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N.B. — Les virements à notre C.C.P. **LYON 101-98** ou les chèques bancaires, doivent être rédigés au nom de la SOCIETE LINNEENNE DE LYON.

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KEYS FOR IDENTIFICATION OF SPECIES OF FAMILY SYRPHIDAE (DIPTERA) IN EGYPT

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Résumé. — Etant donné l'intérêt économique que présentent les Syrphides, nous avons estimé utile d'approfondir leur étude en Egypte où elles n'avaient fait l'objet d'aucune recherche depuis une cinquantaine d'années. Tout le matériel des cinq Instituts égyptiens du Caire a été soigneusement déterminé, et s'est révélé appartenir à 33 espèces réparties entre 17 genres. Il fallait donc établir de nouvelles clefs de détermination tant pour les genres que pour les espèces, ces clefs devant être utilisables pour toute l'Afrique du Nord.

Owing to the importance of family Syrphidae, taxonomists studied it in different regions of the world.

The Egyptian syrphids were studied for the first time by WIEDEMANN (1830) who described nine species from Egypt. MACQUART (1842, 1847) followed him and described six other species. BECKER (1902, 1907) listed and recorded 24 species. EFFLATOUN (1922, 1925, 1926) monographed 25 species. STEYSKAL and BIALY (1967) listed 47 species in the Egyptian fauna.

The authors study and survey of family Syrphidae in Egypt revealed the presence of six subfamilies, 17 genera, and 56 species. 33 species are collected and represented in our collections.

The following keys are necessary for their identification.

KEY TO SUBFAMILIES

1 (2) Antenna situated on a pedicel, antenna with a terminal style. CERIODINAE

2 (1) Antenna not on a pedicel, antenna with dorsal arista.

3 (4) Face flat, without trace of central prominence, only slightly produced at anterior oral opening, tergites always with three pairs of slanting whitish bars, eyes touching in the male. Small narrow flies. EUMERINAE

4 (3) Face usually well developed with a central prominence and obviously produced at anterior oral opening, or if flat tergites are without three pairs of slanting whitish bars.

5 (6) Humeri usually bare, or with few long hairs only in some species of *Baccha* ; r-m before middle of discal cell ; hind femur simple without distinct anteroventral spines ; abdomen with visible segments. SYRPHINAE

6 (5) Humeri pilose clearly exposed ; head posteriorly less strongly convex ; arista, face, position of anterior cross-vein and hind femur variable.

7 (8) r-m before the middle of the discal cell, stigmal cross-vein absent ; abdomen of male four segmented, female five segmented.. CHEILOSINAE

8 (7) r-m at or beyond middle of discal cell (except in *Syritta*) where it is slightly before middle ; stigmal cross-vein present or absent.

9 (10) R 4 + 5 always lopped ; all three pairs of femora with well developed basal patch of stubby decumbent black spinules ; metasternum pilose ; stigmal cross-vein present (except in *Helophilus*) ..... ERISTALINAE

10 (9) R 4 + 5 sinuous, but never looped ; only first or second pair of femora with basal patch of spinules ; stigmal cross-vein absent .... XYLOTINAE

A — Subfamily SYRPHINAE

This subfamily consists almost entirely of aphidophagous forms. Nine genera belong to this subfamily.

Key to genera

1 (2) Antenna elongate, about six times as long as broad, arista dosal ; abdomen oval, convex and emarginate ..... *Chrysotoxum* Meigen

2 (1) Antenna usually short, arista dorsal ; abdomen not convex or emarginate.

3 (4) Face produced forward, epistoma prolonged into a beak ; R 4 + 5 slightly looped ; abdomen quite flattened and widely oval .. *Asarcina* Macquart

4 (3) Epistoma not prolonged into a beak, R 4 + 5 not so looped, abdomen usually a little convex.

5 (12) Abdomen oval.

6 (9) Sides of mesonotum not marked with bright yellow lines.

7 (8) Small insects, (except *P. serratus*) ; eyes pilose ; first abdominal segment well developed, especially on disc ; head broader than thorax, face not hollowed below antenna ..... *Paragus* Latreille

8 (7) Moderate size species ; eyes bare ; first abdominal segment small and greatly reduced on disc ; head not broader than thorax, face hollowed below antennae ..... *Syrphus* Fabricius

9 (6) Sides of mesonotum distinctly marked with yellow lines.

