arnoldia

The Magazine of the Arnold Arboretum

GARDEN AND FOREST: PART ONE

Botanical Excursions.

Botanical Specimens.

A Box of Wild Flowers.

F. L. Bassett, Botanist,

HAMMONTON, N. J.

HOUGH'S "AMERICAN WOODS"

A publication illustrated by *actual specimens* showing different views of the grain. Write for information before making Holiday purchases, and inclose 10 cts. for specimens.

HARTFORD CLIMBING FERN

Th

A Weekly Revi

"It is important in the August *Author*, "to get a day-by-day knowledge of American literature without taking in The Critic. I read it regularly."

New volumes begin January and July.

THE CRITIC CO.,

287 Fourth Avenue, New York.

CHRYSANTHEMUMS

T. H. SPAULDING, Orange, N. J.

GARDEN AND FOREST PUBLISHING CO.

OUT-OF-DOORS FOR WOMEN

AN ILLUSTRATED MONTHLY MAGAZINE.

Mrs. O. L. ORCUTT, Editor,

ORCUTT, CALIFORNIA.

SOUTHERN Timber and Mineral Lands.

E. C. ROBERTSON, Cincinnati, O.

LEWIS' LEAF CHARTS, No. 1.

TREE SEEDS.

P. O. Box 1398, JOHANNESBURG, S. A. R.

SEND YOUR NAME.

The Best List of Books in Botany, Entomology, Ornithology, Biology and Zoology, Natural History; with allied studies, for Naturalists and Others.

FIELD SPORTS, RIFLE, PISTOL and GUN and Miscellaneous Publications.

BRADLEE WHIDDEN,

Publisher and Bookseller,

18 Arch Street, Boston, Mass.

FARMER ON THE STRAWBERRY

THE L. J. FARMER NURSERY CO., P. O. Box X, PULASKI, N. Y.

Garden and Forest.

The best garden paper in America.

This is the season when its advice and directions are needed by all who cultivate trees, shrubs, flowers and vegetables, and are interested in the care of home-grounds.

"A year's reading of Garden and Forest is an education."—*Boston Evening Transcript.*

Beautifully Illustrated. Published Weekly. $4.00 a Year.

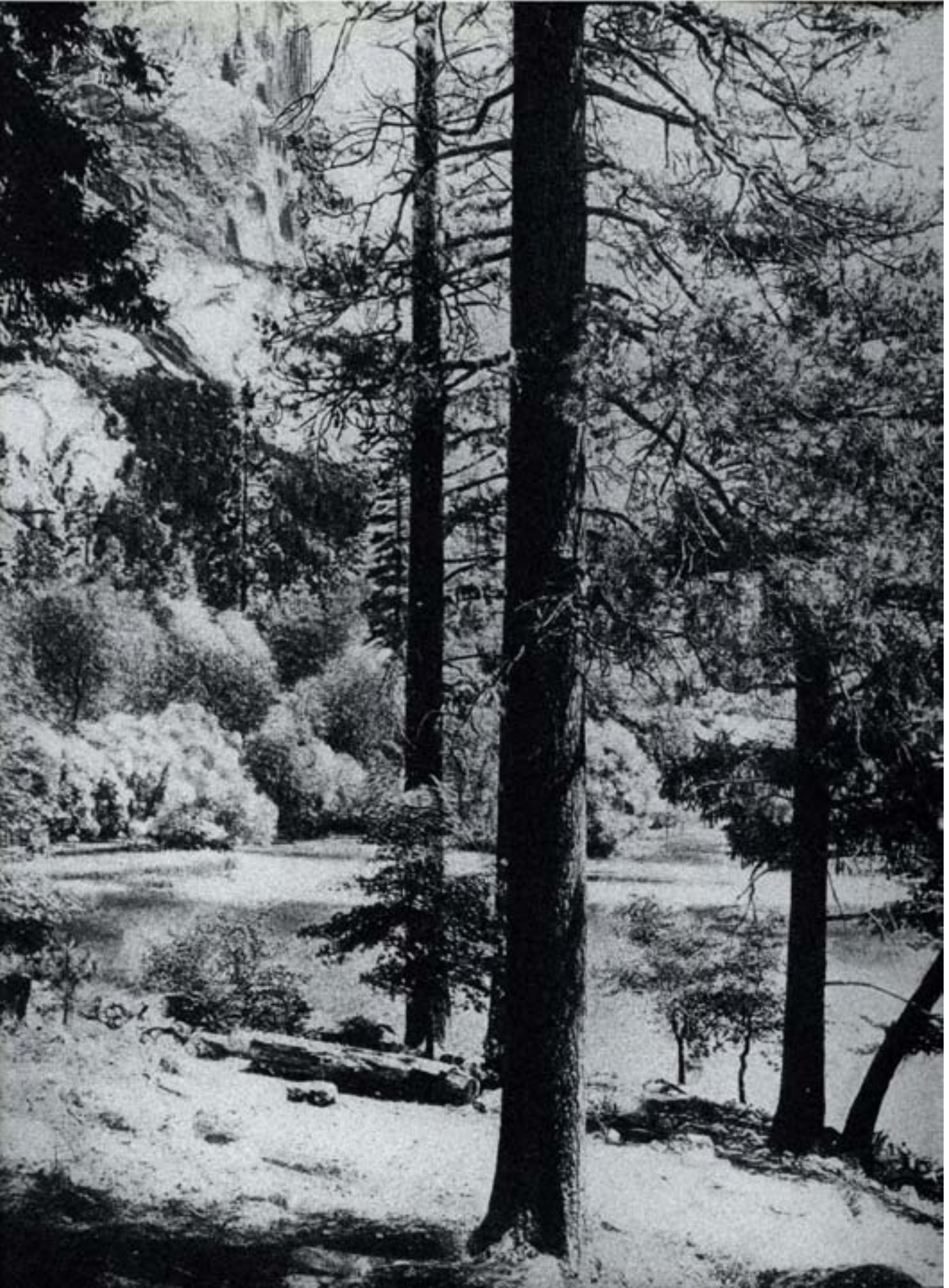
SPRING OFFER.

For three months of the spring planting season, beginning April 1st,

ONE DOLLAR.

Garden and Forest Publishing Company,

TRIBUNE BUILDING, NEW YORK.



arnoldia GARDEN AND FOREST (1888–1897): PART ONE

Volume 60 • Number 2 • 2000

Arnoldia (ISSN 004–2633; USPS 866–100) is published quarterly by the Arnold Arboretum of Harvard University. Second-class postage paid at Boston, Massachusetts.

Subscriptions are $20.00 per calendar year domestic, $25.00 foreign, payable in advance. Single copies of most issues are $5 00; the exceptions are 58/4–59/1 *(Metasequoia After Fifty Years)* and 54/4 *(A Source-book of Cultivar Names)*, which are $10.00. Remittances may be made in U.S. dollars, by check drawn on a U.S. bank; by international money order; or by Visa or Mastercard. Send orders, remittances, change-of-address notices, and all other subscription-related communications to: Circulation Manager, *Arnoldia*, The Arnold Arboretum, 125 Arborway, Jamaica Plain, Massachusetts 02130–3500. Telephone 617/524–1718, facsimile 617/524–1418, e-mail arnoldia@arnarb.harvard.edu.

Postmaster: Send address changes to
Arnoldia Circulation Manager
The Arnold Arboretum
125 Arborway
Jamaica Plain, MA 02130–3500

Karen Madsen, *Editor*
Andy Winther, *Designer*

Editorial Committee
Phyllis Andersen
Ellen S. Bennett
Robert E. Cook
Peter Del Tredici
Gary Koller
Stephen A. Spongberg
Kim E. Tripp

Covers: Advertisements assembled from issues of *Garden and Forest*

Inside front cover: A group of young *Pinus ponderosa*, probably one hundred feet high, growing in the Yosemite Valley where they were photographed by W. H. Rollins. Originally published in *Garden and Forest*, 1895

Inside back cover: Three venerable, windswept *Cedrus libani* ssp *atlantica* (Mount Atlas cedar), photographed in Algeria by Maurice L de Vilmorin Published in *Garden and Forest*, 1896.

Preface

Much of my time and attention during the year has been devoted to the establishment of a weekly publication intended to extend and popularize the knowledge of trees and their cultivation, and of gardening and garden-botany. There existed no journal or periodical bulletin, published in this country, in which the results of the experiments carried on in the Arboretum, and the mass of facts about plants could be printed promptly and regularly, so that they could reach the large number of students now interested in this subject. The first issue of GARDEN AND FOREST appeared on the 29th of February, and there is already reason to believe that this journal will aid materially in increasing the educational value of the Arboretum and in extending its influence.

—Charles S. Sargent, 1888 Report to the President of the University

This issue of *Arnoldia* and the next are devoted to that publication, *Garden and Forest, A Journal of Horticulture, Landscape Art and Forestry* (1888–1897). Founded and "conducted" by the Arnold Arboretum's first director, C. S. Sargent, funded by him and by the same Boston Brahmins who had underwritten the Arboretum, and published and edited in New York, it was not *officially* an Arboretum publication. Nonetheless, true to Sargent's intent, its 512 issues comprise a trove of information on the Arboretum's plant collections. But Sargent's ambitions for the journal extended much farther than the Arboretum, encompassing the entire plant world and stretching even to the welfare of the nation. An 1891 flyer called it "indispensable not only to the practical Horticulturist, Botanist, Landscape-Gardener and Forester, but to every owner of a Country or Suburban Home who desires sound instruction in all branches of ornamental and economic planting." It continued:

GARDEN AND FOREST contains from week to week articles showing how grounds can be laid out to the best advantage; how lawns should be made and kept; what trees and shrubs are effective for decoration and suited to the diverse climates of the American Continent, and how these should be planted and cared for. It endeavors, by instruction or suggestion, and by constant reference to pertinent principles of good taste, to aid those who desire to beautify their homes It aims also at arousing intelligent interest in the care and management of public places, such as Parks, School-grounds, Cemeteries, etc , and at furthering the efforts made for the improvement of highways and the beautifying of roadsides. The department devoted to

Forestry treats of preservation and management of our forests, subjects of vital and urgent importance to the nation's welfare. GARDEN AND FOREST is alone in this field.

With all that, the recital does not mention that its weekly seven-to-eleven pages also broached agronomy, entomology, and pathology, reviewed books and recent periodicals, listed exhibitions and expositions, and even covered the retail flower market. What was once said about Sargent himself can be said about his magazine: nothing connected with plants was alien to it.

We are devoting this issue and the next to *Garden and Forest* because the Library of Congress, working with horticultural archivist Sheila Connor, has put the entire contents of *Garden and Forest* online (http://lcweb.loc.gov/preserv/prd/gardfor/digitizegf.html)—the first effort in its "digital reformatting program," a new method of making fragile publications available to a wide readership. To enhance the online text, our director, Robert E. Cook, has solicited essays on its coverage of botany, forestry and forest conservation, landscape art, and horticulture, and archivist Joseph Melanson is approaching the halfway mark in his compilation of a detailed and cumulative subject index that will greatly improve access to its contents.

The primary subjects of this issue of *Arnoldia* are botany and forestry as covered in *Garden and Forest.* Essays discussing the significance and influence of that coverage are accompanied by excerpts from the magazine. These are followed by an essay on the role of its editor, the little known, often forgotten William Stiles. Landscape art and horticulture will be the subjects of the next issue's essays, by Ethan Carr and Mac Griswold, also accompanied by several excerpts. The story of the Library of Congress' digitization project—the magazine's "journey into cyberspace"—will be related by project manager LeeEllen Friedland. A word of explanation may be helpful: excerpts from *Garden and Forest* are printed on a tinted background, and brackets indicate editorial interpolations.

Garden and Forest is a journal of tremendous historical interest, but also of surprising relevance to contemporary issues. We hope this brief immersion in a century-old magazine proves as absorbing to read as it was to edit.

GARDEN AND FOREST:

AN ILLUSTRATED WEEKLY JOURNAL OF HORTICULTURE, LANDSCAPE ART AND FORESTRY.

GARDEN AND FOREST will be devoted to Horticulture in all its branches, Garden Botany, Dendrology and Landscape Gardening, and will discuss Plant Diseases and Insects injurious to vegetation.

Professor C. S. SARGENT, of Harvard College, will have editorial control of GARDEN AND FOREST.

Professor WM. G. FARLOW, of Harvard College, will have editorial charge of the Department of Cryptogamic Botany and Plant Diseases.

Professor A. S. PACKARD, of Brown University, will have editorial charge of the Department of Entomology.

Mr. WM. A. STILES will be the Managing Editor.

GARDEN AND FOREST will record all noteworthy discoveries and all progress in science and practice within its field at home and abroad. It will place scientific information clearly and simply before the public, and make available for the instruction of all persons interested in garden plants the conclusions reached by the most trustworthy investigators. Arrangements have been made to figure and describe new and little-known plants (especially North American) of horticultural promise. A department will be devoted to the history and description of ornamental trees and shrubs. New florists' flowers, fruits and vegetables will be made known, and experienced gardeners will describe practical methods of cultivation.

GARDEN AND FOREST will report the proceedings of the principal Horticultural Societies of the United States and the condition of the horticultural trade in the chief commercial centres of the country.

GARDEN AND FOREST, in view of the growing taste for rural life, and of the multiplication of country residences in all parts of the United States, especially in the vicinity of the cities and of the larger towns, will make a special feature of discussing the planning and planting of private gardens and grounds, small and large, and will endeavor to assist all who desire to make their home surroundings attractive and artistic. It will be a medium of instruction for all persons interested in preserving and developing the beauty of natural scenery. It will co-operate with Village Improvement Societies and every other organized effort to secure the proper ordering and maintenance of parks and squares, cemeteries, railroad stations, school grounds and roadsides. It will treat of Landscape Gardening in all its phases; reviewing its history and discussing its connection with architecture.

GARDEN AND FOREST will give special attention to scientific and practical Forestry in their various departments, including Forest Conservation and economic Tree Planting, and to all the important questions which grow out of the intimate relation of the forests of the country to its climate, soil, water supply and material development.

Original information on all these subjects will be furnished by numerous American and Foreign correspondents. Among those who have promised contributions to GARDEN AND FOREST are:

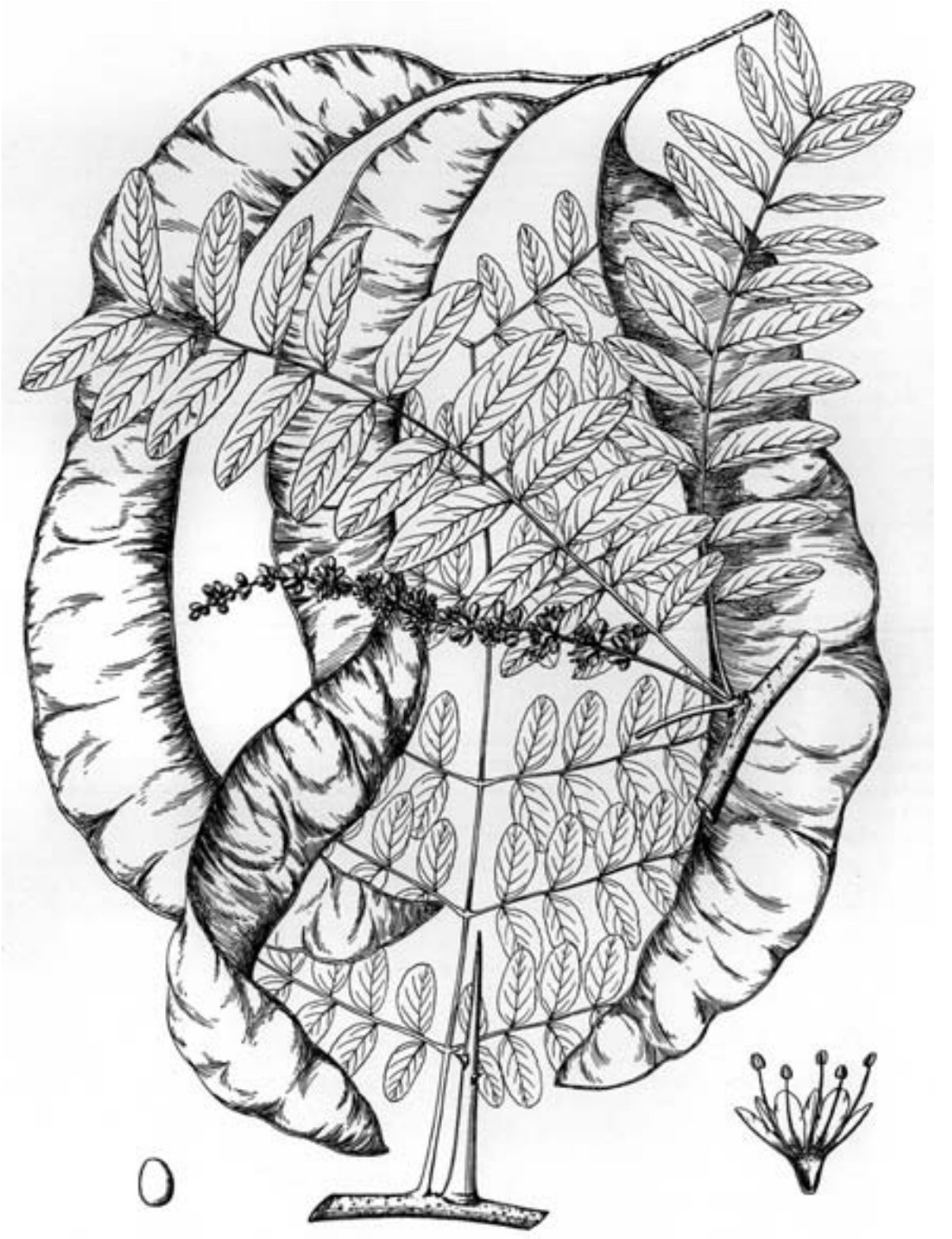
Mr. SERENO WATSON, Curator of the Herbarium, Harvard College.
Prof. GEO. L. GOODALE, Harvard College.
" WOLCOTT GIBBS, "
" WM. H. BREWER, Yale College.
" D. G. EATON, "
" WM. J. BEAL, Agricultural College of Michigan.
" L. H. BAILEY, JR., "
" J. L. BUDD, Agricultural College of Iowa.
" B. D. HALSTED, "
" F. W. HILGARD, University of California.
" J. T. ROTHROCK, University of Pennsylvania.
" CHAS. E. BESSEY, University of Nebraska.
" WM. TRELEASE, Shaw School of Botany, St. Louis.
" T. J. BURRILL, University of Illinois.
" W. W. BAILEY, Brown University.
" E. A. POPENOE, Agricultural College, Kansas.
" RAPHAEL PUMPELLY, United States Geological Survey.
" JAMES H. GARDINER, Director New York State Survey.
" WM. R. LAZENBY, Director of the Ohio Agricultural Experiment Station.
" W. W. TRACY, Detroit, Mich.
" C. V RILEY, Washington, D.C.
Mr. DONALD G. MITCHELL, New Haven, Conn.

