

COLUMBIA

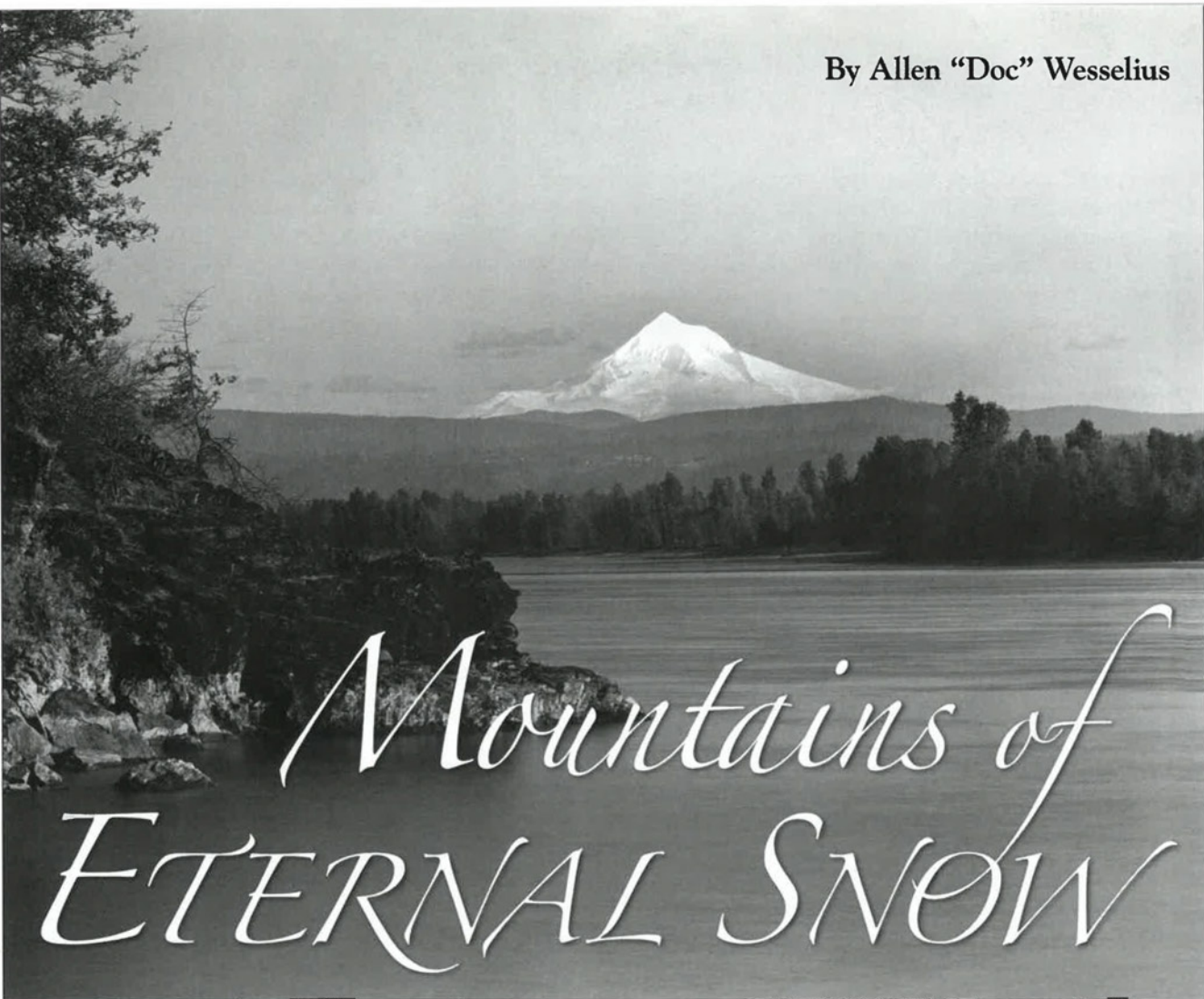
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INSIDE:

Lewis and Clark's
"mountains of
eternal snow"



