

# STUDIES ON INDIAN ICHNEUMONIDAE (HYMENOPTERA)

Sub-family: BANCHINÆ. Part I. Tribe GLYPTINI

BY E. S. NARAYANAN, M.A., PH.D. (LOND.), D.I.C., F.R.E.S., F.E.S.I., F.A.Sc.

AND

KUNDAN LAL, M.Sc. (HONS.)

(*Indian Agricultural Research Institute, New Delhi*)

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## Introduction

IN the history of biological science it has been the experience of workers that to stimulate further research and make enduring advances in a particular aspect of a biological problem we must make use of the knowledge and methods that we already possess on a rational basis. This is more so in the field of pure entomology especially systematic entomology. Here the first requisite for making a first class contribution to our knowledge of a particular group or family is to have an up-to-date Catalogue of the Species. This enables the worker to have a clear idea of the relationship that species bear to one another. The Ichneumonidæ is a family of great economic importance in that the vast majority of Ichneumon flies are parasitic on Lepidoptera which include some of the most serious of all pests of agricultural crops, both in the field and in storage.

Very little or practically no work has been done in India since Morley (1913) wrote his *Fauna of British India, Hymenoptera*, Volume III, about four decades ago. Since Morley wrote his *Fauna* in 1913, taxonomic work has made such advances that even his work completed in the first decade of

the present century has become out of date as the whole family has been reclassified especially in U.S.A. and Britain with new sub-families, tribes, genera and species and with new synonymy. Many names have had to be redefined, as wrong names had been applied to many genera and species. It is unfortunate that workers on this family should still have to use this volume for their taxonomic research work. For research work on the taxonomic aspects of this family is both difficult and time-consuming because of its extremely scattered literature and its confused taxonomic state at the present moment. A good deal of preliminary ground-work is necessary if the contribution is to be enduring. But for the various catalogues and revisional papers published by eminent taxonomists from time to time throughout the world including valuable contributions to our knowledge of Indian Banchinæ, the excellent library facilities and the Ichneumonidæ collection available at the Indian Agricultural Research Institute, New Delhi, the preparation of this systematic paper would have been well nigh impossible. The references to various species have been carefully verified in most cases and the recent views of the specialists on the synonymy of the group have been adopted.

#### **Zoological Nomenclature**

International rules on Zoological Nomenclature as supplemented by opinions have formed the basis for this systematic work. One nomenclatorial change that we have adopted is to base all the supergeneric names on the oldest included genus. Thus sub-family Lissonotinae, Townes (1944) is changed in Banchinæ Muesebeck, Knombein, Townes and others (1951).

#### **Acknowledgment**

Taxonomic work on this important parasitic family Ichneumonidæ has been made possible under a generous grant sanctioned by the Indian Council of Agricultural Research under the School of Entomology. We are indebted to Prof. Townes, author of *A Catalogue and Reclassification of Nearctic Ichneumonidæ* for his valuable suggestions and comments. We wish to thank Dr. Richards, Imperial College of Science and Technology, London, for going through the manuscript and making some valuable corrections. We wish to thank Dr. B. P. Pal, Director, Indian Agricultural Research Institute, for the keen interest he has taken in this piece of research work.

#### **Arrangement**

Super-specific classification and 'Trivial names' have been adopted from Muesebeck and others (1951) and described accordingly.

