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**Ferdinand Vandever Hayden**

Jeff Bremer



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## FERDINAND VANDEVEER HAYDEN

*Born:* September 7, 1829; Westfield, Massachusetts

*Died:* December 22, 1887; Philadelphia, Pennsylvania

*Areas of Achievement:* Exploration and natural history

*Contribution:* Hayden organized and led scientific explorations throughout the Rocky Mountains in the 1860's and 1870's. The publicity surrounding his discoveries was a key factor in the creation of Yellowstone National Park, the first such park in the United States.

### Early Life

Ferdinand Vandev eer Hayden was born in southwest Massachusetts in 1829. After his father's death, his mother sent him at age ten to live with an uncle on a farm near Rochester, New York. An ambitious young man, Hayden left the farm at age sixteen. He taught school for two years before walking to Oberlin College in Ohio; he gained entrance despite a lack of financial assistance and worked his way through to graduation. Hayden studied geology at the school and graduated in 1850. He then entered Albany Medical School, completed his doctor of medicine degree in 1853, and continued his study of geology and paleontology.

Instead of practicing medicine, Hayden traveled to the South Dakota Badlands with one of his professors to study geology. The trip promised adventure and began Hayden's lifelong obsession with the American West and its natural history. In the 1850's, he explored the area from the Missouri River to the Rockies, often alone, making geologic and scientific observations of the vast, uncharted regions. By 1860, having gained invaluable training and experience in exploration and science, he was ready to explore the legendary region of Yellowstone. However, the Civil War forced him to postpone these plans.

Hayden returned to medical practice during the war as a volunteer surgeon; he ended the war with the rank of lieutenant colonel. By 1865, he had become well known for his early explorations, and he gained additional experience and respect during the Civil War. After the war's end, he accepted an appointment as a professor of mineralogy and geology at the University of Pennsylvania. In 1866, he again returned west to the Dakota Badlands for further exploration and study. During the next sev-

eral years, he performed respected and well-received geological and topological surveys in Nebraska, Wyoming, and Colorado. In 1869, Hayden was asked to lead a series of surveys of the Rocky Mountains, which became one of the four great post-Civil War scientific explorations of the American West. His work was known as the United States Geological Survey of Territories.

### Life's Work

Hayden assembled a group of experienced scientific professionals to accompany him on his surveys. Along with geologists, botanists, engineers, and topographers, he brought artists and photographers to sketch, paint, and photograph the wonders of the Rocky Mountains. These artists introduced the scenery of the Rocky Mountains to Americans and made the area a popular destination for farmers, settlers, and miners, who went to seek their fortunes. Such visual work helped to dramatize the beauty and wonders of the West for the American



people. Hayden's surveys, which were published as books with photographs, sold well.

Hayden began his reconnaissance of the Rocky Mountains with about one dozen men. Later his party would grow to include between twenty and thirty people, all professional scientists and hardy outdoorsmen. His *Third Annual Report* of 1869 detailed their explorations in New Mexico and Colorado and told of the great mineral wealth and possibilities for settlement in these areas. This report was highly successful, and the popularity of his explorations gained him support in Congress for continued surveys, this time in the northern Rocky Mountains. In the summer of 1870, Hayden and his party left for Wyoming. After yet another successful year and another popular annual report, he finally set out to explore the legendary Yellowstone and the magnificent Teton Mountains.

In 1871, Hayden led the first official government expedition into Yellowstone, one of the last truly unknown areas in the United States. Fur trappers and Native Americans had virtually avoided the area, finding easier game outside the rugged area. Rumors of the great geysers, hot springs, and spectacular waterfalls had persisted for decades. Such rumors, combined with Congress' desire to map the area and discover its possible fur and mineral wealth, helped spur Hayden's discoveries.

When Hayden and his men entered Yellowstone Valley, they found hundreds of bubbling hot springs that fed the streams that became tributaries of the Yellowstone River. Green pines and aspens covered the mountains, and the serene surface of Yellowstone Lake reflected the crystal blue sky. The meadows were covered with dark green grass and acres of multihued wildflowers. Mud pots and geysers dotted the valley. Mammoth Hot Springs, officially discovered by Hayden's survey, had dozens of springs with water ranging in color from pure white to bright yellow. In the morning, steam rose from the numerous vents in the earth and obscured the valley in a volcanic mist. Wildlife was abundant, and moose, beaver, deer, and grizzly bears could be seen everywhere. The party also stumbled across the Grand Canyon of the Yellowstone River and its two waterfalls. There seemed to be something unfinished and unearthly about the region. It was a wonder to behold, and the area fascinated Hayden. He wrote in awe of its stunning beauty. The survey left Yellowstone in late August, 1871, and returned east later that year.

