STUDIES ON INDIAN ICHNEUMONIDÆ (HYMENOPTERA)

Subfamily: GELINAE

Part I. Tribes GELINI and ECHTHRINI

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CONTENTS

INTRODUCTION

IN a previous paper (1954) we had emphasised the economic importance of Ichneumonidæ family whose members attack many injurious insect pests of Agricultural Crops in the field and grain in storage. In the same paper we had stated that very little or practically no work had been done in India since Morley (1913) wrote his *Fauna of British India Hymen*, Vol. III, about four decades ago. In an earlier paper (1953) we had stated that Morley in his fauna volume dealt with only three subfamilies namely Pimplinæ, Tryphoninæ and Ophioninæ. It was his intention to treat the two other subfamilies, namely, Gelinæ (= Cryptinæ) and Ichneumoninæ in a separate volume;

but unfortunately this did not come out. So the treatment of these two subfamilies on the most modern trends of taxonomic research has become a necessity because unless we have a classification and key for the various tirbes, genera and species it is not possible to make any headway in this important entomophagous group of insects. In the following pages we have given a key to the tribes that we have erected, namely Gelini (= Cryptini), Echthrini and Mesostenini. We have also discussed the *raisond' etre* for the creation of these tribes dealt with in this paper.

ZOOLOGICAL NOMENCLATURE

International rules on Zoological Nomenclature as supplemented by opinions form the basis of this systematic work. One nomenclatorial change that we have adopted is to base all supergeneric names on the oldest included genus. By critical study it has been found that the name of the subfamily Cryptinæ (of previous authors upto 1950) must be changed into Gelinæ as *Cryptus* was preoccupied by Jurine (1801) but *Cryptus* Jurine (1801) has been set aside by the International Commission on Zoological Nomenclature in opinion 133 (1939). As the generic name *Cryptus* was made *nomina Conservanda*, the name Cryptinæ remained as given by Townes in his *Catalogue and Reclassification of the Nearctic Ichneumonidæ* (1944). But in 1951 Muesebeck, Krombein, Townes and others in the *U.S. Dept. Agric. Monograph*, **2** (1951) have said 'This *Trachysphyrus* Haliday genus in Holarctic region has commonly gone under the name *Cryptus*. In the Southern portion of South America is a large group of species similar to Holarctic *Cryptus*, but which, because of a peculiar metallic block or blue coloration has gone under the generic name *Tachysphyrus*. A more natural grouping is to merge the two genera as one and since the name *Cryptus* Fabricius 1804 is preoccupied *Trachysphyrus* Haliday is the correct name of the resulting genus.' *Gelis* Thunberg (1827) is an older genus than *Trachysphyrus* Haliday (1836). As the names of supergeneric groups are based on those of the oldest included genus, the subfamily Cryptinæ is changed into Gelinæ.

ACKNOWLEDGEMENT

Taxonomic work on this important parasitic subfamily Gelinæ (= Cryptinæ) has been made possible by a generous grant received from the Indian Council of Agricultural Research which we gratefully acknowledge. We are indebted to Prof. Townes, author of *A Catalogue and Reclassification of Nearctic Ichneumonidæ* for his valuable suggestion and comments. We wish to express our gratitude to Dr. Luella M. Walkley of U.S. National Museum for helping us with her very valuable suggestions in the preparation

of the key. We wish to thank Dr. B. P. Pal, Director, Indian Agricultural Research Institute, for the keen interest he has taken in this research work.

Arrangement

Superspecific classification and 'Trivial names' have been adopted from Muesebeck *et al.* (1951) and described accordingly.

Superspecific classification.—Attempts have been made to record all the forms with their synonyms, described from or known to occur in India. The arrangement is systematic for genera and higher groups so far as our present knowledge and limitations of linear arrangement permit. The generic concepts represented in this arrangement rest upon what are believed to be correct designation of type species. In each instance the type of the genus is cited together with authority for its selection. Subfamily, tribe and generic synonymy are included under subfamily, tribe and generic headings. In the case of genera their distribution is given.

Trivial names.—Within genera the species and the varieties if any under each species have been alphabetically arranged. As in the case of the genera, the distribution of the species have also been given.

