

**TREES OF THE NORTHERN UNITED  
STATES: THEIR STUDY,  
DESCRIPTION AND  
DETERMINATION, FOR THE USE OF  
SCHOOLS AND PRIVATE STUDENTS**

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Trees of the northern United States: their study, description and determination, for the use of schools and private students by Austin C. Apgar

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**AUSTIN C. APGAR**

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# TREES

OF THE

## NORTHERN UNITED STATES:

THEIR STUDY, DESCRIPTION AND  
DETERMINATION

FOR THE

USE OF SCHOOLS AND PRIVATE STUDENTS.

BY

AUSTIN C. APGAR

PROFESSOR OF BOTANY IN THE NEW JERSEY STATE NORMAL SCHOOL.

"Trees are God's Architecture."—anonymous.

"A Student who has learned to observe and describe so simply a matter as the form of a leaf has gained a power which will be of lifetime value, whatever may be his sphere of professional employment."—*Wm. North*, *ibid.*

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W. P. S.

## PREFACE.

**T**HIS book has been prepared with the idea that teachers generally would be glad to introduce into their classes work dealing with the real objects of nature, provided the work chosen were of a character that would admit of its being studied at all seasons and in all localities, and that the subject were one of general interest, and one that could be taught successfully by those who have had no regular scientific instruction.

The trees of our forests, lawns, yards, orchards, streets, borders, and parks give us just such a department. Though many consider a large part of the vegetable kingdom of little importance, and unworthy of any serious study, there are few who do not admire, and fewer still who do not desire to know, our trees, the monarchs of all living things.

The difficulty in tree study by the aid of the usual botanies lies mainly in the fact that in using them the first essential parts to be examined are the blossoms and their organs. These remain on the trees a very short time, are often entirely unnoticed on account of their small size or obscure color, and are usually inaccessible even if seen. In this book the leaves, the wood, the bark, and, in an elementary way, the fruit are the parts to which the attention is directed; these all can be found and studied throughout the greater part of the year, and are just the parts that must be thoroughly known by all who wish to learn to recognize trees.

Though every teacher is at liberty to use the book as he thinks best, the author, who has been a class teacher for over twenty years, is of the opinion that but little of Part I. need be

thoroughly studied and recited, with the exception of Chapter III. on leaves. The object of this chapter is not to have the definitions recited (the recitation of definitions in school work is often useless or worse than useless), but to teach the pupil to use the terms properly and to make them a portion of his vocabulary. The figures on pages 38-43 are designed for class description, and for the application of botanical words. The first time the chapter is studied the figure illustrating the term should be pointed out by the pupil; then, as a review of the whole chapter, the student should be required to give a full description of each leaf.

After this work with Chapter III., and the careful reading of the whole of Part I., the pupils can begin the description of trees, and, as the botanical words are needed, search can be made for them under the proper heads or in the Glossary.

The Keys are for the use of those who know nothing of scientific botany. The advanced botanist may think them too artificial and easy; but let him remember that this work was written for the average teacher who has had no strictly scientific training. We can hardly expect that the great majority of people will ever become scientific in any line, but it is possible for nearly every one to become interested in and fully acquainted with the trees of his neighborhood.

The attainment of such botanical knowledge by the plan given in this volume will not only accomplish this useful purpose, but will do what is worth far more to the student, *i. e.*, teach him to employ his own senses in the investigation of natural objects, and to use his own powers of language in their description.

With hardly an exception, the illustrations in the work are taken from original drawings from nature by the author. A few of the scales of pine-cones were copied from Loudon's "Encyclopædia of Trees"; some of the Retinospora cones were taken from the "Gardener's Chronicle"; and three of the illustrations in Part I. are from Professor Gray's works.



The size of the illustration as compared with the specimen of plant is indicated by a fraction near it;  $\frac{1}{4}$  indicates that the drawing is one fourth as long as the original,  $\frac{1}{1}$  that it is natural size, etc. The notching of the margin is reduced to the same extent; so a margin which in the engraving looks about entire, might in the leaf be quite distinctly serrate. The only cases in which the scale is not given are in the cross-sections of the leaves among the figures of coniferous plants. These are uniformly three times the natural size, except the section of *Arancaria imbricata*, which is not increased in scale.

The author has drawn from every available source of information, and in the description of many of the species no attempt whatever has been made to change the excellent wording of such authors as Gray, Loudon, etc.

The ground covered by the book is that of the wild and cultivated trees found east of the Rocky Mountains, and north of the southern boundary of Virginia and Missouri. It contains not only the native species, but all those that are successfully cultivated in the whole region; thus including all the species of Ontario, Quebec, etc., on the north, and many species, both wild and cultivated, of the Southern States and the Pacific coast. In fact, the work will be found to contain so large a proportion of the trees of the Southern States as to make it very useful in the schools of that section.

Many shrubby plants are introduced; some because they occasionally grow quite tree-like, others because they can readily be trimmed into tree-forms, others because they grow very tall, and still others because they are trees in the Southern States.

In nomenclature a conservative course has been adopted. The most extensively used text-book on the subject of Botany, "Gray's Manual," has recently been rewritten. That work includes every species, native and naturalized, of the region covered by this book, and the names as given in that edition have been used in all cases.

Scientific names are marked so as to indicate the pronunciation. The vowel of the accented syllable is marked by the grave accent ( ` ) if long, and by the acute ( ´ ) if short.

In the preparation of this book the author has received much valuable aid. His thanks are especially due to the authorities of the Arnold Arboretum, Boston, Massachusetts, and of the Missouri Botanical Garden, St. Louis, for information in regard to the hardiness of species; to Mr. John H. Redfield, of the Botanical Department of the Philadelphia Academy of Natural Sciences, for books, specimens from which to make illustrations, etc.; and to Dr. A. C. Stokes, of Trenton, New Jersey, for assistance in many ways, but especially for the accurate manner in which he has inked the illustrations from the author's pencil-drawings.

The author also wishes to acknowledge the help received from many nurserymen in gathering specimens for illustration and in giving information of great value. Among these, special thanks are due to Mr. Samuel C. Moon, of Morrisville Nurseries, who placed his large collection of living specimens at the author's disposal, and in many other ways gave him much intelligent aid.

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