

crown profiles

GREAT ACHIEVEMENTS IN AVALANCHE PREDICTION AMONG AMERICA'S FIRST: Edward A. Beals

Story by Greg Johnson

“It was not the quantity of snow alone which fell this year that caused so many avalanches, but it was the manner in which it fell.”

Edward A. Beals, 1910

During the time period from about 1860 to 1910 the mountains of the western US were populated with miners and railroaders. Miners flooded the high country in search of riches, and the railroads pierced mountain ranges, eager to facilitate commerce, transporting people and delivering mail. During the winter, avalanches affected roads and rail lines, causing accidents and long delays – people died. At that time, few people grasped general concepts of avalanche prediction, recognizing where and when avalanches occurred. One person was a notable exception. His name was Edward A. Beals, the US Weather Bureau district forecaster based in Portland, Oregon.

Edward Beals was born in 1855 in Troy, New York. His career in meteorology began in the US Signal Corps in 1880. Early on, he served at locations around the country, including Mt. Washington, New Hampshire, during the winter of 1883-1884. In 1900 he headed west to manage the US Weather Bureau office in Portland. Over the next 17 years, he predicted some of the legendary Cascade winter storms that caused avalanches and observed the wrath of their destruction. During this time, Beals slowly started to understand avalanches, and as a meteorologist, he became one of America's earliest avalanche experts.

In late February 1910, three successive storms swept over the northwestern US and southwestern Canada, causing a widespread avalanche cycle. On March 1, 1910, the most destructive avalanche killed over 95 people and destroyed trains in a town called Wellington, located in Washington state at the western portal of the old Cascade Tunnel just below Stevens Pass. News of the accident was shocking and must have been a turning point for Beals, spurring him to share his knowledge and write the outstanding article, *Avalanches in the Cascades and Northern Rocky Mountains During the Winter of 1909-1910*. His article summarizes that avalanche cycle; he included the Wellington accident as well as others that were smaller yet similarly deadly throughout Washington, Idaho, Montana, and Oregon. This is one of the earliest articles written about avalanches in the US; I recommend it highly to any avalanche professional. Beals simply captures the essence of North America's most destructive avalanche cycle. It was published in the June 1910 issue of the *Monthly Weather Review* and is accessible

online at the American Meteorological Society's Web site at <http://ams.allenpress.com>.

As the years passed many more storms caused havoc in the mountains, solidifying Beals's "feel" for conditions that caused avalanches. The winter of 1915-16 was legendary in the western US due to extraordinary cold temperatures and deep snow. Avalanches were becoming common knowledge to the public as low-elevation slopes near towns slid and prolonged closure of rail lines, and horrific news of thousands of soldiers being swept away in Europe was reported during WWI.

In early February 1916, a storm – likely a strong Pineapple Express – was on the doorstep of the Pacific Northwest. To Beals, the ensuing avalanche cycle was obvious: warm temperatures and copious amounts of rain and snow would fall on a deep and very cold snowpack. Knowing that avalanches were imminent, he decided to issue an avalanche warning to the public. This was probably the first time a US federal agency issued an avalanche warning.

The first warning went out on February 7, 1916, and was printed in the *Oregonian*, Oregon's primary newspaper, published in Portland. The warning



The first avalanche warning, in its entirety, from the *Oregonian*, page 19, February 10, 1916.

value" to stock raisers. Warnings were issued that the hazard from avalanches would be greatly increased during the period from the 8th to 10th. This class of warnings is also a new departure, and pertained to the increase of the hazard from avalanches. These warnings were issued on the 7th, 8th, and 9th, the first one being an advanced notice of the approach of warmer, windy weather with rain, which is the kind of weather that always causes numerous avalanches when the snow is heavy in the mountains. The subsequent avalanche warnings were for the purpose of calling attention to the fact that the danger period had not yet passed. These warnings were fully justified, judging from newspaper items which contained many notices of slides and avalanches during the period covered by them.—E. A. Beals, District Forecaster.

Beals discussed his warning in the *Monthly Weather Review*, February 1916.

The first avalanche warning in the United States, issued by Edward Beals, was published in the *Oregonian* on February 7, 1916. The warning remained in effect through February 10. The clipping (above) summarizes the warning and was printed on the front page of the morning edition (top).

remained in effect through February 10, when it made the front page of the *Oregonian*. It was also distributed to newspapers in Washington, Oregon, and Idaho, and the warning was telegraphed to other parties who received regular weather forecasts.

In addition, Beals discusses his reasoning behind the avalanche warning in the February, 1916 issue of the *Monthly Weather Review*. It is clear that his decision-making process reflects the basic concepts of modern avalanche prediction.

The avalanche warning Beals issued appears to be his first and last. A year later, in 1917, Beals moved to San Francisco. In 1924 he moved again, this time to Honolulu where he retired after a 45-year career.

Beals died of lung cancer in 1931 at the age of 76 in San Francisco.

Edward Beals made a pioneering effort for avalanche safety nearly 100 years ago in a time period when people were struggling to make a living in the mountains. He wasn't alone – there were others trying to steer people clear of avalanches – but his Weather Bureau job took his knowledge to the public.

Notifying the public was a first and very important step, but his foresight did not take hold. In subsequent winters, it does not appear that other forecasters in Portland or other Weather Bureau offices issued avalanche warnings. The next 25 years saw miners moving out of the mountains, and the railroads got smart by going underground, realigning rail lines, and building more snow sheds. Momentum for avalanche safety programs did not appear to surface in the US until the 1940s and early 1950s with the invasion of skiers.

A big thanks to Peter Crane, Director of the Mt. Washington Observatory, for his generous research help. Thanks also to Don Bachman, Art Judson, and Ron Perla for their informing discussions.

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