10 (11) Small insects ; frons flat, eyes bare ; hind trochanter of male with ventral spine-like process ..... *Ischiodon* Sack

11 (10) Large insects ; frons inflated, eyes hairy, with upper facets enlarged .... *Scaeva* Fabricius

12 (5) Abdomen cylindrical, spatulate or petiolate, slender.

13 (14) Hypopygium of male greatly enlarged, oval bulbous ; male cylindrical, female short ; lower two thirds of face produced and blunt ; epistoma not elevated ..... *Sphaerophoria* St. Fargeau & Serville

14 (13) Hypopygium of normal shape and size ; abdomen petiolate ; face not produced or with a nose like prominence.

15 (16) Antennae short, face straight with wart-shaped prominence ; scutellum convex, pleurae covered with short hairs ; wings hyaline, with brownish spot at wing apex, R 4 + 5 somewhat undulated .... *Baccha* Fabricius

16 (15) Antennae elongate, face with a nose like prominence ; scutellum flat ; pleurae covered with tufts of hairs ; abdomen club-shaped, with yellow bands ..... *Pseudodoros* Becker

Genus SYRPHUS Fabricius

Syrphus Fabricius (1775), Syst. Ent., 172 : 762.
Scaeva Fabricius (1805), Syst. Antl. 57 : 248.
Psilogaster Lioy (1863), Atti. Instit. Venets., (3) IX : 753.
Epistrophe Walker (1852), Ins. Sanders., (1) III : 242.

Key to species

1 (2) Eyes pilose ; stigma with basal blackish spot ; fourth abdominal segment with a broad yellow band touching the anterior border, second and fifth abdominal segments with pale fasciae ..... *adligatus* Wiedemann

2 (1) Eyes bare, stigma without basal spot.

3 (4) Third longitudinal vein not reaching wing apex ; abdominal yellow spots broad reaching lateral sides and sometimes touching in the middle ..... *corollae* Fabricius

4 (3) Third longitudinal vein reaching wing apex ; abdominal lunules less distinct.

5 (6) Thorax with three dull green stripes merging into a semi-circular dull green patch posteriorly ; tergite three and four with a broad yellow band partially or completely divided by a narrow black transverse stripe .... *balteatus* (De Geer)

6 (5) Thorax entirely shining metallic black ; tergites three and four with yellow bands deeply incised behind, where they slope obliquely towards sides ..... *auricollis* Meigen

Genus SCAEVA Fabricius

Scaeva Fabricius (1805), Sys. Antl. : 248.
Lasiophthicus Rondani (1844), Nuov. Anal. Sci. Nat. Inst., Bologna, (2) II : 459.
Catabomba Osten Sacken (1877), Bull. U.S. Geol. Geogr. Surv. Terr., III : 326.

Key to species

1 (2) Yellow bands on sides of thorax present ; abdominal lunules wider and those on the third and fourth segments very little arched with their inner ends always touching the upper margins .... *albomaculatus* (Macquart)

2 (1) Bands on sides of thorax indistinct ; abdominal lunules more or less narrow, those on the third and fourth segments much arched, their inner ends very rarely touching the hind margins ..... *pyrastri* (Linnaeus)

Genus ISCHIODON Sack

Ischiodon Sack (1913), Ent. Mitt. : 215.
This genus is represented in Egypt by one species *I. aegyptius* (Wiedemann).

Genus PSEUDODOROS Becker

Pseudodoros Becker (1903), Mitteil. Zool. Mus. Berlin, II : 92.
Only one species *P. nigricollis* Becker is represented in Egypt.

Genus Asarcina Macquart

Asarkina Macquart (1842), Dipt. Exot., II (2) : 77 (em. Lw. 1957).
Ancylosyrphus Bigot (1882), Bull. Soc. Ent. Fr., (6) II : LXVIII.
Asarcina Macquart (1907), Becker, Katal. Palae. Dipt., III : 55.