" Frank J. Scott, Toledo, O
Hon. Adolphe Leué, Secretary of the Ohio Forestry Bureau.
" B. G Northrop, Clinton, Conn.
Mr. G. W. Hotchkiss, Secretary of the Lumber Manufacturers' Association.
Dr. C. L Anderson, Santa Cruz, Cal.
Mr. Frederick Law Olmsted, Brookline, Mass.
" Francis Parkman, Boston.
Dr C. C. Parry, San Francisco.
Mr. Prosper J. Berckmans, President of the American Pomological Society.
" Charles A Dana, New York.
" Burnet Landreth, Philadelphia.
" Robert Ridgeway, Washington, D.C.
" Calvert Vaux, New York.
" J. B. Harrison, Franklin Falls, N. H.
Dr. Henry P. Walcott, President of the Massachusetts Horticultural Society.
Mr. C. G. Pringle, Charlotte, Vt.
" Robert Douglas, Waukegan, Ill
" H W. S. Cleveland, Minneapolis, Minn
" Chas. W. Garfield, Secretary of the American Pomological Society.
" C. R. Orcutt, San Diego, Cal.
" B. E. Fernow, Chief of the Forestry Division, Washington, D.C.
" John Birkenbine, Secretary of the Pennsylvania Forestry Association
" Josiah Hoopes, Westchester, Pa.
" Peter Henderson, New York.
" Wm. Falconer, Glen Cove, N.Y
" Jackson Dawson, Jamaica Plain, Mass.
" Wm H Hall, State Engineer, Sacramento, Cal
" C. C. Crozier, Department of Agriculture, Washington, D.C.
The Rev. E. P. Roe, Cornwall, N.Y.
Dr. C. C. Abbott, Trenton, N. J.
Mrs. Schuyler Van Rensselaer, New York.
" Mary Treat, Vineland, N.J.
Dr. Karl Mohr, Mobile, Ala.
Hon. J B. Walker, Forest Commissioner of New Hampshire.
Mr. Wm. Hamilton Gibson, Brooklyn, N.Y.
" Edgar T. Ensign, Forest Commissioner of Colorado
" E. S. Carman, Editor of the *Rural New Yorker.*
" Wm. M Canby, Wilmington, Del.
" John Robinson, Salem, Mass.
" J. D. Lyman, Exeter, N.H.
" Samuel Parsons, Jr., Superintendent of Central Park, N.Y.
" Wm. McMillan, Superintendent of Parks, Buffalo, N.Y.
" Sylvester Baxter, Boston.
" Charles Eliot, Boston.
" John Thorpe, Secretary of the New York Horticultural Society.
" Edwin Lonsdale, Secretary of the Philadelphia Horticultural Society.
" Robert Craig, President of the Philadelphia Florists' Club.
" Samuel B. Parsons, Flushing, N.Y.
" George Ellwanger, Rochester.
" P. H. Barry, Rochester.
" W. J. Stewart, Boston, Mass.
" W. A. Manda, Botanic Gardens, Cambridge, Mass.
" David Allan, Mount Vernon, Mass.
" Wm Robinson, North Easton, Mass.
" A. H. Fewkes, Newton Highlands, Mass.
" F. Goldring, Kenwood, N.Y.
" C. M. Atkinson, Brookline, Mass.

Dr. Maxwell T. Masters, Editor of the *Gardener's Chronicle*
Mr. Geo. Nicholson, Curator of the Royal Gardens, Kew.
" W. B. Hemsley, Herbarium, Royal Gardens, Kew.
" Wm. Goldring, London.
Mr. Max Leichtlin, Baden Baden.
M. Edouard André, Editor of the *Revue Horticole,* Paris, France.
Dr G. M. Dawson, Geological Survey of Canada.
Prof. John Macoun, "
M. Charles Naudin, Director of the Gardens of the Villa Thuret, Antibes.
Dr. Chas. Bolle, Berlin.
M. J. Allard, Angers, Maine & Loire, France.
Dr. H Mayr, University of Tokio, Japan.
Prof. D. F. Penhallow, Director of the Botanical Gardens, Montreal.
Mr. Wm. Saunders, Director of the Agricultural Experiment Station, Ontario.
" Wm. Little, Montreal

Single numbers, 10 cents. Subscription price, Four Dollars a year, in advance.

THE GARDEN AND FOREST PUBLISHING CO., Limited,
Tribune Building, New York
D. A. MUNRO, *Manager*



Gleditsia japonica. *One of the 285 botanical drawings made by C. E Faxon for* Garden and Forest. *From volume 6, page 165.*

Garden and Forest: The Botanical Basis of It All

Stephen A. Spongberg

On February 29, 1888, the weekly periodical *Garden and Forest, A Journal of Horticulture, Landscape Art and Forestry,* was inaugurated. Rather oddly, the statement outlining the purpose of the new publication, along with an extensive list of future contributors, was relegated to a page in the advertising section that preceded the main text. It was evident, however, that the journal had been inspired by similar publications in England, including the long-running *Journal of Horticulture, Cottage Gardener, and Country Gentleman's Companion.* In particular, its format and content mirrored in many respects that of *The Gardener's Chronicle,* which had begun publication in 1841.

Somewhat oddly, the first article to appear in *Garden and Forest* was an obituary. Asa Gray, the preeminent Harvard botanist, had died a month earlier on January 30. The obituary summarized briefly the long and extremely distinguished career that had earned for Gray (and for American botany along with him) the respect of the international scientific community. American botany was no longer the exclusive domain of Europeans; American scientists, under Gray's leadership, had established their own scientific traditions. It was through his studies of the American flora, particularly his comparisons of Japanese plants to their close relatives in North America, that Gray had achieved international recognition. These observations, demonstrating the close similarity between the floras of eastern North America and eastern Asia, had lent credibility to his defense of Darwin's writings and played a crucial role in the development of botany and of its sub-discipline, phytogeography.

But it should not surprise us that Charles Sprague Sargent began the first issue of *Garden and Forest* with a glowing tribute to Asa Gray for Sargent had been Gray's protégé, and it was thanks to him that Sargent had been asked to prepare the *Report of the Forests of North America (Exclusive of Mexico)* for the Tenth Census of the United States (1880)—an important stepping stone in his career. Equally important, Gray had nominated and campaigned for Sargent to be named the founding director of the Arnold Arboretum of Harvard University and, simultaneously, the director of the Harvard Botanic Garden, positions Sargent had accepted in 1872. As a consequence of these positions and of his natural talents and interests, Sargent had become an accomplished botanist and administrator and had established strong relationships with botanists worldwide; and following in Gray's footsteps, he would add significantly to botanical scholarship during his fifty-five year tenure at the Arnold Arboretum. Sargent had discussed with Gray his intention to found *Garden and Forest* and had looked forward to his mentor's continuing advice and his contributions to the periodical.

It was clearly obvious that *Garden and Forest* was to be a *botanical* publication: a cursory glance at the indices published for each volume shows the dominance of plant names (in botanical Latin form). Sargent realized that it was a knowledge of botany that was to inform the development of all the other disciplines he intended the journal to foster: horticulture, landscape art, and forestry. In the first issue Max Leichtlin, a German botanist and horticulturist, wrote about "New Plants from Afghanistan," and George L. Goodale, first director of Harvard's Botanical Museum, reviewed a key to the forest trees of Kansas and the latest edition of Asa Gray's *Elements of Botany.* Other contributors included the noted field botanist Cyrus Guernsey Pringle and William Trelease, first director of the Missouri Botanical Garden, who co-authored a column entitled "Plant Notes." In the April 4 issue of the same year an editorial entitled "The Study of Botany by

Shortia galacifolia *(Oconee bells), drawn by C E. Faxon. In the first volume of* Garden and Forest, *C. S. Sargent wrote that "of all the plants studied and described and classified by Asa Gray, this little herb most excited his interest." Sargent's story of the loss and rediscovery of the plant appears in volume 1, pages 506–507.*

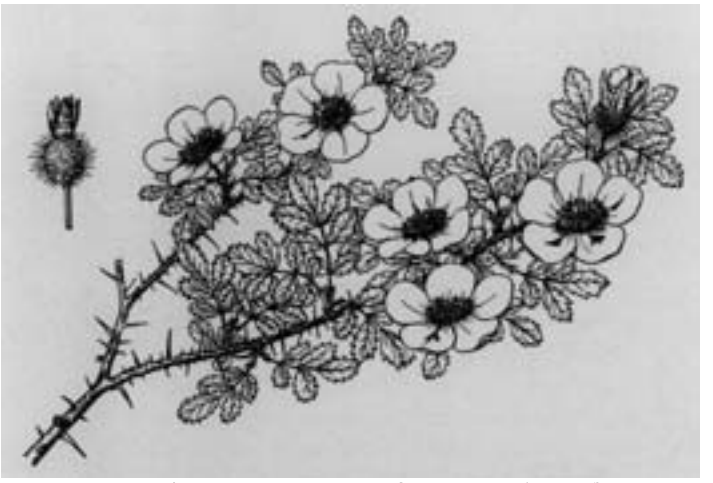
Horticulturists" stressed the importance of a strong basis in botanical knowledge for any horticulturist; Asa Gray's successor at the herbarium in Cambridge, Sereno Watson, contributed a column entitled "New or Little Known Plants: *Rosa minutifolia*;" and William G. Farlow, another of Gray's appointees at Harvard, wrote on nitrogen fixation by plants in his article, "Tubercles on Leguminous Roots."

Each issue also provided references to the current botanical and horticultural literature in a section on "Recent Plant Portraits." In the May 2, 1888, number, another regular column made its first appearance: "Notes from the Arnold Arboretum." This feature was of special importance to Sargent, and the first contribution was authored by his assistant at the Arboretum, John George Jack. Over the succeeding ten years this column would document the development of the Arboretum, focusing particularly on the many new plants discovered by the Arboretum's agents, many of which were introduced into cultivation by the Arboretum.

One of the most significant series of botanical articles to appear in *Garden and Forest* resulted from Sargent's 1892 sojourn in Japan, which inaugurated the Arnold Arboretum's mission to explore the floras of eastern Asia. Entitled "Notes on the Forest Flora of Japan," this series first appeared on January 18, 1893, and concluded in the December 27 issue of the same year. In 1894, the publishing firm of Houghton, Mifflin and Company collected these articles in one volume entitled *Forest Flora of Japan*, one of Sargent's most enduring publications, and of special interest as the first treatise in English on the then little-known trees of Japan. In these essays Sargent built on the pioneering work of his mentor Asa Gray by elaborating on the close relationships of the floras of eastern Asia and eastern North America.

Closer to home, the pages of *Garden and Forest* provided news about botanical discoveries and advances in North America. New genera and species were described in its pages, such as the malvaceous genus *Robinsonella*, initially with two species (*R. cordata* and *R. divergens*) from Mexico, and articles on regional floras were commonplace. Among the latter were Carl Purdy's "The Flora of the California Coast Range," which appeared in three parts between May and June of 1896, and E. N. Plank's extensive "Botanical Notes from Texas," which appeared in twenty-five segments between January 1893 and May of 1895.

Specific plant groups were also featured in articles that recounted the taxon's discovery and naming, its native habitat, range, and ecology, as well as its usefulness in cultivation. Sargent's "Notes on Cultivated Conifers," appeared in thirteen issues of volume ten; Michael S. Bebb contributed a five-part series entitled "Notes on Some Arborescent Willows of North America" between September and



NEW OR LITTLE KNOWN PLANTS.
ROSA MINUTIFOLIA.

OUR wild Roses have an ill reputation among botanists for the uncertainty which often attends the determination of their species. But there are some, fortunately, about which there can be no doubt, and we have given the figure of one which carries its distinctive characteristics obtrusively to the front and cannot be mistaken. Not only is there no other American Rose like it, but it stands alone in the genus . . . It has been found only on the peninsula of Lower California, near All Saints (Todos Santos) Bay, about 40 miles south of San Diego, where it was discovered in 1882, forming low, dense thickets upon the dry hillsides bordering the shore. . . . Evidently the flower in its wild state cannot be commended as well suited to the florist's needs, but from its habit of growth the plant may well prove a decided ornament to the lawn and garden in our more southern States, where it would doubtless be hardy.

S[ereno] W[atson].

[*Garden and Forest* 2 (1888): 103. Engraving by C. E. Faxon]

December of 1895; and of a more practical nature R. H. Price wrote on the "Classification of Varieties of Peaches" in January of 1897.

The list of botanical themes goes on: biographical sketches of famous botanists of the past, including one in the May 1894 issue on Stephen Elliott (for whom the rare genus *Elliottia* had been named); an esoteric five-part series by W. R. Gerard on "Plant Names of Indian Origin," which appeared in June and July of 1896; and even features as technically challenging as John George Jack's "Some Unusual Androgynous Flower-clusters," which ran in June of 1895. In fact, the scope of the articles that were published in *Garden and Forest* spanned the entire corpus of botanical science as it was known in the late nineteenth century. Taken together this literature comprises a remarkable trove of information that is not found elsewhere in botanical literature and that in many ways remains relevant even today, as well as of great historical value.

On December 29, 1897, the five hundred and fourteenth issue of *Garden and Forest* included an announcement that it was to be the magazine's last. This last issue brought the total number of pages published during *Garden and Forest's* ten-year life to an impressive five thousand six hundred and sixty-eight! The reason for termination was financial: "This experiment . . . has shown conclusively that there are not persons enough in the United States interested in the subjects which have been presented in the columns of *Garden and Forest* to make a journal of its class and character self-supporting." This was a sorry commentary on the dearth of interest among the wider American population in issues concerning botany, forestry, conservation, and landscape design.

Since the demise of *Garden and Forest*, no attempt has been made to re-institute the kind of interdisciplinary dialogue it had provided for a brief ten years. The several professional disciplines it addressed have evolved and diverged, becoming more and more distinct and isolated from one another. Even today a journal similar to *Garden and Forest* might face financial difficulties, but many would welcome a new vehicle for exchanging information and ideas among all the professions that are fundamentally plant-based.

Stephen A. Spongberg is Executive Director of The Polly Hill Arboretum in West Tisbury, Massachusetts, and Curator Emeritus of the Arnold Arboretum.

AN INTERESTING REDISCOVERY.

MRS. J. G. SMYTH, of Greenville, South Carolina, sends us fresh flowers of *Lonicera flava*, gathered by herself on Paris Mountain, probably in the very spot where this plant was last seen growing wild by any botanist. This was in the year 1810, when John Fraser, a Scotch collector, paid a visit to Paris Mountain and gathered seeds or roots of this plant and sent them to England. From the descendants of these plants of Fraser's kept in gardens has been preserved the knowledge of this beautiful species. Last year a figure and description of *Lonicera flava* [yellow honeysuckle] were published in this journal (vol. iii., 187, f. 187), and the interest this excited in what appeared to be a "lost plant" led our correspondent to investigate Paris Mountain, a low outlying spur of the Blue Ridge which rises from the plain close to Greenville. Her search was successful, and on the 17th of April Mrs. Smyth found the Honeysuckle in flower, and now sends us specimens with this note:

***Lonicera flava* illustrated for *Garden and Forest* by C. E. Faxon.**

> The plants were found, and this was the only place, on the north side of the mountain, a hundred and fifty or two hundred feet from the top or highest point of the mountain, which is 2,054 feet above the level of the sea. The Lonicera was growing in a very rocky place, about fifteen or twenty feet square, a place which looked, except for the many and large rocks scattered over it, as if it might have been a cleared spot All around and about it the original foliage of the forest had never been disturbed, tall Oaks, and Chestnuts, and the thick undergrowth of Azaleas and Rhododendrons forming a dense shade. The soil is rich and black from the long accumulation of leaf-mold, damp and rich, and just such a soil as the Rhododendron grows and thrives in. The stems are not more than two feet high, but I thought would have grown longer if there had been any support for them to cling to and run on. The roots send out long runners, and these send up shoots from every little point, so that in trying to get a root one might pull up yards and yards before it would break.

Lonicera flava is one of the rarest of American plants, and although it has been known from the very beginning of the century, there is apparently no evidence that it grows anywhere except in this one spot on Paris Mountain. Mrs. Smyth's most interesting discovery removes another from the now short list of plants known to our early botanists, but unknown to their successors. Now that Darbya, Shortia and *Lonicera flava* have been found again, *Gordonia Altamaha* [now *Franklinia alatamaha*] and *Illicium parviflorum* [now *I. floridanum*, anise tree] are the only prizes left among species known to have existed to reward the botanical collector in the south Atlantic states. It is a curious fact that both of these plants, like *Lonicera flava*, have been preserved in gardens for nearly a century, although all recent efforts to find them in their native haunts have failed.

