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Two new North American species of *Vitis*

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have been easier at that period than today, for the climate was perhaps milder and the Mackenzie Delta not quite so far north. The discoveries at Fairbanks seem to indicate, however, that some at least of the early migrants passed up the Yukon Valley, crossed to the eastern side of the Rockies (probably over the low divide at the headwaters of the Liard River), and traveled down the eastern foothills of the mountains into the United States. Some of the later migrants may have traveled down the western side of the Rockies also, but in early postglacial times this route was probably blocked by ice.

**BOTANY.**—*Two new North American species of Vitis.*<sup>1</sup> J. L. FENNELL, U. S. Plant Introduction Garden, Coconut Grove, Fla. (Communicated by S. F. BLAKE.)

This paper includes descriptions of a new grape of the *aestivalis* series from Florida and of another of the *rotundifolia* group from Mexico. The latter is of especial interest as the first member of the section *Muscadinia* found in the tropics.

*Vitis gigas* Fennell, sp. nov.

Fig. 1

FLORIDA BLUE GRAPE

Rami saepius glandulari-spinulosi, innovationibus dense albido-vel ferrugineo-tomentosis; folia magna saepius 3-5-lobata inaequilateralia, lobis acutis vel acuminatis; thyrsi fructiferi plerumque ramosi conici; baccae nigrae glaucae 10-14 mm diam.; semen ca. 6 mm longum 4 mm latum pallide olivaceum, raphi canalem apice seminis paene explente, rostro et chalaza obscure aurantiacis.

Series Aestivales. Vigorous high-climbing and heavy-foliaged vine with large leaves and strong heavy canes; internodes medium to long, mostly beset with few to many glandular prickles on strong growths; young wood green or reddish, mostly with some pruinose bloom near nodes, but this often obscured by the rusty wool; canes terete, finely striate, mostly retaining gray tomentum and black prickles into winter, then of a dark buckeye color; diaphragm of full-sized dry canes typically about 3 mm thick; tendrils intermittent, strong, often trifid, brown-woolly; growing tips and young leaves covered with a dense white or cream or even rusty-colored feltlike tomentum which mostly becomes rusty-floccose a foot or so back from tip. Petioles slender, medium to long, usually 6-8 cm, often retaining loose wool, round or sometimes shallowly grooved above; leaves large, commonly 6-7 inches long from tip of apex to tip of basal lobe, by 5-6 inches broad, often larger, rusty, tan or gray-tomentose beneath; generally ovate, mostly sharp-shouldered, but often 3- or sometimes 5-lobed, and then often unequalateral; margin irregularly, sometimes deeply sinuate-toothed with most of the principal veins ending in a slender cusplike point; basal sinus broadly to narrowly U-shaped; apex of leaf acute and mostly long-tapering; shoulder points mostly acute and often long-acuminate, occasionally

<sup>1</sup> Received September 15, 1939.

