

The Type Specimens of *Toxorhynchites* (Diptera: Culicidae) at the
British Museum (Natural History) and Oxford University¹

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ABSTRACT. Data associated with 38 type specimens of *Toxorhynchites* in the British Museum (Natural History) and 1 type in the Hope Collection of Oxford University are listed. Lectotypes are designated for the following species: *Tx. (Tox.) acaudatus*, *Tx. (Tox.) brevipalpis*, *Tx. (Tox.) coeruleus*, *Tx. (Tox.) edwardsi*, *Tx. (Tox.) gilesi*, *Tx. (Tox.) immisericors*, *Tx. (Tox.) inornatus*, *Tx. (Tox.) kaimosi*, *Tx. (Tox.) leicesteri*, *Tx. (Tox.) magnificus*, *Tx. (Tox.) metallicus*, *Tx. (Tox.) nairobiensis*, *Tx. (Tox.) nigripes* and *Tx. (Tox.) quasiferus*.

INTRODUCTION

The type material of *Toxorhynchites* in major museums in the eastern hemisphere was examined by WAS during the summer of 1978. The major depository of *Toxorhynchites* type-material is at the British Museum (Natural History) which has type-material of 38 species of *Toxorhynchites*. Preliminary assessment of this material was done by GBW, who also assisted WAS during his visit at the British Museum of Natural History (BM) and later verified data in this paper. The type-material of *Tx. theobaldi* at Oxford University was kindly made available by Dr. John W. Ismay, who brought it to the BM where it was examined and photographed by WAS.

The Catalog of the Mosquitoes of the World (Knight & Stone 1977), the supplement to the catalog (Knight 1978) and the publication on type-specimens of New World mosquitoes in European museums (Belkin 1968) were of considerable aid for these type studies. The staff associated with the *Toxorhynchites* project are gratefully acknowledged for their assistance, including Deborah Manning, who assembled all of the original descriptions, Lawrence Mark Thomas, who prepared some of the outline drawings, Neal L. Evenhuis, who assisted in the selection of character states and design of the outline drawings, and Dorothy Hoxie and Reidun Johansen-Khan, who typed and proofed drafts of the manuscript.

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METHODS

All types examined were photographed with a Minolta SRT 101 using a 50 mm Macro lens and the 1:1 extension. The light source was a Capro RL80 ring flash. This provided a very useful record of color patterns, banding patterns, and other gross morphological features. All color slides were taken at a constant 1:1 ratio and could subsequently be used for verification of some morphometric details. Each type was examined for 32 male or 31 female character states. Additionally, banding patterns on the legs, abdomen, thorax and mouthparts were illustrated on 2 pages of preprepared outline drawings. Complete label data from each specimen examined were also recorded. This multiple approach to examination of type specimens provided very comprehensive descriptions.

The format used generally follows Belkin (1968). The specific names are arranged alphabetically. Generic and subgeneric names are abbreviated according to Reinert (1975). The current taxonomic status of all *Toxorhynchites* nominal taxa is discussed in Steffan (1977). General information on the type-series follows the condensed bibliographic citation for the original description. Detailed information from the labels follows. Labels are numbered consecutively from top to bottom; in some cases, i.e., Leicester's types, the stage on which the specimen is mounted is the first label. Each line on the label is separated by an oblique (/). Information between quotation marks (" ") is handwritten, other label data are printed. The type depository (in brackets []) follows the label data. Additional comments on the type series are sometimes given.

LIST OF NOMINAL TAXA

Genus *Toxorhynchites* Theobald

Subgenus *Ankylorhynchus* Lutz

Tx. (Ank.) purpureus (Theobald 1901:230-231) (*Megarhinus*). Described from 2 ♀♀ in the Hope Collection, Oxford University. LECTOTYPE designated by Belkin 1968:34, ♀, labels: 1. Type; 2. "Megarhinus/purpureus/(Type) Theobald"; 3. Amazonas/Bates/(1861); [♀ genitalia mounted in balsam on plastic strip]; 5. LECTOTYPE/M. purpureus/Theo., 1901/By Belkin 1968 [BM]. The other ♀ mentioned by Theobald is also in the Hope Collection at Oxford University.