[*Garden and Forest* 4 (1891): 253–254]

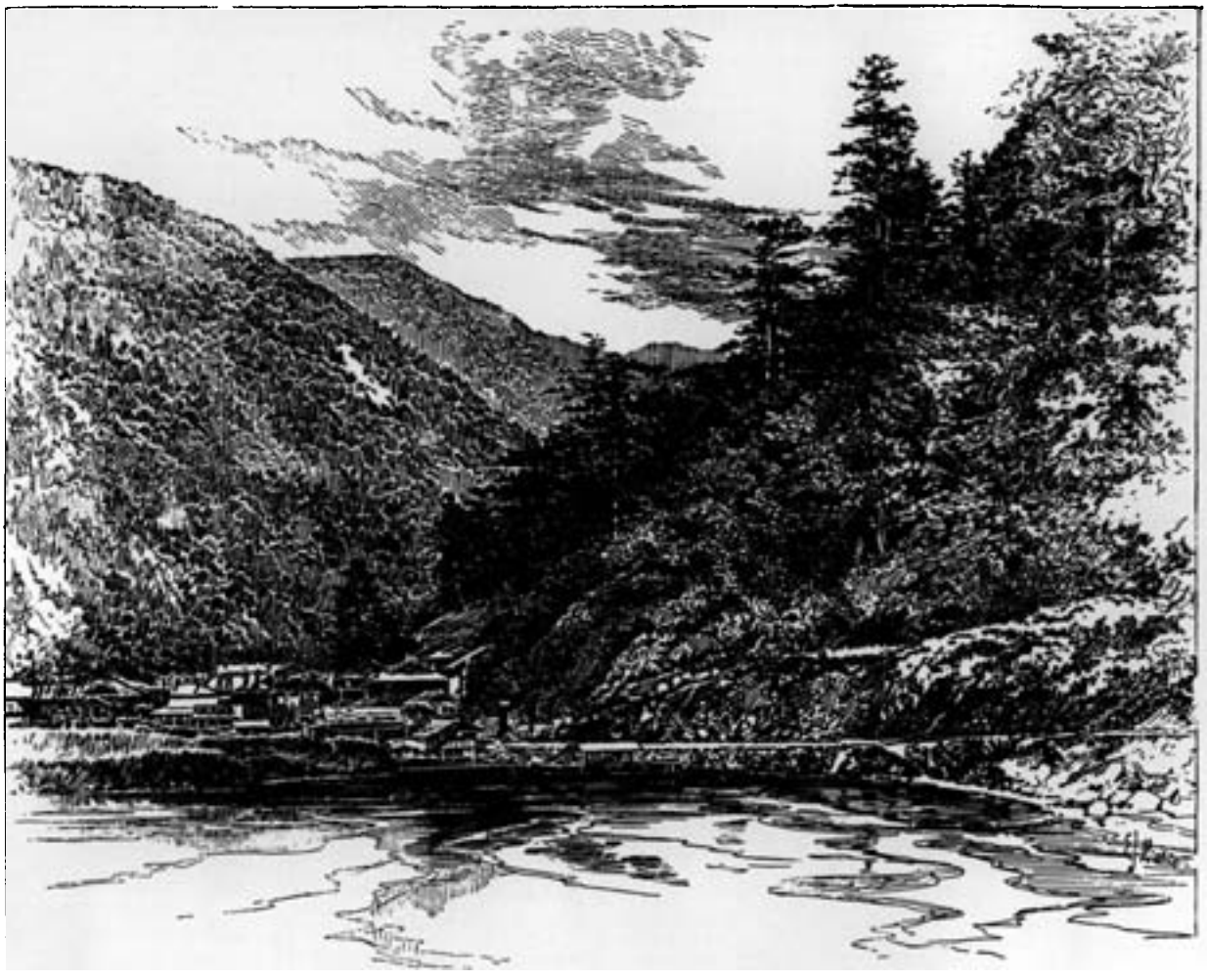
from NOTES ON THE FOREST FLORA OF JAPAN—II.

TRAVELERS in Japan have often insisted on the resemblance between that country and eastern America in the general features of vegetation. But with the exception of Yezo, which is still mostly uninhabited and in a state of nature, and those portions of the other islands which are above 3,000 feet over the level of the ocean, it is difficult to form a sufficiently accurate idea of the general appearance of the original forest-covering of Japan to be able to compare the aspects of its vegetation with those of any other country, for every foot of the lowlands and the mountain valleys of the three southern islands have been cultivated for centuries. And the foothills and low mountains which were once clothed with forests, and might be again, are now covered with coarse herbage (principally Eulalia) and are destitute of trees, except such as have sprung up in sheltered ravines and have succeeded in escaping the fires which are set every year to burn off the dry grasses. Remoteness, bad roads, and the impossibility of bringing down their timber into the valleys have saved the mountain forests of Japan, and these may still be seen, especially between 5,000 and 8,000 feet over the level of the sea, in their natural condition. But these elevated forests are composed of comparatively few species, and if it were not for the plantations of Conifers, which the Japanese for at least twelve centuries, it is said, have been making to supply their workers in wood with material, and for the trees preserved or planted in the temple grounds in the neighborhood of towns, it would be impossible to obtain any idea at all of many of the Japanese trees. But, fortunately, the priests of Buddha have planted and replanted trees for a thousand years about their temples, which are often surrounded by what now appear to be natural woods, as no tree is ever cut and no attempt is made to clear up the undergrowth. These groves are sometimes of considerable extent and contain noble trees, Japanese and Chinese, which give some idea of what the inhabitants of the forests of Japan were before the land was cleared for agriculture.

The floras of Japan and eastern America have, it is true, some curious features in common, and the presence in the two regions of certain types not found elsewhere, show their relationship. But such plants are usually small, and for the most part rare or confined to the high mountains. Diphylleia, Buckleya, Epigaea and Shortia show the common origin of the two floras; but these are rare plants in Japan as they are in America, with the exception of Epigaea [trailing arbutus], and probably not one traveler in ten thousand has ever seen them, while the chief elements of the forest flora of northern Japan, the only part of the empire where, as has already been said, comparison is possible—those which all travelers notice—do not recall America so much, perhaps, as they do Siberia and Europe.

The broad-leaved Black Oaks, which form the most distinct and conspicuous feature in all the forests of eastern America, are entirely absent from Japan, and the deciduous-leaved White Oaks, which, in Japan, form a large part of the forest-growth of the north, are of the European and not of the American type, with the exception of Quercus dentata, which has no

related species in America. The Chestnut Oaks, which are common and conspicuous, both in the northern and southern parts of eastern America, do not occur in Japan, and the Evergreen Oaks, which abound in the southern part of that empire, where they are more common than any other group of trees, are Asiatic and not American in their relationships. . . .



The illustration gives some idea of the general appearance of the great coniferous forests which cover the highlands of central Japan. In the foreground, Lake Yumoto, famous for its thermal springs, nestles 5,000 feet above the sea among the Nikko Mountains. The forests which rise from the shores of the lake are principally comprised of Hemlock (Tsuga diversifolia), among which are Birch (Betula Ermanni), Abies and Picea, Pterocarya, Cercidiphyllum and the Mountain Ash [*Sorbus*]. In the dense shade by the shores of the lake grow dwarf forms of the Indian Azalea, Elliottia paniculata, our Canadian Bunch Berry (Cornus Canadensis), great masses of Rhododendron Metternichii, which in these forests replaces Rhododendron Catawbiense of the Appalachian Mountains, the dwarf Ilex rugosa, Clethra, here at the upper limits of its distribution, Panax horrida [devil's club], and the dwarf Blueberries which inhabit mountain slopes in all northern countries, as well as the ubiquitous Bamboos.

The forests of the two regions possess in common Magnolia and Aesculus [horse-chestnuts], which are more abundant in species and individuals in America than in Japan. The Rhuses, or Sumachs, are very similar in the two regions, and so are the Witch-hazel and the arborescent Aralia. Cornus macrophylla [now *C. controversa*] of Japan is only an enlarged Cornus alternifolia [pagoda dogwood] of eastern America, and the so-called Flowering Dogwoods of the two countries are very much alike. The Japanese Walnut is very like the American Butternut, while, rather curiously, the Japanese Thuja [red cedar] and the two Chamaecyparis, the Piceas [spruce] and Abies [fir], resemble species of Pacific North America, a region whose flora has little affinity with that of eastern Asia. Torreya is common to the two regions; in America it is one of the most local of all our trees, while in Japan it is abundant in the mountainous regions of the central and southern parts of the empire.

Apart from the characters which distinguish related genera and species of Japanese trees from their American congeners there are many aspects of vegetation which make the two countries unlike. The number of broad-leaved evergreen trees is much greater in southern Japan than it is in the southern United States, there being fifty species of these trees in the former, and only twenty in eastern America (exclusive always of southern Florida), and the general aspect of the groves and woods at the sea-level, even in the latitude of Tokyo, is of broad-leaved evergreens. The number of evergreen shrubs in proportion to the entire flora is much greater in Japan, too, than it is in America, and plants of this character grow much further north in the former than in the latter country. The small number of species of Pinus in Japan, and their scarcity at the north, is in striking contrast to the number and distribution of this genus in eastern America, where there are thirteen species, to only five in Japan (including one shrub). In Japan the Hemlock forms continuous and almost unbroken forests of great extent on the mountain-slopes, which are over 5,000 feet above the sea, while in eastern America this tree is rarely found except scattered in small groves or as single individuals through the deciduous-leaved forests. . . . The wild Grape grows in the damp forests of Yezo with a vigor and to a size which the American species do not attain, even in the semi-tropical climate of the southern Mississippi valley. Actinidia arguta climbs into the tops of the tallest trees, and nothing is so un-American or so attracts the attention of the American traveler in Japan as the trunks of trees clothed to the height of sixty or eighty feet with splendid masses of the climbing Hydrangeas (H. petiolaris and Schizophragma), or with the lustrous evergreen foliage of the climbing Evonymus. Wistaria is represented, it is true, in eastern America, but here it is nowhere very common or one of the chief features of vegetation as it is in Japan; and the Ivy, a southern plant only in Japan, and not very common, helps to remind the traveler that he is in the Old and not in the New World.

C.S.S[argent]

[*Garden and Forest* 6(1893): 38–39]

THE KNEES OF THE BALD CYPRESS: A NEW THEORY OF THEIR FUNCTION.

To the Editor of GARDEN AND FOREST:

Sir.—From time to time, during and since my first visit to our southern tier of states in 1876, I have examined, sketched and photographed the roots of the Deciduous Cypress—the *Taxodium distichum* of Richard. I was attracted to the tree because of the singular beauty of its form and foliage and by the unusual boldness with which it raises its great, gray, smooth column, sometimes over a hundred feet, perpendicularly, above and upon what an engineer would pronounce a most dangerous foundation—loose submerged sand, the saturated morass or the soft alluvium of low river margins. But notwithstanding this seeming insecurity, I have never found a healthy Cypress that had fallen before the fierce hurricanes that sweep through the southern forest-lands.

The surprising and characteristic temerity of the tree is accompanied by another striking peculiarity—it almost invariably, in soft soils, throws upward from the upper surface of its roots conspicuous protuberances that are known as "Cypress knees."

These seemingly abnormal growths have attracted much attention, and for more than half a century have furnished an enigma to the solution of which scientific travelers have addressed themselves. . . .

In 1887 I had the good fortune to find a number of Cypress-trees under such unusual conditions that their aforetime subterranean anatomy could be studied without obstruction, and I reached a conclusion respecting the use to the tree of the protuberances . . . Some recent publications on the subject, by widely and favorably known authors, have, however, ascribed to the Cypress-knees the sole function of aërating the sap of the parent tree, and this idea bids fair to become embedded in botanical literature. . . .

Stretches of the shore of Lake Monroe, in central Florida, are closely set with large Cypress-trees. They grow in various kinds of bottom—clay, mud and sand. Those of which I shall here speak stood in sand so loose that when the level of the water was lowered the waves readily washed it away and carried it into the depths of the lake. Some vertical feet of the root-system was thus finely exposed. After several days spent in examining a score or more large trees that had been thus denuded I became convinced that the most important function of the Cypress knee is to stiffen and strengthen the root, in order that a great tree may anchor itself safely in a yielding material. . . .

The accompanying picture is from a photograph that I made in 1887 of the lower portion of a tree that rises some seventy feet above the shore line of Lake Monroe. The original surface of the sand was near the level of the higher roots. The picture shows the manner in which this peculiar species throws out horizontal roots from its conical (usually hollow) buttressed base. At different distances from this conical base these horizontal roots project strong branches more or less perpendicularly into the earth. Where such perpendicular "flukes" branch from the main horizontal "shank," it will be seen, there is formed a large knob, which is the "knee" under discussion. This knee, when fully developed, is generally hollow, comparatively soft, gnarled, and very difficult to rupture, so that it has the quality of a spring that becomes more rigid as it is extended or compressed out of its normal shape. When in a hurricane the great tree rocks back and forth

Denuded roots of the Bald Cypress, showing knees and underground structure.

on its base, and with its immense leverage pulls upon this odd shaped wooden anchor instead of straightening out in the soft material as an ordinary root might, thus allowing the tree to lean over and add its weight to the destructive force of the storm, it grips the sand as the bower-anchor would do, and resists every motion. The elasticity at the point of junction allows one after another of the perpendicular flukes attached to the same shank to come into effective action, so that before being drawn from the sand or ruptured the combined flukes present an enormous resistance. . . .

Finally, I may perhaps be permitted to add an observation regarding the roots of other trees that trench upon the same soils affected by the Cypress and often take advantage of the anchors it sets so boldly in treacherous bottoms. These trees project their cable-like, flexible roots in every direction horizontally, interlacing continually until a fabric is woven on the surface of the soft earth like the tangled web of a gigantic basket. . . . Such communities of trees, provided with ordinary roots, advance against and overcome enemies where singly they would perish in the conflict. The cyclone, the loose sand, the morass—these are the enemies they contend with, as it were, in unbroken phalanx, shoulder to shoulder, their shields locked, their spears bristling against the foe; but the graceful plumed Cypress, the knight-errant of the sylvan host, bearing with him his trusty anchor—the emblem of Hope—goes forth alone and defiant, afar from his fellows, scorning the methods of his vassals, and planting himself boldly amid a waste of waters, where no other tree dare venture, stands, age after age, erect, isolated, but ever ready to do battle with the elements. Twenty centuries of driving rain and

snow and fierce hurricane beat upon his towering form, and yet he stands there, the stern, gray and solitary sentinel of the morass, clinging to the quaking earth with the grasp of Hercules, to whom men were building temples when his wardenship began.

New York, Jan. 2d. *Robert H. Lamborn*
[*Garden and Forest* 3 (1890): 21–22]

THE KNEES OF THE BALD CYPRESS.

To the Editor of GARDEN AND FOREST:

Sir.—I have read the interesting essay of Dr. Lamborn in your issue for January 8th with great pleasure. My own observations on the knees of the Cypress do not seem to me reconcilable with Dr. Lamborn's hypothesis. The objections which they raise to it are as follows:

1st. The trees on the sandy uplands need the assumed support quite as much, if not more, than those which grow on the neighboring loam—often clayey—of the inundated bottoms, yet these upland forms always lack the excrescences.

2d. While a slight upward growing protuberance would doubtless strengthen the root, the tall column exhibited by many knees would have no value in this regard.

3d. The summits of the knees normally attain a height which brings them above the level of the water in the growing season; when they cannot attain this elevation the tree fails to develop. When, by the subsidence of the land at an earthquake, or the artificial flooding of the area by dams, the crests of the knees are brought under permanent water, the condition is fatal to the plant.

4th. The fact that the Cypress-knees serve as respiratory organs is made the more probable by the existence of sharp upward flexures of the roots of the Tupelo (see "Effect of permanent moisture on certain forest trees" in *Science* (xiii., 176; March, 1889). These flexures, as there shown, are horseshoe-shaped curves of the whole root, which, like the Cypress-knees, rise above the level of permanent water. On the Tupelo these structures are clearly of no advantage as anchors. Dr. Wilson and others have shown that similar structures exist in many plants.

I was aware that roots extended downward from the base of the Cypress-knees, but it seemed to me that the position of these roots was to be attributed to disturbance in the circulation and growth, brought about by the development of the knees rather than that the knees gave rise to the vertical roots.

Although I cannot at present agree with Dr. Lamborn in his main view, his paper seems to me a very important contribution to a discussion which promises to throw much light on the laws of plant development.

Harvard University. *N. S. Shaler*
[*Garden and Forest* 3 (1890): 57
Editor's note: It appears that both correspondents were incorrect. C. A. Brown and G. N. Montz wrote in *Baldcypress: The Tree Unique, The Wood Eternal* (1986): "The concept that baldcypress knees are pneumatophores has not been accepted experimentally, but the knees have been shown to conduct respiration. The height of knees cannot, in all cases, be correlated to the average high water levels. Only knees attached to low, conical trees may be used to determine the

average height of floodwaters in a given swamp. Knees, when present, may aid in strengthening of the basal support, but they apparently do not function as anchoring devices for the trees since those without knees are wind-resistant. Knee formation is considered to be a response to the aero-hydroperiod. Based upon all studies to date, we conclude that storage of starch (which can be converted back into glucose as needed) is the major function of baldcypress knees."]

THE TUPELO TREE.

THE forests of eastern America contain few trees more interesting to the botanist or of greater ornamental value than the Tupelo, Pepperidge, Sour Gum or Water Gum, as one of the American representatives of the small genus Nyssa is popularly called in different parts of the country. This genus was so named by Linnæus for a water nymph, because the species known to him, inhabitants of our far southern states, grow usually in shallow ponds or deep swamps overflowed for a considerable part of each year. Its nearest American relatives are the Cornels [dogwoods], from which Nyssa differs principally in its five instead of four-parted flowers, which are rarely perfect, but produce their male and female organs separately, while the flowers of the Cornels are perfect, and, in its alternate leaves, the leaves of our Cornels being opposite except in the case of a single species.