This genus is represented by *A. africana* Bezzi (intercepted) and *A. eremophila* recorded from Nuba.

Genus Sphaerophoria St. Fargeau & Serville

Sphaerophoria St. Fargeau & Serville (1825), Encycl. Method., X : 513.
Melithreptus Loew (1840), Programm. Posen : 37.
Melitrophus Walker, (1856), Ins. Brit. Dipt., III : XXI.

Key to species

1 (2) Thorax shining, with a yellow lateral stripe extending from anterior extremity to transverse suture, the side margins then continuing absolutely black until the yellow posterior callus .... *rueppellii* (Wiedemann)

2 (1) Thorax dull with a continuous yellow lateral stripe from anterior extremity to the scutellum, sometimesless intense, but always obvious, between transverse suture and posterior callus.

3 (4) Abdomen of male long, obviously longer than the wings ; hind femora with crowded short black bristles postero-ventrally on about apical three quarters, and bare at the base, besides the bare mid-ventral stripe which extends for full length of femora ..... *scripta* (Linnaeus)

4 (3) Abdomen of male normal, about as long as the wings ; hind femora with evenly distributed strong black hairs reaching almost or quite to base, only the mid-ventral stripe bare for full length of femora .... *menthastri* (Linnaeus)

Genus Baccha Fabricius

Baccha Fabricius (1805), Syst. Antl., 44 : 199.

Baccha sapphirina Wiedemann is the only species belonging to this genus.

Genus Paragus Latreille

Paragus Latreille (1804), Hist. Nat. Crust. Ins., XIV, DXXII : 359.

Key to species

1 (2) Scutellum wholly black ; face with distinct tubercle, and black middle line in both sexes ..... *tibialis* (Fallen)

2 (1) Face entirely whitish yellow, or yellow in both sexes ; scutellum with the tip yellow in both sexes.

3 (4) Scutellum broadly yellow and serrate at the tip ; big species ; face yellow with a black middle line ..... *serratus* (Fabricius)

4 (3) Scutellum yellow at apex without teeth ; small species ; face completely yellow.

5 (6) Eyes marked with pale transverse bands ..... *aegyptius* Macquart

6 (5) Eyes unicolorous, not banded ; with large facets at the upper corner of the eyes in males ..... *bicolor* (Fabricius)

Genus CHRYSOTOXUM Meigen

Chrysotoxum Meigen (1803), Illig. Magaz. Ins., 2 : 275-284.
Mulio Fabricius (nec Latreille) (1805), Syst. Antl., 41 : 183.
C. parmense Rondani was recorded in Egypt.

B — Subfamily EUMERINAE

Genus EUMERUS Meigen

Eumerus Meigen (1822), System. Beschr., III, CII : 202.
Pumilio Schembri (1850), in litt. apud. Rond. Ann. Soc. Ent. Fr., (2), VIII : 127.
Citibaena Walker (1848), List Dipt. Ins. Coll. Br. Mus. (4 parts).
Paragopsis Matsumura (1945), Kloet and Hinks, List Br. Ins. Stockport : 483 pp.

Key to species

1 (2) Big sized insect ; R 4 + 5 with a deep loop almost as in *Eristalis* ; eyes densely hairy ..... *mucidus* Bezzi

2 (1) R 4 + 5 only slightly dipped, smaller species.

3 (4) Hind leg thickened with swollen femora, short dilated tibia and swollen incrassate hairy metatarsi much more distinct in the male than in the female ..... *vestitus* Bezzi

4 (3) Hind leg not thickened, metatarsi less swollen.

5 (6) Small insect, wing hyaline, stigma yellowish ; vertex in male long and narrow ; scutellum convex in the middle ; abdomen with fine dense punctuation ..... *cistanchei* Efflatoun

6 (5) Moderate sized insect ; wings pellucid, brownish ; stigma pale brown ; vertex in male long and broad ; scutellum flat in the middle ; abdomen with coarser punctuation ..... *amoenus* Loew

C — Subfamily CHEILOSINAE

Genus CHRYSOGASTER Meigen

Chrysogaster Meigen (1803), Meig. Illiger's Magaz., II : 274.

