

# “A Special Gift--the Legacy of "Snowflake" Bentley”

**By: Barbara Eaglesham**

Wilson Bentley received a gift on his 15th birthday that was to change his life--an old microscope his mother had once used in teaching. As birthday gifts go, it might not have seemed like much, but to this 1880s Vermont farm boy it was special indeed. "When the other boys of my age were playing with popguns and slingshots, I was absorbed in studying things under this microscope," he later wrote.

And nothing fascinated him more than snowflakes. It would become a passion that would last a lifetime, earn him the nickname "Snowflake Bentley" and make him known around the world.

## **Focused on Beauty**

If you have ever seen a snowflake design on a mug, or on jewelry, or maybe on a tote bag, chances are it was based on one of Bentley's more than 5,000 photomicrographs of snow crystals (snow crystals are the building blocks of snowflakes; see ODYSSEY, November 1999, "Cold Inspiration").

At first, though, Bentley did not own a camera. He had only his eyes and his microscope, and no way to share his enjoyment of the delicate hexagons other than to draw them. As soon as the snow started to fly (and if his chores were done), he would collect some snow crystals on a board painted black. He'd spend hours inside his woodshed, where he had his microscope, picking up the most perfect ones on the end of a piece of straw from a broom and transferring them to a microscope slide. There, he would flatten them with a bird feather. Then, holding his breath, he would observe the crystal and hurry to draw what he saw before it evaporated into thin air. It was a frustrating business to try to capture all the details in a drawing while simultaneously being in a race against time.

Eventually, a few years later, Bentley noticed an advertisement for a microscope and camera that he knew was the answer to his dreams. The problem was, the

equipment cost \$100--equal to a whopping \$2,000 today. His father, being a serious, hardworking farmer, felt that looking through a microscope was a waste of time. "Somehow my mother got him to spend the money," Bentley wrote, "but he never came to believe it had been worthwhile." That was probably a feeling shared by the locals of Jericho, who nicknamed him "Snowflake" Bentley. Undeterred, he began his quest to photograph a snow crystal. Once he attached the microscope to the camera and rigged up a way to focus it without running back and forth (he couldn't reach the focus knob from behind the camera), he began experimenting with photography.

In the 1880s, few people owned a camera, so Bentley had no one to ask for help. Time after frustrating time, his negatives appeared blank. Not until the following winter did he figure out that too much light was reaching the camera lens. His solution was to place a metal plate with a pinhole in the center beneath the stage of the microscope, to cut down the stray light and allow only the light waves carrying the image to reach the camera.

This was the key, and on January 15, 1885, at the age of 19, Bentley finally photographed a snowflake! Many hours over the next 45 years were spent in his tiny darkroom beneath the stairs developing negatives that he then carried, often by lantern-light, to the brook for washing. In all that time, he never saw two snow crystals that were exactly alike, although he realized that if he were able to collect two crystals side-by-side from the same cloud, there was a good chance that they might look the same. (Scientist Nancy Knight did just that in 1988, and indeed found two identical snow crystals!)

An artist as well as a scientist, Bentley wanted to find a way to make the shape of the crystal stand out more from the white background of the photo paper. He couldn't bring himself to alter his original glass plate negatives, so he began making copies of them and scraping the photographic emulsion away from the edges of the images with a knife, a time-consuming trick that allowed sunlight through, turning the background black when printed by sunlight.

Bentley's book, *Snow Crystals*, containing 2,453 of his photographs, was finally published and delivered to his house just weeks before his death in 1931.

Bentley was pleased. He never made more than a few thousand dollars from his work, but it had been a labor of love and he was satisfied to know that he would finally be able to share the beauty of his snow crystals with the world.

He is remembered primarily for this accomplishment, but to his friends and family, he was kind, gentle, and funny "Willie." He was the man who would sometimes tie an insect to a blade of grass to photograph it covered with dew the next morning, and who always chewed every bite 36 times. He was a gifted pianist who also played the violin and clarinet. He was the bachelor farmer who lived in the same farmhouse all his life. To scientists, he was the untrained researcher who not only photographed snow crystals, but also kept a detailed daily log of local weather conditions throughout his life and developed a method to measure the size of raindrops (see sidebar). To the people of Jericho, he is remembered as the not-so-flaky-after-all "Snowflake" Bentley.