Bengalomania – A review of Andy Z. LEHRER's book on *Bengalia* ROBINEAU-DESVOIDY, 1830 and related works (Diptera, Calliphoridae)

[Bengalomania – Eine Besprechung von Andy Z. LEHRERS Buch über *Bengalia* ROBINEAU-DESVOIDY, 1830 und verwandte Publikationen (Diptera, Calliphoridae)]

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Abstract Three recent works of Andy Z. LEHRER are reviewed, with a main emphasis on the book 'Bengaliidae du Monde (Insecta: Diptera)'. The proposed classification of *Bengalia* ROBINEAU-DESVOIDY, 1830 is rejected. All new family-group names, viz. Afridigaliinae LEHRER, 2005b; Gangelomyiinae LEHRER, 2005b (misspelled as Gangelomyinae) and Maraviolinae LEHRER, 2005b are sunk as junior synonyms of the tribe Bengaliini BRAUER & BERGENSTAMM, 1889, **new synonyms**. All new genus-group names, viz. *Afridigalia* LEHRER, 2005b; *Ashokiana* LEHRER, 2005b; *Kenypyga* LEHRER, 2005b; *Shakaniella* LEHRER, 2005b; *Tsunamia* LEHRER 2005b; *Bezzigalia* LEHRER 2005b; *Gangelomyia* LEHRER 2005b; *Laoziana* LEHRER, 2005b; *Temaseka* LEHRER, 2005b and *Maraviola* LEHRER, 2005b are sunk as junior synonyms of *Bengalia* ROBINEAU-DESVOIDY, 1830, **new synonyms.** *Bengalia ruedai* LEHRER, 2005b is sunk as a synonym of *Bengalia calilungae* RUEDA, 1985, **new synonym**. *Temaseka mallochi* LEHRER, 2005b is sunk as a synonym of *Bengalia concava* MALLOCH, 1927, **new synonym.** *Afridigalia adrianponti* LEHRER, 2005b and *Afridigalia falsimonia* LEHRER, 2005b are sunk as synonyms of *Bengalia floccosa* (VAN DER WULP, 1884), **new synonyms**. *Afridigalia lubana* LEHRER, 2005b and *Afridigalia sanaga* LEHRER, 2005b are sunk as synonyms of *Bengalia gaillardi* SURCOUF & GUYON, 1912, **new synonyms**. *Afridigalia laguna* LEHRER, 2005b and *Afridigalia nusantara* LEHRER, 2005b are sunk as synonyms of *Bengalia inermis* MALLOCH, 1927, **new synonyms**. *Afridigalia jamesi* LEHRER, 2005b and *Afridigalia nicolasia* LEHRER, 2005b are sunk as synonyms of *Bengalia lyneborgi* JAMES, 1966, **new synonyms**. *Afridigalia elgonia* LEHRER, 2005b and *Afridigalia olapana* LEHRER, 2005b are sunk as synonyms of *Bengalia peuhi* VILLENEUVE, 1914, **new synonyms.** *Maraviola erithreana* LEHRER, 2005b is sunk as a synonymy of *Maraviola seniorwhitei* LEHRER, 2005b, **new synonym**. *Maraviola smarti* LEHRER, 2005b is sunk as a synonymy of *Maraviola racovitzai* LEHRER, 2005b, **new synonym**. *Ochromyia* LEHRER, 2005b is an objectively invalid name since it is a junior homonym of *Ochromyia* MACQUART, 1835. *Ochromyia jejutora* LEHRER, 2005b and *Gangelomyia senausmarta* LEHRER, 2005b are unavailable names since they are published in synonymy. *Afridigalia fanzideliana* LEHRER, 2005b and *Bengalia ruedai* LEHRER, 2005b are unavailable names because no types have been designated. Numerous errors of fact concerning types, and numerous misinterpretations and outright ignorance of the working of International Code of Zoological Nomenclature are pointed out. No proposal has been made to select male neotypes for species now based on unrecognisable females types in order to preserve stability of nomenclature. 14 valid species are totally ignored for no reason at all, 7 valid species for dubious reasons, and numerous nominal species are left out of consideration completely. The genitalia illustrations are inadequate since only profile views are shown. Some of the newly described species seem to be based on artifacts in the illustrations of the male aedeagus or other organs, or on slight individual variation, and many seem to be synonyms of each other. Although describing many new species and creating the foundation for a rational taxonomy of a species-rich genus, LEHRER's work 'Bengaliidae du Monde (Insecta: Diptera)' is an incomplete work that masquerades as a full taxonomic revision. It must be treated with the utmost caution and circumspection.

Key words Taxonomy, Diptera, Calliphoridae, Bengaliidae, Bengaliinae, *Bengalia*, *Auchmeromyia*, subfamilies, new species, new synonyms

Zusammenfassung Gegenstand der vorliegenden Publikation ist eine kritische Reflexion dreier unlängst veröffentlichte Arbeiten von Andy Z. LEHRER wobei der Schwerpunkt der Betrachtungen auf dem Buch 'Bengaliidae du Monde (Insecta: Diptera)' liegt. Die von LEHRER vorgeschlagene Klassifikation von *Bengalia* ROBINEAU-DESVOIDY, 1830 wird abgelehnt. Alle neuen Namen in der Familiengruppe, nämlich Afridigaliinae LEHRER, 2005b (**= syn. nov.**); Gangelomyiinae LEHRER, 2005b (fälschlich als Gangelomyinae, **= syn. nov.**) und Maraviolinae LEHRER, 2005b (**= syn. nov.**) werden als jüngere Synonyme der Tribus Bengaliini BRAUER & BERGENSTAMM, 1889 aufgefasst. Die neuen Gattungsnamen *Afridigalia* LEHRER, 2005b; *Ashokiana* LEHRER, 2005b; *Kenypyga* LEHRER, 2005b; *Shakaniella* LEHRER, 2005b; *Tsunamia* LEHRER 2005b; *Bezzigalia* LEHRER 2005b; *Gangelomyia* LEHRER 2005b; *Laoziana* LEHRER, 2005b; *Temaseka* LEHRER, 2005b und *Maraviola* LEHRER, 2005b sind jüngere Synonyma (**= syn. nov.**) von *Bengalia* ROBINEAU-DESVOIDY, 1830. *Bengalia ruedai* LEHRER, 2005b (**= syn. nov.**) wird als Synonym von *Bengalia calilungae* RUEDA, 1985 erkannt. *Temaseka mallochi* LEHRER, 2005b (**= syn. nov.**) ist ein Synonym von *Bengalia concava* MALLOCH, 1927. *Afridigalia adrianponti* LEHRER, 2005b und *Afridigalia falsimonia* LEHRER, 2005b (**= syn. nov.**) sind Synonyma von *Bengalia floccosa* (VAN DER WULP, 1884). *Afridigalia lubana* LEHRER, 2005b und *Afridigalia sanaga* LEHRER, 2005b (**= syn. nov.**) sind Synonyma von *Bengalia gaillardi* SURCOUF & GUYON, 1912. *Afridigalia laguna* LEHRER, 2005b und *Afridigalia nusantara* LEHRER, 2005b (**= syn. nov.**) sind Synonyma von *Bengalia inermis* MALLOCH, 1927. *Afridigalia jamesi* LEHRER, 2005b und *Afridigalia nicolasia* LEHRER, 2005b (**= syn. nov.**) sind Synonyma von *Bengalia lyneborgi* JAMES, 1966. *Afridigalia elgonia* LEHRER, 2005b und *Afridigalia olapana* LEHRER, 2005b (**= syn. nov.**) sind Synonyma von *Bengalia peuhi* VILLENEUVE, 1914. *Maraviola erithreana* LEHRER, 2005b (**= syn. nov.**) ist Synonym zu *Maraviola seniorwhitei* LEHRER, 2005b. *Maraviola smarti* LEHRER, 2005b (**= syn. nov.**) ist Synonym zu *Maraviola racovitzai* LEHRER, 2005b. *Ochromyia* LEHRER, 2005b ist ein objektiv ungültiger Name weil er ein jüngeres Homonym von *Ochromyia* MACQUART, 1835 darstellt. *Ochromyia jejutora* LEHRER, 2005b und *Gangelomyia senausmarta* LEHRER, 2005b sind nicht verfügbar, da sie als Synonyma publiziert wurden. *Afridigalia fanzideliana* LEHRER, 2005b und *Bengalia ruedai* LEHRER, 2005b sind nicht verfügbare Namen, weil kein Holotypus festgelegt wurde. Zahlreiche Irrtümer und Fehler, die sich auf die Typenexemplare beziehen, viele Fehlinterpretationen und falsche Auslegungen der Reichweite der Festlegungen des ICZN (1999) werden aufgezeigt. In dem in Rede stehenden Werk wurden keine Vorschläge zur Festlegung von männlichen Neotypen im Sinne der Forderung des Codes bezüglich der Stabilität der Nomenklatur für solche Arten unterbreitet, die auf nicht eindeutig interpretiertbaren Weibchen beruhen. Insgesamt 14 valide Arten werden von LEHRER aus unerfindlichen Gründen überhaupt nicht erwähnt, 7 weitere finden mit zweifelhafter Begründung keine Beachtung und viele weiter nominelle Arten werden völlig ignoriert. Die Abbildungen der Genitalien sind nicht ausreichend, da nur die Seitenansichten dargestellt werden. Manche der neu aufgestellten Spezies scheinen auf Artefakten bei der Zeichnung des Aedeagus oder anderer Organe oder aber auf geringfügigen individuellen Variationen zu beruhen und viele scheinen zueinander synonym zu sein. Obwohl der Autor zahlreiche neue Arten beschreibt und die Basis für eine vernünftige Interpretation einer artenreichen Gattung legt, muss LEHRER's Buch 'Bengaliidae du Monde (Insecta: Diptera)' als eine unfertige Bearbeitung aufgefasst werden, die vorgibt eine tiefgründige taxonomische Bearbeitung zu sein. Es ist aufgrund der vielen Unzulänglichkeiten nur eingeschränkt nutzbar und mit größter Vorsicht anzuwenden.

Stichwörter Taxonomie, Diptera, Calliphoridae, Bengaliidae, Bengaliinae, *Bengalia*, *Auchmeromyia*, Subfamilien, neue Arten, neue Synonyme

Works reviewed

LEHRER (2003b) = Andy Z. LEHRER (2003): Bengaliidae n. fam. Une nouvelle famille de Diptera Cyclorrhapha. – Entomologia Croatica **7**(1–2): 5–14.

LEHRER (2005a) = Andy Z. LEHRER (2005): Deux espèces afrotropicales nouvelles du genre *Auchmeromyia* BRAUER & BERGENSTAMM (Diptera: Calliphoridae). – Bulletin de la Société Entomologique de Mulhouse **61**(3): 45–52.

LEHRER (2005b) = Andy Z. LEHRER (2005): Bengaliidae du Monde (Insecta: Diptera). – Pensoft Publishers, Sofia – Moscow (2005). ISBN 954-642-244-4 (Pensoft Publishers), ISBN 965-90835-0-5 (Andy Z. LEHRER); Pensoft Series Faunistica No. 50, ISSN 1312-0174

Introduction

The new book 'Bengaliidae du Monde (Insecta: Diptera)' (LEHRER 2005b) aspires to be a world-wide taxonomic revision of what used to be treated as a single genus in the family Calliphoridae, i. e. *Bengalia* ROBINEAU-DESVOIDY, 1830. A total of 70 species are treated, of which 49 are described as new to science. (This leaves only 21 species as 'known' before the appearance of his monograph, whereas the correct number is 40. More on this below.) LEHRER expands what currently is known as the tribe Bengaliini (ROGNES 1998) into a separate family in its own right, and erects 4 subfamilies, 3 of which are new to science, and 12 genera, 10 of which are new to science. The male genitalia are figured for almost all of them. Subfamilies, genera and species are keyed. No females have been described and no effort has been made to try to identify any of them. He has put a considerable effort into his work and has made an important contribution to the taxonomy of these flies on the basis of male genital features. The book will serve as a necessary framework for later authors, since a lot of species have been described and named, and since figures and descriptions at this level of detail have not been available before.

