PL. XXI.

Tableau figuré de la position des diverses espèces de *Tephrosia* d'après les caractères des fleurs, des fruits, des graines et des types biologiques.

Bulletin de l'I. F. A. N.
T. XXXIII, sér. A, n° 4, 1971.

1971

Contribution à la faune du Gabon. Mission A. Villiers, 1969.

Odonates

par ELLIOT PINHEY (1)

I. — INTRODUCTION

The material recorded here is based on a collection of Odonata submitted by Dr A. VILLIERS, and largely collected by him in Gabon 1969. It includes several species of interest and two new *Gomphidae*. There are no representatives of *Lestidae*, *Aeshnidae* or *Corduliidae*.

The detailed bibliography and synonymy can be found in the Author's Catalogue (PINHEY, 1962).

II. — LIST OF SPECIES

FAMILY PROTONEURIDAE

Prodasineura vittata (SELYS).

Disparoneura vittata SELYS, 1886, *Mém. cour. Acad. R. Belg.*, **38** : 174.

A widespread but local species in equatorial African forests. Only two females were collected and these are distinguishable by the short, orange ventral fascia on each mesepisternum and the small black, bifid prothoracic stylets.

GABON : 2 ♀♀, Mvoum, XI-1969 (A. *Villiers*).

(1) National Museum, Bulawayo.

Elattoneura ? pruinosa (SELYS).

Disparoneura pruinosa SELYS, 1886, *loc. cit.*, **38** : 166.

Common in equatorial forests from the Congo westwards to Sierra Leone. The solitary female collected, however, is too teneral to be certain of the identification.

GABON : 1 teneral ♀, Muni, Mts de Cristal, 400 m, X-1969 (*A. Villiers*).

FAMILY COENAGRIONIDAE.

Pseudagrion whellani PINHEY.

PINHEY, 1956, *Occ. Pap. Coryndon Meml. Mus.*, **4** : 18.

Described originally from the Zambezi Valley this species has since been found as far North as the Sudan and in equatorial Africa between the Congo and Nigeria.

GABON : 2 ♂♂, 1 ♀, Pte de Bandia, 1-XI-1969.

FAMILY AGRIONIDAE.

Sapho gloriosa SELYS.

SELYS, 1873, *Bull. Acad. r. Belg. Cl. Sci.* (2), **36** : 611.

Originally described from Gabon, this magnificent large zygopteran is found plentifully in the forests of the Congo and Southern Cameroons.

GABON : 2 ♀♀, Cap Esterias, 30 km, NW of Libreville, IX-1969 (*A.* and *J.-F. Villiers*) ; 3 ♂♂, 1 ♀, Muni, Mts de Cristal, 400 m, X-1969 (*A. Villiers*).

Umma saphirina FÖRSTER.

FÖRSTER, 1916, *Neue Beitr. syst. Insektenk.*, **1** : 24.

Known previously from Uganda, Congo and Cameroons. In Uganda it is the commonest species of the genus.

GABON : 1 ♀, Mvoum, Montagne de Sable, XI-1969 (*A. Villiers*).

FAMILY CHLOROCYPHIDAE.

Chlorocypha rubida (HAGEN).

Libellago rubida HAGEN, *in* SELYS, 1853, *Bull. Acad. r. Belg. Cl. Sci.*, **20** (Suppl.) : 58.

Described originally from Gabon, this species is locally common in forests of Uganda, Congo, Cameroons and Guinea.

GABON : 1 ♀, Komo, Mts de Cristal, 400 m., X-1969 (*A. Villiers*).

FAMILY GOMPHIDAE.

Two single unrelated males, both representing new species of their genera, were collected by Dr VILLIERS.

Neurogomphus angustisigna, spec. nov. (fig. 1).

