A CHECK-LIST OF THE MASSACHUSETTS FORMICIDAE, WITH SOME NOTES ON THE SPECIES.

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Among the many branches of Entomology, I know of none more interesting, so full of wonder and amazement, as the study of the ants, whose habits and customs indeed in many instances approach those of man. Why there are not more observers making a special study of these interesting creatures, it is hard to comprehend. It is hoped, however, that the time is not far distant, when some men of means will see fit to leave at least a portion of their great wealth to be used for special research in the collecting and the study of our ants. I have read with much interest, the two recent articles in this journal, translated by Mr. A. P. Morse, of the results of Dr. Auguste Forel's brief study of our American ants. He indeed observed many interesting things for so short a visit. His finding of the beginning of a formicary of *Camponotus marginatus*, that is, the female with some cocoons is interesting. This I have observed frequently with *Camponotus pictus* and *C. ligniperdus*. At Andover, Mass., sometimes alone, again with young larvae, and occasionally the female with from one to five small workers. The mounds of *Formica obscuripes* I have found several times. They cannot be called rare of *F. subsericea*, these are very seldom met with; four I think is all observed by me. Only on one occasion have I seen a mound inhabited by *Lasius flavus*. This was in Methuen, Mass., in a meadow where there were two good sized mounds all covered with growing grass. The openings were on the top of each nest.

Now just a passing notice on the records of the occurrence of ants in Massachusetts. Mr. E. A. Schwarz in his account of the Myrmecophilous Coleoptera found in temperate North America (Proc. ent. soc. Wash. vol. 1, 1890) cites eight species of ants which proved to be myrmecophilous species, found by Mr. Blanchard at Lowell, Dracut, and Tyngsborough, Mass., viz.: *Formica exsectoides*, *F. schaufussii*, *F. fusca*, *Lasius niger*, *Camponotus pictus*, *C. pennsylvanicus*, *Aphaenogaster fulva* and *Tapioma sessile*. Dr. Hamilton in his Catalogue (Can. Ent. vol. 20, 1888) refers to Mr. Blanchard's findings, but gives no names of the ants. Dr. Packard in his guide to the study of insects 1869, cites *Myrmica molesta*, (*Solenopsis molesta* Say,) *Formica sanguinea*, var. *rubicunda*, Em, *F. pennsylvanicus*, *Camponotus* sp., and *C. herculanea*. Dalla Torre's catalogue, 1893, only cites one species from Mass., *Stigmatomma pallipes*, Hald. In 1896 there were 261 recorded species from North America. Of this number we now know 55 to be found in Mass. All of these have been

found by me, with but three exceptions: *Strumigenys* sp. found by Dr. Forel and *Monomorium pharaonis* and *Tetramorium caespitum*, found by Dr. Dimmock. It does not appear, and it should not be understood from anything which appears in the above, that we know all the species of ants in Massachusetts; far from it, for as a matter of fact only one city and a part of four small country towns have as yet been looked over to any extent. So if we ever do know, some one must spend at least twenty-five years (in Massachusetts alone) and after he has got through another observer can begin where the work was left off and will find all that he wishes to do, as there will always be new problems presenting themselves for him to solve; for it is not only the ants' habits and the number of species which are to be considered, but the thousands of other insects which are to be found associated with them. The following are all the species thus far found to inhabit Mass.

Tritis *Camponotidae*.

