

## VII. WHAT IS ANGELICA TRIQUINATA?

(Plates 768 and 769)

In his *Flora Boreali-Americana*, i. 167 (1803) Michaux described from "Canada" a single species of *Angelica* as

TRIQUINATA. *A. petiolo tripartito; partitionibus pinnato-quinquefoliolatis; foliolis inciso-dentatis; terminalium impari rhombo, sessili, lateralibus decursivis.*

*Obs.* Glabra: pedunculo pedicellisue minutissima pube subcandicantibus.

*Hab.* in Canada.

Pursh (1814) took it up, literally copying Michaux's diagnosis but giving the range "In Canada and on the mountains of Virginia", from which it is probable that Pursh was stretching the name to cover the later published *Angelica Curtisii* Buckl.; and others, Bigelow, *Fl. Bost.* (1814) for instance, accepted it for the common New England *A. atropurpurea* L.

In 1818 three different authors independently considered *Angelica triquinata* to be the plant of dry woods and thickets southward, with stem closely tomentulose above, with thick lanceolate to oblong regularly and closely serrate leaflets, the upper or bracteal leaves (subtending inflorescences) reduced to linear-cylindric or lanceolate tubular sheaths with tiny blades, the plant which Walter, *Fl. Carol.* 115 (1788) had well described as *Ferula villosa*, i. e. *Angelica villosa* (Walt.) BSP. Muhlenberg, *Cat. ed. 2: 30* (1818), substituted for *A. triquinata* Michx. his own *A. hirsuta*, saying without quibble ANGÉLICA . . . "1 *hirsuta, triquinata, Mx.*" and giving the single descriptive word, "downy", Muhlenberg's plant coming from "Pens. fl. Aug. N. Eb." At best *A. hirsuta* Muhl. is a *nomen subnudum*; but since he used the name as a substitute<sup>1</sup> for *A. triquinata* Michx. (1803) it is illegitimate. Nuttall, also in 1818, took up *A. triquinata*, obviously for *Ferula villosa* Walt. His description of the plant "Common around Philadelphia" was good, except for the phrase, "Leaves sharply and incisely serrate", evidently borrowed from Michaux; and, obviously not understanding Michaux's plant, he commented on the plant of "Canada to

<sup>1</sup> In his *Cat. ed. 1: 31* (1813) Muhlenberg had published the trinomial *Angelica hirsuta triquinata* as a "downy" plant of "Pens." It was in the 2nd edition (1818) that he cited *A. triquinata* Michx. as a synonym of his *A. hirsuta*.



Carolina" as "Certainly a genuine species". In the same year Sprengel, *Species Umbelliferarum minus cognitae*, 69, t. vi. fig. 12 (1818), based his *Pastinaca triquinata* upon *Angelica triquinata* Michx., "Habitat in Canada et Virginia" (borrowed from Pursh), and gave a fine description and excellent illustration of *Ferula villosa* Walt., changing the "Foliolis inciso-dentatis; terminalium impari rhombeo, sessili" etc. of Michaux (impossible for *Ferula villosa*) to "foliolis oblongis" of *F. villosa*, and noting the reduced upper blades and sheath-like petioles of the latter, "Superiora minus divisa vaginis petiolaribus insidentia".

Many authors followed these false leads and the name *Angelica triquinata* Michx. became general, as the first supposedly available combination under *Angelica* (following the sensible, therefore abandoned, "Kew Rule") for *Ferula villosa* Walt.; not merely Nuttall and Sprengel so using it, but Elliott, Torrey, DeCandolle and others accepting the identification. When Sprengel took it up as the basis of *Pastinaca triquinata* (Michx.) Spreng. he did so in a work on Umbelliferae "minus cognitae", and his phrase very definitely described his understanding of Michaux's plant. When he first studied Michaux's herbarium Asa Gray saw the error, his memorandum reading "Not the least what we call *A. triquinata*. DC. has confounded strangely if he ever saw Michx's. plant . . . It is *A. atropurpurea*?—tho' very poor specimen".

Gray's guess is hardly better than that of his predecessors, for even his "tho' very poor specimen" does not endow the Michaux plant with the characters of *A. atropurpurea*. In the latter the upper leaves, which subtend inflorescences, have large, inflated and round-tipped stipular sheaths extending quite to the summit of the obscure petiole, so that the 3 divisions of the leaf are essentially sessile, and the leaflets are not incised-dentate. Furthermore, the subspherical umbel has 20-46 rays. In 1903 I made a photograph of the Michaux TYPE at Paris. This (PLATE 768) shows,  $\times \frac{1}{2}$ , the incised-dentate leaflets, the terminal unequally rhombic, the lateral decurrent, as described by Michaux. It also shows the stipular sheath narrow and tapering to the elongate and naked upper half of the petiole; and the axillary branch has one slender and tubular bladeless sheath and an immature umbel with only 7 ascending rays. I have been over, with Dr. Hugh M. Raup, all known eastern North



