Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 52. October, 1950 No. 622

SHORTIA GALACIFOLIA FROM GEORGIA

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On 8 December, 1788, André Michaux collected *Shortia galacifolia* Torr. & Gray at the headwaters of the Keowee River (in Oconee County, South Carolina). He placed the material of this collection in his herbarium among "*plantae ignotae*", where Asa Gray found it early in 1839. From that time until the present much has been written about *Shortia*. Probably no other plant in the eastern United States has received so much attention by botanists. Its history since 1839 is well summarized by Jenkins[1] in 1942, a little more being added by Prince[2] in 1947. Up to 1949, *Shortia* had been found growing wild in McDowell, Transylvania and Macon Counties (?), North Carolina; and in Oconee County, South Carolina. On 19 March, 1949, the authors located a colony in Rabun County, Georgia, the third state and fifth county in which *Shortia* is known to grow.

Since 1939, the senior author had been looking more or less casually for *Shortia* in northeast Georgia, but without success. More recently the junior authors also became interested in the possibility of locating the plant in this same area. During the first two months of 1949 plans gradually materialized for a joint trip to search for the species. Saturday, 19 March, was chosen as the date when all could make the trip and have the most promise of locating flowering plants (A. E. Prince et al., collected flowering material in Oconee County, South Carolina, on 18 March, 1944).

[1] C. F. Jenkins, Arnoldia **2**: 13–28.
[2] A. E. Prince, Rhodora **49**: 159–161.

The weather had been unseasonably warm for some time, but on Saturday morning the roadside banks were heavy with frosted earth. As we drove out of Walhalla, South Carolina, frost could be seen on the mountains in the distance. Soon we were climbing the mountain grade north of Pine Mountain Post Office, Georgia, and before long had turned to the right on the Burrell's Ford-Glade Mountain road. Frequent stops were made to search in places that seemed the most likely to support a colony of *Shortia*.

The afternoon found us in the Reed Creek area southwest of Glade Mountain. One stop along the narrow forest-road was at at area of exceptional relief, a precipitous ravine nearly south of Glade Mountain. We were walking single-file under *Kalmia* and *Rhododendron* along the steep slopes of the ravine a short distance from the creek, when suddenly the senior author, who was leading the file at that time, saw a colony of *Shortia*. The colony was about 8 feet long and 4 feet wide. Less than twenty inches from the far end of the colony was the end of an icicle about 18 inches long. Even in spite of the cold weather, flowers could be seen here and there over the colony. Inspection showed that they were among the last of the season as there were many peduncles, each with a persistent calyx, and there were no more flower-buds. Pictures were taken and specimens collected (*Duncan* 9083, with McDowell and Venard).

It seemed that there should be other colonies but an additional search of over an hour was fruitless (On another trip in August the senior author did locate another small colony deep in the ravine over a hundred yards from the first colony). We were happy about finding *Shortia* in another state on the first trip that any of us had made with definite plans to look for it, and contrasted our good fortune with the fruitless search for the species by Asa Gray and others over a period of 40 years following 1839. The fact that previously discovered localities in adjacent South and North Carolina were of considerable assistance in directing our search did not dim our elation.

Although much has been written about the history of *S. galacifolia*, one part seems to have been neglected—that part covering the period of many thousands of years before Michaux collected it in 1788 at the headwaters of the Keowee. *S. galaci-*

