

JOURNAL

OF THE

New York Entomological Society

VOL. LIV

JUNE, 1946

No. 2

CREMATOGASTER LINEOLATA CERASI, THE CHERRY ANT OF ASA FITCH; (WITH A SUR- VEY OF THE AMERICAN FORMS OF CRE- MATOGASTER, SUBGENUS ACROCÆLIA)

BY JANE ENZMANN

DEPARTMENT OF BIOLOGY, NORTHEASTERN UNIVERSITY,
BOSTON, MASSACHUSETTS

INTRODUCTION

The genus *Crematogaster* seems to be represented in New England by the single species *C. lineolata*. I have collected one of its varieties, "var. *cerasi*" Fitch in various locations in Maine, Massachusetts, and Vermont. I have also found it in New York State and New Jersey, and it has been reported as far west as Dakota. In New England it nests in locations fully exposed to sunshine, and may occasionally seek the shelter of greenhouses or houses, without actually becoming a noxious house ant. A large colony of this ant has been nesting below our sunporch from where the files go out to forage on a large choke cherry tree (*Prunus pennsylvanicus*), where it attends aphids.

In attempting to identify this ant, comparisons were made with specimens from Maine, New Hampshire, Vermont, and localities farther south. It appears that there are a number of intergrading local varieties of which the northern (Maine) are very distinctive and would undoubtedly be listed as separate species, while specimens from more southern localities grade into what might be called the typical *C. lineolata*.

The original description of *C. lineolata* var. *cerasi* Fitch does

not designate a type and omits mention of a type locality. It can however be inferred that the original *Myrmica cerasi* (which now bears the name *C. lineolata* var. *cerasi*) was collected in New York State.

Fitch describes in his paper "The Cherry" a form *Myrmica molesta* from that state and mentions *Myrmica cerasi* in the same paragraph. He describes the ant as follows:

"The Cherry Ant (*Myrmica Cerasi*). The neuters are 0.14 long, of dark brown color and slightly translucent, resembling resin; their abdomen is deep black and highly polished, egg-shaped and acutely pointed at its apex, its basal segment covered with minute punctures of an oval form, placed longitudinally, and the remaining segments are similarly punctured upon their apical margins; the head, thorax and anterior sides of the legs are also covered with similar punctures, but more fine; the jaws are reddish-brown and have four teeth of equal size along their inner edge; the antennæ are black, their tips brown and clothed with fine short hairs, the long basal joint punctured; the legs are black, their bases and the tips of the shanks pale brown, and the last joint of the feet brown; a few grey hairs are scattered over head and body."

There is not much in this description to indicate that the described ant is a *Crematogaster*; however, Fitch does not leave any doubt on that score in the next paragraph of his paper, where he describes the habits and especially the characteristic defense mechanism and posture, which is typical of all *Crematogaster*.

Emery (1895, Zool. Jahrb. Syst., 8, 282) redescribed the worker of this ant under the name *C. lineolata* var. *cerasi* Fitch, and listed it under the same name in Gen. Ins., 1923. According to Emery the variety *cerasi* is larger than the typical *lineolata* and has longer epinotal spines; the thorax is punctate with a few longitudinal rugæ, the color is light reddish brown, the gaster piceous black.

Emery's description fits the variety of *C. lineolata cerasi* which is common in New York and New Jersey but not the specimens collected farther north.

This justifies raising *cerasi* to the rank of a subspecies and

describing the northern forms as distinct and named varieties. No record has been found of a description of the sexual form of *cerasi*, which is therefore included.

Crematogaster (Acrocoelia) lineolata
subsp. *cerasi* var. **punctinodis** var. nov.

WORKER.—Length 3 mm. Color dark red; gaster, except at the base, black; appendages lighter red. Head round, broader than long, weakly excised behind. Mandibles sharply longitudinally striated, with four sharp teeth; clypeus round, longitudinally striated, with fine points between the striae. Antennal scapes surpassing the head by their thickness. Front and vertex very shiny, finely punctate. Cheeks finely longitudinally striated and punctate.

Promesothorax very convex; with a sharp, median carina; humeri prominent; sides of mesothorax sharply marginate; very densely punctate and rugulose, honeycombed in front, longitudinally behind.