Present Position of Indian Gelinæ (= Cryptinæ)

As mentioned before, Morley did not treat the subfamilies of Gelinæ (= Cryptinæ) and Ichneumoninæ. Very little taxonomic work of importance has been done on Indian Ichneumonidæ since Morley wrote his *Fauna of British India Hymen*, Vol. III (1913). There is no published record of any kind which can form a basis for the classifications of these subfamilies.

The absence of any work treating exclusively Indian Gelinæ (= Cryptinæ) has been felt more keenly within recent years. The identification of parasites belonging to this subfamily is almost an impossible task without the keys and an exhaustive Catalogue. There is no published record of any kind that can form a basis for the classification of these subfamilies. So the initiation and completion of this project was not an easy task.

Much time was spent in consulting different Catalogues and revisional papers, published by eminent taxonomists on Indian Cryptinæ. As stated in our previous paper [*Indian J. Ent.*, 321, **15** (4), 1953], Pimplinæ of Morley is a most heterogeneous group. The genera *Agenora* Cam., *Echthrus* Grav. and *Torbada* Cam. were included in the tribe Xoridides of the subfamily Pimplinæ by Morley (1913). One is at a loss to know how these insects with mesopleura sulcate below, abdomen petiolate elongate and slender, petiolar spiracles subcentral or beyond centre, apices of antennæ subincrassate and

with large pentogonal areolet could be placed in the subfamily Pimplinæ, as he defined. They are doubtless more closely related to subfamily Gelinæ (= Cryptinæ) than to Pimplinæ.

BASIS FOR FORMATION OF KEY TO TRIBES

In the preparation of Key to the tribes we have taken special care to see that they embrace most of the available characters. It must be emphasised here that in Ichneumonidæ there is not a single character that distinguishes one tribe from other. We have only a combination of certain definite characters, which when taken and studied together distinguishes one tribe from another.

In the preparation of a Key to tribes we have followed Townes and Luella M. Walkley classification, but have made changes where recent advances in our knowledge of Ichneumonidæ warrant these minor changes.

KEY TO TRIBES

The members of the following tribes have posterior transverse mesosternal Carina interrupted in front of each middle Coxa or present only at the sides of the mesosternum.

Second recurrent vein with two bullæ or rarely with one, always sloping outwards posteriorly so that the posterodistal corner of the second discoidal cell is somewhat longer and more pointed than the anterodistal corner; propodium usually completely areolated; face of male rarely marked with white or yellow....Gelini.

Second recurrent vein with single bulla, not sloping outwards posteriorly, meeting with the subdiscoidal vein at right angle; face of male frequently marked with white or yellow....2

2. Metanotum with posterior sublateral projection opposing the front end of the sublateral longitudinal Carinæ as well as transverse Carinæ, or in some females only transverse Carinæ present but in these the basal transverse Carina is weak or absent and the apical transverse Carina strong .... Echthrini (= Aptesini).

Metanotum without a posterior sublateral projection; propodeum without longitudinal Carina except rarely (longitudinal Carinæ sometime present in male); if only one transverse propodeal Carina is present it is the basal rather than apical one .... Mesostenini (= Cryptini).

Tribe 1. GELINI (= HEMITELINI)

Gelini is the tribe Hemitelini of previous authors. In this are also included the earlier tribes Gelini, Phygadeuonini and Stilpnini. Echthrini and Phobetini that were originally included in Hemitelini have been raised to the rank of new tribes and separated from Gelini. The name of the tribe is based on the genus *Gelis* Thunberg in which the females are generally apterous. Recent studies have indicated that species having wings in both the sexes should also be included in this tribe, though from the point of view of convenience the absence of wings can be a convenient character. In this particular case we cannot use the character to separate a natural tribe. So the Gelini and Hemitelini have been combined. It must be emphasised that the absence of areolet in the wings which was considered by earlier workers as a major tribal character in Hemitelini is an artificial one. Genera and species that are closely related in several other important characters differ in the only character of the presence or absence of areolet. This only emphasises the importance of basing the classification on a number of important characters rather than to base them on one single character. In many Indian species the second intercubital vein is present. In several species however it is present only in various degrees of vestigial development. If we reject the importance of this single areolet character there is no other character that divides the tribe Hemitelini of the previous authors and the Phygadeuonini. So Phygadeuonini and Hemitelini must be merged with Gelini. The Stilpnini in several morphological features and host relationship resembles the members of the tribe Gelini. So in these studies Stilpnini has been included though it has been noted that the intermediate genus *Cænomeris* Forst can be distinguished from the other genera in this group on the propodeal character; but there can be little doubt that it is far wiser to base our classification on broad-based foundation of several characters rather than on a single character.