Subgenus *Lynchiella* Lahille

Tx. (Lyn.) chrysocephalus (Theobald 1907:136-137) (*Megarhinus*). Described from unique HOLOTYPE ♂ given to Theobald by Lutz as a *Megarhinus solstitialis*, abdomen glued to pith stage. Labels: 1. "São Paulo"; 2. "Megarhinus/chrysocephalus/Type ♂ FVT"; 3. 17-8-03; 4. Rec'd from/F. V. Theobald/1907-29 [BM].

Tx. (Lyn.) grandiosus (Williston 1900:224) (*Megarrhina*). Described from unique HOLOTYPE ♀. Labels: 1. Type; 2. Omilteme/Guerrero/8,000 ft/July, H. H. Smith; 3. Central America/Pres. by/F. D. Godman./O. Salvin/1903-172; 4. B.C.A. Dipt. I./Megarrhina/grandiosa/Will.; 5. "Megarrhina/grandiosa/Williston" [folded label, with red border] [BM].

Tx. (Lyn.) horei (Gordon & Evans 1922:330-335) (*Megarhinus*). Described from a ♂ and a ♀ bred from larvae found in stems of wild banana near Macepa. LECTOTYPE designated by Belkin 1968:33, ♂, with terminalia on 2 slides and larval mouthparts on 1 slide, labels: 1. LECTO-/TYPE; 2. legs glued to plastic strip; 3. Type ♂; 4. School of Trop. Med.,/Liverpool University/"Megarhinus horei/Bred from larvae in/Bananeira braba./Macapa, Manaco R./Amazon Dec. 1921/ Dr. R. M. Gordon"; 5. Lectotype/horei Gord. & Ev./By Belkin '66; 6. Lectotype/M. horei/G & Ev., 1922/By Belkin 1968 [BM].

Tx. (Lyn.) longipes (Theobald 1901:241-242) (*Megarhinus*). Described from a unique HOLOTYPE ♀ from an unspecified locality in Mexico. Labels: 1. Type; 2. "Mex." [top of round gray label], "56/143" [bottom of label]; 3. One of Walkers/series "un"named; 4. "Megarhinus/longipes/Theobald (type)"; 5. "Identical with /M. grandiosus/Williston/Midleg glued on/in position of front/leg" [BM].

Tx. (Lyn.) solstitialis (Lutz 1904a:10-13, 1904b:3, 1904c:2) (*Megarhinus*). Described from an unspecified number of ♂♂ and ♀♀ from São Paulo [and Rio de Janeiro (Belkin 1968:34)]. LECTOTYPE designated by Belkin, Schick & Heinemann 1971:8, ♀, labels: 1. "S. Paulo/7 10-03 [bottom of cardboard stage]; 2. "Sao Paulo/Brazil"; 3. Type; 4. "Megarhinus/solstitialis/Type Lutz" [BM].

Tx. (Lyn.) theobaldi (Dyar & Knab 1906c:246) (*Megarhinus*). Dyar & Knab proposed the name *Megarhinus theobaldi* for the specimens Theobald (1901a:237-239) used for his description of *Megarhinus ferox* (Wiedemann) (see Belkin 1968:34). LECTOTYPE designated by Belkin 1968:34, ♂, labels: 1. W. [blue diamond-shaped label]; 2. "Megarhina ferox/Bogata/M. Bigot"; 3. Megarhinus/ferox, Wied./t.1900 in B.M./F.V. Theobald; 4. LECTOTYPE/M. theobaldi/D&K 1906/By Belkin 1968; 5. TYPE DIP: "469 1/2/Megarhinus/theobald/Dyar & Knab"/Hope Dept. Oxford [0].