American *Umbelliferae*. Every one of them is quickly rejected as not Michaux's plant, except the Alleghenian *A. Curtisii* Buckley, Am. Journ. Sci. xlv. 173 (1843) which follows the upland and the mountains from Pennsylvania to Georgia. Buckley's species gives a good match for *A. triquinata*, a more modern specimen from the Blue Ridge of Virginia (near Luray, alt. 3600 ft., *Steele & Steele*, no. 213), reproduced as PLATE 769, showing a portion of a plant,  $\times \frac{1}{2}$ , with the tapering sheath (at base), the elongate petiole (near base), the incised leaflets, the terminal one rhombic, the lateral (upper) ones decurrent and the few-rayed umbel of the Michaux type. Buckley's plant, from "High mountains of North Carolina" had "petioles large, long, and sheathed at the base; segments of the leaves 3-5, leaflets large and deeply laciniate". It is evident that "Canada" of Michaux's label and description was a clerical error for CAROLINA, Michaux having collected extensively in the Carolina mountains. It is clear, then, that the name *Angelica Curtisii* Buckley (1843) must give way to *A. TRIQUINATA* Michx. (1803).

Another reason for thus reviewing the interpretations of *Angelica triquinata* is the fact that the name *A. villosa* (Walt.) BSP. Prelim. Cat. N. Y. 22 (1888) is a later homonym, invalidated by the fully described *A. villosa* Lagasca, Gen. et Sp. Pl. 12 (1816), a plant of Asturia. Since, furthermore, *A. hirsuta* Muhl. was an illegitimate substitute for *A. triquinata* Michx., the name *hirsuta* used very carelessly for a plant which is not hirsute but said to be "downy" (many a youth with downy face has anxiously waited for it to become hirsute), the name *A. triquinata*, long used for *A. villosa*, seemed to come into the running. That it cannot be taken up for *A. villosa* (Walt.) BSP. should be sufficiently clear.

Only one other name is sometimes cited as synonymous with *Angelica villosa* (Walt.) BSP. This is *Cicuta venenosa* Greenway in Trans. Am. Phil. Soc. iii. 235 (1793), incorrectly cited by Pursh as *C. venenata* in his synonymy of *Ferula villosa*. Greenway, not now a well known botanist, was "Dr. James Greenway, of Dinwiddie-County, in Virginia." His account of the plant as an acute poison when eaten and his very detailed description are conclusive. It is unnecessary to quote the whole, but Dr. Greenway's solicitude for the Philosophical Society, to whom he



communicated his paper on February 19, 1790, is worth quoting: "I will here insert the description, as it stands in my catalogue, first, in botanical terms, for such as are lovers of that science, and then in language, as plainly English as the subject will admit, for the sake of those to whom those terms are less familiar." The detailed description, with "Caulis . . . quatuor pedes altus, teres, . . . superne tomentosus.—Folia petiolata, petiolis semi-amplexicaulibus, . . . triternata, bipinnata, . . . foliolis sessilibus, oblongo-lanceolatis, serratis", and the habitat and flowering season (in Dinwiddie County), "Locis campestribus et collibus apricis gaudet: mensibus Julii Augustique floret", are wholly indicative of *A. villosa*. The latter should, therefore, be called:

**ANGELICA venenosa** (Greenway), comb. nov. *Cicuta venenosa* Greenway in Trans. Am. Phil. Soc. iii. 335 (1793). *Ferula villosa* Walt. Fl. Carol. 115 (1788). *A. triquinata* sensu Nutt. Gen. i. 186 (1818) and later authors, not Michx. (1803). *Pastinaca triquinata* Spreng. Spec. Umb. 69, t. vi. fig. 12 (1818) as to plant described and illustrated, not as to source of epithet, *A. triquinata* Michx. *Archangelica hirsuta* Torr. & Gr. Fl. N. Am. i. 622 (1840) as to plant described, only in part upon source of epithet, *Angelica hirsuta* Muhl. Cat. ed. 2: 30 (1818), an illegitimate substitute (as treated by Muhlenberg) for the early *A. triquinata* Michx. (1803). *A. villosa* (Walt.) BSP. Prelim. Cat. N. Y. 22 (1888) by inference only, not *A. villosa* Lagasca, Gen. et Sp. Pl. 12 (1816).

