

# CLASSIFICATION OF THE GALL-WASPS AND THE PARASITIC CYNIPOIDS, OR THE SUPERFAMILY CYNIPOIDEA. III.

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## Subfamily VI.—Xystinae.

1869. Allotrioidae, Familie 3, Förster, Verh. zool.-bot. gesell. Wien, bd. 19, p. 329, 338.  
 1877. Allotriina, Tribus, Thomson, Opus. ent., fasc. 8, p. 811.  
 1890. Allotriina, Subfamily, Cameron, Monogr. Brit. Phyt. Hym., vol. 3, p. 157, 232.  
 1897. Allotriinae, 3<sup>e</sup> Tribu, Kieffer, Monogr. des cynipides d'Eur., tom., 1, p. 54.  
 1902. Allotriinae, Subfamille 5, Dalla Torre et Kieffer, Wytsman's Gen. Ins. Fam. Cynipidae, p. 1.  
 1903. Xystinae, Subfamily VI, Ashmead, Psyche, vol. 10, p. 8.

The species falling in this subfamily are all smooth, highly polished, and are easily recognized by the short, globose, or subglobose, abdomen, the second segment being usually the largest, by the short thorax, the scutellum being convex and smooth, rarely foveated at base, and by the hind tibiae having only *one* apical spur. All the species are genuine parasites and destroy various Aphids (*Aphididae*).

The group seems to form a connecting link between the *Figitidae* and the *Cynipidae*, many of the species closely resembling those in the genera *Ceroptres*, *Neuroterus*, *Dryophanta*, etc.

Two tribes may be distinguished:—

## TABLE OF TRIBES.

|                                                                                                                        |                         |
|------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Pronotum laterally and the femora and tibiae toward apex, with broad, foliaceous dilations; claws with a tooth beneath | Tribe I. Loboscelidiini |
| Pronotum and legs normal; claws simple                                                                                 | Tribe II. Xystini       |

## TRIBE I.—LOBOSCELIDIINI.

This tribe is based upon the genus *Loboscelidia* Westwood, described from Sulu Island, and its position is uncertain. Only a single species is known and that

is a most striking looking wasp on account of the shape of the head and the foliaceous dilations of the thorax and legs. Professor Westwood, uncertain whether it was a cynipid or a proctotrypid, finally placed it doubtfully among the latter in the subfamily *Diapriinae*.

Unfortunately, I have not yet had a specimen for examination, but, judging from Westwood's description and figure, and especially of the venation, I have very little doubt of its being a cynipoid and not a proctotrypoid, so for the present treat it as a tribe in the subfamily *Xystinae*.

Besides the foliaceous dilations on the pronotum, femora and tibiae, it may be recognized by the following characters:—

Wings well developed, with the venation distinct, the marginal cell large, as in *Xystus*; head subglobose, with a short, porrect snout; antennae in ♀ 14-jointed, filiform (♂ unknown) . . . . . Loboscelidia Westwood  
(Type *L. rufescens* Westw.)

#### TRIBE II.—XYSTINI.

This tribe is distinguished by the head, thorax, and legs being normal, the pronotum and legs always *without* foliaceous dilations. The antennae in the females are 12- or 13-jointed, in the males 13- or 14-jointed.

The species are numerous and attack almost exclusively species belonging to the homopterous family *Aphididae*.

#### TABLE OF GENERA.

|                                                                                                                    |                                                                |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Mesonotum entirely <i>without</i> parapsidal furrows . . . . .                                                     | 1                                                              |
| Mesonotum <i>with</i> the parapsidal furrows more or less distinct . . . . .                                       | 7                                                              |
| 1. Wings usually fully developed or if abbreviated always <i>with</i> a distinctly defined marginal cell . . . . . | 2                                                              |
| 2. Wings abbreviated, <i>without</i> a marginal cell.                                                              |                                                                |
| Antennae in ♀ 13-jointed, in ♂ 14-jointed . . . . .                                                                | Pezophycta Förster<br>(Type <i>Xystus brachyptera</i> Hartig.) |
| 3. Marginal cell <i>open</i> along the front margin . . . . .                                                      | 3                                                              |
| Marginal cell completely <i>closed</i> . . . . .                                                                   | 5                                                              |
| 3. Radius extending to the front margin; antennae in ♀ 13-jointed, in ♂ 14-jointed . . . . .                       | 4                                                              |
| Radius <i>not</i> extending to the front margin; antennae in ♀ 12-jointed, in ♂ 13-jointed . . . . .               | Dilyta Förster<br>(Type <i>D. subclavata</i> Först.)           |