The members of the tribe Gelini parasitise different kinds of hosts, belonging to the orders Lepidoptera, Coleoptera, Diptera and Hymenoptera. Several of them are secondary parasites also.

Systematically arranged Catalogue of the Indian Species

Subfamily: GELINÆ (= CRYPTINÆ)

Cryptoidæ Forster, *Syn. Fam. U. Gatt. Ichneum.*, **186**, p. 144, (1868).

Cryptidæ Thomson, *Opusc. ent.*, fas. **5**: 467, (1873).

Cryptinæ Cresson, *Syn. Hymen. N. Amer.*, p. 42, (1887). Ashmead, Smith, *Insects of New Jeresy*, p. 568; *Class Ichn. flies*, p. 24, (1900); *Proc. U.S. nat. Mus.*, **23**: 24, (1900). Dalla Torre, *Cat. Hymen.*, **3**: 549, (1901–02). Schmiede-Knecht, *Genera Insect.*, fas. **75**: 1, (1908). Morley, *Ichn. Brit.*, **2**: 1, (1906). Dutt, *Mem. Dep. Agric. India Ent.*, **8** (2): 22, (1923). Townes, *Mem. Amer. ent. Soc.*, **11** (1): 170, (1944).

Tribe 1. GELINI (= HEMITELINI)

Hemiteloidæ Family Forster, *Verh. Naturh. Ver. Preuss. Rheinl.*, **25**: 144, 173, (1868).

Hemitelina tribus Thomson, *Opusc. ent.*, fas. **25**: 468, (1873); fas. **10**: 967, (1884).

Hemitelini Ashmead, *Proc. Ent. Soc. Wash.*, **3**: 278, (1894); Smith's *Insects of New Jeresy*, p. 569, (1900); *Proc. U.S. ent. Mus.*, **23**: 31, (1900). Dalla Torre, *Cat. Hymen.*, **3**: 639, (1901–02). Schmiede-Knecht, *Genera Insect*, fas. **75**: 3, (1908). Morley, *Ichn. Brit.*, **2**: 109, (1906). Townes, *Mem. Amer. ent. Soc.*, **11** (1): 170, (1944).

Phygadeuontoidæ Forster, *Verh. Naturh. Ver. Preuss. Rheinl.*, **25**: 144, 181, (1868).

Phygadeuonina Thomson, *Opusc. ent.*, fas. **5**: 468, 517, (1873).

Schmiede-Knecht, *Genera Insect.*, fas. **75**: 68, (1908).

Phygadeuonini Ashmead, *Proc. ent. Soc. Wash.*, **3**: 278, (1894).

Schmiede-Knecht, *Genera Insect.*, fas. **75**: 68, (1908).

Pezomachoidæ Forster, *Verh. Naturh. Ver. Preuss. Rheinl.*, **25**: 145, (1868). Schmiede-Knecht, *Genera Insect.*, fas. **75**: 115, (1908).

Stilpnina Thomson, *Opusc. ent.*, fas. **5**: 468, (1873).

Stilpnini Ashmead, *Proc. ent. Soc. Wash.*, **3**: 278, (1894). Schmiede-Knecht, *Genera Insect.*, fas. **75**: 123, (1908).

Phygadeuonides Morley, *Ichn. Brit.*, **2**: 1, (1906).

Stilpnides Morley, *Ichn. Brit.*, **2**: 240, (1906).

Pezomachoides Morley, *Ichn. Brit.*, **2**: 177, (1906).

Gelini Muesebeck, Krombein, Townes and others, *U.S. Dep. Agric. Monograph*, **2**: 231, (1951).

PHYGADEUON Gravenhorst

Members of this genus are parasites of muscoid Diptera.