This is one of the larger species of the genus differing from most species by the development of both inner and outer green ante-

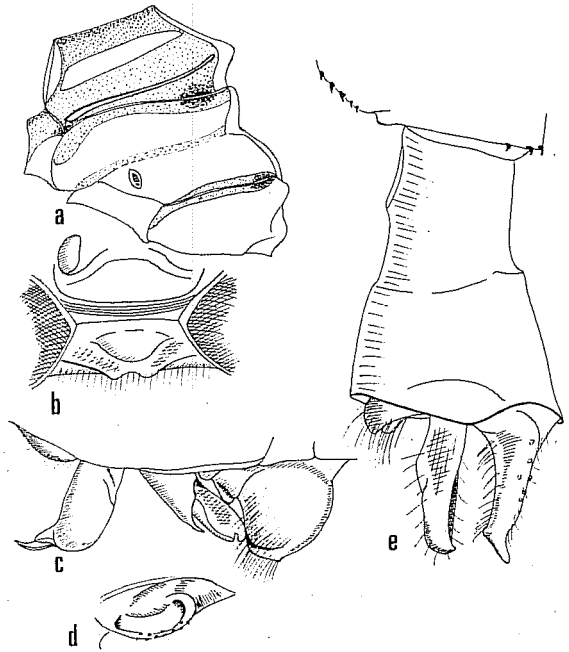

FIG. 1. — *Neurogomphus angustisigna*, spec. nov. — a. synthorax ; b. occipital plate ; c. accessory genitalia (from left) ; d. left auricle ; e. abdominal segment 10 and anal appendages.

humeral stripes, the inner one moderately narrow, the outer extremely narrow and quite separate from the inner ; and the long narrow pterostigma. More than half the known species of this small genus have been named after their collectors and it therefore seems more appropriate to apply a name to the present species which is descriptive of its narrow features.

Holotype ♂ (mature). Labium orange to brownish yellow. Face and frons all olivaceous except two brownish dorsal fasciae on the frons. Vertex and antennae deep ferruginous marked anteriorly with yellowish diffusion. Occipital plate brown, concave with central swelling, the posterior margin slightly produced, indented medially. The shape and sculpture of this occiput are probably a reflection of the condition in the unknown female, developed in connection with tandem linkage.

Prothorax green, brown in the centre of the median lobe. Synthorax black to below humeral suture, the mesothoracic collar and the antehumeral stripes (see figure) green : the inner stripe somewhat fusiform, the outer very slender with a slight enlargement at dorsal end. Sides of synthorax green to yellow with black stripes on the two lateral sutures. Legs ferruginous to black, the basal coxae green. Venation black, pterostigmata elongate and brown. Forewing with 18-19 Ax, the first and sixth or seventh thickened (primaries) ; 14-15 Px. Anal triangle of 3 cells. 1-2 basal subcostal cross-veins in each wing.

Abdomen of characteristic neurogomphine shape, the 10th segment constricted and showing the usual lines (probably derived through the constriction) ; mainly black. Segment 1 greenish at sides with strong dorso-lateral tufts of black hair ; segment 2 with dorsal greenish yellow stripe and lateral greenish fascia, the auricles green. A greenish yellow mid-dorsal line on segment 3 and on base of 4, a latero-basal greenish spot on 3 ; yellow dorsal and lateral basal spots on segment 8. Segments 8-9 with black lateral foliations. The black anal appendages widely splayed, the superior with apical spine. Accessory genitalia as illustrated, the prophallus exposed, the hamule turned anteriad.

Abdomen 45 mm, hindwing 39 mm, pterostigma 5 mm.

Only the single holotype was collected : Mvoum, X-1969 (*A. Villiers*). This holotype is in Paris Museum.

This species is larger than *chapini* (Klots), *featheri* Pinhey and *pinheyi* Cammaerts. Like *chapini* and *pinheyi* it has two separated antehumeral stripes but in those species the inner stripe is short, the outer long, broad and well developed. *N. fuscifrons* Karsch and *martininus* (Lacroix) have the thorax black at the sides. In *pallidus* Cammaerts the antehumeral markings are only faintly marked. In *agilis* (Martin), *uelensis* Schouteden and *wittei* Schouteden, the outer antehumeral stripe is reduced to a triangle joined to the inner stripe.

Paragomphus aureatus, spec. nov. (fig. 2).

This species, represented by a single male, is very easily recognised by the almost totally yellow mesepisterna of the synthorax. Its nearest known relative appears to be *P. abnormis* (Karsch) which, however, has a less uniformly yellow thoracic dorsum.

Holotype ♂ (somewhat damaged). Labium yellow, black apically ; labrum black with central yellow ellipse, genae yellow, postclypeus yellow dorsally, black ventrally, frons black with yellow transverse band on crest. Vertex black ; occipital plate brown, the posterior lips straight, with some hair but no armature.