4. Scutellum *with* a fovea at base; third abdominal segment longer than the second . . . . . Glyptoxysta Thomson  
(Type *G. heterocera* Thoms.)  
Scutellum *without* a fovea at base; third abdominal segment much shorter than the second . . . . . Alloxysta Förster  
(Type *Xystus macrophadnus* Hartig.)
5. Wings abbreviated, not or hardly as long as the abdomen . . . . . 6  
Wings much longer than the abdomen; antennae in ♀ 13-jointed, in ♂ 14-jointed.  
Scutellum *with* one or two foveae at base . . . . . Auloxysta Thomson  
(Type *A. nigripes* Thomson)  
Scutellum *not* foveate at base . . . . . Xystus Hartig  
= Allotria Westwood  
(Type *A. victrix* Westw.)
6. Antennae in ♀ 13-jointed, in ♂ 14-jointed . . . . . Nephyceta Förster  
(Type *N. discreta* Först.)
7. Parapsidal furrows abbreviated; scutellum *without* foveae at base; antennae in ♀ 13-jointed, in ♂ 14-jointed . . . . . Hemicrisis Förster  
(Type *H. ruficornis* Först.)  
Parapsidal furrows complete, entire; scutellum *with* one or two foveae at base; antennae in ♀ 13-jointed, in ♂ 14-jointed . . . . . Phaenoglyphis Förster  
(Type *P. xanthochroa* Först.)

## FAMILY LIX.—CYNIPIDAE.

1840. Cynipides, Familie (partim), Hartig, Zeitsch. f. ent., bd. 2, p. 187.  
1869. Cynipoidae, Familie (partim), Förster, Verh. zool.-bot. gesell. Wien, bd. 19, p. 329.  
1877. Cynipina, Sub-familia (partim), Thomson, Opus. ent., fasc. 8, p. 778.  
1897. Cynipinae, 2<sup>e</sup> Tribu (partim), Kieffer, Monogr. des cynipides d' Eur., tom. II, p. 54.  
1902. Cynipidae, Subfamille (partim), Dalla Torre et Kieffer, Wytsman's Gen. Insectorum, p. 42.

To this family, as I have restricted it, belong all the genuine gall-makers, the gall-inhaling species (*Synerginae*), and the *Ibaliinae*, the latter representing a small group of parasites. The gall-makers and gall-inhaling species are very numerous, closely resemble each other, often living side by side together in the same galls, and are separated with difficulty, the experienced eye alone being able to detect the difference. They produce galls or live in galls, on various trees and plants,

the oak, bramble, rose, and various *Compositae* being especially subject to their attacks. From the *Figitidae* they are distinguished principally by abdominal peculiarities, the tergites being shorter and not meeting along the venter, not enclosing or hiding the sternites, as in the former, except in some Anacharines. All, however, have a *habitus* or *tout-ensemble* peculiarly their own, which with practice one soon perceives, and is thus able to recognize the different groups at a glance.

Three subfamilies have been recognized, distinguished by the characters employed in the following table:—

#### TABLE OF SUBFAMILIES.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Basal joint of hind tarsi usually shorter than joints 2-5 united or never much longer; abdomen not or very little longer than the head and thorax united . . . . .                                                                                                                                                                                                                                                                                             | 1                        |
| Basal joint of hind tarsi at least twice as long as 2-5 united; joints 2-4 scarcely longer than thick, the second with a long spined process outwardly . . . . .                                                                                                                                                                                                                                                                                               | 2                        |
| 1. Second segment in female very large, occupying the whole or nearly the whole surface of abdomen, very rarely showing an indistinct dividing suture; if this suture is distinct or complete it is very oblique and the segment dorsally is fully two thirds the length of the abdomen; males with the second and third segments nearly equal, but here two segments occupy most of the surface of the abdomen; venter more or less covered basally . . . . . | Subfamily I. Synerginae  |
| Second segment in female much shorter, but the longest segment; the second and third together not occupying two thirds the whole surface or rarely; venter always visible . . . . .                                                                                                                                                                                                                                                                            | Subfamily II. Cynipinae  |
| 2. Abdomen very strongly compressed, cultriform, and much longer than the head and thorax united, the four or five basal segments nearly of an equal length . . . . .                                                                                                                                                                                                                                                                                          | Subfamily III. Ibaliinae |

#### Subfamily I. Synerginae.

1896. Synerginae, Subfamily VII, Ashmead, Trans. Amer. ent. soc., vol. 23, p. 186.  
 1900. Synerginae, Subfamily I, Ashmead, Smith's Ins. New Jersey, p. 548.  
 1901. Cynipinae, 2<sup>e</sup> Tribu (partim), Kieffer, Monogr. des cynipides d'Eur. tom. 1, p. 54.  
 1902. Cynipinae, Subfamille (partim), Dalla Torre et Kieffer, Wytsman's Gen. Ins. p. 2.

This group is classified by Dalla Torre and Kieffer among the *Cynipinae*; it is evidently an offshoot of the genuine gall-makers but now sufficiently differentiated in structural characters and in habits to be kept apart. The *Synerginae* may

be popularly known as "the false gall-makers" or Inquilines, since most of them, if not all of them, are not genuine gall-makers, although often mistaken for them; nor are they genuine parasites, *i. e.* they do not destroy the genuine gall-makers; on the contrary all, with possibly two or three exceptions, are inquilines or commensals and merely dwell, often side by side, in the galls made by other insects. Most of them are bred from cynipidous galls, found on oak trees, but some are also bred from galls made by other insects, Diptera, etc., occurring on the oak, willow, etc.