Phygadeuon Gravenhorst, *Ichn. Eur.* **2**: 635, (1829), (Type of genus: *Phygadeuon flavimanus* Gravenhorst). Schmiede-Knecht, *Genera Insect.*, fas. **75**: 81, (1908). Morley, *Ichn. Brit.*, **2**: 71, (1906). Dutt, *Mem. Dep. Agric. India Ent.*, **8**: (2): 24, 1923. Townes, *Mem. Amer. ent. Soc.*, **11** (1): 219, (1944). Muesebeck, Krombein, Townes and others, *U.S. Dep. Agric. Monograph*, **2**: 247, (1951).

Habromma Forster, *Verh. Naturh., Ver. Preuss. Rheinl.*, **25**: 181, (1868). New synonymy.

Isochresta Forster, *Verh. Naturh., Ver. Preuss. Rheinl.*, **25**: 181, (1868). New synonymy.

Homelys Forster, *Verh. Naturh. Ver. Preuss. Rheinl.*, **25**: 182, (1868). Preoccupied by Meyer, 1844.

Plesignathus Forster, *Verh. Naturh. Ver. Preuss. Rheinl.*, **25**: 183, (1868).

Zaphleges Forster, *Verh. Naturh. Ver. Preuss. Rheinl.*, **25**: 184, (1868).

Ceratophygadeuon Viereck, *Canad. Ent.*, **56**: 110, (1924).

bitinctus Gmel.

Phygadeuon bitinctus (Ichneumon. G) Gmel., *Linn. Syst. Nat., Ed.* 13, p. 2719, (1790). Morley, *Ichn. Brit.*, **2**: 74, (1906). Schmiede-Knecht, *Genera Insect.*, fas. **75**: 85, (1908).

labialis Cameron.

Phygadeuon labialis Cameron, *Trans. Ent. Soc. Lond.*, p. 121, (1904). ♂[1]. Schmiede-Knecht, *Genera Insect.*, fas. **75**: 86, (1908). [1] Asia: Khasi Hills.

latiannulatum Cameron

Phygadeuon latiannulatum Cameron, *Trans. Ent. Soc. Lond.*, p. 119, (1904). ♂[1]. Schmiede-Knecht, *Genera Insect.*, fas. **75**: 86, (1908). [1] Asia: Khasi Hills.

longicornis Cameron

Phygadeuon longicornus Cameron, *Mem. and Proc. Manchester Lit. Philos. Soc.*, **47** (14): 49, (1903). ♂[1]. Schmiede-Knecht, *Genera Insect.*, fas. **75**: 87, (1908). [1] Asia: Khasi Hills.

pallidinervis Cameron

Phygadeuon pallidinervis Cameron, *Trans. Ent. Soc. Lond.*, p. 121, (1904). ♀[1]. Schmiede-Knecht, *Genera Insect*, fas. **75**: 88, (1908). [1] Asia: Khasi Hills.

pulchripes Cameron

Phygadeuon pulchrips Cameron, *Mem. and Proc. Manchester Lit. Philos. Soc.*, **47** (14): 46, (1903)[1]. Schmiede-Knecht, *Genera Insect.*, fas. **75**: 88, (1908). [1] Asia: Khasi Hills.

parviceps Cameron

Phygadeuon parviceps Cameron, *Mem. and Proc. Manchester Lit. Philos. Soc.*, **47** (14): 48, (1903)[1]. Schmiede-Knecht, *Genera Insect., fas.*, **75**: 88, (1908). [1] Asia: Khasi Hills.

striatifrons Cameron

Phygadeuon striatifrons Cameron, *Trans. Ent. Soc. Lond.*, p. 120, (1904).

variabilis Gravenhorst

Phygadeuon variabilis Gravenhorst, *Ichn. Eur.*, **2**: 705, (1829). ♂. ♀[1]. Schmiede-Knecht, *Genera, Insect.*, fas. **75**: 89, (1908). Dutt, *Mem. Dep. Agric. India Ent.*, **8** (2): 24, (1923).[2] [1] India; Murree Hills. [2] Punjab: Murree Hills.

