CLASSIFICATION OF THE GALL—WASPS AND THE PARASITIC
CYNIPIDS, OR THE SUPERFAMILY CYNIPOIDAE.

BY WILLIAM H. ASHMEAD, A. M., ASSISTANT CURATOR, U. S. NATIONAL MUSEUM.

In 1899, the writer separated the Hymenoptera into ten superfamilies, viz. —
(1) Apoidea, (2) Sphecidea, (3) Vespoidea, (4) Formicoidea, (5) Proctotrypoidea,
(6) Cynipoidea, (7) Chalcidoidea, (8) Ichneumonoidea, (9) Siricoidea, and (10)
Tenthredinoidea, and all of these have been classified down to genera, except the
Formicoidea and the Cynipoidea.

During the year 1903, in a series of papers in Psyche, I propose to give my
views on the classification of the Cynipoidea, a large, natural group falling in
between the Proctotrypoidea and the Chalcidoidea, and still imperfectly known in
this country, although well represented in genera and species.

An excellent résumé of the various schemes of classification proposed for these
insects by Hartig, Giraud, Thomson, Förster, Walsh, and others is given by Cam-
eron in his Monograph of the British phytophagous Hymenoptera, vol. 3, p. 152;
also by Kieffer in his Monographie des cynipides d'Europe et d'Algérie, vol. 1, p.
51, so that I shall not repeat them here; they should be read by all interested in
these wasps, as they show briefly the great progress made in the study and classifi-
cation of these obscure insects, and how the natural groups have been gradually
evolved, until to-day they are firmly established, whether they be called tribes, sub-
families, or families.

Most writers on these insects consider that they represent but a single family,
the Cynipidae, with many subfamilies. In my opinion, however, there are at least
two well-marked families, nearly as first pointed out by Hartig. One of these com-
prised all the parasitic species; the other, with the exception of a single group, the
Ibaliinae, comprises the gall-makers and the gall-inhabiting species. The Ibaliinae
are, however, a peculiar group and may yet be elevated to family rank.

The two families may be recognized by the use of the following table: —

<table>
<thead>
<tr>
<th>Table of Families.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal tergites meeting along the venter and entirely inclosing or concealing the sternites, at most with only a part of the hypopygium exposed.</td>
</tr>
<tr>
<td>Family LVIII. — Figitidae.</td>
</tr>
<tr>
<td>Abdominal tergites not meeting along the venter; all or nearly all the sternites visible.</td>
</tr>
<tr>
<td>Family LIX. — Cynipidae.</td>
</tr>
</tbody>
</table>
Family LVIII.—Figitidae.

This family is a most extensive one and well represented in North America. The species are numerous and, all, without a single exception, are parasitic. The majority attack principally the larvae of Diptera; a few, however, prey upon aphides and coccids; others attack the larvae of the lace-winged flies (Hemero- 
biidae); while others are said to prey upon beetle larvae.

Several well-marked natural minor groups may be recognized, as follows:

Table of Subfamilies.

Abdomen ovate, compressed or subcompressed, often longly petiolate, the apex usually pointed

Abdomen short, globose or subglobose, the second segment the longest

1. Scutellum not cupuliform, of ordinary shape or grooved, spined or cone-shaped, and usually foveate at base

   Scutellum cupuliform, i.e., with a cup-like elevation on its disc

2. Abdomen longly petiolated, the second segment usually somewhat longer than the third

   Abdomen sessile or subsessile, or with a short petiole, the second segment shorter than the third.

   Second abdominal segment not prolonged dorsally, as seen from the side, not tongue-shaped.

   Second abdominal segment prolonged dorsally, as seen from the side, tongue-shaped.

3. Petiole attached to the metathorax normally, between the hind coxae; fourth dorsal segment not longer than either the second or the third.

   Petiole attached to the metathorax far above the hind coxae; fourth dorsal segment much longer than either the second or the third.

4. Second abdominal segment always the longest, except in a single case, and usually occupying most of the surface of abdomen; hind tibiae with two apical spurs.

5. Scutellum rounded, smooth, convex; hind tibiae with only one apical spur.

Subfamily I.—Figitinae.

Subfamily II.—Onychiinae.

Subfamily III.—Anacharinae.

Subfamily IV.—Liopterinae.

Subfamily V.—Eucoilinae.

Subfamily VI.—Xystinae = Allotriinae.¹

¹Allotria Westw. nec. Hübn. 1846.
Subfamily I.—Figitinae.


This subfamily is quite distinct from all the other subfamilies here recognized except the Onychiinae with which it agrees in all particulars except in the shape of the second dorsal abdominal segment, the second segment being normal and not produced dorsally, or tongue-shaped, as in the latter group.