### Present Position of Indian Banchinae

Very little or practically no work has been done on Indian Banchinae after Morley (1913). C. Morley (1913) treated *Lissonotides* and *Banchides* as only tribes of the sub-family *Pimplinae*. In dealing with the Ichneumon flies grouped together in the sub-family *Pimplinae* he offered a number of suggestions for a new arrangement as he had doubts whether all the members were closely related. The following quotation from his *Fauna* will amply bear out this statement. "That the *Lissonotides* have any close relationship with typical *Pimplides* I do not for a moment believe. *Banchides* are admittedly aberrant wherever placed. . . .". Cushman and Rohwer (1920) while dealing with Holarctic tribes of Ichneumon flies of the sub-family *Pimplinae* (= *Ichneumoninae*) said " *Lissonotini* is closely allied to *Banchini* as represented by *Exetastes* Grav. and its nearest allies. Within the sub-family as here treated its closest relative is *Glyptini*, the abdominal structure of the latter being the only real difference. These two tribes form a group not at all closely related to the rest of the sub-family, *Pimplinae*." The *Pimplides* of Morley is most heterogeneous. Genera *Glypta* Grav., *Glyptopimpla* Morl., *Apophua* Morl. and *Miophantus* Cam. are closely related to *Lissonotini* rather than to *Pimplides*. Besides this *Phytodiatius* Grav. and *Phytodiatoides* Morl. given as genera under tribe *Lissonotini* by Morley (1913) have been withdrawn from this tribe as they are more allied to *Tryphoninae*. Townes (1944) has segregated *Lissonotini* as a distinct sub-family from *Pimplinae*.

In the preparation of the Key to the tribes we have taken into consideration besides adult characters, other characters also like the structure of the larva where possible and nature of host relationship, etc.

#### Sub-family BANCHINÆ (= LISSONOTINÆ)

The tribes included in this sub-family are *Banchini*, *Glyptini* and *Lissonotini*. The members of this sub-family have their head transverse and not cubical as in *Xoridides*, the abdomen is evenly sculptured, usually finely punctate or smooth throughout and not at all impressed (except *Glyptini*) or tuberculate as in the *Pimplides*, the basal segment of abdomen though sometime slender is not subpetiolate as in *Hemigastrides*; ovipositor with dorsal notch at a short distance from apex. These are internal parasites of *Lepidoptera*.

#### Key to Tribes of Banchinae

1. Tergites with oblique ferrows extending from basal middle to near apical margin—*Glyptini*.  
Tergites without oblique ferrows .. .. 2

2. Abdomen not impressed or tuberculate, usually finally punctate; at least thorax dorsally and propodeum distinctly sculptured; areolet triangular, or oblique and smaller, or wanting . . . . Lissonotini.

Areolet very large and rhomboidal; abdomen smooth and nitidulous; thorax entire, meta-thorax short with no area—Banchini.

This key is adopted from Morley (1913) and Cushman (1921).

Lissonotoidea (Fam.) Förster, *Verh. Naturh. ver. Preuss. Rheinl.*, **25**: 142, 166, (1868).

Lissonotinæ Dalla Torre, *Cat. Hymen.*, **3**: 487, (1901). Townes, *Mem. Amer. ent. Soc.*, **11** (1): 429, (1944).

Banchinæ Muesebeck, Krombein, Townes and others *U.S. Dep. Agric., Monograph 2*: 306, (1951).

#### Tribe 1. GLYPTINI

Due to the ovipositor with dorsal notch a short distance back from apex and terga with oblique furrows extending from basal middle to apical margin the genus *Glypta* Grav. as treated by Morley (1913) in Fauna British India has been raised to the rank of a tribe having *Glypta* Grav., *Glyptopimpla* Morl. and *Apophua* Morl. as its genera.

Glyptini Cushman and Rohwer, *Proc. U.S. nat. Mus.*, **57**: 393, (1920).

Townes, *Mem. Amer. ent. Soc.*, **11** (1): 424, (1944). Muesebeck, Krombein, Townes and others, *U.S. Dep. Agric., Monograph 2*: 306, (1951).

#### *Glypta* Gravenhorst

*Glypta* Gravenhorst, *Ichn. Eur.*, **3**: 3, (1829), (Type of genus: *G. teres* Grav.). Dalla Torre, *Cat. Hymen.*, **3**: 408, (1901-02). SchmiedeKnecht, *Genera Insect., fas. 62*: 47, (1907), Morley, *Fauna Brit. India, Hymen.*, **3**: 210, (1913)<sup>1</sup>. Dutt, *Mem. Dept. Agric. India, Ent.*, **8** (2): 16, (1923). Townes, *Mem. Amer. ent. Soc.*, **11** (1): 429, (1944).