LINYCUS Cameron

Linycus Cameron, the *Entomologist*, p. 234 (1903), (Type of genus: *Linycus rufipes* Cameron).

rufipes Cameron

Linycus rufipes Cameron, the *Entomologist*, p. 234, (1903). ♀[1]. [1] Ceylon: Trincomali.

CNEMOCRYPTUS Cameron

Cnemocryptus Cameron, *Mem. and Proc. Manchester Lit. Philos. Soc.*, **47** (14): 38, (1903), (Type of the genus: *Cnemocryptus validicornus*

Cam.). Schmiede-Knecht, *Genera Insect*, fas. **75**: 93, (1908). Dutt, *Mem. Dep. Agric. India Ent.*, **8** (2): 24, (1923).

epistomatus Morley

Cnemocryptus epistomatus Morley, *Rec. Ind. Mus.*, **8**: 326, (1912–22).[1] [1] Assam: Sadiya.

pallidicoxis Morley

Cnemocryptus pallidicoxis Moley, Dutt, *Mem. Dep. Agric. India Ent.*, **8** (2): 24, (1923).[1] [1] Assam: Khasi Hills.

validicornus Cameron

Cnemocryptus validicornus Cameron, *Mem. and Proc. Manchester Lit. Philos. Soc.*, **47** (14): 38, (1903). ♀[1]. Schmiede-Knecht, *Genera Insect.*, fas. **75**: 93, (1908). [1] Asia: Khasi Hills.

CLITIGA Cameron

Clitiga Cameron, *Spolia zeylan.*, **3**: 117, (1905), (Type of genus: *C. excavata* Cameron). Schmiede-Knecht, *Genera Insect.*, fas. **75**: 94, (1908).

excavata Cameron

Clitiga excavata Cameron, *Spolia zeylan.*, **3**: 118, (1906). ♂[1]. Schmiede-Knecht, *Genera, Insect.*, fas. **75**: 94, (1908) [1] Ceylon: Haputde.

fonticornis Cameron

Clitiga fonticornis Cameron, *Spolia zeylan.*, **3**: 118, (1905).

HEMITELES Gravenhorst

Hemiteles Gravenhorst, *Ichn. Eur.*, **2**: 780, (1829), (Type of genus: *Hemiteles tristator* Gravenhorst) = *Hemiteles cingulator* Gravenhorst Desig. by Westwood (1839). Dalla Torre, *Cat. Hymen.*, **3**: 640, (1901–20). Schmiede-Knecht, *Genera Insect.*, fas. **75**: 96, (1908). Morley, *Ichn. Brit.*, **2**: 116, (1908). Dutt, *Mem. Dep. Agric. India Ent.*, **8** (2): 24, (1923). Townes,

Mem. Amer. ent. Soc., **11** (1): 208, (1944). Muesebeck, Krombein, Townes and others, *U.S. Dep. Agric. Monograph*, **2**: 244, (1951). *Ocymorus* Foerster, *Verh. Naturh. Ver. Preuss. Rheinl.*, **25**: 180, (1868).

brachcyttari Ashmead

Hemiteles brachcyttari Ashmead, *Proc. U. S. nat. Mus.*, **18**: 644, (1896).[1] Dalla Torre, *Cat. Hymen.*, **3**: 644, (1901–02). Schmiede-Knecht, *Genera Insect.*, fas. **75**: 106, (1908).

[1] Ceylon.

fulvipes Gravenhorst

Hemiteles fulvipes Gravenhorst, *Ichn. Eur.*, **2**: 792, No. 234, (1829). Ratzeb., *Icheneum. d. Forstinsect*, **1**: 150, No. 2 , (1844); **3**: 151, No. 2, (1852). Fonscolombe, *Ann. Soc. Entom. France*, **10** (2): 34, No. 5, (1852). Taschenberg, *Zeitschr. F. d. ges. Natur.*, **25**: 124, n. 15, (1865). ♂, ♀. Brischke, *Deutsch. Entom. Zeitschr.*, **21**: 237, (1877), *Schrift. Naturf. Ges. Danzig.* N.F.V.P. ½, p. 345, (1881). ♂, ♀. Bridgman and Fitch, *Entomologist*, **16**: 100, n. 14, (1883). ♂, ♀. Thomson, *Opusc. ent.*, P. 10, p. 968, n. 1, (1884). ♂, ♀. Moller, *Entom. Tidskr.*, **7**: 83, N. 1, (1886). Schmiede-Knecht, *Termesz. Fuzet.*, **20**: 107 and 506, n. 13, (1887). ♂, ♀. Dalla Torre, *Cat. Hymen.* **3**: 650, (1901–02). Dutt, *Mem. Dep. Agric. India, Ent.*, **8**: (2): 24, (1923)[1].