WASHINGTON STATE HISTORICAL SOCIETY



Mountains of ETERNAL SNOW

Lewis and Clark and the Cascade Range Volcanoes

Born of volcanic fire and shaped by glacial ice, the serrated peaks of the Cascade Range dominate the geography of the Pacific Northwest. The snow-capped peaks more than fulfilled the expectations of Captains Meriwether Lewis and William Clark. When they left their 1804 winter quarters at Fort Mandan on the Missouri River, Lewis and Clark were armed with cartographic information about the Pacific Coast that had been gathered by British explorers. They must have been anticipating their first sighting of a geological feature totally unfamiliar to them—a volcano.

In April 1803 President Thomas Jefferson sent Captain Meriwether Lewis his lengthy instructions for the expedition being planned. Included in the long list of "inquiries" under "Other

objects worthy of notice" was the brief two-word notation, "volcanic appearances." Following Jefferson's advice, Lewis gathered the latest available geographical information and constructed a single map with the information. This map was carried across the continent and used for comparing the expedition's field observations with the best available 18th-century geographical information of North America. Volcanoes were included in Lewis's research and became important features along the exploration route.

Aaron Arrowsmith, a British cartographer, published in 1802 a revision of his 1795 map of North America. His map was the single most important item of pre-expedition cartographic data gathered by Jefferson and Lewis. Relying on Captain George Vancouver's material, Arrowsmith placed Mount Rainier,

Mount St. Helens, and Mount Hood on his map. This information aided in the identification of the "mountains of eternal snow" observed by the expedition in the Pacific Northwest.

Captain William Clark, the corps' cartographer, supplemented his map-making with information from a number of sources he encountered along the expedition's route. In St. Louis he obtained John Evans's "Map of 1796-97." Evans was the cartographer for James Mackay, who was employed by a Spanish company to explore the Missouri River to the Mandan-Hidatsa villages on the Knife River. Clark marked

ABOVE: Mount Hood was a dominant landscape feature and the first of the Cascade volcanoes seen by the Corps of Discovery during its exploration of the Columbia River.

“Conjecturall” on Evans’s map, across the “Montagne de Roche [Rocky Mountains],” which contained a “Mountain of Eternal Snow.” Evans had drawn on his map a dormant volcano on the east side of the Rockies.

The mysterious “old volcano” eluded the corpsmen as they laboriously proceeded up the Missouri River toward the western range. The mountains with their snow-capped peaks were spectacular, but a towering cone that dominated the landscape was missing. Even the western slopes were absent of the volcanic features Vancouver had reported seeing. The British maritime explorers had considered the volcanic peaks they observed to be part of the “dividing range” and the source of the Columbia River drainage. After building dugout canoes the corps had to travel 10 days down river from the Rocky Mountains before they glimpsed the landmark the British had described; even then its identification was indefinite.

On October 18, 1805, Clark noted in his journal, “Saw a mountain bearing S.W. Conocel form Covered with

Snow.” He was not specific as to which of the corpsmen had spotted the distant peak or from exactly which point the sighting was made. In recent years local investigators have researched this event and concluded that a volcano can be seen from an elevated position 1,200 feet above the Columbia River. There is no scholarly unanimity on this issue. However, Mount Hood is visible from Clover Hill (1,130 feet), a bluff overlooking the Columbia on the eastern side of Wallula Gap, roughly two and a half miles south of the Washington town of Wallula. On the day of the recorded sighting the corps was on the river in the vicinity of Wallula Gap.

The captains, with their knowledge of the British discoveries and appellations, were cautious in their identification until their sighting could be checked against Lewis’s composite chart. The next day, farther down the river, in the vicinity of today’s Umatilla River, Clark climbed a 200-foot basalt cliff and made a startling discovery. He wrote, “I discovered a high mountain of emence hight covered with snow,” and added, “a range of mountains in the Direction Crossing a conacal

mountain S.W. topped with snow.” From Vancouver’s information he postulated that the second snow-capped peak in the west was Mount St. Helens but refrained from attempting to name the dormant volcano sighted again in the southwest. He was also the first to reference a new discovery—a mountain range between the Rocky Mountains and the Pacific Ocean.