The genus *Synophrus* is said to be a genuine gall-maker as well as the genus *Rhoophilus*, described from Africa and bred from a gall on *Rhus*; but, judging from the structural characters of these wasps I suspect both are really commensals in cynipidous and cecidomyidous galls.

#### TABLE OF GENERA.

|                                                                                                                                                                                                                                                                                                                                                                                        |                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Marginal cell completely closed . . . . .                                                                                                                                                                                                                                                                                                                                              | 1                                                        |
| Marginal cell <i>open</i> along the front margin . . . . .                                                                                                                                                                                                                                                                                                                             | 6                                                        |
| 1. Face, or at least the cheeks, striated, the striae usually converging towards the mouth; mesopleura longitudinally striated aciculated, rarely smooth . . . . .                                                                                                                                                                                                                     | 3                                                        |
| Face <i>not</i> striated, smooth, coriaceous, or punctate; mesopleura smooth, highly polished, or at least not striated.                                                                                                                                                                                                                                                               |                                                          |
| Second abdominal segment occupying nearly the whole surface, <i>without</i> a trace of a dividing suture; sheaths of ovipositor projecting . . . . .                                                                                                                                                                                                                                   | 3                                                        |
| Second abdominal segment divided into two by a delicate, or a distinct, suture, which is either vertical or oblique . . . . .                                                                                                                                                                                                                                                          | 2                                                        |
| 2. Suture dividing the second segment distinct and very oblique; extending towards the base of the petiole, the first division appearing tongue-shaped, dorsally long, ventrally very short; sheaths of ovipositor not prominent; antennae in ♀ 13-jointed, the third joint longer than the fourth, in ♂ 15-jointed, the third joint longer than the fourth, excised beneath . . . . . | Euceroptres Ashmead<br>(Type <i>E. primus</i> Ashm.)     |
| Suture dividing the second segment very delicate, vertical, the first division not longer dorsally than ventrally; sheaths of ovipositor prominent, projecting; antennae in ♀ 12- or 13-jointed, the third joint not or scarcely longer than the fourth; in ♂ 14- or 15-jointed, the third joint not longer than the fourth, not excised beneath . . . . .                             | Ceroptres Hartig<br>(Type <i>C. clavicornis</i> Hartig.) |
| 3. Mesonotum with the parapsidal furrows complete, distinct; face entirely striated, <i>without</i> a smooth median elevation; sheaths of ovipositor usually, but not always prominent . . . . .                                                                                                                                                                                       | 5                                                        |

- Mesonotum with the parapsidal furrows incomplete, wanting, or evanescent anteriorly; face *with* a smooth median elevation, the striae confined to the cheeks and on the space next to the eyes; sheaths of ovipositor prominent 4
4. Antennae in ♀ 12-jointed, the third joint not longer than the fourth, in ♂ 15-jointed, the third joint usually strongly excised . . . . . Periclistus Förster  
(Type *Aulax cananae* Hartig.)
5. Claws simple; petiole of abdomen striated; antennae in ♀ 13-, 14-, or 15-jointed, in ♂ 15-jointed, the third joint scarcely longer than the fourth, excised outwardly towards base . . . . . Synergus Hartig  
(Type *S. nigripes* Hartig.)
- Claws with a more or less distinct tooth at base beneath; petiole of abdomen not striated; antennae in ♀ 13-jointed, in ♂ 14-jointed, the third joint longer than the fourth . . . . . Rhoophilus Mayr  
(Type *R. löwii* Mayr.)
6. Scutellum normal, distinctly bifoveated at base; mesonotum *with* more or less distinct parapsidal furrows . . . . . 7  
Scutellum broad, not foveated at base; mesonotum *without* parapsidal furrows. Antennae in ♀ 13-jointed, in ♂ 14-jointed, the third joint much longer than the fourth, strongly excised outwardly . . . . . Sapholytus Förster  
(Type *Synergus apicalis* Hartig.)
7. Areolet in front wings rather large distinct; the two foveae at base of scutellum very large transverse, separated by a carina; mesothorax transversely rugulose; antennae in ♀ 13-jointed, in ♂ 15-jointed, filiform, the third joint hardly as long as the fourth or no longer . . . . . Synophrus Hartig  
(Type *S. politus* Hartig.)
- Arolet in front wings incomplete, the outer side alone present; the two foveae at base of scutellum not large oblique; mesothorax coriaceous, not transversely rugulose; antennae in ♀ 13-jointed, in ♂ 15-jointed, filiform, the third joint much longer than the fourth . . . . . Synophromorpha Ashm., g. nov.  
(Type *S. salicis* Ashm.)

#### Subfamily II. Cynipinae.

1900. Cynipinae, Subfamily II, Ashmead, Smith's Ins. New Jersey, p. 548.  
1901. Cynipinae, 2<sup>e</sup> Tribu (partim), Kieffer, Monogr. des cynipides d'Europe tom. 1, p. 54.  
1902. Cynipinae, Subfamille (partim), Dalla Torre et Kieffer, Wytsman's Gen. Ins. p. 2.