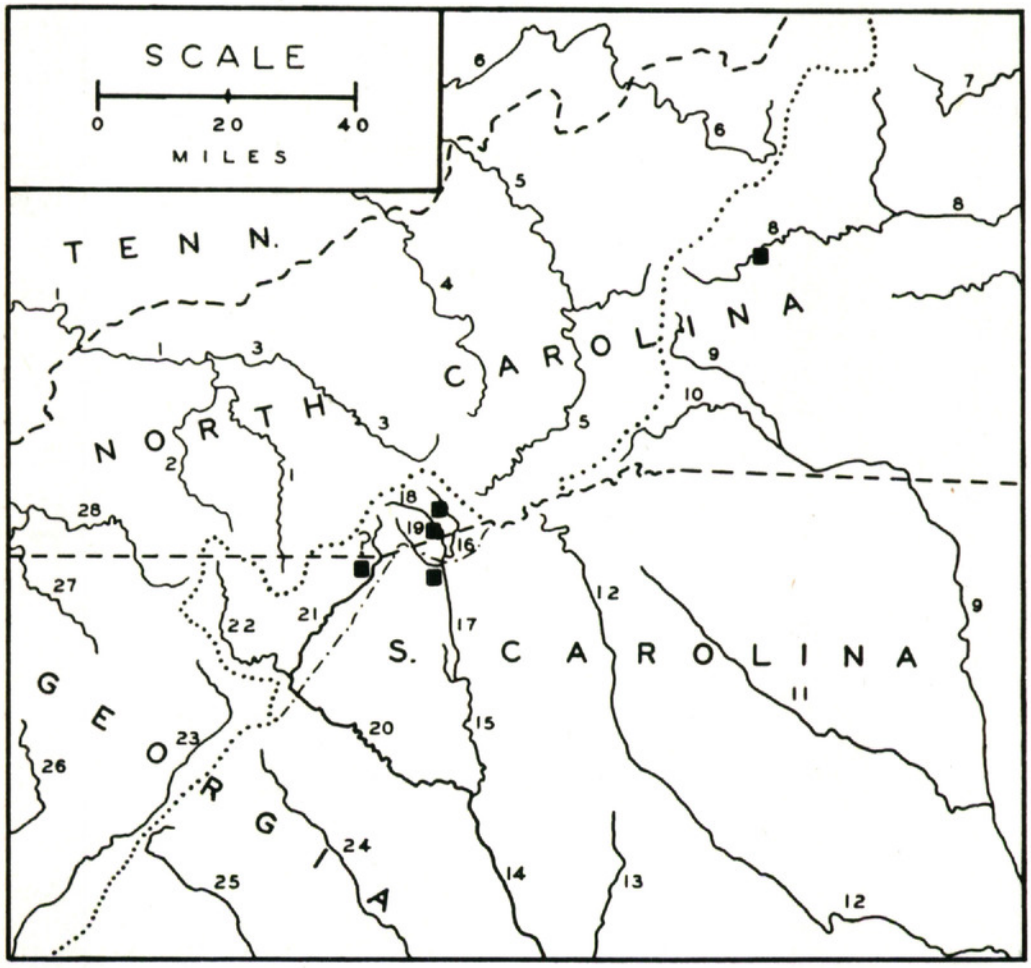
folia apparently is an old species, other members of the genus occurring in Japan, Formosa and southwestern China.[3] Undoubtedly the genus had a much wider distribution than now, having a continuous distribution from Asia to America across the Bering Strait land-bridge. This may have occurred as early as the Oligocene, an era of warm climates that would have allowed temperate plants to occupy those areas nearer the polar region. The American population of *Shortia* was likely widespread. During the later phases of this widespread distribution the eastern North American component undoubtedly was *S. galacifolia.* Ultimately the area occupied by this species was reduced, the surviving populations occurring near the heart of the area occupied earlier.

How does the present distribution of *S. galacifolia* fit into this story of abundance in older geological times and survival near the center of an earlier distribution? The accompanying map shows the present known distribution, and the location of rivers in relation to the divide separating the Atlantic Ocean and Gulf of Mexico drainage systems. None of the stations is located more than 15 miles from the divide and all are on the Atlantic side. This divide probably marks the position of the old mountain ranges that were present prior to the time of the Great Smoky Mountain overthrust that raised the area near the Tennessee-North Carolina state-line until it included the highest mountain ranges in the eastern United States. The streams, however, maintained their general drainage pattern, preserving the old divide, a reminder to us of the geologic past when the highest mountain ranges were there, perhaps at the very heart of the area occupied by *Shortia.*

The fact that *S. galacifolia* occurs solely on the Atlantic side of the divide (see map) may be of little or no purport because some of the present stations may have been in the Gulf drainage. It is generally accepted that the Chattooga and Tallulah Rivers of the Savannah River System were once a part of the Chattahoochee River System.[4] Also, drainage in the upper tributaries of the Keowee may have been reversed, flowing into the Tuckaseegee River and finally into the Gulf. It is likely, therefore, that

[3] See "Sino-Himalayan Species of *Shortia* and *Berneuxia*" by Hui-Lin Li in RHODORA 45: 333–337, 1943.

[4] N. M. Fenneman. Physiography of the Eastern United States. 714 pp. 1938.



Map 1. Portions of Tennessee, North Carolina, Georgia, and South Carolina showing localities, indicated by black squares, where *Shortia galacifolia* is known to have been collected. The question mark (?) represents a Macon County, N. C., collection which is in doubt. The present divide separating the Atlantic Ocean and the Gulf of Mexico is indicated by a dotted line. Probable location of a portion of the divide prior to major stream piracy is indicated by a line of dots alternated with dashes. Numbers are for names of rivers as follows: 1. Little Tennessee. 2. Nantahala. 3. Tuckasegee. 4. Pigeon. 5. French Broad. 6. Nolichucky. 7. Yadkin. 8. Catawba. 9. Broad. 10. Green. 11. Enoree. 12. Saluda. 13. Little. 14. Savannah. 15. Seneca. 16. Toxaway. 17. Keowee. 18. Horsepasture. 19. Whitewater. 20. Tugaloo. 21. Chattooga. 22. Tallulah. 23. Chattahoochee. 24. Broad. 25. Oconee. 26. Etowah. 27. Nottley. 28. Hiwassee.

S. galacifolia once occurred on both sides of the old divide. The possibility of its occurring at the present time on the Gulf side of the divide is good. The tributaries of the upper portion of the French Broad River or the Green River would seem to be the most promising areas in which additional stations of *Shortia* might be discovered. Botanists visiting these areas should be on the lookout for the species.