



The alpine flora of Montana
by Pliny H Hawkins

A THESIS Submitted in partial fulfillment of the requirements for the degree of MASTER OF
SCIENCE IN BOTANY at MONTANA STATE COLLEGE

Montana State University

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Abstract:

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Approved:

J. W. B. (J. W. Blankenship)
In Charge of Major Work

Bozeman, Montana
June, 1903

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Sources
of
Data

The data for this thesis is gleaned from many sources. The herbarium of the State College of Agriculture and Mechanical Arts has been carefully canvassed. For many of the ideas advanced I am indebted to Dr. J. W. Blankenship who has given me free access to his private note books and much personal assistance. The excellent libraries of the College and Dr. Blankenship have been carefully reviewed, and are often referred to in the following pages.

During the last nine years, I have visited many of the highest peaks in person. The summer of each year being spent as follows:

- 1894 in the Yellowstone Nat. Park
- '95 " " Bull Mountains and Little Belt-range
- '96) " " Little Belt and Judith ranges
- '97) " " Little Belt and Judith ranges
- '98 in the Big Belt and Crazy Mts.
- '99 " " Big Belt chain, and
- 1900) in the Bear Tooth range between Wyoming and the
- 1901) Yellowstone River.
- 1902)

Not all of this time has been given up to botanical work. Many days have been spent in geological studies and prospecting. Some have been given up completely to hunting and fishing or exploring the uninhabited portions of the mountains; others have been devoted to ethical and aesthetical pleasures toward which the mountains always draw one so irresistably. For these latter days I have no excuse to offer. They are the alpine summits of human existance.

Body
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The public lands are now settled far into the canyons. Wherever there is abundance of grass, stockmen have summer ranges easily accessible by wagons. The occupants are always hospitable to people who do not interfere with their business, so that the botanist can often reach a height of 7000 ft. without inconvenience.

Means
of
travel

From this altitude the ascent can be made on foot in a day, or if one does not mind hardship by taking a blanket and a supply of food one evening and the following morning can be spent on the mountain top.

Even with rain and snow accompanying such trips, I have never suffered, always finding shelter in dense timber or under overhanging cliffs where a fire can be built. The interest and novelty always repay one richly for any inconvenience. But in these trips it is only a few hours until you must begin your descent to reach camp and food. To avoid this I have always taken two small horses well shod, one to ride and one to pack, making permanent camps upon the summits.

Crazy
Mts.
impass-
able
to
horses

The Crazy mountains are impassable, on account of the great slide rock peaks which crown the whole chain. After taking the horses nearly to the summit we were obliged to return with them. There was no grass and it was with utmost difficulty the next day that we made the ascent and journey along the range on foot.

In my pack I always carry the following list

Equipment

Presses, dryers, papers, etc.,
a poncho and three blankets,
frying pan and granite sauce pan,

a tent 7 x 7 with jointed pole and iron tent pins,
An ax to cut the trail,
A sack of good bread,
bacon,
jelly, - (this takes the place of fruit.)
meat if game is out of season,
cheese and nuts.

With such an outfit one can be gone a week or two with perfect safety and comfort.

Before July 1st and after Sep. 1st Alpine climbing is at the risk of being snowed in. In the Little Belts June 9, 10, 11, the snow fell continuously for three days. At the end of the third day the snow was up to my arm pits and men and stock were perfectly helpless. Three days later the snow thawed so that we could roll snow balls and the horses got their noses to grass. In their hunger they had eaten each other's mains and tails so that our train was an object of derision the remainder of the summer. This was at 8000 ft. At 11000 ft. our stock might have perished. The fourth day after the storm we went down the mountain. In three hours travel the snow had entirely disappeared and there stood the tall June grass nearly ready for harvest. Here the famished ponies insisted on camping and we lay down to enjoy the restful green after the perpetual glare of the sun upon the snow. Where the snow drifted it was nearly three weeks before the vegetation was uncovered. Flowers just in bud when the snow came were past their prime when uncovered yet it did not seem to affect their fertility (Anemone patens Nuttaliana).

Time
for
Alpine
travel

Snow

