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SPINED SOLDIER-BUG REARED ON CELERY LEAF-TYER

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In the course of some insectary experiments conducted with possible predators of the celery leaf-tyer (*Phlyctaenia rubigalis* Guen.) at the United States Entomological Field Laboratory, Sanford, Florida, certain observations concerning the habits and biology of the spined soldier-bug (*Podisus maculiventris* Say) were made.

On December 13, 1928, a female *Podisus maculiventris*, taken on a celery plant in an old seed bed, was placed in a small jelly dish in the insectary with three pupae and a half-grown larva of the celery leaf-tyer. Two days later moths had emerged from two of the pupae and the bug held one of the newly-issued moths impaled on her beak and was sucking its body juices.

Until the time of the soldier-bug's death on January 10, 1929, it had fed upon three larvae, a pupa, and two moths of the celery leaf-tyer together with a larva of the southern beet webworm (*Pachyzancla bipunctalis* Fab.). It had been in captivity 27 days.

A day before the bug died it laid a mass of 22 eggs on the floor of the cage. The eggs proved to be fertile and hatched within 11 days. When first noticed, the nymphs were congregated in a compact group near the top of the cage. On subsequent occasions they exhibited a tendency to mass together in this way even when only three survivors remained in the dish.

Although a number of small celery leaf-tyer larvae were continuously available as food for the nymphs, the latter did not feed on them until 15 days after hatching. However, in the meanwhile the nymphs molted once and some of them were observed to have their beaks inserted into the petiole of a sprig of celery that had been introduced into the cage as food for the tyer

larvae. Cannibalistic propensities were exhibited by the *Podisus* nymphs, for by February 4, 15 days after hatching, only three were alive and one was discovered with the body of another but smaller nymph impaled on its beak. Their gregarious habits appear to be conducive to cannibalism, at least in captivity. On February 22 the smallest of the survivors died, leaving only two of the original 22 alive.

On one occasion, while one of the nymphs was quietly sucking the body juices of a leaf-tyer larva, the other two nymphs approached and began feeding upon the same larva and each tugged and hauled about in an apparent effort to pull it away from the others.

After the nymphs were about 10 days old they were not observed to feed upon the juices of the celery sprigs that were introduced into the cage as food for the larvae, but several celery leaf-tyer larvae, in the third to fifth instars, were destroyed by the bugs.

Three weeks after the bugs hatched a newly emerged celery leaf-tyer moth was placed in the cage where it remained for two days before one of the nymphs fed on it although during this period larvae had been fed upon. From this time moths were introduced at frequent intervals for food of the rapidly growing nymphs and were fed upon freely. For a number of days a live but naked celery leaf-tyer pupa lay untouched on the floor of the cage but on February 25, when the bugs were 32 days old, this, too, had been sucked dry. On February 26 the larger nymph had molted for the last time, 33 days having elapsed since it had hatched; and two days later the smaller nymph transformed to the adult having completed its cycle in 35 days from the time of hatching.

The observations indicate that *Podisus maculiventris* may breed throughout the year in central Florida. The mean temperature out of doors during the incubation period was 65° F.

While this pentatomid does not appear to be of frequent occurrence on celery in the Sanford district, wherever it is present it may be of value in destroying one of the most noxious insect pests of that plant—the celery leaf-tyer.