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MESUMBETHEMIS TAKAMANDENSIS GEN. NOV., SPEC. NOV., A NEW GENUS AND SPECIES OF THE TETRATHEMISTINAE FROM CAMEROON, WITH A KEY TO THE AFRICAN GENERA OF THE SUBFAMILY (ANISOPTERA: LIBELLULIDAE)*

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The new sp. is described from a single ♂ from Cameroon (South West Prov., Manyu, Takamanda Forest Reserve, Assam, 06°01'N, 09°18'E, alt.140 m, 20-II-1998). The holotype will be deposited in the collection of the Natural History Museum (London). The justification for the placement of the new genus in the Tetrathemistinae is presented. Because of the combination of characters of wing venation which it possesses, the new sp. does not fit into any existing genus and the new genus *Mesumbethemis* is erected to accommodate it. The unique shape of the anal appendages and the accessory genitalia can at this stage also be regarded as characteristic of this presently-monotypic genus. A key to the African Tetrathemistinae genera is provided.

INTRODUCTION

The importance of the South West Province of Cameroon for dragonfly biodiversity is discussed by VICK (1996, 1998, 1999) and the Cameroon Dragonfly Project has been working in the Province since 1995 in order to document the odonate fauna. From the botanical evidence and with increasing zoological support, the Province appears to form a core area: gradients of decreasing species richness extend in all directions. At least 179 odonate species have been recorded from the Province, an area of only about 25,000 km^2; many new taxa await description, and a final total of at least 200 can be expected, giving species densities which approach the highest figures for the neotropics (VICK, 1999). Almost all of the recording

* Cameroon Dragonfly Project Contribution No. 5. – [The previous ones were: No. 1 (VICK, 1996), – No. 2 (VICK, 1998), – No. 3 (CHELMICK, 1999), – No. 4 (VICK, 1999)]

that has taken place to date has been in the southern two-thirds of the Province, in the areas around Mount Cameroon, Kumba and the Bakossi mountains, and in the Cross River region around Mamfe. North of Mamfe, the extensively forested region of the Takamanda Forest Reserve has only recently been explored for Odonata; the first records are given in VICK (1999). Preliminary work suggests that this area is one of great potential and many new discoveries can be expected.

Here I describe a new species of libellulid which was taken in the forested lowlands of Takamanda, and place it in a new genus.

MESUMBETHEMIS GEN. NOV.

Type species: *Mesumbethemis takamandensis* sp. n.

This genus belongs in the subfamily Tetrathemistinae.

DIAGNOSIS. – The forewing discoidal cell is triangular, broad, with a value of 1.8 for the ratio of the basal to costal sides. This is the least broad cell possessed by any genus of the subfamily. The hindwing is 'narrow' but less so than in many genera, and the anal loop has 13-14 cells. There are 3 bridge crossveins in each wing and 3 crossveins in the hindwing cubital space. The base of the discoidal cell in the hindwing is almost recessed to the arculus as in more 'advanced' members of the family and the sectors of arculus in the forewing are fused for a distance equal to 0.3 of the length of the basal side of the discoidal cell. The discoidal field starts 2--celled in the forewing and 2.5 to 3-celled in the hindwing. The unique shape of the anal appendages and the accessory genitalia which are so distinctive of the new species described below can at this stage be regarded as characteristic of this presently-monotypic genus.

Etymology. – The new genus is named after Otto Mesumbe who has worked diligently in the field for four years and has discovered many records and interesting facts in the South West Province of Cameroon.

MESUMBETHEMIS TAKAMANDENSIS SP. NOV.