The distribution of the genus is exceptional and interesting. Three species, or four, according to the opinion of some excellent observers, inhabit different parts of eastern North America from Maine to Texas. . . . This is not the place, and it is not our intention, to discuss at this time the limits of the different American species, which have puzzled botanists ever since they have known them, the confusion beginning with Linnæus himself, who included two very distinct species under his original description. It is our purpose merely to call attention to one of the species still little known or appreciated by planters as an ornamental tree. This is the Nyssa which is generally distributed through all the eastern portions of the United States south of the southern part of the state of Maine and central Michigan. *Nyssa aquatica* appears to be the correct botanical name for this tree, although it is only in the extreme south that it grows in water. [The specific *N. aquatica* is now used only for that southern population and *N. sylvatica* for the more northerly and abundant populations.] Near the coast of the northern states it always grows by the borders of swamps in low, moist ground; and in the interior, especially on the lower slopes of the high Allegheny Mountains, where it attains its greatest size, it is found at considerable distances from the water-courses and associated with the Oaks, Magnolias, Hemlocks, Hickories and Ashes which form the principal part of the forest-growth. Here the Tupelo grows sometimes to a height of considerably more than a hundred feet, with a tall, stout trunk three or four feet in diameter, and short slender branches, contracted in their development by its neighbors in the forest. Near the coast it is always a much smaller tree, especially in the southern states, and it is rare to find it more than fifty feet high except in the mountain forests or in those of the lower Ohio valley—a region of exceptional and extraordinary tree-growth. . . .

The Tupelo was introduced into England in 1808 by John Lyon, an English plant-collector who traveled widely in North America early in the century. It was doubtless sent earlier to France, as it is hardly possible that Michaux could have

The value of the Tupelo as an ornamental tree is shown in our illustration representing a group of these trees growing naturally near a small pond in the town of West Medford, Massachusetts, and made from one of the excellent tree portraits for which we are indebted to Mr. Henry Brooks.

failed to introduce such a distinct and beautiful tree into the plantations of his native land. Whether this is true or not it is certain that no American tree is now more rarely seen in Europe, and a really fine specimen outside of America is not easily recalled. . . . The roots are remarkably stout and long, with few rootlets, so that the trees are never easy to move unless they have been grown in the nursery and specially prepared for transplanting. It is easily raised from seed, however, the seedlings are easily transplanted, and if they are set while still young where the trees are to grow permanently, no difficulty will be experienced with them. Even large plants dug up in the swamps can be successfully moved if extraordinary care is taken in the operation, but for the ordinary cultivator it is best to depend on small, nursery-grown plants when they can be obtained.

The Tupelo should be more often seen in ornamental plantations than it is at present. The habit of this tree when allowed sufficient room in which to grow is striking and interesting and quite unlike that assumed by any other of our hardy trees. The foliage is abundant and lustrous, and in the autumn it assumes a brilliancy and splendor of coloring unrivaled by that of our other trees. It is one of those trees which always attract attention—in the winter by its peculiar habit, in summer by the beauty of its foliage and in autumn by its coloring. . . .

[*Garden and Forest* 3 (1890): 485–486]

A SLAUGHTERED GIANT.

OUR illustration shows a *Sequoia gigantea* with choppers at work inside the cleft cutting their way through the trunk. This is not a tree of the first size, being less than twenty-five feet in diameter and about twenty at the point where it was cut. In point of beauty and symmetry it was one of the best of the surviving Big Trees. It stood until a year ago in the Tule River forest, Tulare County, California, and was sold by the private owner of the land to certain persons who wished to exhibit it. The plan was to take a section of the trunk, hollow it out to a shell and then divide it into convenient and portable pieces, so that it could be carried about and set up as a show. The project fell through, however, for lack of funds, and the section of the slaughtered tree never got beyond Visalia, in the county where it stood. It is now stored in that city. Let us hope that the original owner of the tree and its destroyers may some day realize that it will never again make such an exhibition of grandeur and grace as it did while towering above the spot where it began life as a seedling a thousand years ago.

[*Garden and Forest* (1890) 3: 570]

A High-Grade Paper: *Garden and Forest* and Nineteenth-Century American Forestry

Char Miller

Stephanne B. Sutton made no grand claims in her 1970 biography of Charles S. Sargent for *Garden and Forest*, the weekly horticultural magazine he published between 1888 and 1897. While acknowledging that it was a "first-rate publication," deftly edited by the talented journalist William A. Stiles, and conceding that it was "an immediate success," she also contrasted the effusive praise it received with its lack of "popularity"; the plaudits may have been "gratifying," but a larger circulation would have eased the journal's incessant "financial crisis." Small in number, its readers included "people who worked with plants—foresters, nurserymen, botanists, landscape designers, and others whose opinions mattered" in scientific and political arenas. By its coverage of matters botanical, the "magazine did its small part to raise the horticulturist from amateur to professional standing"; its words, "when quoted in a politician's speech or in the column of a popular newspaper . . . carried authority."[1]

Yet neither small circulation nor brief existence diminishes the magazine's historical significance: it was arguably the most important late-nineteenth-century forum for discussing the role of science in human affairs. Those who wrote about horti-

culture or landscape design or forestry were not just reporting on the latest discoveries in their respective fields, but were also participating in a larger cultural debate about the appropriate role of expertise in scientific research and in shaping public policy. This debate had profound national consequences, eventually broadening the responsibilities of the federal government and influencing the intellectual contours of modern America.

Contributors to *Garden and Forest*, for example, used the journal to boldly propose a new agenda for political action in the United States. Nowhere was this more evident than in the magazine's advocacy of the emerging science of forestry, of which Sargent was a staunch supporter. Editorials calling for the preservation of the nation's forested estate and editor Stiles' aggressive solicitation of articles by foresters who shared these sympathies established *Garden and Forest* as *the* voice of those who sought closer federal supervision of public woodlands.

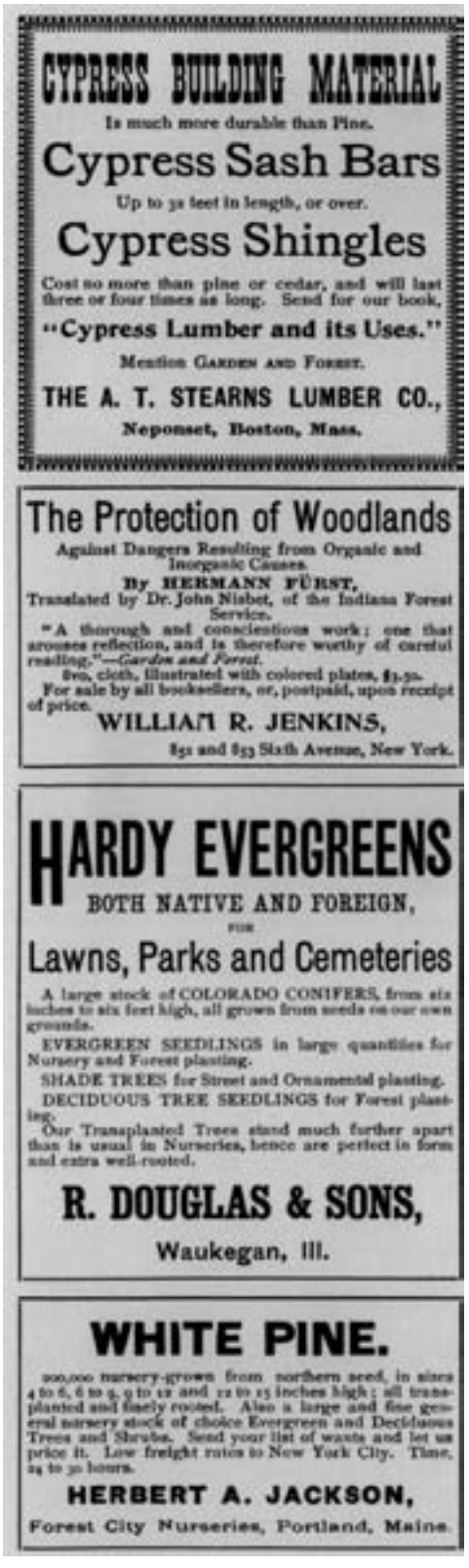
This demand was a tough sell, as its staff and writers recognized: Americans had little interest in federal land management, and no taste at all for the regulation of resource exploitation by a powerful bureaucracy, especially during a period when the Industrial Revolution was consuming vast quantities of timber. To change public opinion, they would have to disseminate counterarguments, a task that *Garden and Forest* supported with evident enthusiasm. In its ten volumes, the journal published an astonishing number of articles related to forestry—more than 450; together, they helped educate a populace that hitherto was ignorant about this science and its social significance.

Europeans, by contrast, knew a lot about the subject, benefitting from political cultures—either monarchical or republican—that assumed considerable power over public and private property: they had long experimented with forest management and had developed professional schools to promote research and educate forest managers. Americans who worried about the rapid disappearance of their forests were encouraged to study European models, first by George Perkins Marsh's pathbreaking *Man and Nature: The Earth as Modified by Human Action* (1864), and later by *Garden and Forest*. In looking eastward, they resembled reformers in other fields who over the next seventy years would participate in a vibrant transatlantic exchange of ideas; these Americans—whether concerned about urban social services or devastated landscapes—

from THE AXE IN ITS RELATION TO ORNAMENTAL TREES.

IT is a curious fact that Americans, who have destroyed more trees wastefully and foolishly than the people of any other country, and have stood and seen their forests, the envy of the rest of the world, swept away with hardly a voice raised in protest, are more unwilling than other people to use the axe in cases where the cutting of trees is really essential. A hundred square miles of forest may be swept by fire from some mountain range through the carelessness of an idle hunter, a mountain stream may be ruined, and the fertility of a smiling valley threatened. It is all taken as a matter of course, and is looked on as one of those unfortunate occurrences which the community is powerless to prevent. The forests of the national domain are robbed of their timber, and the public is satisfied with the simple acknowledgment of the general government that it has not the power or authority to protect its own property against the organized bands of plunderers who have been preying on it for a quarter of a century or longer. This indifference to trees when they are composing elements of the forest is a marked feature in American character, and is all the more marked from its contrast with our feelings about trees individually, especially trees which we have planted ourselves or have seen planted. When a tree is cut in one of the parks of this city there is a protest raised against the so-called barbarity of the act by a hundred voices which are silent about the destruction of the Adirondack forests. The protest in the one case is as much the result of ignorance and indifference as the silence in the other; and it is as necessary to use the axe, if the beauty and value of ornamental plantations are to be maintained, as it is to save the forests on the headwaters of important streams. . . .

[Editorial. *Garden and Forest* 3 (1890): 545]



readily accepted European prescriptions for resolving social ills through governmental intervention.[2]

Almost every number of *Garden and Forest,* for example, included news from abroad. One squib that editor Stiles inserted announced that a Société des Sylviculteurs de France et des Colonies had been formed "for the purpose of diffusing the knowledge of silviculture and increasing the popular interest in this art." Why bother with such a minor event in France? Because the new organization's ambitions mirrored those of the American magazine's patrons and other readers. Stiles also made space for lengthy reviews of books that described the latest European advances in forestry science and devoted many columns to enthusiastic firsthand accounts of tours of forests in Russia and Italy, England, Germany, and France. Priority was given, however, to learned assessments of the transferability of the European experience to the New World. One of those who so argued was Gifford Pinchot, who while studying at L'École nationale forestière in Nancy, France, wrote a series of articles on European forestry for *Garden and Forest.* In one that compared various governmental forestry systems in Europe, he pointed out that the "principles which underlie not only German, but all rational forest-management, are true all the world over," Gifford Pinchot observed, "but the methods into which the same principles have developed are as widely dissimilar as the countries in which they are being applied." That being the case, there was one European country that "may best claim our attention"—Switzerland. Its "history of forestry . . . is of peculiar interest to the people of the United States," he suggested, "because in its beginnings may be traced many of the characteristics of the situation here and now, and because the Swiss, like the Americans, were confronted by the problem of a concrete forest-policy extending over the various states of a common union."[3]

Other authors reached similar conclusions, and like Pinchot exemplified the opportunities inherent in cross-cultural fertilization: Carl A. Schenck, a German-born and -trained forester who managed George Vanderbilt's vast forests at Biltmore, North Carolina, also established the first American forestry school there in 1898; that same year Bernard Fernow, his countryman, became the first head of Cornell's School of Forestry after serving as the third chief of the U.S. Bureau of Forestry from 1886 to 1898. Pinchot, along with his family, underwrote the Yale School of Forestry in 1900. Throughout their careers as foresters and educators, each man was sensitive to the difficulty of importing cultural institutions,

but each knew that the development of forest management in America would initially depend on European ideas.[4]

Fernow and Pinchot in particular beat the drum for an augmented governmental presence on public lands, a position that Sargent seconded strongly in his editorial campaign for forest reservations. Moreover, their writings had educational value for a growing cadre of professional foresters that was just beginning to carve out a distinct niche within the field of landscape management. "If I say that forestry has nothing whatsoever to do with the planting of road-side trees, that parks and gardens are foreign to its nature . . . that scenery is altogether outside its province," Pinchot asserted in *Garden and Forest* in 1895, "I am making a conservative statement with which every forester will agree." Its connections with "arboriculture and landscape art" derive from the fact that "it employs to a certain extent the same raw material . . . but applies it to a wholly different purpose." American foresters, like their European counterparts before them, were staking out their turf.[5]

This assertion of professional specialization, when linked to the slow but significant growth of public support for an increased federal intervention in forestry management, was invaluable in developing a political movement devoted to conserving natural resources. It is of lasting significance that this new ethos of conservation, which would dominate early twentieth-century political discourse in America, found its first sustained and vivid expression in *Garden and Forest.*

Endnotes

[1] S. B. Sutton, *Charles Sprague Sargent and the Arnold Arboretum* (Cambridge: Harvard University Press, 1970), 131–133.

[2] George Perkins Marsh, *Man and Nature The Earth as Modified by Human Action* (New York: Charles Scribner, 1864); Donald J. Pisani, "Forests and Conservation, 1865–1890," in Char Miller, ed., *American Forests Nature, Culture, and Politics,* (Lawrence: University Press of Kansas, 1997), 15–34; Daniel T. Rogers, *Atlantic Crossings. Social Politics in a Progressive Age* (Cambridge: Harvard University Press, 1998), Char Miller, "Wooden Politics: Bernhard Fernow and the Quest for a National Forest Policy, 1876–1898," in Harold K. Steen, ed., *The Origins of the National Forests* (Durham: Forest History Society, 1992), 287–301.

[3] *Garden and Forest* (hereafter, *G&F*) 4 (1891). 22.

[4] *G&F* 10 (1897). 397; 8 (1895) 319; Carl A. Schenck, "Private and Public Forestry," *G&F* 10 (1897): 232–233, 242–243, 252, 262; Bernard Fernow, "European Forest Management," *G&F* 1 (1888): 454–455; "Why We Need Skilled Foresters," *G&F* 8 (1895): 131; Gifford Pinchot, "The Forest," *G&F* 3 (1890): 374, 386; "Forest-policy Abroad," 4 (1891): 8–9.

[5] Char Miller and James G. Lewis, "A Contested Past: Forestry Education in the United States, 1898–1998," *Journal of Forestry* 97 (1999) 38–43; Gifford Pinchot, "The Need for Forest Schools in America," *G&F* 8 (1895): 298 Sargent and Pinchot publicly disagreed on one aspect of the professionalization of forestry, namely, the use of military officers as forest guards on the nation's forests. Sargent favored training military officers in the principles of forestry, while Pinchot believed that only a professional civilian service was appropriate. *G&F* 3 (1890) 581, 3 (1891): 9; 4 (1891)150: 9, 4 (1891): 34–5. As intense as their disagreements would become, they were convinced that the federal government must patrol these valuable public lands, their care could not be left to the states or corporations.

Acknowledgment

I am grateful to James G. Lewis for his research assistance on this project.

Char Miller is professor and chair of history at Trinity University. He is co-author of *The Greatest Good 100 Years of Forestry in America* (1999), editor of *American Forests. Nature, Culture and Politics* (1997) and of *Water in the West* (2000); he is also author of a forthcoming biography of Gifford Pinchot.

WANTED, A TRACT ON FORESTRY.

To the Editor of GARDEN AND FOREST:

Sir.—The necessity of forestry reform is admitted by all intelligent people who take time to examine the question, but no reform can make much headway until the people at large become convinced of its necessity. The prime need, then, in every such cause is to instruct them as quickly as possible in that which so greatly concerns their welfare.

The two great avenues to the human mind are through the eye and the ear, and of these the first is, no doubt, the most important. That which we see makes, on the whole, the greatest impression. Such object-lessons, therefore, as that contemplated by the Adirondack League Club, referred to in your issue of February 18th, will, of course, be a vast help in forming a healthy public opinion concerning the management of our national forests. The fine example of the city of Lynn [Massachusetts], which is now engaged in acquiring a vast and varied tract of adjacent woodland, embracing some 1,400 acres, to be held as a public forest and park for the use of the people forever, is another splendid object-lesson; the enterprise of the little village of Freedonia, New York, which has had the wit to seize the park idea by the right handle and forestall the future by boldly laying out two parks in the very heart of the town. These and other similar examples help along the causes with which they may severally be classified far more rapidly than can the very best of preaching. May such tangible teaching increase.

Yet there is a large and important work to be accomplished through the "foolishness of preaching." The press has done and is doing much. Still it occurs to me that there is need of, or at least room for, special work through such tracts as that one which assisted the great reboisement of certain districts of France. There, the forests having disappeared through heedless cutting, and the turf been gradually destroyed by the sharp hoofs and the hungry gnawing of the flocks, great and increasing damage from floods began to overwhelm the valleys. To reclothe the heights and restore the equilibrium was found to be impossible until the people—the peasantry who had votes—had been won over. A prize was offered for the best short work adapted to teaching them these lessons, the little book "Studies of Master Peter" being the successful competitor. Some similar work, all the better if shorter, which could be widely disseminated among our rural populations would, I am confident, accomplish much toward producing a right popular view of the vast forest-interests of our land. Who will write one?