Prothorax brown with yellow line on posterior lobe. Synthorax almost entirely bright yellow on mesepisterna, otherwise deep brown with three yellow lateral bands as figured. Legs dark ferruginous to black. Venation black, pterostigma black, Forewing with 15-16Ax, the first and fifth thickened. Anal loop small, poorly defined. Anal triangle of 4 cells as figured (rather like *moka* Longfield but with a strong posterior kink).

Abdomen black with sparse yellow marking. Segment 1 mainly greenish yellow. Segment 2 with yellow dorsal band, constricted anteriorly and medially and yellow lateral fasciae, the auricle partly yellow. Segment 3 with basal yellow lateral triangles, segments 4-5 with smaller basal triangles, 7 with conjoined yellow basal triangles. Foliations on segments 8-9 well developed, black. Superior appendages yellow basally, black distally, the apices moderately robust, divergent, ending in a minutely serrated apex and a sub-apical lateral spine. Inferior appendage over half as long, black apically. The accessory genitalia are shown in oblique view. The prophallus has on the corpus a small baso-lateral spine and a well-developed tooth below the centre ; apex somewhat funnelled, with a projection.

Abdomen 34 mm, hindwing 28 mm, pterostigma 3.5 mm.

This species is probably nearest to *P. abnormis* (Karsch), in having the very broadly yellow thoracic dorsum, but this new species is even more extensively yellow, without a yellow humeral line. The facial markings are much blacker. The anal triangle is

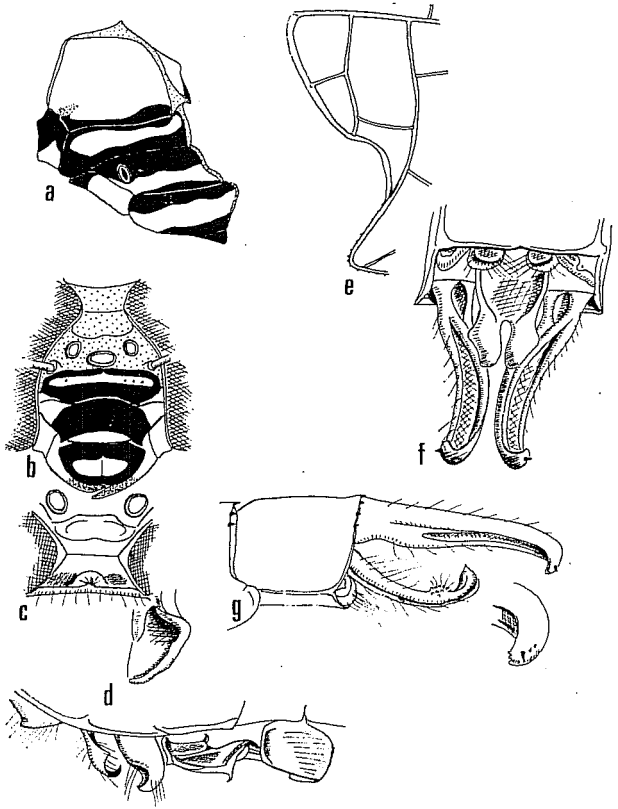

FIG. 2. — *Paragomphus aureatus*, spec. nov. — a. synthorax ; b. head (anteriorly) ; c. occipital plate ; d. accessory genitalia and left auricle ; e. anal triangle of left hind wing ; f. anal appendages (ventrally) ; g. anal appendages (from left) and apex of superior.

more like *moka* than *abnormis*. The divergent superior appendages are rather like *P. nigroviridis* CAMMAERTS (1969) with the apical spine.

GABON : Holotype ♂, Muni, Mts de Cristal, 15-31-X-1969 (*A. Villiers*). Type in Paris Museum.

FAMILY LIBELLULIDAE.

This family is moderately well represented in this small collection.

SUBFAMILY *TETRATHEMINAE*.

Allorhizucha preussi KARSCH.

KARSCH, 1891, *Ent. Nachr.*, **17** : 80.

Described from Cameroons this species is now known from Zambia northwards to the Cameroons and Uganda. It is locally common in forest.

GABON : 1 ♂, Mvoum, Montagne de Sable, XI-1969 (*A. Villiers*).

SUBFAMILY *LIBELLULINAE*.

Hadrothemis coacta (KARSCH).

Thermorthemis coacta KARSCH, 1891, *Ent. Nachr.*, **17** : 60.