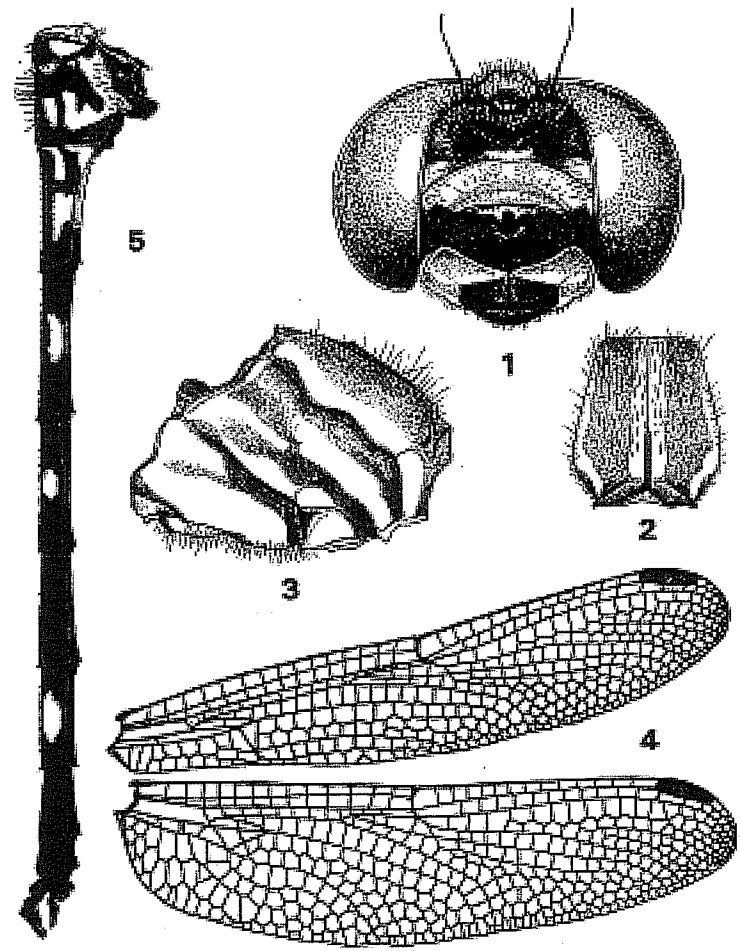
Figures 1-10

Material. – **Holotype** ♂: Cameroon (South West Province), Manyu, Takamanda Forest Reserve, Assam, 06°01'N, 09°18'E, alt.140 m, 20-II-1998, Otto Mesumbe leg. (only one specimen known, condition excellent, but colours faded as specimen air-dried). The holotype is currently in the author's collection and will be deposited in the collection of the Natural History Museum (London).

Head (Fig.1). – Labium yellow with extensive black central marking occupying entire ligula (= central lobe) and about 40% of area of paraglossae (= lateral lobes); outer mandibles black, shading to reddish apically; labrum black except for two small yellow patches on margin adjacent to anteclypeus; anteclypeus greenish--yellow with small black patches on lateral margins; postclypeus yellow with small black patches on lateral margins; frons blue metallic marked with central yellow

patch and two yellow patches on anterior margin.

Thorax (Figs 2, 3). – Prothorax: Anterior lobe black with bright yellow anterior margin; median lobes brown; posterior lobes brown with yellow posterior and lateral margins, and a yellow central spot; coxa and trochanter yellow; femur black with yellow ventral surface; tibia, tarsus and claws black. – Synthorax: Black marked with dark yellow as follows: mesepisternum with straight dorsal stripe about 1.2 mm wide, enclosing dorsal carina (but only lower half of carina yellow), and a wavy humeral stripe about 0.8 mm wide; mesepimeron with stripe running from dorsum to ventral margin but weak or broken in upper third; metepisternum



Figs 1-5. *Mesumbethemis takamandensis* sp.n., male: (1) head, anterior aspect; – (2) synthorax, dorsal aspect; – (3) synthorax, lateral aspect; – (4) wings, right-hand side, dorsal aspect; – (5) abdomen, lateral aspect.

with anterior stripe extending from dorsum to about 1mm above spiracle and posterior stripe running continuously from dorsum to ventral margin; most of metepimeron except for margin on suture with metepisternum; mesinfraepisternum and metinfraepisternum in posterior three-quarters; coxae except for some brown markings on outer surfaces; trochanters (rest of legs black); poststernum (except for posterior margin).