Subgenus ORTHONEURA Macquart

Orthoneura Macquart (1827), Soc. Sci. Lille, 40 : 188. (*Orthonevra*).
Camponeura Rondani (1856), Dipt. Ital. Prodr., I, 52 : 22. (*Campineura*).
Cryptoneura Bigot (1856), Rev. Mag. Zool., XI : 307. (*Cryptineura*).
Camptoneura Williston (1886), Syn. N.A. Syrph. : 31.
This subgenus include one species in Egypt *C.* (*O.*) *brevicornis* Loew.

D — Subfamily XYLOTINAE

Genus SYRITTA Saint Fargeau and Serville

Syritta Saint Fargeau and Serville (1825), Encyclo. meth., X : 808.
Coprina Zetterstedt (1838), Ins. Lapp., 45 : 584 (nec Rob. Desv.).
Planes Rondani (1863), Arch. Zool. Modena, III : 9.
Xylota Westwood (1840), Introd., Synopsis : 136.

Key to species

1 (4) Vena spuria absent.
2 (3) Tarsi normal, inner spine in hind femora present. *flaviventris* Macquart
3 (2) Tarsi flattened, inner spine in hind femora absent. *latitarsata* Macquart
4 (1) Vena spuria present.
5 (6) Face concave, much produced towards oral margin ; hind femora pale red, with the outer and inner upper angle glazy, darker and punctate .... *fasciata* (Wiedemann)
6 (5) Face more or less flat, slightly produced towards oral margin ; hind femora black with no markings ..... *subtilis* Becker

E — Subfamily CERIODINAE

Genus CERIANA Rafinesque

Ceria Fabricius (1794), Ent. Syst., 4 : 277 (Preocc. Scop. 1763).
Cina Fabricius (1798), Suppl. Ent. Syst. : 557 (unavailable name cited in generic synonymy).
Ceriana Rafinesque (1815), Anal. Nat. Tabl. Univ. : 131.
Ceriodes Rondani (1850), Ann. Soc. Ent. Fr., 2, VIII : 211.
Sphecomorpha Rondani (1850), Ann. Soc. Ent. Fr., 2, VIII : 212.
Sphiximorpha Rondani (1850), emend. Bezzi, 1906, nec Hübner, 1806, Lep. ; nec Newm. 1838 (Col.).
Stylocera Enderlein (1936), Tierwelt. Mitt., 6 (1) : 127.
Only one species is represented *C. vespiformis* (Latreille).

F — Subfamily ERISTALINAE

Key to genera

1 (6) Cell R_1 at least slightly open.
2 (3) Upper marginal cross-vein recurrent ; hind femora with a sub-apical flat triangular toothed process anteroventrally .... *Merodon* Meigen
3 (2) Upper marginal cross-vein not recurrent ; hind femora without such process.
4 (5) Eyes hairy, in male actually touching for considerable distance .... *Myiatropa* Rondani
5 (4) Eyes bare, in male at least slightly separated ; thorax with obvious grey or yellow stripes, hairs scanty and short, eyes widely separated in both sexes ..... *Helophilus* Meigen
6 (1) Cell R_1 closed ..... *Eristalis* Latreille

Genus HELOPHILUS Meigen

Elophila Meigen (1803), Illiger's Mag., II : 274 (em. Fabricius).
Helophilus Meigen (1822), Syst. Beschr., 3 : 338.

Subgenus MESEMBRIUS Rondani

Mesembrius Rondani (1857), Dipt. Ital. Prodr., II : 50.
This genus is represented in Egypt by *H.* (*M.*) *capensis* Macquart.

Genus MYIATROPA Rondani

Myiatropa Rondani (1844), Nuov. Ann. Sci. Nat. Bologna, (2) II, (*Myathropa*), em. Verrall ap. Scudd. 1882.

Myiatropa florea var. *Bigoti* (Macquart) occurs in Egypt.

Genus MERODON Meigen

Merodon Meigen (1803), Illiger's Mag. Ins., II : 274.
This genus is represented by *Merodon equestris* (Fabricius).

Genus ERISTALIS Latreille

Eristalis Latreille (1804), Hist. Nat. Crust. Ins., III, XIV : 363.
Syrphus Zetterstedt (1838), Ins. Lapp., 52 : 59 (nec Fabricius).

