

**THE TENNESSEE FLORA: WITH
SPECIAL REFERENCE TO THE
FLORA OF NASHVILLE,
PHAENOGAMS AND VASCULAR
CRYPTOGAMS**

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The Tennessee Flora: With Special Reference to the Flora of Nashville, Phaenogams and Vascular Cryptogams by Augustin Gattinger

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AUGUSTIN GATTINGER

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TENNESSEE FLORA;

WITH SPECIAL REFERENCE TO

THE FLORA OF NASHVILLE

PHENOGAMS AND VASCULAR CRYPTOGAMS.

BY

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OF SCIENCE.

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PREFACE.

Desiring to promote the study of botany in the educational institutions of the State, and to awaken an interest in the exploration of the Flora of Tennessee, I tender this small volume to the friends and promoters of scientific pursuits.

The work is original, being founded upon a botanical collection made exclusively by myself, during thirty-eight years' residence in this State.

I am yet in possession of specimens collected in 1849, when I first took up my residence in East Tennessee as a practicing physician. Placed, as I was in those early days, amid unfamiliar modes of life, with no access to intellectual resources, without information about the condition and advance of scientific affairs in this country, my botanical progress could for many years be no other than tedious and slow; but I kept up a pursuit, which since early school-years had been to me a source of pleasure and consolation.

After my removal to Nashville, in 1864, I paid special attention to the exploration of the vicinity of Nashville and the adjoining counties. Travel by railroads made it possible to make frequent short visits to distant points, without too great infringement on professional duties.

Although in an educational center, filled with display of refinement, I soon perceived that I had to rely upon my own resources, if I would attempt to expand my botanical efforts beyond the limits of personal gratification. For the want of such blessed leisure as would be needed to assure success, I never expected to publish on the Flora, considering the results of my investigations too insignificant. That I have now prepared this paper is purely contingent upon the meeting of the American Association for the Advancement of Science, in Nashville, August, 1877.

At that occasion I had the good fortune of making acquaintance with some well-known Eastern botanists, who, with very obliging politeness, reviewed my collections, and assured me that a survey of the unexplored region of Tennessee would be appreciated. At their instance I continued, with all care and

pains possible, to make the work true and reliable, with the hope and solicitude to make this insignificant, but to me only possible one contribution, to American science.

I am under lasting obligations to William N. Canby, Esq., of Wilmington, Del., Prof. J. W. Chickering, Jun., and Prof. Lester F. Ward, both of Washington, D. C., for their advice and the attention they paid to me at the Nashville meeting. From that time on I also enjoyed the privilege of submitting critical specimens to Dr. Asa Gray, of Cambridge, for his decision. The late Dr. George Engelmann, of St. Louis, Dr. A. W. Chapman, of Apalachicola, Fla., and Dr. George Vasey, botanist of the Department of Agriculture, have relieved me of many doubts and supplied me with a great number of authentic specimens. I shall ever gratefully remember Dr. Engelmann, and express to the other gentlemen my sincere thanks. Acknowledgments are also due to many active botanists in distant parts of the Union, for their readiness and promptness in exchanging plants and opinions.

I have no knowledge of authentic published records bearing on the Flora of Tennessee, except an article contributed by Prof. J. W. Chickering to the *Botanical Gazette*, December, 1880, entitled "A Summer on Roane Mountain." In a number of *Sullivan's Journal*, of 1841, I find a sketch of a botanical tour through the Alleghanies and on Roane Mountain, by Dr. Asa Gray.

It is much to be regretted that Dr. Rugel, who about thirty years ago resided in the vicinity of Greenville and made valuable collections and discoveries in that vicinity, and the mountains of East Tennessee and North Carolina, died without leaving a record of his work. His collections came in the possession of Mr. Shuttleworth, of England. *Senecio Rugelia Gray*, *Plantago Rugelii Decaisne*, *Siphonochia Rugelii Chapm.* commemorate his name.

Some species and stations which fell not under my personal observation, are quoted on good authority or credited to the collector.

For description of species I refer to Dr. Gray's Manual and Dr. Chapman's Flora of the Southern States.

I am fully aware of the incompleteness of the work, but enough is now done to give a satisfactory estimate of our Flora, and nothing short of publication can near its completion.

