

<i>Kaniska canace</i> Linné	31 (I)
<i>Limenitis camilla</i> Schiff.	30 (I, II)
<i>Limenitis glorifica</i> Fruhst.	30 (I)
<i>Neptis aceris</i> Lep.	30 (I, II)
<i>Nymphalis io</i> Linné	31 (I, II)
<i>Nymphalis xanthomelas</i> Esper	31 (I)
<i>Polygonia c-album</i> Linné	31 (I)
<i>Polygonia c-aureum</i> Linné	31 (I)
<i>Sasakia charonda</i> Hew.	29 (I, II)
<i>Vanessa indica</i> Herbst	31 (I, II)

References

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THE EXCELSIOR COMPLEX

by NICHOLAS SHOUMATOFF

In view of the variety of interesting hypotheses offered recently to explain the phenomenon of acrophilia in butterflies—their habit of sometimes lingering on hilltops—it may be helpful to recapitulate, and at the same time offer a simpler classification of alternatives, as follows:

<i>Specific Cause</i>	<i>General Type</i>	<i>Reference</i>
Search for foodplant	Biological	Merritt, <i>Lepid. News</i> 6:101
Emergence on hilltop	"	Arnhold, <i>Lepid. News</i> 6:99
Search for females	"	" " " "
Wind	Involuntary	Merritt, <i>Lepid. News</i> 6:101
Tropism	Element of Play	" " " "
Gregariousness	" " "	" " " "
Liking hilltops	" " "	" " " "
Social ambition	Competition	Rawson, <i>Lepid. News</i> 5:70
Male battleground	"	" " " "

In analyzing this problem, I believe it is important to distinguish between the influences of macro- and microtopology. The former involves the well known phenomena of isolation of Lepidoptera on mountain tops due to vertical temperature gradient or geological history. I assume it is only the question of small, local hilltops that is at issue here.

A few pertinent observations of my own, which might be added to those already discussed, are: (1) *Anthocharis genutia* F. on a hilltop above Numeral Rock at Kent, Conn.; (2) *Pieris rapae* L. near the top of RCA Building in New York; (3) *Vanessa virginiensis* Drury flying back and forth across the top of the Cathedral of Learning in Pittsburgh; (4) *Papilio thersites* Fabr. (males only) circling for hours in a tight circle or ellipse on certain hilltops in Jamaica, B.W. I., and attacking all other Lepidoptera that came in sight. Extended, close range moving pictures of *P. thersites* engaged in this activity were shown at the first annual meeting of the Lepidopterists' Society at New York in 1950. (5) Hilltops were reported as localities for quite a number of Jamaican species by Avinoff and Shoumatoff, *Annals Carnegie Museum*, 30:263-295; 1946.

It is my personal opinion that the fondness of certain butterflies for hilltops may be explained as a compromise between their natural urge to exercise their power to defy the laws of gravity, and their fear of rising too high above the earth, exposing themselves to natural enemies, the birds. At the psychological level, I have observed that this involves the elements of both play and competition, and I further believe it involves the same type of exaltation at the achievement of a summit which impels men to risk their lives for this purpose. To deny that there exists an element of pure sport in the behavior of butterflies is in my opinion not in keeping with the spirit of open-minded scientific investigation.

It may be of interest to quote an excerpt from a ten-year-old unpublished manuscript in which I tried to record some of my very pleasant experiences while collecting butterflies with the late Dr. ANDREY AVINOFF in Jamaica (in this the distinction between macro- and microtopology was not made):

"In addition to being a continuation of these past mountain climbing experiences, our stay on Blue Mountain Peak was also to be the supreme test of a theory about butterfly collecting that was developed by Miss LILLY PERKINS. On the previous occasion when Uncle and I visited the Peak for a few hours, we had not had time to make a thorough investigation.

"Miss PERKINS is a charming and talented lady who was born and raised in Jamaica. She had spent a considerable part of her life in catching butterflies, with the aid of her father, who was a civil engineer. Together, they had discovered more new species of butterflies from Jamaica than any other group of collectors. Nearly all of these had been caught in her own back yard at Baron Hill, which was an old estate in the Trelawney Mountains of western Jamaica.

"It was at Baron Hill that Miss PERKINS discovered the strange phenomenon of many rare butterflies congregating in one small spot, which happened to be the highest point of the surrounding country. There these normally energetic and elusive insects would linger lazily, sometimes sailing around in a tiny circle for hours at a time. This pastime was the particular favorite of one species, the belligerent *Papilio thersites*, a rare yellow swallowtail, who always established himself at the dead center of maximum elevation, and forced all others, large and small alike, to stay out of his own little vicious circle. On this one small knoll at Baron Hill, Miss PERKINS had found, in

the course of years, nearly all the different butterflies that are now known from Jamaica. As a result, her name had become known to entomologists all over the world.

"When we visited Baron Hill on our second trip to the island, Miss PERKINS took us to her back yard, where we saw all these wonderful things with our own eyes, and even recorded them with moving pictures. But this discovery was to cost us a vast number of foot-pounds of unnecessary work. After leaving Baron Hill, we felt duty bound to climb every hill in sight to investigate what we called the Excelsior Complex of butterflies.

"In Jamaica, this was practically an unlimited task. Ever since COLUMBUS made his classical demonstration for Queen ISABELLA, the island's mountainous character has been notorious. After his return from that fateful voyage when he was marooned in Jamaica for a year, the Queen asked him to describe what this new possession of hers looked like. Instead of using words, he constructed a model of the island. With an eloquent gesture, he crumpled a piece of paper and tossed it on the table.

"We realized of course that not every hill was a Baron Hill. But we took the long, hard way in learning just how rare the phenomenon actually was. It was Uncle who grasped the point first. My own obsession with the Excelsior Complex got so bad that Uncle had to shield my eyes to keep me from noticing some hill we hadn't climbed. Of the many ascents we did make, the great majority were absolutely fruitless. At the top of one exhausting hill near Mile Gully, called Bunker Hill, alias Mocho Mountain, we found nothing but the grave of a sea captain who was buried there forty years before, in accordance with his last will and testament. A path had been cut through the virgin bush to get him there, and now it was almost completely erased by the resurgent jungle. Undoubtedly we were the first ones to have looked on that grave since many years ago, and our climb became part of the local legend.

"Actually we had never yet found another high spot quite as good for butterflies as Miss PERKINS' back yard. But we still had a lot of faith in the Excelsior Complex. Here on Blue Mountain Peak, at the highest spot of the whole island, it would have its ultimate test, if only the sun would come out for a few minutes... After lunch, the sun stayed shining for the rest of the day. But this was destined to be its last appearance during our sojourn on the summit. We took advantage of it to catch all the butterflies that we could. This energetic afternoon was climaxed by the capture of a Red Admiral [*Vanessa atalanta* L.]. This fast insect, though fairly common in the temperate zones all over the world, was previously unknown from Jamaica. It was a prized catch that fully vindicated the theory of the Excelsior Complex."

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