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Forest History Today

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U.S. FOREST SERVICE HISTORY FROM FHS

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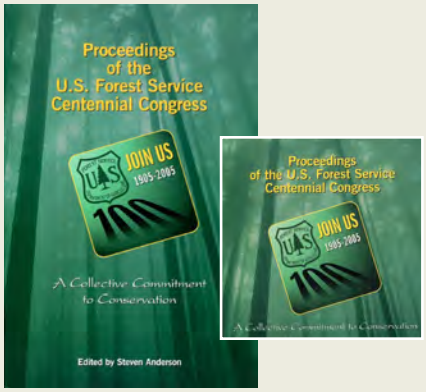

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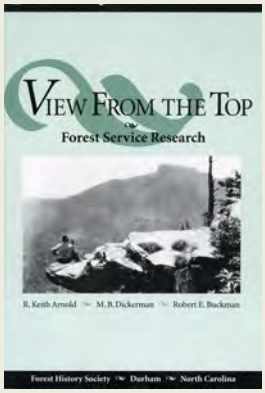

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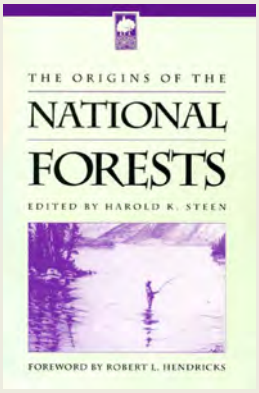

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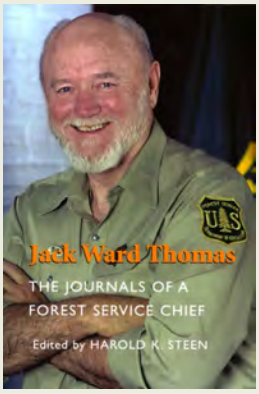

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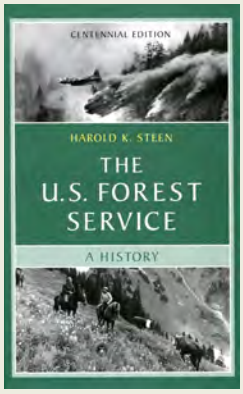

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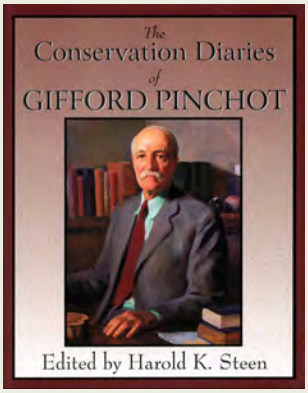

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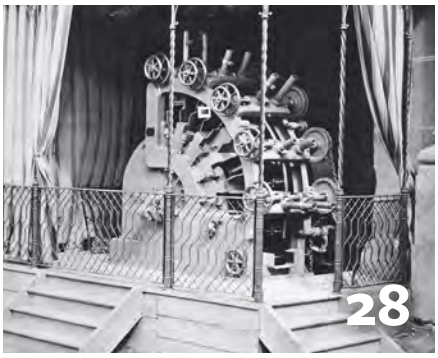
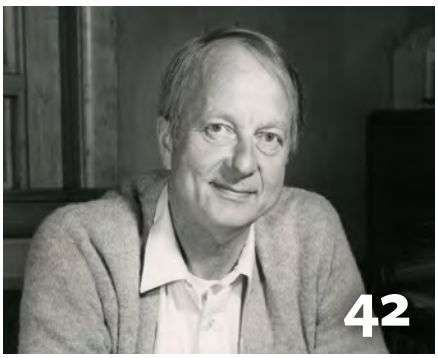
Contents





Transitions and Catalysts

Transitions are part of every organization's evolution. Remarkably, since 1946, there have been only four presidents of the Society: Rodney C. Loehr (1946–1950), Elwood R. "Woody" Maunder (1952–1978), Harold K. "Pete" Steen (1978–1997), and myself since 1997. Although the length of tenures for three of us has ensured significant stability, the transitions from one to the next also provided strategic opportunities to rethink, enhance, and strengthen FHS. Each president benefited from the accomplishments of his predecessor and used his unique expertise and skills to grow and send the organization in new directions.

In brief, Rodney set the organization on a path to becoming a leading scholarly institution by focusing on the collection of archival records and building a strong foundation for publishing. Woody initiated the Society's oral history interview program, founded its scholarly journal, and inaugurated an endowment fund that would become crucial for the financial health of the organization. Under his leadership, FHS became a membership organization. Pete strengthened the oral history efforts, provided editorial direction for the Society's growing body of publications, and substantially expanded its archival holdings. He oversaw the Society's move to Durham in 1984, a decision which led to the purchase of its first building. He led the Society into the computer age, overseeing the conversion of the Society's two primary reference resources into database format. Just before retiring, in 1996 Pete negotiated FHS's partnership with the American Society for Environmental History (ASEH) to merge their respective journals and copublish the quarterly journal *Environmental History*. He also started this magazine for FHS members.

When I arrived at the Society in 1997, it was easy to expand on what had been started. FHS leadership provided a new long-range plan from which to set initial direction. The FHS Board also made clear its interest in expanding the education and outreach portion of our programs. My background in technical assistance and cooperative extension work made it a good match.

We continued to develop the Issues Series books Pete had started for a general audience to provide historical context for natural resource issues (with a new one due out next year). We also increased funding in order to morph a basic teacher's guide for the *American Forests* Issues Series book into an eleven-module middle-school curriculum. Impressed by a technology demonstration at an American Society for Association Executives meeting in 2004, we developed a social media strategy, each time adopting a platform ahead of the curve. Our first venture was the *Peeling Back the Bark* blog. Presence on Facebook, Twitter, Flickr, YouTube, Instagram, and LinkedIn followed. The result was a meteoric increase in the use of forest history content by FHS staff and our followers.

Continued upgrades to our computer technology and the website also led to expanded access to forest history information for users. FHS moved swiftly from the Gopher protocol and user interface in the 1990s to HTTP and the World Wide Web. We refined and strengthened our online databases, which now provide access to more than forty-five thousand bibliographic entries in forest and conservation history, descriptions of some eight thousand archival collections in 450 repositories around the world, and thirty-five thousand historic photographs for educational and research use. All of our online information is now in a content management system, allowing one-stop multi-database searches that include oral history interviews, moving footage, maps, and U.S. Forest Service materials.

In 2016, we had the rare opportunity to create a one-hour documentary. *America's First Forest: Carl Schenck and the Asheville Experiment* traces the early conservation movement in the United States through the lens of the nation's first forestry school. Through a partnership with American Public Television, the

film has now been broadcast more than five thousand times on 387 PBS stations in forty-seven states, with an estimated viewing audience of more than five million. The film was nominated for two Mid-South Regional Emmy Awards (and won one). It remains an excellent example of the possible reach of a small nonprofit.

The Society's scholarly periodical *Environmental History* is widely considered the journal of record in the field. For the first thirteen years, the journal was produced in cooperation with ASEH out of the FHS offices. In 2009, we took on Oxford University Press as a publishing partner, followed by the University of Chicago Press in 2021. We improved the journal by adding space for an additional scholarly article, adding a Gallery section, redesigning and updating the cover and internal pages, and offering a new forum and reflective essays. During this time, FHS library staff continued providing the content for the journal's New Scholarship section, and our historian published book reviews and articles and served as a peer reviewer.

The building FHS purchased when we moved to Durham was 5,500 square feet. An addition to the library and archives was necessary yet ultimately proved inadequate as we continued to add to the Society's archival and library holdings—crucial to our mission. We never wanted to turn away valuable collections because we lacked room for them, so in the 2010 strategic plan, we made it a top priority to address our space limitations. FHS leaders and staff, working with our campaign counsel, embarked on a nine-year effort to conceive, fundraise, and build a new headquarters that would meet our current needs yet also allow for future expansion. When we moved into the new building in January 2019, we had a 16,750-square-foot building, with double our previous library and archival space. As important, the new building provides support areas that we've never had: a meeting room that accommodates 110 people, a soundproof oral history interview room, a digitization and processing area, and a room for cleaning new collections before they enter the archives. All this was in addition to finally giving current (and future) staff individual offices—and a first-ever breakroom!

The Society is already achieving the vision it had laid out in 2010 for the new state-of-the-art building. It is attracting new collections, it is providing top-notch space for researchers, and it has become a point of pride for the national and international forest and conservation communities. It is already providing the Society a base from which to launch new programs and initiatives.

A majority of the funds raised during the past twenty-six years directly supported programs and the knowledgeable and dedicated FHS staff so critical to our success. But endowment funds were not ignored. Since 1997 we more than doubled them. New endowments focused on graduate fellowships, a distinguished lectureship, forest history publications, informing public opinion, oral history, digitization and outreach of the archives, and maintenance for the new building. Today we have approximately twenty endowments that are ninety percent restricted funds. In 2003, the Society transitioned from a membership model to an annual fund model. This helps members and supporters to think of their donations to FHS as charitable contributions, rather than as simply membership dues. The result has been impressive. Annual unrestricted funds have increased sixfold, helping the Society retain staff and take advantage of strategic opportunities.

The Society's evolution continues: after twenty-six years at the helm, I am retiring in 2023. A committee from the FHS Board of Directors, under the leadership of Lynn Wilson, immediate past-chair, has been conducting the search for the next president. The objective is to bring my successor on board and make the transition as seamless as possible, as was done for me when I started in 1997.

I am incredibly proud of what we have achieved during my tenure, and it has been gratifying to work with the remarkable staff, board members, volunteers, partners, and sponsors in the forest and conservation community. Donors who have a deep appreciation for the value of history have made my time with FHS especially enjoyable. During this time, the fourteen FHS board chairs whom I have worked with provided exceptional leadership and gave generously of their time and energy to help me succeed: Gene Robbins, Peter Murphy, Bill Baughman, Dick Porterfield, Tom Dunlap, Larry Tombaugh, Scott Wallinger, Scott McCampbell, Michael Kelly, Hayes Brown, Chris Zinkhan, Doug Decker, Lynn Wilson, and Bob Izlar. I expect that the next president and board leaders will enjoy the same trust, commitment to scholarship and nonadvocacy programs, and an entrepreneurial approach to achieving strategic objectives as we have had. I encourage you to continue to support the Society as it heads in new and exciting directions.

After twenty-six years, FHS President and CEO Steve Anderson announced in June 2022 he would retire in the coming year. Steve had succeeded Pete Steen, who led FHS for twenty years before retiring in 1997 and had worked at FHS as a staff member for about eight years before that.

Pete's record as president of FHS is remarkable. But in addition to leading FHS, Pete was a prolific chronicler of forest history, with a list of publications that is long, varied, and impressive. Though perhaps best known for his work on the U.S. Forest Service, he also wrote about tropical forests in the Pacific Rim and Central and South America. We forest historians toil away in fields he plowed. You can read about both Pete the executive and Pete the historian in the special section of this issue that commemorates his time at FHS. It contains a tribute to him from the time of his retirement along with an article he wrote for *American Forests* that exemplifies his command of forest history and his engaging, sly writing style.

I first met Pete two years before he retired, when I was a graduate student conducting research at FHS on a Bell Fellow Travel Grant. History was serious business to him. He invited me into his office to talk about my dissertation, which was on the establishment of forestry education in the United States. Pete was a tall, lanky fellow with a gruff demeanor, a combination that made for an intimidating presence to someone who didn't know him. I got the feeling that, perhaps, he wanted to assure himself that the Society hadn't wasted its funds supporting my travel to Durham to work in its archives. He asked tough, thoughtful questions and pressed me about the direction and scope of the project. Being a know-it-all doctoral student at the time, I didn't like hearing what sounded like disapproval. But upon later reflection, I realized what he offered was valid feedback, and, indeed, it helped me a great deal. He had challenged some of my assertions because he wanted the work to be solid, and because he expected me to make a worthwhile contribution to the field. Pete passed away in January 2022.

The field of forest history suffered another loss last year with the passing of Steve Arno in June 2022. Steve spent much of his career as a forest researcher with the U.S. Forest Service's Rocky Mountain Research Station. Trained as a forest ecologist, he took up writing history that easily conveyed his scientific knowledge to a lay audience. This magazine was the beneficiary of that decision. Steve contributed several articles over the years that I have been editor (sixteen years and counting!) on individual tree species, starting with ponderosa pine in the 2008 issue. His latest—an excerpt from the 2020 book *Douglas Fir: The Story of the West's Most Remarkable Tree*, written with his frequent collaborator Carl Fiedler—will be his last, but I'm happy to announce that it's kicking off a new column called Icon. The column will highlight an iconic tree or animal in forest history. Though I never met Steve, my impression of him is that he was an icon (and like the subject of this selection, the Mineral Tree—a giant) in his field.

This issue contains a second special section, devoted to the inaugural Women's Forest Congress held in Minneapolis in October 2022. It includes a summary of the history of American forest congresses (of which this is the eighth), the declaration issued at the end of this congress, the reflections of four attendees, and then two presentations given at the congress—one on the history of women in forest conservation and the other about the present and future roles of women in the forest sector. My thanks to Elizabeth Woodworth for all her time and help with this section.

In addition to the special sections, this issue has several other outstanding offerings. You can eavesdrop on a "conversation" between James Gulden and Hermann Rodenkirchen about the *Dauerwald* forest management approach, which originated in Germany and was adapted for use in Missouri in the 1950s. Julie Velásquez Runk looks at the centuries-long history of rosewood as a global commodity. Pete Steen would have high praise for Stephen Cernek, who debunks the mythical origins of the American wood pulp and paper industry. In the Portrait column, Jerry Emory introduces us to George M. Wright, an important figure in the history of the National Park Service. And if you're looking to explore forest history while on vacation, Sydney Miller tells why you should visit Hobcaw Barony near Georgetown, South Carolina.

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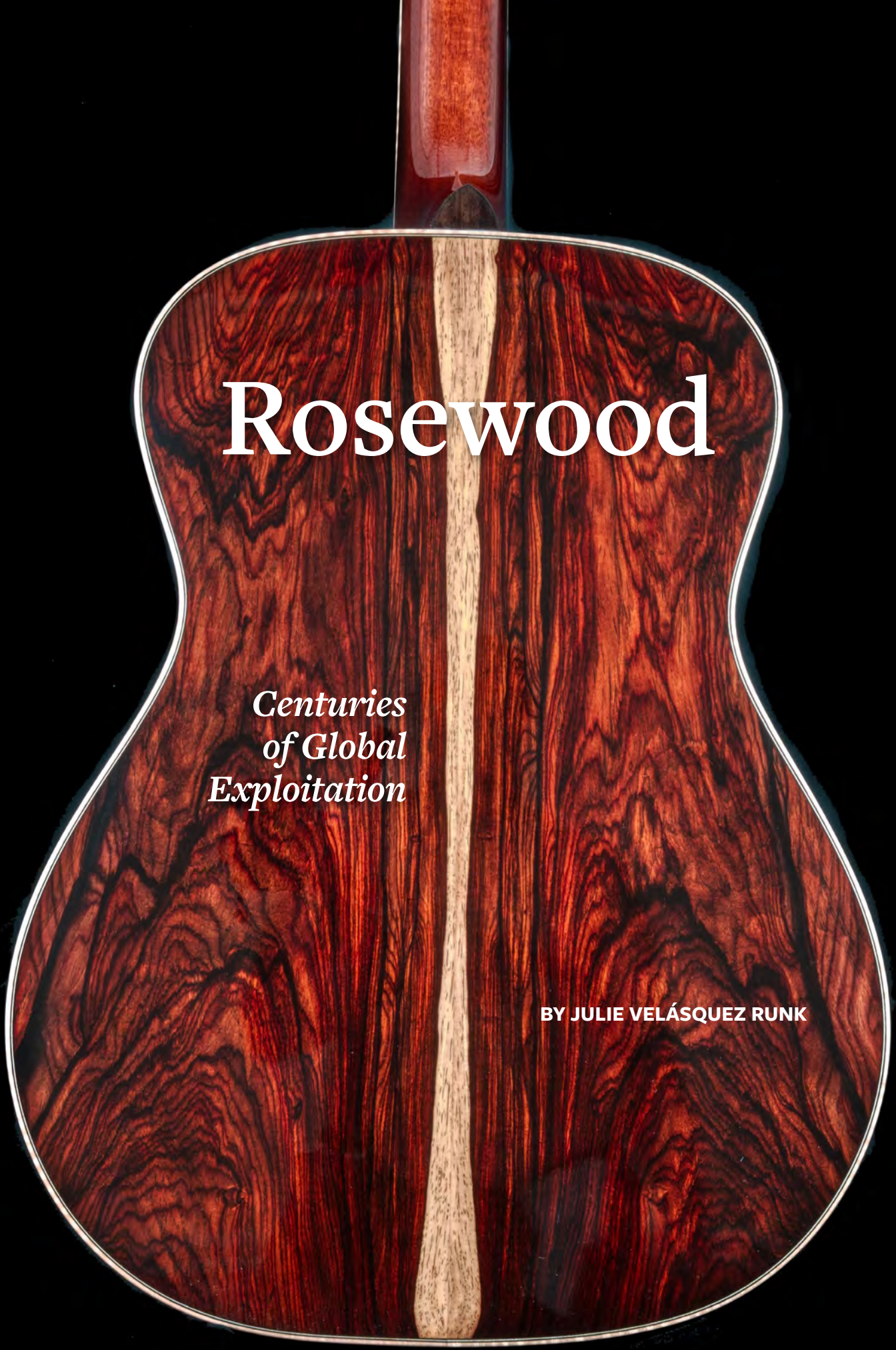
ON THE COVERS
Front: Rachel Carson at the Hawk Mountain Sanctuary in Pennsylvania in 1945. Courtesy of U.S. Fish and Wildlife Service

Back: A Martin D28 Brazilian guitar made of Brazilian rosewood. Frank Manno Photography, Dreamstime

Articles appearing in this journal are abstracted and indexed in HISTORICAL ABSTRACTS and AMERICA: HISTORY AND LIFE.



Rosewood

Centuries of Global Exploitation

BY JULIE VELÁSQUEZ RUNK

Rosewood is strong, durable, beautiful, and rot resistant—and in such great demand that illegally harvesting it is a global issue.

In 2012 in Panama, an Indigenous leader and a mestizo worker were killed after a months-long effort to ward off illegal poachers.[1] In 2015 in New York, Christie's auction house sold four works for $9,685,000.[2] In 2016 in Thailand, national park guards were using chains to prevent their theft.[3]

One might expect such astounding figures and extreme measures to be associated with endangered animal species, religious artifacts, or Indigenous artwork. Rather, these astounding values and the illegal enterprises they intertwined with involve rosewoods. These tropical hardwoods were the world's most trafficked wildlife product in 2016, and its illegal logging and trade were second only to drugs as a global criminal sector.[4]

My knowledge of this activity predates these incidents. Around 2008, at academic conferences and from conservationists, I began to hear snippets about illegal rosewood logging in multiple areas of the globe. Conservationists in Madagascar were early in raising the alarm, with a 2009 article estimating that a remarkable 43,000 trees had recently been logged from northeastern protected areas.[5] While conducting research in Panama in 2011, I read mounting news reports about felled cocobolo rosewood (*Dalbergia retusa*) trees in the drier cattle ranching provinces west of the Panama Canal: the discovery of an illicit collection center for logs, stolen trees denounced by ranchers, and illegal logs confiscated by the environmental agency, ANAM.[6] I took notice because I admire how Indigenous Wounaan, with whom I had started working fifteen years before, find the figured wood within a fallen tree, sculpting and sanding it into carvings of animals of their tropical environs.[7] By 2012, newspapers were chronicling what came to be known as *fiebre de cocobolo*, or cocobolo fever. Loggers had moved from western private farms into eastern Indigenous lands.[8] Panama's Indigenous peoples, like others throughout Latin America and the world, had long cared for their old-growth forests; the same satellite image-based maps that revealed those correlations also showed loggers just where they needed to go.[9] The 2012 dry season was extreme: a months-long stand-off between Wounaan villagers resulted in the killing of authority Aquilino Opúa and logger Ezequiel Batista, and left three other Wounaan wounded.[10] By the time the sawdust and rumors had settled, journalists had documented how loggers were hunting down the scarce trees in spite of policies restricting it, and that containers filled with logs were destined for China.[11] I soon learned that around the globe similar patterns of violent confrontation and exploitation were to meet what one official characterized as Chinese "insatiable demand" for rosewood.[12] Such accounts were supported by high-resolution satellite imagery that revealed persistent and increasing deforestation throughout the world's tropics.[13] And yet this recent focus on rosewood shipments to China has ignored centuries of worldwide rosewood exploitation.

FRANK MANNO PHOTOGRAPHY, DREAMSTIME

A Martin D28 Brazilian guitar, with Brazilian rosewood harvested before 1992, was listed on the company's website for $19,999. This guitar is made with cocobolo rosewood, which has a similar tonal quality.

VERSATILE WOODS, A GLOBAL HISTORY

"Rosewood" is not a single species or even a single genus. The dense, lustrous, typically dark red wood comes from many members of the bean family, Leguminosae (or Fabaceae), including *Millettia laurentii* (African rosewood); *Senna siamea* (Bombay blackwood); *Machaerium scleroxylon, M. villosum*, and *M. acutifolium* (Bolivian rosewood); *Pterocarpus santalinus* (red sandalwood), *P. macrocarpus* (Burmese padauk), and *P. erinaceus* (African rosewood); and especially the *Dalbergia* genus. The *Dalbergia* genus alone has 278 species[14] and accounts for many commercial rosewoods: *D. nigra* (Brazilian or black rosewood), *D. odorifera* (scented rosewood), *D. louvelii* (violet rosewood), *D. cearensis* (kingwood), *D. latifolium* (Indian rosewood), and *D. retusa* (cocobolo). Common names for the trees in their native countries are equally numerous: *pau de rosa*, *hongmu*, *huanghuali*, palisander, cocobolo, *bois de rose*, *palosanto*, *mukula*.

In Chinese, *hongmu* literally translates to "red wood." Among *hongmu*, *huanghuali* (*Dalbergia odorifera*) is the most esteemed for traditional Chinese furniture. Unusual for a rosewood, *huanghuali* is yellowish. If oiled, aged pieces maintain their lustrous yellow, whereas many other rosewoods oxidize to a purplish black. As its species name suggests, this is the fragrant rosewood, a Chinese native favored for its perfume.[15]

For centuries, rosewood has been worked for luxury furniture and musical instruments, yet people have valued these woods for construction as well. Rosewood is strong, durable, and rot resistant—ideal qualities for load-bearing posts. (Where I conduct research in Panama, some rural Indigenous residents have built their own homes using posts from the valued cocobolo rosewood (*D. retusa*)

because of these attributes.) For furniture, rosewood offers desirable characteristics beyond its good looks, particularly dimensional stability and structural strength,[16] but it may not be easy to work: the dense wood quickly dulls sawblades, and the oiliness of some species makes them difficult to glue.

In China, the most prized classical rosewood furniture is from the late Ming (1368–1644) and Qing dynasties (1644–1911).[17] Art historian Wang Shixiang identifies the socioeconomic circumstances that facilitated the flowering of China's furniture tradition: the early Ming emperors' requirement that capital-area artisans work in the palace workshop for ten days each month; a five-fold increase in land under cultivation from 1368 to 1393, which supported a growing population and stimulated demand for luxury items; and an end to the ban on maritime trade during the Longqing emperor's reign (1567–1572), which allowed the importation of rosewood from Southeast Asia.[18]

Ming and early Qing furniture—tables, chairs, daybeds, beds, and stools—is elegant and sparing, often with open spaces highlighting the character of the wood and showcasing the artisan's skill. Pieces from this period are renowned for simplicity (*jianlian*) and purity (*shunpo*).[19] Furniture was "supposed to have a soul, epitomizing the cultural or even moral height of its designer and the taste of its user."[20] Rosewood furniture from the later Qing dynasty is heavier, highly decorated, with "overly ornate carvings":

> Ming furniture was refined and elegant; decoration was used with discretion to supplement the superb line. Ch'ing [Qing] productions gradually lost that grace, depending on sheer volume and intricacy of carving to impress. Inlay with mother-of-pearl or bone was another favourite technique of ornamentation, while red lacquer was applied and carved freely. The overall effect was one of elaborate splendour, which eminently suited European tastes of the time.[21]

As the above quote from Grace Wu Bruce's 1995 book *Chinese Classical Furniture* made clear, European preferences accounted for changes in Chinese taste. It was during the later Ming and throughout the Qing dynasties that European countries were expanding their colonial empires. The Portuguese arrived in Macau in 1535, and the English trade arose a hundred years later.[22] German cabinetmakers in the later sixteenth century sought highly lustrous woods that could be worked with precision.[23] European clients also sent pieces to China to be lacquered, which informed Chinese craftspeople about foreign styles.[24] In Paris in the mid-1600s, a desire for furniture with strong colors and contrasting woods created markets for tropical hardwoods from the colonies.[25] In the Americas, selective logging was part of European powers' colonial exploitation. By the 1600s, the Portuguese, Dutch, and French were harvesting rosewood; Brazil's rosewood was highly sought after.[26]

But logging these heavy, dense hardwoods was exceptionally onerous, and colonial dispossession and enslavement made logging possible. Indigenous peoples were violently taken from their land, enslaved, and set to work

COURTESY OF WWW.CHRISTIES.COM

This set of four *huanghuali* rosewood (*Dalbergia odorifera*) horseshoe-back armchairs from the Ming Dynasty sold for $9,685,000 at Christie's in New York City in 2015. Furniture made from rosewood offers characteristics beyond its good looks, including strength and durability, that contribute to its desirability.

