

MORE ON BUTTERFLIES ON HILLTOPS

by GEORGE W. RAWSON

The article about *Anthobocaris genutia* congregating on hilltops published four years ago in *The Lepidopterists' News* appears to have created considerable interest judging by the appearance of six subsequent articles in which the authors relate their experience or observations covering the concentration of various species of butterflies on high ground or hilltops.

While the cause of this somewhat peculiar behavior appears to require more intensive and careful study, a possible explanation suggested by Mr. KNUDSEN (vol. 9: 141-142; 1954) coincides with my own ideas, namely that the cooler air in valleys or low places in proximity to mountain ranges ascends up the slopes after having been heated by the rays of the sun. This movement of air is thought to gain sufficient velocity to carry butterflies (principally if not exclusively males?) upward until the tops or summits of the mountains are reached, after which they are known to accumulate, sometimes in fair numbers. While this theory seems quiet plausible, more intensive as well as extensive study is needed to prove it. It is therefore hoped that sufficient interest has been created to cause lepidopterists to investigate this phenomenon whenever suitable opportunities occur during the coming collecting season. Why not jot down your resolution on your calendar pad so you will not overlook or forget such an interesting project when the time for action arrives?

In the hope that the following does not offend any sensitive reader, it might be advisable to remark that "casual" notes or observations are not sufficient. The object should be to accumulate as much data as conditions permit, such as the topography, altitude, vegetation, time of day, temperature, direction and character of flight, wind velocity and direction, normal or principal (local) habitat, range, feeding or other habits of both sexes, the species observed and their abundance, etc.

Further evidence of butterflies "fraternizing" on hilltops comes from an earlier observation of mine. This time the scene shifts to Alaska and the subject to that relatively rare form, *Papilio machaon alaska* Scudder. While stationed for Yale University at the Naval Arctic Research Laboratory at Umiat situated on the Colville River about two hundred miles or so north of the Arctic Circle, my field companion, Dr. P. F. BELLINGER, and I were eager to take a series of this species. As luck would have it, we were not more than a few days at Umiat before both of us were so fortunate as to capture two male specimens in excellent condition on the tundra within a few hundred yards of the laboratory, thus establishing that we were in the right locality and present at the right time. However, as we succeeded in taking only a few males after several days' collecting, we decided to widen our field of search to higher ground. The next day was 10 July 1952, and we decided to try a small mountain of about 770 feet altitude which was situated a mile or so southwest of the camp.

This small mountain had an incline of approximately 40° and was fairly well covered by the prevailing type of "barren ground" vegetation such as dwarf birches and willows in wet or moist areas and ericaceous herbs, sedges, mosses and lichens on the drying ground. The temperature was around $75-80^{\circ}$ F. and the wind velocity somewhere in the neighborhood of 10-15 m. p. h. The reader will probably recognise an inconsistency here. After suggesting that much attention should be given to the collection of details surrounding the congregation of Lepidoptera on hilltops, the writer failed to carry out these suggestions on this particular occasion. However, when we reached the summit we found, to our great delight, that *P. machaon* was present in sufficient numbers so that we were able to take a fine series of males in excellent condition in about one hour's frenzied collecting. Very few Swallow-tails were caught on the wing. With few exceptions, they were taken while feeding on a species of dwarf Pink and other species of Arctic or alpine flowers and in several instances on the bare ground. No females were seen or taken on this mountain, a few were taken on the tundra in the Colville Valley, also on the same type of habitat (namely low ground) at Chandler Lake on the northern slope of the Brooks Range of mountains.

Judging by my limited experience and as a result of the observations and reports of western collectors, a number of species of *Papilio* are known to ascend the slopes of hills and mountains and to congregate on their summit. *P. machaon aliaska* is no exception to this rule, if rule it is.

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The TENTH INTERNATIONAL CONGRESS OF ENTOMOLOGY will be held at Montreal, Canada, from 17 to 25 August 1956. This will be the first Congress of Entomology to be held in North America in many years. Sections of the Congress likely to be of greatest interest to lepidopterists are the following: 1) Systematics; 2) Morphology and Anatomy; 3) Physiology; 4) Behavior; 5) Ecology; 6) Geographical Distribution; 7) Genetics and Biometrics. Individuals interested in attending the Congress should notify the Secretary as soon as possible, so that application forms and detailed information may be sent. His address: Mr. J. A. DOWNES, Division of Entomology, Science Service Bldg., Ottawa, Ont., Canada. THE LEPIDOPTERISTS' SOCIETY WILL HOLD A SPECIAL MEETING AT THE TIME OF THE CONGRESS.