He concludes his work by stating that a rigorous analysis of the somatic and … male genital characters 'a permis l'approfondissement et la clarification taxonomique d'une famille ...' (p. 6) and that the group '… has thus been fully reassessed.' (p. 7). No doubt, the book will be used by the research community for a long time. However, it is not without shortcomings, even severe ones, and sometimes the shortcomings are quite bizarre. It is far from a complete survey of the published species (14 valid species are ignored for unknown reasons), numerous names have been ignored, and very few type species (holo- or lectotypes) of previously published names have been investigated. So the nomenclature is on shaky ground.

I will argue below that the book does not live up to its announced claim, that it does not live up to the letter or spirit of the current rules of nomenclature, that it creates a lot of unnecessary names, that LEHRER describes species on the basis of specimens he has not seen, that some species seem to be based on artifacts, that several of the new species must be synonyms of each other, that he ignores for no reason at all a larger number of good species, that the book's illustrations, even though good, are far from adequate for species definition given the extreme complexity of the *Bengalia* aedeagus, that its discussion of the relationships of *Bengalia* is based on archaic systematic concepts, and that the work by and large is based on sloppy scholarship. It should be treated with caution and circumspection by subsequent workers.

Background knowledge on *Bengalia* - biology, classification and relationships

In the original publication the genus encompassed 4 nominal species, of which *Bengalia testacea* ROBINEAU-DESVOIDY, 1830 was later designated as type species by DUPONCHEL (1842: 542) (= *B. torosa* WIEDEMANN, 1819) (EVENHUIS & THOMPSON 1990: 233; cf. SABROSKY 1999: 62). Biologically the species in the genus are aggressive predators in the adult stage, feeding on termites and ant pupae or snatching prey from the ants themselves (SENIOR WHITE, AUBERTIN & SMART 1940; PONT 1980). They have a yellow or brown ground-colour, an anteroposteriorly compressed head, stout mouthparts, a projecting clypeus below the lower facial margin and have a silent flight. Very little is known about their breeding habits. The genus occurs in the Afrotropical and Oriental Regions, and one species has been recorded from Australia, apparently a recent introduction (FARROW & DEAR 1978).

The taxonomy and nomenclature of the included species have been confused in the past and several names have been used for the same species by different authors. The confusion stems mainly from the fact that the types of several of the old nominal species are females, and not even recognisable at the present state of knowledge. But recent catalogues have succeeded fairly well in establishing a stable nomenclature agreed upon by most workers, although still not fixed by relevant type designations.

In the Oriental catalogue JAMES (1977) recognised 22 species (but omitted one *chekiangensis* FAN), in the Afrotropical catalogue PONT (1980) listed 11 species (although a twelfth – *lepineyi* SÉGUY ought apparently not to have been listed as a synonym of *minor* MALLOCH), and KURAHASHI (1989) listed one species in the Australia and Oceania catalogue. Subsequently a few more species have been described (three by KURAHASHI & TUMRASVIN 1979, one by RUEDA 1985, and one by KURAHASHI & MAGPAYO 2000), so that at the time of appearance of LEHRER's book about 41 species have been recognised.

The genus was classified as the only member of a calliphorid subfamily Bengaliinae by e.g. JAMES (1966) and LEHRER (1970), a group which was given only tribal rank (as Bengaliini) by e.g. TUMRASVIN, KURAHASHI & KANO (1979) and KURAHASHI, BENJAPHONG & OMAR (1997). ROGNES (1991) also treated Bengaliinae as a subfamily of the Calliphoridae, but, following TUMRASVIN et al. (1979), included *Catapicephala* MACQUART, which was an obvious and unfortunate error. The latter genus has now been transferred to the Ameniinae (for a discussion, see ROGNES 1997: 51).

The subfamily Auchmeromyiinae of PATTON (1935: 228; misspelled as Auchmeromyinae) (= Tricycleinae of LEHRER 1970; cf. ROGNES 1991: 15) is obviously closely related to Bengaliinae sensu ROGNES (1991 and 1997), both sharing many synapomorphies (discussed also by PAPE 1992: 47). This led PAPE (1992) to give the name Bengaliinae a new meaning, namely as a name denoting a taxon encompassing both *Bengalia* and the genera included in Auchmeromyiinae by ROGNES (1991: 15). ROGNES (1997) maintained both Bengaliinae and Auchmeromyiinae (for which latter group a new chaetotactic character was found), although recognising their very tight relationship, in fact the combined taxon was one of the best supported groups in the Oestroidea according to his analysis. Subsequently, ROGNES (1998) united these groups (as PAPE had done before him) under Bengaliinae (s.lat.), but kept the composing parts as the separate tribes Auchmeromyiini and Bengaliini. PAPE & ARNAUD (2001) re-analysed ROGNES's data supplemented by their own and also found the combined group (Bengaliinae + Auchmeromyiinae) to be firmly supported, and the two composite taxa more closely related to each other than to any other taxa.

To further supplement the background for the discussion to follow, one should be aware that the family Calliphoridae almost certainly is a polyphyletic assemblage, a group of convenience (ROGNES 1997), and not a natural monophyletic group.

A family in its own right?

In an earlier paper (LEHRER 1970: 2, 5, 33) recognised a subfamily Bengaliinae within the Calliphoridae. He even followed the name with the abbreviation 'n. sfam.' implying that he regarded himself as the creator of this family-group name. In his recent *Entomologia Croatica* paper LEHRER (2003b) raised the current tribe Bengaliini (ROGNES 1998) to the status of a full family, Bengalidae, in its own right. The name Bengalidae is here presented explicitly as a 'n. fam.' in the title of the paper, and as 'une nouvelle famille' in the abstract, implying that

he, again, is the creator of this family-group name (cf. ICZN 16.1.; recommendation 16A). This is an error, apart from the fact that LEHRER cannot regard the family-group name from 2003 as 'new', when he had created the same family-group name as 'new' in 1970. He seems not to realise that Bengaliinae and Bengaliidae are the same family-group name in the sense of ICZN (Articles 35, 36, and 50). The family group-name was created by BRAUER & BERGENSTAMM (1889: 85 (17)) as Bengaliinae (see SABROSKY 1999: 62). Therefore BRAUER & BERGENSTAMM, and not LEHRER – as he himself wrongly believes – are the authors of the family-group name, whether in the form Bengalidae, Bengaliinae, Bengaliini, or whatever rank with the corresponding suffix, to which it might be applied ('superfamily, family, subfamily, tribe, subtribe and any other rank below superfamily and above genus …') (ICZN 35.1.-3.; 36.1.-2.; 50.1., 50.3.).

What are LEHRER's reasons for this action? LEHRER (2003b) explains that '… on delimite une nouvelle famille: **Bengaliidae**' (p. 5) on the basis of various good and well-known characters and because 'les details des structures postabdominals mâles du genre *Bengalia* ROBINEAU-DESVOIDY, 1830 definissent une famille totalement séparée de Calliphoridae.' (p. 7).

There is no doubt that the postabdominal structure of *Bengalia* is very peculiar and different from other calliphorids, the most striking features are the median flap-like lobe behind ST5 (LEHRER's 'sternite VII'), and a surstylus apparently divided into three separate pieces (ROGNES 1997: 52) articulating with a short bacilliform sclerite. Behind the distal (ordinary) part of the surstylus (part 1) there is a small exposed bare plate (part 2) which continues medially and ventrally into another bare plate (part 3) that carries a strongly sclerotised tooth-like projection, which most often is curving dorsally. Part 3 articulates laterally with the proximo-lateral part of part 1. The lower end of part 3 articulates with the very short bacilliform sclerite. LEHRER interprets the sclerites a little differently, regarding both the bacilliform sclerites (his 'sternite X') and the surstyli (his 'paralobes') as being biarticulated. ZUMPT (1956: 164) also regards the paralobes as being biarticulated. A third interpretation may be true: that all the bare parts are homologuous with the bacilliform sclerite and that only part 1 is the true surstylus. Which interpretation is chosen is of no relevance for the present discussion.

The fact that *Bengalia* has many unique features has absolutely no bearing upon the problem of its establishment as a separate family (or whatever rank to choose for it) and cannot be used for this purpose. A taxon may well be 'distincte', but this does not justify the establishment of a family for it. This would lead to absurdities. Some kinds of distinctness do not argue for family status, other for generic status, etc. The problem to solve is not to find peculiarities of *Bengalia* (autapomorphies), they abound. The problem is to find characters that can tell us about its relationship with other calliphorids (synapomorphies), i.e.derived characters that *Bengalia* share with other taxa. They do not abound. Some have been described by PAPE (1992), ROGNES (1997) and PAPE & ARNAUD (2001). It is then only a matter of convenience and convention what rank to assign to the taxa, which should be decided after a judicious and pragmatic evaluation of the effect this action would have on the classification of related groups and more inclusive taxa.

Removing Bengaliini (LEHRER 2003b, as Bengaliidae) from the Calliphoridae under the assumption that the latter is a natural, monophyletic unit (apparently a reasonable interpretation of LEHRER's view), will of course – at least in theory – have an impact on the status of the remaining parts of the Calliphoridae. Removal of a monophyletic group from the interior of a more inclusive monophyletic group may result in the latter not any longer being monophyletic, but a paraphyletic rest-group. Is Calliphoridae – in whatever sense one might choose to

view this unit - monophyletic after removal of *Bengalia* as Bengaliidae, the latter now a taxon with the same rank as Calliphoridae? ROGNES (1997) e.g. argues that Calliphoridae in its current conception is not monophyletic, but, in view of the low reliability of many of the clades, warns that any dismantlement and formal erection of new families for the time being would be premature. Thus he retained the monophyletic groups as subfamilies (e.g. Bengaliinae, Auchmeromyiinae, Luciliinae etc), since dismantling the polyphyletic Calliphoridae would have a profound effect on the classification of the Oestroidea as a whole, and only cause confusion.

What is LEHRER's view of this problem? In his book (2005b: 18–19) he declares first that PAPE's and ROGNES' works are without value:

> 'Quant aux essais de PAPE (1992) and ROGNES (1997) d'établir une certaine unité taxonomique, seulement sous une forme verbale "phylogenetique ", entre les Calliphoridae et Bengaliidae, on peut dire qu'ils sont dépourvus de toute valeur. ... fondés sur le groupement et l'interprétation artificielle de certains caractères somatique, sans grande importance taxonomique.'

Then he goes on to accuse both of us of not giving any reference to the structure of the male postabdomen and genitalia, 'essential for the separation of Bengaliidae from the Calliphoridae', the reason being that we do not know the 'species of this family':

> '... aucune référence sur la structure du postabdomen et des genitalia mâle, n'ont pas été apporté par les auteurs mentionnés parce qu'ils ne connaissent pas les espèces de cette famille, bien qu'étant essentiells [sic] pour l'établissement de la taxonomie des Bengaliidae et requises pour la séparation indiscutable des Calliphoridae.' (LEHRER 2005b: 19)

But ROGNES (1997: 53) in fact discussed in detail the very characters LEHRER himself used to argue for status as a separate family, as follows:

> 'Bengaliinae. – These are quite clearly a monophyletic group with a number of peculiar features: median apical plate to the ST5 in the male; a very peculiar aedeagus; a surstylus which seems to be divided in three separate pieces; very stout prementum. The present analysis corroborates their monophyly by a reduction of the number of humeral seta from 3 to 2 (character 6), by the loss of outer posthumeral seta (character 12), by having setulae on the metakatepisternum (character 15), and by the hind coxa being setose on the posterior surface (character 29). (SENIOR-WHITE, AUBERTIN & SMART 1940; ZUMPT 1956a; JAMES 1966; TUMRASVIN, KURAHASHI & KANO 1979; KURAHASHI 1987a).'

So, clearly LEHRER is simply not speaking the truth when trying to meet our criticism.

LEHRER's view on Bengaliinae s. lat. (Bengaliini + Auchmeromyiini)

What is LEHRER's view of the composite group Auchmeromyiinae + Bengaliinae of ROGNES (1997: 37, fig. 2, Node 26; 42) (= Bengaliini + Auchmeromyiini = Bengaliinae s.lat. of ROGNES 1998: 634-635)? Note that the combined taxon was one of the best supported groups in the Oestroidea as a whole, according to his analysis. On p. 19 LEHRER (2005b) mysteriously refers to ROGNES (1997: 41, fig. 6) which he obviously has not understood. It is a jack-knife tree presented in order to show that the composite group is one of only two oestroid groups surviving Farris' Parsimony Jackknifer, and not a view of the Oestroid phylogeny, as LEHRER seems to believe. The phylogeny itself is given in ROGNES' fig. 2 (p. 37). It elicits the following comment from LEHRER (2005b: 19):

> 'Dans cette conception "phylogénétique" insolite, le group Auchmeromyiinae + Bengaliinae, qui constitue le "noeud [cladistique] 26" ou [sic] "noeud [cladistique] 40", est fondé sur les charactères "phylogénétiques " suivants: "yellow ground colour, absence of coxopleural streak 9...0 [sic, (...) is obviously meant, as the citation omits a portion of my text] and an anal vein reaching the wing margin " et "very short ovipositor sclerites and by an almost absent ST8 of the ovipositor."'