Dorchester, Mass. *S.*

(Mr. B. E. Fernow, Chief of the Forestry Department at Washington, has already written some leaflets for general distribution, but we cannot have too many of them nor have them prepared from too many points of view.—ED.)

[*Garden and Forest* 4 (1891): 106]

VALUE OF MOUNTAIN FORESTS.

THE first and most important function of mountain forests is the preservation of the mountains themselves by clothing them with soil. The relation of mountain forests to the soil out of which they grow is curious and interesting. The soil now produces the trees, but the forest has produced the soil which now nourishes it. There was a time when there was no soil on the mountains of New Hampshire, nor on any portion of the Appalachian System—when the mountains were only ridges, slopes and summits of bare rock. They were composed wholly of mineral substances, of matter entirely inert and incapable of supplying food to vegetable organisms. There was not an atom of soil on the rocks of the whole region, and no vegetable growth of any kind. Then when conditions permitted, Nature began a new order of things here with some of the lowest forms of vegetable life, resembling the lichens of our time. Some of these could grow here and there on the rocks, and whatever could grow would die and decay, but would not wholly perish. Some slight particles of its fibre or substance would remain undestroyed through all the changes of decomposition, and in the course of centuries or thousands of years a thin film of soil was accumulated here and there sufficient to nourish vegetation of a little higher character and organization than had belonged to the pioneer organisms.

How great the distance from that far beginning to the first trees! And very poor and inferior trees the earliest ones were, when they did appear, compared with those which make our forests now; but they were the best that the still scanty soil would sustain. Ever since the leaves of the first trees began to fall the trees have been slowly adding to the deposit of soil which now covers the rocks, and which has reached the depth and productive potency required to sustain the noble forests of our own time.

The great stratum of fertile, life-producing soil which now lies folded around the shoulders of the hills is the result and accumulation of patient ages of dendral toil. Nature has wrought incessantly, through mighty cycles of time, to clothe the desert rocks with life and beauty, and in the untainted air of these lofty slopes and plateaus she now grows forests which are like the columned aisles of vast cathedrals. Ships which cleave the waves of every sea, and the cottages and palaces of mighty cities, with myriads of structures for man's varied industries, have been builded of the materials supplied by our mountain forests. The superior quality of the timber now grown, and the vast quantities in which it is produced, are effects of the wonderful fertility which the soil has attained. It is richer than ever before, but it has not reached the limit of possible productiveness. There is no such limit, indeed, and if our mountain forests were rightly managed they would forever increase in fertility and the quality of their timber would be thereby gradually improved.

A forest is the only crop, so far as I know, which can be produced perpetually on the same ground without diminishing in any degree the fertility of the soil. It is a remarkable fact that a forest not only does not impoverish the soil out of which it grows, but that it actually enriches it. As the soil is thus improved it responds by producing superior timber. A mountain forest would yield better timber, and more of it, at the end of a thousand years of proper management than at the beginning and proper management means and includes the cutting of every tree when it reaches its best estate.

Farming in Mountain Regions.

The entire effort at farming in mountain forest-regions in this country is often a most destructive and suicidal mistake. Much of the ground that has been cleared for cultivation in such regions is so steep that if forest-conditions are once destroyed upon it the soil is certain to be washed away. It has always been manifest to intelligent observers that such land is suited to the perpetual production of timber, and of that crop alone. In many instances in our state land has been cleared and "farmed" with very slight returns which would be much more valuable than it now is if it were still clothed with forest. The yield of farm products in such cases is scanty and uncertain. In some places the land is too high and cold for successful cultivation. There are frosts late in spring and early in autumn, and sometimes in every month of the brief summer, and the soil is soon exhausted. It would be difficult to find anywhere an instance of more obvious natural adaptation to a particular function than our whole mountain forest-region exhibits in its fitness for permanent beneficial use after forest-conditions have been fully destroyed. It would have been much better if some of our "abandoned farms" had never been cleared. In some parts of our country vast values have been permanently blotted out by clearing and cultivating mountain land, and those states will be poorer for all time to come by reason of the resulting destruction and removal of the soil of considerable areas of their mountain regions.

Ruin by Fire.

The most fatal agency in destroying the soil of a mountain forest-country, and in wrecking the mountains themselves, is that of fire, and in the history of most mountain forest-regions the operation of this agency has been closely connected with the attempts to cultivate the soil to which I have just referred. In various regions of the Appalachian mountain system many of the farms have been cleared simply by burning the timber and brush left on a tract after it has been lumbered over, and the first crop is planted in the ashes. In a few years the soil is exhausted or washed away, and the farmer goes a little farther up or down the valley, or across the stream which runs through it, and repeats the operation. But the injury to the mountains which is caused by the destruction of the soil of these limited tracts which have been cleared for cultivation is trivial when compared with the losses which have resulted from the forest-fires having their origin in these clearings.

When we consider the rapidly increasing density of the population of our country, and the great advance in the value of all fertile lands, especially in the eastern states, it is obvious that the complete destruction of the soil of any considerable area is a very serious matter. There are few kinds of losses or misfortunes affecting property which are so calamitous as this. It is a crime against posterity, a permanent subtraction from the wealth and the capabilities of the country. The soil is, to a very great extent, the country itself. A burned city can be rebuilt, and the system of insurance distributes the loss widely. But there is no insurance on the soil of our mountain forests, and when it is once thoroughly burned it will require mighty cycles of time to restore it. Its producing capacity for ages, and all the "promise and potency" of a perpetual succession of valuable crops, are at once reduced to nothingness.

—*From the Report of J. B. Harrison, Commissioner of Forests for New Hampshire* [*Garden and Forest* 3 (1890): 613–614]

A NEW JERSEY PINE FOREST.

THE illustration upon page 164 represents a pure forest of Pitch Pine *(Pinus rigida)* in Ocean County, New Jersey. It is situated about twelve miles from the sea coast, and forms a part of the extensive and interesting domain which surrounds the Laurel House at Lakewood, to the proprietors of which establishment it belongs.

This forest is interesting from several points of view. It is extremely picturesque and beautiful. It occupies ground which only fifty years ago was employed for farming purposes; and it is one of few forests composed of a single species of tree which can be seen in the Northern States, where a number of different trees are usually associated together in forest growth. The Pines in this Lakewood

forest have an average height of fifty feet; and their trunks an average diameter of ten inches. They stand so close together that grasses and undershrubs cannot survive in their dense unbroken shade. The forest floor is deeply carpeted with moss, however, and altogether this forest reminds one more of one of the planted Pine forests of northern Europe than anything we remember to have seen before in the United States. The rapid and vigorous growth of this young forest upon poor and comparatively worthless lands shows, moreover—and this is its chief interest—the way such lands along the Atlantic seaboard, north of Virginia, can be used to the best advantage. And finally it illustrates the possibility of protecting, by means of a little trouble and foresight, such forests from burning up in the fires which annually rage, unchecked, over great tracts in the New Jersey coast region. . . .

The Pitch Pine is not one of the most valuable Pine trees of the United States. Its wood is coarse grained, full of resin, and not very strong. . . . Before southern pine was brought to this market the pitch pine of New Jersey was the only available material in many parts of the State for timbers and flooring; and there are still houses in some counties where floors and floor-timbers are known to have been in constant use for more than a century. But it is for firewood and for charcoal that the pitch pine is most valuable; and the nearness and accessibility of these New Jersey Pine forests to great centres of population give them special importance as sources of fuel supply, which no other forests of this character in the country possess. Much land within three or four hours by rail of this city and of Philadelphia, now utterly unproductive and rapidly deteriorating through the fires which sweep over it every year, can be made highly productive and profitable by means of the Pitch Pine. People who own land of this character will see much to interest and instruct them in these Lakewood forests, and in those in the town of Orleans, on Cape Cod, in Massachusetts.

C.S.S[argent]

[*Garden and Forest* 1 (1888): 166]

THE SIHLWALD.—I.

IT was my good fortune recently to pass a month in the Sihlwald, as that portion of the forest-property of the City of Zurich is called, which stretches for some five miles along the narrow valley of the Sihl. It is not often that a forest is so favorably situated both geographically and as to the conditions which determine the value and fertility of timber-lands; and while there are many peculiarities in its management which mark it as distinct from the great body of European forests, it exhibits so full a knowledge of forestry applied to such excellent conditions and so admirable an adaptation of means to ends, that if it fails of being typical of that which is, it may assuredly challenge attention as the illustration of that which ought to be. Further, since during the last fiscal year it yielded to the city a net revenue of more than eight dollars per acre, a short account of it may serve to emphasize the fact, so often lost sight of, that the protection of forests is not an end, but a means, and that the whole question of forestry has a very definite and important financial bearing. It has, therefore, seemed that a few words upon the Sihlwald might not be without interest to the readers

of GARDEN AND FOREST, and I purpose, after describing it briefly in the present paper, and sketching the management of the forest in a second, to touch upon it in a final one as a piece of municipal property . . . That precious condition of the surface which the French and German unite in describing as "forest-soil," so slow in forming and so quick to disappear wherever the full sunlight is allowed to reach the ground, has here been produced in perfection by centuries of forest-growth. It is perhaps to this factor, next to the abundance of humidity, that the high annual yield of wood in the Sihlwald is due.

The growth which covers the soil thus fortunately suited to its needs is a mixed high or seedling forest, in which the deciduous trees largely predominate. Under the law of the rotation of forest-crops, not so well known as that which determines an analogous success in agriculture because it acts over vastly longer periods, the character of the mixture has undergone a gradual change, until, in the course of two centuries and a half, the percentage of coniferous trees has declined from sixty-one to fourteen, and the deciduous forest has taken their place. . . .

Scattered along between this forest and the Sihl . . . are placed the saw-mill, handle factory and injection plant, whose presence as integral parts of the equipment of the forest, chiefly distinguishes the management of the Sihlwald from that of other similarly situated European woodlands.

THE SIHLWALD.—II.

IN the organization of a normally stocked forest the object of first importance is the cutting each year of an amount of timber equal to the total annual increase over the whole area, and no more. It is further desirable in any long settled community that the forests be so managed as to yield a measurably constant return in material. Otherwise difficulties in the supply of labor and the disposal of the produce make themselves felt, and the value of the forest to its owner tends to decrease. This is especially true in the case of the Sihlwald, whose mills derive their raw material exclusively from the forest to which they belong, and whose supply of labor is limited to the men whom it furnishes with steady employment. Either excess of deficit in the annual production implies loss.

In order to attain this steadiness of yield it is obviously necessary that a certain number of trees become fit to cut each year. The Sihlwald has accordingly been so "organized" that areas of equal productive capacity are covered by stocks of every age, from last year's seedling to the mature tree. . . . The working plan for the Lower Sihlwald, then, prescribes for the forest . . . the operations of what Dr. Schlich has called in his *Manual of Forestry* "The Shelter-wood Compartment System." It may not be without interest to follow the life history of a compartment in which this system is carried out.

After the mature trees had been felled and removed from the area which furnished the yield of the Lower Sihlwald last year the thick crop of seedlings which had grown up under their shelter was finally exposed to the full influence of the light and air. The felling and rough shaping of the timber, the piling of logs and cord-wood and the trampling of the men had combined with the crisis of exposure to destroy the new crop in places and create a few small blanks. Here, as

View in the Sihlwald

soon as the disappearance of the snow had made it possible, groups of the kinds of seedlings necessary to preserve the mixture or destined to increase the proportion of the more valuable species were planted. The operation, necessarily an expensive one, is justified by the greater resistance of a mixed forest to nearly all the calamities which may befall standing timber. Simultaneously with the planting the Willows, Hazels and other worthless species were destroyed, as well as the "pre-existing seedlings," whose larger growth, according to the disputed theory held at the Sihlwald, would damage their younger neighbors more by their shade than their greater volume would increase the final yield of timber. The incipient forest, then, practically uniform in age and size and broken by no blanks which the growth of a year or two will not conceal, is fairly started on the course of healthy development, which it is to continue undisturbed until it reaches the age of fifteen years.

At this point occurs the first of a series of thinnings which follow each other at intervals of seven or eight years, until the trees have entered the last third of their existence. There is, perhaps, no silvicultural question more in dispute than this of the time and degree of thinning which will yield the best results in quality and quantity of timber. The method pursued at the Sihlwald, consecrated by habit and success, gives ample space for the healthy development of the crown from a very early age without admitting light enough through the leaf-canopy to sustain an undergrowth until the the trees are nearly ready to give place to their descendants. Such shrubs or seedlings as still appear, thanks to a shade-bearing

temperament, are systematically cut out. It may be strongly doubted whether such a policy might safely be applied on soil less moist than that of the Sihlwald; but here, at least, the trees reach the age of sixty years, tall, straight, clean-boled, and in condition to make the best of the last part of the period of maximum growth, which a large number of measurements have shown to occur in general between the ages of seventy and ninety years. A heavy thinning now comes to the assistance of the best specimens of growth, and they are left to profit by it until seven years before the date fixed for their fall. Then begin the regeneration cuttings, whose object is to admit through the leaf-canopy an amount of light, varying with the temperament of each species, whose mission is to give vitality to the seedlings which the trees, stimulated themselves by their more favorable situation, now begin to produce in considerable quantities. To this end the light which falls from above has a powerful auxiliary in that which the system of felling each year in a long narrow strip admits from the side, and so admirable is this double method that the time which elapses between the beginning and the end of a regeneration is but half the average for less favored localities. This applies only to the deciduous trees. The time required by the conifers is much longer, and the incomplete regeneration which they furnish is supplemented by planting in the blanks already mentioned. But for the self-sown seedlings of both classes the amount of light is gradually increased, the trees which shelter them are at length wholly removed, and the cycle of growth repeats itself. . . .

Nancy, France. *Gifford Pinchot*
[*Garden and Forest* 3 (1890): 374, 386]

from NOTES ON THE FOREST FLORA OF JAPAN.—XXIII.

. . . THE most generally planted timber-tree of Japan is the Saké, Cryptomeria Japonica, and its wood is more universally used throughout the empire than that of any other Conifer. It is one of the common trees of temple-gardens and roadside plantations, and, when seen at its best, as in the temple-groves at Nikko or Nara, where it rises to the height of a hundred or a hundred and twenty-five feet, with a tall shaft-like stem tapering abruptly from a broad base, covered with bright cinnamon-red bark and crowned with a regular conical dark green head, it is a beautiful and stately tree which has no rival except in the Sequoias of California. Great planted forests of the Cryptomeria appear all over Hondo on broken foot-hills and mountain-slopes up to an elevation of nearly three thousand feet above the sea, low valleys and good soil being usually selected for such plantations, as the trees need protection from high winds. The plantations decrease in size and luxuriance in northern Hondo, and the cultivation of the Saké does not appear to be attempted north of Hakkodate where there is a grove of small trees on the slope of the hill above the town. The wood is coarse-grained, with thick layers of annual growth, dark reddish heart-wood and thick page sap-wood; it is easily worked, strong and durable, and is employed in all sorts of construction. The bark, which is carefully stripped from the trees when they are cut down, is an important article of commerce and is used to cover the roofs of houses. A large round bunch of branchlets covered with their leaves hung over the door of a shop is the familiar sign of the dealer in saké.

Japan owes much of the beauty of its groves and gardens to the Cryptomeria. Nowhere is there a more solemn and impressive group of treees than that which surrounds the temples and tombs at Nikko, and the long avenue of this tree, under which the descendants of Ieyasu traveled from the capital of the Shoguns to do honor at the burial-place of the founder of the Tokugawa dynasty, has not its equal in stately grandeur. This avenue, if the story told of its origin is true, can teach a useful lesson, and carries hope to the heart of the planter of trees who will see in it a monument more lasting than those which men sometimes erect in stone or bronze in the effort to perpetuate the memory of their greatness. When the body of Ieyasu was laid in its last resting-place on the Nikko hills his successor in the Shogunate called upon the Damios of the empire to send each a stone or bronze lantern to decorate the grounds about the mortuary temples. All complied with the order but one man, who, too poor to send a lantern, offered instead to plant trees beside the road, that visitors to the tomb might be protected from the heat of the sun. The offer was fortunately accepted, and so well was the work done that the poor man's offering surpasses in value a thousand-fold those of all his more fortunate contemporaries.

Something of the beauty of this avenue appears in the illustration, although, without the aid of colors, it is impossible to give an idea of the beauty of the Cryptomeria. The planted avenue extends practically all the way from Tokyo to Nikko, but it is only when the road reaches the foot-hills that it passes between

rows of Cryptomerias, the lower part being planted, as is the case with the other great highways of Japan, with Pine-trees; nor, as it has often been stated, is this avenue continuous, for whenever a village occurs or a roadside tea-house, which are scattered all along the road, there is a break in the row of trees, and it is only in some particular spots that a long view of continuous trees is obtained. The railroad, which follows parallel and close to the avenue for a considerable distance and then crosses it just before the Nikko station is reached, is a serious injury to it. The trees, as will be seen in the illustration, are planted on high banks made by throwing up the surface-soil from the roadway; they are usually planted in double rows, and often so close together that sometimes two or three trees have grown together by a process of natural grafting. Young trees are constantly put in to fill gaps, and every care apparently is taken to preserve and protect the plantation. How many of the trees originally planted when the avenue was first laid out in the beginning of the seventeenth century are left it is impossible to say, but I suspect that most of those now standing are of much later date. One of the trees close to the upper end of the road which had been injured by fire was cut down during our visit to Nikko. The stump, breast-high above the ground, measured four feet inside the bark, and showed only one hundred and five layers of annual growth. Few of the trees in the avenue were much larger than this, although in the neighborhood of the temples there are a few which girt over twenty feet; these were probably planted when the grounds were first laid out.