PHOTO BY C.D. MELL, COURTESY OF THE NEW YORK BOTANICAL GARDEN MERTZ LIBRARY

Cocobolo (*Dalbergia retusa*) sourced from Panama has been in demand for more than century. This photo of a load being readied for export from there was taken in 1923. The author saw a similar sight ninety years later, but it was illegally harvested wood.

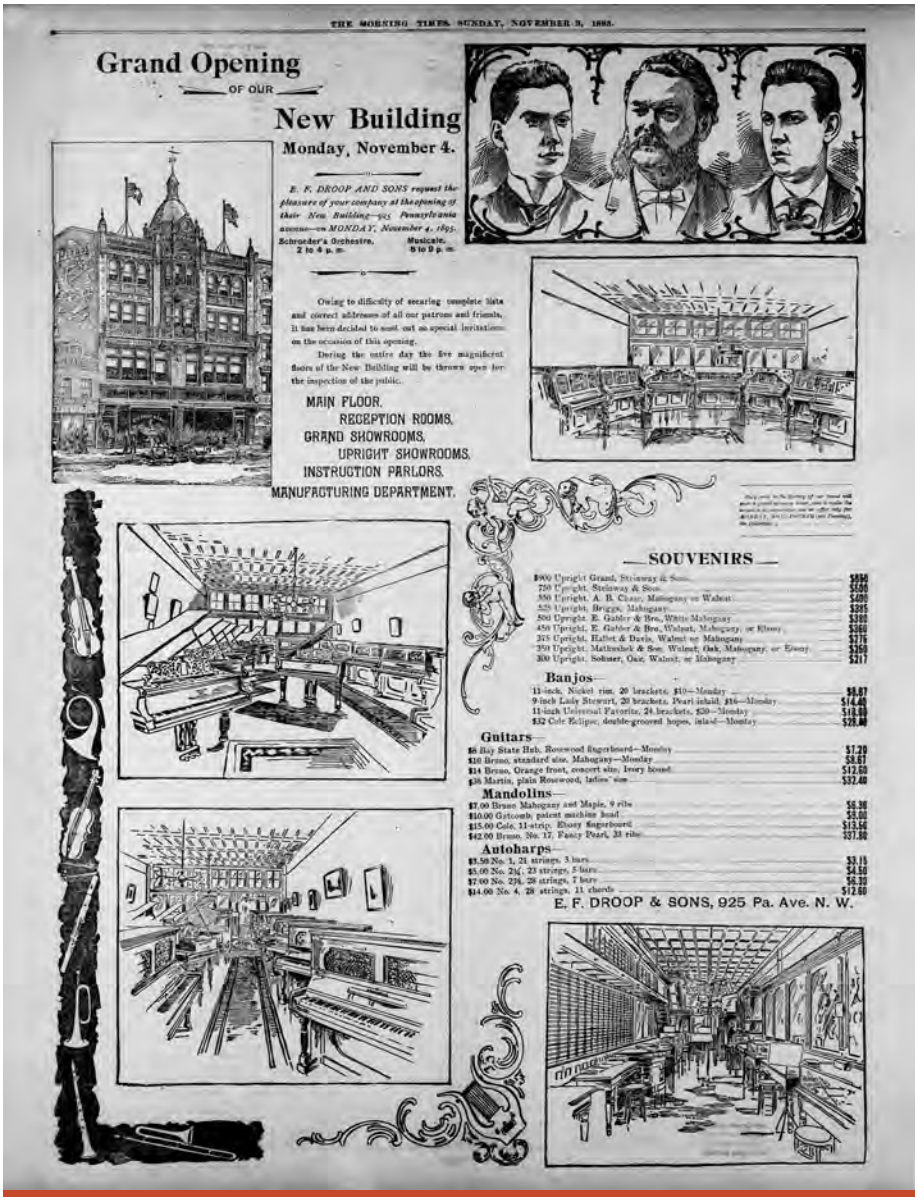
alongside enslaved Africans and their descendants.[27] The same triangular trade that brought enslaved people to the Americas also brought some ebony and "redwoods" from West Africa; the luxury woods were then shipped to Europe.[28]

Preferred woods for furniture making corresponded to colonial geographies. The French favored purplewood, kingwood, tulipwood, rosewood, and satiné from French Guiana; the Portuguese imported rosewood from its colonies in Brazil and Asia; the Germans sought ebony, mahogany, and rosewood from their African colonies; the Scandinavians pursued teak from colonies or colonially linked sites in Southeast Asia; the English used walnut and mahogany from North America, northern Africa, and the West Indies. [29] As the British empire expanded, Indian rosewood, Ceylon satinwood, and Australian cedar became available.[30] By the mid-1800s, tropical logging in Latin America changed as the region's colonies became independent, the slave trade (and later, slavery itself) was banned, and veneering became widespread. Rosewood remained favored for opulent furniture, but it was also soon the preferred "tonewood" for musical instruments.

Rosewood offers aesthetic value in instruments—a rosewood back, for example, provides a dark contrast to the pale spruce in a guitar's top—but it is the many species' density and elasticity that make it truly desirable: it imparts a rich tonal quality, with resonance and overtones. Rosewood is used in all the main classes of musical instruments: chordophones (stringed instruments, such as guitars and violins), aerophones (instruments with air columns, such as flutes and bagpipes), idiophones (instruments whose bodies vibrate, such as rattles and castanets), and even membranophones (stretched membrane instruments, such as drums).[31] It is also used where durability is critical, such as for guitar fretboards.[32]

Beyond furniture and musical instruments, rosewood has been used for a huge array of commercial items—just about anything that does not require buoyancy: knife handles, brush backs, gunstocks, bowls, marimbas, bowling balls, chess pieces, construction beams, scientific instruments, jewelry boxes, gunstocks, canes, billiard cues, inlay, and pulley blocks.[33] Some species, such as cocobolo, can be used for dying, and many species have medicinal properties.[34]

"CHRONICLING AMERICA," LIBRARY OF CONGRESS WEBSITE



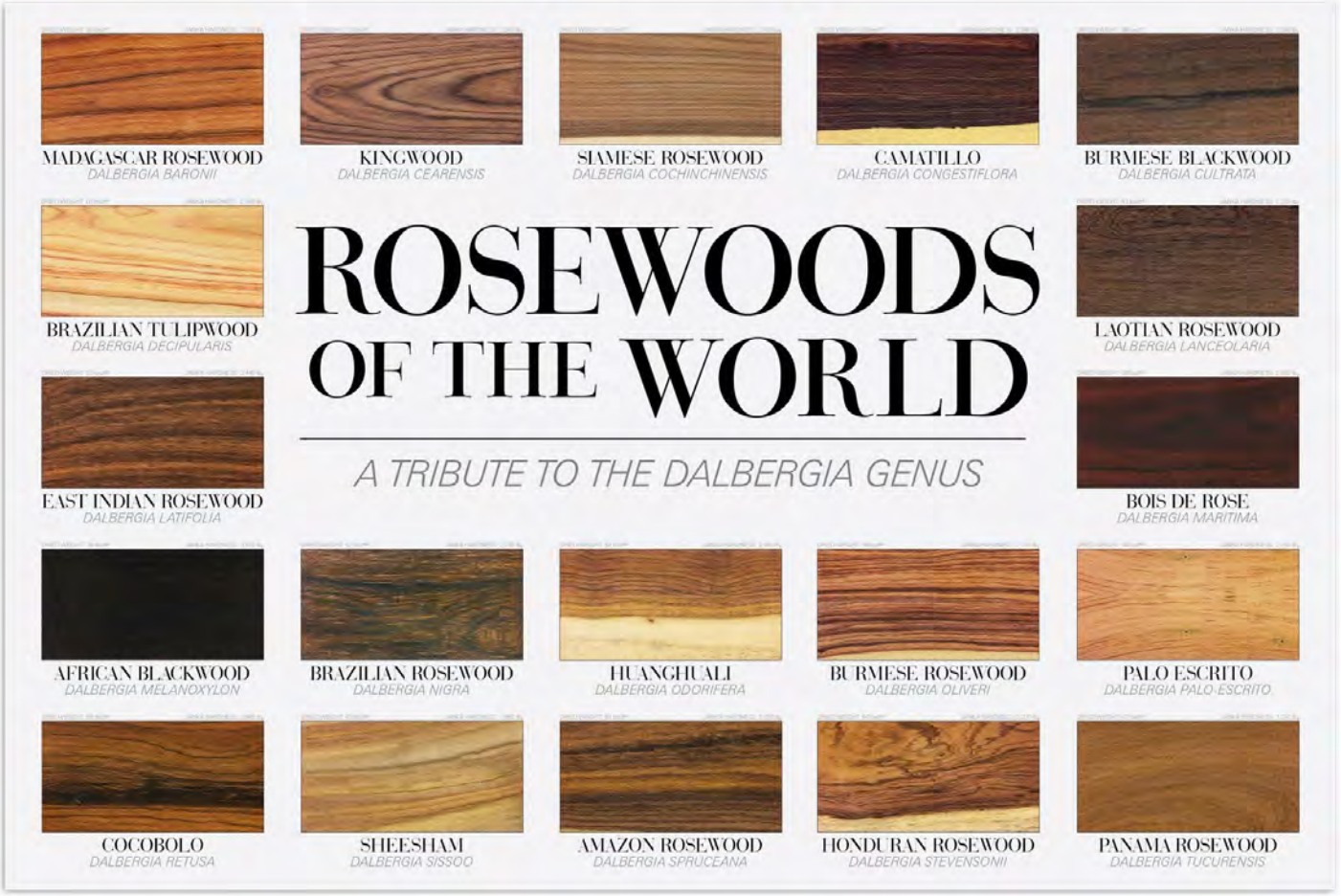
Newspaper ads for guitars and pianos made from rosewood were common at the turn of the twentieth century. This one appeared in the Washington, D.C., *Morning Times* on November 3, 1895.

PASSION FOR—AND AGAINST—ROSEWOOD

In the mid-1900s, two cultural movements catalyzed changes in demand for rosewood: the design style now known as midcentury modern, and China's Communist Revolution. Mid-century design began before the Second World War and flourished in response to wartime austerity and new technologies, such as molded plywood.[35] Designers of mid-century furniture passionately celebrated wood and were drawn to rosewood, teak, and walnut for their beauty.[36] The era's organic forms are perhaps best known in the work of George Nakashima, whose company displays its founder's philosophy on their website: "Instead of a long running and bloody battle with nature, to dominate her, we can walk in step with a tree to release the joy in her grains, to join with her to realize her potentials, to enhance the environments of man."[37]

Rosewoods, together with teak (*Teca grandifolia*) and walnut (*Juglans* spp.), were the woods most commonly used in mid-century furniture. Whereas teak and teak-like woods had their ties to German, British, Scandinavian, and other European countries' colonial histories in Asia and Africa, and walnut was closely associated with the United States and Europe, rosewood was diverse and pantropical.[38] Lumber supply chains shifted during the war to Latin American sources and expanded there even when it was over.[39] Rosewood was "exotic" and linked to colonial power, and the beauty of the woods lent them to modernism (and Scandinavian aesthetics). As recent authors have noted, marketing promoted modernism as progressive, while tacitly emphasizing it as white and masculine, something that extended even to how designers were perceived by or presented to the public: designer Ray Eames held equal partnership with her design partner and husband Charles in the Eames Office firm, the firm behind the iconic Eames lounge chair, but whose contributions were often overlooked or downplayed.[40]

Rosewood symbolized luxury—as in the paneled walls of Manhattan's Four Seasons restaurant, built in 1960—and modernism.[41] But it also was used in more commercial midcentury furniture, such as designer George Nelson's rosewood- and steel-framed case goods for the Herman Miller Company.[42] A *New York Times* article from 1964 noted rosewood's use in unadorned modern furniture, crediting Scandinavians for realizing "that a simple slab of rosewood could provide all the ornamentation that a lot of people would wish for."[43] Like luthiers, furniture makers preferred Brazilian rosewood, *Dalbergia nigra*, which some considered the true rosewood for its dark lines set against the reddish wood, even though some customers were "afraid of so much



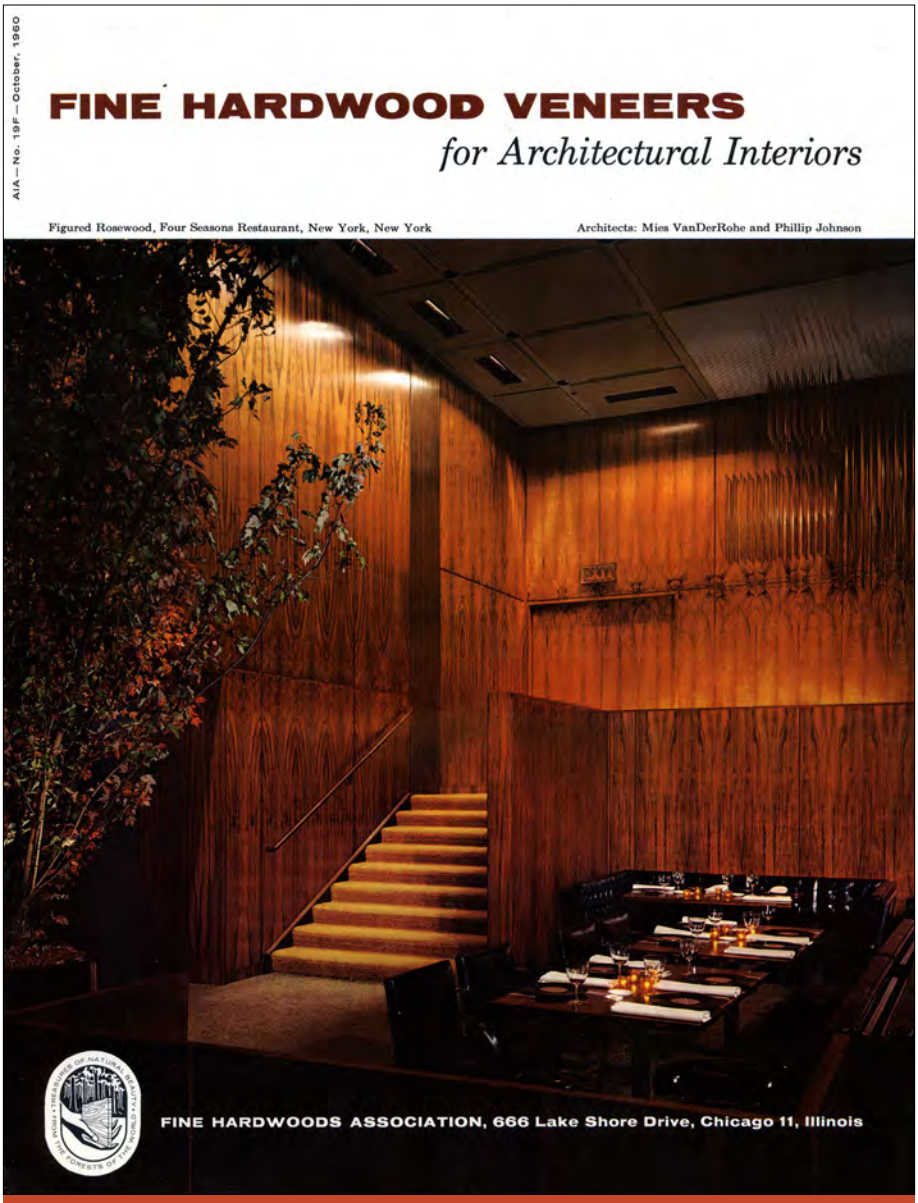
COURTESY OF ERIC MEIER, THE WOOD DATABASE (WWW.WOOD-DATABASE.COM)

This poster by Eric Meier, creator of the Wood Database website, shows the *Dalbergia* genus rosewoods.

assertiveness" and "flamboyance."[44] Another reason for its popularity, as Charles Eames stated in the announcement of the Eames lounge chair, designed with Brazilian rosewood, was that "rosewood never shows its wear," with no color shift or oxidation as it ages.[45] By the 1970s, the Danish high-end audio and television manufacturer Bang & Olufsen reported feeling obliged to use rosewood panels as symbols of the Scandinavian design tradition.[46]

As furniture makers in the Global North embraced rosewood, China was undergoing a cultural revolution that ultimately led to the destruction of many classical rosewood furniture pieces. The War of Liberation in 1949 ushered in the People's Republic of China under Chairman Mao Zedung. The new regime promised to eliminate class distinctions and create a utopian society. One consequence saw rosewood furniture denounced as "wanton emblems of bourgeoise oppression."[47] Some antiques were lost during the Great Leap Forward of 1958 to 1963, when wood was needed to fuel the furnaces that would change China from an agrarian to an industrial country.[48]

Still more rosewood furniture was destroyed during the Great Proletarian Cultural Revolution, 1966 to 1976.[49] Social prestige, material position (i.e., wealth), the educational system: all advantages were attacked.[50] Elites were stripped of their salaries, criticized, humiliated, and sometimes executed. The campaign against the "four olds"—old ideas, customs, culture, and habits of mind—inspired searches of houses and the destruction and confiscation of their contents.[51] Fifty years later, one resident recalled that "even if you were to give someone rosewood furniture they would not want it."[52] The Red Guards, student-led paramilitaries mobilized by Mao, ransacked houses and destroyed valuable classics, paintings, and antiques.[53] Recent scholars have shown how individuals and authorities steered the iconoclasm toward a moderate course—tempering policies, concealing antiques and relicts, protecting local materials.[54] Classical furniture also was saved by those who fled China and by collectors in Hong Kong, Taiwan, and Singapore.[55] But many pieces were gone, and since



ICHABOD T. WILLIAMS AND SONS COLLECTION, FOREST HISTORY SOCIETY ARCHIVES

Rosewood symbolized luxury. It was used in the paneled walls of Manhattan's Four Seasons restaurant, which was featured on the cover of the Fine Hardwood Association's 1960 brochure on Fine Hardwood Veneers for Architectural Interiors.

value rises with scarcity, the value of classical Chinese furniture was guaranteed to increase. The stage was set for a boom in demand for rosewood.

CONTINUED EXPLOITATION AND RESPONSE

Mao's death in 1976 and the 1980s economic reforms brought both increased wealth and subsequent demand for material goods in China; rosewood furniture in the classical Chinese tradition began attracting interest. Like Americans and Europeans, Chinese citizens rediscovered rosewood. The 1985 publication of *Classic Chinese Furniture*, by Wang Shixiang, is attributed with popularizing the more minimalist forms of furniture from the Ming and early Qing dynasties, rather than the ornate rosewood furniture cherished by Chinese collectors in Asia.[56] The Chinese government now promoted Eastern cultural traditions and rejected Euro-America and its consumer society.[57] China's growing middle class sought rosewood furniture as respect for their heritage, prestige, and investment. This also was a younger clientele: "the growing consumption power of younger generations" was fueling the newly emerging market.[58] Because relatively few antiques survived, a market was born for mass-produced reproductions as well as new pieces.[59] Rosewood logs, thought to be safer than stock or real estate, were also stockpiled as an investment vehicle, feeding rampant speculation.[60] The consequence was new demand for lower-value rosewood species and continued demand for the highest-value ones.[61]

After centuries of global rosewood exploitation, the numbers of commercial species were declining. In 1990 the Herman Miller Company began preparing to discontinue use of Brazilian rosewood in the seven-ply veneers of the Eames lounge chair, eventually switching first to walnut and cherry and later to Bolivian rosewood.[62] By 1992, Brazilian rosewood was listed by the Convention on International Trade in Endangered Species (CITES) at the most restrictive status, CITES Appendix I.

Soon, importing countries were establishing new timber governance policies. The European Union (EU) passed its Forest Law Enforcement, Governance, and Trade (FLEGT) legislation in 2003 to reduce illegal logging. In 2008, the U.S. Congress amended the 100-year-old Lacey Act to prohibit trade in illegally sourced plants and plant products, including timber, with illegality defined as anything in violation of laws in the source country. The expanded law required a declaration of country of origin and species name, and violators were subject to

COURTESY OF EAMES.COM

The Eames chair from Herman Miller, which used Brazilian rosewood in its seven-ply veneer, became so iconic and associated with modernism that it appeared in ads for other products. Today's version is made with walnut, santos palisander (Bolivian rosewood), and lacquered plywood veneers.

confiscation, fines, and jail time.[63] (In 2011, the U.S. Justice Department indicted the Gibson Guitar Company for having illegally sourced Indian rosewood and Madagascar ebony, eventually fining the company under the Lacey Act.[64]) FLEGT's EU Timber Regulation, which came into force in 2013, defined legality similarly to the Lacey Act and prohibited illegally harvested timber and products in the EU market.[65] Australia's 2012 Illegal Logging Prohibition Act likewise made it a criminal offense to import or process, knowingly or not, illegally logged wood.[66]

Yet global demand for rosewood continued. The Chinese government's economic stimulus package after the 2008 global financial crisis included measures to boost real estate, which ultimately led to a rising wood furniture market.[67] Between 2010 and 2011 demand for classical Chinese rosewood furniture climbed by 50 to 60 percent.[68] Reports of illegal logging came from many countries. In Madagascar in 2010, all rosewood exports were banned but logging persisted in national parks, and the country's forty-eight rosewood species were targets.[69] In Belize in 2013, the Ministry of Forestry, Fisheries and Sustainable Development burned rosewood flitches to demonstrate that illegal logging would not be tolerated.[70] In Sri Lanka in 2014, customs officials busted the world's largest rosewood-smuggling operation, seizing 420 metric tons of rosewood from East Africa.[71] In Cambodia in 2015, illegally harvested timber from protected areas was trafficked to Vietnam.[72] In Nigeria in 2017, the environment minister was found to have signed thousands of retroactive permits that "legalized" the export of 1.4 million rosewood logs.[73] In Ghana in 2019, the equivalent of six million rosewood trees was estimated to have been exported to China over seven years despite harvest and export bans.[74] Rosewood logging was shifting from Asia to Central America to Africa; what was happening in the vast forests of South America was largely unknown.