Node 26 is the group under consideration now, and node 40 is its sister-group, a term obviously neither understood by LEHRER. The ovipositor characters refer to the sister-group. LEHRER does not understand the text before him, and of course is not able to give any arguments in favour of another relationship of the two taxa.

In another paper LEHRER (2005a: 49) gives a few additional comments on Auchmeromyiinae. He describes the bacilliform sclerites ('sternite X') as being in the form of a unified plate (not two bars) and the surstyli as a single structure. Therefore *Auchmeromyia* apparently belongs in the remainder of the Calliphoridae and is not related in a particular way to *Bengalia*:

> 'Par ces structures postabdominales et non par les caractères chétotaxiques ou chromatiques, utilisés dans les analyses "cladistiques " de ROGNES, il semble que le genre *Auchmeromyia* appartient à la famille des Calliphoridae, comme une branche phylogénétique distincte. Il se sépare des espèces de la famille des Bengaliidae, bien que la couleur fondamentale du corps soit plus ou moins jaune.'

The transformation of the bacilliform sclerites into a unified plate is an interesting apomorphy, also found e.g. in the rhiniine genus *Stomorhina* (ROGNES, 1991: 243, fig. 678; 245). LEHRER (2005a: 49) concludes:

> 'Cependant, les relations phylogénétiques du genre *Auchmeromyia* et les genres affins ne peuvent être encore établies, elles nécessitent des recherches beaucoup plus approfondies.'

In short, by praying for 'more profound investigations' of unspecified nature, he shows only that he is unable to counter any of the arguments brought forward by ROGNES (1997, 1998) for uniting Bengaliinae/Bengaliini with Auchmeromyiinae/Auchmeromyiini. Instead he leaves the genus *Auchmeromyia* and 'genres affins' floating somewhere among the remainder of Calliphoridae. The way he argues about the systematic position of *Auchmeromyia* and other taxa is archaic, pre-Hennigian. Lacking the conceptual tools of cladistics (not understood and employed only as a derogatory term) he cannot reach a level of precision sufficient for establishing a meaningful dialogue with fellow systematists.

LEHRER's taxonomic philosophy and the classification of 'Bengaliidae' (*Bengalia*)

LEHRER (2005b) stresses the great similarity of the external adult morphology of the species of his 'family'. He states that

> 'A l'exception de la configuration de la grande ampoule subalaire, les caractères externes ne permettent pas l'établissement d'un système taxonomique de cette famille. Il peut être réaliser [sic] seulement sur la base des types de structure des phallosomes et sur leur systématisation dans les groupes génériques et surgénériques.' (p. 19).

But in spite of this great unity he nevertheless subdivides the assemblage into no less than four subfamilies and 12 genera, an action which would suggest to most people that the group is very diverse and heterogeneous. But it is not.

The situation that LEHRER confronts is one which every taxonomist sooner or later meet. Should 'distinct' (most likely monophyletic) taxa be given formal names and removed from their former taxa? Is the establishment of new formal taxa justified? Or can the newly discovered species be accommodated into an already existing taxonomic framework? And can the new supraspecific taxa instead be given informal species-group names, that do not burden the formal nomenclatural load of systematic zoology?

The style of LEHRER's taxonomic work since his first publications is one typical of a taxonomic splitter. Whenever there exists a distinct genital feature in certain taxa, he prefers to establish a separate subgenus, genus, tribe or subfamily. This is evident in all his works, from his early treatment of blowfly classification (LEHRER 1963, 1967, 1970, 1972) to his last magnum opus 'Sarcophaginae de l'Afrique (Insecta, Diptera, Sarcophagidae)' (LEHRER 2003a) where a multitude of genera were established (or re-established) as valid, although they were all synonymised into *Sarcophaga* (s.lat.) by other specialists. LEHRER'S taxonomic philosophy seems to be that to a type of aedeagus corresponds a subfamily, to its details correspond a genus, whether it has one or several species. Even if a genus is monospecific today, that is of no importance: later on further species will certainly be discovered that fit into the newly created framework. LEHRER'S archaic taxonomy is elaborated upon with great precision in a recent paper of his (LEHRER 2006: 8). The danger of all this is that it leads inevitably to inflation of taxonomic levels and categories, and to loss of perspective and overview.

Consider what LEHRER actually has proposed: one single genus (*Bengalia* ROBINEAU-DESVOIDY), hitherto easily recognised by everyone on external features, is replaced with one family consisting of four subfamilies (Maraviolinae, Gangelomyiinae, Bengaliinae, Afridigaliinae) and 12 genera on the basis of rather small details in the male genitalia accessible only after dissection and close scrutiny. Yes, rather small details, everything considered, and comparable to the variation in the genitalia of other calliphorid genera, such as e.g. *Calliphora*, *Chrysomya*, *Lucilia*, and *Pollenia*. A consequence is that a female specimen may not be safely assigned even to a subfamily. Such a situation is unacceptable.

An alternative, and in my view much sounder approach, would be to work with informal species group names and avoid entering new names into zoological nomenclature *ad libitum*. This is done in modern treatments of very species-rich Diptera genera such as *Drosophila, Simulium, Empis, Rhamphomyia, Megaselia, Tipula, Pollenia,* etc. All are genera with numerous (up to hundreds of) species, but which are classified in species groups given informal names. A good example is CHVÁLA's (2005) treatment of the genus *Hilara* MEIGEN, 1822 (Empididae). The advantage of this approach is that the number of formal taxonomic categories will be kept at a minimum and that genera which are easily recognized by external features will be given a name everyone understands. Note that the phylogeny and taxonomic structure of the genus will not be affected by this approach. One can analyse and discuss informal species groups with the same ease as formally named genera.

This criticism should not detract from the achievement of LEHRER in discovering and demonstrating the diversity of *Bengalia*, analysing and illustrating the variation in the male genital structure, and subsequently creating the foundations for a rational taxonomy of the genus, summarised in his figures of the main aedeagus types (Fig. 7 on p. 20). But I object strongly to the myopia and excessive splitting and name erecting that he has chosen to deduce from his findings. Fig. 7 should have been the basis of species groups within the genus *Bengalia*.

I therefore propose that his subfamilies be replaced by informal species groups named as follows: 'Afridigaliinae' (Fig. 7a) to be replaced with '*Bengalia peuhi* species group', 'Ben-

galiinae' (Fig. 7b) to be replaced with '*Bengalia labiata* species group', 'Gangelomyiinae' (Fig. 7c) to be replaced with '*Bengalia torosa* species group' and 'Maraviolinae' (Fig. 7d) to be replaced with '*Bengalia spinifemorata* species group'.

LEHRER and the International Code of Zoological Nomenclature

The type species of *Bengalia*

LEHRER's attitude to and interpretation of the International Code of Zoological Nomenclature is a challenge for any reader to understand and decipher. The following is an attempt at exegesis.

In the Oriental Catalogue JAMES (1977) synonymised *Bengalia melanocera* ROBINEAU-DESVOIDY, 1830 and *B. pallens* ROBINEAU-DESVOIDY, 1830 under *B. labiata* ROBINEAU-DESVOIDY, 1830 and synonymised *Bengalia testacea* ROBINEAU-DESVOIDY, 1830 under *Musca torosa* WIEDEMANN, 1819.

LEHRER (2005b: 16) is strongly opposed to this:

> 'Les espèces de ROBINEAU-DESVOIDY, avec lesquelles il a établi le genre *Bengalia*, à savoir, *labiata, melanocera, pallens,* et *testacea,* ont leurs types, d'habitude femelles, perdus et inconnus. Par cette cause, la stipulation de l'espece *labiata* ROBINEAU-DESVOIDY comme espèce-type du genre *Bengalia*, a été faites par MALLOCH (1927: 394) [more on this point below (KR)] de façon arbitraire, pas justifié et difficilement d'être acceptée.'

On p. 17 he goes on:

> 'Pareillement, les synonymes *melanocera* ROBINEAU-DESVOIDY et *pallens* ROBINEAU-DESVOIDY en faveur de *Bengalia labiata* ROBINEAU-DESVOIDY sont sans aucune base scientifique, celles-ci émanant du manque de possibilités de vérification. L'introduction de l'espèce *Bengalia testacea* ROBINEAU-DESVOIDY dans la synonymie de *Musca* « *jejuna* FABRICIUS » est aussi injustifiée, elle pouvant être attribuée à n'importe quelle espèce et même a *Bengalia labiata* ...'

LEHRER here states that the types of ROBINEAU-DESVOIDY are 'd'habitude femelles'. This is pure fabrication. There is nothing in the descriptions to indicate the sex of the specimens before ROBINEAU-DESVOIDY, and JAMES (1977) marks the names with '(sex ?)' in accordance with this.

LEHRER also states that ROBINEAU-DESVOIDY's types are 'perdus et inconnus'. This might well be the case, but he has not searched the Paris collection.

LEHRER maintains that the synonymisation of the ROBINEAU-DESVOIDY names has no scientific basis since it arises only from 'manque de possibilité de vérification'. But the ICZN leaves a way out for problems like this. The interpretation of such names can be fixed by the proper neotype designation even if the original types are lost. That is the rule of nomenclature (ICZN 75.5).

Notwithstanding these declarations, on p. 87 LEHRER nevertheless cites *Bengalia labiata* ROBINEAU-DESVOIDY as type-species for *Bengalia* – in spite of his earlier statement to the effect that the type designation is made 'de façon arbitraire, pas justifié et difficilement d'être acceptée' (p. 16). On p. 96 he even uses *Bengalia labiata* ROBINEAU-DESVOIDY to denote one of his *Bengalia* species on the basis of a specimen identified by KURAHASHI and assuming that the general configuration of the distiphallus is 'proche de la figure de SENIOR WHITE & coll. (1940: 85, fig. 39), qui doit être acceptée *a priori.*' (p. 98).

LEHRER believes (2005b: 16) that the designation of *Bengalia labiata* ROBINEAU-DESVOIDY as type species was made by MALLOCH (1927: 394; cf. text lifted from his work above). This is completely taken out of the blue. LEHRER's reference to this page in MALLOCH's work seems to have been inspired by SENIOR WHITE et al. (1940) who state concerning *labiata* that

> 'The recognition and synonymy of this species are due to MALLOCH (Ann. & Mag. Nat. Hist. (9) xx, p. 394, 1927), whose description has been used to supplement the original description. … As pointed out by MALLOCH, as the species is the genotype it is much to be desired that it should be recognized.' (p. 86).

LEHRER himself seems not to have checked MALLOCH's work, where he would have found the following:

> 'In 1916 TOWNSEND designated *labiata*, ROBINEAU-DESVOIDY, as the genotype of *Bengalia*, but from the time of its original description it has remained unknown. I have before me several specimens which I believe to belong to this species, and present a description below.' (p. 392–393).

TOWNSEND (1916: 6) is listed as the designator of the type species in both the Oriental (JAMES 1977) and the Afrotropical (PONT 1980) catalogues, both cited in LEHRER'S bibliography, but LEHRER does not mention this fact, or TOWNSEND'S name in this connection, anywhere.

However, more recent investigations (EVENHUIS & THOMPSON 1990: 233) indicate that *Bengalia testacea* ROBINEAU-DESVOIDY, 1830 is the type species, being designated as such much earlier by DUPONCHEL *in* D'ORBIGNY (1842: 542). This information is incorporated in the recent work on family group names in Diptera by SABROSKY (1999: 62). Neither works are mentioned by LEHRER. In the Oriental catalogue (JAMES 1977) *Bengalia testacea* is equated with *Bengalia torosa* (WIEDEMANN, 1819), the currently used name [replaced by LEHRER with *Ochromyia jejutora*].

Scientific and unscientific type designations?