This subfamily, as I have restricted it, comprises only *genuine* gall-makers, or

cynipoids producing galls or deformations on various trees and plants. The genera and species are numerous, much more numerous than most people imagine, and undoubtedly many genera and species yet remain unknown to us. The National collection contains many undescribed species.

The vast majority of the described species belonging to this subfamily produce galls on oak trees, and on the rose and bramble (blackberry and raspberry), but this is due probably to the fact that the galls made on these trees and plants are much more conspicuous, or the trees and plants themselves are more thoroughly studied, than those on other trees and plants, and when the galls on other trees and plants are more extensively collected and studied, we may expect a wonderful increase in our knowledge of the gall-making cynipoids.

The subfamily *Cynipinae* is dividable into five minor groups or tribes, which appear to be *natural*, since the species falling in each tribe confine their attacks to trees and plants of the same order or family, or closely allied orders or families. The species falling in the tribe *Cynipini*, for example, produce galls only on trees of the order CUPULIFERAE, those of the tribe *Rhoditini* attack the ROSACEACEAE, those of the tribe *Aulacini* attack the COMPOSITACEAE, etc.

These tribes may be recognized by the use of the following table: —

#### TABLE OF TRIBES.

- |    |                                                                                                                                                                                       |   |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1. | Antennae inserted abnormally high up on the face on an imaginary line drawn across from the apex of the eyes; face with two short, distinct antennal furrows . . . . .                | 5 |
|    | Antennae inserted normally on or near the middle of the face, or far below an imaginary line drawn across from the apex of the eyes; face without distinct antennal furrows . . . . . | 2 |
| 2. | Winged forms . . . . .                                                                                                                                                                | 3 |
|    | Wingless or subapterous forms.                                                                                                                                                        |   |

These are all dimorphic or agamous forms, represented only in the female sex; they produced the fully winged sexual form represented by both sexes (♂ ♀) and are easily recognized by the family characteristics, and produce galls on oak trees, or the *Cupuliferae* in late fall and winter. The sexual form appears in early spring and summer . . . . . Tribe I. — Cynipini

- |    |                                                                                                                                                                                                                                                                                                                                                                                                          |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. | Cubitus in front wings wanting or if present originating distinctly <i>below</i> the middle of the basal nervure; areolet often entirely absent; abdomen variable. Cubitus in front wings rarely entirely absent and originating at or near the middle of the basal nervure, never much below the middle; areolet usually present and lying directly beneath the origin of the radius; abdomen in ♀ sub- |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

compressed, with the second segment always large, occupying usually about two thirds the whole surface of the abdomen, the hypopygium ending in a blunt hairy process of variable length; scape of antennae obconical, about thrice as long as thick at apex, the third joint always distinctly longer than the fourth. (Producing galls on oaks.) . . . . . Tribe I.—Cynipini

3. Abdomen in ♀ not, or only slightly, compressed at apex, the hypopygium neither prominent nor acutely pointed at apex; scape of antennae about thrice as long as thick at apex . . . . . 4

Abdomen in ♀ much compressed towards apex, the second segment occupying about two thirds the whole surface, the hypopygium prominent, acutely pointed at apex or plow-share shaped; front wings with the areolet distinct, its base directly beneath the origin of the cubitus; scape of antennae subglobose, hardly twice as long as thick. (Producing galls on rose-bushes, etc., *Rosa* and *Rubus*.)

Tribe II.—Rhoditini

4. Abdomen with the second segment large, occupying much more than half the whole surface; front wings with the areolet distinct, lying directly beneath the origin of the cubitus; third joint of antennae longer than the fourth. (Producing galls on maple worts, *Sapindaceae*, maple, *Acer*.)

Tribe III.—Pediastidini

Abdomen with the second segment shorter, occupying scarcely half the whole surface; front wings with the areolet often wanting, or if present *not* lying directly beneath the origin of the radius, usually small; third joint of antennae not or rarely longer than the fourth, usually shorter. (Producing galls on ROSACEAE: *Rubus*, *Fragaria*, *Potentilla*; COMPOSITACEAE: *Lygodesmia*, *Hieracium*, *Lactuca*, *Mulgidium*, *Sonchus*, *Nabalus*, *Taraxacum*, etc.; PAPAVERACEAE: *Papaverus*, *Glaucium*, etc.) . . . . . Tribe IV.—Aulacini

5. Front wings *without* an areolet.

(Producing galls on LEGUMINOSAE: *Acacia*.) . . . . . Tribe V.—Eschatocerini

#### TRIBE I.—CYNIPINI.

This is the largest and most extensive tribe in the subfamily, and contains many genera and species, and all the species, without a single exception, produce galls on the mastworts (CUPULIFERAE), the oaks (QUERCUS) especially being most frequently subject to their attacks; it is extremely rare for them to attack the chestnut (CASTANEA), or the beech (FAGUS), although their galls are sometimes found on these trees, but the wasps producing them are seldom reared, and are still undescribed.