One persistent problem has been the difficulty of distinguishing rosewood species, causing protected species to be traded as unprotected ones.[75] *Dalbergia* and *Pterocarpus* woods are particularly hard to distinguish as either logs or finished products.[76] In 2000 the Chinese

government defined rosewood, creating the only such standard worldwide. The National Hongmu Standard of the People's Republic of China was based on analysis of both modern furniture and Ming and Qing pieces made from rosewood, or *hongmu*.[77] The standard, revised in 2017, defined 29 species as *hongmu*, allowing them to be marketed under that coveted label.[78]

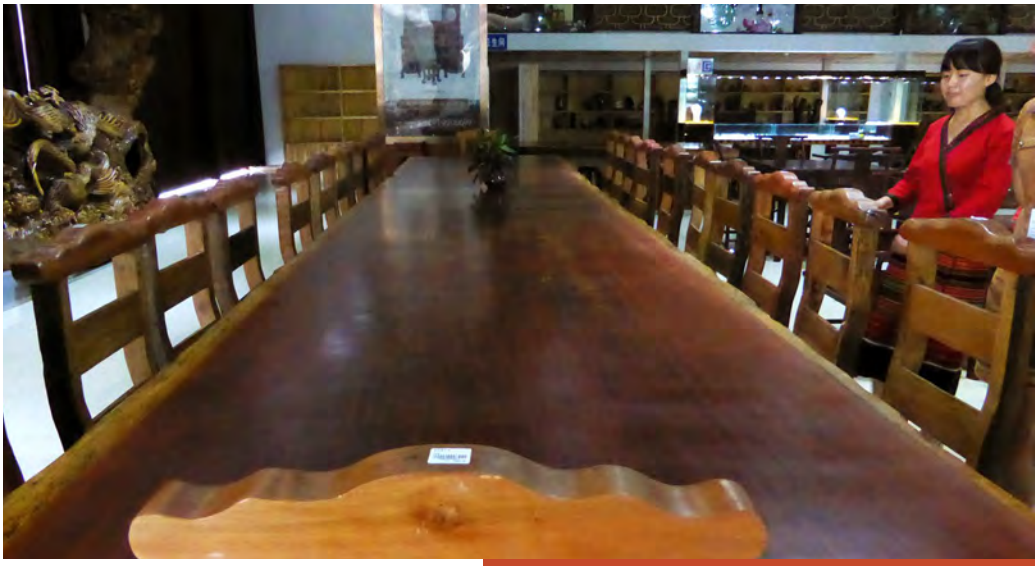
If intended to discourage illegal trade, the standard backfired: it not only intensified the pursuit of the listed species but also created an incentive for logging of all rosewood species.[79] From 2005 to 2015, China's rosewood imports grew six times in value.[80] In 2014, rosewood instrument blanks were priced at $99,766 per cubic meter.[81]

Panama exemplifies the challenge of curtailing logging in the face of stratospheric values. Its forests produce cocobolo rosewood, a high-value species and favored tonewood.[82] In 2011, as cocobolo timber was being stolen from private lands and protected areas, the government sought to restrict illegal timber trade.[83] It succeeded in getting rosewood listed in CITES Appendix III, which requires that all cross-border shipments be accompanied by documents certifying the wood's origin,[84] and began enacting laws intended to curtail rosewood logging.[85] An executive decree of 2008, for example, banned roundwood exports.[86] But the laws had so many loopholes that it was easy to launder illegal wood as legal: rosewood logs were found in shipping containers at Panama City's port of Balboa, and openly stacked in logging yards. That the timber could be harvested and processed, then transported past inspection checkpoints and confiscated only at the port was indicative of the logging industry's power. In 2016, the environment agency convened negotiations (*mesas de diálogo*) with the forest sector. The outcome: a decision to repeal the 2008 executive decree banning rosewood exports, on the grounds that it had failed to protect trees in forests.[87] Other laws opened up logging while appearing to restrict it, granting logging exemptions—in Indigenous lands, on private farms, in plantations—and allowing the auction of seized wood.[88] In effect, the measures legalized some rosewood logging and created ways to launder illegal wood.

It was apparent that countries were unable to control the illicit trade in rosewood. In 2017 CITES listed all *Dalbergia* species, African kosso (*Pterocarpus erinaceus*), and bubinga (*Guibourtia demeusei*, *G. pellegriniana*, and *G. tessmannii*) under Appendix II: all international trade of the listed species requires an export permit or re-export permit, but not an import permit. It also covers lookalike species of those listed.[89] By the time global governance had caught up, however, rosewood trade was purported to be declining as China's President Xi Jinping cracked down on corruption.[90] Yet, rosewood exploitation persists.

Although numerous illegal logging reports worldwide hold China culpable for the current rosewood boom, this orientalist narrative (emphasizing and distorting Asian cultures as exotic, backward, and even dangerous) overlooks centuries of previous use, trade, and the legacies of European and American colonial timbering.[91] For example, with the 2017 CITES restrictions on rosewoods, the music industry lost tens of millions of dollars in sales, and traveling musicians faced possible seizure of their instruments when they crossed international borders.[92] In August 2019, CITES exempted the music industry from the 2017 trade restrictions (while also listing another African rosewood, *Pterocarpus tinctorius*, in Appendix II), which was advocated by organizations mostly located in the Global North.[93] Most rosewood continues to be wild harvested from old-growth forests and the boom has redoubled efforts to plant rosewoods, from countries as diverse as Indonesia, Costa Rica, Tanzania, Panama, India, Madagascar, and China.

COURTESY OF THE AUTHOR



When the market for rosewood furniture in China exploded as the growing middle class sought rosewood furniture as respect for their heritage, prestige, and investment, rosewood imports grew sixfold from 2005 to 2015. These tables and chairs were for sale near Jinghong, China, 2014.

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COURTESY OF THE AUTHOR

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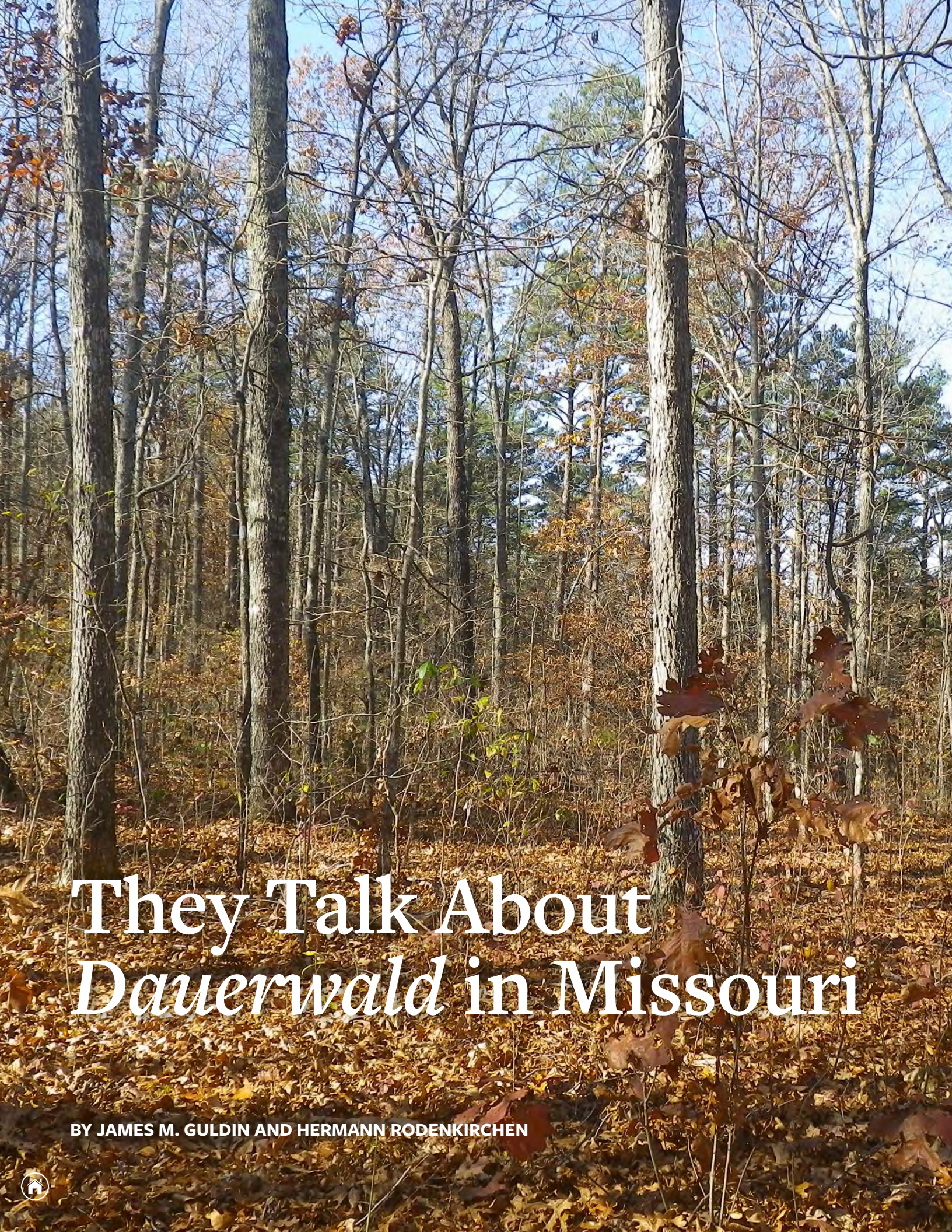


They Talk About *Dauerwald* in Missouri

BY JAMES M. GULDIN AND HERMANN RODENKIRCHEN

Dauerwald *is a forest management concept first developed in Germany more than a century ago that has been used in adapted form on the Pioneer Forest in Missouri since the 1950s. Two foresters discussed its history during a visit to Pioneer Forest in 2017.*

A German silvicultural approach articulated in the early 1920s departed from the methods advocated by Bernhard Fernow, America's first professional forester. Whereas Fernow had called for a strictly regulated plantation forest, harvested in clearcuts and regenerated through planting of commercially valuable species, proponents of *Dauerwald*—literally, "continuous forest"—used single-tree selection to harvest a steady supply of high-value timber. By maintaining continuous forest cover, these innovators could rely on natural regeneration and achieve a more balanced ecosystem.

The *Dauerwald* concept was introduced to the United States via the *Journal of Forestry*, and Aldo Leopold was among the American forest researchers who traveled to Germany to see it in practice. Today the approach underlies the "close-to-nature" forestry of the *Arbeitsgemeinschaft Naturgemäße Waldwirtschaft* (ANW) (Working Group for Natural Forest Management), a German association of forest owners, foresters, and scientists.

It is also closely related to the uneven-aged silvicultural method used on the Pioneer Forest in the Ozark Mountains of southeastern Missouri. This forest comprises tracts totaling 144,000 acres, acquired in the early 1950s by Leo A. Drey, a Missouri forester and conservationist. The largest acquisition was 90,000 acres, bought from National Distillers Products Corporation in 1954. In 2004, Drey and his wife, Kay, donated those holdings, which they called Pioneer Forest, to their L-A-D Foundation, which is maintaining his commitment to conservation. (At the time of the donation, Foundation president Susan Flader wrote about the Dreys and the Pioneer Forest in "Missouri's Pioneer in Sustainable Forestry," *Forest History Today*, available at foresthistory.org/Pioneer-Forest.)

JAMES GULDIN

A managed oak-hickory stand supports several distinct size classes of oaks on the Pioneer Forest in Missouri. Photograph taken in 2017.

On the Pioneer Forest, the mixed-species, multi-aged oak-hickory and oak-pine stands are managed for high-quality white oak (*Quercus alba*), which yields veneer logs for cabinetmaking and stave logs for cooperage barrels used in aging wine and spirits. Proceeds from harvests fund the forestry and ecological management programs as well as rehabilitation of historic structures, wetland restoration, conservation land acquisition, scholarships, and community improvement projects.

Pioneer Forest managers select individual trees for harvest, avoid making gaps in the canopy, leave slash to decompose, and allow the forest to regenerate naturally. Examining a stand, foresters ask, Which trees are the crop trees, and which of their competitors are of poor form or quality, of a less desirable species, showing signs of poor growth, and large enough to be harvested? Thanks to a continuous forest inventory, they know how the overall forest is growing, and how a tree of a given species and size will grow in diameter and volume by the next cutting cycle harvest. This management closely resembles the *Dauerwald* approach in concept and practice.

Dauerwald forestry has seen fresh interest in Europe because of climate change. Although it cannot guarantee stability of an ecosystem that experiences intense windstorms, droughts, and nonnative insect and disease infestations, it promotes well-tended, healthy, uneven-aged and mixed-species stands with abundant natural regeneration, balanced deer populations, and fertile soils; the continuous forest cover even moderates the local forest climate. Such attributes promote resilience. Similarly, in the Missouri Ozarks, where wind and ice storms break branches and bring down trees, the several age classes in the mid-story and understory of Pioneer Forest stands provide some insurance against the loss of overstory trees to extreme weather.

In 2017, Dr. Jim Guldin, an expert in the theory and practice of uneven-aged silviculture and continuous cover forestry in the United States, and Dr. Hermann Rodenkirchen, an expert in the practice of close-to-nature forestry with the *Arbeitsgemeinschaft Naturgemäße Waldwirtschaft* (ANW) of Germany, spent a hot afternoon in August 2017 touring stands in the Pioneer Forest and compared notes on close-to-nature, continuous-cover approaches. They began by sharing their knowledge about the development of *Dauerwald* and its influence in North America. Their full conversation, with more particulars about its techniques and economics, is available at: www.foresthistory.org/Dauerwald-conversation.

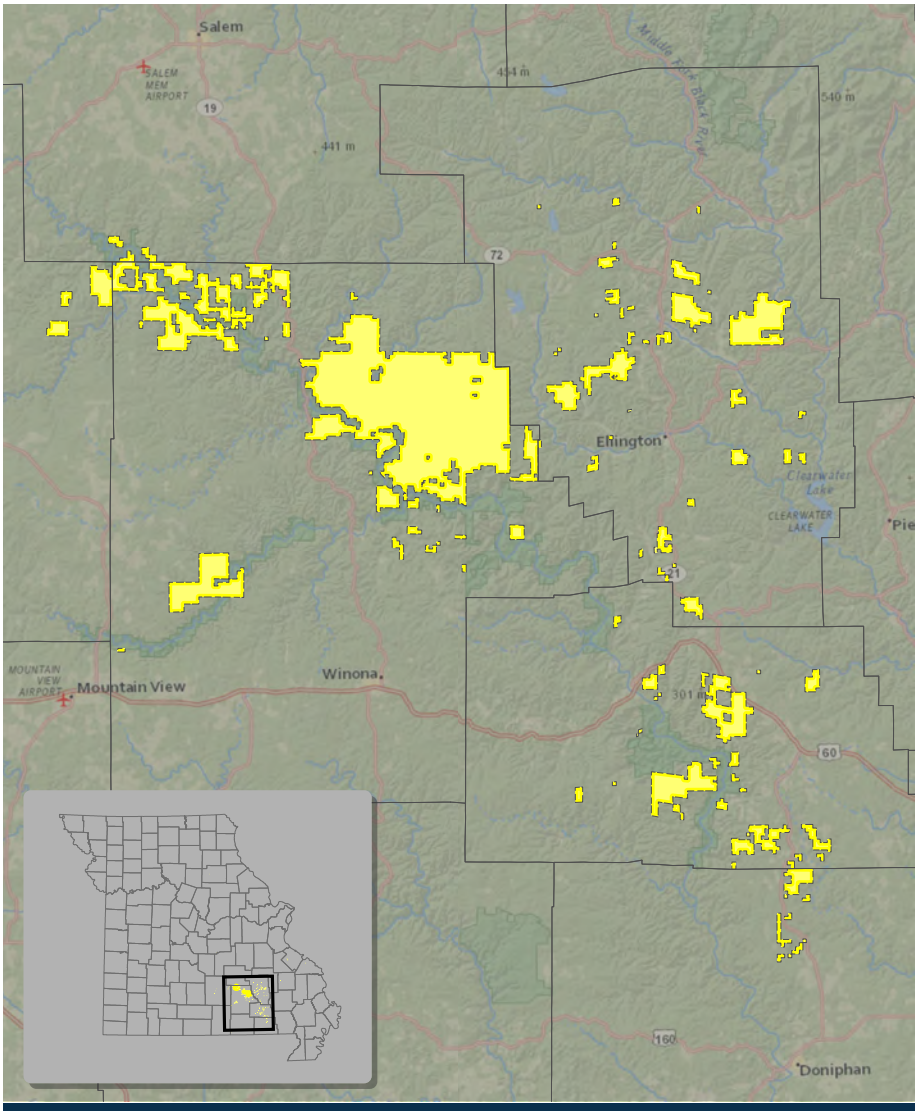
COMPETING IDEAS IN EARLY FORESTRY

James M. Guldin: The earliest forestry experts in the United States were products of a European forestry education. Bernhard Fernow, a Prussian who studied at the Royal Prussian Academy of Forestry, emigrated to the United States in 1876 and became head of the Division of Forestry in the U.S. Department of

Agriculture in 1886. Gifford Pinchot, who in 1898 succeeded Fernow and in 1905 became the first chief of the U.S. Forest Service (the Division of Forestry's more effective heir), had spent a year at the French National School of Forestry in Nancy.[1]

However, taking the concepts of European forestry and using them in practical application in forests of the United States was the work of Carl Alwin Schenck.[2] Born and educated in Germany, Schenck arrived in America in 1895 to manage the 125,000-acre forest on George W. Vanderbilt's Biltmore Estate near Asheville, North Carolina. In 1898, Schenck started the Biltmore Forest School, America's first forestry school, to train men to assist him in the woods. Many of the school's more than three hundred graduates became influential leaders in both government and industrial forestry.

Hermann Rodenkirchen: We know Schenck discussed the fundamentals of both German and Swiss silviculture, including group and single-tree selection, in his book *Biltmore Lectures on Silviculture*.[3] And Schenck conducted field tours of German, Swiss, and French forests for his American students to show them different examples of sustainable forest management. Schenck disliked German approaches to clearcutting, and other forms of harvest cutting that sacrificed future harvest potential for immediate gain. Instead, he advocated sustained production of large high-value sawtimber (what he and others called "conservative lumbering") and appreciated very much the regulated selection system used in Switzerland, characterized by the periodic "control method," which was developed and practiced since 1889 by Henry Biolley.[4] Interestingly, Schenck later corresponded in 1950 with Karl Dannecker, the first president of the *Arbeitsgemeinschaft Naturgemäße Waldwirtschaft* (ANW) and a proponent of single-tree selection.



REBECCA LANDEWE, L-A-D FOUNDATION

Leo and Kay Drey donated Pioneer Forest to their L-A-D Foundation in 2004.

JG: In 1898, Fernow became dean of the New York State College of Forestry at Cornell University, where he built a curriculum based on German forestry practices.[5]

HR: As you know, Fernow was no friend of uneven-aged forest management. He was a strict advocate of the scientifically based German age-class forestry, which was developed in the early nineteenth century.

JG: And that got him in trouble! In 1903 Fernow was fired—for clearcutting the Cornell school forest to put in white pine. He finished his career as the dean of the Faculty of Forestry at the University of Toronto.

However, Fernow's book, *A Brief History of Forestry in Europe, the United States, and Other Countries*,[6] provided American foresters and forestry students with a detailed report on the evolution and current practice of forestry around the world. A third of the book is devoted to the evolution of forestry in Germany.

He reports that in the fifteenth century, harvesting in forests in the region was generally unregulated; in 1488, a low diameter limit of twelve inches was recommended, with restriction of pasturage in regenerating areas.

HR: At that early time, mixed-species deciduous forests in Germany were frequently harvested using the coppice-with-standards method; coniferous forests, however, were harvested by rough selective fellings. Farmers owning mountainous mixed forests with fir, beech, and spruce used "plentering" (removal of scattered big trees) for centuries, without any method to regulate harvests. By and large, it worked—and a few are still doing it! It's no surprise that farmers often keep their own traditions or their old ways of doing things. But the traditional, unregulated selective plentering harvests were severely criticized by early forestry scientists and state forest administrations, and sometimes also prohibited by law, because landowners using plentering harvests often paid little attention to regrowth. That explains the expression "plentering is plundering."

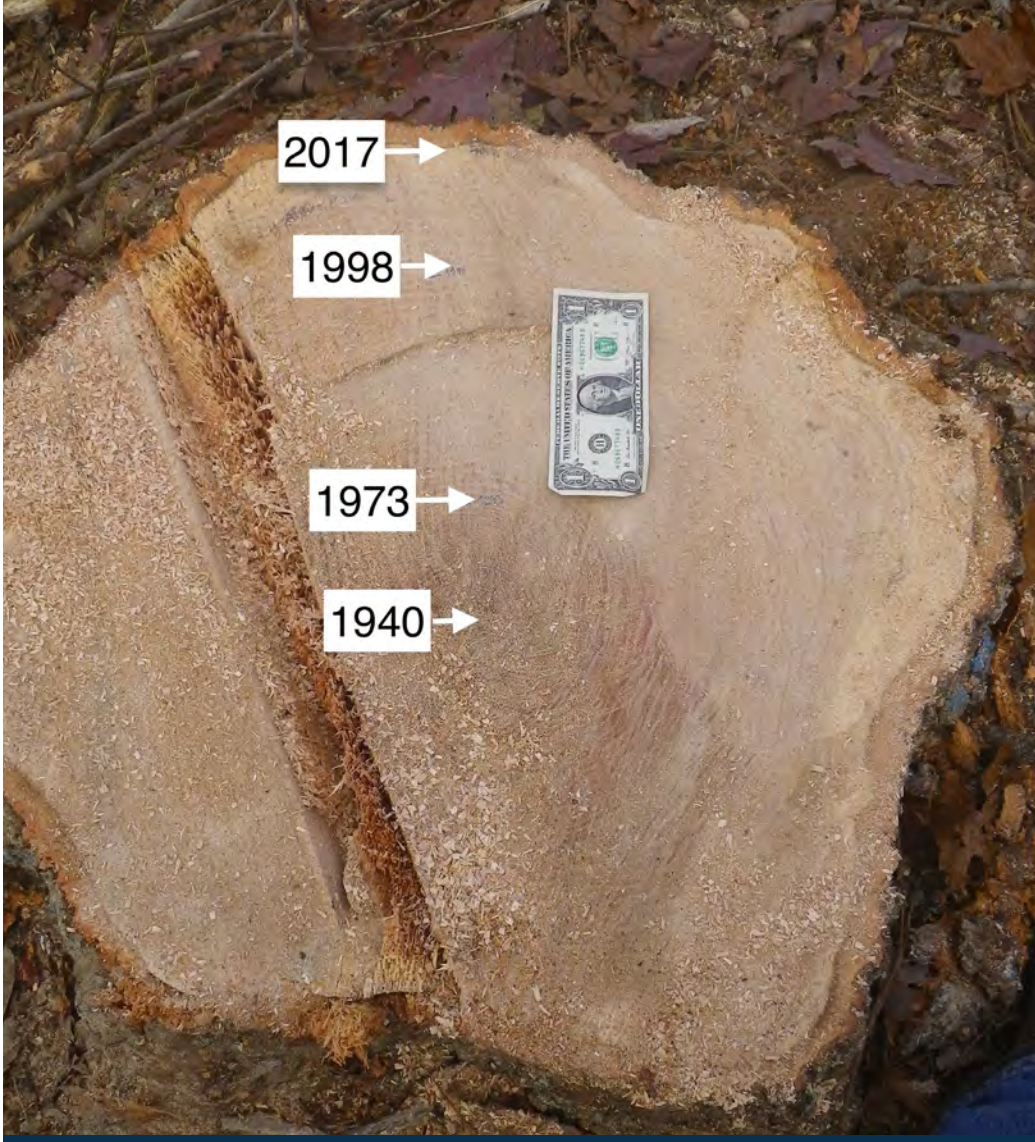
JG: In his book, Fernow noted that early German efforts at the selection method failed because of an inability to obtain regeneration, especially in oaks and pines; the approach had better luck in the more shade-tolerant spruces and firs. He reported on early attempts at even-aged regulation in Germany in the 1700s, with the pendulum swinging from selective cutting to thinning and clear-felling. He then introduced us to two fathers of German forestry, Georg Hartig and Heinrich Cotta. Fernow's *Brief History* described how, in 1808, Hartig published eight "general rules" of natural regeneration in beech forests that set forth principles of the shelterwood method in fairly good detail. But Fernow complained that much "mischief and misconception" resulted from their generalization in other forest types.

HR: Hartig and Cotta also advocated plantation forestry with spruce or pine monocultures on degraded lands. They developed a sophisticated German clearcutting system that used fixed rotation ages (similar to agriculture), leading to very artificial forest landscapes with large, geometrically configured blocks of pure coniferous plantations.

JG: Fernow reported that a reaction to those dogmatic rules came from Karl Gayer, professor of silviculture at Munich, and led to a reawakening of interest in natural mixtures and in group fellings associated with the selection method or *Femelschlag* ("expanding-gap" silviculture, which promotes regeneration in openings while maintaining a multi-age stand).[7]

HR: As far as I know, there was also a revolt by some landowners, not necessarily the foresters, against the problems of the clearcut system and plantation forestry. Plantations were frequently affected by insect attacks, windthrow, soil degradation, and decline in growth. This resulted in the loss of both wood volume and value, and an interruption in cash flow for landowners. It also raised costs for replanting, which was often difficult or unsuccessful because of frost, grazing, and aggressive grasses. Landowners expected a steady flow of profit from

JAMES GULDIN



Growth rings on the stump of a black oak. This tree responded to cutting cycle harvest in 1973, then grew about twelve inches in diameter over the next twenty-five years. Between the 1998 and 2017 cutting-cycle harvests, diameter growth slowed to about six inches in nineteen years, so the tree was cut in 2017. The declining growth rate of black oaks in this diameter class is evident in the Pioneer Forest's database, which guides foresters in marking these stands.

the forest, which required stands to have good stocking and vigorous trees across all age classes in the stands being managed. These needs were met more effectively with uneven-aged, mixed-species systems.