<sup>1</sup>Europe, North and South Africa, Malay Archipelago, Japan, North America, Chile, Hima-layas.

*Conoblasta* Förster, *Verh. Naturh. Ver. Preuss. Rheinl.*, **25**: 165, (1868).

*Diblastomorpha* Förster, *Verh. Naturh. Ver. Preuss. Rheinl.*, **25**: 165, (1868).

*Hemiephialtes* Ashmead, *Proc. U.S. nat. Mus.*, **30**: 177, (1906).

*Zaglyptomorpha* Viereck, *Proc. U.S. nat. Mus.*, **46**: 385, (1913).

#### **evanescens** Ratzeburg

*Glypta evanescens* Ratzeburg, *Ichn. d. Forst.*, **2**: 103. Thompson, *Opusc. ent.*, **13**: 1933. ♂, ♀. cf. Bridgman, *Trans. ent. Soc.*, p. 436, (1889). Schmiede Knecht, *Genera Insect.*, fas. 62: 48, (1907). Morley, *Ichn. Brit.*, **3**: 169, (1907).

#### **nigrina** Desvignes

*Glypta nigrina* Desvignes, *Cat. Brit. Ichneum.*, p. 74, (1856). Dalla Torre, *Cat. Hymen.*, **3**: 413, (1901-02). Schmiede Knecht, *Genera Insect.*, fas. 62: 48, (1907). Morley, *Ichn. Brit.*, **3**: 161, (1907). ♂, ♀; *Fauna Brit. India, Hymen.*, **3**: 211, (1913). ♂, ♀; <sup>1</sup>Dutt, *Mem. Dep. Agric. India, Ent.*, **8** (2): 16, (1923).<sup>2</sup>

<sup>1</sup>Punjab: Simla;  
Sikkim: Run-  
garum; Dar-  
jeeling.

<sup>2</sup>Punjab: Murree

*Glypta flavipes* Desvignes, *Cat. Brit. Ichneum.*, p. 75, (1856). ♂.

*Glypta nursei* Cam., *J. Bombay nat. His. Soc.*, **14**: 425, (1902). ♂.

#### **tricarinata** Cameron

*Glypta tricarinata* Cameron, *Zeits. Hymen. Dip.*, p. 41, (1908). ♀. Morley, *Fauna Brit. India, Hymen.*, **3**: 212, (1913). ♀<sup>1</sup>.

<sup>1</sup>Sikkim.

#### **Glyptopimpla** Morley

*Glyptopimpla* Morley, *Fauna Brit. India, Hymen.*, **3**: 209, (1913)

(Type of the genus: *Glyptopimpla prima* Morley).

**prima** Morley

*Glyptopimpla prima* Morley, *Fauna Brit. India, Hymen.*, 3: 210, (1913). ♂.<sup>1</sup>

<sup>1</sup>Sikkim

**Apophua** Morley

*Apophua* Morley, *Fauna Brit. India, Hymen.*, 3: 213, (1913)<sup>1</sup> (Type of the genus: *Apophua metopiiformis* Morley, present designation).

<sup>1</sup>Assam: Ceylon; Sikkim; Shanghai.

**carinata** Morley

*Apophua carinata* Morley, *Fauna Brit. India, Hymen.*, 3: 215, (1913). ♀.<sup>1</sup>

<sup>1</sup>Assam: Khasi Hills; Ceylon: Maskeliya.

**metopiiformis** Morley

*Apophua metopiiformis* Morley, *Fauna Brit. India, Hymen.*, 3: 214, (1913), ♂.<sup>1</sup>

<sup>1</sup>Sikkim.