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Take Offs by Prey-Laden Wasps (Hymen : Pompilidae?, Sphecidae).

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In the summer of 1939, I chanced to observe two isolated instances that indicate certain predatory wasps at least occasionally ascend on foot to some elevated vantage point in order to take off by flight when burdened heavily with paralyzed prey they are in the process of transporting to their nesting sites. No effort has been made to review the similar cases that have doubtlessly been recorded in the literature.

The first instance involved a rather large black wasp that resembled a pompilid in general appearance, and a medium-sized green adult tettigoniid orthopteran. In the brief glance afforded me, I was unfortunately not able to identify either predator or prey more fully. It was about 5:00 P. M., of August 8 and on the back porch of my mother's home at Oak Harbor, Ohio, that I happened upon the wasp standing on the porch floor astride the long-horn. Presumably the hopper had been seized in the honeysuckle vines that decorated the adjacent end of the porch, for tettigoniid stridulations had emanated from this growth on previous days.

When first seen, the wasp had already chewed a hole through the vertex of the captive's head and stood feeding from the perforation. But in a few seconds, she started gingerly toward the wooden porch post four feet away, and upon reaching it climbed approximately four feet vertically on it, remaining astride the victim all the time as she proceeded. From this high point she took off through the air without further delay, and, carried by a stiff wind attained an elevation of about 15 feet just before she disappeared beyond my vision.

The second instance was observed as I walked through the campus woods of the University at 7:45 A. M., of August 1. There I came across a cicada-killing wasp, *Sphecius speciosus*

(Dru.) in possession of an already inactivated large green cicada, probably *Tibicen linnei* (Sm. and Grosb.). Curious to learn what was to happen next, I came to a stop not more than two feet from where the wasp stood over her prey. In a moment, *speciosus*, standing astride of and dragging her catch, proceeded toward me and climbed at once upon my left shoe, then successively up the outside of a trouser leg, over the shirt front and a shoulder, and around the back of the neck to the top of the head. Whereas the horizontal approach to the shoe was made slowly, the vertical climb was accomplished with a burst of speed that recalled the sudden response made by an airplane when the accelerator is pushed quickly down for the take off. The ascent to the height of six feet and three inches was therefore completed in only a few seconds. From that more advantageous elevation, *speciosus* promptly zoomed away among the trees with her load, and was gaining elevation slowly as she faded from view.

In order to determine the approximate carrying power of this wasp during flight, I weighed a female freshly killed in a cyanide jar and two females of *Tibicen linnei* that had probably fallen dead out of trees on the day they were found. One of the cicadas weighed 1.4 grams, the second 2.1 grams, whereas the wasp balanced the chinomatic scale at 0.3536 gram. *Sphecius speciosus* is therefore probably capable of flying a prey load four to six times greater than her own weight to her nesting site.

In most cases, the cicada killer presumably overcomes her captives where she catches them in trees and would therefore usually not be obliged to ascend on foot to some vantage point in order to take off. In their struggle with the living cicadas, some *speciosus* probably chance to fall to the ground, as may have been true in the instance described above. Although possibly exceptional, this case is nevertheless of interest in showing that such accidents need not frustrate the wasp in her activity of provisioning her nest.