The Pacific Northwest is characterized by the Cascade Mountains, a lofty range extending north and south from the Columbia River. Intense friction between the Pacific and North American tectonic plates created the range that has an average width of more than

OPPOSITE PAGE: Clark’s journal entry for April 22, 1806, notes that he “as-sended a high hill from which I could plainly See the range of Mountains which runs South from Mt. Hood as far as I could See. I also discovered the top of Mt. Jefferson which is covered with Snow.”

BELOW: Lewis and Clark were the first Euramericans to record the existence of Mount Adams. Having initially mistaken it for Mount St. Helens, the captains chose not to name their find.



Lyn Topinka photo, courtesy United States Geological Survey

80 miles, and an average altitude of over 9,000 feet. Crowning this mighty ridge at intervals of 50 miles or more, snowy summits rise from 3,000 to 5,000 feet above the line of perpetual snow.

The "Ring of Fire" that encircles the Pacific Ocean is caused by magma, or molten rock, that has forced its way to the surface. When the magma erupts from deep chambers onto the earth's surface, it flows as lava or explodes as ash and pumice, building up the mountains with each repeated eruption. The carving action of the Columbia River kept pace with the growing mountain range during its formative pe-

riod seven million years ago. The river's eroding power created the steep rocky cliffs and roaring cataracts known today as the Columbia River Gorge.

When Vancouver referred to the mountains altogether, he simply called them the "Snowy range." David Douglas, a British botanist, is given credit for first recording the name "Cascade Mountains." This became the accepted name after years of such reference by early explorers and fur traders to the mountains in relation to the Columbia River Gorge cataracts. "The mountains by the cascades" became synonymous with "Cascade Mountains."

Clark made a mistake common to nearly all early explorers—he recorded Mount St. Helens as rising east of the Cascades. What he actually saw was the 12,307-foot peak, later named Mount Adams, which lies at the same latitude but 35 miles east of Mount St. Helens. Although misidentified, Clark's primary documentation was the first recorded sighting of Mount Adams by a Euramerican. Among some Native American tribes, Mount Adams

The Volcanoes of Lewis & Clark



Mount Adams was shaped by a series of lava flows between 25,000 and 10,000 years ago. Its massive bulk starts with an 18-mile-wide base and slopes upward to a flat summit. Its gentle lower slopes rise to a mile and a half above the Cascade Range.

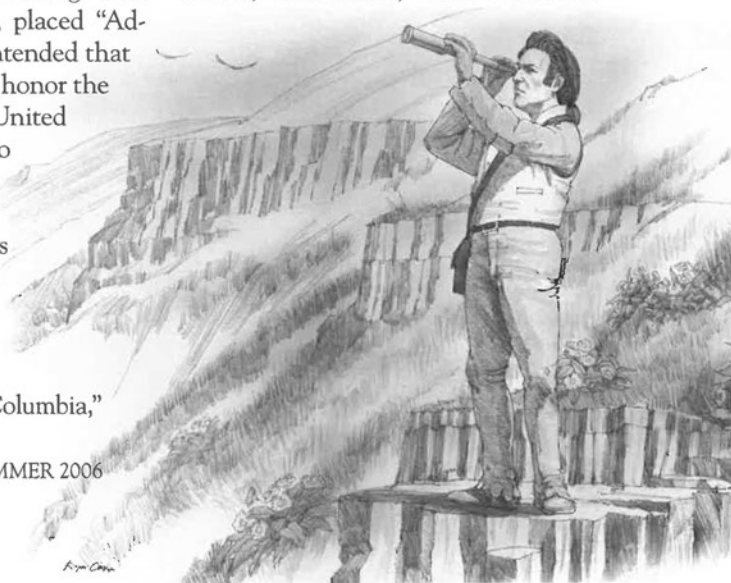
Lewis and Clark had initially observed another snow-capped peak far to the southwest. They were looking at a mountain to which British explorers had assigned the name "Mount Hood" a decade earlier. The captains were hesitant about this identification. After questioning the Indians about the local language, they repeatedly called the peak that loomed

was known as "Pa-to," meaning "high sloping mountain" in the Sahaptan language. On April 1, 1806, returning eastbound, the captains failed to name their new discovery, simply referring to it as "a high humped mountain," placing it in the same mountain range, and noting that it was "a little to the East of Mount St. Helens."