The shape of the scutellum easily separates it from the Eucoilinae and the Xystinae (= Allotriinae), while from the Anacharinae and the Liopterinae it is distinguished by the non-petiolate abdomen.

### Table of Genera

1. Cheeks margined
   - Cheeks immargined

2. Eyes bare, *not* hairy
   - Eyes hairy or pubescent

3. Thorax opaque, very finely and thickly punctate, the parapsidal furrows complete
   - Thorax smooth, polished, with distinct parapsidal furrows.
     - Marginal cell closed
     - Marginal cell open.
     - Second abdominal segment bare at base; scutellum rugulose, bifoveate; ♀ antennae 13-jointed filiform, the third and fourth joints equal. Trischiza Förster

4. Second abdominal segment pubescent basally, especially at the sides; scutellum rugose; areolet not close to the base of the marginal cell, ♀ antennae 13-jointed.
   - Sarothrus Hartig

5. Marginal cell closed; ♀ antennae 13-jointed, ♂ 14-jointed, the third joint excised.
   - Melanips Haliday

6. Second abdominal segment base at base; scutellum smooth; areolet close to the base of the marginal cell; ♀ antennae 13-jointed, ♂ 14-jointed, the third joint longer than the fourth.
   - Amblynotus Hartig

7. Marginal cell closed; ♀ antennae 13-jointed, ♂ 14-jointed, the third joint excised.
   - Amblynotus Hartig
6. Mesopleura not separated from the mesosternum by a sharp, longitudinal ridge or carina 7
   Mesopleura separated from the mesosternum by a sharp, longitudinal ridge or carina 8

7. Scutellum rugose, without an erect horn 9
   Scutellum smooth, polished, with a small erect horn posteriorly 10

8. Second abdominal segment at base bare.
   ♀ antennae 13-jointed, submoniliform, the joints longer than wide.
   Pycnotrichia Förster
   Second abdominal segment at base bare.
   ♀ antennae 13-jointed, submoniliform, the middle joints not longer than wide.
   Homorus Förster

   Thyreocera Ashmead

10. Marginal cell completely closed
    Marginal cell more or less open along the fore margin

11. Scutellum rugose, rounded or obtuse at apex, but never ending in a spine
    Scutellum rugose, more or less carinate and ending in a long acute spine the spine sometimes channelled

12. Head and thorax coarsely rugose; ♀ antennae 13-jointed, filiform, the joints long, cylindrical, the third shorter than the fourth; abdomen compressed, the second segment as long as 3 and 4 united.
    Kiefferia, gen. nov.1
    (Type Figites rugosa Ashm.)

13. Head and thorax smooth, shining; ♀ antennae 13-jointed, subclavate, the joints after the fifth oblong-oval, the third longer than the fourth, ♂ antennae 14-jointed, long, filiform; abdomen not much compressed.
    Figites Latreille
    (Type Cynips scutellaris Rosse.)

14. Scutellum rugose, more or less carinate and ending in a long acute spine, ♀ antennae 13-jointed, subclavate, ♂ antennae 14-jointed filiform.
    Solenaspis Ashmead (partim)
    Solenaspis Ashmead (partim)

Scutellum rugose, bounded by an elevated rim behind which is produced medi-
ally into a short triangular tooth; ♀ antennae 13-jointed, subclavate, moniliform, ♂ antennae 14-jointed, the third joint slightly longer than the fourth or of an equal length. Figitodes Ashmead (Type Figites quinquelineatus Say.)

15. Scutellum without a fovea at base; head and thorax opaque, finely punctate; ♀ antennae 13-jointed, subclavate, the last joint not especially large, ♂ antennae 14-jointed.

Anolytus Förster (Type Onychia bistis Hal.)

Scutellum with one large fovea at base; head and thorax smooth, shining; marginal cell small, closed; ♀ antennae 13-jointed, clavate, the last joint much enlarged, oblong, ♂ antennae 14-jointed. Lonchidia Thomson (Type Figites maculipennis Dahlb.)

Subfamily II.—Onychiinae.


This group is separated from the Figitinae by the shape of the second dorsal abdominal segment which is produced dorsally or tongue-shaped; otherwise it is identical.

**Table of Genera.**

1. Scutellum not spined.
2. Scutellum ending in a spine

1. Mesonotum smooth, polished with two distinct furrows; scutellum smooth, not elevated, bifoveate at base; marginal cell open along the fore margin but not confluent with the costal cell; ♀ antennae 13-jointed, filiform. Homalaspis Giraud (Type Omalaspis novica Giraud.)

Mesonotum scabrous, opaque, with two distinct furrows and a median carina, scutellum large, elevated and truncate posteriorly with a channel throughout; marginal cell open at the base and along the fore margin, confluent with the costal cell; ♀ antennae 13-jointed, filiform. Onychia Haliday (Type Callaspidia fonscolombei Dahlb.)

