

Botanizing Western Oregon In 1841 – The Wilkes Inland Expedition

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In the decades following the transcontinental trek of Meriwether Lewis and William Clark (1805-6), the Pacific Northwest was still dominated by Great Britain. Although American hunters, trappers, missionaries, and settlers had trickled in, Hudson's Bay Company forts, farms, and trading posts were strategically located along the rivers that served as major avenues of travel and commerce. Great Britain had also sent 120 Canadian settlers and their families south of the Columbia River, hoping to forestall an American takeover. Many of these *voyageurs* settled with their Indian wives in the upper Willamette Valley in a place known today as French Prairie. The War of 1812 against Great Britain (whose ships had been attacking US merchant ships) ended with the Treaty of Ghent, which provided for joint occupancy of the Pacific Northwest by the US and Great Britain. Both nations sought to diminish the claims of the other in this region.

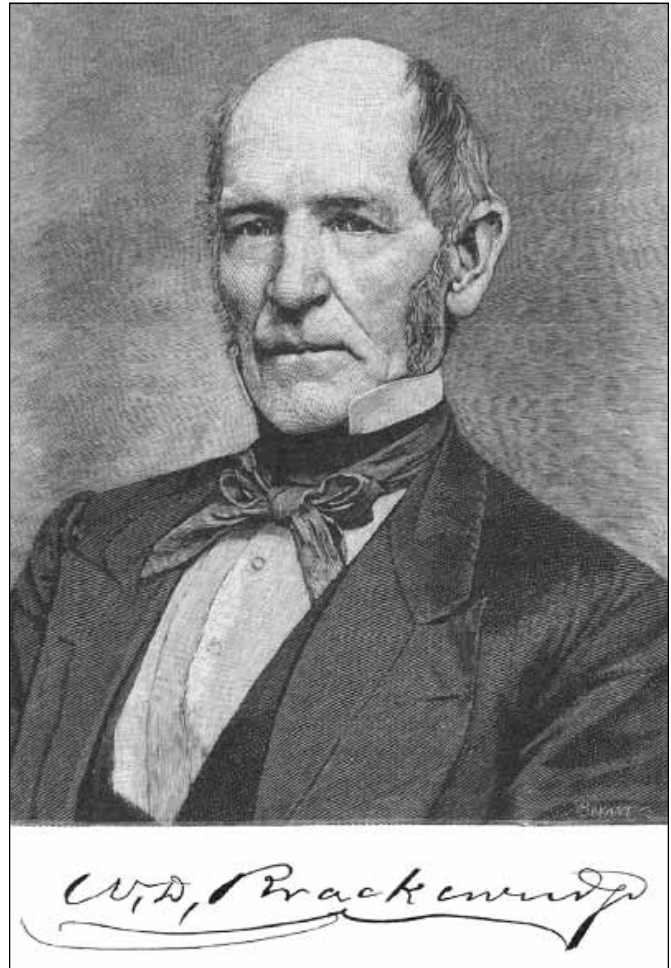
Fueled by a strong spirit of nationalism, these territorial disputes, along with the need for maps for additional fishing zones in the Southern Hemisphere and Pacific Ocean and trade with East Asian and Mediterranean countries, propelled the US need for global exploration. American merchant ships sailed at great risk, as piracy was rampant on the high seas. The United States Navy was created by an act of Congress on April 30, 1798, specifically to deal with piracy.

The global exploration authorized by Congress to address these concerns was ten years in the making. First proposed by President John Quincy Adams in 1825, it failed to win congressional funding. Public and business pressure continued to mount. On May 18, 1836, Congress passed an amendment to the Naval Appropriations Bill, authorizing the President to "send out a surveying and exploring expedition to the Pacific Ocean and the South seas" (South Pole), appropriating \$300,000 for the expedition. This was a job ready-made for the young US Navy. However, it was difficult to find a leader of this expedition since it consisted of a squadron of sailing ships. Maritime steam propulsion had arrived, and high-ranking naval officers refused to be involved in an enterprise dependent upon winds, ocean currents, and out-dated technology. Hence, command finally devolved upon an obscure young lieutenant named Charles Wilkes (1798-1877).

The Great Exploring Expedition

Navy Secretary Mahlon Paulding issued the following order to Lieutenant Wilkes, commander of the expedition:

"Although the primary object of the Expedition is the promotion of the great interests of commerce and navigation, yet you will take all occasions not incompatible with the great purposes of your undertaking, to extend the bounds of science, and promote the acquisition of knowledge" (Smithsonian Institution, s.v.).