The main worry for landowners was that a major disturbance would ruin their forests. They saw the solution in a management philosophy that promoted stable and resilient, "close-to-nature" systems with trees of all sizes. Relying on natural regeneration rather than planting was an advantage because it did not require a large financial investment. In short, the goal was to maintain cash flow for the landowner by saving money, and by producing a regular income from a steady supply of high-value timber.

JAMES GULDIN

White oak stave logs produced during a cutting-cycle harvest on the Pioneer Forest, near Eminence, Missouri. They were likely turned into cooperage barrels used in aging wine and spirits.

DAUERWALD, DEFINED

JG: The *Dauerwaldwirtschaft* (continuous forest management) papers were published by Alfred Möller in the early 1920s.[8] In all likelihood, foresters in the United States learned of it from a review by Ralph Hawley in the *Journal of Forestry* in 1922. Hawley was a longtime professor of silviculture at Yale University.[9]

Hawley defined *Dauerwald* as "management which maintains continuous forest." He reported that Möller characterized the methods of management generally used in the region as either *Dauerwald* methods or clearcutting methods; the shelterwood methods were included in Möller's definition of *Dauerwald*.

HR: *Dauerwald* is a general term. It isn't related to a specific current forest structure or a regeneration method, but depends on the intent of the forestland owner to maintain a continuous forest. Stand age and rotation period do not play a role. The emphasis is put on the continuous selection system—tending and harvesting of stands, which automatically leads to the development of a desirable vertical forest structure, or a small group or mosaic structure in case of intolerant tree species (or low site quality). Tending, harvesting, and regeneration take place on the same area and at the same time. Foresters using the *Dauerwald* method must be flexible to adapt the marking method to local stand and site conditions.

The *Plenter* forest is a specific type of *Dauerwald* that depends on a balanced stand structure created by strict single-tree selection; it is restricted to forest types dominated by very shade-tolerant European silver fir (*Abies alba*), Norway spruce (*Picea abies*), or sometimes also European beech (*Fagus sylvatica*).

Möller accepted a wide range of structural possibilities about what could be *Dauerwald*, but he emphasized one fundamental characteristic: *Stetigkeit des gesunden Waldwesens* (literally, continuity of healthy forests). This means managing the forest to maintain and utilize a healthy and self-regulating ecosystem with nearly balanced, interrelated components: biologically active and productive soil, diverse fauna and flora, and an uneven-aged mixed forest with enough standing volume for permanent high-value timber production. These elements are impossible to achieve concurrently in clearcut forestry. Of course, the word "ecosystem" was still unknown in Möller's time; he spoke of "organism," or *Waldwesen*.

JG: The British silviculturist R. S. Troup covered Möller's work in his 1928 textbook,[10] but I doubt that the book was widely available in the United States at that time.

HR: Troup was not really convinced of the general merits of Möller's *Dauerwald* concept.[11] He feared that unfavorable conditions (large areas, no intensive supervision, less successful regeneration) could cause a chaotic breakdown of forest management. Nevertheless, he accepted the fact that this approach could work well.

JG: Troup wrote that Möller applied the *Dauerwald* term generally to any system not involving clearcutting and exposure of the mineral soil, and would be comfortable including shelterwood methods. But Troup reported that Alfred Dengler proposed a more detailed grouping that considered *Dauerwald* ideally as the selection system, separated from the *Femelschlag* systems, the shelterwood systems, and clear-felling.

HR: Dengler was an opponent of Möller's *Dauerwald*. It's ironic because he succeeded Möller at Eberswalde University. But Dengler's proposed grouping fits rather well with the *Dauerwald* definition of ANW in Germany.

JG: Hawley and Troup both described the details of the development of the method. Möller's 1920 paper recounted the management of a Scots pine (*P. sylvestris*) forest over the previous twenty-nine years in the town of Bärenthoren, near Dessau in the German state of Anhalt (today, Saxonia-Anhalt). Troup wrote that the sixteen-hundred-acre estate belonged to Friedrich von Kalitsch, a nobleman who was also a trained forester.

HR: Kalitsch was an academically educated forester, landowner, and practitioner, not a forest scientist. He had no money and could not afford planting his forests, so he tried natural regeneration instead. This was a turn away from common practice at the time.

JG: This question of not having much money to invest turns up in the American experience with the selection method as well. Hawley describes four general attributes of the *Dauerwald*: (1) maintaining forest cover, including uninterrupted tending of the soil and the stand; (2) using natural regeneration; (3) felling selected individual trees annually (the tree rather than the stand is the unit of management); and (4) securing the highest possible growth percentage on the biggest and most valuable growing stock.

HR: A characteristic of the *Plenter* principle, applied in *Dauerwald*, is to examine every tree and judge it on its own merits.[12] Even if it has a visible defect, the tree is not necessarily expendable (*entbehrlich*): it may have other functions to contribute to the local ecosystem that are important to retain, such as a benefit to species diversity, to soils, to mast production, or to wildlife.

JG: Troup summarized the ecology of the Kalitsch estate nicely. The forests in which *Dauerwald* was first implemented were forty-year-old Scots pine (*Pinus sylvestris*) plantations, with natural regeneration of pine occurring abundantly. Terrain was generally level, and the elevation of the area was about 420 feet. Soils were sandy, and the climate was generally dry. The region receives only about twenty-two inches of precipitation a year because of the influence of the Harz Mountains to the west.

In his 1922 review, Hawley noted several important features of *Dauerwald* as practiced at Bärenthoren, based on Möller's descriptions:

- There is an absence of clearcuts. Möller says that clearcutting makes the harvested part of the stand unproductive for timber production.
- The entire area of the forest is gone over annually and carefully thinned, including overstocked pockets of regeneration. The goal is to have the crown occupy one-third of the height of the tree.
- Branches and thinnings in young stands are left on the ground, to build up the litter. In fact, removal of the litter, which prior to 1884 had been a common practice (to favor agriculture), is prohibited.
- In older stands, pine reproduction is desired and even encouraged.
- There is no fixed rotation age. Rather, each tree is held as long as possible, since the greatest growth percentage in timber comes from the biggest trees.

Hawley attributed the success of the method to the interest and technical ability of the landowner, von Kalitsch.

HR: Several of these observations require a comment.

There was a lot of litter raking in those times, which was very bad for soil health. Part of the increase in pine growth and regeneration, Möller reported, may have been because litter raking was suspended, causing some recovery of soil health but not creating dense, competitive ground vegetation, only a moss layer.

In *Dauerwald*, regeneration is never promoted by complete overstory removal. Some canopy is always retained. Regeneration comes in naturally after regular thinning. And gaps are not cut in the forest just to make gaps. But if a small or large pocket of regeneration can benefit, mainly in the case of light-demanding, shade-intolerant species, a gap can be created; we call this *Gruppenplenterung*—a kind of group selection. However, immature trees of the upper or intermediate layer that could grow into high-value trees are never sacrificed for regeneration. Regeneration is not allowed to drive the system.

One fundamental requirement for natural regeneration in German forests, including *Dauerwald*, is to

regulate the deer population. Most German forests do not have natural predators of deer, so hunting deer is extremely important. But the goal of hunting is not to bring home a trophy; it is to regulate the number of deer so that regeneration can become established and develop properly as an element of a functional forest.

Also, the tree species must be site adapted and produce natural regeneration. If a tree species is not adapted to the local site conditions or cannot regenerate naturally, it will not be useful. Tree species that work well in *Dauerwald* should be competitive, grow well in volume and value, not degrade the soil, and be resistant to stressors such as windthrow, pathogens, and bark beetles. For example, in Europe, nonnative Douglas-fir (*Pseudotsuga menziesii*) can be managed using the *Dauerwald* approach on a wide range of acid soils. But eastern white pine (*Pinus strobus*) is not a good species for the method in Europe because it is highly susceptible to mortality from blister rust.

In the *Dauerwald* method, we know that the value of a log, depending on its quality and volume, shows a logistic growth with time and as diameter increases. The optimum diameter for harvesting a crop tree is the point just before its value reaches a maximum, before the current growth in value starts to decline. If a large tree develops rot or discoloration, it will lose value even though it may still be increasing in diameter.

JG: In the 1922 review paper, Hawley goes on to describe some of the debate that Möller's 1920 paper inspired. Many of the comments centered on soils, regeneration, and the frequency of thinning. One expert pointed out the contradiction between the heavy litter layer promoted by the method and the exposure of mineral soil needed to obtain pine regeneration. Another critic suggested that a key to the method was maintaining soil fertility.

HR: Soil fertility, mainly nitrogen availability, was certainly improved in Bärenthoren by not raking litter or removing slash. But a soil scientist, Walter Wittich, pointed out that natural pine regeneration was restricted to specific soil and site conditions whether the *Dauerwald* approach was being used or not. Möller said that it worked only when soils were in good condition. And Wittich forgot to mention that traditional foresters, using clearcuts and large single-species pine plantings, never considered obvious site differences and soil fertility. Of course, today we have detailed maps that show soil and site conditions and inform us about the potential for natural regeneration of pine versus hardwoods. Such maps were unknown in Möller's time, and Kalitsch's decision to rely on natural regeneration was an innovative, courageous approach.

JG: Another expert suggested that the *Dauerwald* stands were not necessarily mature enough to regenerate. Some foresters had concerns that logging activity might affect regeneration. One suggested that *Dauerwald* principles were common both to the selection method and to modifications of the shelterwood method verging on selection, views that Möller probably held. Several argued that a three- to five-year cutting cycle was more practical than annual harvests, with which Möller agreed.

HR: Möller claimed that he thinned the total forest area every year. Of course, this is completely impractical. Today the challenge of marking large areas and conducting operational harvests is even more difficult because foresters are responsible for larger forest districts than in former times. Nevertheless, ANW is convinced that regular marking with short cutting cycles is an extremely important task for adaptive *Dauerwald* management.

JG: Here in the United States, we think that the length of the cutting cycle depends upon the productivity of a site. High site quality promotes higher growth rates, which means shorter cutting cycles; poor site quality results in slower growth rates, which will require longer cutting cycles. But the method can work in either event.

HR: I agree generally, but *Dauerwald* practitioners in Europe prefer shorter cutting cycles (ranging from three to eight years, up to twelve years in the Alps) than American foresters. From our experience, short cutting cycles are advantageous on very productive sites, in stands with restricted stability (during the transformation of overstocked plantations to the *Dauerwald* method), and in forests with very shade-intolerant tree species (so that competitors can be thinned before they die from overcrowding). And I should remind you that the family *Plenter* forests managed by farmers over the centuries worked quite well without fixed cutting cycles—the *Plenter* forest is highly resilient!

DAUERWALD GAINS, LOSES, AND THEN REGAINS FAVOR

JG: In 1935, American forester and wildlife biologist Aldo Leopold and five other foresters from the research and management sections of the U.S. Forest Service spent three months in Germany studying forestry methods. Leopold found German forests to be very artificial in species composition and structure—they were even-aged monocultures of spruce or pine instead of close-to-nature mixed forests—and overpopulated with deer but lacking large predators. He summarized his German experience in two papers published in the *Journal of Forestry*, entitled "Deer and Dauerwald in Germany." He reported that Germany presented a plain case of mutual interference between

FOREST HISTORY SOCIETY PHOTO COLLECTION, CLARENCE FORSLING PAPERS, FORSLING 290

Aldo Leopold toured German forests with other American foresters in 1935. He praised *Dauerwald* because of how it balanced the ecological needs of flora and fauna. Leopold is believed to be second from right.

game and forestry and suggested that Germans had concluded that "production of wood at the expense of soil health, landscape beauty, and wildlife is poor economics as well as poor public policy."[13]

Leopold praised *Dauerwald* as an elegant compromise between better timber production in the long run and other benefits in ecological health. He also spoke to the very interesting proposition that better silviculture is possible only with better game management, and at the same time, better game management is possible only with better silviculture. Finally, he offered recommendations to American foresters: that a generous proportion of each forest should support floral and faunal conservation, and that they should advocate for native forests and be suspicious of large blocks of monocultural plantings of species, especially those not native to the vicinity.[14]

HR: ANW members were always strong advocates of regulated deer populations ("*Wald vor Wild*"), which are a main precondition for the development of mixed-species *Dauerwald*. A recent German research project called BioWild, coordinated by the ANW organization, deals with the effects of different deer-hunting strategies on plant biodiversity of several forest communities. The topic has gained interest in recent years in the context of efforts for climate change adaptation.

JG: In addition to Leopold, foresters working in cutover yellow pine stands in the southern United States studied the *Dauerwald* method in the 1930s.[15] There was an effort at the Harvard Forest in the 1930s to develop management practices modeled on *Dauerwald*, to study natural processes in forest stands and apply that knowledge in the development of silvicultural practices appropriate for forest types in the region.[16]

The Schenck influence and the Hawley reports, Leopold's visit, the interest of American scientists, and visits to Germany from university students and professional foresters: all reveal a strong interest and curiosity in the United States about *Dauerwald* in the 1920s and early 1930s. Even my uncle visited the Black Forest in the last year of his college forestry education in Pennsylvania in the late 1920s! *Ach, du meine Guete*!

HR: After that period, politics may account for the weak exchange of *Dauerwald* ideas and experiences between Germany and the United

HERMANN RODENKIRCHEN

Tops from the Pioneer Forest's harvested trees—cut in Shannon County, Missouri—are left in place to decompose.

States. A stigma attached to the approach from its brief adoption by the National Socialist regime. *Dauerwald* principles were dictated to the foresters by the government from 1933 until 1937. The traditionally deep, romantic "forest feeling" held by many Germans and the holistic ideas of Möller were exploited for the early ideological propaganda campaigns.[17] *Dauerwald*, the "permanent forest," fit the new notion "eternal forest" (*Ewiger Wald*), which was considered a metaphor for the eternal German nation.[18] One motivation was obviously to win over the noblemen with large forestlands, who were often attracted by the *Dauerwald* concept, to the National Socialist party.

The prescribed *Dauerwald* approach to forestry during early National Socialist times in Germany failed, for several reasons.[19] First, the dictation of management practices led to an aversion to it among some influential practical foresters. One prominent example is the Baden head forester L. Leiber; others were academic lecturers (mainly A. Dengler and E. Wiedemann, who were opponents of the *Dauerwald* approach since Möller but were members of the National Socialist party). Second, natural regeneration of the forests was difficult because there was political pressure to maintain dense populations of roe and red deer and other game species. Third, to increase wood supply prior to the war, target diameters were reduced to a level that caused overlogging of many forests: the prescribed cutting quota was raised to 150 percent of the sustained yield! And so the few years of this interrelation between *Dauerwald* principles and National Socialist politics led to a large setback for close-to-nature forestry in Germany.[20]

JG: A modern U.S. review by Schabel and Palmer in the *Journal of Forestry* captured much of the best ideas of Möller and his critics.[21]

HR: Hans Schabel was born and educated in forestry in Germany, emigrated to the United States and worked from 1973 to 2006 as a professor of forestry and director of international resource management at the University of Wisconsin–Stevens Point. He made frequent visits to Germany with his students. The late Siegfried Palmer was a German expert for close-to-nature silviculture and adapted forest management plans. He was an advocate of *Dauerwald* and a committed mentor of ANW.

JG: In 2001, Schabel followed up on Leopold's "Deer and Dauerwald in Germany" articles with a progress

report in the *Wildlife Society Bulletin*.[22] At least for the time being, he reported, in the last years of the twentieth century, maintaining deer populations in at least one-third of German forests has become less important than recovery of the forest. "*Wald vor Wild*." I assume that Leopold would approve.

HR: ANW is keenly concerned about the influence of deer in the forest. We strongly believe in "Forests first, ungulates second." Native vegetation should regenerate without artificial protection from ungulates. In Germany, we have many species that can be affected by browsing, especially oaks and silver fir, which can be very badly damaged.

JG: I'm not aware that the Pioneer Forest has a problem with deer browsing to the extent that regeneration is adversely affected. The forest has an open recreation policy—people are welcome to hunt and fish—and the L-A-D Foundation has easements with the National Park Service to provide access to the Current River and Jack's Fork River for water-based recreation.[23]

HR: My concluding opinion is that Pioneer Forest is an impressive long-term example of successful uneven-aged forest management in mixed oak-pine forests—by no means an easy feat! It is similar in several ways to the ANW style of *Dauerwald* in Germany. And I am convinced that foresters and forestland owners of both countries with the same close-to-nature attitude can learn from each other, with their different approaches.

JG: I know that ANW was founded in 1950 as a working partnership of forest stakeholders to practice multifunctional and environmentally friendly forestry. Isn't it a remarkable coincidence? That's the same year when Leo Drey began to acquire the Pioneer Forest lands, and very much for these same reasons. It's interesting that over nearly seven decades of management, the operations at Pioneer Forestry seem in more ways than not to embody the *Dauerwald* principles.

James M. Guldin spent 11 years on the faculty of the University of Arkansas-Monticello School of Forestry teaching silviculture, followed by 28 years with the USDA Forest Service's Southern Research Station, from which he retired in 2021 as the Station Silviculturist. Hermann Rodenkirchen is a former scientist and professor of forest soil science and plant nutrition from Technical University of Munich in Germany. As a private forest landowner in the Black Forest area over the last thirty years, he became an expert in practical Dauerwald *forest management. He has worked also for several years as chief editor of the journal* Der Dauerwald (The Permanent Forest)*, published by Arbeitsgemeinschaft Naturgemäße Waldwirtschaft.*

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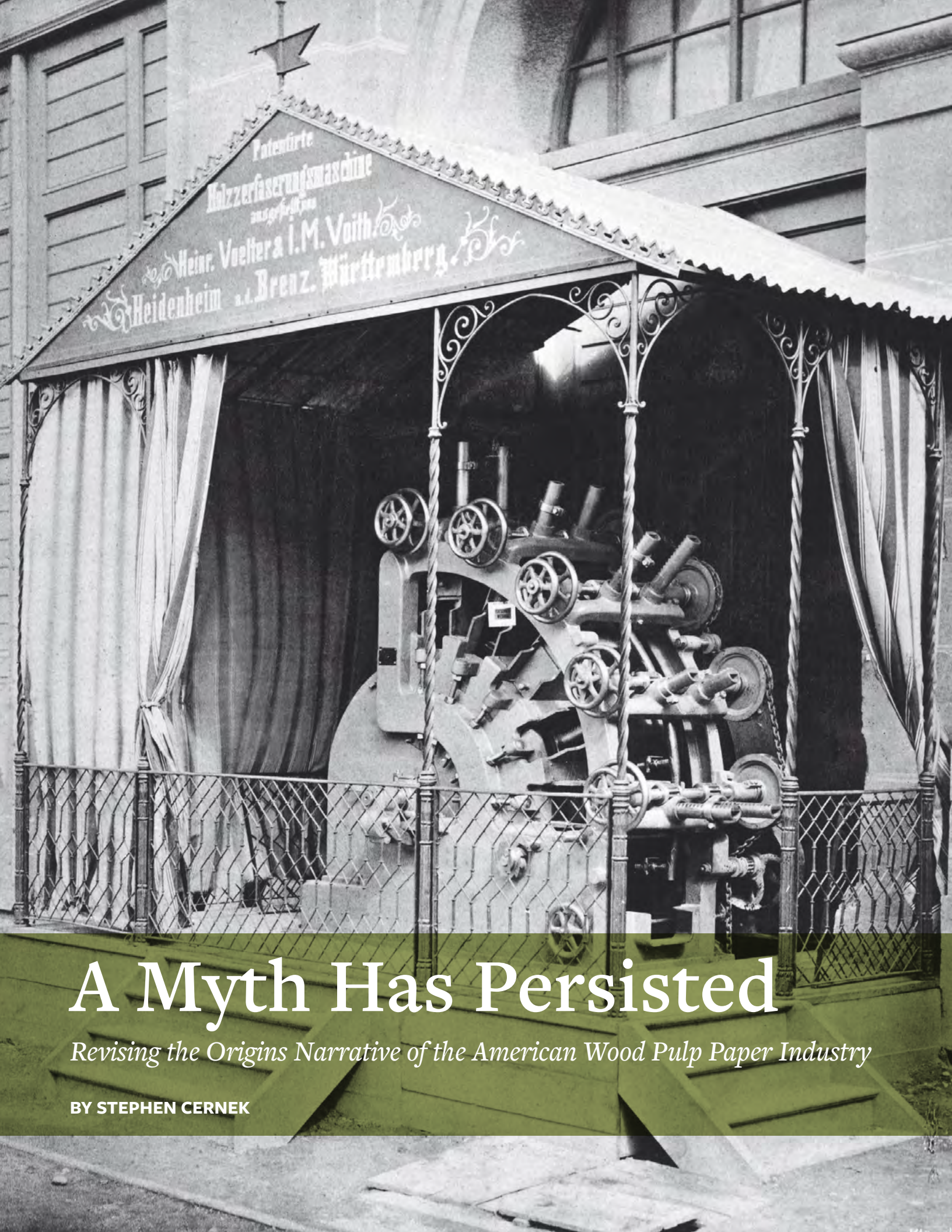


A Myth Has Persisted

Revising the Origins Narrative of the American Wood Pulp Paper Industry

BY STEPHEN CERNEK

Once a myth becomes accepted truth, it is hard to correct the record, as one historian discovered.

The origin of the modern paper industry arguably dates to the mid-nineteenth-century invention of technologies for making paper from wood pulp. The transition from cotton rags as the principal material for paper was a critical development in the industry.[1] Wood pulping sharply reduced the cost of paper, improved the print quality of newspapers, and prompted the industry to relocate to regions with abundant water power and timber. The expanding demand for pulpwood affected forests in the Northeast and Upper Midwest, and especially New York State, the leading manufacturer of wood pulp and paper between 1880 and 1920.[2] Pulpwood consumption by New York paper mills increased by five hundred percent between 1882 and 1891 alone, and New York pulpwood harvests increased by a factor of four between 1890 and 1899. Declining supplies of Adirondack timber then forced paper mills to turn to Canada for their raw material.[3] Although the general outlines of the transition to wood pulping in the United States are well known, critical details are often omitted—and, consequently, a myth has persisted.

The mythmaking begins with Albrecht Pagenstecher's 1897 article, "Ground Wood. The Story of Its Introduction to This Country," published in the industry's *Paper Trade Journal*.[4] Pagenstecher's involvement in the history, coupled with his resulting wealth and fame, enabled him to create a narrative that was accepted as gospel, and, yet, at the same time, misleading. Lyman Horace Weeks's 1916 book covering that early history, which relied unquestioningly on Pagenstecher's account, subsequently became the basis for many versions, further spreading the myth. Yet missing from every history of the industry are these three points: how Heinrich Voelter's mechanical wood-pulping technology came to the United States from Germany, how Alberto Pagenstecher gained control over Voelter's wood grinder patent, and how Pagenstecher and his associates exploited Voelter's technology to expand the wood pulp paper industry.[5] A more complete origins narrative of the industry requires studying the documents related to Voelter's patent.[6]

VOITH GMBH & CO. (VOITH-WOOD-GRINDER_1873_HOLZFASERUNGMASCHINE)

In the 1850s, Heinrich Voelter worked with J. M. Voith to construct a grinder like this one that would mechanically produce wood pulp used in paper production. Voelter's patent on the grinder transformed the paper manufacturing industry in Europe and the United States.