Tx. (Tox.) acaudatus (Leicester 1908:49-51) (*Teromyia*). Described from an unspecified number of ♂♂ and ♀♀ bred from larvae found in pitcher plants in the neighborhood of Singapore. Four cotypes (1 ♂, 3 ♀♀) in BM collection; LECTOTYPE by present designation, ♂, labels: 1. "Larva fm pitcher plants, Singapore 27/6/04" [on bottom of cardboard stage]; 2. Co-Type; 3. Fed. Malay States/Dr. G. F. Leicester/1912-350 [BM].

Tx. (Tox.) aeneus (Evans 1926:102-103) (*Megarhinus*). Described from HOLOTYPE ♀ and associated pupal skin bred from a larva taken in a treehole, legs glued to a cardboard stage. Labels: 1. Type/♀; 2. [cardboard stage with legs]; 3. School of Trop. Med.,/Liverpool University/"Megarhinus/(Toxorhynchites)/aeneus Evans/Bred from larva taken/from tree - Hill Station/Freetown Sierra Leone/29.VII.1925 The Sanitary/Department 369" (BM). A color figure was done by Evans in Edwards (1932).

Tx. (Tox.) albipes (Edwards 1922:287-288) (*Megarhinus*). Described from an unspecified number of ♂♂ and ♀♀ reared from larvae in water in hollow trees. HOLOTYPE ♂, labels: 1. Type/H.T.; 2. *Megarhinus albipes*, Ed./F. W. Edwards/det. 1921; 3. India:/Simla/VII.1915./Maj. S. R. Christophers/Capt. P. F. Barraud/1921. 166. [BM]. The allotype ♀ appears to be a different species.

Tx. (Tox.) albitarsus (Brug 1939:91-92) (*Megarhinus inornatus* var.). Described from series of 4 ♂♂ reared from larvae found in *Colocasia* leaf axils. HOLOTYPE ♂, abdomen glued to cellophane stage, labels: 1. Type; 2. Type/*Megarh. inornatus*/var. *albitarsus* Brug; 3. Celebes/Kalawara/23.i.1937/S. L. Brug/BM 1938-79 [BM].

Tx. (Tox.) auripes (Edwards 1935:579-580) (*Megarhinus*). Described from unique HOLOTYPE ♀. Labels: 1. Type; 2. "*Megarhinus/auripes* Edw."/F. W. Edwards/det. "VI.1934"; 3. SARAWAK/Mt. Dulit,/4,000 ft./Moss forest/"19.X." 1932; 4. Oxford Univ. Exp./B. M. Hobby &/A. W. Moore./B.M. 1933-254 [BM].

Tx. (Tox.) barbipes Edwards 1913:47. Described from unique HOLOTYPE ♂, right maxillary palpus and part of leg glued to stage, labels: 1. "G.3" [on round cardboard stage]; 2. "*Toxorhynchites*"/Type/"*barbipes*/Edw."; 3. Uganda Prot./Mpanga Forest/Toro, 4,800 ft./12-23 Nov. 1911/S. A. Neave.; 4. Pres. by/Ent. Res. Committee/1912-313 [BM].

Tx. (Tox.) brevipalpis Theobald 1901:245-246. Described from 2 ♀♀ from Natal in Walker's collection. LECTOTYPE by present designation, ♀, labels: 1. Type; 2. "Pt Natal" [top of round label] "58/13" [bottom of label]; 3. One of Walkers/series "un" named; 4. "*Toxorhynchites/brevipalpis*/(Type) Theobald" [BM]. Since only one of the ♀♀ mentioned by Theobald is now in the BM Collection, it is designated as the lectotype.

Tx. (Tox.) coeruleus (Brug 1934:501-502) (*Megarhinus*). Described from a ♂ and a ♀ reared from larvae found in *Nepenthes* on Sumatra. LECTOTYPE by present designation, ♀, labels: 1. "Larva in/*Nepenthes*"; 2. Co-Type; 3. 22/43; 4. "Sumatra;/(W. Coast)/Batang Palupu/viii.1932/Jacobson/B.M. 1934-45 [BM]. Both ♂ and ♀ were reported by Brug to be in the BM; since only the ♀ remains, it is designated the lectotype.