Hayden's report on Yellowstone immediately grabbed the interest of the American people and

Congress. A map of the region was published, the photos were reproduced, and Hayden wrote a number of articles for popular magazines such as *Scribners* to urge the nation to turn the rare wonders of Yellowstone into a protected park for all Americans. Congress unanimously passed such a bill, and on March 1, 1872, President Ulysses S. Grant signed the Yellowstone Park Bill, creating the first national park in the United States.

In 1872, Hayden returned to the northern Rockies, this time to the Grand Teton Mountains. Like Yellowstone, the Tetons were an area of natural grandeur with dense spruce forests, deep canyons, and cascading streams. Above it all towered the famed jagged mountain peaks, their glory reflected off pristine mountain lakes. The survey climbed many of the peaks, named streams and other natural landmarks, and collected information on the natural history of the Tetons. The party departed in early fall, before the first snows. From 1873 to 1876, the Hayden survey explored Colorado.

The four years that Hayden and his men spent in Colorado were just as exciting and rewarding as the previous years in the northern Rockies. They mapped the mountains, rivers, and drainage basins of the state, studied its geology and natural history, and gave names to many of the peaks. Hayden's men braved electrical storms, forest fires, blizzards, blistering heat, and wild animals. In 1873, the expedition discovered the legendary Mountain of the Holy Cross. This peak appeared to have a one-thousand-foot-tall cross of white snow blazed into its side. Photographs of this mountain were spectacularly popular and helped to further American interest in the recreational and developmental potential of Colorado. The next year, in 1874, a group of his men stumbled across ancient American Indian ruins in the southwest portion of the state. These cliff dwellings were a wonderful archaeological and historical find that helped gain further fame and public support for both Hayden and his wildly successful surveys.

The last two years of the survey were spent in Wyoming, Montana, and Idaho, where Hayden and his men continued their job of mapping the land and studying its geology and natural history. By 1878, Hayden's United States Geological Survey of the Territories had completed the task assigned to it. Hayden's work in the field continued until 1882, when locomotor ataxia forced him to begin to abandon the writing and exploration that he

loved so greatly. Hayden died on December 22, 1887, in Philadelphia, Pennsylvania.

### Summary

Ferdinand Hayden will be remembered for his twelve years of painstaking geological fieldwork in the American West. For eleven years, from 1867 to 1878, Hayden and his men explored, mapped, and studied areas in five states. His leadership of the United States Geological Survey of the Territories was superb, and his devotion to his task was unequalled. His survey not only discovered or publicized such natural wonders as Yellowstone and Grand Tetons but also found such legendary places as the Mountain of the Holy Cross and the ancient cliff dwellings of the American Southwest. His explorations and the subsequent publicity that accompanied them were crucial to securing the support of the American public for conservation of natural areas.

Hayden's Geological Survey of the Territories laid the foundation for much of American knowledge of the geology, zoology, and topography of the Rocky Mountains. Farmers, miners, and railroad companies used his maps and reports to help settle and conquer the American wilderness. His eleven years of fieldwork also proved to be a magnificent training ground for late nineteenth century American scientists, who became the leaders for the next generation. Hayden and his men demonstrated to a suspicious and uncertain American public that science was practical and important. With each new dramatic discovery, science became more accepted. Millions of Americans learned from his popular reports, viewed the pictures from his surveys, and visited museums that built upon information uncovered by his expeditions.

Hayden's most important accomplishment, however, was the establishment of Yellowstone National Park in 1872. It is quite possible that Yellowstone's incredible natural wonders would have been devastated by commercial development in the late nineteenth century. Hayden's efforts on behalf

of the region's preservation, combined with photographs of the area's scenery reproduced for the public, forced Congress and President Grant to set aside Yellowstone for future generations. Today, more than fifty national parks preserve the greatest natural treasures in the United States.

### Bibliography

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- Goetzmann, William H. *Exploration and Empire: The Explorer and the Scientist in the Winning of the American West*. New York: Knopf, 1966. This Pulitzer Prize-winning book covers a century of exploration and conquest in the American West. It contains a fine, succinct chapter on Hayden's Survey.
- \_\_\_\_\_. *New Lands, New Men: The Second Great Age of Discovery*. New York: Viking Press, 1986; London: Oxford University Press, 1987. This second book by Goetzmann details the scientific explorations of the nineteenth and twentieth centuries and shows the historical importance of Hayden, as well as the four other great surveys.

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