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**A LIST OF EGYPTIAN DIPTERA WITH A
BIBLIOGRAPHY AND KEY TO FAMILIES**

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PREFACE

The present list is the outcome of work started while the senior author was on a PL-480⁽¹⁾ project in Egypt in 1964, where he reviewed and made new determinations on Diptera in the collections of the Ministry of Agriculture (Doqqi) and the Faculty of Science of the University of Cairo (Giza). Since the three major collections in Egypt consist of those two and that of the Entomological Society of Egypt, also in Cairo, the senior author suggested that El-Bialy compile a list of the species deposited in the three collections. This work was successfully completed, and many records from the literature were added, largely from one of the major sources, the Bulletins and Memoirs of the Entomological Society of Egypt. The result was a compilation which we felt was a large enough step toward a definitive compilation that the time and effort to make it such would be worthwhile. The senior author, with the facilities of the entomological libraries in Washington, has searched the literature and added many records and a bibliography and key to families.

It is hoped that this work will serve as an introduction to the Diptera of Egypt and provide a stimulus for further taxonomic and zoogeographical work.

SOURCES

The work of Bezzi (1906-1908) in bringing together lists of all African species of Diptera provides a starting point, including as it does the date of the other major pioneering work on Egyptian Diptera, that of Becker (1902-1903).

Since Egypt has been considered a part of the Palaearctic Region, the series on the Diptera of that region published under the leadership of Erwin Lindner, *Die Fliegen der Palaarktischen Region*, is the next most important basic source. The Bulletins of the Entomological Society of Egypt and those of the Memoirs of the same Society which consist of monographs of

(1) Public Law No. 480, project F4-ENT2 entitled "Survey of Insect Fauna of Egypt"; principle investigator Dr. Mohamad Mahmoud Ibrahim. Heartfelt thanks are due to the following for assistance and for making the senior author's stay in Egypt pleasant and scientifically profitable: Dr. A. Morsi, Dr. Mohamad Ibrahim, Dr. Mostafa Hafez, Dr. Mahmoud Hafez, Mr. Fathy Shalaby, Mr. Kamal Hamed, Mr. Saad El-Bialy, Mr. A. Alfieri, Mr. Mohamad Abdel-Khalek, Mr. Samir El-Miniawi, and all the many people connected with the Ministry of Agriculture, the University of Cairo, the Entomological Society of Egypt, the American Embassy in Cairo, the Garden City House, etc., who without exception were most cordial and helpful.

We are also grateful to Arthur D. Cushman for the drawing of *Simulium* (Fig. 1).

Egyptian Diptera by H.C. Eflatoun are also of prime importance. Other sources are extremely scattered. We feel that the present list includes a very high percentage of the species of Diptera that have been recorded from Egypt, as well as a few new records, but at the same time it is highly likely that a few records, especially in such families as Muscidae, Tachinidae, Syrphidae, etc., have been missed.

NOTES ON THE ZOOGEOGRAPHY OF EGYPT

The position of Egypt in the faunal regions of the world is a rather anomalous one, since it partakes of the characteristics of both the Palaearctic and Ethiopian Regions. Egypt has generally been considered to belong with the Palaearctic, but there is evidence that the Ethiopian element is much larger than usually thought. It is striking to find, in many groups of animals, citations of species after species for northwestern Africa (Morocco, Algeria, Tunis, etc.) and then Palestine, with a distributional gap in Egypt. This can hardly be attributed entirely to lack of collecting, though this explanation can be adduced in many cases with the insects. The Mediterranean shore of Egypt, from a physiographic point of view, differs from that to the west in being quite low. Many species apparently end their distribution in the relatively higher land in northeast Libya. However, there is evidence to show that the desert area east of the Nile delta is part of the biotic region that includes Palestine.

The Nile, with its large delta, is responsible for many of the anomalies of animal distribution in Egypt, both in permitting Palaearctic species to extend far southward and in bringing Ethiopian species far to the north. For example, the palaeotropical Chloropid fly *Anatrichus erinaceus* Loew, found in a wide area throughout central and southern Africa and southern Asia, is common and abundant in the Nile valley as far north as Alexandria.