Tx. (Tox.) edwardsi (Barraud 1924:999-1000) (*Megarhinus*). Described from ♂ and ♀ possibly reared from larvae collected in treeholes in India. Two syntypes (1 ♂, 1 ♀) with associated larval and pupal skins on slides and 1 slide of associated larval and pupal skins of the other female mentioned by Barraud [this female is not in the collection]. LECTOTYPE by present designation, ♂, left wing mounted on plastic strip, with associated larval and pupal skins on slide, labels: 1. 1651; 2. "*Megarhinus/edwardsi*/♂ Barr./TYPE"; 3. India:/Krol Mountain, nr. Solon/VIII.1923/Capt. P. J. Barraud/B.M. 1923-523 [BM].

Tx. (Tox.) erythrurus (Edwards 1941:30-31, 361) (*Megarhinus*). Described from an unspecified number of ♂♂ and ♀♀ collected in Nigeria by Kumm, Lambon & Cauchi. HOLOLECTOTYPE designated by Mattingly 1956:38, ♂, labels: 1. Type; 2. "*Megarhinus erythrurus*/Edwards: Hololectotype/P. F. Mattingly 24:XI:1954"; 3. "Nigeria:/Ibadan/22.VII.29/treehole./Dr. H. W. Kumm/B.M. 1930.87" [BM].

Tx. (Tox.) evansae (Edwards 1936:53) (*Megarhinus*). Described from ♂ and ♀ collected in Sierra Leone. HOLOTYPE, ♀, labels: 1. "Tree-hole at/Hill Station/ (Sanit. Dept./Freetown)"; 2. Type; 3. "Megarhinus/evansae Edw. "/Det. F. W. Edwards 1935; 4. "Sierra Leone:/Freetown/8.VII.1925/R. M. Evans/B.M. 1935.486" [BM].

Tx. (Tox.) funestus (Leicester 1908:58-59) (*Teromyia*). Described from unique HOLOTYPE ♂ bred from a pupa collected in bamboo near Kuala Lumpur. Labels: 1. "No. 2/Megarhinus" [handwritten on top of cardboard stage], "Pupa taken/from clear water/in bamboo stump/Pahang Rd jungle/5-3/4 miles from/Kuala Lumpur/Fly 25/3/03" [on bottom of cardboard stage]; 2. "02" [green label]; 3. "Teromyia"Type/"funestus/Leic"; 4. Kuala Lumpur/Fed. Malay States/Dr. G. F. Leicester/1912-350 [BM].

Tx. (Tox.) gilesii (Theobald 1901:227-228) (*Megarhinus*). Described from a series of 2 ♂♂ and 2 ♀♀ from upper Burma [not 1 ♂ and 3 ♀♀ mentioned by Theobald]. Theobald also mentioned 1 ♀ from Sikkim. This is included in the type series of *gilesii* but is actually the holotype of *sikkimensis* Giles (see remarks under *sikkimensis*). LECTOTYPE by present designation, ♂, labels: 1. Upper Burma/E. Y. Watson/94-4. 2. "Kalewa./Chindwin/Upper Burma/April 93" [BM]. Type locality here restricted to Kalewa, Burma.

Tx. (Tox.) immisericors (Walker 1859:90-91) (*Megarhina*). Described from an unspecified number of ♂♂ collected at Makassar, Celebes by A. R. Wallace. LECTOTYPE by present designation, ♂, labels: 1. "Celebes"; 2. One of Walkers/series so named [BM].

Tx. (Tox.) inornatus (Walker 1965:102-103) (*Megarhina*). Described from an unspecified number of ♂♂ from New Guinea. LECTOTYPE by present designation, ♂, abdomen, mid- and hindlegs missing, two legs glued to round stage, labels: 1. Type [green label]; 2. "N"; 3. 68 4; 4. One of Walkers/series so named; 5. "inornata" [folded label] [BM]. Three other mounts bear parts of adult *Toxorhynchites* which are presumed to be part of Walker's series.