Also described from Cameroons, this is one of the commonest of the genus in equatorial forests from Angola northwards to Cameroons, Uganda and westwards as far as Ghana.

GABON : ♀, Forêt de la Mondah, 5 km. NW of Libreville, IX-1969 (*A.* and *J. F. Villiers*) ; and 1 ♂, Muni, Mts de Cristal, 400 m, X-1969 (*A. Villiers*).

Oxythemis phoenicosceles RIS.

RIS, 1909, *Coll. Zool. Selys*, **10** : 163.

Described from North Cameroons, this is a rather uncommon species only moderately well represented in few collections. The single specimen, a female, is very similar to one I collected in North Cameroons *in copula*. It is also found in the Congo and Nigeria. The male is easily recognised by its red femora.

GABON : ♀, Muni, Mts de Cristal, 400 m, X-1969 (*A. Villiers*).

Orthetrum brachiale kalai LONGFIELD.

LONGFIELD, 1936, *Trans. R. ent. Soc. Lond.*, **85** : 487, 493.

This dark form of *brachiale* (BEAUVOIS) was originally described from an island in the Zambezi River. Although sometimes found in South East Africa it is far more abundant and widespread in equatorial African forests.

GABON : 3 ♂♂, Cap Esterias, IX-1969 (*A. and J. F. Villiers*) ; 2 ♂♂, 4 ♀♀, Komo, 1 ♂, Muni, Mts de Cristal, 400 m, X-1969 (*A. Villiers*) ; 1 ♂, 1 ♀, Mbel, X-1969 (*A. Villiers*).

Orthetrum guineense RIS.

RIS, 1909, *Coll. Zool. Selys*, **10** : 207.

Described from Angola, this species is fairly widespread in South East and in West tropical Africa.

GABON : 2 ♂♂, Muni and 1 ♂, Komo, Mts de Cristal, 400 m, X-1969 (*A. Villiers*).

Orthetrum julia julia KIRBY.

KIRBY, 1900, *Ann. Mag. nat. Hist.*, **6** (7) : 75.

Described from Sierra Leone this species is very widespread in the Ethiopian region and is sometimes a dominant Libellulid in equatorial forests. In East and South East Africa it is more or less replaced by subspecies *falsum* LONGFIELD.

GABON : 1 ♀, Muni, Mts de Cristal, 400 m, X-1969 (*A. Villiers*).

Orthetrum microstigma RIS.

RIS, 1911, *Revue Zool. Bot. afr.*, **1** : 128.

Described from Cameroons, with a paler variety *imitans* SCHMIDT, this is moderately common on the outskirts of forest, near swamps or streams, from Zambia to equatorial Africa. The typical from *microstigma* RIS was collected in Gabon.

GABON : 2 ♂♂, Muni and 2 ♂♂, Komo, Mts de Cristal, 400 m, X-1969 (*A. Villiers*) ; 1 ♂, Mbel, X-1969 (*A. Villiers*).

SUBFAMILY *PALPOPLEURINAE*.

Palpopleura lucia (DRURY).

Libellula lucia DRURY, 1773, *Ill. Exot. Ins.*, **2** : 82.
Libellula portia DRURY, 1773, *ibid.*, **2** : 86.

Both forms were described from Sierra Leone but they are widespread in practically the entire Ethiopian Region. There is no evident difference in the genitalia, only in the wing pattern and even in this feature there are occasional intermediates.

GABON : 5 ♂♂ f. *lucia*, Muni, Mts de Cristal, X-1969 (*A. Villiers*) ; 1 ♀ f. *lucia*, Muni, X-1969 (*A. Villiers*) ; 1 ♂ f. *portia*, Komo, Mts de Cristal, X-1969 (*A. Villiers*) ;

SUBFAMILY *TRITHEMINAE*.

Trithemis arteriosa (BURMEISTER).

Libellula arteriosa BURMEISTER, 1839, *Handb. Ent.*, **2** : 850.

Described from Natal, this is one of the most abundant of its family throughout the African Continent.

GABON : 1 ♂, ♀ 1, Komo, Mts de Cristal, X-1969 (*A. Villiers*) ; 5 ♂♂, 1 ♀, Mbel, X-1969 (*A. Villiers*).

Trithemis imitata PINHEY.

Trithemis monardi imitata PINHEY, 1961, *Publn. Brit. Mus.*, (*Nat. Hist.*) : 164.