Wings (Fig.4). – Hyaline with black venation, slight tawny basal suffusion extending no more than 1mm from bases; arculus nearer to Ax3 than Ax2 (ratio about 1:4) in forewings and almost reaching Ax3 in hindwings; distal antenodal complete; nodal formula 12-15 -15-11 (forewings), 13-13-13-12 (hindwings); bridge cross-veins 3 (all wings); additional CuA 1-1 (forewings), 4-3 (hindwings); discoidal cell in forewing uncrossed, isosceles, basal side about 1.8 times costal side and discoidal field starting as 2 rows until level of distal antenodal when it becomes three, only widening after nodus; hindwing discoidal cell crossed (2-celled), basal side about 0.6 costal side, discoidal field 2.5 cells initially (3 on one wing) but then 2 until level of the eleventh antenodal when it expands to 3 cells and widens, reaching 11 or 12 cells on the termen; supratriangles 2-celled (3 in right forewing); subtriangle in forewing 2-celled; fusion of sectors of arc short (fused length about 0.3 length of basal side of discoidal cell in forewing); Pt surmounting 2.5 cells, length/width about 6; Cu2 in hindwing arises very close to the distal angle of the discoidal cell; Rspl present in hindwing with no doubled cells; anal loop 13-14 cells, R3 only weakly curved in hindwing.

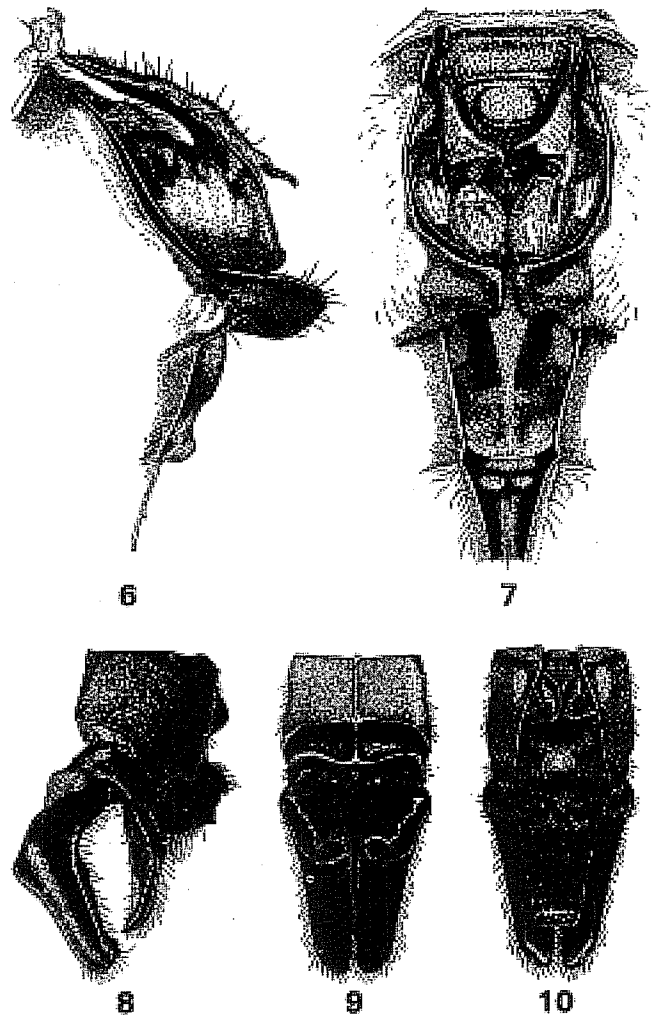
A b d o m e n. – Dorsal view: subparallel, weakly clubbed, first and second tergites broad, third to seventh tergites narrow, but seventh broader posteriorly than anteriorly to reach greatest width of abdomen, eighth to tenth tergites broad. – Lateral view (Fig.5): second to sixth tergites about equal in length, then lengths of tergites successively decreasing to the tenth which is less than a quarter the length of the ninth. – Markings: black marked with dark yellow as follows: first tergite laterally in lower two-thirds; second with pair of posterior dorsal spots and with irregular lateral marking extending to posterior and ventral margins (but not to genital lobe); third tergite with lateral marking on anterior surfaces extending to post-jugal suture, and paired dorsal spots posterior to post-jugal suture, all confluent on ventral surface; fourth to fifth tergites with paired dorsal spots those on the fourth most extensive; seventh tergite with large paired dorsal spots; fourth to ninth tergites all with pair of central spots on ventral surfaces.