LEHRER (2005b: 17–18) writes:

> 'Un des exemples les plus suggestifs est représenté par la connue espèce fictive « *Bengalia depressa* WALKER, 1857 ». Ayant un holotype femelle, … En depit de l'impossibilité d'établir son identité taxonomique, les diptérologistes mentionnent ce **nomen dubium** d'un esprit d'inertie et lui attribuent même la qualité d'espèce-type du genre *Eubengalia* TOWNSEND, 1926, ceci sans aucune justification scientifique.'

Dipterists do not attribute *Bengalia depressa* WALKER the role as type species of *Eubengalia* for any other reason than that it was designated as such by TOWNSEND (1926: 529), a type designation which was perfectly legitimate. No one can change this designation, or designate another nominal species as type species for *Eubengalia* TOWNSEND. How can a type designation be without scientific justification? LEHRER is not explicit on this point. Does he suggest that the designation of a female type is *a priori* unscientific? This might be true judging from other statements, but does not seem to be the case here. From what LEHRER states above it seems that had *B. depressa* WALKER been identifiable everything would have been in order. Or what does he mean? Obviously, there is no such thing as a scientific or unscientific type designation, as LEHRER seems to imply. A type designation can be valid, or it can be invalid, the latter is the case if the designated type was not among the originally included nominal species. A type designation is for ever and does not change.

TOWNSEND believed he could recognise female *Bengalia* species, and if it subsequently has turned out he was in error on this account, he cannot be blamed for making an *unscientific* designation of type species. This is nonsense.

However, it may be the case (argued below) that LEHRER in fact believes that anyone can validly designate any nominal species as type species (provided it belongs in the synonymy of the first one). If, with this assumption in mind, TOWNSEND performed a bad ('unscientific') action when designating a species based on female types for his nominal genus, then dipterists are wrong in showing 'inertia' by accepting *B. depressa* as type species, instead of designating another type species based on males. This is in fact what LEHRER recommends and he himself does in several cases. This is the subject of the next chapter.

Types in the genus-group: an author is free to designate type species at will

For *Ochromyia* MACQUART, 1835 LEHRER cites '*Ochromyia jejutora* n. sp.' as type species, even if this nominal species evidently cannot have been among the originally included species of *Ochromyia*, and notwithstanding the fact that MACQUART himself (1835: 249) explicitly designated *Musca jejuna* FABRICIUS, 1787 as type species:

> 'La *Musca jejuna* de FABRICIUS est le type de ce genre, don't M. ROBINEAU-DESVOIDY a formé une tribu paticulière.'

However, for LEHRER it is of no importance who designated the type species, as he believes anyone can change it to their taste. Two examples will illustrate this.

First, consider this quote from his recent article on *Auchmeromyia* (LEHRER 2005a: 49):

> 'Nous avons toujours considéré que *Musca luteola* FABRICIUS est l'espèce-type d'*Auchmeromyia*. Mais, dans la catalogue du PONT (1980: 790) nous trouvons que, étant un "junior homonym, preocc. *luteola* SCOPOLI, 1763", elle [pointing back to the word "l'espèce-type" (fém.) (KR)] a été remplacée par *Ochromyia senegalensis* MACQUART, 1851 du Sénégal.'

Here he states explicitly (and erroneously) that PONT (1980) has replaced *Musca luteola* FABRICIUS, 1805 with *O. senegalensis* MACQUART, 1851 as type species of *Auchmeromyia.* He does not say that PONT has replaced an invalid specific name (*luteola*), because of homonymy [the homonymy is in fact double: *Musca luteola* SCOPOLI, 1763 (a chyromyid) and *Musca luteola* GMELIN, 1790 (a syrphid)], with a valid one (*senegalensis*), the next oldest in the synonymy of *Musca luteola* FABRICIUS.

In agreement with this understanding of what an author is allowed to do, LEHRER (2005a: 50) states that, for various reasons,

> '... le maintien de l'espèce-type *Musca luteola* FABRICIUS s'impose, tant pour la stabilité de la nomenclature, que parce que pour elle on connaît précisément la morphologie de sa genitalia mâle.'

Note that he is never questioning PONT's right to make this imaginary change of type species, only that it is unwise. LEHRER's suggestion that one keeps *Musca luteola* FABRICIUS as type species is ridiculous, for no one, including PONT, has ever suggested that any other species than *luteola* FABRICIUS is the type species (being so even by monotypy).

In the following quote, immediately following the text lifted above, LEHRER (2005a: 49) seems to argue that the senior homonym *luteola* SCOPOLI is an unrecognised name, and, although not saying so explicitly, that therefore the Principle of Homonymy does not apply:

> 'On sait que la collection complète de diptères de SCOPOLI a eté perdu ... et ainsi, personne ne connait vraiment *Musca luteola* SCOPOLI. D'après nos opinions, cette synonymie est un simple acte formel, littéraire, qui ne peut avoir aucune valeur taxonomique.'

The ICZN Article 52 in fact allows for exceptions to the Principle of Homonymy. The exception relevant for this case is spelled out in Article 23.9.1. It states that prevailing usage [i.e. use of a junior homonym] must be maintained when both of two conditions are met, one of which (Article 23.9.1.1) being that 'the senior … homonym, has not been used as a valid name after 1899 …'. But the senior homonym in our case, *Musca luteola* SCOPOLI, 1763, has been used for a chyromyid fly, and is now a synonym of *Chyromya flava* LINNAEUS (see THOMPSON & PONT 1993: 93) and not 'unrecognised'.

Musca luteola FABRICIUS is also a junior primary homonym of *Musca luteola* GMELIN, 1790, which is neither 'unrecognised'. It has been used for years for a syrphid fly *Myolepta luteola* (GMELIN, 1790) (Tore R. NIELSEN, pers. comm.), a name which has recently been replaced by *Myolepta dubia* (FABRICIUS, 1805) because of its homonymy with SCOPOLI's species (cf. THOMPSON & PONT 1993: 93). In conclusion, LEHRER is wrong in assuming that the Principle of Homonymy does not apply in the *luteola* FABRICIUS case.

LEHRER goes on to raise the question of the sex of the type specimens:

> 'En même temps, concernant *Ochromyia senegalensis* MACQUART, on ne sait rien sur les sexes qui ont été pris en consideration et quelle est la base scientifique du remplacement de *M. luteola* FABRICIUS. Nos essais pour trouver et emprunter le type de celui-ci au Museum national d'Histoire Naturelle de Paris ont échoué.' (LEHRER 2005a: 49-50).

In passing, it comes as no surprise that LEHRER got nowhere with his approach to the MNHN, Paris, regarding the whereabouts of the type material of *senegalensis* MACQUART, since MACQUART described the species from specimens collected by BIGOT (cf. ACKLAND & TAYLOR 1972). The syntypes (2♂♂) are now in BIGOT's collection of Exotic Diptera in the Hope Department of Entomology, University Museum, Oxford.

By raising the question of the sex of the type specimens: 'pour elle [*luteola* FABRICIUS] on connaît précisément la morphologie de sa genitalia mâle' and '... concernant *Ochromyia senegalensis* MACQUART, on ne sait rien sur les sexes qui ont été pris en consideration ...' LEHRER seems to suggest that *Ochromyia senegalensis* MACQUART may not be a true synonym of *Musca luteola* FABRICIUS, even if competent dipterists say so. This, of course does not change the fact that *Musca luteola* FABRICIUS still is the type species of *Auchmeromyia*, that it still is a junior homonym, and that *luteola* still must be replaced with a valid name. PONT (1980) lists three other names in the synonymy that might be candidates, but none of them are mentioned or discussed by LEHRER. He seems, in fact to be better off with an invalid homonym, rather than a valid name established by competent colleagues, until the time arrives when he himself has revised and established each and every truth about all the nominal species associated with *Auchmeromyia*.

Next, consider these lines from his book (LEHRER 2005b: 142):

> Genus *Ochromyia* MACQUART, 1835,
> *Espèce-type*: *Ochromyia jejutora* n. sp.

He has access to the Afrotropical catalogue (PONT 1980), where (p. 790) the nominal species *Musca jejuna* FABRICIUS is cited as type-species of *Ochromyia*, by original designation. In spite of this he lists the nominal species *Ochromyia jejutora* as type species. This he can only do if (1) he believes that one is permitted to change the type species at will, and (2) that *M. jejuna* and his *O. jejutora* designate the same species, thus are synonyms (in fact LEHRER

erects this synonymy formally on the next page), and interchangeable as names for the type species. It is then obvious that the name *jejutora* LEHRER, 2005b is deliberately published in synonymy, and therefore technically invalid from the start.

Contrast all this with ICZN 67.1.2. where it is stated explicitly that 'The name of the type species remains unchanged even when it is a junior synonym or homonym, or a suppressed name ...'; and with ICZN 67.2. where a nominal species has to be one of the originally included nominal species to be eligible to be fixed as type species, for which reason *jejutora* is of course not eligible for type fixation for *Ochromyia* MACQUART.

Thus, his misunderstanding is very profound. Instead of replacing an invalid name (because of homonymy) with a valid one, he simply changes the type species; in the case of *Auchmeromyia* by 'reinstating' the Fabrician species *Musca luteola* as type species, in response to an imaginary and (to LEHRER) unobjectionable 'replacement of type species' attributed erroneously to PONT. In the case of *Ochromyia*, instead of fixing the identity of the type species *Musca jejuna*, considered a *nomen dubium*, by proposing the selection of a male neotype in accordance with current usage of the name, he replaces it with a brand new type-species *O. jejutora*, declared by himself to denote the same species. This is not the way it should be done, if one plays by the rules.

Why does he act like this? *Ochromyia*, as presented by LEHRER on p. 142, is, in the technical sense of the Code, the available name of a new taxon having his new *O. jejutora* as type species. He seems unaware that he has created a name *Ochromyia* LEHRER, 2005b that is invalid from its inception because of homonymy with *Ochromyia* MACQUART, 1843. So this of course cannot have been his intention. Rather, he maintains that he has 'réhabilité' the genus (in the French 'Résumé', p. 6) or 'resurrected [it] from synonymy' (in the English 'Abstract' p. 7). One must therefore assume that LEHRER genuinely and honestly (but mistakenly) believes that *Ochromyia* MACQUART can have the new type-species he designates (*jejutora*) since he considers it to denote the same species as *Musca jejuna*. It is a much 'better' or 'more scientific' type species, since based on a male. Therefore LEHRER does not really consider *M. jejuna* a *nomen dubium* after all, but a senior synonym of *O. jejutora* LEHRER, 2005. Unfortunately the latter is obviously published in the synonymy of *M. jejuna*, and therefore also unavailable (ICZN 11.6. Publication in synonymy).

The problem with female type-specimens and *nomina dubia* put into synonymy, a contradiction in terms

As already discussed, LEHRER deplores on numerous occasions the fact that so many nominal species in *Bengalia* are based on female types, which he considers unidentifiable and therefore (apparently) treats as *nomina dubia*. Furthermore he records much of the confusion which has arisen in the past from this fact.

What avenues are open for a taxonomist confronted by these female, at the present state of knowledge, unrecognisable types? It is never discussed in LEHRER'S work.

The first option, the rational option, would be to apply to the Commission to select male neotypes to replace the females types now existent in accordance with ICZN, Article 75.5. This would resolve the problem, once and for all, and create the basis for a stable nomenclature. Unfortunately, this is never considered an option by LEHRER.

A second option would be to follow current usage regarding names, which now has been fairly stable for a considerable amount of time. This would be a sensible course of action for

a scientist with restricted access to libraries and museum collections. This option is neither followed by LEHRER.

A third option, also not adopted by LEHRER, would be to ignore these *nomina dubia* altogether and create a new nomenclatural world, and leave to later authors to identify the female types or select appropriate neotypes to fix the interpretation of the old names deliberately ignored for the time being.

A fourth option, the irrational option, would be to create new species based on male genitalia and 'resolve' the identity of the *nomina dubia* by identifying them – by fiat – with the newly created species, and put them into their synonymy. This is of course a nonsensical solution. A *nomen dubium* can – by its very nature of being unrecognisable – not be entered into a synonymy, since a synonymy consists of names known to denote the same species. But this is the option followed by LEHRER.