The two [most valuable timber-trees in Japan], Chamæcyparis and the Cryptomeria, are now almost unknown in a wild state. They may, perhaps, be found growing naturally on some of the southern mountains which we did not visit; wherever we went, however, we saw only trees that had been planted by man, although some of the plantations had evidently lived through several centuries.

C.S.S[argent]

[*Garden and Forest* 6 (1893): 443]

A MUSEUM SPECIMEN OF SEQUOIA GIGANTEA.

A section of a trunk of one of the California Big Trees is now almost ready to be set up in the Jesup collection of American woods in the Museum of Natural History in this city. Like the other specimens of this collection, this one is four and a half feet in long, measuring with the grain, but it is rather more than twenty feet in diameter, and when fully prepared the great wheel will be set up on its rim as the beautiful specimen of Redwood is near by. The tree grew on land now owned by the King's River Lumber Company, near Sequoia, Fresno County, California, a long day's ride up the mountain from Visalia. To make transportation possible it was split into twelve sections, the centre-piece being round, and eleven other radiating from it. It is an admirable specimen, with perfect grain and apparently no wind-checks, although through one of the sections there is a narrow decayed tunnel something like eighteen inches long and an inch or two in width. Outside of this, however, the trunk is perfectly solid, and this decay probably came from some injury to the trunk, which may have been bruised by a falling tree; and if we can estimate time by annual rings of growth the accident happened at about the date when the Pilgrims landed at Plymouth. Mr. S. D. Dill,

who has prepared all the specimens for this great exhibition, is now riveting the segments of the giant trunk together with great iron bolts, so that it will be perfectly solid when it is finally ready for its position in the centre of the collection.

The tree from which this trunk section was cut was one of a few trees left standing of a once magnificent Sequoia-grove, and the stumps about it show that their growth was very large, one not far from this tree being forty feet in diameter. The remains of the old mill which has turned these venerable trees into lumber is still there, but other mills are at work cutting from 125,000 to 130,000 feet every day. It may be said that the Converse Basin tract of Sequoias, which belongs to the King's River Lumber Company, is about ten miles back from the place where this tree was cut, and Mr. Moore, the Superintendent of the company, estimates that there is enough of that one kind of timber on the tract to keep these mills running at their present capacity for fifty years. When the trees which stand high up on the slopes of cañons are felled the logs are cut off into proper lengths. They are then blown apart by dynamite into halves, quarters and eighths, and a powerful steam-engine, with a steel cable, draws this split timber down to a greased tramway of round peeled logs, over which they are shot away to the mill, near the mouth of the cañon. They are then sawed up into lumber of

Stump of Sequoia gigantea on land of the King's River Lumber Company

proper sizes and floated down through a V-shaped flume from the mill to the railroad, sixty-two miles away. This flume is supplied by a large reservoir in the mountains. Although when dry the Sequoia is one of the lightest of American woods, it is very heavy when full of sap, and will not float readily until it is seasoned, so that the timber needs to lie some time before it is floated out of the mountain. The lumber looks very much like redwood, and is sold under this name. Indeed, it is only distinguished from redwood by the eye of an expert.

This particular tree was called "Mark Twain," and girthed sixty-two feet at eight feet from the ground and ninety feet at the surface. It was a straight, handsome tree some three hundred feet high, and without a limb for about two hundred feet from the ground. Mr. Moore estimated that it contained four hundred thousand feet of lumber, and the specimen cut, four and a half feet long, weighed over thirty tons. It took two men about three weeks to cut it down. The axemen chopped out deep notches on the opposite sides of the tree, leaving a comparatively narrow strip through the centre untouched. A notch was then cut at one end of this centre-piece on the side toward which the tree was to fall . . . Two long cross-cut saws were then welded together and the workmen began to saw in horizontally opposite the cut last mentioned, and wedges were driven in until the tree toppled over . . . [The illustration] gives some idea of the size of the tree at the ground. Fifty men of the Lumber Company's force are here seen standing out on the sap-wood and bark of the stump, and the tools with which the giant was overthrown lie in the centre, where there is easily room for a hundred more men. Of course, the butt of the log that fell was sawn off above the bevel made by the axes, and in a plane perpendicular to the axis of the log, so that the bottom of the specimen in the museum represents a cut about ten feet from the ground. A section of the log next above this has been secured as a specimen for the British Museum.

Every lover of nature must be rejoiced at the fact that the National Government has taken possession of several of the most extensive groves of Big Trees that remain in California, so that they cannot pass into private hands and be turned into lumber, a fate which has already befallen so many of these oldest and noblest inhabitants of our mountain forests.

[Editorial. *Garden and Forest* 5 (1892): 541–542]

THE FORESTS OF THE NATIONAL DOMAIN.

THE small company of forward-looking people who, in the face of almost universal apathy, had been for years urging the necessity of some rational system of management for the forests on our national domain, felt greatly encouraged ten years ago when President Arthur was moved to mention the subject in one of his annual messages. We have no systematic forest-policy yet, not even the beginning of such a policy, but we are no longer surprised or unduly elated over the fact that men in places of high authority consider the matter worth talking about, at least. President Cleveland, like his immediate predecessors, in his message to Congress, which assembled last month, strongly advised that some adequate protection should be provided for the areas of forest which had been reserved by proclamation, and he also recommended the adoption of

some comprehensive scheme of forest-management. He condemned the present policy of the Government of surrendering for small considerations immense tracts of timber-land which ought to be reserved as permanent sources of timber-supply, and urged the prompt abandonment of this wasteful policy for a conservative one, which should recognize in a practical way the importance of our forest-inheritance as a vital element of the national prosperity.

The House of Representatives, too, has taken prompt action upon Mr. McRae's bill, entitled, An Act to Protect Public Forest Reservations. The provisions of the bill are simple. It authorizes the employment of the army to patrol these reservations, as has been done effectively in the Yellowstone Park and in the Yosemite Valley, and it empowers the Secretary of the Interior to make regulations in regard to their occupancy, to utilize the timber of commercial value they contain, and to preserve the forest-cover from destruction. It also empowers the Secretary of the Interior to cut and sell timber on non-reserved lands under the same rules as those made for the forest reservations, provided that it shall be first shown that such cuttings shall not be injurious to the public interests. The bill had some unfortunate features, but any system which regulates the use of public timber is better than the indiscriminate plunder that has been going on hitherto, and the authorization to use the military for protective purposes is altogether commendable. The bill was amended, however, to strike out, if we understand it correctly, the provisions relating to non-reserved lands, and it restricts the sale of timber on the reservations to trees that are dead or mature, thus limiting skilled forest practice, instead of authorizing trained foresters to make their own selection, and, worse than all, it grants free supplies of timber from the reservations to miners and settlers.

It is to be hoped that when this measure comes before the Senate that its original features will be restored. In its present form it does little more than to expose the timber on the reservations to new dangers. . . . If military protection is assured, that is one step forward, but if such protection is made possible only when the War Department shall consider it worth while, it is a very short step, indeed. No doubt, any measure which gives the assurance of efficient policing of the reservations, or efficiently controls the cutting of public timber, is to that extent a gain, but we certainly want something more definite and decisive than the McRae bill as it now stands. . . .

[*Garden and Forest* 8 (1895): 1]

WHAT is to be the fate of forests on the national domain, and how is the much larger forest area of the country, now in private hands, to be managed in the future, are questions which, a few years ago, would have excited but trifling interest anywhere in the United States. The current issue of *The Century* magazine shows that these matters are now subjects of serious study by many thoughtful Americans. The editor of a great periodical is a good judge of what subjects are of immediate popular interest, and the fact that *The Century* not only makes a distinct proposition of its own for action in the matter of forest-preservation, but devotes ten pages to setting forth the views of persons who, from their official standing or personal knowledge, are qualified to say something

VOL. VIII. NO. 362.

GARDEN AND FOREST

A JOURNAL OF HORTICULTURE LANDSCAPE ART AND FORESTRY

JANUARY 30 1895

PRICE TEN CENTS.] [$4.00 A YEAR, IN ADVANCE.

worth hearing on the subject, is an evidence that we are gradually nearing the time when indifference and lethargy in relation to this matter will give place to an active realization of the fact that the prosperity of our country is directly connected with the proper management of our forests.

Six years ago, when speaking of the nation's forests, it was urged in this journal that all forest-lands belonging to the Government should be withheld from sale until an examination of these lands, and of the agricultural lands depending upon them for water-supply, would show what tracts of timber could be put upon the market without threatening important interests in the country below them. For the protection of these forests against injury from man and beast, it was advised that, pending this investigation, the guardianship of the forests on the national domain should be entrusted to the United States Army and that this examination of the national forests should be conducted by a commission, appointed by the President, of men able to report upon the magnitude and quality of our forests, and upon their relations to other interests. No commission was appointed, however; perhaps the time was not ripe for such a plan, modest and moderate as it was; but certainly if such a commission had then been named, we should now know more about our forests than we do. In *The Century* symposium a man so well qualified to speak as Mr. Bowers, the Assistant Commissioner of Public Lands, declares that estimates of the amount of forest-land owned by the Government vary between the lowest and the highest by twenty millions of acres, which means that we have no absolute knowledge whatever. And since no one can do more than make a rough guess at the area of these lands, any surmise as to the amount of timber growing on any portion of them, or of its value, or of the ease or difficulty with which these woodlands can be made permanently productive, would be wilder still. It seems, then, that the need of a board of investigation is quite as urgent to-day as it was when the proposition was first made . . .

There seems to be little question as to the advisability of employing the army as a police force while this investigation goes on. Captain Anderson, who has been in command of the troops in the Yellowstone National Park, ought to be a competent judge in this matter, and in his contribution to the symposium it is stated that the soldiers of his command have served every purpose of a forest-guard most satisfactorily. . . . Of course, this service would only be temporary, for the time is coming when a policy, which only means mere protection of the woods from timber thieves and browsing animals and fire, must be replaced by an active system of reproductive management such as is used in other industries of this country and in the forests of other civilized nations.

[Editorial. *Garden and Forest* 8 (1895): 51]

Old trees in their living state are the only things that money cannot command. Rivers leave their beds, run into cities and traverse mountains for it; obelisks and arches, palaces and temples, amphitheatres and pyramids rise up like exhalations at its bidding; even the free spirit of man, the only thing great on earth, crouches and cowers in its presence. It passes away and vanishes before venerable trees.

—*Walter Savage Landor.*

NOTES.

An old legend traces the origin of the Thistle as the emblem of the Scottish kingdom to the far-away time when the Danes were invading the country. On a dark night, runs the story, as they were advancing to attack an encampment of Scots, one of them trod on a Thistle, and the thoughtless exclamation which followed awakened the slumberers, who, springing to arms, defeated their assailants. In gratitude for this deliverance the flower of the Thistle was adopted as the national emblem. [8(1895): 300]

In the Bulletin of the United States National Museum, No. 39, Dr. Frederick D. Coville, botanist of the Department of Agriculture, has recently printed some clear directions for collecting specimens of plants and information illustrating their aboriginal uses, which will be found useful to both travelers and settlers who have an opportunity to observe the habits of any of the tribes of American Indians. [8(1895): 300]

The Hard Maple of Maine furnishes a large part of the material used in the manufacture of shoe-pegs, although the wood of the Canoe Birch is sometimes used for this purpose. Shoe-pegs are sold by the bushel, and now range from seventy-five cents to one dollar a bushel, $150,000 having been received, it is stated by a correspondent of *The Manufacturer and Builder* of this city, last year by the Maine shoe-peg factories. [5(1892): 228]

The destruction of the forests which has been going on about the diamond mines near Kimberley, South Africa, is believed by Dr. William Crookes to have seriously modified the climate. The country within a radius of a hundred miles has been stripped of wood to supply timber for the mines. The forests were barriers against the wind; they tempered the heat of the sun in a region where the air is extremely dry, and their removal is thought to account for the dust storms which have been so frequent in that country this year. [10 (1897). 249–250]

Professor Roberts, of Cornell University, is sending out circulars to notify whom it may concern that under the Agricultural Extension Bill the college of agriculture of that university has undertaken to assist, free of expense, all teachers who wish to introduce what is called "nature studies" into the public schools. Nature study means nothing more than seeing familiar things in a new light, and the Cornell faculty wish to encourage the investigation of common objects so as to teach accurate observation and the power of clearly expressing what is seen. [10(1897): 150]

Professor McDougal gives some very good reasons in the current number of Appleton's *Popular Science Monthly* for the establishment of a botanical garden in the West Indies, so that tropical plants could be studied without going to Buitenzorg or some other garden on the other side of the world. A laboratory and garden in the West Indies could be reached from any important city in our country in four or five days, and it would be much more accessible for the European botanist even than are those established among the antipodes. Such a garden would be of direct benefit to a great number of working botanists in America and furnish investigators and graduate students of this country with unequaled facilities for biological research. [9(1896): 510]

A thoroughly useful Farmers' Bulletin of about twenty pages, just issued by the United States Department of Agriculture, is entitled *Washed Soils. How to Prevent and Reclaim Them.* Along the banks of the Ohio and in many portions of the south hundreds of fields have been washed and furrowed beyond the possibility of profitable cultivation. How the destruction of forests has caused these gullies, how to prevent them, and how by cultivation, reforesting and covering up the ground with grass this evil can be checked and cured is plainly set forth in these pages. The illustrations are not artistic, but they are helpful, and the methods of constructing hillside ditches and terraces, the best preparation for forests, with approved methods of planting and caring for them, are all plainly set forth. The statements in this little tract are so truthful, and the deductions so logical and convincing, that every landowner who is not already familiar with them ought to read and consider them. [9(1896): 510]

The *Northwestern Lumberman*, in speaking of the great flood in the Mississippi valley, says that the deluge has so far subsided that lumber will soon begin to move northward again over the overflowed region, but much of it will be unfit for shipment because it has been under water and is covered with silt. This dirt-covered material will all need to be cleaned, and this will involve a vast amount of work and expense. Where the cottonwood has been covered with water it will be practically ruined, as the dirt can hardly be washed out of its fuzzy fibres, and the result of this is seen in the fact that the price of this lumber has advanced one dollar a thousand. Lucky manufacturers whose lumber piles have been above the water will make the most of their advantages, and the effect will be seen in the market for oak and ash as well as for cottonwood. It will be several weeks before logging can proceed in the bottom-lands with the mills restored to running condition. There will be mud everywhere, tramways washed out, bridges and trestles destroyed, so that it will be midsummer before everything can be restored to order, with mills running steadily, and weeks more will elapse before the newly cut lumber is dry enough to ship. [10(1897): 190]

"Master of a Felicitous English Style": William Augustus Stiles, Editor of *Garden and Forest*

Phyllis Andersen

"When we think of it, we cannot but recognize that few people have written about parks as Stiles wrote. Olmsted and Vaux, yes, and Whately. It was literature they wrote . . . in addition to facts, Stiles had that literary touch, the penetrative, imaginative quality that no horticulturist had whom I have ever known. He claimed nothing original, the writings and sayings of Olmsted and Vaux being his authority, but he illuminated all they had given him with the lambent flame of his literary genius."—Samuel Parsons Jr., 1926

Charles Sprague Sargent was the self-appointed "conductor" of the nineteenth-century journal *Garden and Forest*.[1] Like all maestros he has been given almost sole credit for the journal's achievements: its timely reports of horticultural advances, its prescient warnings of threats to forests and scenery, and its unique linking of disciplines. Sargent did have significant expertise in the many fields covered in *Garden and Forest*, but he was less a savant than a manager who knew how to pick a good team. Credit for the graceful prose and for the eloquent advocacy for public parks should go not to Sargent, but to *Garden and Forest's* editor William Stiles. Stiles, an experienced New York journalist who also enjoyed a distinguished career in public service, was appointed managing editor by the founders of the journal in 1888. The editorial office of *Garden and Forest* was located in the Tribune Building in New York, and Stiles continued in his long-established role of editorial writer for the *New York Tribune* during his tenure as editor of *Garden and Forest*. Sargent "conducted" from his base at the Arnold Arboretum in Boston, where he was director.

Stiles' role in *Garden and Forest* has not been widely recognized, not because it was intentionally obscured by Sargent, who fully appreciated both his editorial skills and his character, but rather by routine library practice. The full masthead of *Garden and Forest* listing staff names and positions, editorial mission, and contributors was positioned in the front of the publication in an advertising section. When the issues were subsequently bound by libraries, the advertising sections were commonly removed as having no future value. Hence the information about Stiles' role was lost, as well as the advertisements, now recognized as historically significant in their own right. What remained was an abbreviated masthead on the first editorial page listing Charles Sprague Sargent as Conductor. Stiles' role was further obscured by the fact that most of the lead editorials of the journal, many of them authored by Stiles, were unsigned.

William Augustus Stiles was born in Deckertown (now Sussex), New Jersey, on March 9, 1837. His father, Edward Augustus Stiles, was a mathematician and educator who founded Mount Retirement Seminary, a successful preparatory school in northern New Jersey. His mother was the former Eveline Belmont Howell. William was educated at his father's school and at Yale, graduating from Yale in 1859. He returned briefly to the Mount Retirement Seminary to teach, but in 1864, hoping that a sea voyage would improve his health, particularly the weak eyesight that was to plague him all of his life, he traveled to California by

way of the Isthmus of Panama. He briefly held a teaching post in Oakland, but soon left to join the corps of engineers laying out the new Union Pacific Railroad line across the Sierra Nevadas. However, his weak eyesight, further strained by detailed mapmaking, forced him to return to his father's farm in New Jersey for a period of recuperation. Having formed an interest in plants during his time in California, Stiles now began a systematic study of plants, collecting in the wild and cultivating nursery stock. Later, his interests expanded to include forestry, agricultural technology, and landscape gardening. He also became interested in local politics during this period and later ran for New Jersey state offices several times. After a brief stint as a gauger (or tax collector) in New York City he began his career in journalism.