The numerous genera into which these wasps are now divided, may be recognized by the aid of the following table:—

TABLE OF GENERA.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Apterous or subapterous forms                                                                                                                                                                                                                                                                                                                                                                                                                          | 1                                                                 |
| Wings fully developed                                                                                                                                                                                                                                                                                                                                                                                                                                  | 11                                                                |
| 1. Mesonotum <i>without</i> , or with indistinct, or incomplete parapsidal furrows, never deep or sharply defined                                                                                                                                                                                                                                                                                                                                      | 2                                                                 |
| Mesonotum <i>with</i> deep, sharply defined parapsidal furrows                                                                                                                                                                                                                                                                                                                                                                                         | 6                                                                 |
| 2. Mesonotum with traces of furrows, the furrows, however, never complete                                                                                                                                                                                                                                                                                                                                                                              | 3                                                                 |
| Mesonotum smooth, polished, without a trace of the furrows; face smooth, highly polished.                                                                                                                                                                                                                                                                                                                                                              |                                                                   |
| Antennae 14-jointed, the third joint not quite so long as the two following united, joints 10-13 a little longer than thick; scutellum small, rounded, convex, with a slight transverse grooved line at base; claws of hind tarsi simple; abdomen bare (agamous ♀)                                                                                                                                                                                     | Xystoteras Ashmead<br>(Type X. vollutela Ashm.)                   |
| 3. Antennae 14-jointed                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4                                                                 |
| Antennae 13-jointed                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5                                                                 |
| 4. Scutellum triangular or conical, as viewed from above, the apex obtuse, or ending in an obtuse thorn, the base not separated from the mesonotum by a grooved line; body very hairy; face shagreened, opaque; antennae very long; the joints cylindrical, 3 to 5, or to 6, very long, the following gradually shortening; claws of hind tarsi with a tooth towards base beneath; sides of abdomen usually densely pubescent (agamous ♀)              | Philonix Fitch<br>= Acraspis Mayr<br>(Type P. fulvicollis Fitch.) |
| Scutellum rounded or semicircular, always rounded off posteriorly, with a slight arcuate furrow or depression at base, the base separated from the mesonotum by a delicate grooved line and carina; face and mesonotum alutaceous or shagreened; antennae long, the third joint as long or nearly as long as joints 4-5 united, joints 6-13 a little more than twice as long as thick; claws of hind tarsi simple, without a tooth beneath (agamous ♀) | Zopheroteras Ashmead<br>(Type Acraspis vaccinii Ashm.)            |
| 5. Scutellum rounded, with indications of foveae on either side at base, or at least depressions, the base separated from the mesonotum by a delicate transverse grooved line; face shagreened or coriaceous, the mesonotum subopaque or                                                                                                                                                                                                               |                                                                   |

alutaceous; antennae rather short, the third joint a little longer than the fourth; joints 9–12 twice as long as thick; claws of hind tarsi with a tooth at base beneath (agamous ♀) . . . . . Phylloteras Ashmead

(Type *Biorhiza rubinus* Gillette.)

Scutellum semicircular, bounded by a delicate rim posteriorly, without foveae at base; face smooth, shining, or at the most feebly alutaceous, the mesonotum polished, with traces of furrows anteriorly; antennae somewhat short, the third joint nearly twice as long as the fourth, joints 7–12 scarcely longer than thick; claws of hind tarsi simple . . . . . Trigonaspis Hartig

(Type *Cynips megapterus* Panz.)

6. Front tibiae outwardly at apex normal, never prolonged into a large spined process, at most only slightly dilated . . . . . 7

Front tibiae outwardly at apex prolonged into a large, spined process . . . . . 10

7. Scutellum laterally immarginal, *without* a frenum; face sometimes with a ridge or carina between the antennae . . . . . 8

Scutellum laterally margined, or *with* a distinct frenum; face *without* a ridge or carina between the antennae.

Antennae 14-jointed, the third joint scarcely longer than the fourth, joints 11–14 hardly longer than wide; head and thorax shining, but the former more or less coriaceous or alutaceous; scutellum without distinct foveae at base, although there is a slight transverse grooved line; tarsi shorter than tibiae; claws with a tooth within (agamous ♀)

Xanthoteras Ashmead

(Type *Biorhiza forticornis* Walsh.)

8. Face *with* a distinct median ridge or carina between the antennae; scutellum large, lunate, or semicircular; antennae 14-jointed; hind tarsi as long as their tibiae, the claws simple without a tooth at base beneath (agamous ♀)

Biorhiza Westwood

(Type *Cynips aptera* Linné.)

Face *without* a distinct median ridge or carina between the antennae; scutellum rounded, convex, or a little longer than wide, and separated from the mesonotum by a delicate grooved line

Antennae 12- or 13-jointed . . . . . 9

Antennae 14-jointed.

Third joint of antennae long but much shorter than 4 and 5 united, joints 11–13 scarcely twice as long as thick, the last joint hardly as long as the two preceding united; head and thorax alutaceous or shagreened, the pleura finely striated; scutellum small, highly convex, with a distinct transverse fovea at base; hind tarsi longer than

their tibiae, the claws with a distinct tooth at base beneath  
(agamous ♀) . . . . . Parateras Ashmead

(Type *P. hubbardi* Ashm.)

