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A MIGRATION OF *VANESSA CARDUI* (NYMPHALIDAE) IN MONTANA AND WYOMING

The summer of 1965 saw unusually heavy flights of the Painted Lady, *Vanessa cardui* (Linnaeus), in Montana, Wyoming and adjacent areas. One could see the butterflies rapidly crossing the highway in western Nebraska and growing gradually more numerous to the west. At a vantage point in Scottsbluff National Monument I counted 70 individuals fly past in a half hour. Every individual netted was found to be worn and faded, evidently the result of many miles of flight. The flight direction was from due south to north. Across the sage covered wastes of central Wyoming we continued to see scattered individuals of *cardui* always flying in a constant south to north direction. Just south of Worland the heaviest flight in Wyoming that we witnessed was seen. Several hundred individuals flew past us in one group within a few minutes.

The next day, July 5th, we spent in the Tetons. Here *cardui* was the most abundant butterfly, and here perfect, fresh individuals were discovered amid the old, worn ones. On thistles in the park I found dozens of caterpillars amid the characteristic white webs, which had been produced in a short time by the migrants. The comparative ease with which I was able to net these fresh *cardui* in contrast with the wary migrants made me wonder if the freshly emerged individuals join in the flight of their parents or if they remain in the area in which they had developed.

We spent July 6th in Yellowstone National Park. No *cardui* were seen all that day, but the day was cloudy and almost no butterfly activity was observed. The next morning was clear and sunny and we noted a reappearance of *cardui* along the Madison River in Montana. They were

flying in their usual northward flight direction and were not too numerous. We stopped briefly at Quake Lake. With our binoculars we could see *cardui* flying past.

At 11:00 A.M. we detoured off the main highway and drove westward to the tiny town of Pony which is situated at the foot of 10,500 foot Hollow Top Mountain, one of southern Montana's highest peaks. The road above Pony was not negotiable for our car. As I ascended the trail above Pony in search of butterflies *V. cardui* became more numerous. After a three-hour hike I came near a precipice on the east face of the mountain and saw a startling sight. An approaching horde of *cardui* was flying towards me in "waves." As each wave of butterflies flew past another came into view. Each wave must have contained many hundreds or even thousands of individuals. As I looked up they were flying both above and below me and each wave flew due north and disappeared on the far side of the east shoulder of Hollow Top Mountain. This was the heaviest flight I had yet seen, and as I held out my net I scooped in dozens in one sweep. I could have easily repeated this capture many times. In 20 minutes the last wave of *cardui* had flown past and no more were seen. This spectacle took place at 3:00 P.M. on July 7, on the east slope of Hollow Top Mountain in Madison County, Montana, at an approximate elevation of 6,500 feet. The day was sunny, quite warm, and there was no appreciable wind. Most individuals were flying only about four to ten feet above the ground, although some were flying higher. This Montana flight is the heaviest I have witnessed.

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BOOK NOTICE

CONTRIBUTIONS TO THE INSECT FAUNA OF NEPAL. Part I (Special Bulletin of Lepid. Soc. Japan, No. 2). 129 pp., 5 color and 26 monochrome plates. Text in English. Price: equivalent of \$5.50 U.S. (including surface rate postage).

The first installment of the report of the Expedition to Nepal Himalaya in 1963 by the Lepidopterological Society of Japan. It contains descriptions and ecology of immature stages of many swallowtail butterflies, a study of 12 kinds of interspecific hybrids between Himalayan and Japanese swallowtails and chromosome studies of Himalayan butterflies and their hybrids. A forthcoming issue will cover descriptions of new species and new records, etc. of butterflies, moths, and other insects.

Contents of Part I: Butterflies of Nepal (immature stages), by S. Igarashi; A study of hybrids between Japanese and Himalayan *Papilio*, by S. A. Ae; A chromosome study of twenty-eight species of Himalayan butterflies, and A chromosome study of interspecific hybrids of butterflies, both by K. Maeki and S. A. Ae.—Order from: S. A. Ae, Biol. Lab., Nanzan University, Yamazato-cho, Showa-ku, Nagoya, Japan.