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THE TECHNICAL NAME OF THE CAMAS PLANT.

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One of the principal native food plants of several Indian tribes on our Northwest coast and in the northern Rocky Mountains is the camas plant, a member of the family Liliaceae, bearing a raceme of blue flowers and having a starchy edible bulb. It commonly passes under the technical name *Camassia esculenta*, a name which, it now appears, cannot be maintained.

In the year 1813 Ker, in the Botanical Magazine, plate 1574, figured and described a *Scilla esculenta*, the plants on which it was based having been grown at Fraser's nursery, London, from stock imported into England by Thomas Nuttall. It is necessary at the outset to identify this plant of Ker's.

From the description and the plate, no one would question that the original *Scilla esculenta* is the plant commonly called *Camassia fraseri*, but the supplementary statement made by Ker on the strength of a communication from Pursh, that it serves "as a principal article of food" to "certain Indians in the neighborhood of the [upper] Missouri River" throws doubt on this identification, for this statement cannot apply to *Camassia fraseri*. A knowledge of the origin of the plant sent to England by Nuttall would settle the matter, for the ranges of *Camassia fraseri* and *C. esculenta* are separated by a wide stretch of territory, the arid Great Plains. Ker does not give the desired information, but fortunately Nuttall himself, in his Genera of North American Plants, published in 1818, says, page 219: "In the spring of the year 1810 I discovered this plant near the confluence of Huron river [in the State of Ohio] and Lake Erie. I have since found

it abundantly in alluvial situations a few miles from St. Louis, Louisiana [that is, St. Louis, Missouri], and more recently very plentiful on the lowest banks of the Ohio." From this it is clear that Nuttall did not get his specimens on the upper Missouri in his journey of 1810 to a point near the Mandan Indian villages of North Dakota, and indeed the camas plant does not extend so far east. The possibility that Nuttall had sent to England living bulbs brought back from the Rocky Mountains by Lewis and Clark may be dismissed by the lack of any direct evidence to that effect, as well as by the facts that none of Lewis and Clark's plants are mentioned in Fraser's Catalogue, and that Pursh, who went over their specimens and from them described the camas plant, had not living specimens but only dried ones. The plants which Nuttall sent to Fraser probably came from the St. Louis, as opposed to either the Lake Erie or the lower Ohio localities, for Fraser's Catalogue contains several other plants labeled as coming from the vicinity of St. Louis; none from the other two places.

This identification of Ker's *Scilla esculenta* as the equivalent of *Camassia fraseri*, the plant of the upper Mississippi Valley region, not only is satisfactory on geographic and descriptive grounds, but it agrees with the identifications of Torrey* and Watson,† and with the doubts expressed by Ker,‡ Hooker,§ and Lindley || as to its identity with the northwestern plant. The name *Scilla esculenta* being, therefore, not available for the camas plant, the name given it by Pursh in 1814, *Phalangium quamash*, is the oldest.

In the matter of generic names these plants have been well supplied. Scilla is now considered a distinct genus, and Phalangium is a synonym of Anthericum. Various authors recognizing the camas plant as not congeneric with either of these have given it a new genus name, such as Sitocodium Salisb., Lemotris Raf., Bulbedulis Raf., and Camassia Lindl., but Dr. Britton has recently brought to light a name older than any of these, namely, Quamasia. This was published by Rafinesque in 1818 in the American Monthly Magazine, second volume, page

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* Pac. R. Rep. **4**: 147. 1857.
† Proc. Am. Acad. **14**: 241. 1879.
‡ Bot. Mag. **38**: *t. 1574.* 1813.
§ Bot. Mag. **54**: *t. 2774.* 1827.
|| Bot. Reg. **18**: *t. 1486.* 1832.

265. In this publication, which was a review of Pursh's Flora, Rafinesque renamed Pursh's *Phalangium quamash* as *Quamasia esculenta*, thus giving to the camas plant its first name as a distinct genus.

The generic name Cyanotris of Rafinesque has given botanists some trouble from its citation as an equivalent of Camassia. It appears that Rafinesque twice published this generic name, apparently using it each time in a different sense. His first publication of it was in 1818 (not 1811 as cited in the Index Kewensis), on page 356 of the third volume of the American Monthly Magazine, where he described under the name *Cyanotris scilloides* a plant which has been referred sometimes to the northwestern, sometimes to the eastern Camassia. On geographic grounds, however, it cannot be the northwestern plant, and if it is the eastern plant Rafinesque's brief description is not altogether correct, for the leaves are not oblong-lanceolate nor is the capsule trispermous. In the following year, on page 192 of the fourth volume of the same journal, Rafinesque again published the name Cyanotris, this time basing it upon Michaux's *Helonias angustifolia*, a plant which is referred by recent authors to Zygadenus.

The citation and synonymy of the genus Quamasia are as follows:

Quamasia Raf.

Quamasia Raf., Am. Month. Mag. **2**: 265. February, 1818.
Cyanotris Raf., Am. Month. Mag. **3**: 356. September, 1818. Not Cyanotris Raf. 1819.
Lemotris Raf., Fl. Tellur. **2**: 26. 1836.
Bulbedulis Raf., Fl. Tellur. **2**: 26. 1836.
Camassia Lindl., Bot. Reg. **18**: *t. 1486*. 1832.
Sitocodium Salisb., Gen. Pl. Fragm. 27. 1866.