9. Antennae 13-jointed, the third joint not quite so long as 4-5 united, joints 9-12 scarcely longer than thick, the last joint as long as the two preceding united; body bare or nearly; frons alutaceous; mesonotum smooth, shining; scutellum without a fovea at base; hind tarsi much shorter than their tibiae, the claws with a blunt tooth at base beneath (agamous ♀)

Sphaeroteras Ashmead

(Type *Biorhiza mellea* Ashm.)

Antennae 12-jointed, the third joint a little shorter and thicker than the fourth, but equal to the fifth, joints 6-8 gradually shortening, joints 9-11 very little longer than thick, the last joint oblong, fully as long as 10 and 11 combined; head and thorax very closely punctate, hairy, the disk of mesopleura alone polished, but densely pubescent below; scutellum cushion-shaped, a little longer than wide, with two distinct, smooth, lunate foveae at base; hind tarsi not longer than their tibiae, the claws with a tooth at base beneath (agamous ♀)

Trichoteras Ashmead

(Type *T. coquilletti* Ashm.)

10. Antennae 13-jointed, somewhat thickened, the joints after the third short; claws simple (agamous ♀) . . . . . Belonocnema Mayr

(Type *B. treatae* Mayr.)

11. Front wings with the marginal cell always open along the front margin, the areolet usually distinct, rarely with the first transverse cubitus wanting, and situated distinctly beneath the origin of the radius or on an imaginary line drawn through the extreme base of the marginal or radial cell.

Mesonotum smooth and shining, or at the most alutaceous or very feebly coriaceous . . . . . 12

Mesonotum never smooth and shining, shagreened, coriaceous, punctate, rugulose, or very coarsely rugose-punctate, with the furrows more or less distinct . . . . . 26

12. Mesonotum always longer than wide, with the parapsidal furrows more or less distinct, or at least indicated by slight depressed alutaceously sculptured lines

13

Mesonotum not longer than wide, smooth, highly polished, and without traces of the parapsidal furrows, but with an impression at the base of the scapulae that extends from in front of each tegula obliquely towards base of the scutellum; scutellum with a transverse grooved line at base.

Antennae in ♀ 14-jointed, in ♂ 15-jointed, the first joint of the flagellum shorter than the two following united (sexual form)

Neuroterus Hartig = Ameristus Förster  
(Type *N. politus* Hartig.)

Antennae in ♀ 13-jointed, in ♂ 14-jointed, the first joint of the flagellum very long, bent or curved, and as long or longer than the three following joints united (sexual form)

Dolichostrophus Ashmead  
(Type *Cynips majalis* Bassett.)

13. Scutellum *without* foveae at base, or with a transverse arcuate furrow at base; if the foveae are more or less distinct they are separate by a very delicate carina and the mesonotum is *not* separated from the scutellum by a delicate carina and grooved line, the base of the mesonotum having a more or less deep median emargination or depression . . . . . 14  
Scutellum *with* two distinct foveae at base.
14. Scutellum laterally immargined . . . . . 15  
Scutellum laterally margined.  
Parapsidal furrows deep, distinct; claws of hind tarsi simple; antennae in ♀ 14-jointed, slender, in ♂ 15-jointed (sexual form) Dryocosmus Girard  
(Type *D. cirrospilus* Girard.)
15. Mesonotum not entirely smooth, alutaceous or very finely coriaceous, with the parapsidal furrows indistinct or vaguely defined, never deep or sharply defined; middle area of metathorax with one or two more or less distinct median longitudinal carinae, claws simple . . . . . 16  
Mesonotum smooth, with deep, distinct, sharply defined parapsidal furrows; claws simple or with a tooth beneath towards base . . . . . 19
16. No delicate transverse grooved line between the mesonotum and the base of the scutellum, the basal margin of the former arcuately emarginate, the furrow continued towards the tegulae . . . . . 17  
A delicate transverse grooved line between the mesonotum and the base of the scutellum, the basal margin of the former straight . . . . . 18
17. Temples in ♀ somewhat broad, in ♂ flat, the eyes very large, antennae in ♀ 14-jointed, in ♂ 15-jointed, the third joint the longest (sexual form.)  
Neuroterus Hartig = Spathegaster Hartig  
(Type *Spathegaster petioliventus* Hartig.)
18. Head not broadened behind the eyes, the cheeks very short, the malar furrow wanting or subobsolete; scutellum with the foveae united at base; metathorax with two median angular divergent ridges; antennae in ♀ 14-jointed, the third and fourth joints equal, in ♂ 15-jointed (sexual form)

Plagiotrochus Mayr  
(Type *Cynips ilicis* Fabr.)