Accessory genitalia (Figs 6, 7). – Posterior hamule with swollen basal section and extensive projection from anterio-ventral corner, anterior wing of projection reaching to posterior margin of the first tergite and posterior part terminating in a strong hook.

Anal appendages (Figs 8-10). – All black. Superior appendages in lateral view strongly angulated, almost at 90°, bearing a pair of small apical teeth projecting from a tubercle on the ventral surface; in dorsal view basal half of appendage

expanded to produce a flattened area concave centrally which is polished and smooth. Inferior appendage shorter than superior, length about 90% of length of superior (measured as a straight line from base to apex), bearing two apical teeth on posterior margin; in ventral view, subrectangular, broadest basally, narrowing to about 80% of basal width at apical margin.

M e a s u r e m e n t s (mm). – Hindwing 30.5, forewing 31.0, abdomen (incl. app.) 28.5, total length (incl. app.) 41.5.



Figs 6-10. *Mesumbethemis takamandensis* sp.n., male: (6) accessory genitalia, lateral aspect; – (7) accessory genitalia, ventral aspect; – (8) abdominal segments 9-10 and anal appendages, lateral aspect; – (9) idem, dorsal aspect; – (10) idem, ventral aspect.

DISCUSSION

The generic placement of the new taxon within the Libellulidae presents several difficulties. There is a need for a modern classification of the family and the division into subfamilies using subjective characters as used by FRASER (1957) presents many problems. He identified seven characters which he described as archaic (plesiomorphic) or recent (apomorphic) for the Libellulidae. These are:

(1) Arculus between the second and third antenodal crossvein (archaic), or between the first and second (recent).
(2) Complete distal antenodal in the forewing (archaic) or incomplete (recent).
(3) Forewing discoidal cell approaching an equilateral triangle (with or without its costal side angulated) (archaic) or narrow, with the costal side 'much shorter than' the basal (recent).
(4) Hindwing narrow, with anal loop absent or rudimentary (archaic) or broader, with anal loop well-developed (recent).
(5) Presence of extra bridge cross-veins (archaic), or absence of these (recent).
(6) Presence of extra cross-veins in the cubital space (archaic), or absence of these (recent).
(7) Base of the discoidal cell in hindwing distal to arculus (archaic) or recessed to arculus (recent).

The definition of a taxon on plesiomorphic characters alone is unacceptable in a modern classification and it is possible that the Tetrathemistinae are a paraphyletic or polyphyletic basal assemblage. In the absence of a modern phylogenetic analysis, it is not possible to say which characters are apomorphic and define the subfamily properly; it is outside the scope of this paper to provide a modern definition and the 'traditional' view of Fraser is therefore followed here.

The Tetrathemistinae was considered by Fraser to be the most primitive (plesiotypic) libellulid subfamily, possessing most of the characters considered to be archaic in the list above, although not all genera in the subfamily possess all of the seven characters. Dragonflies of the subfamily have been defined by FRASER (1957) and PINHEY (1961, 1962) as small forms with long narrow wings, short abdomen, coloured black and yellow (usually considered plesiomorphic for the family) and possessing the 'archaic' characters listed above, with the following exceptions (character numbers as above):

(1) 'variable and paradoxically between the first and second in most of the wings of *Tetrathemis*, the type genus of the subfamily !' (FRASER, 1957).
(2) not applicable to New World genera (which have been placed elsewhere by RIS (1910-1919) who placed them in a different subfamily) (FRASER, 1957).
(3) the term 'narrow' used by Fraser, defined more precisely by PINHEY (1961, 1962) as 'costal edge more than half as long as basal edge'.
(4) not further defined by either author.
(5) 'usually accessory crossveins to the bridge ' (FRASER, 1957), but 'often with' these crossveins (PINHEY, 1962).
(6) 'usually accessory crossveins in the cubital space' (FRASER, 1957), but 'often with' these crossveins (PINHEY, 1962).
(7) not mentioned in the definition by either author.

