

present time it grows mostly in places inaccessible to the Angora goat, or in places where this animal is not grazed. The circumstantial evidence is that the foliage of *Styrax* is palatable as browse to these hardy animals that produce our mohair.

It has not been my pleasure or privilege to meet the late Dr. Mary S. Young, but I do wish to accord my recognition of the accomplishments of this pioneer botanist in her explorations of the flora of the mountains of southwestern Texas by naming the *Styrax* of her collection in her honor. I trust that this may offset my part in pointing out that *Talinum Youngae* C. H. Muller, also a plant of the Davis Mountains, is synonymous with *T. pulchellum* Woot. & Standl.

I wish to acknowledge my good fortune in having had valuable assistance given me by Dr. I. M. Johnston in his study of my material, in criticism of my provisional manuscript, and in the loan of the *Styrax* material from the Herbarium of the Arnold Arboretum, by Dr. B. C. Tharp for criticism of the original manuscript and for the loan of the *Styrax* material from the Herbarium of the University of Texas, and by Dr. P. A. Munz for study of my material, for the loan of *Styrax* material from the Herbarium of Pomona College, and for the loan of the volume of "Das Pflanzenreich" which contains the treatment of Styracaceae. I am deeply grateful to these gentlemen. Furthermore, I wish to express grateful appreciation to Dr. Leon Croizat for valuable assistance given me in the preparation of the Latin descriptions in this manuscript.

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## THE STORY OF PARTHENIUM ALPINUM

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In the spring of 1834, Thomas Nuttall and John K. Townsend left St. Louis with the Wyeth Expedition, bound for Fort Vancouver, Oregon. One of the plants collected on the expedition was *Parthenium alpinum* (Nutt.) T. & G., first described by Nuttall (9) as *Bolophyta alpina*. This curious little plant, which, except for the heads, resembles a caespitose *Actinea*, has not been recollected along Nuttall's route, and the type locality has not been determined definitely. The data given by Nuttall are indefinite and confusing, and subsequent literature is of little help.

A comparison of Nuttall's description with Townsend's journal will reveal the difficulty. Here are Nuttall's words (p. 348): "Hab. In the Rocky Mountain range; latitude about 42° and seven thousand feet above the level of the sea. On shelving rocks, on the summit of a lofty hill, near the place called the

'Three Butes' by the Canadians, towards the sources of the Platte. Flowering in June."

The "sources of the Platte," that portion of the North Platte where Nuttall was, are certainly in Wyoming. Further, during all of June of 1834, the Wyeth Expedition was in what is now Wyoming. "On the 1st of June, we arrived at Laramie's fork of the Platte, and crossed it without much difficulty" wrote Townsend (12) in his narrative (p. 181). On June 30th the Expedition was still at the rendezvous on the Siskadee (Green River) in western Wyoming. On July 4th "we left Ham's fork this morning" (p. 197). Ham's fork is entirely within western Wyoming. Nuttall states, it will be noted, that the plant was flowering in June. Inasmuch as he described the anthers, style, and stigma, it would seem that he must have collected it in flower. A subsequent collection from northern Utah, made by Dr. Edward H. Graham, was collected *in flower*, in late May. The phrase "flowering in June" cannot be taken as proof of the collecting time, however. It is true that Nuttall's three new species of *Townsendia* (pp. 305-306), his two new species of *Actinella* (p. 379), and his new *Sphaeromeria* (p. 402) are all stated to have been collected near the sources of the Platte and "flowering in June." These are now known to be Wyoming plants, and hence were collected in June. On the other hand, he states that his *Stenotus acaulis* (p. 334) was collected "near the borders of Little Godin River, in the Rocky Mountains. Flowering in June." Nuttall was at "Little Godin River" about August 9.

If the plant really was collected in June, and near the "sources of the Platte," it was probably found 50 to 100 miles up or down the river from Casper, Natrona County. Perhaps Nuttall's "Three Butes" was in Wyoming but the name was not perpetuated in the locality. It is a land of buttes, Twin Buttes, Bear Mountain, Dead Man Butte, Square Top Butte, Red Buttes, and Teapot Dome all being in Natrona County, and appearing on a popular road map. It is noteworthy that two other species of Nuttall, *Actinella Torreyana* and *A. lanata*, have collecting data nearly identical to that of the *Parthenium*, namely (p. 379) "on the lofty hills or mountains, called the 'Three Butes' of the upper Platte, on shelving rocks. Flowering in June." Both of these species occur in Wyoming, and neither is reported in the manuals of the region from as far west as Idaho.