It is especially the Eastern Desert, the region between the Nile and the Red Sea, including the Sinai Peninsula, that provides the greatest number of Ethiopian species. The Gebel Elba area, in the extreme southeastern corner of Egypt, is typically Ethiopian. How far the species that have been found at Gebel Elba extend into Egypt is very little known. Vivi Tackholm, in her work on the flora of Egypt (1956), cites the distribution of many plants as Da, Ge, S (i.e., Eastern or "Arabian" desert, Gebel Elba, Sinai⁽²⁾). Freeman (1955-1958, pt. 1:4), in discussing Ethiopian Chironomidae, states that "some Sudanese species extend along the Nile into lower Egypt and for these species it is necessary to extend the limits of the Region under consideration". Oldroyd (1954:33) gives a map whereon a region B ("extension of certain species of Tabanidae beyond this boundary (of Ethiopian region according to Chapin)" covers a large part of Egypt north to the Mediterranean.

The larger wadis midway between Cairo and Suez, looking southward from the highway, are seen to include scattered acacia trees producing an aspect reminiscent of the Acacia veldt much farther south.

(2) For example, *Hochstetteria schimperi* DC, *Ifloga spicata*, var. *condensata* Boiss., *Iphiaona scabra* DC, *Senecio flavus* (Decne) Sch. Bip., *Osteospermum vaillantii* (Decne) T. Norl., *Lindenbergia sinaica* Benth., (*Lavandula stricta* Dal., *Trichodesma chrenbergii* Schweinf., *Pentatropis spiralis* (Forsk.) Decne, etc.

The oases of the Western Desert (Siwa, Bahariya, Farafra, Dakhla, Kharga, Fayum, etc.) do not exhibit a high degree of endemism but partake largely of the character of the Nile valley. Only Siwa and Fayum have been extensively collected for insects. Siwa, in the northwest, is a depression almost connected with the more extensive Qattara depression, whose fauna is little known. The Fayum is little more than an arm of the Nile.

The work of Bodenheimer (1937) on the relationships of the Palestine fauna, contains much interesting data concerning the northern African faunal regions.

PLAN

The present list cites first of all general works dealing with Diptera of Egypt or containing general data pertinent thereto. These are followed by a listing of the families of Diptera and their species, all in strictly alphabetical order for convenience, without taking into account groups such as subfamilies, tribes, etc. Each family is prefaced with a citation of references to special works dealing with the family concerned, those providing records and those important to the study of the family though not citing specific Egyptian records.

The species lists have been checked extensively to provide the most recent name and synonymy, the latter only insofar as Egypt is concerned. The family names and delimitations are those recognized by the Diptera Section in the United States National Museum consisting of U.S. Department of Agriculture personnel (Foote, Gagne, Sabrosky, Steyskal, Stone, Wirth). As mentioned under several families, each of these authorities has contributed in generous fashion to the compilation, for which help we are deeply grateful.

The presence of specimens in the Egyptian collections is indicated in columns following the species names, by capital letters, as follows :

M.—Ministry of Agriculture, Doqqi, Cairo.

F.—Faculty of Science, University of Cairo, Giza.

S.—Entomological Society of Egypt, Cairo.

R.—Indicates species recorded in the literature but not at present known to be in Egyptian collections.

A note is also added to indicate the location of types when such are in these collections. Many of the listed records are of species that require elucidation ; these are noted as "sp. inquir." *species inquirenda*. Other pertinent notes are also occasionally added.

When a subgeneric designation of a species is available, the name or initial of the subgenus is added in parentheses after the generic name or initial. When the subgenus is typical, that is, the same as the genus, the name is abbreviated to the initial letter, which of course will be the same as that of the genus.

The total number of species is given at the end of the introductory paragraph of each family.

The detailed bibliography and a systematic classification of the families and some subfamilies of the Diptera of the world is appended, and finally a key, with explanatory figures, to the families found in Egypt.

<i>maculata</i> Leach			
Lipoptena cervi (Linnaeus)			R
L. chalcomelaena Speiser	F		
Lynchia albipennis (Say)	F		
syn. : <i>ardeae</i> Macquart			
Melophagus ovinus (Linnaeus)	F	S	
Olfersia fumipennis (Sahlberg)			R
Ornithomya fur Schiner			R
Ornithophila metallica (Schiner)	F		
Pseudolynchia canariensis (Macquart)	F	S	
syn. : <i>maura</i> Bigot			

FAMILY LAUXANIDAE (Sapromyzidae)

See Bezzi, 1908 ; Curran, 1938a ; Czerny, 1932. 2 species.