Tx. (Tox.) kaimosi (Van Someren 1946:184-185) (*Megarhinus*). Described from a series of 5 ♂♂ and 4 ♀♀ bred from larvae collected in treeholes in Kenya. LECTOTYPE by present designation, ♂, labels: 1. Type/♂; 2. Megarhinus/kaimosi/Van Someren/Holotype; 3. Med. Dept./Kenya/Kaimosi/D. T6. No 1/11.5.44; 4. KENYA:/E. C. C. Van Someren/B.M. 1947-195 [BM]. There were presumably associated larval and pupal skins with some of the adults; however, the "paedotype" slide deposited at the BM bears the best available skins from one of the paratypes, the adult female of which is also in the BMNH.

Tx. (Tox.) klossi (Edwards 1921:72) (*Megarhinus*). Described from unique HOLOTYPE ♂, genitalia in balsam on plastic strip. Labels: 1. Type; 2. "Megarhinus (Toxor.)/klossi Edw. "/F. W. Edwards/det 1920; 3. "Fed Malay States./Kedah Peak/(Gunong Jerai)/3200 ft./xi.-xii.1915/C. Boden Kloss/1916.51" [BM].

Tx. (Tox.) leicesteri Theobald 1904:36-37. Described from ♂ and ♀ sent to Theobald by Leicester. LECTOTYPE by present designation, ♂, head and right foreleg missing, labels: 1. "Larva fr./Ulu Klang/jungle 8 miles/fr Kuala

Lumpur/Fly 10/3/03/Mosquito No. 1 Book No 2" [on bottom of cardboard stage]; 2. Type; 3. Kuala Lumpur/Dr. Leicester/Toxorhynchites Leicesteri/(Type) [BM]. Another σ in the BM collection from the same locality and time period was apparently not seen by Theobald for his original description. This σ was reared from larvae collected in bamboo and is in excellent condition.

Tx. (Tox.) lutescens (Theobald 1901:233-235) (*Megarhinus*). Described from unique HOLOTYPE σ . Labels: 1. Type; 2. 79; 3. Salisbury/Mashonaland/June 1900/G. A. K. Marshall; 4. "Megarhinus/lutescens/(Type) Theobald" [BM]. The terminalia have been removed, but were not found in the BM slide collection.

Tx. (Tox.) magnificus (Leicester 1908:54-56) (*Teromyia*). Described from an unspecified number of $\sigma\sigma$ and ♀♀ bred from larvae collected in bamboo, both cut and uncut internodes with a small hole made by insects. Four syntypes (2 $\sigma\sigma$, 2 ♀♀) in the BM collection. LECTOTYPE by present designation, ♀ , labels: 1. "Larva fr./bamboo/Buket Kuta/Selangor/24/2/03" [on bottom of cardboard stage]; 2. "Mg3"; 3. Cotype [top of label], "Teromyia/magnificus/Leicester" [bottom of label]; 4. Fed. Malay States/Dr. G. F. Leicester/1912-350 [BM].

Tx. (Tox.) marshalli Theobald 1903:121-123. Described from unique HOLOTYPE σ . Labels: 1. Type; 2. Salisbury 5000 ft./Mashonaland/April 1901/G. A. K. Marshall; 3. "Toxorhynchites/marshalli/(Type) Theobald" [BM].

Tx. (Tox.) metallicus Theobald 1904:37-39. Described from an unspecified number of $\sigma\sigma$ and ♀♀ collected in Walsh jungle, Kuala Lumpur. LECTOTYPE by present designation, σ , labels: 1. "Larva fr./Walsh jungle/Fly 8/5/03/mosquito/No. 2" [on bottom of cardboard stage]; 2. Type; 3. Kuala Lumpur/Dr. Leicester; 4. Toxorhynchites/metallicus/(Type) Leicester [BM].