RAGS AND A WASP'S NEST

Heinrich Voelter developed his mechanical wood-pulping technology in the mid-nineteenth century, when demand for paper was causing shortages and raising prices for the cotton rags that were then the primary material of paper pulp. In just a two-year period in the 1850s, the importation of rags to the United States doubled. Paper scarcities led some newspapers to reduce the size of their issues; others ceased publication.[7] The American Civil War created strong demand for newspapers, and the price of paper rose from eight to seventeen cents per pound in 1862 alone. By 1864 paper cost twenty-eight cents a pound. Although prices leveled off and then declined after 1865, the competition to devise an alternative to cotton rags was under way.[8]

Both chemical and mechanical wood-pulping technologies appeared in the middle decades of the nineteenth century. A "soda pulp" process, which heated wood chips in sodium hydroxide, was patented in the United States in 1854 by Englishmen Charles Watt and Hugh Burgess and developed commercially in 1866 by the American Wood Fiber Company at Manayunk, Pennsylvania.[9] A chemical method that dissolved wood fibers into pulp using sulfuric acid was patented by Pennsylvanian Benjamin Tilghman in 1867.[10] Of the mechanical technologies, the approach developed by the German Friedrich Keller in the 1840s and patented by Heinrich Voelter in the United States in 1858 produced the first commercial American ground wood pulp at Curtisville, Massachusetts, in 1867.[11] The Voelter process reduced wood to fiber by pressing lumber against a rotating grindstone flooded with water.[12]

The earliest patented wood-pulping technologies prompted a flurry of innovation. Charles Thomas Davis, in his 1886 study *The Manufacture of Paper*, listed more than three hundred U.S. patents issued between 1854 and 1885 for chemical and mechanical processes.[13] Davis, who attributed the large number of patents largely to "the general introduction of the machine for disintegrating blocks of wood and assorting the fibers so obtained into classes according to their different degrees of fineness, invented by Mr. Henry Voelter," devoted eighteen pages to the Voelter process.[14] Although Davis found fault with some aspects, he generally considered Voelter's wood pulp grinder the catalyst for the subsequent development of both mechanical and chemical pulping technologies.

Among the earliest accounts of the origins of the wood pulp industry written by participants in it were by two owners of the Voelter patent, who were also partners in the

Hudson River Pulp Company, the Manufacturer's Paper Company, and other early pulp and paper industry ventures. Albrecht Pagenstecher wrote his article in 1897 for the *Paper Trade Journal*, and Warner Miller published his account in 1917 in *Paper*. Their writings have been taken at face value by industry historians throughout the twentieth century, despite their inherent biases.[15]

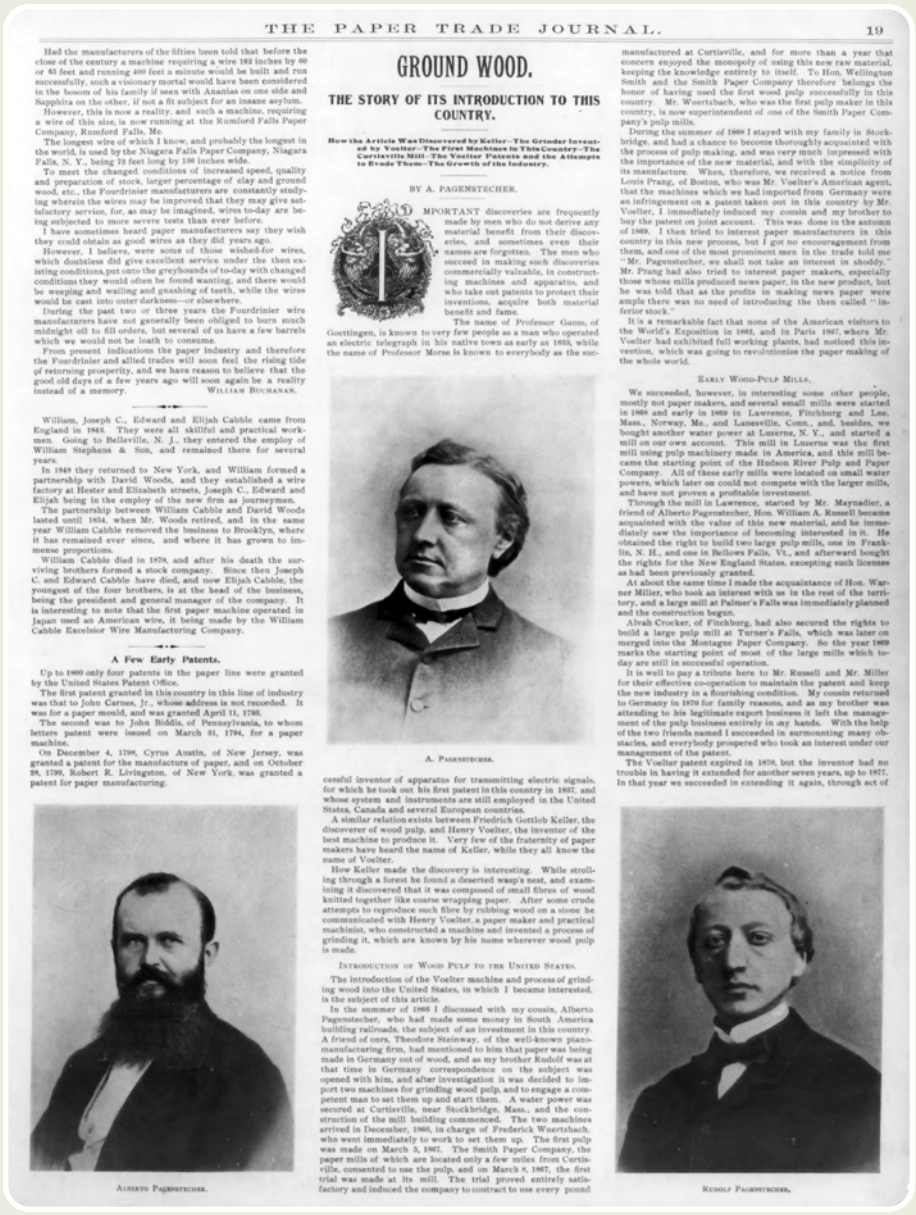
Albrecht Pagenstecher arrived in the United States from Germany in 1863 at the age of twenty-four, and by 1870 he was operating an import business in New York with his older brother, Rudolph. Both self-identified as "importers of drugs" as late as 1880, but sometime in the 1880s Pagenstecher & Co. acquired a new line of business: the company was described in major newspapers as the "largest exporters of petroleum in this country," with John D. and William Rockefeller reported to be their clients. But financial difficulties under Rudolph's management led to bankruptcy in 1889. Twenty years earlier, Albrecht had been a founding partner of the Hudson River Pulp Company, along with Rudolph, their cousin Alberto, and Warner Miller, and now his primary business interest shifted to the paper industry. He organized the Manufacturer's Paper Company around 1886, and by the 1890s the firm controlled several pulp and paper companies whose combined production provided two-thirds of all print paper and supplied the newsprint for nearly all large daily newspapers in the United States. By the time Pagenstecher's article was published in 1897, the Hudson River Pulp and Paper Company mill at Corinth, New York, was considered the country's largest.[16]

Warner Miller was an early partner to the Pagenstecher enterprises. Originally from Herkimer, New York, Miller taught Greek and Latin at the Fort Edward Collegiate Institute in New York State after graduating from Union College in 1860. He served briefly in the Civil War and was taken prisoner but later paroled. Back in Fort Edward, Miller entered the paper industry, first working at the Pulser and Howland paper mill in 1863; with partners, he then purchased his own mill in Herkimer in 1865. Miller was trying to convert from cotton to wood pulp when he met Alberto Pagenstecher and bought a share of the Voelter patent in 1869, and with him became a founding partner of the Hudson River Pulp Company. Miller oversaw the startup of the company's mill at Palmer Falls in 1869 and was active in securing injunctions against pulp mills whose grinders infringed on the Voelter patent. His effort against one offender resulted in the decision *Miller v. Androscoggin Pulp Co.* (1872), which became a precedent for defending the Voelter patent until it expired in 1884. Miller served two terms in the New York State legislature in the 1870s and one term in the U.S. Senate in the 1880s. He joined Albrecht Pagenstecher as a director of the Manufacturer's Paper Company before becoming the secretary of International Paper Company, founded in 1898. Although Miller suffered a humiliating bankruptcy in 1908, he remained an admired figure in the American Pulp and Paper Association until his death in 1918.[17]

As a historical resource, the 1897 Pagenstecher article is both incomplete and misleading, yet it has been influential in propagating a myth. Pagenstecher asserted that Friedrich Keller's observation of a wasp nest led to his invention of the wood pulp grinder: "While strolling through a forest he found a deserted wasp's nest, and examining it discovered that it was composed of small fibres of wood knitted together like coarse wrapping paper. After some crude attempts to reproduce such fibre by rubbing wood on a stone he communicated with Henry Voelter, . . . who constructed a machine and invented a process of grinding it . . . "[18] Lyman Horace Weeks included this wasp account in his widely cited *A History of Paper-Manufacturing in the United States, 1690–1916*.[19] The myth reappeared in elaborate detail in a 1917 *Munsey's Magazine* essay about the origins of the wood pulp industry[20] and was retold by Carl Wurtzbach of Stockbridge, Massachusetts, in a popular 1938 memoir that recalled the early days of pulp making at Curtisville.[21] It also appeared numerous times in newspapers across the country through the first four decades of the twentieth century.[22] The myth even made it into the *Congressional Record* in 1947, when a *New York Sun* article about the origins of the wood pulp industry was read on the floor of the U.S. House of Representatives and entered into the session's proceedings. In this account, Voelter and Keller studied wasps' nests together to come up with the wood pulp grinder.[23] Retellings of the wasp myth often included other elements of Pagenstecher's origins narrative as well, indicating that his 1897 essay was the likely original source for the tale.

CONFLICTING ACCOUNTS OF TECH TRANSFER

The idea that wood might serve as the raw material for paper originated in a 1719 essay by a French scientist, Rene Antoine de Reaumur.[24] De Reaumur's theory was advanced by Jacob Christian Schaffer, who wrote in 1765 that paper might be made from several fibrous materials, including wood.[25] Matthias Koops was perhaps the first to apply de Reaumur's ideas when he produced a book with paper made mostly from wood in 1800.[26] By the 1830s the idea of making paper pulp from wood had found its way into popular literature.[27] Friedrich Keller then developed a mechanical wood grinder, for which he earned a German patent in 1840.[28] Successful



THE PAPER TRADE JOURNAL. 19

GROUND WOOD.

THE STORY OF ITS INTRODUCTION TO THIS COUNTRY.

How the Article Was Discovered by Keller—The Grinder Invented by Voelter—The First Machines in This Country—The Curtisville Mill—The Voelter Patents and the Attempts to Evade Them—The Growth of the Industry.

BY A. PAGENSTECHER.

IMPORTANT discoveries are frequently made by men who do not derive any material benefit from their discoveries, and sometimes even their names are forgotten. The men who succeed in making such discoveries commercially valuable, in constructing machines and apparatus, and who take out patents to protect their inventions, acquire both material benefit and fame.

The name of Professor Gauss, of Goettingen, is known to very few people as a man who operated an electric telegraph in his native town as early as 1833, while the name of Professor Morse is known to everybody as the successful inventor of apparatus for transmitting electric signals, for which he took out his first patent in this country in 1837, and whose system and instruments are still employed in the United States, Canada and several European countries.

A similar relation exists between Friedrich Gottlob Keller, the discoverer of wood pulp, and Henry Voelter, the inventor of the best machine to produce it. Very few of the fraternity of paper makers have heard the name of Keller, while they all know the name of Voelter.

How Keller made the discovery is interesting. While strolling through a forest he found a deserted wasp's nest, and examining it discovered that it was composed of small fibres of wood knitted together like coarse wrapping paper. After some crude attempts to reproduce such fibre by rubbing wood on a stone he communicated with Henry Voelter, a paper maker and practical machinist, who constructed a machine and invented a process of grinding it, which are known by his name wherever wood pulp is made.

Introduction of Wood Pulp to the United States.

The introduction of the Voelter machine and process of grinding wood into the United States, in which I became interested, is the subject of this article.

In the summer of 1866 I discussed with my cousin, Alberto Pagenstecher, who had made some money in South America building railroads, the subject of an investment in this country. A friend of ours, Theodore Steinway, of the well-known piano-manufacturing firm, had mentioned to him that paper was being made in Germany out of wood, and as my brother Rudolf was at that time in Germany corresponding on the subject was opened with him, and after investigation it was decided to import two machines for grinding wood pulp, and to engage a competent man to set them up and start them. A water power was secured at Curtisville, near Stockbridge, Mass., and the construction of the mill building commenced. The two machines arrived in December, 1866, in charge of Frederick Wuertzbach, who went immediately to work to set them up. The first pulp was made on March 3, 1867. The Smith Paper Company, the paper mills of which are located only a few miles from Curtisville, consented to use the pulp, and on March 8, 1867, the first trial was made at its mill. The trial proved entirely satisfactory and induced the company to contract to use every pound manufactured at Curtisville, and for more than a year that concern enjoyed the monopoly of using this new raw material, keeping the knowledge entirely to itself. To Hon. Wellington Smith and the Smith Paper Company therefore belongs the honor of having used the first wood pulp successfully in this country. Mr. Wuertzbach, who was the first pulp maker in this country, is now superintendent of one of the Smith Paper Company's pulp mills.

During the summer of 1868 I stayed with my family in Stockbridge, and had a chance to become thoroughly acquainted with the process of pulp making, and was very much impressed with the importance of the new material, and with the simplicity of its manufacture. When, therefore, we received a notice from Louis Prang, of Boston, who was Mr. Voelter's American agent, that the machines which we had imported from Germany were an infringement on a patent taken out in this country by Mr. Voelter, I immediately induced my cousin and my brother to buy the patent on joint account. This was done in the autumn of 1869. I then tried to interest paper manufacturers in this country in this new process, but I got no encouragement from them, and one of the most prominent men in the trade told me "Mr. Pagenstecher, we shall not take an interest in shoddy." Mr. Prang had also tried to interest paper makers, especially those whose mills produced news paper, in the new product, but he was told that as the profits in making news paper were ample there was no need of introducing the then called "inferior stock."

It's a remarkable fact that none of the American visitors to the World's Exposition in 1867, and in Paris 1867, where Mr. Voelter had exhibited full working plants, had noticed this invention, which was going to revolutionize the paper making of the whole world.

Early Wood-Pulp Mills.

We succeeded, however, in interesting some other people, mostly not paper makers, and several small mills were started in 1868 and early in 1869 in Lawrence, Fitchburg and Lee, Mass., Norway, Me., and Lanesville, Conn., and, besides, we bought another water power at Luzerne, N. Y., and started a mill on our own account. This mill in Luzerne was the first mill using pulp machinery made in America, and this mill became the starting point of the Hudson River Pulp and Paper Company. All of these early mills were located on small water powers, which later on could not compete with the larger mills, and have not proven a profitable investment.

Through the mill in Lawrence, started by Mr. Maynadier, a friend of Alberto Pagenstecher, Hon. William A. Russell became acquainted with the value of this new material, and he immediately saw the importance of becoming interested in it. He obtained the right to build two large pulp mills, one in Franklin, N. H., and one in Bellows Falls, Vt., and afterward bought the rights for the New England States, excepting such licenses as had been previously granted.

At about the same time I made the acquaintance of Hon. Warner Miller, who took an interest with us in the rest of the territory, and a large mill at Palmer's Falls was immediately planned and the construction begun.

Alvah Crocker, of Fitchburg, had also secured the rights to build a large pulp mill at Turner's Falls, which was later on merged into the Montague Paper Company. So the year 1869 marks the starting point of most of the large mills which today are still in successful operation.

It is well to pay a tribute here to Mr. Russell and Mr. Miller for their effective co-operation to maintain the patent and keep the new industry in a flourishing condition. My cousin returned to Germany in 1870 for family reasons, and as my brother was attending to his legitimate export business it left the management of the pulp business entirely in my hands. With the help of the two friends named I succeeded in surmounting many obstacles, and everybody prospered who took an interest under our management of the patent.

The Voelter patent expired in 1870, but the inventor had no trouble in having it extended for another seven years, up to 1877. In that year we succeeded in extending it again, through act of

William, Joseph C., Edward and Elijah Cabble came from England in 1848. They were all skillful and practical workmen. Going to Belleville, N. J., they entered the employ of William Stephens & Son, and remained there for several years.

In 1848 they returned to New York, and William formed a partnership with David Woods, and they established a wire factory at Hester and Elizabeth streets, Joseph C., Edward and Elijah being in the employ of the new firm as journeymen.

The partnership between William Cabble and David Woods lasted until 1854, when Mr. Woods retired, and in the same year William Cabble removed the business to Brooklyn, where it has remained ever since, and where it has grown to immense proportions.

William Cabble died in 1870, and after his death the surviving brothers formed a stock company. Since then Joseph C. and Edward Cabble have died, and now Elijah Cabble, the youngest of the four brothers, is at the head of the business, being the president and general manager of the company. It is interesting to note that the first paper machine operated in Japan used an American wire, it being made by the William Cabble Excelsior Wire Manufacturing Company.

A Few Early Patents.

Up to 1800 only four patents in the paper line were granted by the United States Patent Office.

The first patent granted in this country in this line of industry was that to John Carnes, Jr., whose address is not recorded. It was for a paper mould, and was granted April 11, 1793.

The second was to John Biddis, of Pennsylvania, to whom letters patent were issued on March 31, 1794, for a paper machine.

On December 4, 1798, Cyrus Austin, of New Jersey, was granted a patent for the manufacture of paper, and on October 28, 1799, Robert R. Livingston, of New York, was granted a patent for paper manufacturing.

Alberto Pagenstecher.

A. Pagenstecher.

Rudolf Pagenstecher.

PUBLIC DOMAIN (2)

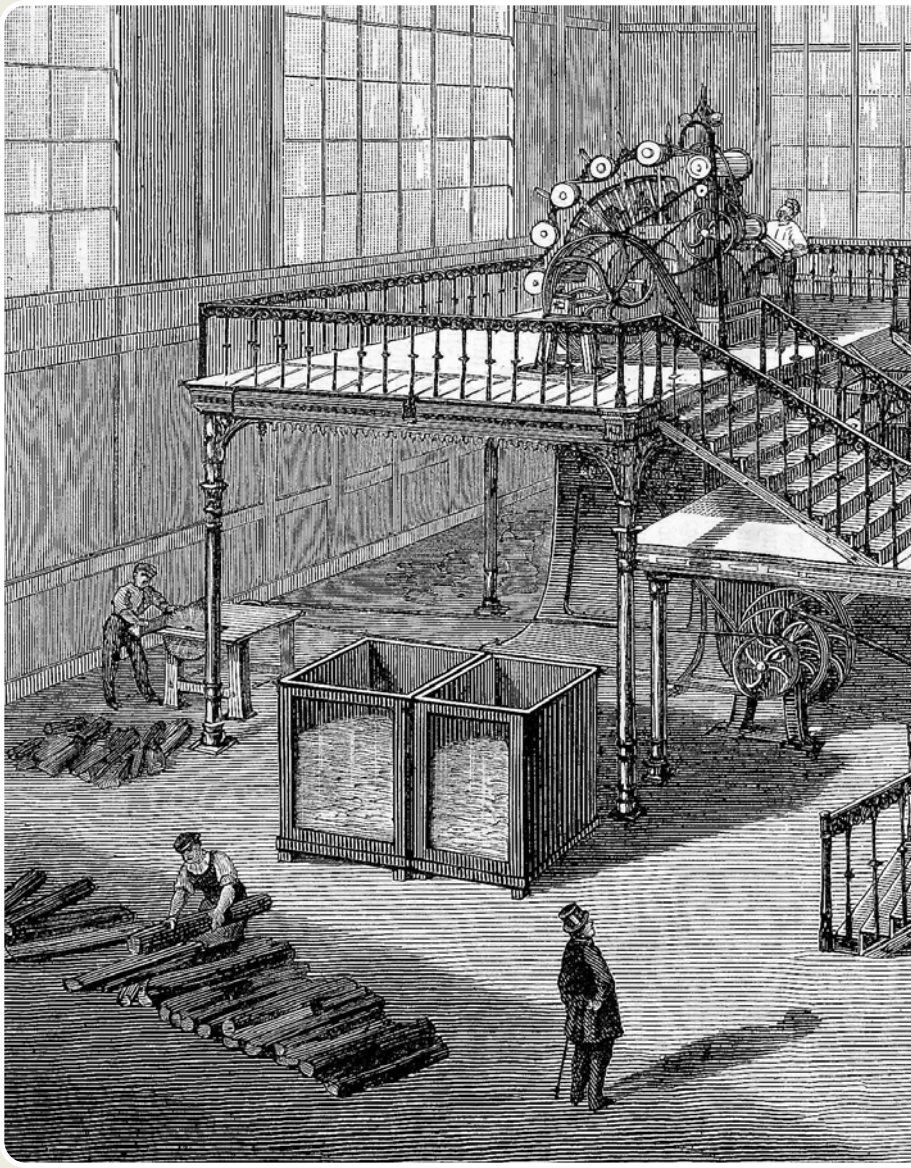
The myth of the origin of the modern paper industry can be traced to this article published in 1897 in the *Paper Trade Journal* from Internet Archive. The three men at the center of the myth: Heinrich Voelter (pictured above), who held the patent; Alberto Pagenstecher (far left), who purchased Voelter's American patent; and Albrecht Pagenstecher (center column), who wrote the article that removed Voelter from the story.

in making paper from wood pulp but unable to secure funding to advance his technology, Keller sold a share of his invention to Heinrich Voelter, a papermaker from Saxony. A patent was issued to both men in 1845, but Voelter soon bought Keller's share and further developed the technology on his own.[29] Although the mechanical grinder had originated with Keller, ironically, Voelter in later years was reluctant to credit him, writing in 1870 that "I believe myself to be the first whoever succeeded in producing satisfactory paper stock from wood by mechanical reduction of the fibre."[30]

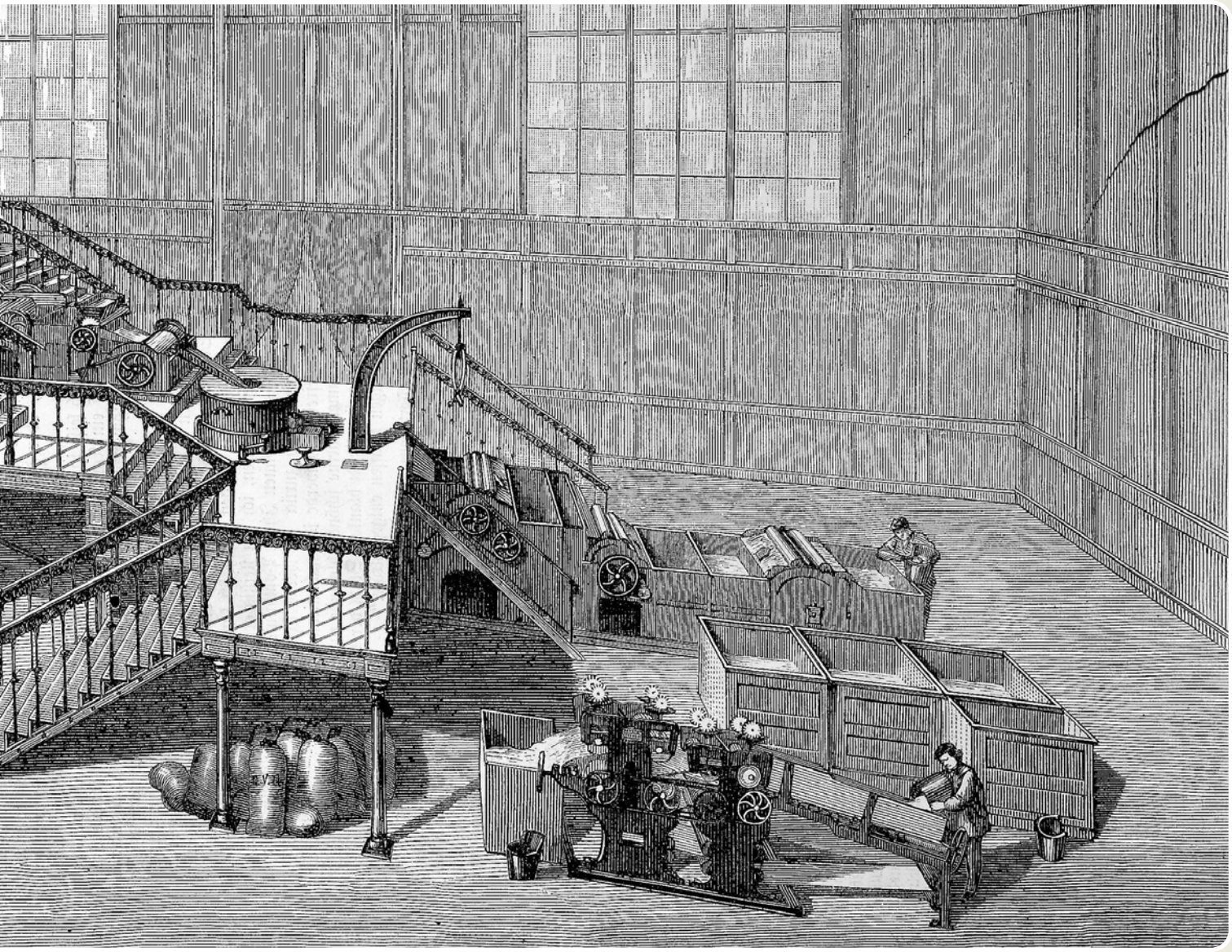
Voelter continued to improve the technology in the 1840s and 1850s while managing paper factories, first at Bautzen, then at Heidenheim.[31] His experiments focused on the positioning of wood in relation to the rotating grindstone: he determined that the grain had to be parallel to the stone's surface for the fiber to remain intact. Voelter also worked on filtering wood splinters from the pulp and scaling up production. In the early 1850s he collaborated with J. M. Voith, a Heidenheim machinist, to construct a grinder that held four wood presses against a single rotating stone, increasing capacity. Voith manufactured twenty-one of the improved grinders between 1852 and 1860 for installation in Germany and other European countries, but by 1864 Voelter had turned to the Brothers Decker and Company to manufacture his machines.[32] By 1867 more than ninety Voelter machines

from ten to sixty horsepower were being used in European pulp mills.[33]