Epinotum narrow at the base, irregularly longitudinally rugulose, and densely punctate; the declivity is shiny; epinotal spines stout, nearly as long as their distance apart at the base, directed backward and outward. Petiole and postpetiole of the usual shape of *lineolata*; upper surface of petiole very finely punctate, sides of petiole and upper surface of postpetiole densely and more coarsely punctate.

Gaster densely and finely punctate, subopaque, not foveolate. Pilosity scant; erect hairs present on prothorax, postpetiole and gastric segments, where they are arranged in straight lines. The postpetiole has a pair of erect hairs, which are backward directed and form a frame for the iridescent stridulatory organ. Scant pubescence present of the head and gaster.

Holotype No. 3, worker, in my private collection. (A large number of workers were collected.)

Type locality Dedham, Massachusetts.

Male.—Length 4 mm. Color black. Head very tiny. Mandibles rudimentary, with four blunt teeth. Clypeus convex. Eyes and ocelli well developed. Antennal scapes short, about twice as long as the first funicular joint; funiculi filiform; 11-jointed; head above finely punctate, shiny; on the cheeks very finely striated and punctate.

Promesothorax very convex, especially the scutellum; Mayrian furrow distinct. Parapsidal furrows absent. Paraptera distinct, narrow antero-posteriorly. Scutellum very convex and highly polished; epinotum unarmed. Pedicel broad, broader behind than in front. Postpetiole shaped as in the worker, without a longitudinal sulcus in the middle; epinotum and pedicel densely striated and punctate. Rest of the thorax, except the scutellum, finely shagreened.

Gaster as in the worker, but non-polished.

Androtype No. 3 B.

Female, winged.—Length 6.5 mm. Color black. Head as in the worker, with straight posterior border. The whole head strongly longitudinally striated, punctate between the striæ. Antennal scapes just reaching the posterior corners of the head.

Thorax very convex, polished, with fine punctation, shiny. Paraptera and scutellum as in the male. Metanotum and epinotum as in the male but the epinotum armed with two blunt teeth. Petiole as in the worker, but post-petiole shaped as in the male.

Gaster very elongate, microscopically punctate, very shiny.

Gynetype No. 3 C (a great number of specimens).

This variety differs from the subspecies *cerasi* (as described by Fitch) by greater length, differently colored body, different sculpture, etc.

Crematogaster (Acrocœlia) lineolata

subsp. *cerasi* var. **wheldeni** var. nov.

WORKER.—Very similar to *punctinodis*. Differs from it, and from all other forms of *lineolata* by its extraordinary sculpture. The whole body, including legs, antennæ, and mandibles very densely punctate, large and small punctation alternating irregularly. The entire body black to the unaided eyes, under magnification the pedicel, sometimes the whole thorax, blackish red. The sculpture is superficially similar to that of *punctulata* but the general habitus of the insect is more as in *lineolata*. This is also shown by the superimposed sculpture of rugules which is similar to that of *cerasi*. The mandibles and cheeks are longitudinally rugose, the antennal fossæ circularly striated. The neck with faint indications of rugules. All parts of the body are opaque. The humeri are prominent and strongly marginated.

Holotype, worker, No. 4, in my collection.

Type locality New Durham, New Hampshire. Collected by Dr. R. Whelden.

The various forms of the subgenus *Acrocœlia* are closely related and very difficult to tell apart. Most of them occur in North America, and in the Antilles and Central America, only a single species, *clydia*, being listed from South America. Several other South American species have the pedicel shaped somewhat similarly to *Acrocœlia* but are listed by Emery, 1923, under other subgenera of *Crematogaster*.

An attempt was made to find simple criteria for the separation of the North American species, resulting in the following list, which differs considerably from Emery's arrangement, but is

close to Wheeler's list, except for the following changes: *coarctata* (listed by Wheeler as species), has been put under *opaca*; *punctulata* (listed by Wheeler under *opaca*) has been made a species.

I. Forms which have the promesothorax only punctate:

punctulata Emery 1895. sp.*

var. *depilis* Wheeler 1908. t.sp.*

II. Forms which have the humeri neatly rounded:

saussurei Forel 1899.

ashmeadi Mayr 1886. sp.

var. *matura* Wheeler 1932. t.sp.

atkinsoni Wheeler 1919. t.sp.

var. *helveola* Wheeler 1919. t.sp.

laeviuscula Mayr 1870. sp.

var. *cubaensis* Mann 1920. t.sp.

var. *clara* Mayr 1870. sp.

ss. *californica* Emery 1895. sp.