Tx. (Tox.) minimus (Theobald 1905:237-239) (*Megarhinus*). Described from unique HOLOTYPE σ . Labels: Yatiyantota/Ceylon, "3-1902"; 2. Type; 3. "Megarhinus/minimus/(Type σ) F. V. Theobald" [BM].

Tx. (Tox.) nairobiensis (Van Someren 1946:181-184) (*Megarhinus*). Described from 2 $\sigma\sigma$, 2 ♀♀ , and 3 larval skins; larvae collected from treeholes in Nairobi city park. LECTOTYPE by present designation, σ , labels: 1. Type/ σ ; 2. "Megarhinus/nairobiensis/Van Someren/Holotype"; 3. "Nairobi/Tree Hole No. 3/G. R. C. Van Someren" [on top of card]/"B.M./1946-144" [on bottom of card]; 4. KENYA:/E. C. C. Van Someren/B.M. 1947-195 [BM].

Tx. (Tox.) nigripes (Edwards 1935:580-581) (*Megarhinus*). Described from a series of 2 $\sigma\sigma$ and 1 ♀ . LECTOTYPE by present designation, σ , labels: 1. Type; 2. "Megarhinus/nigripes Edw."/F. W. Edwards/det. VI.1934; 3. SARAWAK/Mt. Dulit/4,000 ft./Moss Forest/19.X.1932; 4. Oxford Univ. Exp./B.M. Hobby & A. W. Moore/B.M. 1933-254 [BM].

Tx. (Tox.) pendleburyi (Edwards 1930:305) (*Megarhinus*). Described from unique HOLOTYPE ♀. Labels: 1. Type; 2. "Megarhinus/pendleburyi Ed.)/F. W. Edwards/det. 1930; 3. B. N. Borneo/Mt. Kinabalu/Kenonkok,/3,300 ft./22nd Apr. 1929 [top of pink label], H. M. Pendlebury/Coll./F. M. S. Museums [BM].

Tx. (Tox.) phytophagus Theobald 1901:1 (as *phytophygus*; emend. by Edwards 1912c:3). Described from unique HOLOTYPE ♀ collected on the flowers of a climbing plant at Obuasi [Gold Coast]. Labels: 1. "Obuasi/20.6.-07/C on flower of/(umbel. plants)/WMG/B" [on bottom of round stage]; 2. Type; 3. Toxorhynchites/phytophygus/n. sp. ♀/(Type)FVT/18.3.09"; 4. Obuasi/Ashanti/W. Africa/20.VI.1907/Dr. W. M. Graham/1909-271. [BM].

Tx. (Tox.) quasiferox (Leicester 1908:51-54) (*Teromyia*). Described from an unspecified number of ♂♂ and ♀♀ reared from larvae collected in bamboo. Three syntypes (2 ♀♀, 1 ♂) in the BM collection. LECTOTYPE by present designation, ♂, labels: 1. "Larva fr./bamboo Ulse/Klang jungle/8 miles fr./Kuala Lumpur/Megarhinus No. 2" [on bottom of cardboard stage]; 2. "o" [green label]; 3. Co-type [top of label]; *Teromyia quasiferox* Leicester [bottom of label]; 4. Fed. Malay States/Dr. G. F. Leicester/1912-350 [BM].

Tx. (Tox.) ruwenzori (Van Someren 1948:128-129) (*Megarhinus*). Described from ♂ and ♀ reared from larvae. The ♂ was reared from larvae collected in bored bamboo. HOLOTYPE, ♂, labels: 1. UGANDA Nomi/Bwamba Pass/Ruwenzori 7-8000 ft./bred E. C. C. Van Someren; 2. E. C. C. Van Someren/B.M. 1947-281; 3. "Megarhinus/ruwenzori/Van Someren/Holotype"; 4. Type ♂ [BM].