Pretending to no other merit than one, due to a persevering effort to illustrate the distribution of the American Flora over the territory of the State of Tennessee, and the accidental dis-

covery of some new species, I hope for a kind reception by those for whose benefit it is intended.

My botanical friends will appreciate the difficulties I had to encounter, and I solicit contributions and corrections from those who are favorably inclined towards its improvement.

Parting I embrace the opportunity to urge a higher appreciation of the study of Botany, and to sum up the present standing of the science, and the advantages it enjoys in other States.

American botany has made rapid advances within the last decade. The earlier periods passed over in engagement with systematic work, collecting and systematizing phænogams and the higher cryptogams. The general survey being very far advanced and nearing completeness, by degrees a state of maturity for studies of a higher order has been entered upon, which demands greater proficiency in analysis and dexterity in the use of the microscope.

The intricate study of the life-history of plants of the lowest orders engages now the attention of our more advanced botanists. Detail in physiology and morphology and original work is also fairly attempted. A number of our progressive American universities have attached laboratories to the botanical lecture-rooms, and provided them with the necessary outfits, as powerful auxiliaries to the study of botany. Harvard and Cornell since 1872, more recently the universities of Pennsylvania and Michigan, Iowa Agricultural College, Wabash College, Purdue University, the universities of Wisconsin and Nebraska, Shaw School of Botany at St. Louis, etc.

Why is it, that in our more than centennial State, so little has been done for the improvement of natural knowledge? What object of teaching can conduce more to the material welfare and progress of the citizen than a practical information how to disclose the concealed wealth, to collect and utilize wasting energies, to draw from the soil maintenance of life and means of comfort, without impairing its productiveness? And what can more than the improvement of natural knowledge enlarge and elevate the intellectual ethics of man, than the ever growing conception of a definite and unfringible order of nature? What can add more to his personal dignity, inspire him with more self-reliance, than the certainty of possessing means to test and verify his conceptions, by bringing them in contact with Nature herself, by experiment and observation?

Having inadvertently diverted from the proposed plan of this address, I shall avoid to make further reflections for the same caution with which the astray botanist avoids the teacher-

ous briers. Should I have succeeded to bring you to notice that rambling through field and forest after plants, implies a higher purpose than the pleasure of analyzing and adding them to the collection, then I would feel like the aberrant botanist, who, aberrant, made a precious discovery. Remember of all, that it is not for every one to penetrate into the depths of a science, but that a plain and correct knowledge of the leading principles in botanical science is attainable and useful to all.

*"Ingenus didicisse fideliter artes
Emollit mores nec sinit esse ferus."*

A. GATTINGER.

NASHVILLE, TENN., Feb. 3, 1887.

GENERAL ASPECT OF THE FLORA.

The boundaries of Tennessee are embraced within the great Atlantic forest region. The whole of it was in its virgin state, a congeries of varied woodlands, being in the lowlands of dense and massive growth, filled with pathless jungles of cane and shrub, or, away from the watercourses, on the uplands, reduced to open and airy groves, the barrens. Here a dense sward covers the ground and herbaceous growth prevails. Mountain forests have always been of greater uniformity in distribution of timber.

Nearly one-third of the entire area is now reduced to fields or occupied by buildings or roads. Canebrakes have well nigh disappeared, and the forest is in all accessible regions depleted of valuable timber.

Immigration of foreign and retirement of native species continually modify the aboriginal flora and tend to weaken characteristics due to presence of peculiar plantforms, or collocation of species, by the intricacies of mutual predilection and adaptation to surroundings.

Such areas, which differ amongst themselves conspicuously in such properties, admit of the establishment of natural floral arrondissements.

Differences of elevation, diversity in elementary constitution of the soil, and inequality in distribution of atmospheric humidity are, in our territory, sufficiently potent to mark out four distinct regions.

I. The high crests of the Alleghany Mountains, formed of gneiss or mica-shists, with an elevation from 4,000 to 6,600 feet. Subalpine region.

II. The western slopes of the Alleghanies and their outlying spurs, and the Cumberland Mountains. Sandstones and slates. Mountain-flora. Elevation 2-4,000 feet.

III. Valley-flora, the lower division of which is coëxtensive with the limestones (silurian) of East and Middle Tennessee. Elevation 350-500 feet. The upper division or highlands has siliceous and argillaceous soils, sometimes lime-stones of the sub-carboniferous formation. Elevation about 1,000-1,200 feet.