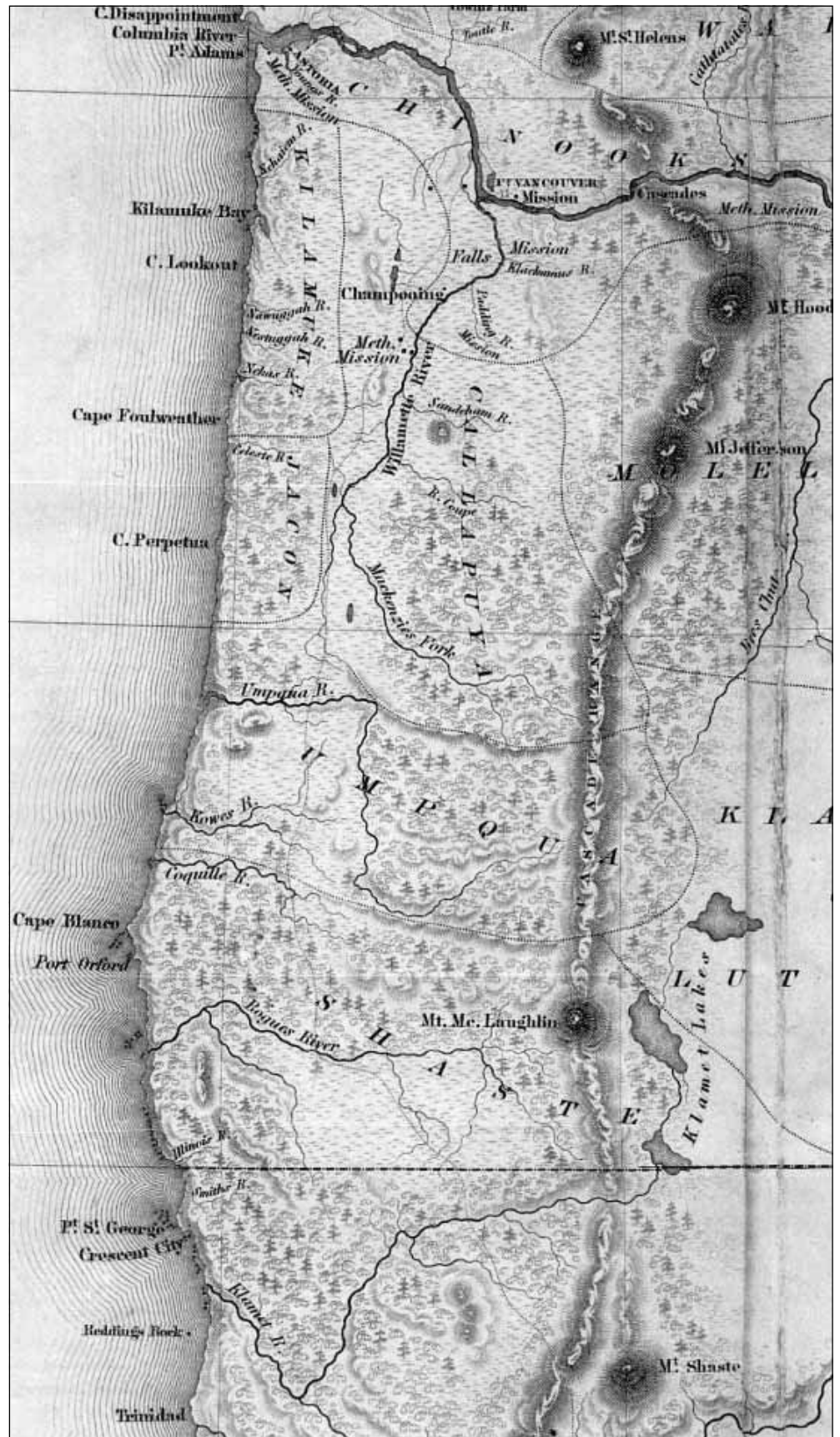
William Dunlop Brackenridge. (1810-1893) Frontispiece, *The Gardener's Monthly and Horticulturist: Devoted to Horticulture, Agriculture and Rural Affairs* 26:312 (December 1894).

Specifically, Wilkes' commission was to circumnavigate the globe, explore and map Antarctic and East Asia coastlines, visit and chart islands of the Pacific as well as the west coast of North America, and document inland features of western North America. Scientific observations and specimen collections were to be made at every landfall. An ambitious and patriotic Navy officer, Wilkes believed that he could fill all scientific positions with naval personnel, but when he found that he could not, he grudgingly included a few civilian "scientifics." Competition among prestigious individuals was keen for these posts. On August 18, 1838, amid a great public fanfare, a complement of 490 naval officers, sailors and "scientific" civilians aboard a squadron of six ships set sail from Norfolk, Virginia.

Exploration of Western North America

In the third year of the voyage, Wilkes' flagship, a three-masted sloop-of-war, the *Vincennes*, accompanied by the *Porpoise*, anchored as scheduled in Discovery Bay, near the entrance to Puget Sound, on April 29, 1841, later moving to Fort Nisqually (part of present-day Tacoma, Washington). Their assignment was to identify suitable locations for settlement, agriculture, and exploitation of natural resources beyond those visited by Lewis and Clark. Wilkes was also to develop information to support the American proposal, countered by the British, to extend the northern international boundary along the 49th parallel from the Rockies to the sea. Expedition personnel were assigned to three exploration parties: one went northeast over the Cascades to the headwaters of the Columbia; the second party charted Admiralty Inlet; while the third explored Hood Canal and charted Puget Sound above the Narrows between Tacoma and Gig Harbor. All expeditions were to note Hudson's Bay forts and trading centers, the national origin of settlers, as well as missionary activities. When reconvened at Fort Nisqually, the squadron sailed down the coast and entered the Columbia River, planning to survey and chart as far as "the Falls."

Two other ships, the *Peacock* and the *Flying Fish*, charting islands of the central and south Pacific, were late to the Columbia River rendezvous, limiting Wilkes' workforce. When they finally arrived on July 18, 1841, the *Peacock* foundered on the Columbia bar, losing all stores, specimens and scientific equipment. Miraculously, all hands aboard survived. In addition, difficulties in mapping and near-starvation among the parties charting the Puget Sound inlets pushed Wilkes' timetable perilously toward winter. This further delayed the final inland expedition



Excerpt from "Map of Upper California by the US Ex. Ex. and best authorities" showing Oregon Territory from Mt. St. Helens to Mt. Shasta. Drawn in 1846. Published in Wilkes, Charles, *Narrative of the United States Exploring Expedition during the Years 1838, 1839, 1840, 1841*. Vol. 5. Philadelphia, PA: 1850. American Memory Collection of the Library of Congress, courtesy L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University, Provo, Utah.

south through Oregon into northern California, which was originally scheduled for more favorable summer weather conditions.

Preparations for the overland trip along the “Siskiyou trail” took almost a full month despite generous assistance from Dr. John McLoughlin, Chief Factor of the Hudson’s Bay Company, and his staff. Food, medical supplies, scientific equipment, and horses were procured. Consultations were held concerning the route and possible encounters with Indian tribes, feared hostile. On 2 September 1841, Wilkes sent off his ships to chart the Oregon and northern California coastlines, detaching a land party to explore and map the “*terra incognita*” of the Willamette and Sacramento valleys. All parties were to meet at Buena Vista (San Francisco) in late October.