Tx. (Tox.) sikkimensis (Giles 1901:604) (*Megarhina*). Description based on a unique HOLOTYPE ♀, labels: 1. Type; 2. Sikkim/"96.1800 ft. 233/June 1896"/G. A. Dudgeon; 3. "Megarhinus/gilesii/(Type) Theobald" [BM]. This is the specimen referred to in Giles 1900:131 and named by him as *Megarhina sikkimensis* in 1901:604 (Published in May 1901). Theobald (1901, published in November 1910) included this specimen in his new species *Megarhinus gilesii*. Barraud (1934:24) mentioned the inclusion of this specimen in Theobald's type series of *M. gilesii*, when he synonymized both *M. gilesii* Theobald and *M. sikkimensis* under *M. splendens* (Wiedemann).

Tx. (Tox.) sumatranus (Brug 1939:93) (*Megarhinus*). Described from unique HOLOTYPE ♂ reared from larva collected in a pitcher plant in Sumatra. Labels: 1. Type/"♀"; 2. "Type/Megarhinus/sumatranus/Brug"; 3. Larva in/nepenthes/see pupal skin/slide no. 8310; 4. Sumatra/Benkoelen/xi.-xii.1929/ S. C. Brug/B.M. 1938. 479 [BM].

Tx. (Tox.) viridibasis (Edwards 1935:133) (*Megarhinus aeneus* var.). Described from unique HOLOTYPE ♀. Labels: 1. Type; 2. "Megarhinus aeneus/var. viridibasis/Edw. 1934"; 3. Uganda/Kampala/6.X.1934/G. H. E. Hopkins [BM].

LITERATURE CITED

- Barraud, P. J. 1924. Four new mosquitoes from the western Himalayas. Indian J. Med. Res. 11:999-1006.
- _____. 1934. Diptera. Vol. V. Family Culicidae. Tribes Megarhinini and Culicini. Fauna of British India, including Ceylon and Burma. Taylor & Francis, London. 463 pp.
- Belkin, J. N. 1968. Mosquito studies (Diptera, Culicidae). IX. The type specimens of New World mosquitoes in European museums. Contrib. Am. Entomol. Inst. 3(4):1-69.
- Brug, S. L. 1934. Notes on Dutch East Indian mosquitoes. Bull. Entomol. Res. 25:501-519.
- _____. 1939. Notes on Dutch East Indian mosquitoes. Tijdschr. Entomol. 82:91-113.
- Dyar, H. G. and F. Knab. 1906. The species of mosquitoes in the genus *Megarhinus*. Smithson. Misc. Collect. 48:241-258.
- Edwards, F. W. 1912. A synopsis of the species of African Culicidae, other than *Anopheles*. Bull. Entomol. Res. 3:1-53.
- _____. 1913. Further notes on African Culicidae. Bull. Entomol. Res. 4:47-59.
- _____. 1921. Mosquito notes. II. Bull. Entomol. Res. 12:69-80.
- _____. 1922. A synopsis of adult Oriental culicine (including megarhinine and sabethine) mosquitoes. Part I. Indian J. Med. Res. 10:249-293.
- _____. 1930. Mosquito notes. IX. Bull. Entomol. Res. 21:287-306.
- _____. 1932. Diptera. Fam. Culicidae. Fascicule 194, 258 pp. In Wytsman, P., ed., Genera Insectorum. Desmet-Verteneuil, Brussels.
- _____. 1935. Mosquito notes. XII. Bull. Entomol. Res. 26:127-136.
- _____. 1935. Results of the Oxford University expedition to Borneo, 1932. Two new species of *Megarhinus* (Diptera, Culicidae). Ann. Mag. Nat. Hist., ser. 10 15:579-580.
- _____. 1936. New African culicine mosquitoes (Diptera, Culicidae). Proc. Roy. Entomol. Soc. London (B) 5:49-55.
- _____. 1941. Mosquitoes of the Ethiopian Region. III. Culicine adults and pupae. British Museum (Natural History), London. 499 pp.

