THE MONARCH CREMASTER

WILLIS E. KEITHLEY*

Figure 1. Larva of Monarch butterfly.

A rather unusual suspension device is employed by the larvae of the Monarch butterfly. In its transformation from larvae to pupae, it spins a small anchor of silk to the milkweed leaf, then grasps the silk with its back pair of feet in preparation to moulting its skin.

As it assumes the position shown in Figure 1, it must have a more secure means of attachment, as the legs by which it clings will soon be stripped off with the skin. It is then that a stalk known as the *cremaster* appears. (See Cover Illustration)

By means of the microscope, we find that the end of the cremaster bears hundreds of tiny "fishhooks" as seen in the cover illustration of this issue. This unique stalk is thrust sharply into the web of silk, and as the hooks are securely embedded in the silk, it is safely suspended and the old skin and feet drop to the ground.

*Willis E. Keithley is a nature photographer and an evangelist. For details, see cover caption, inside front cover. His address is Rt. 2, Box 1417, Madras, Oregon.

As this is a necessary protective device, the question of course is how did the Monarch butterfly survive before it acquired the intricate device of the cremaster? And by what process did the mechanism appear?

Did the caterpillar acquire the ability to spin the silk before or after the first cremaster developed?

Did those mini-hooks appear one at a time over a period of years?

How many times did "nature" have to experiment with sizes and shapes of hooks before one was found that would be effective and competent?

A chance mutation of the order and magnitude necessary to produce all those hooks at once, to say nothing of the organism's ability to use them, seems to be a far greater tax on a person's faith and imagination than one single act of creation.