The Inland Expedition

Wilkes’ original orders to Lieutenant Emmons, dated June 14, 1841, were written before the delayed arrival of the *Flying Fish* and the *Peacock*:

“...*The route I have pointed out to you (along the Willamette trail, and across the rivers and mountains of Umpqua, Rogue and Klamath, to the valley of the Sacramento) is believed to be feasible, but as the country is unknown it may not be so... The information also expected from your party will be the names of tribes, numbers, manners, customs, habits, character, disposition and incidents that any occur to the party, as also the timber, kinds and quality of soil, climate, etc. The notes and journals should be full, and so as to be well understood by others without the necessity of explanation...*” (Eberstadt and Sons 1941, 106).

Wilkes originally directed the party to rendezvous at the foot of Mt. Hood, but with precious time lost, he revised his instructions to Emmons on September 1, 1841:

[Instead of returning northward, go] “*south towards California, and if possible west of the Shaste Mountains, thence to strike the waters of the Sacramento, passing over the head waters of various streams that empty into the ocean, viz., the Umpqua, Klamet, and their branches... If you should fall upon the Sacramento, taking a more easterly route, you will, if you find it difficult to proceed with your horses, abandon them, and proceed in canoes down the river*” (Wilkes in Emmons 1841, 518).

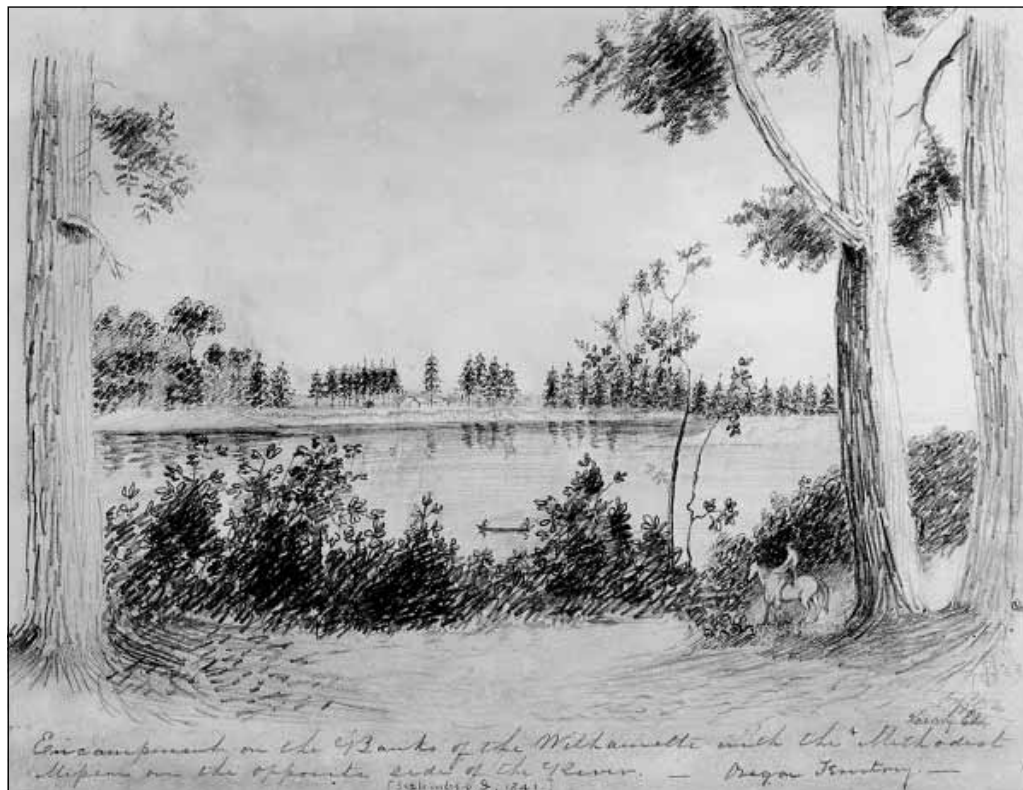
Following Wilkes’ instructions, Lieutenant Emmons’ land party

traced the Willamette Valley along the Willamette River to the Rogue River, went southeast over the Siskiyou Mountains into the Klamath basin to the headwaters of the Sacramento River, then followed the Sacramento and the San Joaquin rivers south through the delta to San Jose, a path roughly paralleled today by Amtrak’s daily train, the *Coast Starlight*.

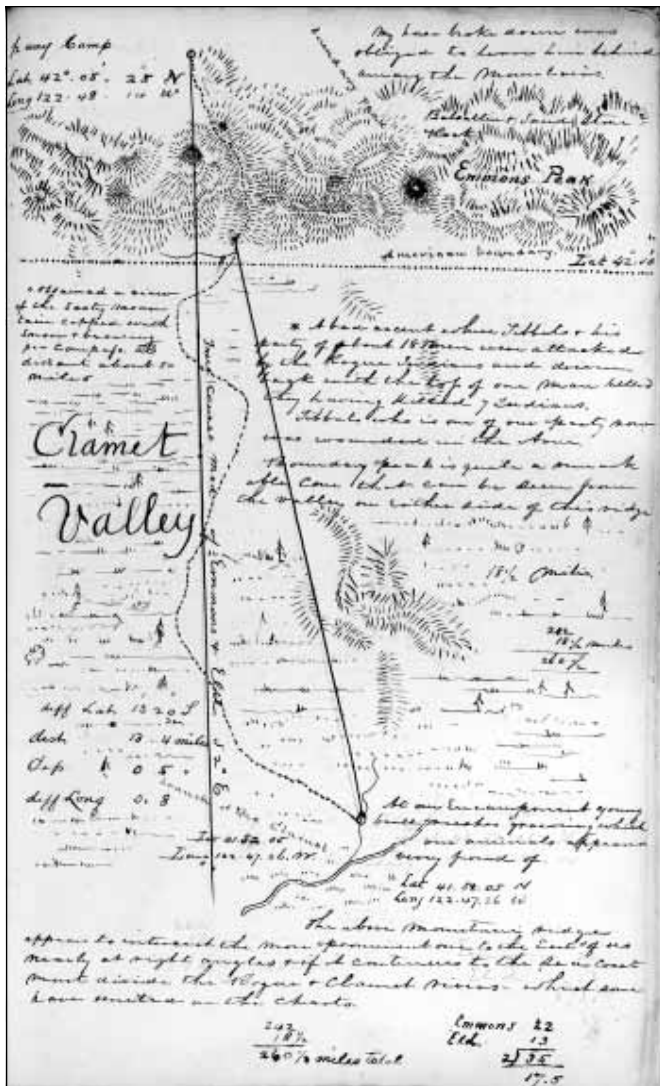
With George Foster Emmons as the leader, the inland party comprised a total of 39 individuals: 17 expedition members (including scientific personnel), 7 others recruited as guides and support personnel, as well as several families and individuals headed for California, who engaged the expedition as military escort. Henry Eld, Jr. served as geographer, Titian Ramsay Peale as naturalist (who also took notes on the flora), William Rich and William Dunlop Brackenridge as botanists, and Alfred T. Agate as artist.