Homoneura intersticta (Fallén)			R
Prosopomyia pallida Loew			R

FAMILY LONCHAEIDAE

See Bezzi, 1908 ; Czerny, 1934 ; Gentry, 1965 ; McAlpine, 1956, 1960a ; Morge, 1959-1962, 1963. 5 species.

Dasiops latifrons (Meigen)	F		
syn. : <i>lasiophthalma</i> Macquart			
Lamprolonchaea aurea (Macquart)			R
syn. : <i>splendida</i> Loew			
Lonchaea palposa Zetterstedt	M		
Silba adipata McAlpine	M	F	
S. virescens Macquart	M	F	
syn. : <i>aristella</i> Becker			

FAMILY MICROPEZIDAE

See Hendel, 1931. 1 species.

Micropeza annuliventris (Hendel)	M	F	type in F
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FAMILY MILICHIIDAE

See Collin, 1949a ; Hendel, 1931 ; Hennig, 1937. 18 species.

Aldrichiomyza longirostris Hendel	M	F	type in F
Carnus hemapterus Nitzsch			R
Desmometopa m-nigrum (Zetterstedt)	M	F	
syn. : <i>niloticum</i> Becker			
D. sp. nr. singaporensis Kertész	M		
syn. : <i>tarsalis</i> Loew of authors			
Hemeromyia anthracina Collin			R
H. remotinervis Strobl	F		
Horaismoptera vulpina Hendel	F		

Leptometopa rufifrons Becker	M		
Madiza glabra Fallén	M		
Meoneura nitidiuscula Collin			R
<i>M. obscurella</i> (Fallén)			R
syn. : <i>Psolidotus primus</i> Becker			
Milichia integra Becker			R
<i>M. nitida</i> Becker	M	F	
<i>M. pubescens</i> Becker			R
syn. : <i>ludens</i> Wahlgren of Becker			
<i>M. sinaica</i> Steyskal		F	type in F
Milichiella argentiventria Hendel	M	F	type in F
<i>M. lacteipennis</i> (Loew)	M		
Risa longirostris Becker	M		

FAMILY MUSCIDAE

See Bezzi, 1908, 1923; Emden, 1941a, 1941b; Hafez, 1939a, 1941a, 1941b, 1947; Hafez and Attia, 1958; Hafez and Gamal-Eddin, 1959, 1962; Hennig, 1955-1966, 1963; Pefly, 1953; Sabrosky, 1952; Sacca, 1956; Salem, 1960b; Salem and El-Sherif, 1960a; Villeneuve, 1922; Zimin, 1951; Zumpt, 1950. This family has only recently been definitely distinguished from the Anthomyiidae. 63 species.

Atherigona humeralis (Wiedemann)			R
<i>A. laevigata</i> (Loew)			R
syn. : <i>scutellaris</i> Stein			
<i>A. theodori</i> Hennig			R
<i>A. varia</i> (Meigen)			R
syns. : <i>trilineata</i> Stein of authors			
<i>quadripunctata</i> Rossi			
<i>A. v.</i> , var. <i>soccata</i> Rondani			R
syn. : <i>acutipennis</i> Villeneuve			
Coenosia alete Walker			R sp. inquir.
<i>C. attenuata</i> Stein			R
Fannia canicularis (Linnaeus)	M	F	
syn. : <i>muscoides</i> Walker			
<i>F. incisurata</i> (Zetterstedt)		F	
<i>F. leucosticta</i> (Meigen)			R
<i>F. manicata</i> (Meigen)			R
Graphomya maculata (Scopoli)		F	
Gymnodia flavescens (Stein)			R
<i>G. impedita</i> Pandellé		F	
syns. : <i>eremophila</i> Brauer and Bergenstamm			
<i>multipunctata</i> Stein			
<i>G. tonitrui</i> (Wiedemann), var. <i>canache</i> (Walker)		F	
syn. : <i>variegata</i> Stein			
Haematobia sp. indet.			R