Additional characters that have been used to define the subfamily by these two authors, without discussion of whether they are archaic or recent, are:

(8) sectors of arculus with a long fusion at their origin (FRASER, 1957) or 'fused for some distance, generally a long way' (PINHEY, 1962).
(9) radial supplement (Rspl) of 'primitive' build (FRASER, 1957), or 'poorly developed' (PINHEY, 1962).
(10) 'discoidal field usually with a single row of cells, but several exceptions' (FRASER, 1957) and 'postdiscoidal field generally commencing with one row of cellules (two in *Micromacromia*), then uniform or expanding' (PINHEY, 1962).
(11) Membranule scarcely developed at all (PINHEY, 1962).

There are eleven genera present in Africa and Madagascar (PINHEY, 1962). BRIDGES (1994) catalogues 39 species (Tab. II). I have listed the taxa of the *Malgassophlebia bispina*-group as distinct species.

Most species of the subfamily inhabit waterbodies in rainforests and, in Africa, they are the dominant libellulid subfamily in closed canopy habitats. They can occur in stagnant and running water (CLAUSNITZER & LEMPERT, 1998).

The analysis shown in Table I shows some wing venational characteristics of these genera. The data have been obtained by examining material in the Natural History Museum (London) and in my own collection. Species examined are indicated in Table II. The subfamily is keyed to genera by PINHEY (1962) and this key is amended to accommodate the new taxon and the data presented in Table I (see below).

The new species can be placed within the subfamily as currently defined because of the following characters (the character numbers correspond to those used above):

(1) Arculus nearer to the third antenodal than to the second.
(2) Forewing antenodal complete.
(3) Discoidal cell triangular and not angulated on the costal side; ratio of the basal to costal sides 1.8. (thus falling within the definition used by PINHEY (1962) which gives basal side to costal side of less than 2, but nevertheless it is the narrowest cell possessed by any species of the subfamily).
(4) Hindwing 'narrow' but less so than in many genera: the anal loop, which is a measure of this, has 13-14 cells, a high value for the subfamily in which most species have no more than 8 cells, the only exceptions being *Micromacromia* with about 10 cells (6 to 14), *Sleuthemis* with 12 (8 to 12) and *Monardithemis* with 10-15.
(5) With 3 bridge crossveins in each wing.
(6) With 3 crossveins in the cubital space of the hindwing.
(7) Base of the discoidal cell in the hindwing almost recessed to the arculus as in more 'advanced' members of the family.
(8) Sectors of arculus are fused for a length of about 0.3 of the length of the basal side of the discoidal cell, a little less than in *Micromacromia*.
(9) Radial supplement could be described as of 'primitive' build or 'poorly developed'.
(10) Discoidal fields starting with two complete rows in the forewing and almost three in the hindwing.
(11) Membranule is scarcely developed at all.

The species fits well into the subfamily using characters 1, 2, 5, 6, 9, 11 and it is covered by the definition, although it is clearly less plesiomorphic than some genera, in terms of characters 3, 4, 7, 8. The definition of the subfamily needs to be expanded to cover character 10.

With the discoidal cells free in the forewing and crossed in the hindwing, and 3--sided in both wings, combined with the high number of bridge and cubital crossveins