[1] Punjab: Murree.

geniculatis Camerson

Hemiteles geniculatis Camerson, *Trans. Ent. Soc. Lond.*, p. 110, (190-). ♀[1]. Schmiede-Knecht, *Genera Insect.*, fas. **75**: 108, (1908).

[1] Asia: Khasi Hills.

intermedius Cameron

Hemiteles intermedius Cameron, *Mem. and Proc. Manchester Lit. Philos. Soc.*, **47** (14): 45, (1903). ♀[1]. Schmiede-Knecht, *Genera Insect.*, fas. **75**: 109, (1908).

[1] Asia: Khasi Hills.

khasianus Cameron

Hemiteles khasianus Cameron, *Mem. and Proc. Manchester Lit. Philos. Soc.*, **47**: 44, (1903). ♂.[1] Schmiede-Knecht, *Genera Insect.*, fas. **75**: 109, (1908). [1] Asia: Khasi Hills.

ornatitarsis Cameron

Hemiteles ornatitarsis Cameron, *Trans. Ent. Soc. Lond.*, p. 111, (1904). ♀[1]. Schmiede-Knecht, *Genera Insect.*, fas. **75**: 110 (1908). [1] Asia: Khasi Hills.

pulcherrinus Cameron

Hemiteles pulcherrinus Cameron, *Trans. Ent. Soc. Lond.*, p. 111, (1904). ♀[1]. Schmiede-Knecht, *Genera Insect.*, fas. **75**: 111, (1908). [1] Asia: Khasi Hills.

rubriornatus Cameron

Hemiteles rubriornatus Cameron, *Spolia zeylan.*, **3**: 116, (1905).[1] [1] Ceylon: Peradeniya.

striatus Cameron

Hemiteles striatus (Bathyrixs) Cameron, *Spolia zeylan.*, **3**: 116, (1905). ♀.[1] Schmiede-Knecht, *Genera Insect.*, fas. **75**: 112, (1908). [1] Ceylon: Kandy.

tripartitus Brullé

Hemiteles tripartitus Brullé, *Hist. Nat. Ins. Hymen*, **4**: 258, (1846). ♂[1]. Dalla Torre, *Cat. Hymen.*, **3**: 668, (1901–02). Schmiede-Knecht, *Genera Insect.*, fas. **75**: 113, (1908). [1] India: Pondicherry.

veda Cameron

Hemiteles veda Cameron, *Mem. and Proc. Manchester Lit. Philos. Soc.*, **41** (4): 17, (1896–97).

Tribe 2. ECHTHRINI (= APTESINI)

In the revisionary studies of this tribe the earlier tribal name Aptesini has been replaced by Echthrini which in our view is more rational. Also within recent years it has been shown that the genus *Echthrus* Grav. should be placed in this group rather than in Xoridini, Cryptini or Mesostenini as was

formerly done. Morley in fact had placed *Echthrus* Grav. under tribe Xoridides subfamily Pimplinæ. We do not accept this view on account of the very definite characters that distinguish this from Pimplinæ and make it more akin to Cryptinæ. *Echthrus* Grav. is the oldest generic name in this group and the tribal name Echthrini has to be based on *Echthrus* Grav.

Echthrini undoubtedly occupies an intermediate place between Gelini and Mesostenini and is perhaps closer to the latter. Earlier workers had included various genera now included in Echthrini, in 'Phygadeuonini'. It may also be stated that the tribe formerly referred to as Phygadeuonini includes *Megaplectes* (formerly in Cryptini), the genera *Agenora* Cam. and *Echthrus* Grav. (formerly in Xoridides), *Hemigaster* Brullé (formerly in Hemigastrides) and *Rothneyia* Cam. (formerly in Cryptini). We are of the opinion that the true relationship of *Echthrus* Grav. and *Agenora* Cam. is with *Cubocephalus* Rat. in the present tribe.