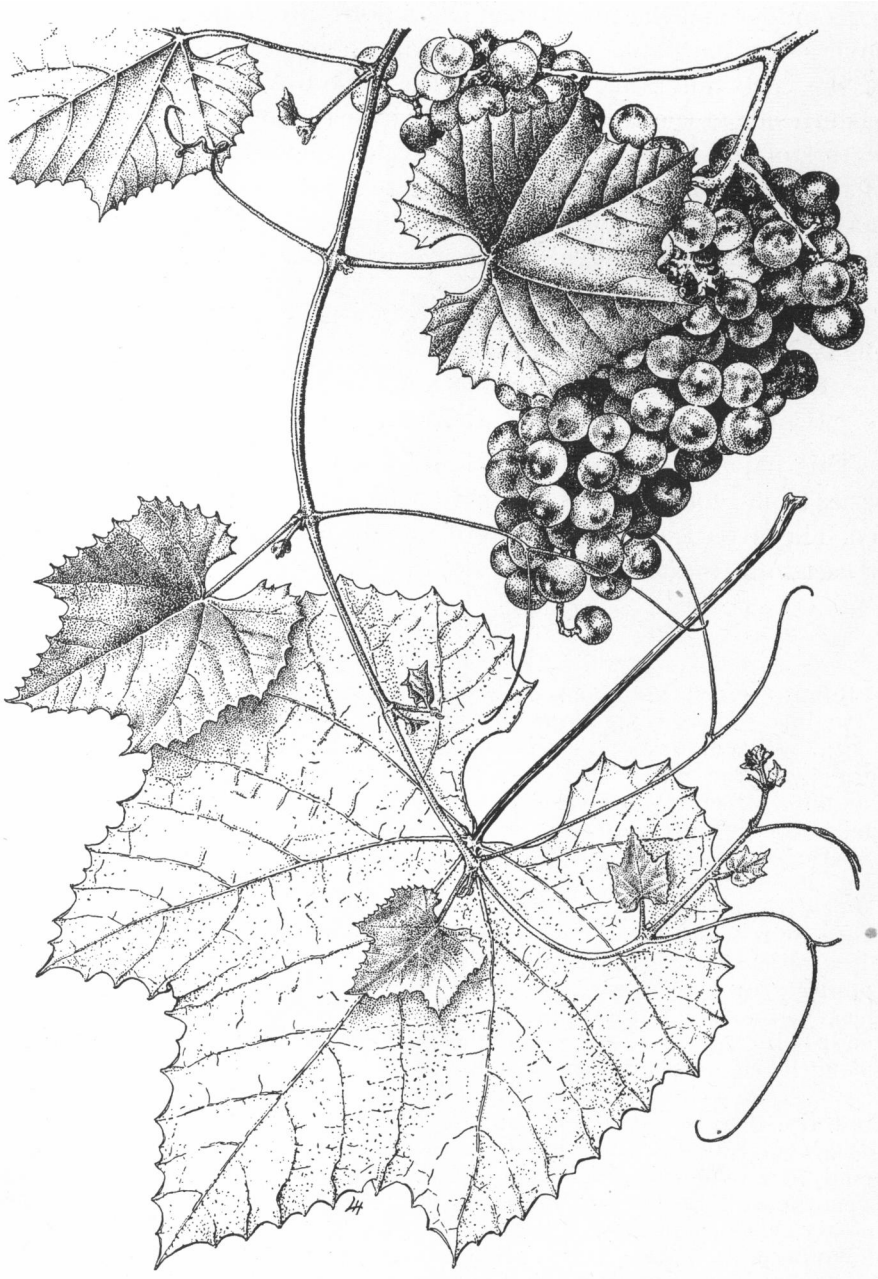


Fig. 1.—*Vitis gigas*,  $\times \frac{1}{2}$ .

rounded and then mostly short-acuminate-tipped. Inflorescences 11–19 cm long, conical to broadly so, mostly well compounded; peduncle slender and moderately long, often with false tendril; pedicel slender and long, giving cluster a somewhat lax appearance, at insertion of berry green and but little warty. Berry spherical to slightly oblate, 10–14 mm, black, with medium to heavy bloom, mostly blue in appearance when ripe; pulp greenish. Seeds plump, 6 mm long by 4 mm broad, pale olive or tan in color due to the tan-colored scurf which holds tightly to the coffee-colored testa; chalaza round to ovate, little sunken, and like the beak, of a dull orange color; raphe and chalaza surrounded by a tiny groove on outer face; ventral depressions pale tan in color, shallow, curving away from raphe toward top.

FLORIDA: Sebastian River, near Roseland, Brevard County, July 20, 1938, *J. L. Fennell* 713 (type nos. 52252–52253, National Arboretum Herbarium).

From present knowledge *Vitis gigas* apparently has a very limited range, though in colonies where found it constitutes the typical and abundant representative of the Aestivalian series. In a few cases it takes close observation to distinguish by the foliage alone the Florida blue grape from some of the natural hybrids of *V. shuttleworthii* or of *V. simpsoni* (*V. cinerea floridana*). However, the spinulose pubescence of the internodes, the blue bloom of the shoots and fruit, the much larger leaves, the green pulp of the berries, and the different seeds are distinctive.