Table I
Comparison of genera of Tetrathemistinae from Africa and Madagascar

Features	Genera					
	Mesumbethemis	*Neodythemis*	*Micromacromia*	*Allorhizucha*	*Notiothemis*	*Sleuthemis*
No of species in Africa	1	4	3	3	2	1
No of species in Madagascar	0	4	0	0	0	0
Ratio forewing Dc basal/costal	1.8	1.2-1.6	1.3	1.3-1.4	1.2-1.3	1.3
Forewing Dc, shape	3	3	3	3	3	3
Forewing Dc, crossed/free	free	free	free	free	free	free
Hindwing Dc, crossed/free	crossed	crossed	crossed	crossed	free	free
Bridge cross-veins (fw,hw)	3, 3	2-3, 2-3	2-3, 2-3	3, 2-3	1, 1	1, 1
Position of arculus (fw,hw), note 1	2.7, 2.8	2.2-2.7, 2.3-2.9	2.4-3.1, 2.5-3.2	2.5-2.8, 2.5-2.7	2.0-2.4, 2.0-2.4	2.2, 2.2
Position of Cu2 in hindwing Dc, note 2	0	0-0.3	0-0.1	0.1-0.3	0.1-0.2	0
No of cells in anal loop (hw)	13-14	6-8	6-14	3-5	5-7	8-12
No of cells starting discoidal field (fw,hw)	2, 2.5-3	1.3-1.8, 1.4-1.8	2, 1.4-1.8	1-1.2, 1.5-2	1-1.4, 1.3-2	2, 1.4
No of CuA cross-veins (fw,hw)	1, 3-4	1-2, 2	1-2, 2-3	1-2, 2-3	1, 3	1, 1
No of crossveins in Supratriangle (fw,hw)	1, 1-2	1, 1	1, 1	1, 1	1, 1	0, 0
No of antenodals (fw,hw)	15, 13	11-13, 9-11	15-16, 11-14	12-15, 10-14	9-10, 8-9	10, 8
Hw Dc distal to arc, note 3	0-0,1	0-0.2	0-0.2	0.2-0.4	0.1-0.3	0
Extent of fusion of arc in fw, note 4	0.3	0.3-0.6	0.5-0.8	0.5-1.0	0.4-0.5	0.2

Table I, continued

	Monardi-themis	*Malgasso-phlebia*	*Eothemis*	*Tetrathemis*	*Calo-phlebia*	*Archeo-phlebia*
No of species in Africa	1	5	1	11	0	0
No of species in Madagascar	0	1	0	1	2	1
Ratio forewing Dc basal/costal	1.2	1.3	1	1	1	1
Forewing Dc, shape	3	4 (asymm.)	4 (asymm.)	4 (symm.)	4 (symm.)	4 (symm.)
Forewing Dc, crossed/free	crossed	free	free	free	free	free
Hindwing Dc, crossed/free	crossed	free	free	free	free	free
Bridge crossveins (fw,hw)	1-3, 2	1, 1	2, 2	1, 1	1, 1	1, 1
Position of arculus (fw,hw), note 1	2-2.4, 2-2.2	2, 1.8	2.6-3.0, 2.6-3.0	1.7-2.3, 1.8-2.3	2.3-2.6, 2.3-2.7	2-2.5, 2-2.6
Position of Cu2 in hindwing Dc, note 2	0	0.05	0.1	0.05-0.2	0.4	0.3
No of cells in anal loop (hw)	10-15	3	2 (weak)	4-5	2 (weak)	4-8
No of cells starting discoidal field (fw,hw)	2, 1.6-2	1, 1.8	1, 1.3-1.5	1, 1-1.6	1, 1.8-2	1, 1.8-2
No of CuA cross-veins (fw,hw)	1, 2	1, 1	4-5, 3-4	1, 2 (occ. 2.2)	1, 1	1, 1-2
No of crossveins in Supratriangle (fw,hw)	0-1, 0-1	0, 0	1, 1	1, 1	1, 0-1	0, 0
No of antenodals (fw,hw)	9-12, 9-12	10, 7	13-14, 11-12	7-9, 7-8	14-15, 11-12	9-11, 7-8
Hw Dc distal to arc, note 3	0	0-0.1	0.2-0.5	0.2-0.6	0	0-0.1
Extent of fusion of arc in fw, note 4	0.3	1	0.8-1.0	1.0-1.2	0.8	0.6

(1) Measured in terms of antenodal crossveins with intermediate position estimated in tenths
(2) Measured in terms of the length of the distal side of the discoidal cell
(3) Measured in terms of the basal side of the discoidal cell
(4) Measured in terms of the side of the discoidal cell
(5) *Sleuthemis* data based upon AGUESSE (1968)
(6) All data based upon male specimens only