This species is of limited distribution outside forested areas in central tropical Africa.

GABON : 1 ♂, Komo, Mts de Cristal, X-1969 (*A. Villiers*) ; 1 ♂, 4 ♀♀, Mbel, X-1969 (*A. Villiers*).

SUBFAMILY *PANTALINAE*.

Pantala flavescens (FABRICIUS).

Libellula flavescens FABRICIUS, 1798, *Suppl. Ent. Syst.* : 285.

Described from Asia this species is known throughout Africa and the tropics and subtropics of the New and the Old World.

GABON : 14 ♂♂, 2 ♀♀, Muni, Mts de Cristal, X-1969 (*A. Villiers*) ; 1 ♀, Mvoum, Montagne de Sable, XI-1969 (*A. Villiers*).

REFERENCES

CAMMAERTS, R. (1967). — Une nouvelle espèce d'Odonate du genre *Neurogomphus* Karsch, 1890 (*Gomphidae*). *Revue Zool. Bot. afr.*, **76** : 70-76, 5 fig.

— (1968). — Une espèce nouvelle de *Neurogomphus* Karsch en Afrique orientale (Odonata *Gomphidae*). *Bull. Ann. Soc. R. ent. Belg.*, **104** : 100-108, 10 fig.

— (1969). — *Paragomphus abnormis* (Karsch, 1890) et deux espèces précédemment confondues avec ce taxon (Odonata *Gomphidae*). *Ibid.*, **105** : 234-248, 25 fig.

PINHEY, E. C. G. (1961). — A Survey of the Dragonflies of Eastern Africa. *Publn. Brit. Mus. (Nat. Hist.)*, 214 p., 11 pl., 3 fig.

— (1962). — A Descriptive Catalogue of the Odonata of the African Continent (up to December, 1959). *Publcões cult. Co. Diam. Angola*, **59** : 1-322, 9 pl.

— (1967). — The genus *Neurogomphus* Karsch (Odonata *Gomphidae*). *J. ent. Soc. Sth. Afr.*, **29** : 64-73, 8 fig.

— (1969). — Tandem Linkage in dichoptic and other Anisoptera (Odonata). *Occ. Pap. Nat. Mus. Rhod.*, **B 4** (28) : 137-207, 67 fig.

— (1970 a). — Monographic study of the genus *Trithemis* Brauer (Odonata : *Libellulidae*). *Mem. ent. Soc. Sth. Afr.*, **11** : 1-159, 56 fig.

— (1970 b). — A New Approach to African *Orthetrum* (Odonata). *Occ. Pap. nat. Mus. Rhod.*, **B 4** (30) : 261-321, 28 fig.

Bulletin de l'I. F. A. N.
T. XXXIII, sér. A, n° 4, 1971.

Contribution à l'étude biologique du Sénégal septentrional

XIV. Hémiptères *Reduviidae* et *Pachynomidae*

par A. VILLIERS.

Le matériel qui fait l'objet de la présente étude comprend les récoltes suivantes :

Mission T. LÈYE au Ferlo, X-1943.

Mission A. VILLIERS à Richard-Toll, IX-1948.

Mission A. VILLIERS à Linguère, XI-1949.

Mission Université de Dakar (P. CACHAN et R. ROY) à Richard-Toll, XI-XII-1960.

Mission T. LÈYE et A. VILLIERS, dans la zone des dunes côtières du Sénégal, IX-X-1961.

Mission T. LÈYE et R. ROY au Ferlo, IV-1967.

Mission IFAN-Muséum (A. DESCARPENTRIES, T. LÈYE et A. VILLIERS) au Sénégal septentrional (Ferlo, vallée du Fleuve et zone côtière), VIII-XII-1967.

En outre nous citons aussi des récoltes fragmentaires dues à Mme J. ROY-NOËL, MM. P. L. DEKEYSER, CORBEIL, LEPAGE, DUCHEMIN, LAMBERT, CHUDEAU, MELOU.

NOTES BIOGÉOGRAPHIQUES

La liste des 50 espèces énumérées plus loin est assez représentative de la faune du Sénégal septentrional, bien que de nombreuses autres espèces, connues seulement des régions limitrophes (notamment de Bambey), soient susceptibles d'être rencontrées dans la zone que nous avons plus particulièrement étudiée.

Comme pour d'autres groupes zoologiques, nous y trouverons les divers types de répartition suivants :