In a few respects, such as shape of leaf, *Vitis gigas* is suggestive of some of the midway forms of *V. aestivalis* and *V. argentifolia* as seen in Virginia or Kentucky. The great vigor and rampant growth of the Florida species, however, as well as the different soil and climatic associations and its botanical peculiarities, set the Florida blue grape apart as a distinct kind.

The species is characteristically found forming heavy canopies of foliage over trees along the dry shelly banks of brackish waterways and lagoons. Together with the rampant *Dalbergia ecastaphyllum*, it often forms almost smothering mantles of growth that extend from the water's edge to the tops of the highest jungle trees. I have often seen half-grown boys clamber up over these strong tangles of vines from the water to the very topmost branches of the trees 50 feet or so above the river.

*Vitis gigas* is found mostly in sweet soil having a high shell content.

### *Vitis popenoei* Fennell, sp. nov.

Fig. 2

“TOTOLOCHE” GRAPE; SOUTH MEXICAN MUSCADINE GRAPE

Cortex adhaerens lenticellatus non fissilis; medulla nodis non interrupta; cirrhi interrupti simplices; folia serrata glabrata longiora quam latiora longe attenuata, in petiolis pubescentibus supra sulcatis; semen reticulatum in facie exteriori e rostro ad apicem sulcatum.

Subgenus *Muscadinia*. Slender vine with tight, lenticellate, nonshredding bark; pith of canes continuous; matured first year canes olive-brown in color, lucid, sometimes finely puberulent especially near nodes, often somewhat swollen above nodes; tendrils intermittent, simple, glabrous except near base; young growth somewhat angled or squared. Mature leaves small to medium, usually cordate-ovate with slenderly acuminate apex, not broader

than long (from insertion of petiole to apex), thin, rugose, lucid, glabrous on both sides except for some pubescence on the nerves beneath, moderately to coarsely serrate and often finely ciliate, the sinus narrowly to broadly V-shaped, the under surface occasionally somewhat reddish, the shoulder points sometimes prominent; lateral veins (not including the subbasal veins) 3 or 4 pairs; petioles slender, moderately long, grooved above, finely and

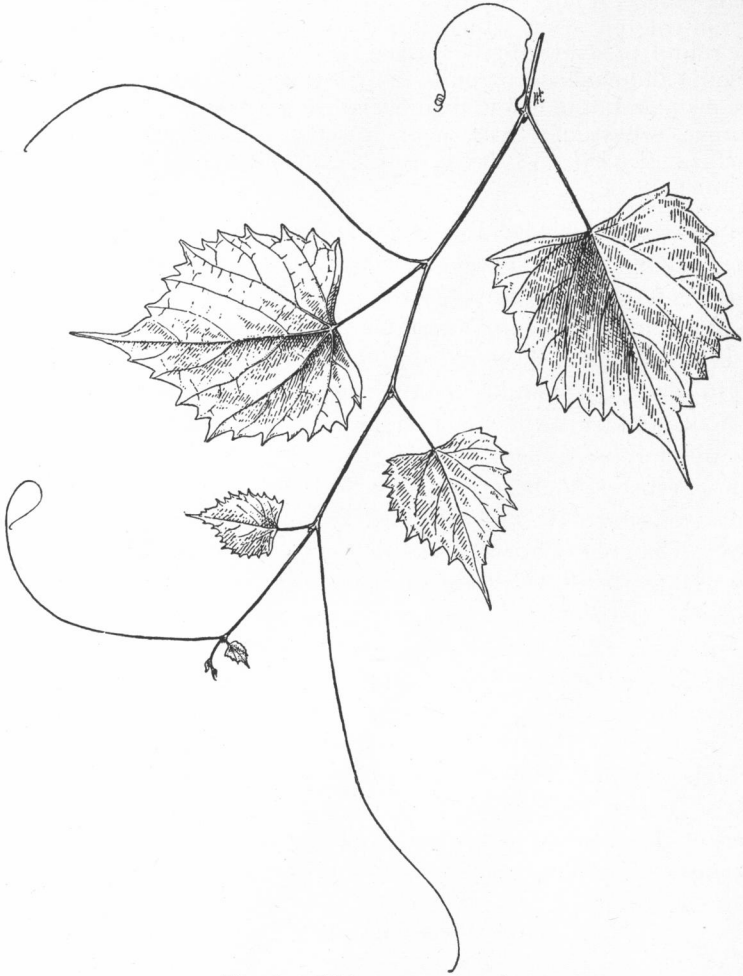


Fig. 2.—*Vitis popenoei*,  $\times \frac{1}{2}$ .