Table II
List of species of Tetrathemistinae from Africa and Madagascar

Geographical distribution	Genera and species			
	MESUMBETHEMIS	*NEODYTHEMIS*	*MICROMACROMIA*	*ALLORHIZUCHA*
Species in Africa	**takamandensis* n.sp.#	*africana* Fraser, 1954# *fitzgeraldi* Pinhey, 1961 *gorillae* Pinhey, 1961 *scalarum* Pinhey, 1964	*afra* Ris, 1909# **camerunica* Karsch, 1890# *miraculosa* Förster, 1906#	*campioni* Ris, 1915# **klingi* Karsch, 1890# *preussi* Karsch, 1891#
Species in Madagascar	none	*arnoulti* Fraser, 1955 *hildebrandti* Karsch, 1889# *pauliani* Fraser, 1952 **trinervulata* (Martin, 1903)#	none	none
	NOTIOTHEMIS	*SLEUTHEMIS*	*MONARDITHEMIS*	*MALGASSO-PHLEBIA*
Species in Africa	**jonesi* Ris, 1919# *robertsi* Fraser, 1944#	**diplacoides* Fraser, 1951	**flava* Longfield, 1947#	*aequatoris* Legrand, 1979 *bispina* Fraser, 1958 *longistipes* (Pinhey, 1964) *nigeriae* Pinhey, 1961# *westfalli* Legrand, 1986
Species in Madagascar	none	none	none	**mayanga* (Ris, 1909)
	EOTHEMIS	*TETRATHEMIS*	*CALOPHLEBIA*	*ARCHEOPHLEBIA*
Species in Africa	**zyoptera* Ris, 1909#	*bifida* Fraser, 1941# *camerunensis* (Sjoestedt, 1900)# *corduliformis* Longfield, 1936# *denticauda* Fraser, 1954# *fraseri* Legrand, 1977#	none	**martini* (Selys, 1896)#

Table II, continued

		godiardi Lacroix, 1921# *longfieldae* Legrand, 1977# *polleni* (Selys, 1877)# *ruwensoriensis* Fraser, 1941# *sulci* Pinhey, 1962 *victoriae* (Pinhey, 1963)		
Species in Madagascar	none	*polleni* (Selys, 1877)#	*interposita* Ris, 1909 **karschi* Selys, 1896#	none

Data based upon BRIDGES (1994); – The type species is indicated by asterisk (*); – Species examined for Table 1 shown with hash (#); – The type of *Tetrathemis* is the Asian species *T. irregularis* (Brauer, 1868); – Apart from *Tetrathemis*, no other genus listed occurs outside Africa/Madagascar

and the high number of antenodals *Mesumbethemis* appears to be closest to *Micromacromia* and *Neodythemis* (see Tab. I) and in several aspects it combines the characteristics of the two genera. It resembles some species of *Neodythemis*, such as *N. africana* Fraser, 1954, in that it possesses a forewing discoidal cell which is relatively narrow: the ratio of the basal to the costal sides is about 1.8 compared with about 1.6 in *africana* and a value between 1 and 1.4 in other species examined from the subfamily which occur in Africa and Madagascar. However, like *Micromacromia*, it has a high number of cells (13 or 14) in the anal loop, compared with a mean number of 10 (extremes from 6 to 14) in *Micromacromia*, whereas *Neodythemis* has 6-8, and at least two complete cells starting the discoidal field in the forewing.

A brief note should be made here of the anomalous species *Neodythemis scalarum* Pinhey, 1964 which lacks some of the features of *Neodythemis* having 3-4 crossveins in the cubital space, uncrossed discoidal cells (not in all specimens) and hypertriangles, anal loop of 2-3 cells, and this was discussed by CARFI & D'ANDREA (1994) who had material from Sierra Leone and they believed that this species was nevertheless 'a true *Neodythemis*'.