Voelter was both an inventor and a relentless self-promoter. He noted that during the 1860s that "I did not cease, by publications in different languages and by personal application, to press my invention upon the public notice and to solicit orders for machines."[34] The economic advantages of Voelter's technology were recognized first at the General German Industrial Exhibition in 1854, then at the London International Exhibition of 1862, and finally at the 1867 Paris Exhibition, where it won a gold medal and the paper produced from its pulp a silver medal.[35] The paper pulp used then by Voelter consisted of thirty to fifty percent wood and was being produced from woods with pale fiber: pine, ash, poplar, and beech.[36] A report of the Paris Exhibition called Voelter "the inventor of a successful method of making from wood a cheap paper-pulp which is pretty white and clean, without being bleached." Noting that Voelter had received a patent for his machine in nearly every European country, the report also proclaimed that "it may be said that hardly a newspaper is printed in Germany of which does not contain some portion of this material." Voelter had not yet solved the problem of troublesome wood particles that made wood pulp paper inferior to paper made from cotton rags, yet at half the cost of cotton, it was wood pulp's economic promise that drove interest in his machine. The Paris reviewer, who evaluated all the wood-pulping technologies on exhibit, noted that "in an economical point of view, Voelter's invention must be considered of no small importance."[37]



The promotion of his technology in the United States was more challenging. Voelter's own account reveals the difficulties of relying on agents to represent his interests and overcome the resistance of paper manufacturers to using wood pulp.[38] His first agent in the United States was Gustav Ramsperger, an apothecarist in Manhattan who was known as a dispenser of "Destilers Anti-Periodic, or Fever and Augue Pills."[39] Ramsperger secured the services of Munn and Company, owners of *Scientific American*, to help promote Voelter's technology. Munn introduced Voelter's patent to Cyrus W. Field, best known for his role in laying the first transatlantic cable. Field had worked as a young man at his father's paper mill in Lee, Massachusetts.[40] In 1840 Field began his own paper-manufacturing business in Westfield, Massachusetts, and the next year became a partner in E. Root and Company, a New York paper wholesaler. When Root went bankrupt in 1841, Field continued in the wholesale business, amassing a sizable fortune by the mid-1850s while paying off much of Root's debt.[41] Field appeared interested in Voelter's grinder but was unable to secure wood pulp from Voelter for testing in America. Voelter resumed his search.[42]



SUNNY CELESTE / ALAMY STOCK PHOTO

Heinrich Voelter demonstrated one version of his machine at the 1867 Paris Exhibition. Before then, he had been trying to bring the technology to the United States for several years.

Voelter next enlisted the services of Joseph Bischof, a German engineer living in Philadelphia, who introduced Voelter's machine to Pennsylvania paper mill owners with circulars that described its mechanical features and benefits.[43] After being reproached by Voelter for not making progress, Bischof confessed that he had gone into business with a Mr. Kruger of Cincinnati, and together they had taken out a patent on a method for preparing wood pulp. That ended Voelter's business relationship with Bischof, although there is no evidence that either Bischof or Kruger secured a U.S. patent for a pulpwood grinder in their names.[44]

Louis Prang, a Boston printer and publisher who would later be considered the father of the American Christmas card, became Voelter's third agent in 1863.[45] Voelter gave Prang "a large collection of circulars, drawings, estimates, testimonials, and other documents, which he had already in print and also various papers prepared by him," along with wood pulp and paper samples. The financial arrangement with Prang was the same he had given to his previous agents: twenty-five percent of yearly royalties plus expenses. The agreement between the two men was to be in force until 1872.[46] Voelter now realized, however, that for his invention to be seriously considered, he had to provide American papermakers with either sample

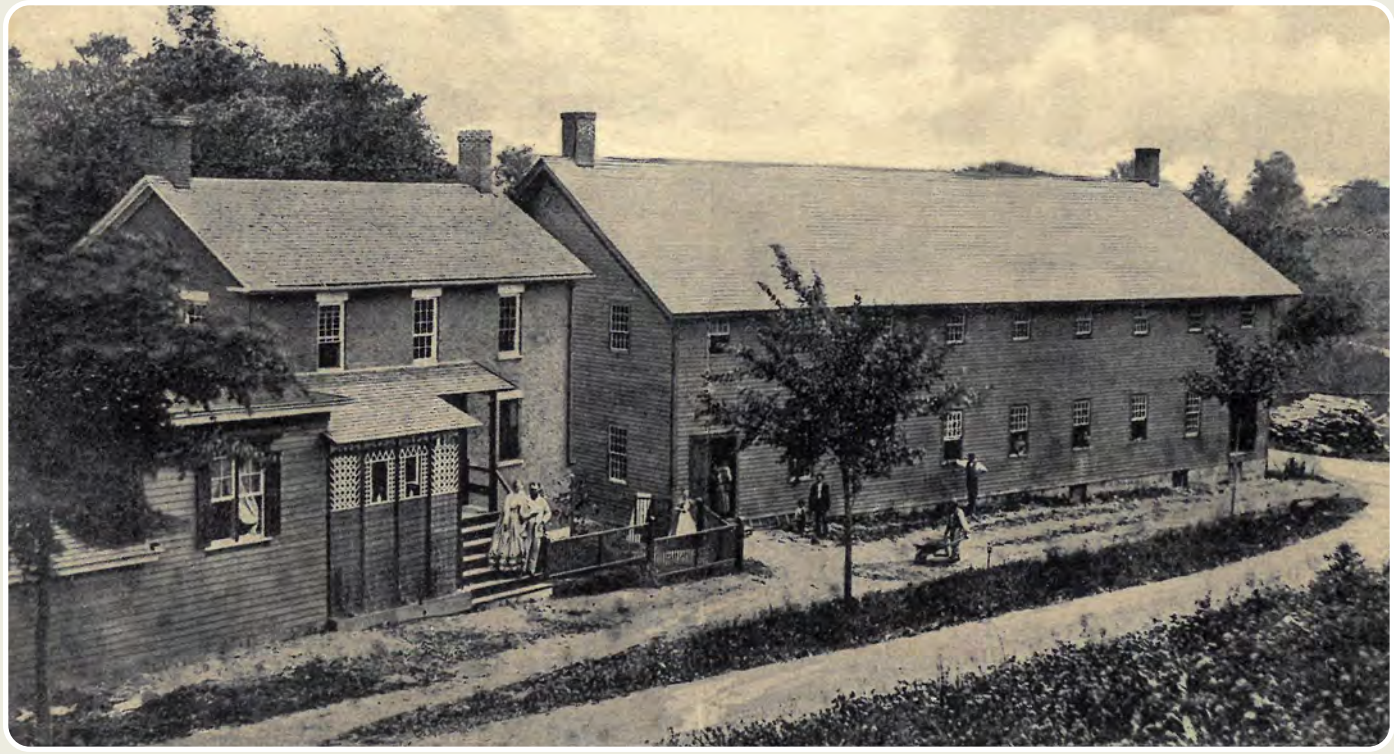
wood pulp or a means to manufacture it.[47] Consequently, the agreement stipulated that Voelter would bear the expense of shipping a grinder to the United States (and back again after one year if it failed to sell) and sending an engineer to operate it. Voelter, who believed that his technology would flourish amid America's abundant water power and wood supplies, was particularly motivated to ship a grinder to Prang after he learned of the startup of the American Wood Pulp Paper Manufacturing Company in Pennsylvania in the spring of 1866.[48] Unable to persuade Prang to accept responsibility for the receipt of a demonstration grinder, Voelter threatened to find another agent.[49] But before he could act, an inquiry from the United States arrived.

The inquiry came from Alberto Pagenstecher, cousin of Albrecht Pagenstecher. In his narrative of 1897, Albrecht wrote that during the summer of 1866, Alberto desired to invest money he had made from work on a South American railroad.[50] Although Albrecht offered no details regarding Alberto's work, Chilean court records confirm that Alberto had a contract with the Valparaiso Railroad during its construction of a rail line and tunnel between Valparaiso and the Chilean capital, Santiago. He and the railroad company went to court in 1863 over disputed compensation and allegations of unfinished work.[51] He appears to have entered the United States in late 1865.[52] That year, at the age of twenty-four, he received two U.S. patents, one for a hydraulic ship propeller and one for a method of armoring military vessels.[53]

Albrecht Pagenstecher's 1897 narrative indicated that it was C. F. Theodore Steinway, son of the founder of Steinway Pianos, who told the Pagenstechers that paper was being made from wood in Germany.[54] Steinway, who had emigrated from Germany in 1865 to manage piano production for his family's New York business, might have had first-hand knowledge of Voelter's invention and passed it on through the German Society of New York, where Theodore's brother and Albrecht's brother Rudolph served as directors.[55] Steinway was also an exhibitor at the same 1867 Paris Exhibition where Heinrich Voelter demonstrated his wood pulp grinder.[56] Albrecht wrote that he asked Rudolf, who was in Germany in 1866, to investigate Voelter's invention. According to Albrecht, after a presumably favorable report Alberto arranged for two Voelter grinders to be shipped to Curtisville, Massachusetts, then a center of American paper manufacturing.[57] Frederick Wurtzbach accompanied the machines from Germany to the United States in December 1866, set them up at the mill site that Alberto had purchased earlier that year, and had them operational by March 1867. The first sale of wood pulp to the Smith Paper Company in Lee, Massachusetts, was made that same month.[58]

That narrative omits crucial details about the transfer of Voelter's technology to the United States. Although Alberto was seeking Voelter's technology between 1866—the year that Rudolf first made inquiries about wood pulping in Germany—and late 1868, when he purchased Voelter's American patent, the omission of any reference to Voelter in the section about the acquisition of the machines in Germany and their shipment to the United States is notable. Nor is Voelter's role in the technology transfer mentioned in the discussion of the early industry written in 1917 by Pagenstecher's business partner, Warner Miller, which has also been a widely cited first-person account.[59] Pagenstecher gave ample credit to Voelter for his invention, but otherwise Voelter is absent between the 1866 contact and the 1868 purchase of the patent. That Voelter is not mentioned in the 1866–1868 portions of either account begs the question of whether he was involved in selling the machines to Pagenstecher. Since Voelter's paper factory in Heidenheim had burned down in 1865, and as of February 1866 there were no grinders at the mill in working order, the machines were likely not obtained from him.[60] Pagenstecher acknowledged in his 1897 article that cousin Alberto's use of the two grinders at Curtisville represented an infringement of Voelter's U.S. patent, yet he does not explain how or from whom Alberto obtained them.[61]

The initial transfer of Voelter's technology to the United States—the grinders that arrived in Curtisville—has been described in two different yet conflicting sources. Carl Wurtzbach, son of Frederick Wurtzbach, wrote in 1938 that his father had supervised the construction of the two machines in Magdesprung, Germany, and accompanied them to Curtisville in 1866.[62] Charles H. Carpenter wrote in *The History of Mechanical Pulping* that "grinders of Voelter design, made by Voith, were brought from Germany and placed in the Albrecht Pagenstecher mill in Curtisville, Massachusetts."[63] Given that the J. M. Voith works were in Heidenheim, more than 240 miles from Magdesprung, both accounts cannot easily be true. If Wurtzbach is correct, then the machines could have been made in Heidenheim, far from Voelter's paper mill, with Pagenstecher paying for construction and a licensing fee to the patent owner. If the Carpenter account is correct, then Voith would have manufactured the machines presumably for the patent owner after Voelter had shifted his own grinder construction to Brothers Decker and Company, a change that Carpenter dates to 1864.[64] It is possible that Pagenstecher could have simply purchased two used machines from a failed German pulp mill.[65]



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Two German-made grinders were shipped to Curtisville, Massachusetts, and installed in a former textile mill in 1866. Albrecht Pagenstecher's article left out key information about this occurrence.

But the greater question is why Alberto Pagenstecher purposefully infringed on Voelter's American patent by importing two German machines to the United States. Pagenstecher's purchase of not one but two grinders in 1866 suggests that he was not seeking to demonstrate the feasibility of wood pulp to American papermakers. And the $11,500 that he paid for the former Brown textile mill in Curtisville in August 1866, several months before the grinders arrived in the United States, suggests that he was committed to developing a pulp mill there.[66] The simple answer to the patent infringement question might be that Alberto determined that paying a licensing fee to have two new machines built in Germany (or purchasing two used grinders) was less expensive than buying Voelter's U.S. patent and then having machines manufactured in the United States by an inexperienced machinist. That Voelter resided in Germany and his American agent was an illustrator, not a lawyer, must also have been factors in considering Alberto's legal exposure.

Having secured a site for a pulp mill in Curtisville and purchased two grinders by the summer of 1866, Pagenstecher persuaded Frederick Wurtzbach to travel from Magdesprung to install the machines and operate his mill. By early March 1867, Wurtzbach was producing wood pulp. To what degree cousins Albrecht and Rudolph had invested in the Curtisville pulp mill in 1867 is uncertain, yet it is clear that Alberto was manufacturing wood pulp with Voelter grinders two years before the Voelter patent was assigned to him for use in the United States. Pagenstecher's 1897 article laid a foundation of the transfer narrative, but it omitted facts essential to developing a complete and forthright account of the industry's beginning.[67]

Another problematic aspect of the Pagenstecher narrative is the suggestion that Alberto was unaware that he was infringing on Voelter's U.S. patent by operating two German-built machines at Curtisville. Albrecht wrote that "when, therefore, we received a notice from Louis Prang, of Boston, who was Mr. Voelter's American agent, that the machines which we had imported from Germany were an infringement on a patent taken out in this country by Mr. Voelter, I immediately induced my cousin and my brother to buy the patent on joint account." Although the patent sale agreement with Voelter was in Alberto's name only, Albrecht's narrative suggested that he and Rudolph held a shared interest in the patent. Albrecht presented himself, his brother, and his cousin as unaware of the infringement, and

thus unaware of Voelter's U.S. patent from the time of the initial inquiry in 1866 to the summer of 1868, when Prang's letter arrived.[68]

STRATEGIC INFRINGEMENT?

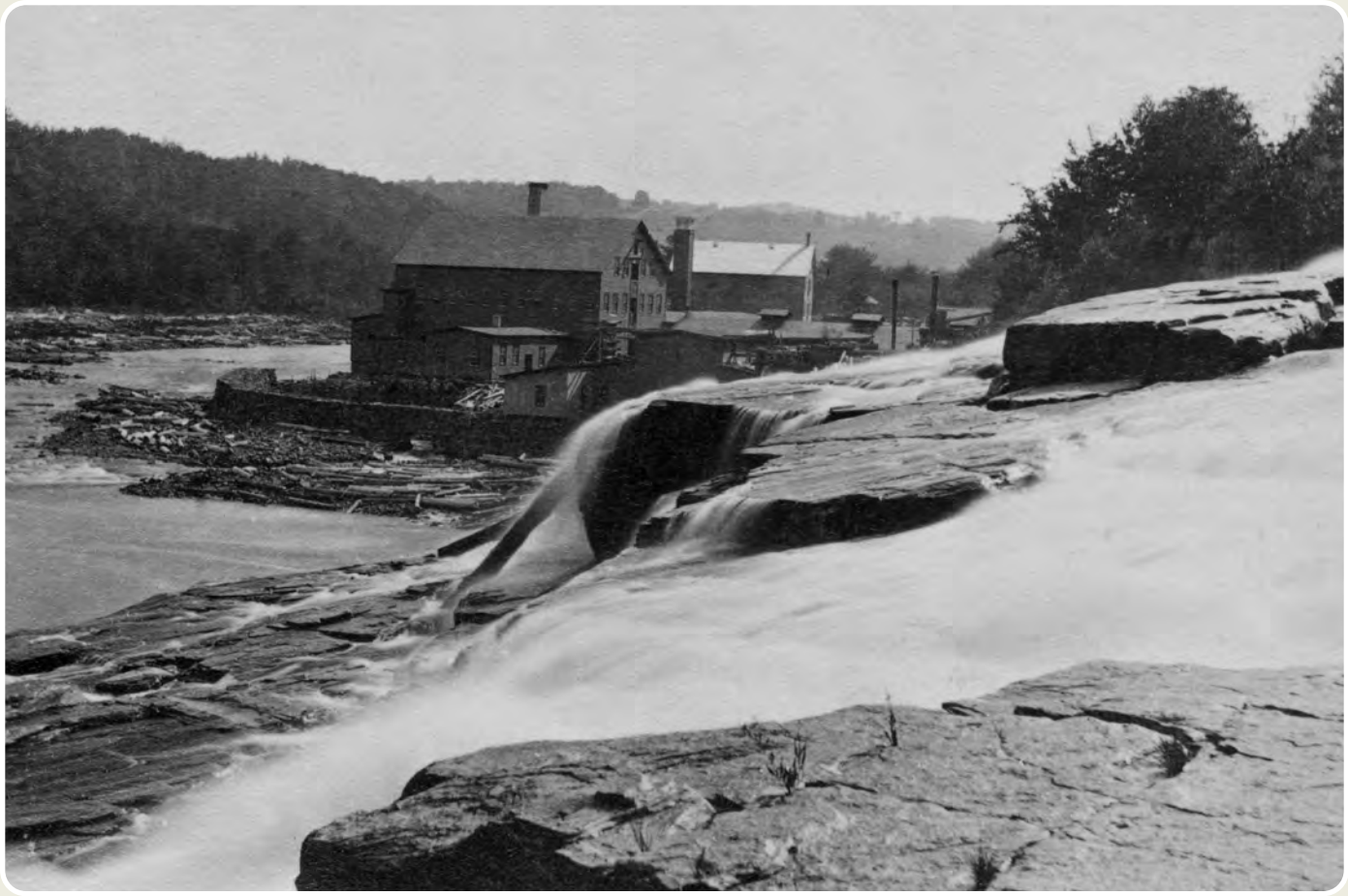
The gaps in Pagenstecher's 1897 narrative and the questions they raise can be filled by a close reading of documents that have been largely overlooked by historians of the pulp and paper industry. Voelter sought to secure an extension of his 1858 patent, first in 1870 and again in 1877. Published by the U.S. House of Representatives under the title "Papers In The Matter Of The Application of Henry Voelter For Extension Of Reissue Of Letters Patent For Improvement For Reducing Wood To Paper Pulp," the 272-page document contains depositions filed in both patent extension applications. The papers cover Voelter's development of the wood pulp grinder, his effort to find an American buyer for his patent, and the two years of negotiations with Pagenstecher for the sale of his patent. The depositions provided by Voelter, Louis Prang, and others offer details that both contradict and augment Albrecht Pagenstecher's 1897 origins narrative. They also point to other primary materials that both corroborate Voelter's narrative and refute Pagenstecher's version.

Alberto Pagenstecher's effort to secure the Voelter patent began in 1866, not in 1868, as his cousin Albrecht wrote. Voelter said in an 1870 deposition that Pagenstecher sought to gain control over the patent in 1866, when Voelter was asked to join a proposed American wood pulp company and exchange his patent rights for shares of stock and some cash. Voelter rejected the partnership offer and "submitted to them a counter-proposition, through Mr. Prang, and a long negotiation followed, which finally failed and was abandoned."[69] Voelter did not describe his counteroffer, yet Prang noted that Voelter believed his 1858 patent to be worth $100,000.[70] Voelter wrote that "after some delay Mr. Pagenstecher made me new offers, which again led to long negotiations, which resulted in an agreement by which Mr. Pagenstecher bought my patent."[71] The negotiations between Voelter and Pagenstecher that were intermittent between 1866 and 1868 are mentioned in neither the 1897 *Paper Trade Journal* article nor Warner Miller's 1917 piece for *Paper*.

The "some delay" Voelter mentioned likely took place from mid-1866 to March 1867, when Alberto was securing the Curtisville mill site, purchasing the two grinders in Germany, arranging for their shipment to the United Stated, and preparing to start wood pulp production. When patent negotiations resumed is not known, but Pagenstecher traveled to Germany to meet with Voelter at the U.S. consulate's office at Stuttgart on at least one occasion.[72] Three-party communications through Prang may have complicated the negotiations, but the delay might also have been due to Voelter's preference to sell his 1866 patent rather than its 1858 predecessor. Voelter, who told Prang that he believed the value of the new patent to be 50 percent greater than the previous one, was perhaps holding out for a contract on the 1866 patent, which would be valid for ten more years.[73] Whatever the reasons for the delay, Alberto Pagenstecher began operating the grinders before signing a purchase agreement with their patent holder.

One explanation for Pagenstecher's actions is that he sought to secure a wood pulp manufacturing foothold in Berkshire County after reading of the startup of the American Wood Pulp Paper Manufacturing Company at Manayunk, Pennsylvania, in 1866. Using the chemical wood-pulping process patented in 1864 by Charles Watt and Hugh Burgess, the Manayunk plant was to produce 30,000 pounds of wood pulp per day.[74] Voelter, who himself had learned about the new company from an article in the *New York Demokrat*, a German-language newspaper published in New York City, wrote to Louis Prang in May 1866, expressing concern that the Manayunk mill posed a threat to the sale of his patent in the United States. Urging Prang to better promote his interests, Voelter wrote, "I do not want my system in America to be pushed in[to] the background."[75] The numerous newspaper articles about the Manayunk mill followed from a tour of the mill by two hundred Northeast publishers in April 1866. It is not unreasonable to assume that Pagenstecher read the same account as Voelter and felt a similar sense of urgency.[76] With Berkshire County and its nearly forty paper factories a principal center for American paper manufacturing, Pagenstecher might have thought it essential that his wood pulp mill be the first in the region, even though he did not yet own the technology on which it would be based.[77]

The Pagenstecher pulp mill in Curtisville was an immediate success. The Smith Paper Company of Lee, which tested the initial wood pulp produced in March 1867, purchased more than 6,000 pounds in the first month of operation, and then agreed to buy all the pulp that the mill could produce.[78] That persuaded Pagenstecher to expand operations. By May 1868 he was building a second pulp mill on the site of a burned brick factory in Curtisville, and by July he had formed a partnership with B. F. Barker & Co. to operate a third pulp mill.[79] Pagenstecher likely supplied the Voelter patent in exchange for Barker's agreement to manufacture the wood pulp grinders at his iron foundry.[80] An account of the new partnership in the *Pittsfield Sun* in August 1868 also said that Pagenstecher owned the "Voelter invention."[81]



FROM THE AUTHOR'S COLLECTION

The Hudson River Pulp Company's mill, seen here around 1872, was located at Corinth, New York, on the Hudson River. In 1898, the company became International Paper Company.