Several members belonging to this tribe are parasites on saw flies and are therefore of great economic importance for the biological control of insect pests.

ECHTHRUS Gravenhorst

Echthrus Gravenhorst, *Ichn. Eur.*, **3**: 861, (1829), (Type of genus: *Ichneumon. relactator* L.). Schmiede-Knecht, *Genera Insect.*, fas. **62**: 6, (1907). Morley, *Ichn. Brit.*, **3**: 2, (1907); *Fauna Brit. India, Hymen.*, **3**: 60, (1913)[1]. Townes, *Mem. Amer. ent. Soc.*, **11** (1): 291, (1944). Muesebeck, Krombein, Townes and others, *U.S. Dep. Agric. Monograph*, **2**: 273, (1951).

Sphætes Bremi, Stettin, *Ent. Ztg.*, **10**: 95, (1849). Muesebeck, Krombein, Townes and others, *U.S. Dep. Agric. Monograph.*, **2**: 273, (1951).

[1] Range. North-West Europe, Sikkim, United States, Canada, Vancouver, Japan.

maculiscutis Cameron

Echthrus maculiscutis Cameron, *Tijds. Ent.*, p. 94, (1907). ♀. Morley, *Fauna Brit. India, Hymen.*, **3**: 60, (1913).[1]

[1] Sikkim.

HEMIGASTER Brullé

Hemigaster Brullé, *Hist. Nat. Ins. Hym.*, **4**: 266, (1846), (Type of the genus: *H. fasciata* Brullé).

Dalla Torre, *Cat. Hymen.*, **3**: 614, (1901–02). Morley, *Fauna Brit. India, Hymen.*, **3**: 34, (1913).

Chreusa Cameron, *Manch. Mem.*, p. 200, (1899). Morley, *Fauna Brit. India, Hymen.*, **3**: 31, (1913).

carinifrons Cameron

Hemigaster carinifrons Cameron, *Manch. Mem.*, p. 201, (1899). ♂, ♀. Morley, *Fauna Brit. India, Hymen.*, **3**: 36, (1913).[1] — [1] Assam: Khasi Hills.

eublemmae Rao

Hemigaster eublemmæ Rao, *Indian For. Rec. New Ser.*, **8** (8): 177, (1953). ♀[1]. — [1] Dehra Dun (U.P.).

fasciatus Brullé

Hemigaster fasciatus Brullé, *Hist. Nat. Ins. Hym.*, **4**: 267 (1846). ♀. Dalla Torre, *Cat. Hymen.*, **3**: 614, (1901–02). Morley, *Fauna Brit. India, Hymen.*, **3**: 35, (1913).[1] — [1] Indes Orientales.

fulvipes (Cameron). N. Comb.

Chreusa fulvipes Cameron, *Manch. Mem.*, p. 210, (1899). ♀. Morley, *Fauna Brit. India, Hymen.*, **3**: 32, (1913).[1] — [1] Assam: Khasi Hills.

lutea (Cameron) N. Comb.

Chreusa lutea Cameron, *Manch. Mem.*, p. 212, (1899). ♀. Morley, *Fauna Brit. India, Hymen.*, **3**: 33, (1913).[1] — [1] Assam: Khasi Hills.

MACROGASTER Brullé

Macrogaster Brullé, *Hist. Nat. Ins. Hym.*, **4**: 184, (1846), (Type of genus: *M. rufipennis* Brullé). Morley, *Fauna Brit. India, Hymen.*, **3**: 25, (1913).[1] — [1] Assam, Singapore, and South Africa.

Ctenotoma Cameron, *Ann. Nat. Hist.*, **20**: 17, (1907). Morley, *Fauna Brit. India, Hymen.*, **3**: 25, (1913).

ferrugineus Cameron

Macrogaster ferrugineus Cameron, *Manch. Mem.*, p. 198, (1899). ♂. Morley, *Fauna Brit. India, Hymen.*, **3**: 29, (1913).[1] [1] Assam: Khasi Hills.

luteus Cameron

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