Consider this synonymy, lifted from his book (LEHRER 2005b:143):

***Ochromyia jejutora* n. sp.**

Musca jejuna FABRICIUS (♀), 1794, Mant. Insect, 2:312 - **nomen dubium**
Musca torosa WIEDEMANN, 1819, Zool. Mag., 3: 21 - **n. syn.**
Bengalia jejuna: Auct. - **n. syn.**
Bengalia torosa: JAMES, 1977, Cat. Dipt. Orient. Reg., III: 530 - **n. syn.**
Bengalia torosa: Auct. - **n. syn.**

Two pages later (p. 145), he declares both *Musca jejuna* and *Musca torosa* as *nomina dubia* ('… qui ne peuvent être utilisés dans la taxonomie moderne'), not only *jejuna*, as in this synonymy, since both are based on unrecognisable females. Then it is of course nonsense to put both of them in the synonymy of his own *jejutora*, which is based on male genitalia. He cannot know they denote the same species, since both are based on unrecognisable female types. So, they are perhaps not *nomina dubia* after all? Well, then *jejuna* (the oldest) should be put on top of the synonymy, with *jejutora* as a junior synonym. Or, to put it differently, once given a place in the synonymy, then *jejuna* should be put on top of the synonymy, with *jejutora* as a junior synonym. It follows from this that *jejutora* LEHRER is published in (even double) synonymy and therefore unavailable (ICZN 11.6.).

He tries to do the impossible and the impermissible thing: to resolve the identity of *jejuna* and *torosa* by identifying them – by fiat – with his *jejutora* instead of applying to the Commission to erect two male neotypes for them (replacing the females types now existent) in accordance with ICZN, Article 75.5. His action reveals a lack of understanding of how the type concept in the ICZN works.

He might have followed the third option outlined above, and put all the names he considers *nomina nuda* in a list at the end of the book, forgotten all about them and not taken them into synonymy. That would, however, leave e.g. *jejutora* as the fourth name in use for a well-known species, known today as *Bengalia torosa*, and a rather unsatisfactory solution.

LEHRER follows the same irrational option on p. 128. Here he puts *Anisomyia lateralis* MACQUART, 1843 – explicitly given as a *nomen dubium* because based on female types – in the synonymy of his own '*Gangelomyia senausmarta* n. sp.' based on males. Consequently, *senausmarta* LEHRER, 2005b is also unavailable since published in synonymy. And how can he know *lateralis* MACQUART is the same as *senausmarta*? Only by divine revelation. Note in passing that *Anisomya lateralis* MACQUART is currently (JAMES 1977) in the synonymy of *Bengalia torosa* WIEDEMANN, which is given the name *Ochromyia jejutora* by LEHRER. LEHRER is probably unsurpassed as creator of nomenclatural mess in dipterology.

Unnecessary specific names

torosa / *jejutora*
jejuna / *senausmarta*

I have already discussed LEHRER's creation of the unnecessary names *Ochromyia jejutora* (genitalia figured in LEHRER 2005b: 144, Fig. 65), for a species known today by most dipterists as *Bengalia torosa* (WIEDEMANN, 1819) (= *jejuna* of SENIOR WHITE et al. 1940) and *Gangelomyia senausmarta* (genitalia figured in LEHRER 2005b: 130, Fig. 57) for the species universally known today as *Bengalia jejuna* (FABRICIUS, 1787) (= *lateralis* of SENIOR WHITE et al. 1940). There is no doubt about the use of these old names any longer. The only thing left for a reviser is to fix their status by the appropriate type designations, by exploiting the possibility that the most recent ICZN offers.

floccosa / *falsimonia*

LEHRER (2005b: 40) also creates a new species named '*Afridigalia falsimonia* n. sp.' to take the place of *Bengalia floccosa* (VAN DER WULP, 1884) as used by ZUMPT (1956: 169, fig. 99). He even states that the latter's interpretation is a 'n. syn.' of his own *falsimonia*. The reason for this name-creation is, again, the fact that *floccosa* VAN DER WULP is based on two females (located now in Brussels, according to LEHRER's correspondence with A. C. PONT):

> 'Ainsi, *B. floccosa* (WULP) est un **nomen dubium**, qui ne peut etre maintenu dans la taxonomie moderne du genre *Afridigalia* n. gen. et l'espèce mâle des auteurs et de ZUMPT est une simple supposition, qui tombe en synonymie.' (p. 42)

Again, instead of proposing the designation of a male neotype to fix the identity of *floccosa* and contribute to the stability of zoological nomenclature, LEHRER adds further names to it, names that are bound to be sunk as synonyms by later authors.

varicolor / *fanzideliana*

LEHRER (2005b: 42) creates a new species named '*Afridigalia fanzideliana* n.sp.' for a species named '*Bengalia varicolor*' by FAN (1965, 1992 [LEHRER's references to the page and figure numbers in FAN's work are erroneous]) and declares FAN's identification as an 'identification erronée'. LEHRER of course cannot know this for sure since he has neither studied nor identified the type of *Musca varicolor* FABRICIUS nor any of FAN's specimens first hand. In fact, he has not seen any specimen at all of his new species, by his own admission: 'Nous ne connaissons pas cette espèce' (p. 42). His reason for describing a new species is rather that he judges FAN's figures (which he copies) to be too different from the figures of the species named '*varicolor*' by 'SENIOR WHITE et ses collaborateurs'. I do not think the figures of SENIOR WHITE et al. (1940: 102) justify such a rash judgement. However, the problem can easily be solved by quite regular means. A holotype male of *Musca varicolor* FABRICIUS, 1805 is present in ZMUC (TOWNSEND 1931: 371; ZIMSEN 1964: 489; THOMPSON & PONT 1993: 131) and is available for study. A male holotype of *Bengalia emarginata* MALLOCH, 1927, a name considered by SENIOR WHITE et al. (1940: 101) and JAMES (1977) as a synonym of *varicolor*, is also available, this time in the NHML. It should also be mentioned that LEHRER's name *fanzideliana* is unavailable, as no types are specified.

depressa / *walkeriana*

LEHRER (2005b: 75) creates the name *Afridigalia walkeriana* for a species named by ZUMPT as *Bengalia depressa* WALKER, 1857, according to the labels on several of the specimens LEHRER has studied. The latter name is regarded by LEHRER as a *nomen dubium* (pp. 18, 75) since based on a female holotype (in NHML). On p. 18 he ridicules those people who have not grasped 'l'impossibilité d'établir son identité taxonomique'. He should instead have suggested that the Commission designate a male neotype to fix the interpretation of the old and useful name.

How comprehensive – how big the lacunae?

LEHRER'S book falls way short of a revision in the proper sense of the word although its title suggests otherwise. It bears the unmistakable stamp of a half-finished work masquerading as a world-wide revision. Below follows an (incompletely) annotated survey of names and types which have been ignored and of names and types which have been studied by LEHRER. Boldface and asterisk are used for names regarded as valid species in *Bengalia* in current catalogues (which should be consulted for references not cited in the **Literature** section below) and in recent publications. The high number of ignored nominal species suggests that LEHRER's nomenclature and many of the new species are built on shaky ground if not on sand.

Names totally ignored for no reason

The following 24 names associated with *Bengalia* have been totally ignored. Among these, 14 names denote species recognized in current catalogues and elsewhere as valid species (in boldface and with asterisk). Leaving out so many names is very far from what one expects in a serious worldwide treatment. Only a minority of the names are based on females, anathema to LEHRER. No attempt has been made on LEHRER's part to trace the types or study any of them, at least no declaration to the opposite effect is given anywhere. A large number of these names will undoubtedly replace many of the names of his newly described species in the future. E.g. *favillacea* WALKER and *obscuripennis* BIGOT are currently in the synonymy of *jejuna* FABRICIUS (= *lateralis* as used by SENIOR WHITE et al. 1940), and had LEHRER studied the type of *obscuripennis* he might easily have found an old and acceptable name based on a male for the species he denotes by the unavailable name *senausmarta*.

Musca favillacea WALKER, 1860: 135 [holotype ♀ in NHML]
Homalomyia obscuripennis BIGOT, 1885: xxvi [holotype ♂ in NHML – not ♀ as stated by JAMES 1977]
Ochromyia quadrinotata BIGOT 1888: 608 [possible holotype ♂, misidentified by BIGOT as a ♀, in UMOX]
Ochromyia limbata BIGOT, 1888: 609 [holotype ♂ in UMOX]
Ochromyia crassirostris KARSCH, 1888: 377
Bengalia latro DE MEIJERE, 1910: 336
* ***Bengalia fuscipennis*** BEZZI, 1913: 75
Bengalia unicalcarata VILLENEUVE, 1913: 348
Bengalia spurca VILLENEUVE, 1914: 253
* ***Bengalia inermis*** MALLOCH, 1927: 413 [holotype ♂ in NHML] [see below under **Doubtful species** - *inermis* / *laguna* / *nusantara*]
* ***Bengalia siamensis*** SENIOR WHITE, 1924: 106 [holotype ♂ in NHML]
* ***Bengalia martinleakei*** SENIOR WHITE, 1930: 69 [holotype ♂ in NHML]
Bengalia mercenaria SÉGUY, 1933: 78 [holotype ♂, paratype ♀ in MNHN]
* ***Bengalia lepineyi*** SÉGUY, 1935: 132 [type ♂ in MNHN] [cited as a synonym of *minor* MALLOCH by PONT 1980: 791, but this is contradicted by the shape of the median flap-like lobe of the ST5 illustrated for both species by ZUMPT 1956: 173].

Bengalia bekilyana Séguy, 1935: 132 [syntypes ♂ ♀ in MNHN] [cf. Zumpt 1962: 65]
*** *Bengalia chromatella*** Séguy, 1946: 84 [type ♀ in MNHN]
*** *Bengalia pallidicoxa*** Séguy, 1946: 84 [type ♀ in MNHN]
*** *Bengalia unicolor*** Séguy, 1946: 85 [type ♂ in MNHN]
*** *Bengalia subnitida*** James, 1964: 172 [holotype ♂ in NHML]
*** *Bengalia chekiangensis*** Fan, 1965: 194 [based on ♂♂; figured in Fan 1992: 533, fig. 1111; and in Fan 1997: 448, fig. 142; 449, fig. 142] [species omitted by James 1977]
*** *Bengalia taiwanensis*** Fan, 1965: 194 [based on ♂♂, figured in Fan 1992: 533, fig. 1113]
*** *Bengalia asymmetria*** Kurahashi & Tumrasvin, 1979: 297 [holotype ♂ and 3 paratype ♂♂ in BMHON]
*** *Bengalia chiangmaiensis*** Kurahashi & Tumrasvin 1979: 298 [holotype ♂ and paratype ♂ in BMHON]
*** *Bengalia pseudovaricolor*** Kurahashi & Tumrasvin 1979: 300 [holotype ♂ in National Science Museum, Tokyo, paratype ♂ in Kasetsart University, Bangkok, Thailand].

Names deliberately ignored as *nomina dubia*, because based on female types

The following 10 names have been mentioned but deliberately rejected as *nomina dubia*. The six names in boldface and with asterisk denote species listed by James (1977) and Pont (1980) as valid names for species in *Bengalia*. Lehrer (2005b: 17-18) characterises *Bengalia depressa* Walker as 'la connue espèce fictive' and maintains that both *floccosa* van der Wulp, *africana* Malloch, *alinea* Malloch and *varicolor* Fabricius (see more on this name below) 'ont étés designées, **sans base scientifique**, comme espèces valides' (p. 18, my emphasis). However, there is no scientific principles in zoological taxonomy that restricts or bans the use of names based on female types, neither are there any rules to that effect in the ICZN. On the contrary, old names will not go away, they are to be used since intrinsically more stable, and fostering a stable and universal nomenclature is the purpose of the ICZN (preamble). Lehrer has made no attempts to clarify their status, to examine their types to decide whether they have been mis-sexed or not, or to fix their identity by proposing neotype designation of suitable males in conformity with ICZN 75.5. Neither can Lehrer invoke the *nomen oblitum* clauses for these names (ICZN 23.9) as they have all been used since 1899 (perhaps except the Robineau-Desvoidy names *melanocera* and *pallens*).