2. Marginal cell open along the fore margin and sometimes at base
3. Marginal cell completely closed
3. **Mesothorax** scabrous and carinate, with two parapsidal furrows; marginal cell open at base and along the fore margin, confluent with the costal cell; ♀ antennae 13-jointed, filiform.

   Aspicera Dahlborn
   (Type Tenthredo scutellata Villers.)

   **Mesothorax** smooth, shining, not carinate, with two parapsidal furrows; marginal cell closed at base; ♀ antennae 13-jointed, filiform. Belna Cameron
   (Type B. nigriceps Cam.)

4. **Mesonotum** smooth, shining, with distinct parapsidal furrows; ♀ antennae 13-jointed, subclavate.

   Neralsia Cameron
   (Type N. rufipes Cam.)

Subfamily III. — **Anacharinae.**


This subfamily is easily recognized by the abdomen which is distinctly petiolated and attached normally to the metathorax, the fourth dorsal segment being not longer than either the second or the third.

**Table of Genera.**

| Scutellum produced at apex into a long spine | 1 |
| Scutellum more or less conical, but never ending in a spine | 2 |
| 1. **Mesonotum** rugose, *without* parapsidal furrows; marginal cell long and open along the fore margin; abdominal petiole at least as long as the hind coxae, smooth; ♀ antennae 13-jointed. | 3 |
| Acanthaegilips Ashmead
   (Type A. brasiliensis Ashm.) |
| **Mesonotum** smoother, with distinct parapsidal furrows, the middle lobe usually more or less rugulose posteriorly; marginal cell shorter and completely closed; abdominal petiole much shorter than the hind coxae. | 4 |
| Xyalaspis Hartig
   (Type Cynips nitidula Dalman.) |
| 2. Scutellum separated from the mesonotum by a suture or furrow and *with* two shallow oblique foveae at base | 5 |
| Scutellum not separated from the mesonotum by a furrow and *without* foveae at base | 6 |
| 3. Abdominal petiole shorter than the hind coxae, striate or rugose; middle segment areolated. | 7 |
| Aegilips Haliday
   (Type Anacharisis rufipes Westw.) |
Abdominal petiole usually longer than the hind coxae and smooth; median segment not areolated.

Anachares Dalman
(Type Cynips eucharoides Dalm.)

4. Mesonotum with distinct parapsidal furrows.

Acothyreus Ashmead
(Type A. oceola Ashm.)

Mesonotum smooth, without parapsidal furrows.

Synapsis Förster
(Type S. agrisgranensis Först.)

LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE.—XXXIX.

BY HARRISON G. DYAR, WASHINGTON, D. C.

Therina fiscellaria Guen. The larva has been much confused. It is apparently this one referred to by Packard as T. fervidaria in Mon. Geom., p. 494, Rept. U. S. dept. agric., 1886, p. 329, and 5th Rept. U. S. ent. comm., p. 186. In the latter publication the description of T. endropraria on p. 187 is of this species, Riley's specimen being before me. I have referred to these descriptions previously (Psyche, vol. 9, 11, 1900), but have made there an error in regard to the food plant of T. fervidaria (lines 6 to 8, second column); it is really spruce as Packard gives it. The life history of T. fiscellaria, here given, was obtained from moths kindly sent by Mr. H. S. Williams of Rockledge, Florida, in May. The first larvae were matured in August and the moths appeared again in September.

Egg. Elliptical, the narrow diameter only slightly flattened in a small area on the middle of the side; truncation forming a decided rim, but elevated centrally; depressed end rounded, almost like the other end. Surface smooth, except for very fine, roundedly hexagonal, moderately distinct reticulations, all over it, becoming a little larger at the antennaeolar end. The minute pores at the angles show whitish in the shadow. Oliveaceous green, shining, turning dull reddish. Size .9 X .6 X .5 mm. Hatched in two weeks.

Stage I. Head rounded bilobed, erect, free, rather large, mouth pointed; dull dark brown, darker in the sutures, lighter on the faces of the lobes, eyes black; width .3 mm. Body cylindrical, normal, moderately elongated, feet normal slender, the abdominal ones rather long; segments slightly enlarged centrally. Grayish white, a shaded dark gray broad dorsal band, narrow in the incisures and absent at the ends. A subgeminate, darker, narrower and more distinct subdorsal band, fainter at the ends but continuous, narrowed and confluent in the incisures. A similar subventral band, geminate, but segmentarily, macu-

1 In all cases I retain the original spelling of genera, Eucocla, not Eucocla, Acothyreus not Acantothyreus etc.