Each member of the company observed and recorded the natural history of the region according to his own specialty. Journals were filled with maps, notes on topography, vegetation, and wildlife, estimates of the strength of British fortifications, as well as experiences with native people. According to previous agreement, Wilkes appropriated all the daily journals and records at the end of the voyage, and wrote the reports as though the observations were his own. He spent many years in all phases of publication of the reports, writing, publishing, negotiating, supervising specialists, and seeking funds from an indifferent Congress.

Passed Midshipman Henry Eld, the official map-maker for the expedition, produced 43 maps and 42 pencil sketches of the land between the Columbia River and the Sacramento Valley, providing a pictorial record of campsites and locations. The Eld maps are the first documents mapping the Willamette Valley and



Encampment on the Banks of the Willamette with the Methodist Mission on the opposite bank of the River. 1841 pencil sketch by Henry Eld, Jr. Yale Collection of Western Americana, courtesy Beinecke Rare Book and Manuscript Library.



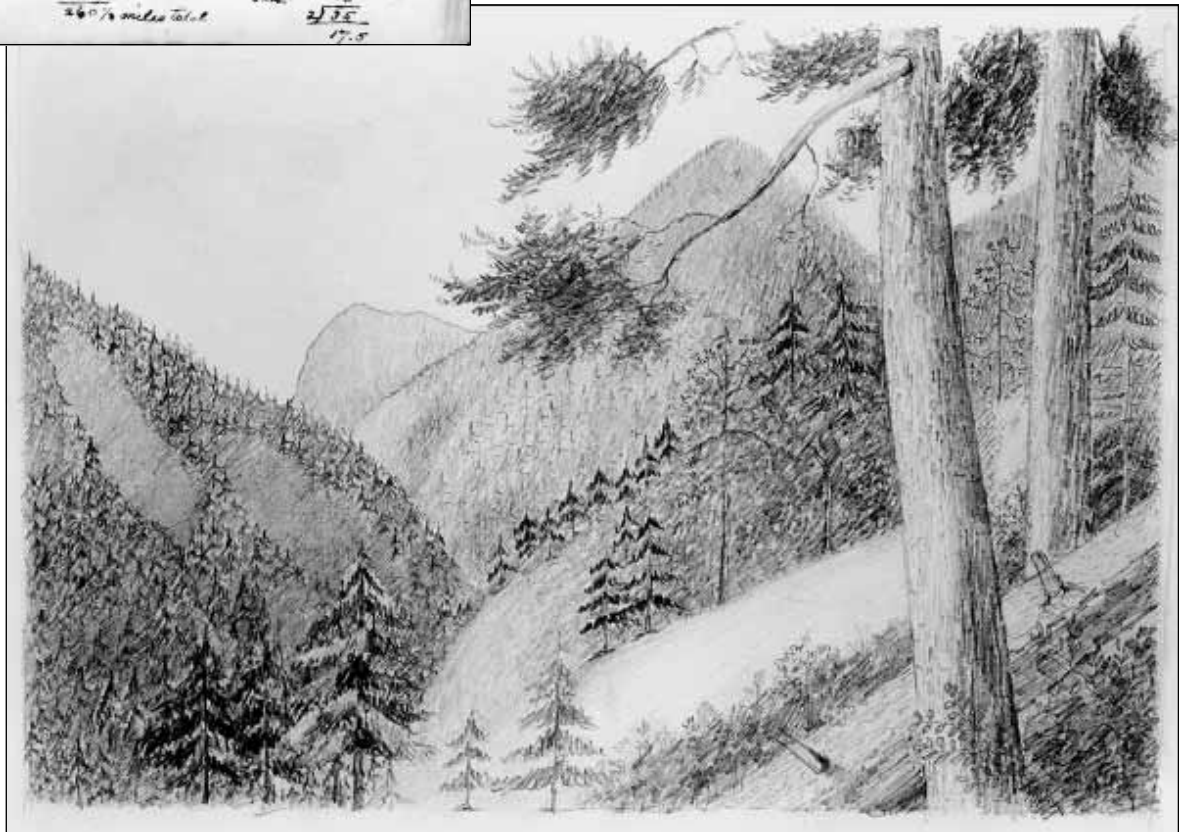
northern California. He appropriated the name “Mt. Shasty,” which was the Hudson’s Bay name for present-day Mt. McLoughlin, transferring it to a mountain previously known as “Mt. Simpson,” “Pit (Pitt) Mountain,” or “Mt. Jackson.” Emmons’ journal for the same date refers to his first view of the “Shaste or Pitt Mountain,” seen in a very smoky atmosphere.

William Rich, a political appointee, was the expedition’s Botanist, with William Brackenridge as “the Assistant Botanist/Horticulturist.” There appears to have been little interaction between the two men. Brackenridge faithfully kept a detailed day-by-day record of his experiences and plant collections, together with personal observations. Rich, on the other hand, evidently kept no records or notes, was sick during most of the trip, and is mentioned only in passing in others’ journals. In fact, strenuous efforts were later made to expunge Rich from official records of the voyage, so great was contempt for his incompetence (Eyde 1986).