*** *Musca jejuna*** Fabricius, 1787: 342 [holotype ♀ in ZMUC, see Townsend 1931: 371] [*senausmarta* Lehrer]
*** *Musca torosa*** Wiedemann, 1819: 21 [holotype ♀ in NMW] [*jejutora* Lehrer]
Bengalia melanocera Robineau-Desvoidy, 1830: 426
Bengalia pallens Robineau-Desvoidy, 1830: 426
Bengalia testacea Robineau-Desvoidy, 1830: 426
Anisomyia lateralis Macquart, 1843: 277 [syntype ♀ in MNHN]
*** *Bengalia depressa*** Walker, 1858: 211 ['espèce fictive', p. 18] [holotype ♀ in NHML; *walkeriana* Lehrer]
*** *Calliphora floccosa*** van der Wulp, 1884: ccxcii [syntype ♀♀, in IRSNB; 'nomen dubium qui ne peut etre maintenu dans la taxonomie moderne de ...', p. 42]
*** *Bengalia africana*** Malloch, 1927: 407 [holotype ♀ NHML]
*** *Bengalia alinea*** Malloch, 1927: 407 [holotype ♀ in MNHN]

Name dismissed as a *nomen dubium*, even though male type exists

The following name has also been ignored on the ground that Lehrer believes the type and sex are unknown (pp. 16, 18). Lehrer cannot invoke the *nomen oblitum* clauses of the ICZN (23.9) for this name either, since it has been used repeatedly since 1899.

*** *Musca varicolor*** Fabricius, 1805: 296 [holotype ♂ in ZMUC, see Townsend 1931: 371; Zimsen 1964: 489; Thompson & Pont 1993: 131] [see above under **Unnecessary specific names** - *varicolor / fanzideliana*]

Names listed and used but types not studied

The following 13 species have been listed in his book as valid names for species but their types have not been traced or studied and no lectotypes have been selected to fix their interpretation (names boldfaced and with asterisk are used as valid names in current catalogues). A deplorable case is LEHRER's failure to study the type of *B. emarginata* MALLOCH. On p. 36 he lists a species under this name, having examined specimens identified by KURAHASHI. *B. emarginata* is currently listed as a synonym of *Musca varicolor* FABRICIUS (JAMES 1977). Both nominal species have male types. The former is available for study in London, the latter in Copenhagen. In spite of not having examined, nor made any effort to trace its type, LEHRER dismisses *varicolor* to be among taxa 'désignées, sans base scientifique, comme espèces valides' (p. 18) on the ground of his belief that the type is of unknown sex or lost (cf. above). I include *labiata* ROBINEAU-DESVOIDY here.

* ***Bengalia labiata*** ROBINEAU-DESVOIDY, 1830: 426
*** *Bengalia gaillardi*** SURCOUF & GUYON, 1912: 427 [type ♂ in MNHN]
*** *Bengalia escheri*** BEZZI, 1913: 76 [holotype ♂ and paratype ♀ in ETHZ]
*** *Bengalia peuhi*** VILLENEUVE, 1914: 253 [syntype ♂ in NHML]
*** *Bengalia bezzi*** SENIOR WHITE, 1923: 306 [holotype ♂ 2 paratype ♀♀ in NHML]
*** *Bengalia xanthopyga*** SENIOR WHITE, 1924: 107 [holotype ♂ in NHML]
*** *Bengalia concava*** MALLOCH, 1927: 407 [holotype ♂ in NHML]
*** *Bengalia minor*** MALLOCH, 1927: 408 [holotype ♂ paratype ♀ in MNHN]
Bengalia emarginata MALLOCH, 1927: 412 [holotype ♂ in NHML]
*** *Bengalia cuthbertsoni*** ZUMPT, 1956: 171 [types in NMSA; but material identified by ZUMPT seen]
*** *Bengalia roubaudi*** RICKENBACH, HAMON & MOUCHET, 1960: 155
*** *Bengalia lyneborgi*** JAMES, 1966: 467 [holotype ♂ in ZMUC]
*** *Bengalia kanoi*** KURAHASHI & MAGPAYO, 2000: 43 [but paratype seen]

Names for which types have been studied

Of the 21 species listed in the work under names that are not newly created by LEHRER, the types have been studied only for five nominal species, as follows:

*** *Bengalia spinifemorata*** VILLENEUVE, 1913: 153 [lectotype ♂ selected by LEHRER, in MRAC] [p. 171–172].
*** *Bengalia hastativentris*** SENIOR WHITE, 1923: 305 [holotype ♂ in NHML] [p. 94]
*** *Bengalia surcoufi*** SENIOR WHITE, 1923: 306 [holotype ♂ in NHML] [p. 71]
*** *Bengalia tibiaria*** VILLENEUVE, 1926: 69 [holotype ♂ in MRAC] [p. 75]
*** *Bengalia hobbyi*** SENIOR WHITE et al., 1940: 88 [holotype ♂ in NHML] [capture of latter is dated '17.ix.32' in the original publication, but rendered as '14.IX.1932' in LEHRER's book] [p. 96]

The ICZN 74.7.3 requires that a lectotype designation must 'contain an express statement of the taxonomic purpose of the designation' / 'comporter expressément un énoncé du motif taxinomique de la désignation'. This is not done for the lectotype of *spinifemorata*. The specimen selected as the lectotype (a male from Sankisia 4 September 1911, J. BECQUAERT leg.) is apparently one of the syntypes, but the remaining syntypes have now become paralectotypes and should have been traced and labelled as such. Three specimens listed under *Maraviola racovitzai* LEHRER, 2005b seem to have been syntypes of *Bengalia spinifemorata* (those collected by BECQUAERT), and are now paralectotypes. LEHRER (2005b) is correct in selecting a lectotype since VILLENEUVE (1913) himself did not select a holotype in the original publication, even though a female specimen is labelled as such.

Species not seen but description lifted from other works

The description of four species have been lifted directly from the original authors. All are unknown to LEHRER by his own admission.

* ***Bengalia recurva*** MALLOCH, 1927: 404 [paratype ♂ in NHML]
* ***Bengalia calilungae*** RUEDA, 1985: 341 [holotype ♂ and paratype ♀ in University of the Philippines, Los Baños, Museum of Natural History]
* ***Bengalia robertsi*** KURAHASHI, 1987: 70 [holotype ♂ in BMHON]
Bengalia ruedai LEHRER, 2005b: 104 [= *Bengalia calilungae*: KURAHASHI & MAGPAYO, 2000: 40, fig. 9 – identification erronée]. Unavailable, no fixation of types (ICZN 16.4)

Iconography – Lehrer's methodological straitjacket

Even though LEHRER'S iconography represents a great leap forward compared to his predecessors in the field of *Bengalia* studies, he does not illustrate the aedeagus, cerci and surstyli from other angles than in profile view. This is insufficient for acceptable and adequate species definition and inadequate as a manner of representing the extremely complex structure of the aedeagus of the *Bengalia* species, which is overflowing with beautiful and peculiar details, more so than in any other calliphorid, and many easily overlooked. In several cases the aedeagus in *Bengalia* is broader than high, so that a drawing of the dorsal aspect might have been the view of choice should only one drawing be used. His claim to have discovered a number of new species should in general have been backed up by a much more complete iconography. It is deplorable that no other angles of view are presented, and that not a single small drawing of peculiar details is given. By neglecting to give other views of the distiphallus a lot of important and easily obtained information is lost. LEHRER has adopted a methodological straitjacket and let simple sources of information slip by.

A profile view of the distalmost part of the surstylus is inadequate in those species (e.g. *lyneborgi*, my own dissection of a paratype) where it is formed as a dorsoventrally flattened plate which only reveals its true shape in dorsal view. He also omits to show the vestiture (microtrichiae, hairs or setae) or the lack thereof (shining areas) of the postabdominal parts. In these respects his drawings represent a step backwards compared to the figures presented by MALLOCH (1927), SENIOR WHITE et al. (1940), TUMRASVIN et al. (1979) or KURAHASHI & MAGPAYO (2000).

There is no attempt to illustrate the complex structure of the proximal parts of three-partite surstylus, so peculiar in this genus. A cursory study show these sclerites to vary from species to species, even the peculiar tooth-like pointed projection varies in size and direction (downwards in *kanoi* [KURAHASHI & MAGPAYO 2000: 45, fig. 11b], outwards in *xanthopyga*, upwards in *torosa* and many others, own dissections). Undoubtedly there is much information to be extracted for taxonomic purposes here, but neglected by LEHRER. Neither are the phallapodeme, hypandrium or the ejaculatory sclerite figured.

LEHRER does not describe the methods he employs when studying and figuring the genitalia. If he had used glycerol it would have been technically possible for him to manipulate freely the dissected parts (as opposed to Canada-balsam mounts) and illustrate them from various angles to aid the reader in interpreting and comparing structures, all the more important since some of the species described seem very similar and a reader might wish to see more morphological facts before being convinced in every case of their separate status. Modern treatments of Calliphoridae usually illustrate the aedeagus from at least three different angles, and the cerci and surstyli

from two or three. If the aedeagus is flattened from side to side under the cover-glass before being illustrated a lot of artifacts must be expected to appear in profile view.

Furthermore, it is never stated in the legends exactly what specimen has been used for preparing the drawings, neither whether the illustrations have been made from a holotype or another specimen, a crucially important point. Neither is it stated anywhere how many specimens he has dissected, nor discussed if the many minute details given in the key or in the figures are constant or how they vary from dissection to dissection. Neither are scales provided.

One would also like to know whether the median flap-like lobe ('sternite VII') is illustrated in compressed or natural position. It is a hollow, three-dimensional structure, not flat, in some species.

Doubtful species

Because of the inadequacy of the illustrations one should view with suspicion several of his new species. Many are based on a single specimen only (22 of 49) or on only a few specimens. It may appear that LEHRER, when confronted with specimens (drawings?) that differ from others in some rather very small detail of the genitalia, he tends to consider this as evidence for status as a new species rather than contemplating or even raising the possibility of individual variation. A few examples are discussed below, all of which are listed as new synonyms in the **Nomenclatural summary** at the end of the review.

floccosa / *adrianponti* / *falsimonia*

The new species *Afridigalia adrianponti* LEHRER, 2005b (Fig. 8) is extremely similar to *Afridigalia falsimonia* LEHRER, 2005b (Fig. 15) (= '? *Bengalia floccosa*: ZUMPT, 1956, …'). The former is based on a single male previously identified by ZUMPT (sic) as *Bengalia floccosa* VAN DER WULP, whereas *falsimonia* is based on 2 males. LEHRER has thus only examined three males, two of which have been dissected and figured. According to LEHRER's key and figures *B. adrianponti* and *B. falsimonia* differ in one detail affecting the terminal part of the 'apophyses latérales postérieures'. In *adrianponti* this structure is figured as pretty broad and bifid at tip (i.e. terminal processes are almost the same size), whereas in *falsimonia* it is figured as being narrower and carrying a small 'dent submédiane' (i.e. terminal processes are very different in size). I have dissected a male from Tanzania (in ZMUC) which runs to *floccosa* in ZUMPT's key (1956), thus should be the same as LEHRER's *falsimonia*. However, the 'apophyses latérales postérieures' shows features intermediate between those in *falsimonia* and *adrianponti*, as figured by LEHRER. The structure is narrower than in *adrianponti* but the submedian tooth has a more distal position than in *falsimonia*, and the gap between the two 'teeth' is narrower than in *adrianponti*. Most likely the position of the tooth is variable and many more specimens should have been examined before one can conclude safely that two species are involved. I also miss a view of the genitalia from e.g. dorsal view, especially of the beautiful details in the hind dorsal part. Such a view would provide a much better understanding of the three-dimensional structure of these parts. I therefore propose that *falsimonia* and *adrianponti* are the same species, which I synonymise under the old name *Bengalia floccosa* VAN DER WULP, **new synonyms**.

calilungae / *ruedai*

Bengalia calilungae RUEDA, 1985 is treated on pp. 89–90, and LEHRER states that it is not known to him first hand. The description and figures of the genitalia published in his book is lifted in its entirety from RUEDA's work. Nonetheless he questions KURAHASHI & MAGPAYO's (2000: 40, fig.

9) identification of material before them as *calilungae* and declares that they have made an 'identification erronée' (p. 104). LEHRER describes a new species, *Bengalia ruedai* LEHRER, 2005b, but admits surprisingly that '[c]ette espèce n'est pas connue par nous' (p. 106). It is based on the material identified and figured by KURAHASHI & MAGPAYO as *calilungae*. LEHRER has the audacity to question KURAHASHI & MAGPAYO's judgement on the basis of their figures only, not having seen any material of either species himself. A comparison of the figures on p. 90 (*calilungae*, made by RUEDA) with those on p. 105 (*calilungae*, made by KURAHASHI & MAGPAYO = '*ruedai*' of LEHRER) will not convince anyone that two species are involved, taking into account that RUEDA is less of an artist than KURAHASHI & MAGPAYO.