- Evans, A. M. 1926. Notes on Freetown mosquitos, with descriptions of new and little-known species. *Ann. Trop. Med. Parasitol.* 20:97-108.
- Giles, G. M. 1900. A handbook of the gnats or mosquitoes giving the anatomy and life history of the Culicidae. John Bale, Sons & Danielsson, London. 374 pp.
- _____. 1901. A plea for the collective investigation of Indian Culicidae, with suggestions as to moot points for enquiry, and a prodromus of species known to the author. *J. Bombay Nat. Hist. Soc.* 13:592-610.
- Gordon, R. M. and A. M. Evans. 1922. Mosquitoes collected in the Manaos Region of the Amazon. *Ann. Trop. Med. Parasitol.* 16:315-338.
- Knight, K. L. 1978. Supplement to a catalog of the mosquitoes of the world. Thomas Say Found. Publ. 6 (Suppl.):1-107.
- Knight, K. L. and A. Stone. 1977. A catalog of the mosquitoes of the world (Diptera: Culicidae). 2nd Ed. Thomas Say Found. Publ. 6:1-611.
- Leicester, G. F. 1908. The Culicidae of Malaya. *Stud. Inst. Med. Res., Malaya* 3(3):18-261.
- Lutz, A. 1904a. Novas especies, p. 6-30. In: Bourroul, C., Mosquitos do Brasil [q.v.]. Bahia. 78 pp.
- _____. 1904b. Catalogo dos culicideos Brasileiros e Sul-Americanos, pp. 1-16. In: Bourroul, C., Mosquitos do Brasil [q.v.]. Bahia. 78 pp.
- _____. 1904c. Chave para a determinacao das especies de Euculicidae encontradas no Brasil, pp. 1-6. In: Bourroul, C. Mosquitos do Brasil [q.v.]. Bahia. 78 pp.
- Mattingly, P. F. 1956. Lectotypes of mosquitoes (Diptera: Culicidae) in the British Museum. Part II. Genera *Toxorhynchites*, *Aedes* (subgenera *Aedimorphus*, *Banksinella*). *Culex* (subgenera *Neoculex*, *Culiciomyia*, *Mochthogenes*, *Culex*). *Proc. R. Entomol. Soc. London (A)* 31(4/6):37-44.
- Reinert, J. F. 1975. Mosquito generic and subgeneric abbreviations (Diptera: Culicidae). *Mosq. Syst.* 7:105-110.
- Steffan, W. A. 1978. Source of type material of *Toxorhynchites* (Diptera: Culicidae). *Mosq. Syst.* 9:58-71.
- Theobald, F. V. 1901. A monograph of the Culicidae or mosquitoes. Vol. 1. British Museum (Nat. Hist.), London. 424 pp.
- _____. 1903. A monograph of the Culicidae or mosquitoes. Vol. III. British Museum (Nat. Hist.), London. 359 pp.

- _____. 1904. New Culicidae from the Federated Malay States. *Entomologist* 37:36-39.
- _____. 1905. Some new mosquitoes from Ceylon. *J. Bombay Nat. Hist. Soc.* 16:237-250.
- _____. 1907. A monograph of the Culicidae or mosquitos. Vol. IV. British Museum (Nat. Hist.), London. 639 pp.
- Van Someren, E. C. C. 1946. Ethiopian Culicidae. Tribe Megarhinini - notes and descriptions. *Trans. R. Entomol. Soc. London* 97:177-186.
- _____. 1948. Ethiopian Culicidae: Some new mosquitoes from Uganda. *Proc. R. Entomol. Soc. London (B)* 17:128-132.
- Walker, F. 1859. Catalogue of dipterous insects collected at Makassar in Celebes, by Mr. A. R. Wallace, with descriptions of new species. *J. Proc. Linn. Soc. London (Zool.)* 4:90-144.
- _____. 1865. Descriptions of new species of the dipterous insects of New Guinea. *J. Proc. Linn. Soc. London (Zool.)* 8:102-118.
- Williston, S. W. 1900. Supplement, pp. 217-248. In: Godman, F. D. & O. Salvin, eds., *Biologia Centrali-Americana. Zoologia-Insecta-Diptera*. Vol. 1. Taylor & Francis, London. 378 pp.