Key to subgenera

1 (2) Eyes unicolorous ; scutellum yellow, orange or reddish orange ..... *Eristalomyia* Rondani

2 (1) Eyes with markings.

3 (4) Eyes with transverse stripes ..... *Eristalodes* Mik

4 (3) Eyes with spots which are separated or confluent ; eyes bare or with scattered pale hairs on upper part only ; male eyes touching, female thorax with at most traces only of greyish stripes ..... *Lathyrophthalmus* Mik

Subgenus LATHYROPHTHALMUS Mik

Lathyrophthalmus Mik (1897), Wien. Ent. Ztg., XVI : 114.

Key to species

1 (2) Body aeneus black, eyes bare, touching in the male for one third of the length of vertical triangle ; loop of the third longitudinal vein rounded, veins dark brown ; fourth abdominal sternite bear two tufts of dark bristles, one on each side of a slightly concave middle part ..... *aeneus* (Scopoli)

2 (1) Body dark with whitish or yellowish markings, eyes somewhat hairy, touching in the male for twice as long as vertical triangle ; loop of third longitudinal vein acute ; veins light brown ; no tufts of hairs on fourth abdominal sternite ..... *megacephalus* (Rossi)

Subgenus ERISTALODES Mik

Eristalodes Mik (1897), Wien. Ent. Ztg., XVI : 114.
Represented by *Eristalis* (*Eristalodes*) *taeniops* Wiedemann.

Subgenus ERISTALOMYIA Rondani

Eristalomya Rondani (1857), Dipt. Ital. Prodr., II : 40.
Eriops Lioy (1863), Atti. Inst. Veneto., (3) IX : 743.
Eristalis (*Eristalomyia*) *tenax* (Linnaeus) occurs in Egypt.

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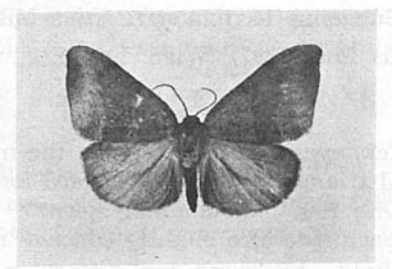
WIEDEMANN C. R. W., 1830. — Aussereuropäische zweiflügelige Insekten. Vol. II : 78-206.

UN NOUVEL EPIPLEMIDAE (LEPIDOPTERE HETEROCERE) D'ETHIOPIE

par Pierre-Claude ROUGEOT.

Le 4 novembre 1976, près de Koffolé, dans la forêt arussi, lors de ma troisième mission en Ethiopie méridionale, j'ai capturé au tube actinique un curieux Epiplémide, qui semble spécifiquement et génériquement inédit : j'en donne ci-dessous une brève diagnose.



Arussiana herbuloti n. gen. et n. sp.
Holotype

Arussiana herbuloti (n. gen. et n. sp.).

Genre essentiellement caractérisé par la forme des ailes postérieures, présentant une ample dilatation de l'aire abdominale, y compris l'angle anal.

Holotype ♂. Habitus d'un *Geometridae*. Envergure : 32 mm. Antennes fines et brun-jaunâtre ; tête, corps et pattes de même coloration. Antérieures avec le bord externe légèrement concave en arrière de l'apex ; postérieures présentant le vaste lobe susmentionné.

Dessus. Fond des antérieures d'un fauve-grisâtre, assombri dans l'aire médiane, délimitée par deux lignes sinueuses et jaunâtres brunissant à la côte ; au niveau de chacune de ces rayures une série de points noir et blanc nervuraux ; une ombre brune postapicale. Postérieures fauve-ochracé passant au grisâtre dans la région apicale.

Dessous. Antérieures d'un brun-grisâtre presque uniforme ; postérieures jaune-ochracé avec un semis d'écailles brun-grisâtre surtout dans la moitié costale de l'aile.

Les genitalia de ce générotype, cordialement dédié à M. Cl. HERBULOT, l'éminent spécialiste des *Geometridae* qui a bien voulu l'examiner, seront publiés ultérieurement.