Brackenridge made nearly all of the numerous plant collections on the trek. A brawny Scotsman, he walked most of the route to facilitate collecting. Brackenridge was

“...a sixfooter with broad shoulders and broad forehead. He was rugged in speech and sometimes blunt and impetuous, but at heart he was kind and sensitive. He was ever a student of the classics equally well with science. We find him a strong mature man of thirty-one, undaunted by the hardships of a long horseback journey through hostile Indian country, and ranging the hills and valleys of present Siskiyou country. Apparently he was untouched by fever and ague which afflicted many members of the overland party” (Maloney 1945, 323).

Map of the Clamet Valley. 1841 Pencil sketch by Henry Eld, Jr. Yale Collection of Western Americana, courtesy Beinecke Rare Book and Manuscript Library.



Crossing the Umpqua Mountains. 1841 Pencil sketch by Henry Eld, Jr. Sketchbook No. 2. Yale Collection of Western Americana, courtesy Beinecke Rare Book and Manuscript Library.

Brackenridge's narrative begins:

[Sept.] "2nd... In a canoe... After leaving the Columbia, the first 20 miles of the Willamette, the banks is covered with Willow, Alder & Dogwood, behind which rises spruce trees, [first named *Abies douglasii*, now *Pseudotsuga menziesii*], and as you proceed farther up toward the Falls, the same kind of brush wood line its banks, but behind this occasional patches of open prairie which support solitary Oaks, with scrub brush of the same are observed. I saw no Squat[t]ers or other dwelling Houses till we reached the Falls...

[Sept.] "4th. Early this morning we found that we had come too on the farm of Mr. Thomas McKay [a stepson of Dr. McLoughlin]. On finding out who we were he kindly invited us to breakfast at his house, which was not far distant. Mr. McK possess a good Flour Mill, but for want of water during the greater part of the year is of little use to him. The party being still 15 Miles farther up the River, he provided us with Horses to ride and a cart to carry our luggage, which was accepted, but as I wished to pick up a few plants by the way I walked on in Co. with S. Stearns, & reached the encampment which was on the opposite side of the River from the Mission Station [now known as Mission Bottom] at about 3 in the Afternoon. During my walk from Champooi to Mission Station, the country was level, and the soil appeared good, of a deep black Loamy nature. Hazel bushes & a goodly number of fine Oaks was the prevailing vegetation. On this district a considerable number of Canadian Frenchmen have settled down. Cultivating small farms from 10 to 40 acres in extent...

[Sept.] "5th and 6th. I spent the most of these two days in collecting Seeds, & viewing the nature of the country in our vicinity, and in both of these I was perfectly well satisfied. The season for flowering being now past, the Seeds were in good condition, particularly Annuals: *Oenotheras*, *Gilias*, *Escholtzia California*, *Clintonia*, *Mimulis*, and several other good plants I secured. Of soil and land the whole within 5 miles of our Camp, could be brought in as good farming ground. The major part of the land in the Willamette is a deep black heavy Loam and very difficult to break up after the Summer Droughts set in. This character will gradually give way to cultivation...

"Sept. 16 ...we reached Elk river...the party encamped till a party consisting of Messrs Emmons, Agate, & Stearns with a Canadian as guide paid a visit to Fort Um[p]qua, belonging to the H. B. Company, which was said to be distant 12 miles. Mr. R.[Rich] and myself examined our collections, and in the afternoon walked out, where we found a species of Oak, new to us...

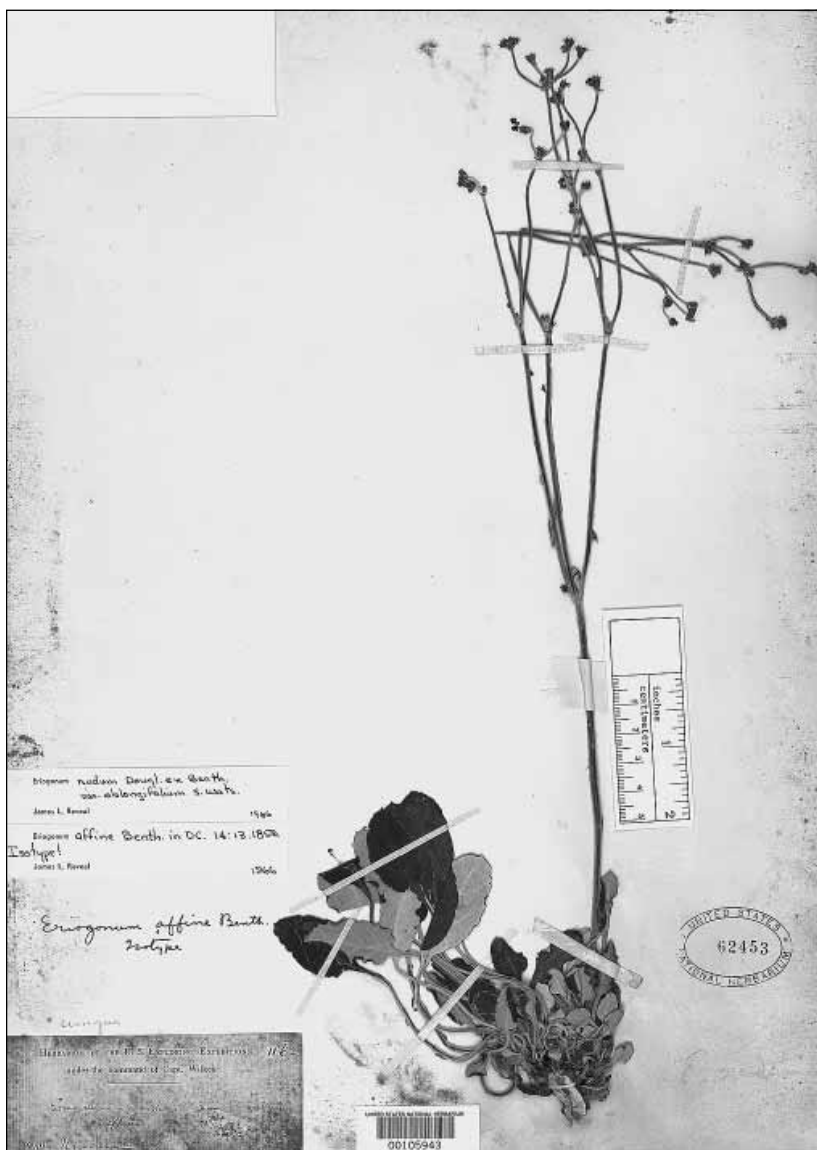
[Sept.] "17th Busy collecting seeds and plants... Atmosphere today very dense...