Head distinctly broadened behind the eyes, the cheeks less than half the length of the eye, the malar furrow sharply defined; scutellum with an arcuate transverse furrow at base; metathorax with the carinae nearly straight and parallel; antennae in ♀ 13-jointed, the joints 3-4 nearly equal, joints 5-13 slightly thicker and subequal in lengths, in ♂ 15-jointed (sexual form)

Loxaulus Mayr

(Type *L. mammula* Mayr.)

19. Claws simple, without a tooth beneath; antennae in ♀ 13-jointed, the first joint of the flagellum not longer than the second . . . . . 20

Claws with a tooth at base beneath; antennae in ♀ 14-jointed, in ♂ 15-jointed, the third joint longer than the fourth.

Scapulae smooth, without a trace of a grooved or glabrous line posteriorly (sexual form)? genus.

Scapulae always with a more or less distinct grooved or glabrous line posteriorly (sexual form) . . . . . Dryophanta Förster

(Type *Cynips folii* Linné.)

20. Head dilated behind the eyes, the cheeks shorter than half the length of the eye; scutellum smooth, with a transverse grooved line at base, separated by a median carina; abdomen large, strongly compressed, lenticular

Chilaspis Mayr

(Type *Andricus nitidus* Giraud.)

21. Antennae in ♀ 14-jointed, in ♂ 15-17-jointed . . . . . 21

Antennae in ♀ 16-jointed . . . . . 25

Second joint of hind tarsi fully as long as the last or longer, if shorter the claws with a tooth at base beneath . . . . . 22

Second joint of hind tarsi shorter than the last, the claws simple; ♀ antennae 14-jointed, ♂ antennae 15-jointed, the third joint strongly emarginate (sexual form) . . . . . Biorhiza Westwood

(Type *Cynips aptera* Bosc)

22. Metathorax abruptly declivous posteriorly, with two parallel median carinae, the apex of scutellum projecting far over the metanotum; antennae in ♀ 14-jointed, in ♂ 15-jointed, the third joint very long, strongly emarginate, and thickened at apex; claws with a tooth at base (sexual form)

Trigonaspis Hartig

(Type *Cynips megaptera* Panzer.)

Metathorax not so abruptly declivous, the scutellum normal, rarely conical or pyramidal, most frequently rounded or cushion-shaped, and not projecting over the metanotum . . . . . 23

23. Middle lobe of mesonotum *with* a more or less distinct median furrow or at least with a trace of it either posteriorly or anteriorly . . . . . 24

Middle lobe of mesonotum *without* a trace of a median furrow, smooth and shining, the parapsidal furrows distinct. ♀ antennae 14-jointed, ♂ 15-jointed

Liodora Förster

(Type *L. sulcata* Förster.)

24. Antennae in ♀ 14-jointed, the third joint long, one half longer than the fourth, joints 9–13 about three times as long as thick, the last one half longer than the preceding; ♂ antennae 15-jointed, the third joint long, gradually thickening towards apex and the longest joint, joints beyond all long, cylindrical, subequal; metathoracic carinae divergent posteriorly forming a trapezoidal shaped area; hind claws with an acute tooth at base beneath (sexual form)

Sphaeroterias Ashmead

Antennae in ♀ 14-jointed, the terminal joint  $2\frac{1}{2}$  times as long as the penultimate and sometimes indistinctly divided, joints 5–13 not longer than wide; ♂ antennae 17-jointed, the third joint very long, curved or bent; scutellum with two large foveae at base; abdomen hardly compressed, with a tuft of wool on each side at base (sexual form)

Eumayria Ashmead

(Type *E. floridana* Ashm.)

25. Second abdominal segment only half the length of the abdomen, the five following segments prominent or distinct; ventral spinule short; claws simple

Liebelia Kieffer

(Type *L. cavarae* Kieff.)

26. Abdomen, especially from the third to the last segment, clothed with a dense, silky pubescence, or at least on the lower two thirds, the head, thorax, and legs also hairy or densely pubescent; head much widened behind the eyes; mesothoracic furrows parallel or nearly so, sometimes wanting anteriorly 27  
Abdomen bare or nearly bare, without the dense silky pubescence, the head and thorax at the most sparsely pubescent . . . . . 31

27. Claws of hind tarsi simple, *without* a tooth beneath . . . . . 28

Claws of hind tarsi *with* a distinct tooth at base beneath . . . . . 29

28. Antennae in ♀ 14-jointed, long and slender, the last joint somewhat stouter than the second; malar furrow absent; parapsidal furrows not impressed anteriorly; scutellum as long as wide, with a transverse furrow at base formed by a delicate carina, open at both ends (agamous ♀) . . . . . Aphilonyx Mayr

(Type *Cynips cirricola* Giraud.)

29. Mesonotum with complete parapsidal furrows . . . . . 30

Mesonotum with incomplete parapsidal furrows, abbreviated anteriorly.

Antennae 14-jointed, long slender, very slightly thickened towards apex; flagellar joints 1–5 or 6 very long; second abscissa of radius normal; scutellum rounded, convex, without distinct foveae at base (agamous ♀)

Holcaspis Mayr (Type *Cynips globulus* Fitch.)

