

A Remarkable Garden

David Douglas and the Shrub-steppe of
the Columbia Plateau

JACK NISBET

IN LATE JUNE of 1825, Scottish naturalist David Douglas took his first peek at the arid world of the Inland Northwest. Traveling upstream on the Columbia River with a canoe brigade of fur agents and their season's trade goods, he ventured through the Columbia Gorge and stepped ashore for the long portage between the two great rapids known as the Dalles and Celilo Falls. Like most first-time visitors, he was shocked at the scale of the massive basalt flows that hung over the Gorge, then stunned by the desiccated landscape that stretched off endlessly to the east. "Nothing but extensive plains and barren hills, with the greater part of the herbage scorched and dead by the intense heat," he wrote in his journal.

Despite such heat, the energetic Douglas picked up some wonderful plants during his hike between the rapids, including a sunny yellow blazing star (*Mentzelia laevicaulis*) that provided him with ripe seeds to ship back to England. He dug up two different kinds of evening primrose in flower that he transplanted into his turnip patch at Fort Vancouver, hoping to gather seeds from them as well. And he discovered enough mature samples of *Clarkia pulchella*, already named after explorer William Clark but not yet cultivated outside its native ground, to turn it into one of the hottest garden offerings at London's Royal Horticultural Society's 1828 summer plant sale.



Born in 1799 in the village of Scone, Perthshire, as the son of a stonemason, Douglas's behavior at the local school gave little indication that he might be destined for anything greater than fishing, the care of abandoned birds, and rambling in the nearby hills. By the time he was 11, the boy was working summers under the head gardener at Scone Palace, and although he sometimes quarreled with the other boys employed there, soon began an apprenticeship that cycled him through all the phases of British horticultural. At age 19 he advanced to a position at a larger estate, and two years later landed at the Botanic Gardens of Glasgow University, just as William Jackson Hooker was appointed there as Regius Professor of Botany. Hooker, who would later become the first director of Kew Gardens, was already a famous name in British botany, and had the connections to put Douglas's energy and talent to use.

In 1823, Dr. Hooker arranged for his protégé to serve as a collector for the London-based Royal Horticultural Society on an expedition to New York and the mid-Atlantic states. Assigned to assess new cultivars of fruit, the qualities of oak timber, and promising garden plants, Douglas traveled from Detroit to Chesapeake Bay in a whirlwind of activity. Along the way, he made sure to lay in apple and plum cultivars, orchids, pitcher plants, and saprophytes that corresponded to the specialized interests of several Royal Horticultural Society board members. He returned to England with chests full of living plants and rootstock, as well as packets of viable seed.

This first outing was deemed a great success because the collector displayed both a talent for finding interesting plants, and a knack for keeping them alive. Douglas's nursery prizes included an Oregon grape that originated from one of Lewis and Clark's Pacific Northwest collections, and it was one of several cuttings that soon became British garden favorites. While in London, Douglas also penned a monograph on American oaks that not only demonstrated a thorough knowledge of earlier work compiled by André Michaux and Frederick Pursh, but also reflected his own investigations into the possibilities of the various oak species for carpentry and shipbuilding.

Within a few months of Douglas's return, the Royal Horticulture Society found him passage aboard a Hudson's Bay Company vessel bound for the Columbia River. Before shipping out in late July of 1824, Douglas researched his new collecting territory extensively. He interviewed Archibald Menzies, who had served as surgeon and naturalist on Captain Vancouver's Pacific Coast survey of the 1790s, and pored over the published accounts of the Lewis and Clark Expedition. On Douglas's voyage around Cape Horn to the Columbia, he carried along with him a copy of Pursh's *Flora Americae Septentrionalis*, which included taxonomic details of the Corp of Discovery's plant collections.

Flora Americae Septentrionalis; v. 1

OR, A
SYSTEMATIC ARRANGEMENT
AND
DESCRIPTION
OF
THE PLANTS
OF
NORTH AMERICA.