This dormant eastern Washington volcano acquired its name in 1839 when Hall Kelly, a patriotic schoolteacher, undertook a project to change Cascade Range to "President's Range" and rename the mountain peaks for individual presidents. In the process Thomas J. Farnham, working with inadequate source maps, placed "Adams" on his map. Kelly intended that Mount St. Helens should honor the second president of the United States, but Farnham so marked the volcanic mountain farther to the east. It is through this cartographic error that Mount Adams bears its current name.

The largest of the "Three Guardians of the Columbia,"

majestically in the distance "Timm or Falls Mountain." "Timm" is akin to "Tum Tum," an expression that was sounded in deep tones by the Indians to indicate the beating of the heart and imitating the constant pounding sound of the falls tumbling down over a bed of polished lava boulders. "Falls" is an explanation of the aboriginal term—cascading water at the "Great Falls of the Columbia" (later known as Celilo Falls). Clark eventually identified the peak that had been described by the British and made the necessary corrections. He interlined his October 25, 1805, journal entry, "This is the Mount Hood of Vancouver," and added, "This Mountain





proves to be Mount Hood," to his route map identification of the peak.

Mount Hood was named in 1792 when Vancouver sent Lieutenant William Broughton across the bar of the Columbia River to search for the mythical Northwest Passage. Broughton went more than 100 miles up the river and noted that in the east he could see a magnificent mountain peak, which he drew on his charts as Mount Hood. This

act was in honor of the British admiral, Lord Samuel Hood, who had signed the original instruction for Vancouver's expedition. Broughton's opinion was that the Columbia River terminated in the drainages of the towering peak that dominated the landscape. His placing of the volcanic peak on the western slopes of the Rocky Mountains resulted in cartographic confusion for the captains until they sorted out the actual topography.

ABOVE: The most distant of the five Cascade volcanoes sighted by the Corps of Discovery, Mount Rainier did not present itself to their view until they were on their return journey.

BELOW: Lewis and Clark had their first sighting of Mount Jefferson on March 30, 1806. They named it in honor of the expedition's driving force, President Thomas Jefferson.



Mount Hood (11,235 feet) was known by the Indians as "Wy'east," named after a son of the Great Spirit in Upper Chinookan legends. More than two centuries have passed since its last major eruption in October 1790. Clark described a legacy of this volcanic activity when he recorded that sand deposits in the rivers known today as Hood and Sandy were derived from Mount Hood's volcanic mud flows. Hood's sharp pyramid peak became a major landmark for future emigrants who followed the Lewis and Clark Trail down the Columbia River. Oregon's highest volcanic peak still vents steam and gas, an indication of the intense heat boiling beneath the mountain.

Lewis and Clark's cartographic challenges continued. On November 4 Clark and the other journal writers misidentified Mount St. Helens as Mount Rainier. Clark later deleted the passage and wrote, "Mount Hellen bears N" and above his December 7 journal entry he added: "Mt St Helens is the mountain we mistook for Mt Reeaner." He had sorted out the identification of the pinnacle by November 25 but still used his creative spelling when he wrote: "Mt St Hilians can be seen from the mouth of this river."

Sailing off the Pacific Coast in October 1792, Vancouver had observed a volcanic peak and named it to honor the British ambassador to Spain and his personal friend, Baron Saint Helens, Alleyne Fitzherbert. The captains scrupulously used known nomenclature instead of engaging in wholesale patriotic renaming of British place names. After checking their field observations with Lewis's composite chart, they correctly identified the volcanic peaks on their homeward trip up the river in 1806.