closely puberulent. Fruiting panicle not seen (said to be of small to medium size); berry not seen (said to be about one-half inch in diameter, maroon red to purple in color; skin thick; pulp green; ripe fruit has musky aroma [Popenoe's notes]). Seeds mostly about 5.5–6 mm long, about 4 mm broad, ovoid to nearly oblong, often unequally developed; beak short; groove extending from beak to top of seed on outer face; chalaza elliptical to sometimes nearly round; raphe evident only on inner face of seed and then as narrow thread; color of seed very dark and surface when dry reticulate-wrinkled.

MEXICO: Grown at Coconut Grove, Fla., from seed collected by Wilson Popenoe (P.I. 119001) at Puerto Mexico, Isthmus of Tehuantepec, Veracruz, Mexico. Type no. 56266, National Arboretum Herbarium, collected July 5, 1939, by J. L. Fennell (no. 1008).

In general appearance *Vitis popenoei* is somewhat more suggestive of *V. rotundifolia* than of *V. munsoniana* owing to the mostly smaller-toothed leaf margins and the thin, rugose leaf texture. It is at once distinguished from either of these species, however, by the relatively longer leaves and by the slenderly prolonged leaf apex. In this respect the foliage is somewhat suggestive of that found on certain forms of *V. cordifolia*. Average leaves of both *V. rotundifolia* and *V. munsoniana* measure broader than long (from insertion of petiole to apex) in distinct contrast with those of *V. popenoei*, which are mostly not broader than long.

In addition to its botanical differences *V. popenoei* occupies a distinct climate and a range several hundred miles farther south than that occupied by either of the other two known species of *Muscadinia*. It is the first and only muscadine grape yet known to occur naturally within the tropics. A study of its genetic relationship as regards the other muscadine and *Euveitis* species might bring to light certain characters of horticultural or botanical interest.

BOTANY.—*Two new species of Muhlenbergia*.<sup>1</sup> CHARLOTTE O. GOODDING, Rocky Mountain Herbarium, Laramie, Wyo. (Communicated by JASON R. SWALLEN.)

Recent study of the genus *Muhlenbergia* has revealed the presence of two new species, both of which occur in the canyons of southern Arizona.

***Muhlenbergia xerophila* C. O. Goodding, sp. nov.**

Perennis; culmi dense caespitosi, glabri vel scaberuli, 45–90 cm alti; ligula obtusa, 1.5–3 mm longa; laminae involutae, 15–50 cm longae, 1–1.5 mm latae; panicula pallida, 15–35 cm longa; glumae 2–3 mm longae, acutae vel acuminatae, scabrae ad apex; lemma 4 mm longum, scabrum; callum hirsutum; arista 18–25 mm longa.

Plants perennial; culms densely caespitose, glabrous to very slightly scabrous especially below the nodes, 45–90 cm tall or sometimes more; sheaths rounded, very slightly scaberulous; ligule membranaceous, 2–4 mm long, obtuse; blades involute, 1–1.5 mm wide, 15–50 cm long; panicle open, 15–35 cm long about 4–5 cm wide, pale, the branches up to 7 cm long, filiform, flexuous; spikelets about 4 mm long; glumes equal to slightly unequal 2–2.5 or even 3 mm long, 1-nerved, acute to acuminate, the apex scabrous to very short pubescent; lemma about 4 mm long, scabrous above with short tufts of hairs on the callus, 3-nerved, the midnerve extending into a slender awn 10–35 mm long.

<sup>1</sup> Contributions from the Department of Botany and the Rocky Mountain Herbarium of the University of Wyoming, Laramie, Wyo., no. 175. Received September 25, 1939.