): Bericht über die durch Herrn Lieutenant Dr. C. W. SCHMIDT in Ost-Afrika gesammelten und von der zoologischen Abteilung des Königlichen Museums für Naturkunde in Berlin erworbenen Diptera. — Berlin. Ent. Zts. 31: 367—382.

LINDNER, E. (1954): Ostafrikanische Diopsiden (Dipt.). — Jahresh. Ver. Vaterl. Naturk. Württemberg 109: 17—29.

— (1962): Studien an afrikanischen Diopsiden (Dipt.). — Stuttg. Beitr. Naturk., Nr. 94: 1—18.

LINNAEUS, C. (1775): Dissertatio Entomologica, bigas insectorum sistens, quam subjicit ... Andreas DAHL, etc. Upsaliae. IV + 7 pp.

MACQUART, J. (1835): Histoire naturelle des Insectes. Diptères. Tome deuxième. 703 pp., pls. 13—24. In Roret, N. E., ed. — Collection des suites à Buffon. Paris.

— (1843): Diptères exotiques nouveaux ou peu connus. — Soc. R. Sci. Agr. Arts, Lille, Mem. 1842: 162—460, pls. 1—36.

— (1846): Idem. 1er Supplément. — Soc. R. Sci. Agr. Arts, Lille, Mem. 1844: 133—364, pls. 1—20.

RONDANI, C. (1873): Muscaria exotica Musei Civici Jaunensis observata et distincta. Fragmentum I. Ann. Mus. Civ. Stor. Nat. Genova 4: 282—294.

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SÉGUY, E. (1938): Mission Scientifique de l'Omo. Diptera I: Nematocera et Brachycera. — Mém. Mus. Natl. Hist. Nat. Paris 8: 319—380.
— (1953): La réserve naturelle intégrale du Mt. Nimba. Diptères. — Mém. Inst. Franç. Afr. Noire 19: 151—164.
— (1955) Diptères Diopsides africains nouveaux ou peu connus. — Bull. Inst. Franç. Afr. Noire 17 (ser. A): 1102—1124.
SHILLITO, J. F. (1940): Studies on Diopsidae (Diptera). — Novit. Zool. 42: 147—163.
— (1971): The genera of Diopsidae (Insecta: Diptera). — Zool. J. Linn. Soc. 50: 287—295.
— (1974): „Paradoxum insectum" — LINNAEUS on *Diopsis* (Insecta: Diptera) — Biol. J. Linn. Soc. 6: 277—287.
SPEISER, P. (1910): Diptera 5. Cyclorrhapha, Aschiza. In SJÖSTEDT, Y. — Wissenschaftliche Ergebnisse der schwedischen zoologischen Expedition nach dem Kilimandjaro, dem Meru und den umgebenden Massaisteppen Deutsch-Ostafrikas 1905—1906, 10 (5): 113—202.
STEYSKAL, G. C. (1972): A Catalogue of Species and Key to the Genera of the Family Diopsidae (Diptera: Acalyptratae). — Stuttgart. Beitr. Naturk., Nr. 234: 1—20.
WESTWOOD, J. O. (1837a): On *Diopsis,* a genus of dipterous insects, with descriptions of twenty-one species. — Trans. Linn. Soc. London 17: 283—313.
— (1837b): Descriptions of some new species of *Diopsis* — Trans. Linn. Soc. London 17: 543—550.
WULP, F. M. van der (1897): Aanteekeningen betreffende Oost-Indische Diptera. — Tijds. Ent. 40: 181—198.

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