30. Scutellum rounded, convex, without distinct foveae at base, although there is usually a distinct, arcuate grooved line at base; antennae 14-jointed, of moderate length, the flagellar joints 1-6 elongate, 7-11 short, rarely much longer than thick; second abscissa of radius somewhat stout and more or less dilated or thickened at apex (agamous ♀) . . . . . Dryophanta Förster  
(Type *Cynips folii* Linné.)  
Scutellum somewhat broader than long, cushion-shaped with transverse furrows or foveae at base, each closed by a carina externally; antennae 13- or 14-jointed, somewhat shortened and thickened, the pedicel as long as or longer than thick; second abscissa of the radius not stout, slender towards apex  
Cynips Linné (Hartig)<sup>1</sup>  
(Type? unknown: *C. argentea* Hartig)
31. Thorax neither especially robust nor so highly convex, and never very coarsely rugoso-punctate, more evenly rugulose, coriaceous, or very finely, closely punctate, never wider than the head and often narrower . . . . . 32  
Thorax very robust, wider than the head, highly convex and very coarsely rugose or scabrous, the parapsidal furrows rarely distinct or complete, being more or less obliterated by the rugosities or coarse sculpture; scutellum subquadrate or cushion-shaped, a little wider than long, with very large, deep, approximate, transversely wrinkled foveae at base; claws with a tooth at base beneath; antennae in ♀ 13-15-jointed, in ♂ 15-16-jointed; front wings fuliginous or with a macula or cloud at base of the marginal cell, or along the basal nervure, rarely entirely hyaline . . . . . Amphibolips Reinhard  
(Type *Cynips spongifica* O. S.)
32. Thorax more or less distinctly narrower than the head, the cheeks less than half the length of the eyes . . . . . 35  
Thorax at least as wide as the head, the cheeks at least half the length of the eyes or longer.  
Claws of hind tarsi simple, *without* a tooth at base beneath . . . . . 33  
Claws of hind tarsi *with* a tooth at base beneath.  
Head not widened behind the eyes, the malar furrow distinct; face closely punctate or coriaceous . . . . . Callirhytis Förster  
(Type *C. hartigii* Förster.)
33. Frons normal, *without* a median carina; mesosternum ecarinate . . . . . 34  
Frons excavated, with an elongate median carina; mesosternum elongate with

<sup>1</sup> I still retain *Cynips* Linné, as defined by Hartig, Förster, and Mayr, although the type of the genus was probably the wasp now known as *Rhodites rosae* L.

three carinae, the laterals abbreviated; metanotum with a trapezoidal area  
Fioria Kieffer Type (*Callirhytis marianii* Kieff.)

34. Mesonotal furrows rarely complete, vaguely defined or abbreviated anteriorly, the middle furrow of the middle mesothoracic lobe sometimes more or less impressed but never completely defined from base to apex, usually distinct only posteriorly, the glabrous or grooved abbreviated lines anteriorly and on the scapulae frequently present; antennae in ♀ 13-14-jointed, in ♂ 14-, 15-, or 16-jointed; wings usually pubescent . . . . . *Andricus* Hartig  
(Type *A. trilineatus* Hartig.)

Mesonotal furrows sharply defined, complete, the middle mesothoracic lobe also with a distinct, entire, median grooved line; scapulae with an abbreviated grooved line; head very full behind the eyes; antennae in ♀ 15- or 16-jointed, the seven joints before the last only a little longer than thick; front wings hyaline, bare or nearly; abdomen ovate, the sheaths of the ovipositor not at all exerted . . . . . *Trisolenia* Ashmead  
(Type *T. saltata* Ashm.)

35. Mesonotum not or scarcely longer than wide, with the parapsidal furrows complete . . . . . 36  
Mesonotum very distinctly longer than wide.

Thorax usually finely transversely rugulose or shagreened, the scutellum a little longer than wide, subconvex, not distinctly separated from the mesonotum by a delicate grooved line at base, but with two minute, transverse oblique, nearly obsolete foveae; scapulae with a trace of a glabrous longitudinal line; head distinctly wider than the thorax, dilated behind the eyes, shagreened; antennae in ♀ 13-14-jointed, the third joint nearly as long as 4-5 united, the 8th joint and those beyond distinctly thicker; wings hyaline, the areolet sometimes incompletely closed; abdomen much compressed, as seen from the side, not or scarcely longer than high

*Bassetia* Ashmead (Type *B. floridana* Ashm.)

36. Mesonotum with the parapsidal furrows complete but delicate and somewhat widely separated, the scapulae with a grooved line, the scutellum cushion-shaped, a little longer than wide, with an arcuate transverse impressed line at base due to the union of the two shallow, scarcely perceptible foveae; head wider than the thorax, dilated and bulging out behind the eyes; antennae in ♀ long, 13- or 14-jointed, with joints 3-5 equal or very nearly; front wings with a macula or cloud at base of the marginal cell and also more or less along the basal nervure; abdomen strongly compressed, lenticular, not longer than high, as seen from the side, with the sheaths of the ovipositor prominent  
*Compsodryoxenus* Ashmead (Type *C. maculipennis* Ashm.)



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