There is evidence, however, that the type locality is 325 miles to the westward, in Idaho, far from the headwaters of the Platte and the Atlantic drainage. "Our encampment this evening," wrote Townsend, in his journal under the date of July 11, 1834, "is on one of the head branches of the Blackfoot River, from which we can see the three remarkable conic summits known by the name of the 'Three Butes' or 'Tetons.' Near these flows the Portneuf, or south branch of the Snake or Lewis River." That

the Three Buttes are obvious on the scene is assured me by Dr. Walter E. Loomis, who kindly made some observations of the terrain when motoring through the region.

Few modern maps retain the name of "Three Buttes" for the conspicuous cones on the north side of the Snake River near Fort Hall and Pocatello, but that they were commonly called that a century ago is documented by Fremont (3, p. 161 [174]) where they are referred to in the journal and on the main map, and by Stansbury (11, p. 93) when he visited Fort Hall in 1849.

Townsend's "Tetons" does not refer, of course, to the Grand Tetons, which are over 100 miles away.

The only collections known to me since Nuttall's are three from Utah. In 1910 Jones (7) published his variety *ligulatum* from ". . . nearly bare clayey and gravelly knolls on ridges at 6000° alt. forming dense mats . . . Theodore [Duchesne] Utah . . ." Dr. Edward H. Graham (5) subsequently collected the plant 70 miles southwest of Jones' locality, at 6300 feet, on May 26, 1935, in flower; and Mr. E. P. Killip tells me that there is a specimen in the U. S. National Herbarium with these data: "dry rocky places, 7000 ft., San Rafael Swell, Emery Co., Utah; June 6, 1932, W. P. Cottam 5259."

The distances from the Utah stations to the Wyoming and the Idaho possibilities are, coincidentally, practically identical—about 250 miles.

There is little phytogeographic evidence favoring the Idaho more than the Wyoming locality. The distribution of many species in Idaho and northwestward, south through western Wyoming and northern Utah is indicated in manuals of the region, in many monographs, and has been pointed out by others (4, 6). But numerous species found in eastern Wyoming are found in northern Utah, too. For example, of nine other plants described by Nuttall at the time which had similar data, such as "toward the sources of the Platte," "On the Black Hills, near the sources of the Platte," etc., five have been collected in the Uinta Basin, Utah, by Graham. All nine are recorded for Wyoming in the manuals and in Esther Larsen's revision of the genus *Townsendia* (8) but *none* of them are listed for Idaho.

Further evidence that Idaho contains the locality in question is this: Townsend refers to the "Canadians," some of McKay's men, several times while in the vicinity of Fort Hall.

The latitude of the two possible type localities is too nearly the same to be helpful when compared with forty-two degrees as estimated by Nuttall. The elevation given by Nuttall (7000 ft.) favors, slightly, the Wyoming locality, but the collection need not have been made very far to the northwest of Three Buttes, Idaho, toward the Lost River Mountains, to be at 7000 feet.

The manuals and floras of the region (1, p. 179, 2, p. 540, 10, p. 924) all give Wyoming as the range.

Did Nuttall collect his plant near the headwaters of the Platte, in June, as he says, or near the Three Buttes, called thus by the Canadians—as he also says? Future collecting may decide it.

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## TWO TYPES OF BROAD-LEAF ERODIUM IN CALIFORNIA

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Shortly following the initiation of the range forage and cattle investigations at the San Joaquin Experimental Range,<sup>2</sup> O'Neals, California, in 1935, two distinct forms or types of broad-leaf *Erodium* were observed on the station lands. According to Jepson's manual (4) both types would be classified as *Erodium Botrys* (Cav.) Bertol. Growth habits of the two types differ considerably and often have a pronounced effect on the length of time green forage is available for livestock and on the total bulk of feed produced; therefore, it is economically important to be able to differentiate between them. They are easily recognized both in the cotyledon stage and after the appearance of floral parts,

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<sup>2</sup> Maintained by the Department of Agriculture, United States Forest Service, in cooperation with the University of California, Berkeley, California.