MEMORANDUM REGARDING JAMES GREENWAY.—I am indebted to Mr. J. M. Townsend of Petersburg, Virginia, for a reference to Castiglioni's Reise durch die Vereinigten Staaten von Nord-Amerika in den Jahren 1785, 1786 and 1787. On p. 274 of this German translation we read:

"Eine Meile von Petersburg liegt die Wohnung des Obristen **Banister**, der eine ausgedehnte Pflanzung besitzt. Er is ein Enkel des berühmten **John Banister**, der seine Stelle als Professor der Botanik und Bibliothekar der Universität Oxford niederlegte, und sich in diesem Thiele von Virginien niederliess, wo er mit grosser Mühe und seltenem Urtheil eine Menge der seltensten Pflanzen sammelte, und beschrieb. . . Am folgenden Tage stattete ich einen Besuch beym **D. Greenway** ab, der ein Engländer von Geburt, und ein Liebhaber der Botanik ist. Er hatte sich selbst mit den Grundsätzen des Linneischen Systems be-



kannt gemacht, und wusste mehr als 600 Pflanzen zu nennen, unter denen einige ziemlich seltene und noch unbeschriebene waren."

Mr. Townsend also most kindly transcribes for me extracts about Dr. James Greenway from the recently (1942) published Dinwiddie County "The Country of the Apamatica", compiled by the workers of the Writer's Program of the Works Projects Administration. From this account (p. 77) I quote: "It was after he had established himself in Dinwiddie as a man of wealth and importance—somewhat Scottish as he was—that he turned his whole attention to natural history and botany. Some 40 volumes that deal with plants of Virginia and North Carolina flowed from his pen and won him honorary membership in several European societies and friendships with scholars the world over. Thomas Jefferson, that great patron of learning, frequently corresponded with Dr. Greenway and gave consistent encouragement to the botanical investigations of the Dinwiddie scientist."

I have hunted in vain, with the collaboration of Dr. Schubert, for the "40 volumes that deal with plants". Pritzel (Thesaurus) did not know of them. Dryander, Cat. Bibl. Hist.-Nat. Banks, iii. 542 and 598 (1797) and the Royal Society Catalogue, iii. 5 (1869) could muster only the two short papers in vol. iii. of the American Philosophical Society's Transactions (1793), the first on *Cassia Chamaecrista* as a soil-renovator, the second the account of *Cicuta venenosa*. If, contemporary with Thomas Walter (1788) and prior to Michaux (1803), Pursh (1814) and Elliott (1816 et seq.), there were two score volumes published, describing in such clear diagnoses as that of *Cicuta venenosa* 600 plants of Virginia and North Carolina, their discovery would be of utmost importance and extremely disconcerting.

Through the most helpful cooperation of Messrs. Jack Dalton of the Alderman Library at the University of Virginia and R. W. Church of the Virginia State Library the excitement among taxonomists over the "40 volumes that deal with plants of Virginia and North Carolina [which] flowed from his [Greenway's] pen" is now abated. Under date of November 21, 1942, Mr. Dalton wrote: "The reference . . . puzzles us as much as it does you. I have examined our catalogues, the calendars of



Jefferson's Correspondence, the bibliographies, English and American, available here, and *Swem's Index*, and have not been able to find the slightest evidence of the existence of the forty volumes or the voluminous correspondence of Jefferson. Dr. Greenway's name is not mentioned in our calendar of Jefferson's correspondence". Mr. Church, examining the notes made by the Virginia Writer's Project in connection with their history of Dinwiddie County, found that the statement concerning the forty volumes was derived from the Memoirs of Lieutenant General Winfield Scott, vol. 1, pp. 3-6 of the edition of 1864. Here is the quotation as filed by the authors of the history of Dinwiddie County:

"His professional reputation brought him patients from a wide circumference, but, as he became rich, he gradually withdrew from the practice of medicine, and gave himself up to the culture of polite literature and natural history, particularly botany, and left a *hortus siccus* of some forty folio volumes in which all the more interesting plants, etc., of Virginia and North Carolina, were described in classical English and Latin."

A *hortus siccus* being a collection of dried plants (an herbarium) it is evident that the presumably very accurate descriptions of Greenway which "flowed from his pen" did not reach publication.

In publishing the genus *GREENWAYA* Giseke, Praelect. Ord. Nat. Plant. 226 (1792), wrote: "in honorem Cl. . . . GREENWAY, Med. Dris. in Virginia, cujus amicitiam & cum eo commercium debui epistolarum Cl. Drury, inter Entomologos celebri. Misit ille ab a. 1773-1775. plantas Virginicas siccatas, vivas a se collectas, ad 400. eo fine ad me, ut novam Floram Virginicam juncto labore concinnaremus, sed bello inter Anglos & colonias orto, conatus omnis profligatus est, ita ut nesciam num vivus adhuc supersit nec-ne? Eo tamen labore utique de Botanica meritus est".

(To be continued)





Photo. M. L. Fernald.

Type of ANGELICA TRIQUINATA Michx.,  $\times \frac{1}{2}$ .





Photo. B. G. Schubert.

ANGELICA TRIQUINATA Michx: portion of plant,  $\times \frac{1}{2}$ , of *A. Curtisii* Buckley.





Fernald, Merritt Lyndon. 1943. "What is *Angelica triquinata*?" *Contributions from the Gray Herbarium of Harvard University* (148), 298–303.

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