

LIEUTENANT CARPENTER'S GRASSHOPPER

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Shortly after the middle of August, 1873, the reunited parties of the "Hayden Survey," having worked separately most of the summer, crossed Tennessee Pass together and proceeded northward along an old Indian trail, seeking a route to ascend the Mount of the Holy Cross. One of the parties that had worked independently most of the summer had been headed by William H. Jackson, the photographer. His party had included three naturalists, one of those being Lieutenant W. L. Carpenter, an entomologist on leave from the U. S. Army. Carpenter had been collecting insects all summer throughout the mountains of Colorado. He continued collecting as a member of the reunited Survey group, and one of his most interesting finds was to be made on the Mount of the Holy Cross.

Detailed information about this first ascent of the Mount is incomplete, and what is available is scattered. The published report of the Survey, as prepared by Hayden, is characteristically deficient in dates and descriptions of the itinerary; but fortunately we have other sources. We have the autobiography of Jackson, "Time Exposure," and we have published statements by other members of the party as well. They fill in many details. The important events of the first ascent, derived from these sources, were summarized in "The Mount of the Holy Cross," by Fryxell Fritiof, published in *Trail and Timberline* in January, 1934. Unfortunately, though we are interested in knowing about the activities of Lieutenant Carpenter during this time, these must be inferred from the accounts of others.

After struggling with their pack animals through fallen timber along the ridge west of Cross Creek (the Roches Moutonnés Creek of Hayden), the party was camped within striking distance of the peak on Friday night, August 22, 1873. The next morning its members divided into two groups. Jackson, with Coulter (the botanist of the party) and one of his packers, set out to photograph the snowy cross—which they

could not see from camp. They ascended the northwest side of Notch Mountain, saw the cross that evening, cached their heavy photographic equipment among the rocks, and descended to timberline for the night. Jackson's photographs of the great snowy cross, which have never been surpassed, were made the next morning, August 24. He and his two companions got back to camp that afternoon. They found Hayden and three of the men who had accompanied him up the north ridge of the Mount already there, having returned the night before. One of these men, judging from Jackson's account, was Carpenter. A few hours after Jackson got back, W. H. Holmes, artist (later head of the National Gallery), and J. T. Gardner, topographer of the Survey, arrived in camp. They alone had completed the first ascent of the Mount of the Holy Cross, arriving at the summit on Sunday morning, August 24.

This brings us to Lieutenant Carpenter's grasshopper. One of the valued specimens in the insect collections of the United States National Museum in Washington is a little grasshopper that was presumably collected by Lieutenant Carpenter on his climb. It now lies on cotton in a glass-covered Riker mount, where it bears the number: "Type 1052 U.S.N.M." The prefix "Type" means that it is the original specimen from which a new species was once described. It served as basis for the description by Cyrus Thomas of *Gomphocerus carpenterii*. Thomas' description, published in 1874, contains this significant statement: "Named in honor of Lieut. W. L. Carpenter, who discovered it near the Mountains of the Holy Cross, in Colorado, at an elevation of 8,000 to 10,000 feet above the sea..."

Presumably, Thomas received this information on the collecting locality of the specimen directly from Carpenter. Carpenter never published any specific data about this specimen; but, in one paper he published as a result of the 1873 expedition, he listed the species as one of those he had collected above

12,000 feet in Colorado. We may assume that the altitude given by Thomas was a guess or an error. The Survey party was camped at about 10,000 feet the night of May 23, and the party Carpenter was with the next day was well above that altitude. Carpenter could easily have collected the specimen above 12,000 feet that day and still returned to camp at night. We can only assume that such was the case. The label on the specimen in Washington doesn't help. When I examined it two years ago, the only locality indicated was "Col."—for Colorado. Even the collector's name was omitted. The fact that the specimen was labeled the type specimen of *Gomphocerus carpenterii* convinces us, however, that this is Lieutenant Carpenter's grasshopper.

Where did he get it? Why are we interested in knowing? The fact that the name is not valid for the species—because the same kind had been described and named from Pikes Peak, as *Gomphocerus clavatus*, the year before—is not important. (The species is now called *Aeropedellus clavatus*.) For one thing, we would like to set the record straight. We would like to have evidence that the U.S.N.M. specimen did come from the Mount of the Holy Cross, and the best evidence would be the finding of 'hoppers similar to the type there now.

Grasshoppers are not all alike. Even grasshoppers of the same species are not all alike. And when a population of a species has been isolated a long time from other populations of the same kind, as with high altitude species in the Colorado Rockies, it may—and usually does—develop peculiarities that identify its members. I can, for example, tell the difference between members of the Mount Evans population and those from Pikes Peak; and those from Trinchera Peak are distinguishable from both of the other kinds. As a matter of fact, isolated populations of a high altitude animal or plant species, if the areas where they occur are separated topographically, are much like isolated populations in an archipelago of islands. Isolation has made the persistence of differences more likely. Lieutenant Carpenter's specimen may represent a distinct population at the north end of the Sawatch

Range; we would like to see if this is the case. Unfortunately, no specimen of this species since Carpenter's has been reported from the Mount of the Holy Cross.

Last summer, in a brief reconnaissance at the end of August, a small group of us looked, unsuccessfully, for Lieutenant Carpenter's grasshopper in what I then thought might have been the route of the party. Actually one needs to see the terrain to be able to interpret the contemporary descriptions of the 1873 expedition, and I had not realized that the Hayden route was west of, not east of Cross Creek. The present trail to Half Moon Pass and the west side of Notch Mountain, up to 12,000 feet, revealed no specimens of the species we sought. Rain and sleet interrupted the collecting, for, though one can climb in rain, one can't find grasshoppers under such circumstances. Grasshoppers were present, and a fairly extensive collection was made before the rain. The collection included specimens of a species that appears to be a competitor of and not found with *Aeropedellus clavatus*. If the grasshopper we sought is present, it may occur

at a higher altitude, however, and I believe that perhaps such is the case.

I believe that Lieutenant Carpenter's grasshopper does occur on the Mount of the Holy Cross, probably in the grass-sedge portions of the tundra above timberline. The species could have been and could still be relatively common. Perhaps some members of the CMC who plan to climb in this area in August, when alpine grasshoppers are mature, would be willing to look out for it—and perhaps, best of all, collect a dozen or two. I would welcome any specimens of grasshoppers from above timberline, and particularly those of this species. Incidentally, this particular species is easily recognized by the conspicuously swollen knobs at the ends of the antennae.

If anyone reading this article who may be interested in cooperating with this study of grasshoppers will write me, I will be glad to supply instruction on the care of any specimens that may be collected. While I am particularly interested in the "hopper with the knobbed antennae," I am interested in all kinds of high altitude grasshoppers—with, of course, records of dates, localities (including approximate altitudes), and the general appearance of the vegetation where they are collected. This is but part of a general study, supported since 1958 by a grant from the National Science Foundation, dealing with all aspects of the relation between altitude and the distribution of grasshoppers and their relatives. There are still mountainous areas in Colorado not represented by adequate collections, and one of these is the Mount of the Holy Cross.