CONTAINING, BESIDES WHAT HAVE BEEN DESCRIBED BY
PRECEDING AUTHORS, MANY NEW AND RARE
SPECIES, COLLECTED DURING TWELVE
YEARS TRAVELS AND RESIDENCE
IN THAT COUNTRY,

BY
FREDERICK PURSH.

IN TWO VOLUMES.

WITH TWENTY-FOUR ENGRAVINGS.

VOL. I.

LONDON:

PRINTED FOR WHITE, COCHRANE, AND CO.,
FLEET STREET.

1814.

MISSOURI
BOTANICAL
GARDEN.



During his first year of Columbia River collecting, which spanned spring 1825 to spring 1826, Douglas was based at Fort Vancouver, across the river from modern Portland. This post served as the Hudson's Bay Company's headquarters for the entire region, and most of the clerks he met there were his exact peers—Scottish lads of modest means, second and third sons who had to move away from home in order to rise in the world. As he formed friendships and shared meals, Douglas found that Bay Company men at all levels had, according to the custom of the trade, taken tribal wives and were raising mixed-blood families. Many of the women, including those belonging to the Plateau culture of the Interior, still followed the annual round of their extended families. These movements were based on deep knowledge of local landscapes, so that their everyday tasks often led directly to the very plants that Douglas was seeking.

In early spring of 1826, with a year's experience of the lower Columbia under his belt, Douglas rode upstream on that river with a Hudson's Bay Company agent and crew. After skirting Celilo Falls, the collector

had his first real encounter with the shattered basalt landscapes of the Interior. The open plains were sprinkled with sage, antelope bitterbrush, “and other shrubs which to me were perfectly unknown and the whole herbage very different indeed from the vegetation on the coast.”

In early April, with most of the shrub-steppe still emerging from winter, Douglas admired the yellow-blooming bitterbrush (*Purshia tridentata*), and decided that it would make a nice complement for Scotch broom in British gardens. At the mouth of the Snake River, he was encouraged to see find some lupines peeking up, but saw the famed White Bluffs of Hanford Reach as “mountains of white clay, with scarcely a vestige of herbage or verdure to be seen.” Thick snow still blanketed the ground from Priest Rapids north to Fort Okanogan, so he turned his attention from flora to fauna, taking potshots at bears, wolves, foxes, badgers, and dancing leks of sharp-tailed grouse.

By the time the voyageurs pulled the canoe ashore at the mouth of the Spokane River, it was late April, and the gardener in Douglas was beginning to appreciate his surroundings. He found that the receding snow exposed “an extensive plain, with groups of pine trees, like an English lawn, and rising bluffs or little eminences clothed with small brushwood and rugged rocks sprinkled with Ferns, Mosses, and Lichens...this part of the Columbia is by far the most beautiful and varied I have yet seen.” Here he was experiencing the interplay between shrub-steppe and pine woodlands, managed through centuries by native-set fires, with spring wildflowers exploding across both habitats. After a few days of camping at the mouth of the Spokane, he admitted in a letter to William Jackson Hooker that “I can hardly sit down to write, not knowing what to gather first.”

Douglas would spend the next several months collecting from this treasure trove. He returned upstream in 1827, took a two-year hiatus in Great Britain, then visited the Columbia’s interior again in 1830 and 1833. During these trips he followed tribal and fur-trade guides into new habitats at a wide variety of elevations, and reinforced his reputation for getting viable bulbs and seed back to the Horticultural Society’s nursery. Dozens of Douglas’s gatherings were propagated, displayed in a magazine called the *Edward’s Botanical Register* as hand-colored engravings, and introduced commercially to the British gardening world. He also worked with the best taxonomists of the day to identify and name dozens of new plants, as well as several mammals. With the confidence of first-hand knowledge, he added rich details of habitat and ethnography to William Jackson Hooker’s *Flora Boreali-Americana*, the first volume of which appeared in 1829.