In couplet 6 of the key (p. 88) he separates *calilungae* RUEDA on the one hand from *hobbyi* SENIOR WHITE et al. and *ruedai* LEHRER on the other, by stating that in the former 'Les prégonites sont larges et ont le sommet arrondi' whereas in the latter two 'Les prégonites …ont une excavation profonde dans leur bout'. For the two latter species Fig. 41D (*hobbyi*) and Fig. 46F (*ruedai*) bring out this clearly. However, I am not able to identify a pregonite in the figure of *calilungae* (Fig. 38C). In RUEDA's own paper (1985: 342, fig. 14i) the legend reads 'aedeagus and parameres, lateral view' [parameres = postgonites]. I interpret the latter as the two-pointed structures to the lower right in the figure (upper right in LEHRER's version of the same figure), whereas the two large structures with rounded apex to the left I believe to be the ejaculatory sclerite and phallapodeme, since they show strong central sclerotisations along the middle, never found in the pre- or postgonites. LEHRER seems to think they represent the pregonites. The figure is very primitive and these parts of the genitalia are figured quite otherwise for the other *Bengalia* species in RUEDA's work. But the fact remains that LEHRER has not seen any material first hand and his key is pure guesswork.

In addition LEHRER fails to specify any type specimen, in contravention of ICZN 10.1 and 16.4, so the name *ruedai* LEHRER, 2005b is unavailable.

concava / *mallochi*

LEHRER describes the new species *Temaseka mallochi* LEHRER, 2005b on the basis of a single male specimen (in NHML) which in fact turns out earlier to have been identified by MALLOCH (sic) as *Bengalia concava* MALLOCH, 1927. LEHRER illustrates the genitalia on p. 149. On p. 146–147 LEHRER re-describes and illustrates MALLOCH's species under the name *Temaseka concava* (MALLOCH, 1927). The differences between the illustrations of *mallochi* and *concava* seem minute and to me to be within the variation one might expect between specimens of living beings, not to mention the possibility of artifacts during the preparation of the material, which may well account for the differences in the shape of the hind margin of the median flap-like lobe of the ST5 in the two nominal species. LEHRER has not studied the holotype ♂ of *concava* (in NHML), so it is of course impossible for him to know which of the two nominal species he recognises conforms with the type of *concava* MALLOCH. I do not accept that two species are involved here so I sink *Temaseka mallochi* LEHRER as a synonym of *Bengalia concava*, **new synonym**.

gaillardi / *lubana* / *sanaga*

The genitalia of *Bengalia gaillardi* SURCOUF & GUYON, 1912 are figured on p. 44. Those of *Bengalia lubana* LEHRER, 2005b and *Bengalia sanaga* LEHRER, 2005b are figured on p. 51 and 68, respectively. These species seem very similar and are separated in the key (p. 25–26, couplet 24–25) on the basis of various features of the surstylus in profile view: 'paralobes

larges' versus 'pas larges' at their base ('dans leur partie proximale'), and 'paralobes' with their 'marges subparallèles' versus 'ondulées', and various very small details in the structure of the posterior apophyses. I believe these species are the same and sink both *lubana* and *sanaga* under the older name *Bengalia gaillardi*, **new synonyms**.

inermis / *laguna* / *nusantara*

The new species, *Afridigalia laguna* LEHRER, 2005b, is based on a single male from 'Los Baños', the Philippines, in BEZZI's collection in Milan (MCSNM) (the collector is cited as 'P. L. BAKER', but on p. 30 he cites the collector in Los Baños as 'P. I. BAKER') carrying, among others, an old label reading (according to LEHRER) '*Begalia* [sic] *inermis* n. sp.'. Now, labels reading 'P. I. BAKER' on specimens in various museums, translate to 'Philippine Islands, Baker' and 'BAKER' is C. F. BAKER (PONT, pers. comm.). LEHRER does not mention anywhere that the name *inermis* stems from MALLOCH, who described a species with that name in 1927. *Bengalia inermis* MALLOCH, 1927 is in fact never mentioned as a valid species at all. One would expect LEHRER to have examined the male holotype (also collected in the Philippines, by Baker) of *Bengalia inermis* MALLOCH, present in NHML, before going on to decide that the material before him belongs to another, new, species. Most likely *laguna* LEHRER is a junior synonym of *inermis* MALLOCH.

It is interesting that LEHRER describes a second species associated with the name *inermis*, which, again, is never linked to MALLOCH, its author. This new species is *Afridigalia nusantara* LEHRER, 2005b, which he equals, though with a question mark, to a species identified as *Bengalia inermis* by KURAHASHI & MAGPAYO 2000. LEHRER's holotype for his *nusantara* (and the only specimen examined) is a male in BMHON, captured on 'Mt. Makiling' on 2 July 1921, but no finder is cited.

Now, looking again into MALLOCH's paper (1927: 413) we find that the holotype of *B. inermis* is a male also captured on 'Mt. Maquiling, …, Philippine Islands' and the collector is C. F. BAKER. This is the same person as cited as collector of holotype of LEHRER's *laguna* and there is a possibility that it is in fact belonging to a series of specimens collected simultaneously and some of which eventually ended in MALLOCH's hands.

Why LEHRER has made up his mind that KURAHASHI & MAGPAYO have made a misidentification and that the material before them (a large part of it even collected at Mt Maquiling situated about 4 km S of Los Baños) should carry another name (*nusantara*) is not easy to understand, since Lehrer can have no opinion at all regarding the true *inermis* MALLOCH, which as far as he is concerned does not exist.

MALLOCH (1927: 409, fig. 13) figures the median flap-like lobe of ST5 (= sternite VII of LEHRER) of *inermis* and its posterior edge is shown to have the same shallow concavity as figured by LEHRER for *nusantara*. LEHRER's figure of the corresponding structure in his *laguna* shows that parts of it has been lost, but in the key (p. 23) he says it is straight. Most likely *nusantara* is a junior synonym of *inermis* MALLOCH.

It is not easy to understand why LEHRER has chosen to totally ignore *inermis* MALLOCH and also decided not to study its type material. SENIOR WHITE et al. (1940: 99) considered *inermis* MALLOCH to be synonym of *bezzi* SENIOR WHITE, whereas JAMES (1977: 529) regarded this synonymy as questionable and therefore treated *inermis* as a separate species in the Oriental catalogue. This was also done by KURAHASHI & MAGPAYO (2000: 42) who even made figures of the genitalia. A specimen identified by KURAHASHI as *bezzi* SENIOR WHITE is present in ZMUC, so KURAHASHI cannot think they are synonymous. Indeed, in KURAHASHI et al. (1997) *bezzi* is

listed as a separate species (p. 40). I have dissected the ZMUC specimen and its genitalia fit very well with LEHRER's figures of *bezzi*. A study of the types would have settled the matter, which is never even discussed by LEHRER.

lyneborgi / *jamesi* / *nicolasia*

Bengalia lyneborgi JAMES, 1966 is treated on pp. 52–54 (under *Afridigalia*), on the basis of a few males and even some females. At least one of the males has been identified by KURAHASHI. No material identified by JAMES has been examined. On pp. 45–47 LEHRER describes a new species, *Afridigalia jamesi* LEHRER, 2005b, on the basis of 3 male paratypes of *Bengalia lyneborgi*. He writes:

> 'Cette espèce est très proche de *Afridigalia lyneborgi* (JAMES), mais elles différent par beaucoup de caractères. Même la description du JAMES pour la dernière est très imprécise, car il a mélangé les caractères de ces deux spèces.' (p. 47).

But how can he know which name to apply to which species in this pair? The holotype of *lyneborgi* (not examined by LEHRER) might fit his concept of *jamesi*, in which case '*lyneborgi*' of LEHRER (p. 52) would have to carry the name *jamesi* and '*jamesi*' of LEHRER (p. 45) would be the true *lyneborgi*. I very strongly doubt, however, that two species are involved here.

I have dissected a paratype male of *lyneborgi* JAMES and studied its genitalia (kept in glycerol), in particular the aedeagus, in a microscope at 100× or larger magnification from various angles and under various kinds of background illumination. The 'apophyses latérales postérieures' of the aededagus of this and related species (*jamesi, nicolasia*) represent two long, narrow, grooved and partly roofed-over, thin-walled and weakly sclerotised structures curving backwards and upwards, and each of them seems to have both a terminal opening and a lower opening. The tubes are reminiscent of the lateral ducts present in the acrophallus of other calliphorids and which conduct accessory gland secretions (MERRITT 1989; ROGNES 1991: 21–22) and may perform a similar function in *Bengalia*. I believe I am able to recognise the structure described as the 'dent proximale très longue et mince' of *lyneborgi* according to the key (p. 24) and shown on Fig. 21 C (p. 53) and the 'dent proximal courte et large' of *jamesi* according to the key (p. 24) and shown on Fig. 18C (p. 46). They seem to me to represent pointed flanges partly making up the lower and upper openings of the partly roofed-over canal and appearing as tooth-like projections under certain angles of view. Note that in profile view the two tubes are superimposed on each other and also on intervening structures and their true appearance is impossible to interpret with any confidence, and the varying strength of the 'teeth' may be due to the aedeagus being compressed or viewed from slightly different angles. But I cannot find anything like the structure on the tip of the postgonite (Fig. 21 E) (p. 53), described as 'avec le sommet coupé' according to key (p. 24). This is probably an artifact. These observations make me very suspicious of the validity of the species *nicolasia* LEHRER, 2005b: 56 (Fig. 23, p. 57) also. The differences these species show in the shape of the hind margin of the median flap-like lobe of ST5 ('sternite VII') in LEHRER's drawings seem to be what one should accept as intraspecific variation. The *lyneborgi* specimen I have dissected has a median flap-like lobe the hind margin of which is similar to LEHRER's *jamesi*, thus relatively pronounced. It is a pity that LEHRER does not provide a dorsal view of the distal mediodorsal and strongly sclerotised backwardly pointing aedeagal structure. It is clearly shown in his profile drawings of the aedeagus of all three species as a heavily stippled and slightly curved structure ending in a point. One might expect it to have different shape were all these nominal species good species. Since LEHRER does not contribute a dorsal view nor more de-

tailed views from other angles of the complicated apical aedeagal structures in order to convince his readers, I suggest that both *jamesi* and *nicolasia* are synonyms of *lyneborgi***, new synonyms.**

peuhi / *elgonia* / *olapana*

The same applies to the species triplet *Bengalia peuhi* VILLENEUVE, 1914 (figured on p. 63) (5 males studied), *Afridigalia elgonia* LEHRER, 2005b (based on 2♂♂) and *Afridigalia olapana* LEHRER, 2005b (based on 1♂). In the key the three species are separated on only very minute details in the shape of the hind edge of the median flap-like lobes of ST5 (p. 24, couplets 12 and 13) shown in the figures. All have 'microchètes au sommet' of the posterior lateral aedeagal apophyses. I would have wished LEHRER to present more details from other organs so that a reader might more easily be convinced that more than one species is involved and that the minute single-organ differences reported are not within the expected boundaries of individual variations or simply artifacts. I take *elgonia* and *olapana* to be synonyms of *Bengalia peuhi*, **new synonyms**.

seniorwhitei / *erithreana*

Maraviola seniorwhitei LEHRER, 2005b seems to be the same as *Maraviola erithreana* LEHRER, 2005b. I have dissected a ♂ from Kenya (in ZMUC) that fits *seniorwhitei* excellently except that the flap-like lobe of ST5 is shorter than shown in Fig. 74A (p. 167), being more like the one in *erithreana* (Fig. 71A) (p. 160). This feature is the only one used by LEHRER in the key (p. 155) to differentiate the species. However, in view of the fact that the aedeagus is broader than high it seems unwise only to have illustrated it in profile view. There are a lot of details present that cannot be appreciated from LEHRER's figures. For similar reasons a lot of details in the surstyli are lost in LEHRER's figure of this structure. A small subterminal tooth not illustrated by LEHRER is present on both the long lateral aedeagal apophyses. I sink *erithreana* (LEHRER) as a synonym of *seniorwhitei* (LEHRER) in capacity of first reviser (ICZN 24.2.), **new synonym**.

racovitzai / *smarti*

Maraviola racovitzai LEHRER, 2005b is based on 14 male specimens, whereas *M. smarti* LEHRER, 2005b is based on a single male only, which is a little smaller in size than the former but from within the same geographical area. The differences given in the key concern among other features the shape of excavation of the flap-like lobe of ST5, which I find not very convincing. Neither do I find the description of differences in the long band-like processes pointing backwards convincing. There are some undescribed features of the figure of *racovitzai* aedeagus (Fig. 72C) (p. 163) which differ from those of *smarti* (Fig. 75C) (p. 169), especially the area in the middle with the denticulate processes. My dissection of the *racovitzai* aedeagus is most similar to the figure of *smarti*, but the surstylus of the dissected specimen fits the figure of *racovitzai* surstylus in profile. The surstylus in *smarti* as figured in profile is slightly more narrow near its base and more triangular than in *racovitzai*. Since this feature of *smarti* may be an artifact as a result of the surstylus being drawn from a slightly different angle I am also inclined to sink *smarti* as a synonym of *racovitzai*, in capacity of first reviser (ICZN 24.2.), **new synonym**.