III. Forms which have the humeri or at least the sides of the mesonotum sharply margined, and the head largely shiny:

creightoni Wheeler 1933. t.sp.

kennedyi Wheeler 1930. t.sp.

sanguinea Roger 1863. sp.

var. *torrei* Wheeler 1913. sp.

var. *atavista* Mann 1920. t.sp.

ss. *lucayana* Wheeler 1905. t.sp.

var. *etiolata* Wheeler 1905. sp.

lineolata Say 1836. sp.

var. *lutescens* Emery 1895. sp.

var. *subopaca* Emery 1895. sp.

ss. *coachellai* E. Enz. in lit. t.sp.

ss. *cerasi* Fitsch 1854. sp.

var. *punctinodis* var. nov. t.sp.

var. *wheldeni* var. nov. t.sp.

pilosa Emery 1895. sp.

IV. Forms which have sharp thoracic margins and opaque heads:

clydia Forel 1912. sp.

* Explanation of abbreviations: t.sp.—type specimen examined. sp.—specimen examined, which was identified either by Wheeler, Forel or Emery.

- opaca* Mayr 1870. sp.
 var. *dentinoda* Forel 1901. sp.
 var. *texana* Santschi 1929. t.sp.
 ss. *coarctata* Mayr 1870. sp.
 var. *mormonum* Emery 1895. sp.
 ss. *cedrosensis* Wheeler 1934. sp.
vermiculata Emery 1895. sp.

In some cases the original description does not fit the specimen studied accurately; the key was therefore made synoptic, and was based on both, specimens and description.

KEY FOR THE IDENTIFICATION OF THE WORKERS
 OF *AECOCÆLIA*

- | | |
|--|---|
| 1. Promestothorax weakly sculptured or entirely punctate | 2. |
| Promestothorax strongly sculptured | 12. |
| 2. Promestothorax only punctate | 3. |
| Promestothorax punctate and distinctly rugulose | 4. |
| 3. Small species; erect hairs present on the body. Mexico. Colorado.
(Listed by Emery as species, by Wheeler as variety of <i>opaca</i>). Pl.
II, Fig. 5 | <i>punctulata</i> Emery, 1895. |
| Larger form; intermediate between <i>opaca</i> and <i>punctulata</i> ; pronotum
finely rugose and densely punctate; erect hairs absent on body.
Del Rio, Texas. (Listed by Wheeler as variety of <i>opaca</i>).
<i>punctulata</i> var. <i>depilis</i> Wheeler. | |
| 4. Petiole relatively long; length 4.2–4.4 mm.; brown, hardly reddish;
first node almost 2 times as long as broad; head and thorax finely
and densely reticulate punctate. Mexico | <i>saussurei</i> Forel, 1899. |
| Petiole shorter | 5. |
| 5. Epinotal spines shorter and backward directed | 6. |
| Epinotal spines longer and more obliquely sideways | 7. |
| 6. Small and light-colored species; length 2.5 mm.; chocolate brown; epi-
notal spines reduced to incurved teeth. Southern North Amer-
ica | <i>ashmeadi</i> Mayr, 1886. |
| Larger form; length 2.3–3.5 mm.; epinotal spines tapering; postpetiole
broader, with the dorsal tubercles more separated; color nearly
black | <i>ashmeadi</i> var. <i>matura</i> Wheeler, 1932. |
| 7. Slender forms with very divergent epinotal spines | 8. |
| Stouter forms with less divergent spines | 9. |
| 8. Thorax without punctation and rugules; carina on mesonotum less dis-
tinct than in <i>lineolata</i> . Florida | <i>atkinsoni</i> Wheeler, 1919. |
| Differs from the preceding in color; castaneous with black gaster in the
species, while in <i>helveola</i> the color is brownish yellow.
<i>atkinsoni</i> var. <i>helveola</i> Wheeler, 1919. | |