Today, the Latin titles that Douglas bestowed on the plants he named himself, and the 80 or more *douglasii* tags that his cohorts labeled to honor him, flood into view for any plant enthusiast who

ambles through an eastern Washington coulee during the blooming season. Scattered among the shards of basalt grow Phlox, buckwheat (*Eriogonum*), grass widows (*Olsynium*), globe-mallows (*Sphaeralcea*), and dusty maidens (*Chaenactis*) associated with Douglas, each adding a perfect proportion of color and form among the rocks. It soon becomes obvious, however, that the human connections of each plant add a much deeper layer of story to these formal names.

To take one example, Douglas was waiting for veteran fur trade clerk Jaco Finlay to repair his musket at Spokane House in May 1826 when he heard about subtle differences in the taste of three different currant bushes that thrived in the area. Most likely, it was Finlay's Spokane wife Teshwintichina or one of her daughters who explained to him the essence of these nutritious fruits. On that same visit, when Douglas wrote a long paragraph describing the preparation of the "moss bread" or lichen cakes he shared with Jaco, he was touching on a much longer and more complex recipe that could only have come from Teshwintichina's family. The fact that modern members of the Spokane tribe still utilize all three currants and the black tree lichen for food provides a direct connection back to those evocative meals.

Douglas, like any gardener, had his own favorite plants. He always showed a particular fondness for the lily family, and many new species he found on the Plateau lived for him as both prospective cultivars and essential sustenance. In his description of the beautiful sagebrush mariposa lily *Calochortus macrocarpus*, he noted not only its remarkable flower, but also the fact that "in spring it forms an article of food of Inland Tribes, and is called in their tongue Koo-e-oop... The root is roundish, crisp, and juicy, yielding a palatable farina when boiled." He learned to follow the fritillary (*Fritillaria pudica*) now called yellow bells, one of the first spring flowers he saw on the Plateau, around the entire calendar: "Roots eaten, both raw and roasted on embers, by the natives and are collected in July and dried in the sun for winter store." He sampled *Allium* onions, including the one that bears his name, wherever he traveled, and Hooker illustrated Douglas's brodiaea (*Triteleia grandiflora*) that clearly shows the delicate netting tribal women had to peel off the corm before roasting it for food.

It should come as no surprise then, that the collector paid close attention to the digging and cooking of the beautiful blue camas lily (*Camassia quamash*), even as he procured seed and packed dried bulbs in sand so that it might succeed as a new flower offering for the Royal Horticultural Society. Douglas's field notes include one family's recipe for cooking camas in an earth oven, and he ended the account, as he often did, with a modest joke that included an historical reference. "Captain Lewis observes that when eaten in a large quantity they occasion bowel complaints. This I am not aware of, but assuredly they