Samuel Parsons Jr., landscape architect for the New York City Department of Parks in the 1890s, tells the story of an after-dinner speech Stiles made to a group of Yale alumni in New York in the late 1870s. According to Parsons, Stiles' wit and intelligence so captivated Whitelaw Reid, publisher of the *New York Tribune*, that he engaged Stiles on the spot as an editorial writer for the *Tribune*, a position he was to hold until the end of his life.[2] In 1883 Stiles also became the agricultural correspondent for the *Philadelphia Weekly Press*, reporting on current research in agricultural methods.

Stiles' early writings for the *Tribune* established him as a thoughtful and knowledgeable spokesman for local issues. ("There was nothing of the superficial smartness of the ordinary newspaper man, but his articles were written in a grave and judicious style, with a fine literary quality."[3]) He quickly focused on public parks, advocating additions to New York City's parklands and objecting to what he saw as misguided efforts to improve those already established—particularly Central Park.

The early 1880s were a period of significant controversy for Central Park. Like all large public works projects the park had become a rallying point for those seeking quick recognition in local politics. The pent-up frustrations of those not in sympathy with the Olmsted and Vaux design resulted in a questioning of priorities. They questioned the park's dedication to the passive enjoyment of scenery, asking what classes of society were best served by this type of park. Inappropriate intrusions in the form of active recreation facilities and popular amusements were proposed. In his editorials Stiles positioned himself as a staunch defender of the Olmsted-Vaux vision. Frederick Law Olmsted Jr. and Theodora Kimball, in the introduction to their bibliography of works on Central Park in *Forty Years of Landscape Architecture: Central Park*, note the significance of *Garden and Forest's* coverage of park issues: "The history of Central Park during the critical ten-year period covered by *Garden and Forest* (begun in 1888 and edited by friends and warm defenders of the Park) is so well reflected in its pages that perhaps a disproportionate number of references—all to editorials—in this periodical have been here included."[4]

William Augustus Stiles (1837–1897)

Stiles and Olmsted had a long-standing professional friendship. When Charles Sargent became ill in early 1888, just before the launch of *Garden and Forest*, Olmsted, who had contributed $500 to the initial financing of the journal, stepped in to offer advice and support to the new editor. The correspondence between Stiles and Olmsted, who had by then relocated to Brookline, Massachusetts, reveals Stiles'

gratitude to Olmsted for his suggestions of topics and authors for the journal. Olmsted, like many others, valued Stiles' views on the transformation of the field of landscape gardening into the profession of landscape architecture. In a letter of advice to his son Fred Jr., Olmsted reflected on his own role and that of others in the emerging profession: "It is as if the war had just begun and my part had been to keep the enemy in check until reinforcements could arrive. These young men, John [Olmsted], Harry [Codman], [Charles] Eliot and [Charles] Coolidge, with Sargent and Stiles and Mrs. Van Rensselaer, are the advance of the reinforcements."[5]

In 1892 Stiles began to use the editorial columns of *Garden and Forest* and the *New York Tribune* to call attention to a proposed speedway through Central Park along its western boundary, a project he felt was totally contrary to Olmsted and Vaux's vision: "[This project] would make an offensive exhibition of the power of money to confiscate for the pleasure of a few rich men the ground which offers to the poor of the city their only opportunity to enjoy the sight of verdant fields."[6]

In 1895 the newly elected mayor of New York, William L. Strong, appointed William Stiles to the Board of Park Commissioners, a politically powerful body with substantial influence over capital expenditures. Shortly after Stiles' appointment, the speedway proposal was resurrected, this time not in Central Park but along the west bank of the Harlem River. An engineering firm was to design it rather than Calvert Vaux, who was then landscape architect for the New York City Parks Department. This was only one of a series of humiliating attacks on Vaux from members of the Park Board who continued to try to discredit him for his participation in stopping the Central Park speedway proposal. Lacking the thick skin so useful to those in public service, Vaux suffered under these attacks. He needed a protector, and William Stiles gladly accepted the role, rallying support for Vaux from a significant number of prominent New Yorkers. Vaux's son Bowyer said that Stiles had "perhaps a keener appreciation" of his father's genius than any other citizen.[7]

William Stiles died on October 6, 1897, at the home of his sister Mrs. E. H. Davey. Never married, he had remained close to his two sisters and to the family property in northern New Jersey. In the fulsome style of the period, the obituary notices praised his contributions to the protection of the parks of New York and to the responsibility of government and civic leaders to

WILLIAM STILES was assisted at *Garden and Forest* by Mary B. Coulston. Coulston, who wrote the biographical entry for Stiles in Liberty Hyde Bailey's *Cyclopedia of American Horticulture* (1902), is described by Bailey as simply "M. B. Coulston, formerly Assistant Editor of *Garden and Forest* of Ithaca, New York." Coulston wrote a number of signed articles on horticultural subjects for *Garden and Forest.* While little is known of her early career, she figures later as a significant participant in the early planning of Balboa Park in San Diego, California. By 1902, relocated to Livermore, California, Coulston was hired by the San Diego Park Improvement Committee to be its secretary and to write articles for the local newspapers supporting the improvement of San Diego's City Park. She is described by her colleagues as possessing extensive knowledge of parks in the United States and Europe as a result of her position at *Garden and Forest.* She is credited with bringing the New York-based landscape architect Samuel Parsons—a well-known advocate of Olmsted and Vaux's vision for Central Park—to the attention of the San Diego Park Committee, and with helping facilitate his hiring as designer of what was to become Balboa Park. She had apparently been well trained by Stiles, and perhaps Sargent, to define the mission of urban parks as bringing rural scenery to the city. Coulston died in 1904 while attending a summer school session at the University of California at Berkeley. Her friend Kate Sessions, the renowned California horticulturist and garden designer, arranged to have her ashes buried under a cedar of Lebanon tree in Balboa Park. *

* Mary B. Coulston's role in the planning of Balboa Park is described in Richard W. Amero, "Samuel Parsons Finds Xanadu in San Diego," *Journal of San Diego History* 44 (Winter 1998).

serve the needs of the disadvantaged. The memorial notice published in the October 13, 1897, issue of *Garden and Forest,* unsigned but undoubtedly written by Charles Sargent, underscored Stiles' "inflexible purpose":

> He has been more, however, than a brilliant and successful editor of a technical journal; keen love of nature and sympathy with the cravings of the poor shut within city walls from the sight and enjoyment of the country made him fully understand the value and true meaning of urban parks, and for twenty years, always with that modesty which was one of his strongest characteristics, but with inflexible purpose, he has stood between the parks of this city and men who at different times and under different pretenses have tried to deface them. . . . His death is a serious loss to the readers of *Garden and Forest* and to every one in the United States interested in landscape-gardening, horticulture and the care and protection of our national and state forests.

Garden and Forest ceased publication in 1898. Despite the high quality of its writing, its appeal to practitioners in many fields, its international interests and noted contributors, the magazine had always run at a loss; Sargent had been covering its deficit for years. But it may have been the loss of Stiles that decided the issue, for Sargent's major responsibility at that time was building the scientific credibility of the Arnold Arboretum. The magazine had been in many ways Sargent's experiment. In addition to reporting on "all progress in science and practice"—horticulture, "garden botany," dendrology, scientific and practical forestry—it deliberately linked these fields with landscape gardening. It even stretched its mission to link landscape gardening with architecture. Stiles' appointment as editor of *Garden and Forest* gave it a lively, stylish prose comparable to that of

NEW DANGERS TO PUBLIC PARKS.

IN praising the man whose recent death means a heavy loss to the readers of this journal, and in noting his long usefulness as the most keen-eyed and devoted defender of the public parks of New York, the daily papers have dwelt forcibly upon the dangers which threaten these parks from the "assaults of the ignorant and vicious." But the parks are threatened by other dangers, newer than these, more subtile and insidious, less easily recognized as dangers, and therefore less likely to be frankly and forcibly resisted. And the consciousness of this fact greatly augments, among those who keep close watch upon our parks, the regret which every intelligent American must have felt when he heard of the death of Mr. Stiles.

The ignorant and the vicious have long been enemies of the parks—persons who deny their utility because it cannot be translated into terms of dollars and cents; those who are eager to injure them for the sake of giving to the city something, advantageous, perhaps, in its own way, which they think of more "practical benefit"; who wish to exploit them for their own profit or who plan to fill them with ugly objects; who barbarously injure their grass, trees, flowers or monuments for their own mischievous pleasure; or who think they know more about caring for them than their professional superintendents, and therefore try to "arouse the public" whenever a dying tree is cut or any other needful and desirable work proposed.

These people represent the unintelligent, uncultivated and unconscientious elements of the population. They are now recognized as enemies of the public, which in some degree is on its guard against them. Teachers, champions and leaders are still needed to defend the parks from their possible attacks. But the public is now easily roused to oppose their worst efforts; and it is probable that no such bold assault upon Central Park will again be attempted as the effort made a few years ago to run a speedway through it, or the equally horrible one to turn part of it into a barren parade-ground. And the public may likewise be counted upon, although not so confidently, to forbid the attempts of individuals to dot it with penny-in-the-slot

machines or newspaper kiosks, or otherwise to disfigure it and to pervert it from its true service for the profit of personal greed under the pretense of supplying special "conveniences" or "pleasures" to its frequenters.

The danger to our pleasure-grounds from engineers necessarily employed upon them, but devoid of the right artistic feeling and unwilling to abide by the counsels of landscape-gardeners, has recently been dwelt upon in these pages and may for the moment be passed by. What we wish now to point out is that it seems probable that more and more schemes to further definitely intellectual or aesthetic ends will be prosecuted without due regard to the integrity and beauty of our parks as works of landscape-art, and that the patrons of science and literature and of art of other kinds are likely to try to injure our great artistic creations like Central and Prospect Parks. And this is, of course, a very insidious danger, as the schemes may be worthy in themselves, and the people who urge them are those whom the public has been told it should trust most implicitly in intellectual and artistic matters.

It is at least a question whether the new Public Library should have been allowed to claim the site of the old reservoir on Fifth Avenue, which otherwise would have been added to the area of Bryant Park. The Metropolitan Museum should not have been given a site within Central Park, but placed beyond its limits, as the Museum of Natural History was upon its western borders. And the stand which Mr. Stiles took, as Park Commissioner, in opposing the desires of the Botanical Society—which, if carried out, will seriously impair the peculiar beauty of Bronx Park and its utility as a public pleasure-ground—must convince all the readers of this journal, who know of his devotion to botany and horticulture and to the task of spreading an interest in them among the people at large, that here, too, a great mistake has been made, and by just the kind of persons who ought to be trustworthy guides with regard to the right conservation of the public's park-lands. . . .

[*Garden and Forest* 10 (1897): 439]

journals of a more general nature: *Century Magazine, Putnam's Magazine, North American Review.* While there were other magazines devoted to horticulture and garden-making, they were written and edited by horticulturists and nurserymen and lacked the international scope and literary style of *Garden and Forest.* "His mastery of a felicitous English style and his profound and sympathetic knowledge of floral and arboreal life made him one of the most instructive and charming of contemporary writers; with refined taste and sturdy integrity . . ."[8]

Endnotes

Note on sources The basic facts of Stiles' life were constructed from the extensive obituary notices published at his death: *New York Tribune,* 7 October 1897; *New York Times,* 7 October 1897; *Garden and Forest,* 13 October 1897. M. S. Coulston's biographical entry on William Stiles in Liberty Hyde Bailey's *Cyclopedia of American Horticulture,* 1902, was also consulted, as well as correspondence between Stiles and Frederick Law Olmsted from early 1888 (Frederick Law Olmsted Papers, Library of Congress).

[1] *Garden and Forest* was not the first publication to be "conducted"; John Claudius Loudon called himself the "conductor" of *The Gardener's Magazine* (London, 1826–1844).

[2] Mabel Parsons, ed., *Memories of Samuel Parsons* (New York: Putnam's, 1926), 127.

[3] Parsons, 128.

[4] *Forty Years of Landscape Architecture:* Central Park (New York: Putnam's, 1928), 563.

[5] Frederick Law Olmsted Sr to Frederick Law Olmsted Jr., 5 September 1890.

[6] *Garden and Forest,* 9 March 1892, 109.

[7] C. Bowyer Vaux to John C Olmsted, 8 December 1895, quoted in Francis R. Kowsky, *Country, Park, and City The Architecture of Calvert Vaux* (New York: Oxford University Press, 1998), 319.

[8] *New York Tribune,* 7 October 1897.

Phyllis Andersen is Director of the Institute for Cultural Landscape Studies of the Arnold Arboretum

Bernice Giduz Schubert, 1913–2000

It is with an overwhelming sense of loss that we record the death on August 14, 2000, of Bernice Schubert, botanist, editor, colleague, and friend of the Arnold Arboretum, whose career at Harvard encompassed a total of fifty-three years, first at the Gray Herbarium and later at the Arnold Arboretum.

Dr. Schubert was born on October 6, 1913, in Boston. She graduated from the Massachusetts College of Agriculture (now part of the University of Massachusetts, Amherst) in 1935 and earned both an A.M. (1937) and a Ph.D. (1942) from Radcliffe College. She was employed at the Gray Herbarium part time while a student (1936–1941) and later full time (1941–1949), working as a technical assistant in plant taxonomy and, more importantly, as editorial aide to Professor Merritt Fernald, then director of the Gray Herbarium, on his two major works, the eighth edition of *Gray's Manual of Botany* (1951) and *Edible Wild Plants of Eastern North America* (1958), coauthored with Kinsey, plus a decade of individual publications.

When Professor Fernald died, about three months after publication of the *Manual*, Dr. Schubert went to the Jardin Botanique de l'État in Brussels on a Guggenheim fellowship where she worked on Leguminosae of the Belgian Congo and Ruanda Urundi. Upon her return to the United States in November 1952, she was employed in the Plant Introduction Section of the U.S. Department of Agriculture in Beltsville, Maryland. The first phase of her work there involved the taxonomy of North and Central American species of the genus *Dioscorea*. In a second and related phase, she cooperated with chemists of the National Institutes of Health in a search for plants with alkaloids of potential use in treating high blood pressure, collecting samples in Cuba, Puerto Rico, Costa Rica, Panama, Mexico, and Brazil. A summary publication coauthored with J. J. Willaman, "Alkaloid-Bearing Plants and Their Contained Alkaloids," was issued in 1961 as U.S.D.A. Technical Bulletin 1234.

In the fall of 1962 Dr. Schubert came to the Arnold Arboretum, first as associate curator and later as curator—an unusual appointment for a woman at a time when there were no women on the roster of Harvard's biology department, and when curatorial appointments were the academic equivalent of associate or full professor. In addition to her curatorial work, as senior lecturer she served as advisor to both undergraduate and graduate biology students and, from 1969 through 1975, she was supervisor of the Harvard University Herbaria building, an arduous task with many interruptions and little appreciation. And when my successor as director, Peter Ashton, was delayed by visa problems, she filled in as acting director of the Arboretum in Cambridge from July 1 to September 30, 1978, bridging the gap with her usual competence and outspoken distaste for administrative jobs.

Dr. Schubert's prime responsibility was as editor of the *Journal of the Arnold Arboretum*, a post she filled until 1975, after which she chaired the editorial committee (now known as the joint Arnold Arboretum-Gray Herbarium publication committee). In 1984, to honor both her retirement and her seventieth birthday, the *Journal* staff dedicated number 3 of volume 65 to her. It was said then and can be repeated now that during her tenure as editor, the *Journal* was considered one of the best-edited botanical periodicals of its kind, and she was known to all her authors as a kind editor.

Over the course of her long career, Dr. Schubert received a great deal of recognition. She was honored for her work on the genus *Begonia* with the Eva Kenworthy Gray award of the American Begonia Society and by a Silver Medal of the Massachusetts Horticultural Society. She was an honorary member of the Sociedad Botanica de Mexico and a fellow of the Linnean Society of London. Other memberships

included the Société Royale de Botanique de Belgique; the Washington Academy of Sciences; the American Society of Plant Taxonomists; the International Association of Plant Taxonomy (where she served as secretary of both the Standing Committee on Stabilization and of the Committee on Nomina Ambigua); the American Institute of Biological Sciences; the Botanical Society of America; the New England Botanical Club; and the Society of Economic Botany (where she served on the Council). In 1978 she served on the committee on Desmodieae for the International Legume Conference held at Kew. A full listing of Dr. Schubert's ninety-four publications will be given in *Taxon*. Among them are twenty-nine papers on *Begonia*, nineteen on *Desmodium*, twelve on steroids, eleven on *Dioscorea*, in addition to obituaries, book reviews, and articles on miscellaneous other subjects.

Dr. Schubert welcomed all visitors to the Harvard University Herbaria, offering a tour of the Jamaica Plain collections or of the botanists' graves at Mt. Auburn Cemetery. She often entertained in her apartment, a botanical treasure-house of museum-quality artifacts; the "wooden flowers of El Fortin" were a particular interest. For years her living room was dominated by a full-size loom on which she practiced weaving as a hobby. In her last years she continued to entertain students and professional botanists at restaurants, still exercising her talent for making each guest feel special.

My own sixty-year association with Bernice Schubert began when we were fellow graduate students in the Radcliffe laboratory of the Gray Herbarium and it continued through our years of retirement. I developed a deep respect and appreciation for this remarkable woman whose contributions to the Arboretum and the Herbaria were unprecedented both in number and variety, and this at a time when the careers of most women in botany were limited to short-term appointments to the *Generic Flora of the Southeastern United States* project or as research fellows, Mercer fellows, herbarium assistants, or, vaguely, as botanists.

Her ashes are buried in Mt. Auburn Cemetery where Asa Gray, Sereno Watson, Merritt L. Fernald, Oakes Ames, Charles Schweinfurth, Reed Rollins, and other former Harvard botanists are interred.