[Sept.] "23 Mr. Peales [sic] notebook and several other things belonging to him having got lost yesterday, a party went back in search of them,

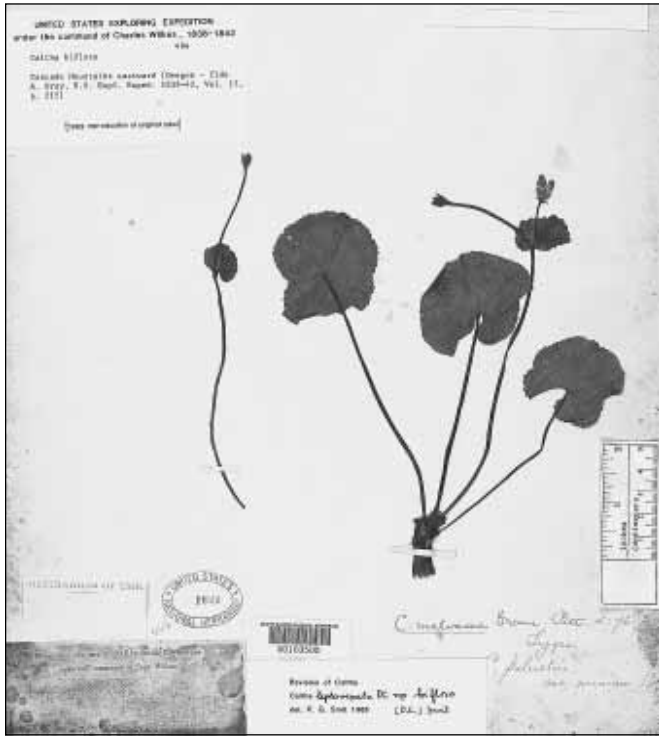
which detained the main party in Camp all day; in the vicinity a good many seeds were collected: of Plants we found a bulb in habit of an *Anthericum* which the natives of California made use of in place of Soap. *Lilium sp:* with large Orange flowers. *Pyrola sp:* with glaucous leaves. Also a *Nuttallia* which I though different from the one on the Willamett [sic], Day warm with sunshine towards evening." (Sperlin 1931)

As Brackenridge noted, Titian Ramsay Peale lost his journal, along with his clothing and equipment, in a mishap on the trail on September 23. He recovered only one of his boots and his *camera lucida* (a device which projects a scene onto a piece of paper so that it can be traced, a time saver for a landscape artist in the field). The following day, Peale began his journal anew:

"Friday Sept. 24th Started soon after sunrise, crossed rolling prairie land bordered by round hills covered by Lamberts & long-leaved pines, yews, spruce, cedar and *Arbutus* trees, with a thick undergroth (sic). Sat^h 25th... Started at 9 A.M. and



Eriogonum affine Bentham, G. in Candolle, A.P. de, *Prodr.* 14:13. 1856. Isotype (Polygonaceae). Collected by Brackenridge, W.D. US Exploring Expedition 1162. September, 1841, in Douglas County along the Umpqua River. United States National Herbarium Type Specimen Register. Courtesy of the Smithsonian Institution, Botany Section, Department of Systematic Biology.



Caltha malvacea Greene, E.L. *Pittonia* 4:75. 1899. Holotype (Ranunculaceae). Collected by Brackenridge, W. D. Wilkes Exploring Expedition 484. 1841, in Oregon, Cascade Range. (Current placement: *Caltha leptosepala* D.C. subsp. *biflora* (DC) Smit). United States National Herbarium Type Specimen Register. Courtesy of the Smithsonian Institution, Botany Section, Department of Systematic Biology.

continued our course over burned woods and small patches of prairie...to camp, arriv^d just at dark...the woods here consists of Lamberts and a long-leaved pine besides two species of oak. Tuesday Sept. 28th Soon after starting this morning Mess^{rs} Rich and Colvocoresses were both taken sick with fever...a small party remained with them as a guard... Collected a great variety of seeds; amongst which are two or three species of *Oenothera* and a new sp^s of *Nuttallia*, having purple flowers" (Poesch 1961).

["*Nuttallia*" presents some problems as Brackenridge mentions two species, which are most probably *Mentzelia laevicaulis* (Hitchcock cites *Nuttallia parviflora* Greene, Leaf. 1:210, 1906) and *Oemleria cerasiformis* (Jepson cites *Osmaronia* for *Oemleria*; Hitchcock cites *Nuttallia davidiana* for *Osmaronia*).]

Brackenridge noted in his journal on September 29:

"We are now at the base of the Shaste (Siskiyou) mountains, which are in general considered the boundary line between Oregon & California Territories, though densely covered with brushy wood the ascent was very easy & we expected every step as we advanced, to have a Skirmish with the Indians, our exertions otherwise passed off easy...soon descended into an extensive valley where we encamped on the bank of a small stream for the night. The height of the range where we crossed I estimated at 1500 feet. In vegetation it is very poor...On the 29th [of September 1841], we crossed the boundary range which separates Oregon from Upper California. The greatest elevation of the range was found to be 2,000 feet. The ascent was steep and tedious, and every moment we expected to be attacked by hostile Indians... On arriving at the summit of the range, we obtained a view which more than repaid us for our trouble. The Shaste Mountains with their snowy peaks, were to be seen some fifty miles to the southward, swelling and soaring to the skies..." (Sperlin 1931).