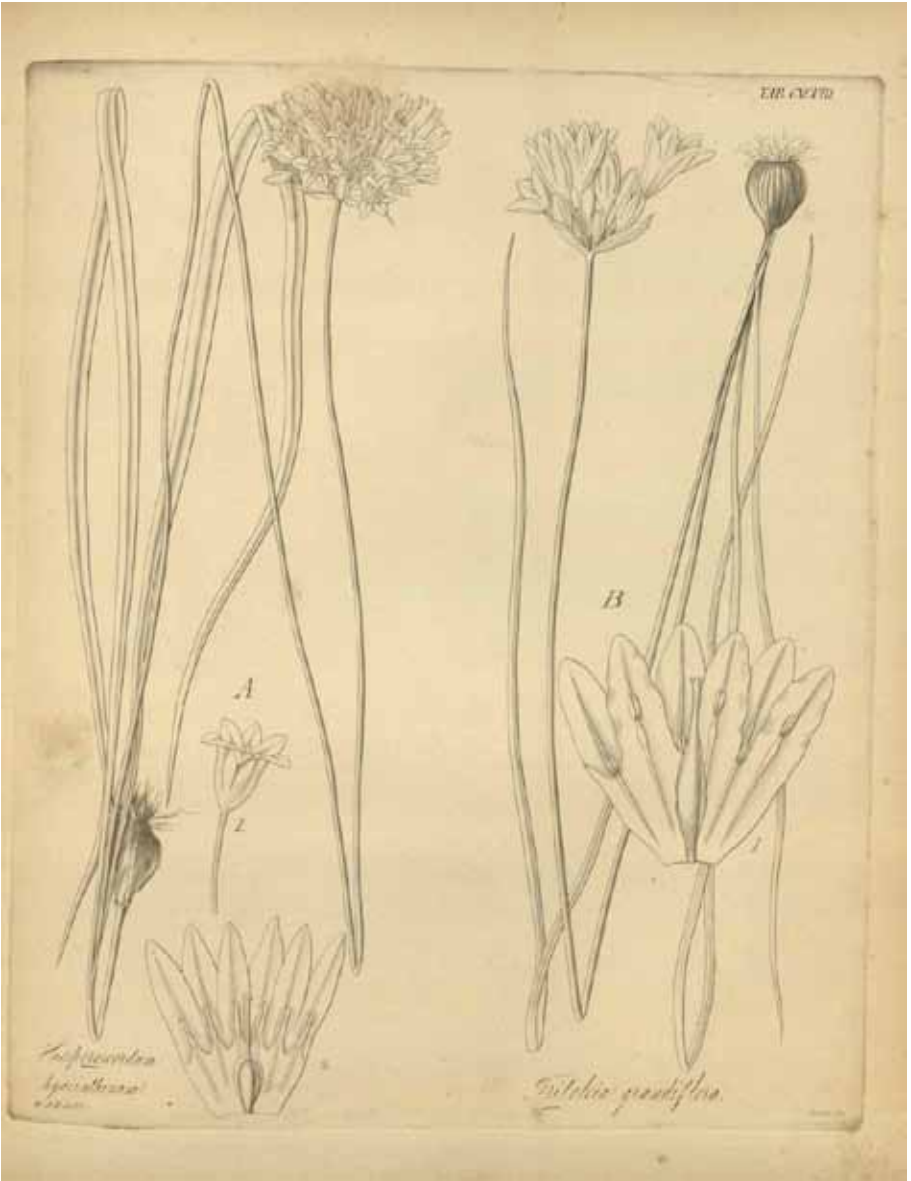


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1842

Robert Brown, Bot. Beechey, 1842

1842





produce flatulence: when in the Indian hut I was almost blown out by strength of the wind."

Douglas's ethnobotany, like that of the tribes, was not confined to a single family of plants. Near Boardman, Oregon, he observed that both species of prickly pear cactus (*Opuntia acantha* and *O. fragilis*) were baked in earth ovens similar to the ones he had seen used for camas. He recognized the restorative powers of bitterroot: "The roots

are admirably calculated for carrying on long journies: two or three ounces a day being sufficient for a man, even while undergoing great fatigue." Although he struggled to identify the many biscuitroots (*Lomatium*) he saw on the Plateau, he did record the gathering and consumption of the earliest shoots of the one called chocolate tips (*Lomatium dissectum*), the large edible tubers of other *lomatiums*, and the stimulating anise-scented seeds of still others.

Although Douglas seldom delved into the medicinal practices

of native peoples (relying himself on a variety of patent medicines that included laudanum), he carefully studied the qualities of Indian hemp (*Apocynum cannabinum*) cordage, comparing it favorably to British-manufactured cotton and linens twines. He learned about the broad range of uses for beargrass in both the Coast and Plateau cultures, pronouncing it "one of the greatest ornaments of the western



mountains, and the natives make baskets, hats, pouches, bags, bottles, mats for sleeping on, &c, of its strong foliage." He also spent considerable time trying to figure out the origin of tribal-grown tobacco, which was tied up in a confusing knot of cultivated Indian tobacco (*Nicotiana quadrivalvis*), its many variants, and the smaller shrub-steppe native called coyote tobacco (*N. attenuata*). Along the way, he recognized that the *N. quadrivalvis* is "greatly esteemed by the different tribes for smoking, and is the only vegetable which the natives of the Columbia cultivate."