Richard A. Howard

U.S. POSTAL SERVICE
STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION
(Required by 39 U.S.C. 3685)

1. Publication Title: *Arnoldia* 2. Publication No: 0004–2633. 3. Filing Date. 31 October 2000. 4. Issue Frequency: Quarterly. 5. No of Issues Published Annually· 4 6 Annual Subscription Price: $20.00 domestic; $25.00 foreign. 7. Complete Mailing Address of Known Office of Publication: Arnold Arboretum, 125 Arborway, Jamaica Plain, Suffolk County, MA 02130–3500. 8. Complete Mailing Address of Headquarters of General Business Office of Publisher: Arnold Arboretum, 125 Arborway, Jamaica Plain, Suffolk County, MA 02130–3500. 9. Full Names and Complete Mailing Address of Publisher, Editor, and Managing Editor: Arnold Arboretum, 125 Arborway, Jamaica Plain, Suffolk County, MA 02130–3500, publisher; Karen Madsen, Arnold Arboretum, 125 Arborway, Jamaica Plain, MA 02130–3500, editor. 10. Owner: The Arnold Arboretum of Harvard University, 125 Arborway, Jamaica Plain, Suffolk County, MA 02130–3500. 11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities: none. 12. The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes have not changed during the preceding 12 months. 13. Publication Name: *Arnoldia* 14 Issue Date for Circulation Data Below: November, 2000. 15. Extent and Nature of Circulation. a. Total No. Copies. Average No. Copies Each Issue During Preceding 12 Months. 3,863. Actual No. Copies of Single Issue Published Nearest to Filing Date: 3,900. b. Paid and/or Requested Circulation. (1) Paid/Requested Outside-County Mail Subscriptions. Average No. Copies Each Issue During Preceding 12 Months. Copies Each Issue During Preceding 12 Months: 2,884. No. Copies of Single Issue Published Nearest to Filing Date: 2,850. (2) Paid In-County Subscriptions: none. (3) Sales Through Dealers and Carriers, Street Vendors, and Counter Sales: none. (4) Other Classes Mailed Through the USPS: none. c Total Paid and/or Requested Circulation. Average No Copies Each Issue During Preceding 12 Months: 2,884. Actual No. Copies of Single Issue Published Nearest to Filing Date: 2,850. d. Free Distribution by Mail. Average No. Copies Each Issue During Preceding 12 Months: 159. Actual No. Copies of Single Issue Published Nearest to Filing Date 144. e. Free Distribution Outside the Mail: Average No. Copies Each Issue During Preceding 12 Months. 150. Actual No. Copies of Single Issue Published Nearest to Filing Date: 140 f. Total Free Distribution: Average No. Copies Each Issue During Preceding 12 Months: 309. Actual No. Copies of Single Issue Published Nearest to Filing Date· 284. g. Total Distribution: Average No. Copies Each Issue During Preceding 12 Months: 3,193. Actual No. Copies of Single Issue Published Nearest to Filing Date: 3,134. h. Copies Not Distributed. Average No. Copies Each Issue During Preceding 12 Months: 670. Actual No. Copies of Single Issue Published Nearest to Filing Date: 766. i. Total. Average No. Copies Each Issue During Preceding 12 Months: 3,863. Actual No. Copies of Single Issue Published Nearest to Filing Date: 3,900. j. Percent Paid and/or Requested Circulation. Average No. Copies Each Issue During Preceding 12 Months: 90%. Actual No. Copies of Single Issue Published Nearest to Filing Date: 91%. I certify that all information furnished on this form is true and complete. Karen Madsen, Editor.

The Arnold Arboretum

Vol. 60 / No. 2 • NEWS • 2000

Arboretum Embarks on Strategic Planning Process

Robert E. Cook, Director

At the millenium, the Arnold Arboretum finds itself at an unusual place in its history. Over the past decade, great improvements have been made in the curation of the living collections and the care of the grounds. The Hunnewell Visitor Center, our main administrative building, has been fully renovated and our other facilities and equipment have been brought to a high state of maintenance. Our staff has grown in size with new programs in education and cultural landscapes, and we continue to mount international expeditions for botanical exploration and collecting. We are about to begin construction on three major landscape projects, the largest of which will create a new collection of sun-loving shrubs and vines in a four-acre garden. Finally, we have successfully completed a fundraising campaign that garnered nearly ten million dollars. This, combined with the remarkable performance of the Harvard Management Company over the past several years, has more than doubled the value of our endowment.

It is, therefore, an ideal time to stop, take a breath, and decide where we would like to go in the next two decades. Several years ago our staff assessed our programs as part of a long-range planning effort. Many of the ideas that surfaced during this process have taken programmatic form. Some have been more successful than others, and many have broadened the activities of the Arboretum staff beyond a narrow focus on woody plant research and education.

Because of our strong financial and administrative position, it is appropriate that a strategic planning process examine a wide range of options while bringing a critical perspective to the assumptions and constraints that have traditionally governed the operations of the Arboretum. We should determine what our core values are and how these might fuel a set of ambitious goals for the coming quarter century.

We have concluded that this will require external assistance, and we have identified a consultant, the Technical Development Corporation of Boston, with excellent experience in facilitating critical self-examination and providing guidance on developing long-range plans for nonprofit organizations. We anticipate a process that will begin this fall and yield a final document by May of 2001.

I thank all the friends of the Arboretum whose loyal support and generous contributions have given us this wonderful opportunity.

A Visit to Cuba's Cienfuegos Botanical Garden

Peter Del Tredici, Director of Living Collections

It was my unbelievably good fortune to spend eight days this August at the Cienfuegos Botanical Garden in Cuba. My trip was sponsored by Harvard University's David Rockefeller Center of Latin American Studies, which asked me to evaluate the current condition of the garden and to provide the staff with technical assistance in garden maintenance and plant propagation.

The garden, which in Harvard circles is known as the Atkins Garden, was founded in 1899 as a partnership between a Boston-based sugarmill owner, Edwin F. Atkins, and Harvard University, in particular, professors George L. Goodale and Oakes Ames. In its early days, the garden was chiefly devoted to studying plants of economic importance (especially sugar cane) and was funded entirely by Atkins. In 1920, he arranged for a long-term lease of the garden to Harvard and established an endowment to fund research in tropical economic botany by Harvard professors and students. As well as being inter-

• *continued on page 2*

ELLEN S. BENNETT • EDITOR

• *from page 1*

ested in economic plants, Atkins was deeply interested in trees and personally supported the development of an arboretum by sending many trees to the garden from nurseries in Florida. At the time of his death in 1926, the arboretum was a well-established part of the garden.

When the garden was founded, it was only eleven acres in size. It grew steadily in size in direct proportion to the Atkins family interest in the project, eventually reaching a maximum of 221 acres in 1938. A small laboratory facility was built in 1924 (which also housed the library) to facilitate the research use of the collections. Harvard continued to operate the garden until 1961, when the Cuban government nationalized the Atkins sugar plantation and mill and took control of the garden. They renamed it the "Cienfuegos Botanical Garden" and placed it under the administration of the Cuban Academy of Sciences.

The first official post-1961 contact between the Cienfuegos Botanical Garden and Harvard University occurred in November of last year, thanks to the concerted efforts of the David Rockefeller Center and members of the Atkins family. Around the time of my visit this past summer, a strong e-mail communication channel made preparations for the trip relatively easy. The current director, Dr Lazaro Ojeda, was extremely helpful, and the lateness of the hour notwithstanding, was at the garden to greet my wife Susan (who acted as my translator) and me. We lodged in the immaculately maintained "Casa Catalina," a dormitory built in 1938 to house visiting scholars. Planting season was in full swing

Staff of the Cienfuegos Garden.

The former Harvard Biological Laboratory building.

while we were there, so we got to see the garden in all-out operation, including nursery, curatorial, and maintenance functions. Despite a scarcity of resources (especially gasoline), the garden is maintained to a high level, and new plants are being added continuously The palm collection is particularly impressive with about 267 species in 66 genera growing on the grounds. Also noteworthy are the collections of bamboo, figs, and legumes.

Just as interesting as the collections was our dialogue with the staff on a wide variety of issues that affect botanical gardens—conservation and education as well as the more traditional topics of maintenance and propagation. My wife and I came away with deep respect for the staff's dedication to their work and with the knowledge that the garden's future will be bright. Indeed, this coming November (perhaps as you are reading this article) the Cienfuegos Garden, in honor of its hundredth anniversary, will be hosting a special international symposium on "Challenges Facing Botanical Gardens in the Twenty-First Century."

Arboretum Holds Oldest Franklinias

Pamela Thompson, Adult Education Coordinator

A survey conducted by Historic Bartram's Garden and the John Bartram Association reveals that the two oldest documented franklinia trees in the world, dating from 1905, are growing at the Arnold Arboretum. These trees, known botanically as *Franklinia alatamaha,* are descendants of a tree of Bartram's original collection at Historic Bartram's Garden in Philadelphia, which was given to the Arboretum in 1884 by Philadelphia city councilman Thomas Meehan, a former gardener at Bartram's Garden. Both trees can be found on Chinese Path on Bussey Hill.

In 1998, as part of a tricentennial celebration of botanist and explorer John Bartram, the John Bartram Association launched an international franklinia census to determine how many are growing and where, as well as to locate the oldest specimens. By May of this year, 2,046 franklinias were reported from 35 states and the District of Columbia and 8 foreign countries. In New England, Massachusetts reported 92 specimens; Connecticut has 56; Rhode Island, 15; New Hampshire, 3; Vermont, 2; and Maine, 1.

Although several people reported franklinias thought to be about 100 years old (on New York's Long Island, the Connecticut coastline, and in the Philadelphia area), the Arboretum was able to document the age of its specimens. That any of these trees exist today is due to John Bartram and his son William, who first discovered the plant in the wild in 1765 and had the foresight to propagate the plant for their garden and to distribute cuttings. The tree has not been found in the wild since 1803.

Beyond dates and locations of trees, the census data create a resource for those wishing to grow franklinia. To determine the optimum growing conditions, the survey requested information on soil, drainage, exposure, and more The consensus is that franklinias favor a clay soil with excellent drainage, prefer to be situated among other plantings in south-facing locations, and thrive in sun to part shade. Most of the franklinias reported are six to ten feet in height with a trunk circumference of one to five inches. The majority range in age from one to ten years

old. The Arboretum's largest plant is 19.99 feet in height and spread and 10.78 inches in diameter at breast height.

To find out more about the history and availability of the franklinia, visit Historic Bartram's Garden at www.libertynet.org/bartram.

The 2000 Arboretum interns: Standing in rear, Otto Hasilo, Grant Jones, Dino Rossi, Andrew Pulte; seated at center, Alice Kitajima, Phil Kopf, Andrew Maciaszek, Maria Liszkay, Mary Sullivan; front, Virginia Harding, Andrew Heffner, Eva Novoa, Katalin Heja. Not pictured: Sheila Rabideaux.

New on the Institute for Cultural Landscape Studies Website www.icls.harvard.edu/current.htm

The Future of Farming on Protected Landscapes. This edited version of a roundtable held at the Arnold Arboretum profiles discussion participants and their farms, and focuses on preserving the complex social and economic processes that produce farm landscapes:

- **Land, the Most Visible Farm Asset:** Land Protection in a Changing Farm Economy, Preserving Farm Regions, Affordability & Property Rights
- **Farm Operations, the "Work" in "Working Landscapes":** Farmer Recruitment & Farm Finances, New Farm Markets & Products (including environmental quality & education!)
- **Farmers & Nonfarmers:** Farm Neighbors, the Nonfarming Public

Natural Science and Cultural Landscapes. The Institute is looking for ways to tap into relevant work in the natural sciences, particularly ecology. The first items to be posted are talks by Arnold Arboretum director Robert E. Cook:

- Is Landscape Preservation an Oxymoron?
- Do Landscapes Learn? Ecology's "New Paradigm" and Design in Landscape Architecture

The site will also explore the changing ways in which scientists have defined an "ecosystem," the tangled history of the far newer term "ecosystem management," and the broader history of connections (or the lack of them) between science and landscape management.

www.icls.harvard.edu/events.htm

Check this page for upcoming events sponsored by the Institute and others, as well as for readings and publications related to past and upcoming events. Fall 2000 Institute events have included:

- A session on farmland at the Massachusetts statewide historic preservation conference
- A series of field walks and talks called **Reading the Landscape of New England**
- A free public lecture, **Open Space in Boston: Let's Not Suburbanize From Within**

To contact the Institute for Cultural Landscape Studies, please leave a message at 617-524-1718 x175 or email **icls@arnarb.harvard.edu**.

Letters of Participation Awarded

The Arnold Arboretum offers three letters of participation through the adult education program. These letters provide students with a focus of study and documentation of courses taken at the Arboretum. More information about the letters of participation is located in the Arboretum's catalog of programs and events. Since the fall 1997 issue of *Arnoldia*, a number of people have completed the requirements for letters of participation. Congratulations to each!

Letters of participation have been earned by:

Woody Plant Propagation

Paula Berardi
Robert Cappuccio
Miriam Hawkes
Larry Lee Jones
Susan Lemont

Temperate Woody Plant Materials

Paula Berardi
Robert Cappuccio
Dorick Corbo
Laura Horky
Larry Lee Jones

Historic Landscape Preservation

Linda DesRoches
Terri Rochon
Priscilla Williams
Dale Wilson

New Staff

Michael Dosmann has joined the Arboretum as a Putnam Fellow in the living collections department. His primary responsibilities will be the planting design and selection for the new shrub and vine

garden. He will also participate in various projects on the grounds as well as pursue his own research using the living collections.

Michael received his bachelor of science in public horticulture from Purdue University and his master of science in horticulture from Iowa State University (ISU) in 1996 and 1998, respectively. As the Garden Club of America's Martin McLaren Fellow for 1998–1999, he worked at the Royal Botanic Gardens, Kew, the Royal Botanic Garden Edinburgh, and the school of plant science, University of Reading. He comes to us from ISU's department of horticulture where he was employed as a research assistant. Michael's interests in horticulture and botany span woody plant ecology and systematics, and ornamental plant selection and evaluation. And, like most plantsmen, he keeps his eyes open for the rare, unusual, and interesting.

Karen Pinto's staff assistantship will be shared between the administration department and the

Institute for Cultural Landscape Studies. She comes to us with fourteen years' experience at Harvard, in the Graduate School of Public Health and Medical School; she has also worked in the fields of law and human services.

Nancy Sableski, our new children's education coordinator and a Jamaica Plain neighbor, has

been visiting the Arboretum for over twenty years, often to paint landscapes. She holds a BFA with honors in painting from the Massachusetts College of Art and a master's degree from Simmons College School of Social Work. Nancy became a volunteer school guide in the Arboretum's field studies program in April, 1998; she was later hired as school programs assistant. Most recently, she coordinated the Boston Urban Gardeners' education program. Her volunteer work now involves coordinating the fall "Artists in the Arboretum" show for Jamaica Plain Open Studios.

Steve Schneider is the Arboretum's apprentice for 2000–2001. This year-long position allows him to rotate through the three areas of the living collections department: curation, greenhouses, and

grounds. Originally from Quincy, Massachusetts, Steve earned his bachelor of science in biology from Northeastern University in May 2000. He is not, however, a new face at the Arboretum: he spent the summer of 1999 working as an intern in the Dana Greenhouses. Since graduation, he has served as adjunct curator of the Northeastern University Herbarium, where he also worked as a student. He aspires to a career in a botanical garden as horticultural therapist.

Two new faces are serving our visitors at the Arboretum's front desk. Sonia Brenner and Sandra Morgan have joined Sheryl White as visitor services assistants in the education department

Sonia earned her bachelor of arts degree in comparative literature from Oberlin College in May 2000. She spent her junior year at the Paris Center for Critical Studies and the University of Paris. Sonia has taught at a nature center in West Virginia, served

as an art museum docent in Ohio, and most recently served as media liaison for a Washington, DC, mural project.

Sandra earned her bachelor of science degree in education from California University of Pennsylvania. She taught in the Pittsburgh public school system and at the Children's Place in Boston, where she served as lead teacher. Sandra recently started an enterprise that provides consulting services related to education for families and childcare centers. She

also writes haiku poetry, and her first book of poems will be published (on her own handmade paper) in November.

Sheryl has increased her hours at the front desk to four days a week. She earned her BFA and a teaching certificate from the University of Michigan College of

Architecture and Design. She has worked as a freelance graphic designer and illustrator, taught gardening basics at the Brookline Adult Education Center, and designed gardens. Sheryl exhibits her paintings at a number of venues in our region; through January 4 her work can be seen in a group show hosted by the Massachusetts Department of Environmental Protection in Boston.

Phil and Elaine Beals

Planning for the Future of the Arnold Arboretum

"I have had a life-long interest in gardening, horticulture, and farming, so the Arboretum has been a natural draw for me and I would just like to see it continue to succeed. I truly admire the Arboretum's mission of combined research, teaching, and public education. The Arboretum is a heartfelt place. It's just a joy to visit and I encourage its preservation. To support this wonderful institution, I have made a planned gift through Harvard and I hope others will do the same."

Philip C. Beals SB'42

To learn more about how you can support the Arboretum and also receive an annual income and tax benefits, please contact:

Christine C. Santos
Director of Development
The Arnold Arboretum
125 Arborway
Jamaica Plain, MA 02130-3500
Phone: (617) 524-1718, extension 113
Fax: (617) 524-1418
E-mail: chris_santos@harvard.edu

Anne D. McClintock or Brandi M. Sikorski
Harvard University Planned Giving
124 Mount Auburn Street
Cambridge, MA 02138-5795
Phone: (800) 446-1277 or (617) 495-4647
Fax: (617) 495-0521
E-mail: pgo@harvard.edu
Web: http://www.haa.harvard.edu/pgo