Yet Pagenstecher did not own the Voelter patent until November 6, 1868. A careful look at that agreement offers insight into both how it was negotiated and how its terms would ensure subsequent patent extension applications. The agreement gave Alberto Pagenstecher the rights to Voelter's 1858 patent for a royalty payment of $5,000 on January 1, 1869, plus $6,000 on January 1, 1870, and each successive January through the life of the patent and any extensions.[82] But since the 1858 patent had been antedated to 1856, Voelter would earn only $8,250 in total royalty income before the patent expired in 1870, after Prang's commission was taken—far less than the $100,000 Voelter thought the patent to be worth.[83] Voelter's share from an invention, whose benefits to the paper industry were "estimated by the millions" by Samuel Duncan, acting commissioner of patents, was indeed meager.[84] By 1870, 134 of his grinders would be manufactured in the United States. Although many of these machines were operated in mills owned outright by Pagenstecher or in those in which he shared ownership, Alberto charged $100 per month for each licensed grinder.[85] Two years after the patent was sold, the per-unit value to Pagenstecher from licensing Voelter grinders was more than $160,000 per year. Commissioner Duncan was incredulous on reviewing the terms of Voelter's 1868 contract with Pagenstecher: "It is regretted that the man who, by years of study and costly experiment, by the exercise of sublime faith, and by active and persistent efforts, has given the world so valuable an invention, should have no larger interest in it at a time when the public appreciation of it might compensate him for the ingenuity displayed."[86]

So why did Voelter agree to such paltry royalties? Perhaps he reasoned that after having tried for ten years to find an American buyer for his patent, he needed to salvage whatever remaining value it held. Yet the terms of the agreement also suggest that Voelter sought to leverage the sale of his 1858 patent in hopes of gaining

a future contract for the improved 1866 version. Voelter surely tried to persuade Pagenstecher to purchase the 1866 patent rather than the 1858 version when he was approached in 1866, not only because he considered it more valuable but also because it would have provided him with royalty income through 1880. That having failed, Voelter gave Pagenstecher the rights to the 1866 patent for two years, allowing him to build and test a machine based on its design and to "endeavor to introduce it into use."[87] Voelter surely reasoned that providing Pagenstecher with limited, royalty-free use of the 1866 patent with its improved method would encourage its use and ultimate purchase, and then he could negotiate a purchase contract with larger royalties for a longer time.

Pagenstecher, however, had his reasons for wanting the 1858 version. Warner Miller, after learning of Voelter's invention from friends in Germany, first approached Pagenstecher in 1868 to purchase an interest in the patent. Miller, along with Albrecht and Rudolf Pagenstecher, would become a founder of the Hudson River Pulp Company that was being planned in the Adirondacks. Miller had secured his own U.S. patent in 1868 for an improvement to the wood grinder patented by H. & F. Marx in 1866, which featured wood fiber screening.[88] Although the date of Miller's contact with Pagenstecher is not documented, it is likely that a plan emerged to add Miller's patented screening method to Voelter's grinder, making purchase of the 1866 version with its improved screening unnecessary. In fact, both the Voelter and the H. & F. Marx patents are featured in the January 1869 incorporation papers for the Hudson River Pulp Company as technologies that it would use.[89] By 1870, however, one of Voelter's machines based on the 1866 patent had been imported from Germany for testing at the Hudson River Pulp Company mill at Palmer Falls, and by 1872 Voelter had sold the 1866 patent to Pagenstecher.[90] Although the terms of sale are not known, that Pagenstecher owned both of Voelter's patents by 1872 but pursued patent extensions only on the 1858 version—in both 1870 and 1877—suggests that securing control of Voelter's 1866 machine may have been strategic: he wanted to keep it out of the hands of competitors.

THE INVENTOR AS FORGOTTEN HERO

The success of the Curtisville pulp mill drove Pagenstecher's expansion plans while setting off a wood pulp boom in the Berkshires.[91] Pagenstecher continued to exploit Voelter's technology by forming a partnership with Lewis Beach and James H. Royce in December 1868 to convert their Lee, Massachusetts, textile mill into a wood pulp mill.[92] The Curtisville men who had built Voelter grinders for Pagenstecher realized the sizable profits from licensing their own technology and sought to exploit the growing interest in wood pulp, obtaining a total of eleven patents related to wood pulp production.[93]

Among them was Frederick Burghardt, who patented a pulpwood grinder in 1869, and Pagenstecher's pulp mill partner, B. F. Barker, who obtained a patent for a grinder in 1871. Both became Pagenstecher's competitors in Berkshire County. By 1876 there would be four pulp mills in Curtisville alone, two owned by Pagenstecher and one each by Barker and Burghardt.[94]

Alberto Pagenstecher's purchase of the Voelter patent in November 1868 was driven by plans to expand wood pulp production beyond the Berkshires. Three months before he concluded his November 1868 purchase of Voelter's patent, he sold to Charles Plumb and Charles Bostwick the right to manufacture Voelter grinders for exclusive use in Connecticut.[95] Pagenstecher also sold the rights to the Voelter machine to G. B. Mayadier, who constructed a pulp mill at Lawrence, Massachusetts, in late 1868 "under a Prussian patent, of which the right for this country is owned by Pagenstecher and Co. of Stockbridge, Mass."[96] Lawrence paper manufacturer William Russell, who used Mayadier's pulp, partnered with Mayadier on two large wood pulp mills, one at Franklin, New Hampshire, and another at Bellows Falls, Vermont, which together housed forty Voelter grinders.[97] In February 1869 Russell formed the New England Wood Pulp Company and purchased the rights to use Voelter grinders in Maine, New Hampshire, Vermont, and most of Massachusetts.[98]

By October 1868, a month before the purchase of the Voelter patent, Pagenstecher had initiated plans to form a new pulp company in New York State. He hired a Stockbridge contractor to design and build a two-grinder pulp mill at Luzerne, in the Adirondacks.[99] At the same time, he was planning a second pulp mill five miles south on the Hudson River at Palmer Falls.[100] The two New York mills were part of the Hudson River Pulp Company, which was incorporated in January 1869, with Alberto, cousins Albrecht and Rudolf, and Warner Miller serving as partners.[101]

By September 1869 fifteen American pulp mills were manufacturing wood pulp under the Voelter patent, and two more mills were under construction—at Three Rivers, Michigan, and Brookfield, Indiana.[102] The speed at which Pagenstecher advanced these initiatives, before and immediately after completing the agreement with Voelter, suggests that plans for the licensing of Voelter grinders in the United States was under way well before the patent was purchased. With two extensions on Voelter's patent of 1858, one of which required an act

of Congress, Pagenstecher and his associates controlled the technology until 1884, while Voelter continued to earn royalties under the terms of the 1868 contract.

Histories of the wood pulp paper industry have acknowledged Heinrich Voelter's role in developing mechanical pulping technology and have credited the Pagenstechers with scaling up and expanding the wood pulp paper industry in the United States. Missing from the standard historical narrative, however, is exactly how the Pagenstechers became so successful. Although cryptic comments in patent records suggest that Pagenstecher might have had some kind of agreement with Voelter for the use of his technology prior to 1868, no document conferring the right of prior use has been found.[103]

When Albrecht offered his version of the origins of the wood pulp industry in the *Paper Trade Journal* in 1897, industrialists were more celebrated in America than inventors, who only a few decades earlier had been viewed as heroes. Heinrich Voelter was described in such terms in 1870 by the patent commissioner, Samuel Duncan, when he wrote that "the inventor has given the best years of his life, laboring therefore with an energy and zeal and singleness of purpose that find a parallel only among the great inventors whose labors have become historic."[104] Thirty years later, Albrecht Pagenstecher's wealth, which flowed from Voelter's technology, had made him a celebrated figure and given him a platform from which to offer his version of the beginnings of the wood pulp industry in America. That the financial benefits of Voelter's work were distributed disproportionately was not lost on the *Paper Trade Review*, which on Voelter's death in 1887 noted that although his "influence on civilization has been enormous," he "did not make a fortune." Rather, Voelter's wood pulp grinder made "the fortunes of hundreds of papermakers and publishers."[105] In Albrecht Pagenstecher's case, along with the fortune he made from exploiting another man's innovation came the ability to construct a misleading origins narrative of the industry—one that has remained largely uncontested for more than a century.

Stephen Cernek is working on a book about the Hudson River Pulp and Paper Company covering the years 1869 through 1898.

NOTES

1. Hannes Toivanen, "Waves of Technological Innovation: The Evolution of the U.S. Pulp and Paper Industry, 1860–2000," in *The Evolution of Global Paper Industry 1800–2050: A Comparative Analysis*, ed. Juha-Antti Lamberg and Jari Ojala (Springer: Netherlands, 2012), 49.
2. Fourteenth Census of the United States (1920), Vol. 9, Manufactures 1919 (Washington, DC: Government Printing Office, 1923), 1011.
3. *Annual Report of the Forest Commission of New York State* (Albany: New York State, 1891), 211; *Sixth Annual Report of the Forest, Fish and Game Commission of the State of New York* (Albany: New York State, 1901), 25–26. New York State timber harvests were measured in both cords and board feet. The calculation increase for 1890–1899 was 52 million to 229 million board feet.
4. A. Pagenstecher, "Ground Wood. The Story of Its Introduction to This Country," *Paper Trade Journal* 26, no. 42 (October 16, 1897): 19–21.
5. Lyman Horace Weeks, *A History of Paper-Manufacturing in the United States, 1690–1916* (New York: Lockwood Trade Journal Company, 1916), 234–38; Judith A. McGaw, *Most Wonderful Machine: Mechanization and Social Change in Berkshire Paper Making, 1801–1886* (Princeton, NJ: Princeton University Press, 1987), 200–04; Dard Hunter, *Papermaking: The History and Technique of an Ancient Craft* (New York: Dover, 1943), 378–79; David C. Smith, "Wood Pulp Paper Comes to the Northeast: 1865–1900," *Forest History Newsletter* 10, no. 1 (April 1966): 12–25; and Smith, *History of Papermaking in the United States, 1691–1969* (New York: Lockwood Publishing Co., 1970), 132–34; Hannes Toivanen, "Learning and Corporate Strategy: The Dynamic Evolution of the North American Pulp and Paper Industry, 1860–1960," PhD dissertation, Georgia Institute of Technology, 2004, 13–23; Toivanen, "Waves of Technological Innovation," 2–4. None of the materials cited here question Pagenstecher's 1897 origins narrative.
6. *Index to the Miscellaneous Documents of the House of Representatives for the Second Session of the Forty-Sixth Congress, 1879–80* (Washington, DC: Government Printing Office, 1880). Documents related to the Voelter patent extension applications of 1870 and 1877 are in volume 6, under "Papers in the Matter of the Application of Henry Voelter for Extension of Reissue of Letters Patent for Improvement for Reducing Wood to Paper Pulp," 1–272, hereafter, "Papers."
7. Joel Munsell, *A Chronology of the Origin and Progress of Paper and Paper-Making*, 5th ed. (Albany: Munsell, 1876), 123–65. Munsell reviews the principal technological and business developments in the United States and Europe during the 1850s. His otherwise exhaustive chronology of the paper industry covers Berkshire paper mills but does not mention the Voelter patent or the startup of the Pagenstecher wood pulp mill at Curtisville.
8. Charles Thomas Davis, *The Manufacture of Paper, Being a Description of the Various Processes for the Fabrication, Coloring, and Finishing of Every Kind of Paper* (Philadelphia: Henry Carey Baird & Co., 1886), 61–62.
9. Charles Watt and Hugh Burgess, "Improvement in the Manufacture of Paper from Wood," U.S. Patent No. 11,343, 1854; Henry T. Brown, "The Manufacture of Paper from Wood in the United States," in *Practical Guide for the Manufacture of Paper and Boards*, ed. Albert Prouteaux (Philadelphia: Henry Carey Baird & Co., 1866), 263–64.
10. Benjamin C. Tilghman, "Improved Mode of Treating Vegetable Substances for Making Paper Pulp," U.S. Patent 70,485, 1867; S. Charles Phillips, "The Use of Wood Pulp for Paper-making," *Journal of the Society of Arts* 53 (May 19, 1905): 17.
11. Smith, "Wood Pulp Paper Comes to the Northeast," 12–13; Munsell, *Chronology*, 138–39.
12. Heinrich Voelter, "Improvement in Reducing Wood Fibers to Paper-Pulp," U.S. Patent 21,161, 1858. Voelter's patent was awarded in 1858 but antedated to August 29, 1856.
13. Davis, *Manufacture*, 166–70, 295–99.
14. Davis, *Manufacture*, 148.
15. The narratives by Pagenstecher and Miller ("First Use of Ground Wood in Papermaking," *Paper*, February 17, 1917, 128–32) were both cited in the most recent complete history of the industry, Smith's *History of Papermaking in the United States*, and in the most recent scholarly discussion of the origins of the wood pulp

industry by Toivanen in 2012, "Waves of Technological Innovation."

16. Pagenstecher, "Ground Wood," 19–21; Passenger Lists of Vessels Arriving at New York, New York, 1820–1957, Records of the Immigration and Naturalization Service, National Archives, Washington, DC, manifest for the ship *Australasian*, December 19, 1863; Ninth Census of United States (1870), State of New York, County of New York, City of New York, District 13, 242 W. 21st Street, 39; Tenth Census of the United States (1880), State of New York, County of New York, City of New York, District 298, 52 W. 40th Street, 36; Albrecht Pagenstecher Obituary, *Saratogian*, August 12, 1926; Albrecht Pagenstecher Obituary, *New York Times*, August 9, 1926; Cuyler Reynolds, "Forest Preservation in the State of New York," *New England Magazine* 19 (September 1898–February 1899): 206; *Paper Mill and Wood Pulp News* 20, no. 8 (February 25, 1897): 23. Pagenstecher's obituary in the *New York Times* features an overview of the pulp and paper industry that is typical of late-nineteenth and early-twentieth-century accounts: it gives Albrecht, rather than his cousin Alberto, the credit for introducing wood pulp to the United States.
17. "Hon. Warner Miller," *Bankers' Magazine*, 58, no. 5 (May 1899): 712–13; Miller, "First Use of Ground Wood in Papermaking," 128–32; Warner Miller obituary, *Paper*, March 27, 1918, 28; Deposition of Warner Miller, July 20, 1870, "Papers," 148–51. The *Banker's Magazine* entry suggests that it was Miller who invented wood pulping technology, licensed grinders to others, and established pulp and paper factories and thus "amassed a fortune from the business." Neither Voelter nor the Pagenstechers are named in the article. Although Miller's own 1917 article was generally accurate and forthcoming, his obituary in *Paper* credited him with being "the first to introduce ground wood pulp manufacture in the United States."
18. Pagenstecher, "Ground Wood," 19.
19. Weeks, *History*, 234. Weeks cites the Pagenstecher article of 1897 as a source on page 236.
20. Parke F. Hanley, "The Accident That Gave Us Wood-pulp Paper: How a Mighty Modern Industry Owed Its Beginning to Gottfried Keller and a Wasp," *Munsey's Magazine* 60, no. 4 (May 1917): 688–90.
21. Carl Wurtzbach, "A History of Curtisville" (unpublished manuscript, 1938). Historians who have cited this document have not questioned its account of the first Pagenstecher mill. Carl Wurtzbach was only four years old in 1867 when his father started the mill, and his memoir was written seventy-one years later. The manuscript is in the Stockbridge (Massachusetts) Library Archives.
22. *Boston Globe*, June 27, 1909; *Wichita Daily Eagle*, April 29, 1917; *Wilmington Morning Star*, February 21, 1922; *New York Sun*, August 26, 1933; *Oregon County Times-Leader*, August 31, 1944. These are selected newspapers from four different decades that published articles on the wasp myth.
23. "Extension of Remarks of Hon. Ellsworth B. Buck of New York," *Congressional Record Proceedings and Debates of the 80th Congress*, First Session, Appendix, Vol. 93, Part II, (April 2, 1947, to June 12, 1947), A1969.
24. Hunter, *Papermaking*, 375; Munsell, *History*, 35; Phillips, *Use of Wood Pulp*, 3. Hunter, whose book has been widely cited by historians, notes on 378–79 he drew from Albrecht Pagenstecher's 1897 article for his information. It is also evident that Hunter used—but did not cite—the Wurtzbach memoir, for he directly paraphrases some of its contents and then describes Friedrich Wurtzbach as a "mechanical genius," just as his son Carl had done in his memoir.
25. Dard Hunter, "A Rare Book on Papermaking," *Paper* 27, no. 2 (September 15, 1920): 16–18; Harry B. Weiss, "Jacob Christian Schaffer, 1718–1790, Clergyman, Entomologist, Papermaker, Scholar," *Journal of the New York Entomological Society* 60, no. 4 (December 1952): 241–44; Munsell, *Chronology*, 41; *International Cyclopedia: A Compendium of Knowledge*, 11 (1892): 2. The *International Cyclopedia* reported that Schaffer had made paper from sixty woods, including beech, willow, aspen, mulberry, and pine.
26. Peter Burger, *Charles Fenerty and His Paper Invention* (Toronto: P. Berger, 2007), 30–31.
27. *Chambers' Edinburgh Journal* 1 (February 4, 1832): 8.
28. Hunter, *Papermaking*, 376. Hunter's Chapter 13 offers an extensive and informed discussion of the development of wood-pulping technologies yet provides only one footnote across its twenty-five pages.
29. Charles H. Carpenter, *The History of Mechanical Pulping* (Montgomery: TAPPI, 1987), 3. Carpenter writes that Keller's paper was first used for a German weekly on October 11, 1845. He provides detailed coverage of Keller and Voelter's work with J. M. Voith but does not cite his sources or provide a bibliography.
30. Deposition of Henry Voelter, July 4, 1870, in "Papers," 192. Voelter came to Boston in 1870 to create the petition for his patent renewal application. "Papers" contains documents in which Voelter is referred to as both "Heinrich" and "Henry."
31. Voelter, "Papers," 192–93.
32. Carpenter, *History*, 4–5.
33. "Machine for Making Paper from Wood," *English Mechanic and Mirror of Science and Art* 5, no. 122 (July 26, 1867): 333; Carpenter, *History*, 4–5.
34. Voelter, "Papers," 19.
35. Voelter, "Papers," 195.
36. "Machine for Making Paper from Wood," 333.
37. J. W. Appell, Esq. "Report on Paper, Stationery, Painting and Drawing Materials, and Bookbinding," *Reports of the Paris Universal Exhibition*, 1867, Vol. 2 (London: Her Majesty's Stationery Office, 1868), 137.
38. Appell, "Report on Paper," 19–22.
39. *New York Times*, October 10, 1853.
40. Isabella Field Judson, *Cyrus W. Field, His Life and Work, 1819–1892* (New York: Brothers Publishers, 1896), 26; *Pittsfield Sun*, December 5, 1839; Voelter, "Papers," 20.
41. Judson, *Cyrus W. Field*, 27.
42. Voelter, "Papers," 20.
43. Voelter, "Papers," 25.
44. Voelter, "Papers," 9.
45. Daniel Boorstin, *The Americans: The Democratic Experience* (New York: Random House, 1973), 162.
46. Voelter, "Papers," 20, 134.
47. Voelter, "Papers," 19–20.
48. Voelter, "Papers," 210.
49. Voelter, "Papers," 211.
50. Pagenstecher, "Ground Wood," 19.
51. Corte Suprema, 1,183, Gaceta De Los Tribunales (ano 21, num. 1,148), Santiago de Chile, Julio 9 de 1864, 434–35.
52. Passenger and Crew Lists of Vessels Arriving at New York, 1820–1897, Records of the U.S. Customs Service, Record Group 36, National Archives, Washington, DC, A. Pagenstecher, Arrival in New York, October 27, 1865; *Berkshire County Eagle*, August 2, 1866. Alberto Pagenstecher purchased the former Brown cotton mill in Curtisville in August 1866.
53. Albert Pagenstecher, "Improved Hydraulic Propeller," U.S. Patent 44,584, 1864; Albert Pagenstecher, "Improved Water-Defense as the Protecting-Armor of Vessels," U.S. Patent 43,377, 1864.
54. Pagenstecher, "Ground Wood," 19.
55. *New York Herald*, January 31 1869.
56. Gino Cattani, Roger L. M. Dunbar, and Zur Shapira, "Designing for Authenticity: The Steinway 'D' Grand Piano" (New York University: Stern School of Business, November 18, 2013), 20.
57. McGaw, *Most Wonderful Machine*, 160. Data from Figure 6.1 suggest that Berkshire County had about forty paper mills in 1866.
58. Pagenstecher, "Ground Wood," 20; *Now & Then*, e-newsletter of the Stockbridge (Massachusetts) Library and Museum and Archives (March 2014). The newsletter contains a copy of an invoice, sent by Alberto Pagenstecher to Wellington and DeWitt Smith's Columbia Mill in Lee, showing the charge for 6,123 pounds of wood pulp purchased in March 1867.
59. Miller, "First Use of Ground Wood," 128. Miller referred to Pagenstecher's

acquisition of the Voelter patent, and like Albrecht Pagenstecher in his 1897 article, glosses over its details, writing that "Some of his German friends had called his attention to woodgrinding and he bought some machines, patented by Voelter."

60. Letter from Heinrich Voelter to Louis Prang, February 12, 1866, "Papers," 41.
61. Pagenstecher, "Ground Wood," 20.
62. Wurtzbach, "Curtisville," 2.
63. Carpenter, *History*, 6.
64. Carpenter, *History*, 5–7.
65. Voelter, "Papers," 24. Voelter wrote that his royalties from the patents sold in Europe were limited, in part, because of "the financial failure of the persons to whom they were sold."
66. *Berkshire County Eagle*, August 2, 1866.
67. Pagenstecher, "Ground Wood," 20.
68. Pagenstecher, "Ground Wood," 19–22; Miller, "First Use of Ground Wood," 128. Miller said that he, too, was a partner to the original purchase of Voelter's patent, writing in 1917, "We joined forces and bought Voelter's patents."
69. Voelter, "Papers," 21; Prang, "Papers," 134. Prang's testimony confirms that Pagenstecher's initial approach to Voelter was made in 1866.
70. Prang, "Papers," 135. Prang does not indicate the time period of the negotiations, but he suggests that an agreement was delayed because Voelter sought too much money for his patent. If Prang's statement is correct, Voelter would have expected royalty payments of just over $7,000 for each of the fourteen years that the patent would normally be valid.
71. Voelter, "Papers," 21.
72. Voelter, "Papers," 21. In accounting for his expenses in developing his machine, Voelter cites a trip to Stuttgart to meet with Pagenstecher. Stuttgart was then the site of the U.S. Consulate.
73. Voelter, "Papers," 141. Voelter's belief that his 1866 patent was fifty percent more valuable than the 1858 patent, based on its successful use in Europe, suggests that he thought its value to be $150,000 over fourteen years.
74. Brown, "The Manufacture of Paper from Wood in the United States," 263–64.
75. Letter from Henry Voelter to Louis Prang, May 9, 1866, "Papers," 141. This letter, in which Voelter expresses his concern that the pulping process used at the Manayunk mill would compete with his own, is among several communications from Voelter that Prang supplied to the Patent Office.
76. Among the many newspapers that covered the startup of the Manayunk pulp mill were the *Albany Express*, April 13, 1866; *Troy Daily Times*, April 13, 1866; *Buffalo Evening Courier and Republic*, April 13, 1866; *Journal & Courier*, May 10, 1866; *Daily Bee*, April 21, 1866; *Adams Sentinel*, April 17, 1866; and *Pittsburgh Weekly Gazette*, April 16, 1866.
77. McGaw, *Most Wonderful Machine*, 160. Figure 6.1 plots the number of paper mills in Berkshire County, 1801–85.
78. McGaw, *Most Wonderful Machine*, 203; Weeks, *History*, 236. A copy of the Pagenstecher mill's invoice for wood pulp delivered to the Smith Company's Columbia mill is also reproduced in Weeks's book.
79. *Pittsfield Sun*, May 21, 1868; *Berkshire County Eagle*, July 29, 1869.
80. *Valley Gleaner*, July 23, 1868; *Berkshire County Eagle*, July 29, 1869; E. E. Barker, "History of the Barker Mill and Water Tower," (n.d.), Stockbridge (Massachusetts) Library Museum and Archives. Barker wrote that the partnership agreement was signed on July 15, 1868.
81. *Pittsfield Sun*, August 27, 1868.
82. Patent Sale Agreement between Henry Voelter and Alberto Pagenstecher, November 6, 1868, "Papers," 246.
83. Prang, "Papers," 205. By agreeing to $6,000 after the first year, Voelter accepted less than the $7,000 per year royalty that would have resulted from a patent valued at $100,000 over fourteen years.
84. Samuel Duncan, "Henry Voelter, Extension. August 26, 1870," *Decisions of the Commissioner of Patents for the Year 1870* (Washington, DC: Government Printing Office, 1871), 86. Duncan used the word "millions" but did not indicate how he reached this figure.
85. Miller, "Papers," 66.
86. Duncan, "Henry Voelter," 86.
87. Voelter-Pagenstecher Agreement, November 6, 1868. Voelter believed that the improvement made in the 1866 patented machine increased its value by fifty percent above the 1858 version.
88 Warner Miller, "Improvement in Machines for Making Paper-Pulp," U.S. Patent 77,829, 1868. The Miller patent refers to one issued to H. & F. Marx in 1866: "Wood Grinder," U.S. Patent 59,042.
89. Certificate of Incorporation of the Hudson River Pulp Company, Warren County Clerk's Office, Queensbury, New York, January 15, 1869.
90. Miller, "Papers," 217; H. Voelter, "Wood Pulp A," U.S. Patent 55,031, 1866; Henry Voelter, "Improvement in Process of Reducing Refined Wood-Pulp for the Manufacture of Paper," U.S. Patent 4881, 1872, Reassigned to Alberto Pagenstecher.
91. McGaw, *Most Wonderful Machine*, 204.
92. McGaw, *Most Wonderful Machine*, 203; *Valley Gleaner*, December 17, 1868.
93. McGaw, *Most Wonderful Machine*, 202–04.
94. B. F. Barker, "Machine for Pulping Wood," U.S. Patent 119,107, 1871; F. Burghardt, "Wood Grinder," U.S. Patent 97,041, 1869; Map of Curtisville, Town of Stockbridge, *The County Atlas of Berkshire, Massachusetts* (1876). This map documents the location of each pulp mill in the community.
95. Agreement between Alberto Pagenstecher and Charles H. Plumb and Charles E. Bostwick of the firm Plump and Bostwick, August 31, 1868 (Recorded February 13, 1869), "Papers," 248. Pagenstecher's early contract with Plumb and Bostwick required a royalty fee of $400 for each machine up to four grinders, and $500 per machine over four per year. Pagenstecher eventually charged $1,200 per year for each machine license.
96. *Pittsburgh Weekly Gazette*, December 30, 1868.
97. Deposition of William A. Russell, June 6, 1871, "Papers," 101.
98. Russell, "Papers," 213; *Vermont Journal*, November 20, 1869.
99. *Valley Gleaner*, October 29, 1868; *Pittsfield Sun*, November 12, 1868; *Saratogian*, December 24, 1868, and February 18, 1869.
100. Lease Agreement between the Palmer Falls Water Power Company and the Hudson River Pulp Company, January 3, 1869, Saratoga County Clerk's Office, Ballston Spa, NY.
101. Certificate of Incorporation of the Hudson River Pulp Company, January 15, 1869. The incorporation document also lists Warner Miller and Charles Roberts as directors.
102. "Mechanically Prepared Pulp," *Journal of Applied Chemistry*, September 1869: 132.
103. Pagenstecher and Plumb and Bostwick Agreement, August 31, 1868, "Papers," 248; Prang, July 7, 1870, "Papers," 134. Pagenstecher's assignment to the firm of Plumb and Bostwick the right to construct and use Voelter machines in Connecticut included this statement: "Whereas said Voelter has licensed and empowered said Pagenstecher and his assigns to construct and used said patented machines & inventions within the States of New York, Massachusetts and Connecticut during the period for which said letters patent or either of them have been granted." The statement implies that Voelter and Pagenstecher had some kind of prior agreement. Louis Prang's deposition of July 7, 1870, which ends, "I have read that part of Mr. Voelter's statement which relates to the making of an agreement with Mr. Pagenstecher, and it is correct so far as the matters stated come within my knowledge," suggests that an agreement might have been concluded without Prang's knowledge or participation. Any agreement that Voelter might have made with Pagenstecher before the November 1868 contract does not appear among the documents collected in "Papers."
104. Duncan, "Papers," 236.
105. *Paper Trade Review* 8, no. 12 (September 23, 1887), 220.