9. Color lighter, red or yellow 10.
 Color darker, more brownish 11.
10. Head very shiny, color yellow. Pl. II, Fig. 1 *laeviuscula* var. *cubaensis*.
 Head less shiny, color more reddish; gaster partly black; length 3.5-4
 mm. Fort Cobb, Texas *laeviuscula* var. *clara* Emery.
11. Sculpture less regular on the thorax; nearly smooth, head to pedicel
 shiny; epinotal spines long and divergent. Fort Cobb, Texas.
laeviuscula Mayr, 1870.
 Sculpture more regular and stronger; intermediate between *laeviuscula*
 and *lineolata*. California. Pl. II, Fig. 6.
laeviuscula subsp. *californica* Emery.
12. Head shiny, at least on the vertex 13.
 Head entirely opaque 17.
13. Humeri prominent and angular 14.
 Humeri less angular 15.
14. Head broader *kennedyi* Wheeler.
 Head narrower; length 5-5.2 mm.; antennal scapes and epinotal spines
 longer than in *kennedyi* *creightoni* Wheeler.
15. First node above with rounded knobs behind 16.
 First node with elongate processes instead of knobs 19.
16. Pronotum very roughly and irregularly sculptured 17.
 Sculpture less rough and irregular 18.
17. Darker colored, nearly black *sanguinea* var. *atavista*.
 Lighter colored; length 4-4.5 mm.; gaster black; rest of the body deep
 red; head behind shiny and finely punctate. Cuba.
sanguinea var. *torrei* Wheeler.
18. A. *sanguinea* Roger, 1863; Pl. I, Fig. 2.—Length 3-4.5 mm.; thorax
 vermiculate in front; first node trapezoidal. Cuba.
 B. var. *lucayana* Wheeler, 1905.—Length 2.7-4 mm.; pedicel as in *san-*
guinea but sculpture more as in *vermiculata*, very rough. Ba-
 hamas.
 C. var. *etiolata* Wheeler, 1905.—Length, 3-4 mm.; color yellow; gaster
 usually black; body smooth and shiny. Andros Island.
19. Uniformly light colored, yellow. Pl. II, Fig. 3.
sanguinea subsp. *coachellai* E. Enzmann, in lit.
 Darker colored, reddish or blackish 20.
20. Light colored, reddish yellow; posterior part of gaster darker. District
 of Columbia to Virginia *lineolata* var. *lutescens* Emery.
 Darker colored 21.
21. Light brownish; pilosity very long and abundant; head smoother and
 more shiny than in the type. District of Columbia *pilosa* Emery.
 Pilosity less abundant 22.
22. Sculpture very rough 23.
 Sculpture finer 25.
23. Epinotal spines shorter; larger than the typical *lineolata*; thorax finely

punctate with a few longitudinal rugæ; light reddish brown, gaster piceous black. New York State. New Jersey. Maryland, etc.

lineolata susp. *cerasi* Fitch, 1854.

Color different, either the gaster is not entirely black or the whole insect is black 24.

24. Lighter colored, only part of the gaster black; promesothorax with few rugules but rough punctation. Dedham, Massachusetts.

lineolata subsp. *cerasi* var. *punctinodis* var. nov.

The entire insect densely and irregularly punctate and black, except the pedicel and sometimes the thorax. New Durham, New Hampshire.

lineolata subsp. *cerasi* var. *wheldeni* var. nov.

25. Head largely shiny; reddish brown, gaster darker. Eastern United States. (It should be noted that Emery's diagnosis of *lineolata* includes the subspecies and varieties, and that Say's original description is insufficient; I consider as *lineolata* s.str. as contrasted with its forms, those which have the head very lightly sculptured rugulose punctate) *lineolata* Say, 1836.

Very similar to the species but from head to pedicel finely punctate and nearly opaque; color as dark as in the species. Virginia.

lineolata var. *subopaca* Emery, 1895.

26. Head nearly smooth but opaque; length 2.7-3 mm.; light rusty red, head darker, gaster brownish behind; pilosity sparse; Los Angeles, California *vermiculata* Emery, 1895.

Head opaque; thorax with less vermiculate sculpture (vermiculate in the preceding species) 27.

27. Slender form; dark colored; with a lateral tooth on the petiole which is absent in the typical form of *opaca* and *punctulata*.

opaca var. *dentinoda* Forel, 1901.