Peale observed the following on the evening of the same day: "Wednesday Sept 29th... Passed the dreaded 'bloody pass' without difficulty...and after surmounting a high mountain ridge a view of Singular grandeur was spread before us. On our right the mnts were burning and sent up immense clouds of smoke. On our left with the snowy summits of Mount Chasty (Tchasty?)— extensive plaines were in front of us. In descending we had to cross rugged sandstone ridges covered with red cedar and Buckthorn bushes...we had a hot and thirsty ride of about 20 miles to the Tchasty river, near to which on a small branch we halted for the night...we found many curious plants and



Onychium densum Brackenridge, W.D. in Wilkes, C. *US Exploring Expedition* 16:120. 1854. Holotype (Adiantaceae). Collected by Wilkes Exploring Expedition 1 1838-1842. Oregon. Current placement: *Aspidotis densa* (Brack.) Lellinger (Adiantaceae). United States National Herbarium Type Specimen Register. Courtesy of the Smithsonian Institution, Botany Section, Department of Systematic Biology.

Images of the following species collected by Brackenridge in Oregon on the 1841 Inland Expedition are currently in the Type Specimen Records at the US National Herbarium:

Byrum oreganum Sullivant. (Bryaceae) Isotype.

Caltha malvacea Greene. (Ranunculaceae) Holotype.

Currently placed: *Caltha leptosepala* DC. subsp. *biflora* (DC) Smit. (Ranunculaceae)

Eriogonum affine Benth. (Polygonaceae) Isotype.

Eriogonum confertiflorum Benth. (Polygonaceae)

Isotype.

Onychium densum Brackenridge. (Adiantaceae)

Holotype. Currently placed: *Aspidotis densa* (Brack.)

Lelling (Adiantaceae)

In addition, the Type Specimen Records presently contain in an ongoing imaging project the following species collected by the 1841 Inland Expedition in California. Credit is given to the Wilkes Ex. Ex., but the collection was undoubtedly made by Brackenridge.

Eriogonum acetoselloides (Polygonaceae) Isotype.

Eriogonum trachygonum (Polygonaceae) Isotype

Eriogonum vimineum var. *eriodadon* (Polygonaceae)

Isotype.

Darlingtonia californica Torrey (Sarraceniaceae) Isotype.

Brackenridge collected *Darlingtonia californica* near Castle Crags (on Mount Eddy) in northern California. John Torrey, who described the plant after Dr. W. G. Hulse, Frémont's botanist, brought him a more perfect specimen, published *Darlingtonia: Nov. Gen.* in 1853, writing that

"[Brackenridge] found it in a marsh, bordering a small tributary of the Upper Sacramento, a few miles south of Shasta Peak...and I take great pleasure in dedicating it to my highly esteemed friend Dr. William Darlington, of Westchester in Pennsylvania, whose valuable botanical works have contributed so largely to the scientific reputation of our country" (Torrey 1853, 3).

Recent research concludes that details were misreported in Torrey's article and perpetuated by some subsequent writers (Freeman 1996). The popular account that the expedition was chased by Indians (purported to explain the less-than-ideal quality of the *Darlingtonia* specimen Brackenridge collected) first appears in print in *The Life of James Dwight Dana* by Daniel Coit Gilman, 1899, according to research by Alice Eastwood, botanist for the California Academy of Science. She points out that Brackenridge's journal does not refer to a chase by Indians on the day he collected *Darlingtonia* (Eastwood 1945).

gathered their seeds. Several species of *Oriogonum* were conspicuous" (Poesch 1961).

The next day, Brackenridge took advantage of a day's halt:

"30th...While I went on an excursion three of the party were s[e]ized with the fever. Thermomiter [sic] today stood 90 in the Shade..." (Sperlin 1931).

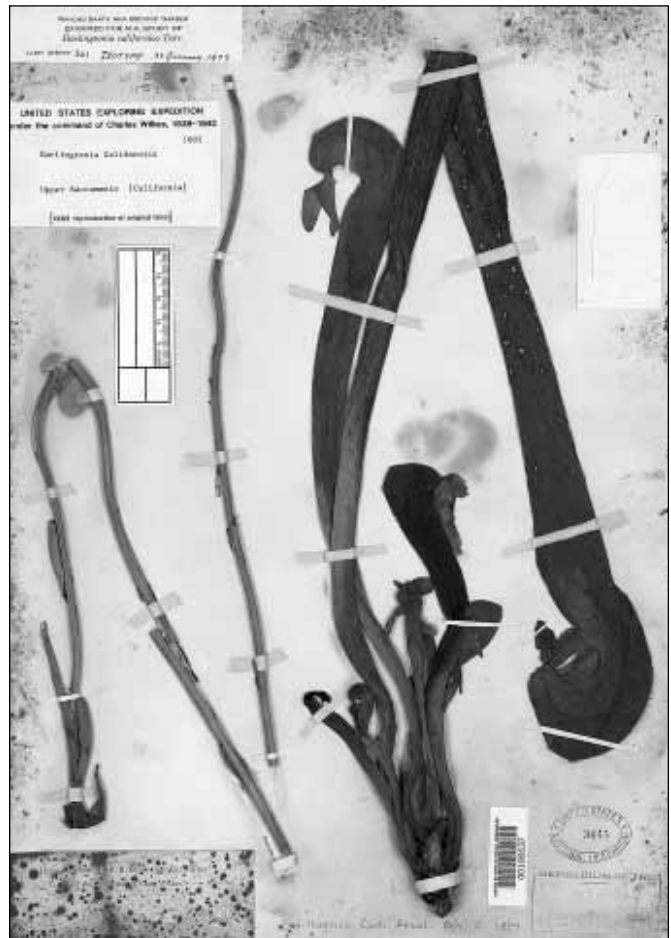
Peale also explored the vicinity of the encampment:

"Thursday Sep 30th Remained stationary today in consequence of the illness of Mess^{rs} Rich and Colvocoressis ...Mr. Agate and I wandered a few miles up the river...no timber, and an arid country. River...shores lived with a strong growth of Rushes...Washed clothes, cast balls, and put up seeds" (Poesch 1961).