On his second trip to the Northwest, from 1830-34, Douglas's two ascents of the Columbia were interspersed with trips to California and Hawaii. During the course of these adventures, he managed to lose three years' worth of field journals and many plant specimens in a canoe accident on the upper Fraser River, then to die on the Big Island when he slipped into a cattle pit-trap already occupied by an angry bull. His untimely demise caused a great outpouring of grief from both the natural history and fur-trade communities, and over time his meteoric career has created a mythic figure who has grown beyond the usual boundaries of the botanical field. But even without the lore, Douglas's legacy on the modern landscape extends beyond his collections that appear today in seed catalogs, native plant nurseries, and stunning rock gardens.

To many foresters, Douglas's assessment of possible sites, soil types, and exposures for growing Northwest trees like Sitka spruce marks the beginning of modern British silvaculture. Arborists recognize that seeds he brought back form the basis for several famous arboretums, including copses of Douglas-fir that rank as the tallest trees in all of Europe. Ecologists point out biogeographical aspects of Douglas's work, including the reality that some of his introductions such as salal in Scotland, fireweed across Scandinavia, and Monterey pines in New Zealand have been so successful that today they rate as noxious weeds.

With Douglas, there are always more layers to explore. The spot on the Columbia where he gathered blazing star in 1825 might be buried beneath the backup of the Dalles Dam, but *Mentzelia laevicaulis* continues to bloom in spoil pits and along gravel trails throughout the Inland Northwest. When fire ecologists try to re-learn the art of burning to open up pine or oak woodlands, they often marvel that small species he mentioned, such as esoteric broomrapes and the deervetch *Lotus micranthus*, can still spring up in profusion after a controlled fire. Coastal and Plateau people from a variety of tribes, who continue to rely on traditional plants for food and textiles, might chuckle at the childish simplicity of Douglas's recipe for the lichen cakes they bake from *Bryoria fremontia*, but they see cultural affirmation in the depth of



his pioneering ethnobotany.

This is the realm where gardeners understand David Douglas best: his work can only be understood plant by plant, season by season, as over time species associated with him cycle through their own dynamic lives. When NARGS member David Sellars of British Columbia wrote about *Douglasii nivalis* in the January 2011 issue of this magazine, he recounted the often-published story about Douglas gathering the type *Douglasia* at 14,000 feet in the Rocky Mountains. Sellars then correctly pointed out that since the fur-trade brigade Douglas traveled with crossed Athabasca Pass (elevation: 5751 feet) in early May on top of many feet of snow, this story cannot be true—it has to rank as another entry in the large body of Douglas lore.

But Douglas did collect the plant, which today is known only from Washington state, on the east slope of the Cascade Range between the Wenatchee and Methow Rivers. Snow *douglasii* usually occurs in alpine situations, but occasionally can be found down to around 2000 feet of elevation. David Douglas paddled that stretch of the Columbia at least six different times, but often in early spring, and he never spent more than a few hours away from shore. So where did he find his specimen?

Since we know approximately where Douglas spent most of his nights, and how far he usually walked in a day, puzzles like this allow the curious modern enthusiast to plod along after him. Vast portions of the Columbia Plateau remain lightly populated and, away from the dams and irrigation projects along the rivers, many of the habitats he saw—especially those rocky coulees and alpine wonderlands that harbor floral treasures—have changed little since he passed by. If you

want to find out where Douglas gathered *Douglasia nivalis*, and share in his thrill at the emergence of a beautiful flower, in theory all you have to do is follow the collector's lead, one step at a time.