

hibernating quarters and during their breeding season early in the spring. Thus, out of a hibernating mass collected March 9, 1913, at Sulphur Springs, Benton Co., by F. D. Bailey, containing 367 individuals, 344 were typically marked while only two were spotless. Out of 552 individuals collected at Carlton, during March, 1913, 500 were typically marked; only 5 were spotless. Out of 33 individuals found under bands on seven year old cherry trees May 15, 1913, 30 were spotless, 1 was typically marked.

3. The fact that the two are found intergenerating should not affect their specific status, for frequently intergeneration takes place in nature between different species of Coccinellidæ.

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### NOTES ON THE NEGATIVE GEOTROPISM OF *CORYTHUCA CILIATA* SAY, *ADALIA BIPUNCTATA* LINN, *COCCINELLA 9-NOTATA* HBST AND *MEGILLA FUSCILABRIS* MULS.

By HARRY B. WEISS, *New Brunswick, N. J.*

*Corythuca ciliata* Say: Upon placing hibernating specimens of this "lace bug" in a glass cage in a warm room, their re-actions to gravity were manifested in a rather curious way. When the temperature in the cage rose sufficiently, all became active and possessed of a desire to climb vertical surfaces. Small sticks placed vertically in the cage were soon covered with individuals going up and those unable to gain a foothold on the sticks, climbed upon the backs of others and made their ascent in this manner, until the sticks were covered with one seething mass of insects.

Those on the bottom of the jar re-acted somewhat differently. One individual meeting another, would climb upon its back and a third happening along would climb upon the back of the second and a fourth and fifth would do the same, until a regular tower of "lace bugs" was formed. As a rule, when the sixth attempted to climb up, the tower would sway, finally topple and all would come down. If the first happened to be resting at an angle on the edge of a piece of bark, the tower would extend out over the edge in an extremely perilous position and usually collapsed when the fourth attempted to climb out.

In most of the cases, the last one up, would fly off in the same manner that a "lady bird" walks upward on a twig, until the top is reached and then flies off, provided it finds no plant lice.

In the bottom of the cage were several pieces of bark and the insects always preferred walking on edges or ridges that pointed upward.

This negative geotropic response took place in the dark as well as in the light, provided the temperature was high enough. Rays of

light thrown upon different parts of the cage, produced no responses, the insects in all cases adhering to their geotropic re-actions.

*Adalia bipunctata*, *Coccinella 9-notata* and *Megilla fuscilabris*. In order to determine the distance over which a Coccinellid would travel during a negative geotropic response in the absence of food, specimens of *Adalia bipunctata* were taken while feeding, kept for five hours without food and then placed on the bottom of a fifteen foot vertical stick. The following table shows the distances travelled by ten different beetles. The stick was placed out of doors in the shade, the temperature being 70° F.

The length of time, from the start until they flew away was also noted and this varies considerably, many of the beetles resting for comparatively long periods.

ADALIA BIPUNCTATA LINN.

Shade, Temperature 70° F.

A	8 feet,	2 inches,	18 minutes
B	13 feet,	1 inch,	10 minutes
C	6 feet,	2 inches,	11 minutes
D	13 feet,	6 inches,	30 minutes
E	4 feet,	4 inches,	8 minutes
F	10 feet,	3 inches,	15 minutes
G	3 feet,	6 inches,	12 minutes
H	11 feet,	1 inch,	12 minutes
I	6 feet,	6 inches,	8 minutes
J	9 feet,	2 inches,	18 minutes

The average distance covered comes to a little over eight feet and in no case was the top of the stick reached.

The following table gives the distances covered by *Coccinella 9-notata*, both in the sunlight and shade.

COCCINELLA 9—NOTATA HBST.

Sunlight, Temperature 83° F.				Shade, Temperature, 75° F.			
A	1 foot,	9 inches,	3 minutes	A	9 feet,	2 inches,	6 minutes
B		6 inches	1 minute	B	8 feet,		8 minutes
C	1 foot,	6 inches,	2 minutes	C		3 inches,	1 minute
D	1 foot,	1 inch,	3 minutes	D	11 feet,		4 minutes
E	1 foot,	4 inches,	2 minutes	E	8 feet,		7 minutes
F		10 inches,	4 minutes	F	8 feet,	9 inches,	10 minutes
G		5 inches,	2 minutes	G	8 feet,		3 minutes
H	2 feet,	9 inches,	1 minute	H	7 feet,		4 minutes

These Coccinellidæ were taken while feeding and kept two hours without food. With this species, the average distance in the sunlight is 1 foot, 3 inches and 7 feet, 6 inches in the shade.

The next table is for *Megilla fuscilabris* Muls. These individuals were also taken while feeding and kept one hour without food.

## MEGILLA FUSCILABRIS MULS.

Sunlight, Temperature 89° F.			Shade, Temperature 75° F.		
A	5 inches,	5 seconds	A	12 feet, 1 inch,	9 minutes
B	6 inches,	5 seconds	B	6 inches,	5½ minutes
C	3 inches,	4 seconds	C	17 feet,	7 minutes
D	5 inches,	4 seconds	D	4 inches,	5 seconds
E	7 feet,	2 minutes	E	8 feet, 2 inches,	8 minutes
F	3 inches,	4 seconds	F	1 foot, 7 inches,	4 minutes
G	8 inches,	3 seconds	G	9 feet,	5 minutes

The averages for this species are 1 foot, 4 inches in the sunlight and 7 feet in the shade. Individuals which had climbed three or four feet in the shade after being moved to the sunlight, continued only a few inches more and then flew off. Of the three species, *Megilla fuscilabris* was the most active, being seemingly possessed of a nervous irritability.

All of the beetles were handled as little as possible and used only once.

The tables show that the length of time and especially the distance covered, were considerably shortened when the re-actions took place in sunlight and while the temperature was higher, yet beetles moved from the shade to sunlight flew away almost before they could have become sensible to the higher temperature.

Plant lice of course are usually found in shaded situations such as the undersides of leaves and Coccinellidæ undoubtedly hunt longer and over a greater distance in such situations.

It seems fair to conclude then, that other factors being equal, sunlight and possibly high temperatures shorten the distance covered during a geotropic response and also the time during which the beetle responds to such stimuli, thereby giving the beetle a greater chance to find food. Sunlight does not, however, influence the direction of locomotion or the negative geotropic position assumed by the beetle.

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## NOTES ON GYPONA OCTOLINEATA SAY

(Hemiptera, Jassidæ)

By R. L. WEBSTER

Not much concerning this common leaf-hopper, sometimes known as the "eight lined Gypona," appears in entomological literature. Outside of some observations by Fitch (1867) and later by Osborn and Ball (1897), very little has been written. While of no great economic importance, this species, with other leaf-hoppers, no doubt causes considerable injury in grass lands, as suggested by Osborn and