

Plate XVI.



INNER SLOPE OF THE CRATER MELTED BARE OF SNOW BY STEAM

Plate XVII.



A. H. Barnes
SHOWING WHAT IS BELIEVED TO BE STEAM ISSUING FROM THE DARK CAVITY
UNDER WILLIS WALL OF MT. RAINIER

CHANGE IN WILLIS WALL

J. B. FLETT

About eighteen years ago the writer visited the vicinity of Willis Wall in an attempt to find a route around the east side of the mountain. The weather was quite foggy in the early part of the day, but about noon the clouds began to break away. As we approached the Carbon Glacier from Spray Park the fog cleared away from the base of the mountain and revealed Willis Wall in all its rugged grandeur, while in front and below us the Carbon Valley was full of fog. It appeared like a body of water. We cautiously approached the edge of the precipitous bank above the glacier and rolled stones down for we could not see the bottom. We judged from the distance the stones rolled and the way they crashed and bounded from cliff to cliff that we did not wish to descend at that high altitude.

While we were deliberating on the next move, a huge avalanche came from the top of Willis Wall and bounded from cliff to cliff as it made its rapid descent in the form of a massive cumulus cloud. When it reached the upper end of the glacier the cloud-like appearance ceased. It then came tearing down the steep slope of the glacier presenting the appearance of a train of cars as the snow and ice were ground into dust-like particles which rose like smoke and steam from a locomotive. At that time the slope of the mountain was much more gradual near the lower part of the wall, so that the avalanche moved down for a long distance before it finally came to rest. The vast mass of ice falling for more than three thousand feet, grinding and abrading the rocks, has wrought great changes on this slope, so that now Willis Wall presents a hollow circular appearance which is dark during the early part of the forenoon.

Some observers have thought that great changes have taken place quite recently and that volcanic action has been in some measure responsible. Several parties have observed steam issuing from crevices in this dark circular portion already referred to. Our party this summer saw it very plainly and

took several photographs of the condensed vapors, for which see accompanying illustration.

Some of the members of Major Ingraham's party called our attention to this phenomenon as we passed through Spray Park. When we reached this side of the mountain the next day, we witnessed a fine exhibition of steam curling up and down, to and fro, over the face of Willis Wall. Its center of activity seemed to be about half way up the slope and well over toward the Avalanche Camp side. There were several other places below where the vapors appeared to be pouring forth. We resolved at once to go up and investigate as near as the avalanches would permit. As the sun rose and lighted up this dark cavity toward noon, the steam began to vanish. We reached the steep slope of the mountain about noon. At that time there was no apparent steam. We rested for an hour with cameras ready for the avalanche that did not fall. We then concluded that the vapor was caused by the currents of cold air from this dark cavity coming in contact with the warm air from the outside. The more we think of it the more we are convinced that our conclusion was rather hastily formed. The steam appeared so real from our camp at an altitude of about 5,500 feet that a more thorough investigation is really necessary to get at the truth. No one would dare to attempt to reach the apparent source of activity. From Avalanche Camp or from the glacier below, valuable observations could be made to determine whether this is steam or the warm and cold currents coming together.

The shape of the cavity and the enormous amount of rock material on the glacier would seem to indicate that something unusual had taken place. The hollow cavity could hardly be formed by the avalanche. The writer has crossed this glacier many times, but has never before seen anything like the amount of moraine material that there is at the present time. The glacier is simply loaded with debris from twenty to fifty feet high for its entire width.

The hottest part of the summit is on the north slope of the crater down toward North Peak. This fact, too, points to a possible slight eruption on Willis Wall or issuing of steam therefrom. Tourists to the north side of the mountain should make a careful study of this region to ascertain the truth.

Careful observations for a period of a week or two would do much to solve this problem.

When the atmospheric conditions are just right, steam can be seen plainly on the summit. At other times the steam can not be seen at all unless one is very close to the place where it is issuing forth, so will it be in the case of Willis Wall.



Sunsets from Camp Curtis

H. B. Hiseman