Leaving Oregon, Brackenridge laments:

[Oct] "3rd. Our route over mountains was too late in the season to have an opportunity of seeing much of the annual vegetation, but if we are to judge of the dried fragments of such as we observed, that this set of plants must be beautiful and varied" (Sperlin 1931).

The route of the Inland Expedition followed closely that of David Douglas (1798-1834) as far as the Umpqua River. Brackenridge, however, was the first botanist to cross over the slopes of



Darlingtonia californica Torrey, J. *Smithsonian Contr. Knowl.* 6 (4): 5. 1854. Isotype (Sarraceniaceae). Collected by Brackenridge, W.D., September 1841, near Mount Eddy, upper Sacramento River, near Shasta Peak, California. Wilkes Exploring Expedition 1602. United States National Herbarium Type Specimen Register. Courtesy of the Smithsonian Institution, Botany Section, Department of Systematic Biology.



Shaste Peak. 1841. Steel engraving by unknown artist based on drawing by Alfred Thomas Agate. Earliest known picture of Mount Shasta. Published in Wilkes, C., *Narrative of the United States Exploring Expedition*, Vol. 5. 1845. Mount Shasta Companion, courtesy of the College of the Siskiyous Library.

the Siskiyou Mountains and to view Mount Shasta. More than 1700 plant specimens were collected on the trek, the majority by Brackenridge himself.

The party's travel from Fort Vancouver on the Columbia River to Yerba Buena (San Francisco), a distance of nearly 800 miles, took 58 days, including four days spent in camp. When traveling, they averaged about 13 miles per day on foot and on horseback. Wilkes noted their rendezvous at Yerba Buena as follows:

"...[at] *the harbor of St. Francisco, where we arrived on the 20th* [October 1841], *and found there the Vincennes, all well; and that they had nearly completed the work... The overland had not yet arrived, and the launch was despatched [sic] up the river to meet them On the 28th* [of October] *they returned*" (Wilkes 1842, 37).

The squadron immediately set sail and departed via the eastern Pacific for home. The *Vincennes* arrived in New York harbor on June 11, 1842, followed within a month by the other ships, nearly four years to the day after departure. However, members of the expedition did not receive a welcome comparable to their joyous and proud departure. The new administration received the news of their return coldly. Though Wilkes hastened to make a report to Congress within two weeks of arrival, acclaim came only from the public. Having duly requisitioned everyone's journals, Wilkes himself began to write up the journey and its discoveries. He soon became a popular hero through the newspapers, writers of the day, and his own efforts.

How did the scientific members of the Inland Expedition fare?

Titian Ramsay Peale (1799-1885) endured dark years after quarrels with Wilkes, but finally settled into government civil service. Alfred Agate (1812-1846) suffered poor health from the experience, and he died of consumption at the age of 34. Henry Eld (1814-1850) also died young, at the age of 36.

William Rich, (1800-1864), son of a US Ambassador to Spain, was a prominent Washington socialite. He had originally been appointed as Assistant Botanist to nationally-renowned Asa Gray, the Expedition's Botanist, but had been later cut from the scientific staff. Rich was re-engaged and promoted to Botanist when, at the last minute, Gray resigned his post to take an academic position. William Rich worked for four years on a write-up of the botany of the expedition, then gave up. Both his work and the man himself were judged inadequate. In 1845, Asa Gray advised J. D. Hooker:

"The botanist who accompanied the expedition is no doubt perfectly incompetent to the task, so greatly so that he has but a remote idea how incompetent he is" (Gray 1973, 337).

Rich shortly thereafter resigned his situation and fled west, war with Mexico having begun. He returned to the Quartermaster Corps and later did a stint with the State Department in Mexico before disappearing from public life. John Torrey eventually rewrote the volume on botany, with the assistance of Asa Gray, who became involved in the Expedition once again. Upon examining Rich's manuscript in 1846, Torrey wrote to Gray:

“...could hardly believe it...Surely he could do nothing without aid...All of Rich's text is worthless” (Rogers 1942, 181).

William Brackenridge (1810-1893) was charged with the responsibility of the living plant collection at the newly-established United States Botanical Garden. He also wrote the two-volume Expedition report on ferns (*Volume XVI - Botany - Filices*, 1854; *Volume XVI - Botany - Filices: Atlas*, 1856) (Haskell 1941) and for the balance of his long life conducted a successful nursery and landscape architecture business in Philadelphia.

What else did the Great Exploring Expedition achieve?

Even with the material losses when the *Peacock* foundered, a staggering number of items were brought back home, especially flora. McKelvey (1955) reports that ten thousand species and upwards of fifty thousand specimens of plants were collected. From Oregon, 1,218 plant species are cited; from California, 519. These formed the nucleus of the US National Herbarium where they are today. Nearly 100 live plants were brought home to the garden of the National Institute in Washington, DC, as well as hundreds of seeds. Brackenridge tended them with loving care.

Difficulties encountered in preparing the various Expedition scientific reports using only American botanical references soon brought recognition of the need for international cooperation in science, as well as for improved relations between exploration and taxonomy. As a result of the accomplishments of Wilkes' "scientifics," American natural science itself flourished. Proudly displayed in the Smithsonian and the US Botanical Garden, the collections made the desired mark on European heads of state and the world community. They remain an ongoing source of pride for Americans and an inspiration to youth. Moreover, achievements of the Wilkes Expedition "scientifics" were important catalysts for the emergence of the life science specialties. In particular, botany, the youngest scientific discipline of all, came into its own, springing from the ashes of William Rich's ignominy, well-nurtured by William Brackenridge, John Torrey, and Asa Gray, "the Father of American Botany."

Acknowledgments

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