Nearly eight decades later, in 1980, Mount St. Helens (8,363 feet) lived up to its Indian name, "Lawala Clough" meaning "smoking mountain." The damsel of the Three Guardians of the Columbia erupted and blew 1,300 feet off the top of her picturesque peak, blunting the perfect snow-capped cone. Today, the volcano's height and shape change constantly as a new lava dome rises within the summit crater. The slumbering volcano is a relatively new wrinkle of the earth's

surface. Its history has been marked by at least nine significant eruptions. One had occurred a mere five years before the corps canoed down the Columbia.

The volcano periodically erupted between 1831 and 1857. Hudson's Bay Company fur traders reported that the mountain filled the air with ash. Lewis thought Mount St. Helens was "the most noble looking object of its kind in nature," and Clark considered the mountain "perhaps the highest pinical in America."

Exactly when Mount Rainier was first sighted by the corpsmen is left to conjecture. Doubtless the captains pored over their charts during their winter at Fort Clatsop (1805-06) and worked on identifying the volcanic peaks they had observed. It would take a little clear weather in the spring and a lot of luck to finally sort out the cartographic information they had gathered and correlate it with information collected from other, earlier explorers.

Clark made a side trip during the corps' homeward, upriver journey on April 1 to search for the confluence of a southern tributary to the Columbia River. At the mouth of the present Willamette River he recorded sighting five snow-capped peaks. His field observation was probably the foundation for sorting them all out. He used the British name for the distant northern snow-capped peak (Mount Rainier) but never got the spelling correct, alternating among several variants.

Discovered by Vancouver in May 1792, Mount Rainier was named after Rear Admiral Peter Rainier, the grandson of Huguenot refugees who had gained fame for defeating American colonists in the Revolutionary War. Pronunciation of his French name was anglicized to "Rainy-er" by the British and has now been Americanized to "Ray-neer." Its ice-covered dome and white snowfields contrast starkly with the rocky ribs protruding from its sides.

Mount Rainier (14,411 feet) had several slightly different indigenous names. Most were variations of "Tah-ho-ma,"

meaning "the Mountain." Washington's highest mountain is one of the world's most extensive single-peak glacier systems. The tallest of the Cascade Range volcanic peaks has been subject to many name-changing campaigns, but it still retains its French name. At several spots on the lower reaches of the Columbia River the distant northern peak can be sighted.

On March 30, 1806, Clark recorded another mountain sighting that the corps considered significant: "Discovered a high mountain S.E. Covered with Snow which we call Mt Jefferson." It was yet another distant, snow-clad peak, this time situated south of the Columbia River. On April 6, after conferring with Clark, Lewis summarized in his journal their findings of "conical pointed mountains covered with eternal snow." The next day Clark described the features of Mount Jefferson: "Like Mt. St. Helens its figure is a regular Cone and is covered with eturnal Snow."

Mount Jefferson (10,487 feet) is the second highest volcanic peak in Oregon. After this American discovery the British attempted to emphasize their claim to lands in the Columbia River drainage. The peak was called "Mount Vancouver" by employees of British fur-trading companies. However, it retained the name assigned to it by Lewis and Clark to honor their president. The sharp-pointed peak is an extinct volcano.

The Corps of Discovery found more than an intangible "Mountain of Eternal Snow." The captains observed five different mountains, two of them previously undiscovered by Euramericans. Additionally, they recorded the existence of a mountain range between the Rocky Mountains and the Pacific Ocean—today's Cascade Range. Cartographic information collected by Lewis and Clark is their geographic contribution to our Pacific Northwest history.

Retired veterinarian Allen "Doc" Wesseliuss is a member of the Lewis and Clark Trail Heritage Foundation, past president of the foundation's Washington chapter, and a longtime enthusiast of the Corps of Discovery and Pacific Northwest history.

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FRONT COVER: Detail of a painting artist Paul Kane created in 1847 of Mount St. Helens during a period of activity. This "mountain of eternal snow" was an active volcano throughout the mid 19th century and had been active five years before the Corps of Discovery's period of Pacific Northwest exploration. See related story beginning on page 29. (Courtesy of Stark Museum of Art, Orange, Texas)