Stouter forms; node not toothed 28.

18. A. *opaca* typical Mayr, 1870.—Similar to *lineolata subopaca* but with shorter epinotal spines; sculpture stronger, head opaque. Mexico.
- B. *opaca* subsp. *cedrosensis* Wheeler, 1934.—Very stout form; black of head a little shiny; thorax opaque, faintly rugose; long hairs absent; color deep brown. Cedros Island.
- C. *opaca* subsp. *coarctata* Mayr, 1870.—Head subopaque behind and confluent punctate; color dark reddish brown, gaster black; length 4.5 mm. Tucson, Arizona.
- D. *opaca* subsp. *coarctata* var. *mormonum* Emery, 1895.—Differs from *coarctata* by its longer scapes which surpass the head by $1\frac{1}{2}$ times their thickness. American Fork Cañon, Utah.
- E. *opaca* var. *texana* Santschi, 1929.—Length 2.5 mm.; reddish brown, head and gaster darker; gaster nearly smooth and shiny (not so in the typical form). Texas.

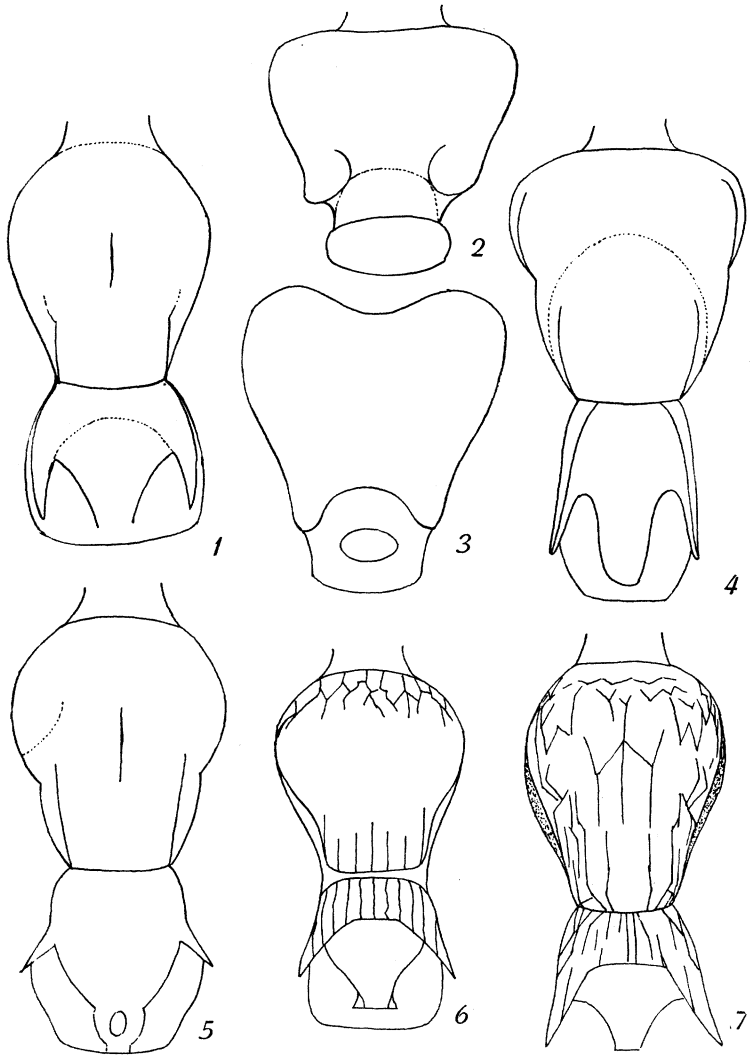


PLATE II

- Figure 1. Thorax from above of *Crematogaster leviuscula cubaensis*.
 Figure 2. Petiole, dorsal view, of *C. sanguinea*.
 Figure 3. Petiole of *C. lineolata* var. *coachellai*.
 Figure 4. Thorax of *C. opaca*, dorsal view.
 Figure 5. Thorax of *C. punctulata*.
 Figure 6. Thorax of *C. californica*.
 Figure 7. Thorax of *C. lineolata* s.s. *cerasi* var. *punctinodis*.