A rough synopsis of the species, with the principal bibliographical references, may be useful to students who desire to make a critical study of the group.

* *Perianth more than 18 millimeters in length.*

† *Perianth nearly regular, its parts commonly connivent above the ovary when withering, 5 to 9-nerved, usually 7-nerved.*

Quamasia leichtlinii (Baker).

Chlorogalum leichtlinii Baker, Gard. Chron. new ser. **1**: 689. 1874.
Camassia esculenta leichtlinii Baker, Bot. Mag. **103**: *t. 6287*. 1877.
Camassia leichtlinii Wats. Proc. Am. Acad. **20**: 376. 1885.

A species with flowers from dark blue to white, the bulbs eaten by the aborigines. It apparently ranges from the Cascade Mountains of Washington and Oregon westward to the Pacific, northward to Vancouver Island, and southward along the coast to the vicinity of San Francisco. It was described from white-flowered specimens cultivated in Europe from material collected in British Columbia by John Jeffrey in 1851.

†† *Perianth clearly irregular, five of its parts ascending, the other deflexed, all of them 3 to 5-nerved, usually 3-nerved, seldom connivent above the ovary when withering.*

‡ *Stems few to several in a cluster, commonly 60 to 80 centimeters high; leaves usually 2 to 3.5 centimeters broad; capsules obtuse at the apex, much exceeded by their pedicels.*

Quamasia cusickii (Wats.).

Camassia cusickii Wats. Proc. Am. Acad. **22**: 479. 1887.

The largest species of the genus, its flowers pale blue. The species is known only from the original locality, "slopes of the Eagle Creek [also known as Wallowa and Powder River] Mountains, [north] eastern Oregon, at 4,000 to 6,000 feet altitude," where it grows "on hillsides instead of in wet meadows," while its bulb is "nauseous, pungent, and inedible."

‡‡ *Stems commonly single, usually 30 to 50 centimeters high; leaves seldom exceeding 2 centimeters in width; capsules broadly acute at the apex, equaling or exceeding their pedicels.*

Quamasia quamash (Pursh).

Phalangium quamash Pursh, Fl. Am. Sept. **1**: 226. 1814.
Quamasia esculenta Raf. Am. Month. Mag. **2**: 265. 1818.
Anthericum esculentum Spreng. Syst. Veg. **2**: 84. 1825.
Camassia esculenta Lindl. Bot. Reg. **18**: *t. 1486*. 1832.
Camassia quamash Greene, Man. Bay Reg. Bot. 313. 1894.

Flowers usually dark blue, varying occasionally to white. This is the original camas plant of Lewis and Clark, who brought from the headwaters of the Missouri, in western Montana, the specimens on which Pursh's description was based. It extends westward at least to the Cascade Mountains of Washington and Oregon, and the Sierra Nevada of northern California, reaching southward into northern Nevada and Utah. It grows typically in so-called camas meadows, where the basaltic soil is very soft and wet in spring, but exceedingly hard and dry later in the season. The bulbs are still an important food among the Indians in many localities.

** *Perianth less than 18 millimeters in length.*

† *Pedicels longer than the bracts; anthers about 3 millimeters in length.*

Quamasia howellii (Wats.).

Camassia howellii Wats. Proc. Am. Acad. **25**: 135. 1890.

Perianth described as pale purple, the capsules, about 6 millimeters in length, borne on pedicels three to four times as long. The species is known only from Grant's Pass, in southwestern Oregon.

†† *Pedicels shorter than the bracts; anthers about 2 millimeters or less in length.*

Quamasia esculenta (Ker).

Phalangium esculentum Nutt. in Fraser's Cat. 1813. Nomen nudum.

Scilla esculenta Ker, Bot. Mag. **38**: *t. 1754.* 1813.

Phalangium esculentum Nutt.; Ker, Bot. Mag. **38**: *t. 1574.* 1813. As synonym.

? Cyanotris scilloides Raf. Am. Month. Mag. **3**: 356. 1818.

Lemotrys hyacinthina Raf. Fl. Tellur. **3**: 51. 1836.

Camassia fraseri Torr. Pac. R. Rep. **2** [pt. 4]: 176. 1855.

Scilla fraseri Gray, Man. ed. 2. 469. 1856.

Sitocodium esculentum Salisb. Gen. Pl. Fragm. 27. 1866.

Quamasia hyacinthina Britton in Britton & Brown, Ill. Fl. **1**: 423. *fig. 1018.* 1896.

Scilla angusta Engelm. & Gray, Bost. Journ. Nat. Hist. **5**: 237. 1845.

Camassia fraseri angusta Torr. & Gr. Pac. R. Rep. **2** [pt. 4]: 176. 1855.

A plant with pale blue flowers, popularly known as the "wild hyacinth." It ranges almost throughout the Mississippi Valley, from western Pennsylvania to Wisconsin, Kansas, and southwestward to central Texas.

The two synonyms last cited belong to a narrow-leaved small-flowered plant (leaves seldom exceeding 6 millimeters in width, and perianth about 6 millimeters in length, as opposed to 8 to 12 millimeters and 10 millimeters respectively in the typical plant), originally collected by Lindheimer at New Braunfels, in central Texas, and said to extend to Louisiana and Missouri. Though considered a variety of this species by most authors, it merits critical study in the field, as, if the difference in time of flowering cited by the describers prove constant, it is probably a distinct species.