Nomenclatural summary

Synonyms in family-group names

Family **Calliphoridae** Brauer & Bergenstamm, 1889: 85 (17). Type genus *Calliphora* Robineau-Desvoidy, 1830: 433.
Subfamily **Bengaliinae** Brauer & Bergenstamm, 1889: 85 (17). Type genus *Bengalia* Robineau-Desvoidy, 1830
Tribe **Auchmeromyiini** Patton, 1935: 228. Type genus *Auchmeromyia* Brauer & Bergenstamm, 1891: 87 (391).
Tribe **Bengaliini** Brauer & Bergenstamm, 1889: 85 (17)
Bengaliinae Brauer & Bergenstamm, 1889: 85 (17). Type genus *Bengalia* Robineau-Desvoidy, 1830
Afridigaliinae Lehrer, 2005b: 21. Type genus: *Afridigalia* Lehrer, 2005b: 22. **N. syn**.
Gangelomyiinae Lehrer, 2005b: 108 (mis-spelled as Gangelomyinae, stem = Gangelomyi-). Type genus: *Gangelomyia* Lehrer, 2005b: 111. **N. syn**.
Maraviolinae Lehrer, 2005b: 154. Type genus: *Maraviola* Lehrer, 2005b: 154. **N. syn.**

Synonyms in genus-group names

Genus ***Bengalia*** Robineau-Desvoidy, 1830: 416. Type species: *Bengalia testacea* Robineau-Desvoidy, 1830, by designation of Duponchel (1842: 542) (= *B. torosa* Wiedemann, 1819 = *Ochromyia jejutora* Lehrer 2005b: 143, unavailable).
Afridigalia Lehrer, 2005b: 22. Type species: *Afridigalia adrianponti* Lehrer, 2005b: 26, by original designation. **N. syn.**
Ashokiana Lehrer, 2005b: 78. Type species: *Ashokiana ramsdalei* Lehrer, 2005b: 78, by original designation. **N. syn.**
Kenypyga Lehrer, 2005b: 79. Type species: *Kenypyga banthuphalla* Lehrer, 2005b: 80, by original designation. **N. syn**.
Shakaniella Lehrer, 2005b: 82. Type species: *Shakaniella wyatti* Lehrer, 2005b: 82, by original designation. **N. syn**.
Tsunamia Lehrer, 2005b: 84. Type species: *Tsunamia yorubana* Lehrer, 2005b: 84, by original designation. **N. syn**.
Bezzigalia Lehrer, 2005b: 109. Type species: *Bezzigalia rivanella* Lehrer, 2005b: 109, by original designation. **N. syn.**
Gangelomyia Lehrer, 2005b: 111. Type species: *Gangelomyia indipyga* Lehrer, 2005b: 119, by original designation. **N. syn**.
Laoziana Lehrer, 2005b: 136. Type species: *Laoziana mandarina* Lehrer, 2005b: 138, by original designation. **N. syn**.
Ochromyia Lehrer, 2005b: 142. Type species: *Ochromyia jejutora* Lehrer, 2005b: 143. Objectively invalid name. Junior homonym of *Ochromyia* Macquart, 1835: 248.
Temaseka Lehrer, 2005b: 146. Type species: *Bengalia concava* Malloch, 1927, by original designation. **N. syn**.
Maraviola Lehrer, 2005b: 154. Type species: *Bengalia spinifemorata* Villeneuve, 1913, by original designation. **N. syn.**

Synonyms in species-group names

Bengalia calilungae Rueda, 1985: 341
Bengalia ruedai Lehrer, 2005b: 104. **N. syn**. Unavailable. No fixation of types (ICZN 16.4).

Bengalia concava Malloch, 1927: 407.
Temaseka mallochi Lehrer, 2005b: 148**. N. syn**.

Bengalia floccosa (van der Wulp, 1884: ccxcii)
Afridigalia adrianponti Lehrer, 2005b: 26. **N. syn.**
Afridigalia falsimonia Lehrer, 2005b: 40. **N. syn.**

Bengalia gaillardi Surcouf & Guyon, 1912: 427
Afridigalia lubana Lehrer, 2005b: 50. **N. syn**.
Afridigalia sanaga Lehrer, 2005b: 67. **N. syn**.

Bengalia inermis MALLOCH, 1927: 413
Afridigalia laguna LEHRER, 2005b: 48. **N. syn.**
Afridigalia nusantara LEHRER, 2005b: 58. **N. syn.**

Bengalia lyneborgi JAMES, 1966: 467
Afridigalia jamesi LEHRER, 2005b: 45. **N. syn.**
Afridigalia nicolasia LEHRER, 2005b: 56. **N. syn**

Bengalia peuhi VILLENEUVE, 1914: 253
Afridigalia elgonia LEHRER, 2005b: 34. **N. syn.**
Afridigalia olapana LEHRER, 2005b: 60. **N. syn.**

Bengalia seniorwhitei (LEHRER, 2005b: 165) (*Maraviola*)**. N. comb.**
Maraviola erithreana LEHRER, 2005b: 159. **N. syn**.

Bengalia racovitzai (LEHRER, 2005b: 161) (*Maraviola*). **N. comb.**
Maraviola smarti LEHRER, 2005b: 168. **N. Syn.**

Unavailable species-group names

Afridigalia fanzideliana LEHRER, 2005b: 42. Unavailable. No fixation of types (ICZN 16.4).
Bengalia ruedai LEHRER, 2005b: 104. Unavailable. No fixation of types (ICZN 16.4).
Gangelomyia senausmarta LEHRER, 2005b: 128. Unavailable. Publication in synonymy [of *Anisomyia lateralis* MACQUART, 1843].
Ochromyia jejutora LEHRER, 2005b: 143. Unavailable. Publication in synonymy [of *Musca jejuna* FABRICIUS, 1794 and of *Musca torosa* WIEDEMANN, 1819].

Suggested informal group names to replace LEHRER's subfamilies

'Afridigaliinae' (LEHRER 2005b: 21, Fig. 7a) to be replaced with '*Bengalia peuhi* species-group'. [*Afridigalia adrianponti* LEHRER, 2005b is illustrated, but I think it might better be based on a well-known and universally accepted species.]
'Bengaliinae' (LEHRER 2005b: 86, Fig. 7b) to be replaced with '*Bengalia labiata* species-group'.
'Gangelomyiinae' (LEHRER 2005b: 108, Fig. 7c) to be replaced with '*Bengalia torosa* species-group'.
'Maraviolinae' (LEHRER 2005b: 154, Fig. 7d) to be replaced with '*Bengalia spinifemorata* species-group'.

Museum abbreviations

BMHON = Bishop Museum, Honolulu, U. S. A.
ETHZ = Entomologische Sammlung, Eidgenössische Technische Hochschule, Zürich, Switzerland
IRSNB = Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium
KR = Knut ROGNES' private collection
MCSNM = Museo Civico di Storia Naturale, Milan, Italy
MNHN = Musée National d'Histoire Naturelle, Paris, France
MRAC = Musée Royal de l'Afrique Centrale, Tervuren, Belgium
NMSA = Natal Museum, Pietermaritzburg, South Africa
NHML = The Natural History Museum, London, U. K.
NMW = Naturhistorisches Museum, Vienna, Austria
UMOX = The University Museum, Oxford, U. K.
ZMUC = Zoological Museum, University of Copenhagen, Copenhagen, Denmark

Material examined

Bengalia bezzi SENIOR WHITE – 1♂ THAILAND, Chieng Mai Province, Doi Inthanon N. P.: Huai Sai Luang 10–1100 m, 14.x.1981, Zool. Mus. Copenhagen leg. (ZMUC, dissected by KR)
Bengalia cuthbertsoni ZUMPT – 1♂ SOUTH WEST AFRICA, 2116Ca, Omaruru Dist. 20 km SE Omaruru, 1580 m, 4.II.1974, L. LYNEBORG, sandy plain with *Acacia* trees (ZMUC, dissected by KR)
Bengalia floccosa (VAN DER WULP) – 1♂ TANZANIA, East Usambara, Amani, 1000 m, 1.ii.1977, Zool. Mus. Copenhagen, H. ENGHOFF, O. LOMHOLDT, O. MARTIN leg. (ZMUC, dissected by KR)

Bengalia gaillardi Surcouf & Guyon – 1♂ Genitalia not present, removed by Zumpt, Zumpt slide 44 (not examined) (NHML)

Bengalia lyneborgi James – 1♂ **paratype**, PHILIPPINES, Pelawan, Brookes Point, Uring Uring, 25 August 1961, Noona Dan Exp. 61–62 (ZMUC, dissected by KR); 1♂ **paratype**, PHILIPPINES, Pelawan, Brookes Point, Uring Uring, 19 August 1961, Noona Dan Exp. 61–62 (ZMUC)

Bengalia peuhi Villeneuve – 1♂ (1) TANGANYIKA / Morogoro / KINGOLWERA / 12.IX.52; … (4) Bengalia peuhi Vill. / van Emden det 1950 (NHML, dissected by KR)

Bengalia racovitzai (Lehrer, 2005b: 161) – 1♂ (1) PRETORIA / E.K.H. / 25.IV.1944 / A.R.I. Pretoria (2) Bengalia / spinifemorata Vill. det. Zumpt (epandrium shining black, though brownish at most lateral parts) (NHML, dissected by KR)

Bengalia seniorwhitei (Lehrer, 2005b: 165) – 1♂ KENYA, Nairobi Westlands, 01º16' S, 36º 47' E, 1750 m, 28–31.vii.1975, Børge Petersen leg. (epandrium yellow) (ZMUC, dissected by KR)

Bengalia siamensis Senior White – 1♀ THAILAND, Chieng Mai Province, Doi Suthep N. P.: Mahidol waterfall 1250 m, 27.ix.1981, Zool. Mus. Copenhagen leg. (ZMUC)

Bengalia torosa (Wiedemann) – 1♂ Philippines, Pelawan, Brookes Point, Uring Uring, 8 August 1961, Noona Dan Exp. 61–62 (KR, dissected by KR); 1♂ THAILAND, Doi Suthep-Pui natn. Park, Konthathan waterfall area, 600 m, 20–27.x.1979, Zool. Mus. Copenhagen Exped. (ZMUC)

Bengalia xanthopyga Senior White – 1♂ THAILAND, Chieng Mai Province, Doi Suthep N. P.: Konthathan 6–700 m, 26.ix.1981, Zool. Mus. Copenhagen leg. (ZMUC, dissected by KR)

Note added in proof

In a recent paper ('Révision du genre *Nyctia* Robineau-Desvoidy (Diptera, Sarcophagidae)', Bulletin de la Société Entomologique de Mulhouse **61**(4): 55–63, 2005) (received by me as a pdf-file on 6 March, 2006) Lehrer exposes with unprecedented clarity his belief that an author is free to designate whatever type species he finds convenient. He explicitly rejects the currently valid type-species of the genus *Nyctia* Robineau-Desvoidy, 1830, i.e. *N. carceli* Robineau-Desvoidy, 1830 (= *Musca halterata* Panzer, 1798), on the ground that he considers *Musca halterata* to be a *nomen dubium*. As replacement he designates his own brand new nominal species *Nyctia gilbochaeta* Lehrer, 2005 [2006?]: 57 as type species for *Nyctia*. This modern name is of course not eligible as a nomenclatural type for a genus named in 1830.

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