Camponotus baeviatus Sm.
" castaneus Latr.
" " subsp. americanus Mayr.
Camponotus herculeanus L.
" " subsp. ligniperdus Latr.
Camponotus herculeanus var. pictus Forel.
" " subsp. pennsylvanica Deg.
Camponotus marginatus var. nearcticus Em.
Camponotus marginatus var. minutus Em.
Polyergus rufescens Latr., subsp. lucidus Mayr.
Formica sanguinea Latr., subsp. rubicunda Em.
Formica rufa L. obscuripes Forel.
" " subsp. integra Nyl.
" exsectoides Forel.
" pallide-fulva Latr.
" " " subsp. schaufussii Mayr.
Formica pallide-fulva subsp. nitidiventris Em.
Formica pallide-fulva subsp. fuscata Em.
" fusca L.
" " var. subsericea Say.
" " var. subaenescens Em.
" " var. neoclara Em.
" " subsp. subpolita Mayr.
" lasioides Em.
" " var. picea Em.
Lasius niger L.
" " var. americanus Em.
" " " neoniger Em.
" brevicornis Em.
" flavus L., subsp. myopes Forel.
" umbratus Nyl., subsp. mixtus Nyl.
" " subsp. aphidicola Walsh.
" claviger Rog.
Prenolepis imparis Say.
" parvula Mayr.
Brachymyrmex heeri For., subsp. depilis Em.

Tribe *Dolichoderidae*.

Tapinoma sessile Say.

Tribe *Poneridae*.

Ponera coarctata Latr., subsp. pennsylvanica Buckl.
Stigmatomma pallipes Hald.

Tribe *Myrmicidae*.

Myrmecina latreillei Curt., subsp. americana Em.
Myrmecina latreillei Curt., var. brevispinosa Em.
Monomorium minutum Mayr., var. minimum Buckl.

Monomorium pharaonis L.
Solenopsis molesta Say.
Pheidole pilifera Rog.
Stenamma brevicorne Mayr.
Aphaenogaster tennesseensis Mayr.
" fulva Rog.
Myrmica rubra L., var. sulcinodoides Em.
" " subsp. scabrinodis Nyl.
Myrmica rubra var. sabuleta Meünert.
" scabrinodis var. schencki Em.
Tetramorium caespitum L.
Cremastogaster lineolata Say.

Tribe *Cryptoceridae*.

Strumigenys sp.

LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE.—XXVI.

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Alsophila pometaria Harr. (*autumnata* Pack.). This injurious larva has been described in a general way by the principal writers on economic entomology and its habits have been made known. Eggs were received at the Department of Agriculture from W. R. Smith, having evidently passed the winter. They hatched April 18th and were matured in May. Wild larvae have been found by me as late as June 6th at Bellport, N. Y., feeding on oak and hickory. The present larvae were fed on apple.

Egg. Laid in a dense mass twice as long as broad, reaching half way around a twig. Subcylindrical, flattened, basal end a little rounded, slightly annularly bulging; micropylar end truncate, broadly rimmed, the center elliptical, a little depressed with a micropylar depressed dot. Surface slightly shining, obscurely reticulate, the truncate end irregularly shagreened, sometimes doubly ringed. Leaden gray, uniform for a single egg, though the flat topped mass looks a little mottled. Size .6×.55×.4 mm.

Stage I. Head round with full lobes, broadened above, the mouth projecting, the clypeus rather high, held nearly erect; pale luteous, the sutures narrowly and the posterior rim of lobes and mouth brown; ocelli black; width .3 mm. Setae short and pale with bulbous tips, most distinct on the body. Moderate, rather robust, not elongated, the central segments not longer than thick. Feet normal, moderately developed, but a very short, unused pair on joint 9 marked in black like the plantae of the other abdominal feet. Shields membranous; cervical shield divided into two semicircular parts, the flat side anteriorly, smoky, darker on the edges, bordered by blackish tubercles; anal plate and leg shields unmarked, faintly smoky. Body greenish yellow, striped with smoky blackish in broad dorsal (reaching but not enclosing tubercles i and ii), broad subdorsal and a broad shade below the subventral fold, diffused ventrally. Tubercles distinct, rounded, little elevated, black in pale rings. Thoracic feet pale, faintly smoky. With growth the dark shades become fainter and the larva looks green with obscure paler lines.

Stage II. Head rounded, erect, slightly bilobed, flattened before; very pale green, immaculate or the lobes faintly gray shaded; width about .6 mm. Ocelli black, not large; clypeus rather high. Body cylindrical, normal, not elongated; feet normal with a short, unused pair on joint 9, which, however, bear crochets; claspers pale. Tubercles slightly elevated but concolorous, not contrasted; setae short, pale. Green with scarcely paler