The shape of the anal appendages of the new taxon is extremely unusual for a libellulid and is reminiscent of certain genera of the family Corduliidae, e.g. *Neocordulia*. No known species of *Neodythemis* nor *Micromacromia* possesses such specialised structures and species of these genera have the more 'generalised' type of appendage typical of the family. The structure of the accessory genitalia in the new species, gives another useful clue to relationships. Although every species has a unique structure, there are clear affinities within genera. The hamule of the new species is very unusual and it appears to be derived from the type seen in some *Neodythemis* except that the anterior hook is hypertrophied. It is very different from the hamular shapes seen in *Micromacromia*.

In summary, it appears that the new species cannot be placed in any genus at present described. It seems that there are two options: either synonymise *Micromacromia* with *Neodythemis* and place it in *Neodythemis* under a much broader definition, or create a new genus to accommodate it. In fact, FRASER (1954) in his description of *Neodythemis africana* implied that the two genera may be synonymous. However the presence of certain unique characters have lead me to the second option, while reserving judgement on the synonymy of the two genera. The size of the discoidal field which starts 2-celled in the forewing and 2.5 to 3--celled in the hindwing and the relative narrowness of the discoidal cell do not fit the definition of either genus. The unique shape of the anal appendages and the accessory genitalia support the taxonomic isolation of the new species from these two genera.

The key to the genera of the subfamily given in PINHEY (1962) fails to produce correct determinations for some of the specimens I have examined when deriving the data in Table I. The key below incorporates changes which should enable more specimens to key correctly and also accommodates the new genus. I do not claim that it will work for all specimens, and I suspect that the key will fail for some females.

KEY TO AFRICAN GENERA OF TETRATHEMISTINAE

1 Discoidal cell in forewing obviously quadrangular 2
– Discoidal cell in forewing triangular (but costal border sometimes broken near one end) 6
2 Hindwing without distinct anal loop 3
– Hindwing with distinct anal loop of 3-4 cells 4
3 Discoidal field in forewing 1 row, expanding before nodus; with 1 to 3 bridge crossveins; with 3 to 5 CuA crossveins ..... ***Eothemis***
– Discoidal field of forewing 1 row extending almost to termen; without accessory bridge crossveins; with only 1 CuA crossvein ..... ***Calophlebia***
4 Discoidal field in forewing 1 row, expanding before nodus; Cu2 in hindwing well distal to anal angle of triangle ..... ***Archeophlebia***
– Discoidal field of forewing 1 row to termen; Cu_2 in hindwing close to anal angle of triangle . 5
5 Supratriangle in forewing crossed; hindwing with 2 CuA crossveins ..... ***Tetrathemis***
– Supratriangle in forewing free; hindwing with 1 CuA crossvein ..... ***Malgassophlebia***
6 Discoidal field of forewing 1 row (rarely 2 in female), not expanding until beyond nodus; anal loop 3 to 4 cells (occasionally 5) ..... ***Allorhizucha***
– Discoidal field of forewing 1 or 2 rows, expanding before nodus; anal loop usually more than 4 cells 7
7 Hindwing discoidal field starting with 2.5 to 3 cells; forewing discoidal cell narrower with basal side to costal side ratio about 1.8; sectors of arculus in forewing fused for a distance equal to about 0.3 length of basal side of discoidal cell ..... ***Mesumbethemis*** gen. nov.
– Hindwing discoidal field starting with no more than 2 cells; forewing discoidal cell broader with basal side to costal side ratio less than 1.6; sectors of arculus in forewing fused for a distance equal to about 0.2 to 0.8 length of basal side of discoidal cell 8
8 Discoidal field of forewing comprising at least 2 rows in basal half 9
– Discoidal field of forewing starting with 1 row for a few cells, expanding before nodus 11

9 Forewing with 15-16 antenodal crossveins; discoidal cell in forewing free ..... ***Micromacromia***
– Forewing with 9-13 antenodal crossveins 10
10 Discoidal cell in forewing crossed (rarely free); anal loop 10-15 cells ..... ***Monardithemis***
– Discoidal cell in forewing free; anal loop 8-12 cells ..... ***Sleuthemis***
11 Forewing with 2 or 3 bridge crossveins; discoidal cell in hindwing usually crossed ..... ***Neodythemis***
– Forewing without accessory bridge crossveins; discoidal cell in hindwing free ..... ***Notiothemis***

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