Pete Steen

A Career of Contributions

BY EUGENE S. ROBBINS

Harold K. "Pete" Steen (1935–2022) served as executive director of the Forest History Society from 1978 until his retirement in 1997. A widely respected and influential forest historian, he was the author or editor of more than a dozen books, many on the U.S. Forest Service. To this day, The U.S. Forest Service: A History, *first published in 1976, remains the definitive text on the first half-century of the agency's history. Pete died in January 2022. To commemorate his life's work, we're reprinting these remarks, given at the Spring 1997 FHS Board of Directors meeting by board member Eugene Robbins and published in the 1997 edition of* Forest History Today, *the magazine Pete established in 1995, followed by one of his many articles "Americans and Their Forests: A Love-Hate Story."*

Over the past few years as I have grown to know Pete Steen and to view his work with the Society, I have become a great admirer of him as an administrator and as a person. His high ethical standards, his concern for the business of the Society, and his concern for the staff are total and genuine.

Most board members have the opportunity to meet with Pete a couple times a year. If we are lucky, we have a committee assignment that brings us closer to the staff. It is then we begin to notice the dedication of the organization, which stems from Pete's lead. His marvelous career as the Society's longest-serving executive is not an accident but the result of his total dedication to the Society and to the study of history.

The Society has had three leaders during its existence, which began in 1946.

The first was Rodney C. Loehr, who got the Society established as the Forest Products History Foundation of the Minnesota Historical Society. He was followed in 1952 by Elwood Maunder, who was responsible for locating and ensuring the safety of archival material all over the country. He also hired Pete as assistant director in 1969.

Pete had earned a bachelor's degree in forestry in 1957 and after a stint in the Navy, he returned to the University of Washington to earn his MS in mensuration and statistical analysis. He went back to work as a Forest Service data specialist in forest fire research. Besides what Pete learned from his normal classes, he also learned something about himself. He found scholarly work interesting.

Success at the Forest Service led to an offer of a full scholarship to Yale, including full pay while in school if he would study meteorology. The offer caused him to take stock. He was interested in further study, but did the offer meet his career objectives? It did not, so he took the bold step of resigning from the Service and went back to the University of Washington to get a PhD on his own. He started with a major in the university's history of science program but was rescued by one of his forestry professors, who directed him to an interdisciplinary study course centered at the school of forestry.

As a newly minted forest history PhD, he was recruited by both the Society of American Foresters and the Forest History Society. He choose to become Mr. Forest History.

The Society had just uprooted from Yale and was moving to Santa Cruz, California. Here was the situation when the new assistant director arrived: no building, no staff, $14,000 in the bank, no operating reserves, no library, no resident archive, no documented photo collection, and no written operating policy. The location was an inadequately heated and lighted on-campus house.

During the first few years, Pete began working on the programs that would become the core of the Society and still survive today. He edited the journal, set up the library, processed and indexed manuscript collections, drafted grant requests, did research writing, and acted as technical consultant to the oral history program. He did this along with teaching and acting as UC–Santa Cruz liaison. It was during this period that Pete produced his significant book, *The U.S. Forest Service: A History*. The book is now in its third printing.

In 1978, Pete was appointed executive director of the Forest History Society. The assets then totaled $140,000. In the year that followed, an endowment campaign was conducted. Pete and his entourage crossed the country with all the flurry of a presidential campaign. They called on all of the major forest products companies to solicit donations and tell the Society's story. By the end of the

first year, the first million dollars was recorded. They would eventually reach their goal of $2.1 million.

In 1984 the Society moved to Durham and purchased the new headquarters building, complete with lights, heat, real book shelves, real offices, staff spaces, and parking places. It was also a new personnel start as Pete was the only staff member to make the transition. So using his Santa Cruz experience, he started the resettlement and re-staffing process again. The staff that Pete created is one of his proudest accomplishments. It is a talented and productive staff that can handle a wide range of assignments. With diverse technical skills, the staff carries out the many Society programs to international standards.

Not long after, in 1988, the building was refurbished and doubled in size with the addition of the Alvin Huss archive. The space created still offers us room to grow today. It was a proud day for Pete and the Society when George Weyerhaeuser and Alvin Huss wielded the shears against the opening ribbon.

Pete continued to advance the Society's goals in his time in Durham. He has managed the programs so well that we now have an excellent library and archive, a highly successful journal, the Research and Publications program, the Service and Professional Outreach program, the Awards and Fellowship program, and our newest program, Education.

During his last few years Pete encouraged the board through a new strategic planning process, and with great statesmanship combined our publication *Forest Conservation & History* with that of the American Society for Environmental History. The new publication, *Environmental History*, is excellent in every way.

Pete also initiated our annual publication, *Forest History Today*, and the development of the Issue Series that leads our efforts to give historic perspectives to current issues. It has raised the level of recognition of the Society as more than 25,000 copies of *American Forests: A History of Resiliency and Recovery* have been printed. Our latest in the series, *America's Fires: Management on Wildlands and Forests*, by Stephen Pyne, holds promise as another Issue Series hit.

There are many other accomplishments that fill the years that Pete has so ably served our organization. What is most important to recognize is that he joined an organization in flux without a home, without developed programs, with basically no financial security and no long-range plan. From that modest beginning, we now have an internationally recognized program, a very nice office facility, an accomplished and dedicated staff, over $4.2 million in endowment, an annual operating budget of over $400,000, and a new strategic plan to guide our future.

It is indicative of Pete's character and commitment that well in advance of his retirement he began to coach the board through the steps necessary to complete a successful transition to new leadership. He studied the process of replacement and then made information available to the board that would lead it through the process.

In guiding the organization through the years, Pete has brought honor and recognition to the Society and to himself. He has international recognition through his publications and presentations and through his affiliation with IUFRO. He received the Distinguished Service Award from the American Forests and he received the Distinguished Achievement Alumni Award from the University of Washington.

In the history of organizations, different leadership is required to make the organization survive. Early leaders need to take it through the formation process and give it a purpose to build upon, later leaders need to make the organization significant from a program point of view and secure it financially and to give it the recognition to survive long term. Pete has built the organization and provided a secure base and a plan for the future. It is a fine legacy. It is a well-executed career that leaves us proud of our past and prouder still to have been affiliated with Pete Steen and his marvelous career.

Pete, we thank you for your many contributions to your Forest History Society.

Eugene Robbins served for many years on the FHS Board of Directors. This article was first published in Forest History Today *1997: 41–42.*

NOTES

1. *U.S. Forest Service: A History* has remained in print since it was published in 1976. In 2004, Pete wrote a new foreword for the book that reviewed the biggest issues the agency had faced since the book was first published.
2. Pyne's book was so successful and the topic so important that a completely new edition was published in 2010 under the title *America's Fires: A Historical Context for Policy and Practice*. As of 2022, there are nine titles in the series.

In addition to his many publications, Pete worked with Vester Dick on two documentary films produced by the Forest History Society. Mary Elizabeth Johnson looks on as they edit *Timber on the Move*.

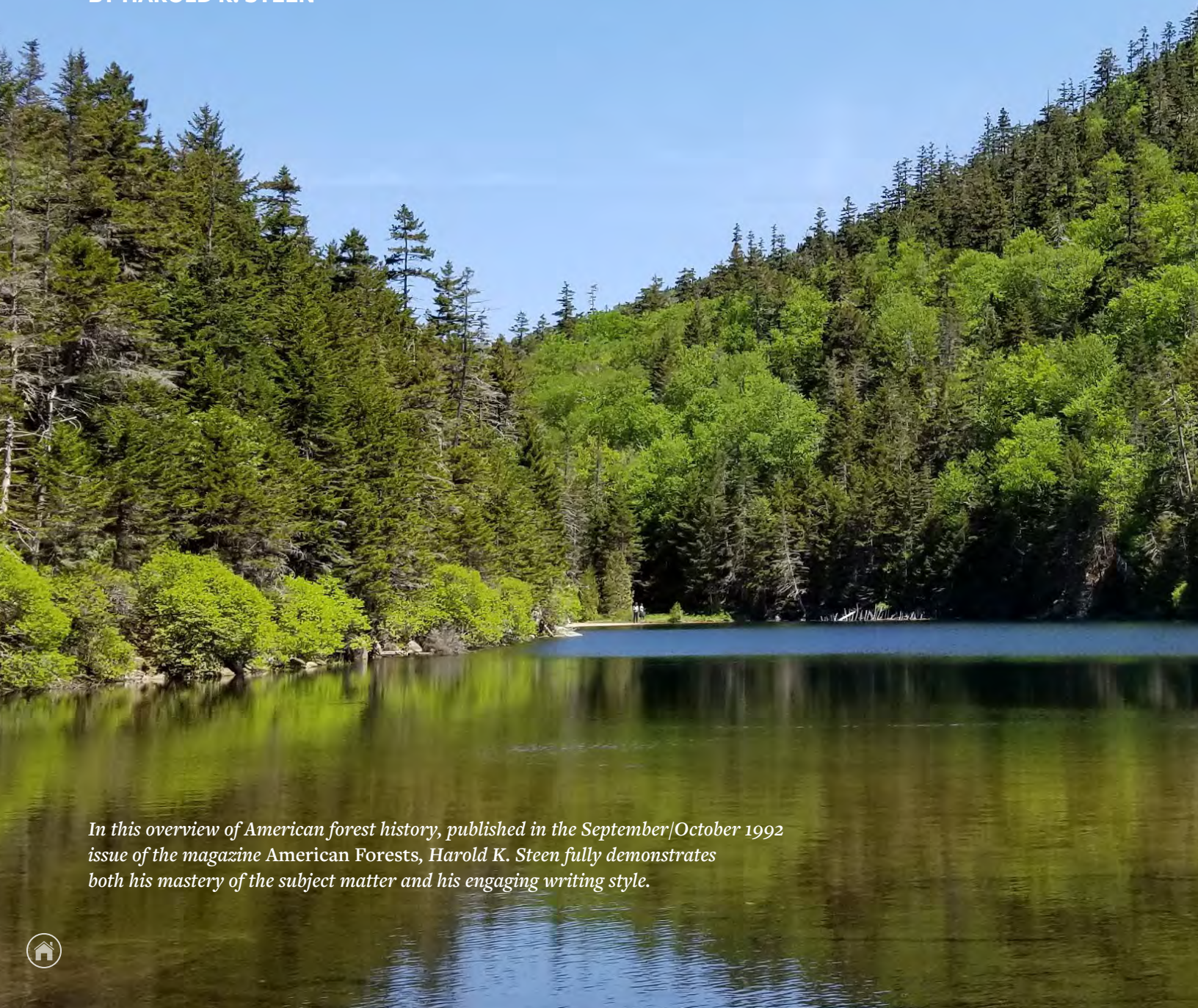
FOREST HISTORY SOCIETY

SPECIAL SECTION

Americans and Their Forests

A Love-Hate Story

BY HAROLD K. STEEN



In this overview of American forest history, published in the September/October 1992 issue of the magazine American Forests, *Harold K. Steen fully demonstrates both his mastery of the subject matter and his engaging writing style.*

JAMES G. LEWIS

Unless you are a rock, 500 years is a long time. It is a fairly long time for a forest, too; a half-millennium of natural processes would cause a significant degree of change in floral and faunal composition. Debates continue over whether people are a part of the natural world; but by any measure, human activities over five centuries also would measurably change a landscape. Observance of Columbus's contribution to Western history rightly includes a retrospective look at the American forest.

The pre-Columbian forest had been manipulated for thousands of years. Native peoples burned the forest, farmed the meadows, and harvested game, berries, nuts, and roots. Numbers are under revision, but there apparently were manyfold more of those people than we believed only a generation ago. More important than numbers is impact; the American landscape was neither virgin nor pristine except as seen by eyes accustomed to logged-off and farmed-over Europe. Nonetheless, perception is truth, and the newcomers began clearing what to them was wilderness in order to create a civilization like the one they had left.

Another part of the colonial story happened the breadth of our continent away, as Spaniards and Russians worked to expand empires. But to most of us, the story begins on the Atlantic Coast with settlements north to south. After all, the tale here is told in English, not French or Spanish or Russian—or Cherokee.

To the colonial, as well as to the native peoples, the abundant forest was more than something to clear for farm and home; it was the source of building materials, fuel, game, fruit, and medicine. The forest was also commerce; trees were sawn or distilled for the domestic and European trade. And Americans had more than something to trade; to carry commerce, their shipyards launched wooden vessels that would become the wonder of naval architecture.

Then came the American Revolution, and a new nation with a lot of land and small clusters of people here and there. Sales and grants of this land—the public domain—would help finance the government and establish sovereignty over western territories. Significantly, this newly created private land had constitutional protection, a major factor as proper use began to be debated.

With the creation of the Department of the Interior in 1849, the role of the federal government expanded from land disposal to include protection and management, moving more and more from a passive to an active role. This trend has, of course, continued to mixed reviews.

The 1860s, like the 1960s, was a decade of American upheaval. Distant coasts became only a telegraph click apart, and there was a railroad to San Francisco. There were also the homestead acts, railroad land grants, and grants to states for Agricultural & Mechanical colleges that would train the cadre of engineers and natural scientists to implement the conservation movement that was just over the horizon.

In the same decade, an immense amount of public land, much of it forested, was transferred to private ownership. A transportation infrastructure was created that made it possible to ship western products to eastern markets. Railroad land grants meant that when lumbermen wanted to move to western forests they could turn to land-rich railroads for vast supplies, as well as to individual

settlers who elected to cash-in on their homestead equity.

Only coincidentally, during the 1860s George Perkins Marsh published his still-influential *Man and Nature: The Earth as Modified by Human Action*. The A&M schools supplied the means, and Marsh furnished the ethical structure, for the rethinking about man and nature that was beginning to be heard on the floor of Congress and at meetings of scientists. A bit more than a decade later, in 1875, a small group concerned about forests met in Cincinnati to form the American Forestry Association (AFA) [renamed American Forests in 1992]. The next year, Congress appropriated $2,000 to fund a "forestry agent" in the Department of Agriculture. It wasn't all that clear at the time, but something was about to happen and in fact had already started.

After decades of debate, in 1891 Congress authorized the president to create forest reserves, primarily to protect western watersheds from destructive lumbering, forest fires, mining, and grazing. The Forest Reserve Act had been stripped to the essentials, in order to get the bill through a Congress still very uncomfortable about federal intervention. Thus, Congress had authorized the reserves but had deleted from the bill sections on purpose or management.

It took six more years, but on June 4, 1897, Congress approved an amendment to an appropriations measure for the Geological Survey that determined the purposes—protect timber and water supplies. Timber could be sold and other uses were authorized, but under a permit system administered by a federal agent. In 1905 the reserves were transferred to the Department of Agriculture and the administrative agency was called the Forest Service. The modern era of federal forestry had begun. But there is more to the story, even back then.

Since the mid-1880s, states—led by New York and California—more and more were accepting responsibility for protection of forests within their boundaries. Industry, too, was involved. Rosters of attendees to AFA's annual meetings always included corporate leaders along with public servants and members of the public. National and state parks were significant. Yellowstone's magnificence wielded influence on American thought, and the Adirondack Park in New York, among other things, provided a model for Congress while it considered federal forest reserves. Forestry education began in 1898 at Biltmore Forest School and Cornell University; in 1900 the Society of American Foresters formed to bring professional focus to issues. Finally, the citizens themselves were organizing. We have already seen AFA; the Boone and Crockett Club formed in 1888 and the Sierra Club in 1892. Members of the Boone and Crockett Club—trophy hunters—had been key players during the debates over forest reserves; for the time being the Sierra Club pretty much limited itself to mountain outings, but that would change. The point is, today's interest in wildlife and the broader issues of environment did not spawn in the 1960s in a bowl of crunchy granola but have been around for a century or more.

In some ways the last century of the five since Columbus brought his news to Europe is a fine-tuning of the basic decisions already made and trends started. By then we had decided that the federal forestry role would be substantial, the states were gearing up to look after private holdings, the industry was looking at ways to combat fire and deal with taxes, and citizens groups—so significant today—were already wielding influence. But what hadn't been decided, and still hasn't, is the proper ratio of activity and influence between and among the various components of American society.

This ratio was tested early on as the federal forestry estate grew from 40 million acres to 150 million. Conservationists got their acreage increase but paid a price; in 1907, Congress stripped the president of his authority to proclaim national forests. Through the 1911 Weeks Act, Congress not only approved purchase of national forests in the eastern U.S. where the public domain was long gone but it also provided for federal matching funds for state forestry programs, and state forestry was off and running. To balance things out a bit, over in the judiciary the Supreme Court rejected state challenges to federal authority. The fight to regulate use and charge a fair value for resources was upheld.

The Forest Service had made a strong pitch to have jurisdiction over national parks, but congressional backlash to an over-reaching conservation movement assured that the parks would have their own agency in 1916. Thus, two federal agencies with recreation, watershed, and wildlife responsibilities reported to different members of Cabinet, managed similar resources in at times different fashions, and garnered support from different constituencies. This apparent duplication of effort was not lost on many observers, and there have been a series of efforts to combine forestry-related agencies into one. Instead, there are even more agencies today: Tennessee Valley Authority, Fish and Wildlife Service, Natural Resources Conservation Service, Bureau of Land Management, and Environmental Protection Agency. There has been a bit

of reshuffling, but attempts at merger have come to naught.

In retrospect it seems strange—it must have been a coincidence—that the forest products industry chose the wartime 1940s to mount a major counteroffensive against an aggressive Forest Service campaign that it be given regulatory authority over forest practices on private lands. The agency would continue to press the issue until the 1952 election of Dwight Eisenhower, which ended the effort.

However, during the war/postwar decade of the 1940s, through advocacy and by deed, the private sector worked, successfully as it turned out, to stay the federal lever from ratcheting another notch. Accepting that a degree of regulation was inevitable, the preference was for state controls, rather than federal. In state after state, the industry vigorously supported forest practice acts that would set standards for cutting, reforestation, and fire protection. In a majority of the states where forestry was significant, such legislation was indeed enacted, greatly bolstering the role of state agencies in the broad scheme of forestry things. Tree farms also appeared, and today there are 70,000 farms encompassing 95 million private acres.

And yet another wartime measure is raised here in terms of the inherent philosophical issue on the proper use of public forests. Then, as now, some timber-dependent communities faced a bleak future. In the name of community stability, Congress in 1944 approved creation of "sustained yield units," whereby blocks of federal timber would be made available only to a mill or mills in a specified area. The assurance of timber supply and elimination of outside competition allowed the local mill to continue operation, with attendant job stability. By 1952 there were six such agreements in the West, but the notion of federal allotments lost favor in both the public and private sectors and, as with the regulation issue, the incoming Eisenhower administration let the program drop. After all, Ike had campaigned against unnecessary federal involvement in private affairs, and these policies were contrary.

It wouldn't be until four and a half centuries after Columbus that federal timber supplies became generally important; private forests had been abundant and provided ample products with associated jobs. Since the days of Gifford Pinchot, each Forest Service chief had assured the forest industry that federal timber would be withheld from the market until it was needed to supplement private supplies. By 1939 still only two percent of the national cut came from national forests. However, by the 1950s, private supply had been reduced and demand had increased to the extent that federal timber was made available in large quantities. Eventually the federal contribution would become a third of the total. Some saw implementation of this long-planned increase in federal activity as a radical change of policy, an inappropriate and undesirable one at that. The Forest Service, long the public's hero, began more and more finding itself lumped with the same forest industry that it had vigorously criticized for so many decades as means for gaining regulatory authority. The federal pie could no longer be cut into enough pieces to satisfy all sectors of the public; something was needed to sort things out.

In 1956 two bills appeared in the Senate's hopper, one for wilderness and the other for multiple use. The Wilderness Bill was highly controversial, opposed by the forest, mining, and range industries, and most foresters. It would be eight contentious years before the bill cleared Congress. The multiple use measure fared better; it lay quiet for a couple of years, and then the Forest Service stepped up the effort to move it through the legislative process.

The agency's position was that it had always practiced multiple use, but that increased pressures for those multiple resources made congressional ratification desirable. As others have pointed out, no sooner had Congress delegated broad management authority to the Forest Service than it began a piecemeal effort over the next decades to limit this authority. The 1964 Wilderness Act was just the first in a long string of such laws; in this case, Congress would set aside wilderness rather than continue letting the agency make those determinations as it had since 1924, which had created a 13-million-acre wilderness system.

Clearly, the times were changing, and Congress would no longer grant broad forest management powers to executive branch agencies. There were other changes, philosophically much more significant. Through water quality and endangered species statutes, federal intervention directly on private forest land was now permitted. Times changed still more as litigation supplemented (some would say replaced) statutes and regulations as impulse for land management decisions.

For the past century, those who have managed forests have been called foresters, and the vast majority have been trained in the science of forestry. In response to changing times, those responsible for today's forests are students of many disciplines, including forestry. Thus, as it turned out, forestry is a social science; it isn't about trees, it's about people and values. And the interaction between the several segments of American society and its institutions reflects those values.

SPECIAL SECTION

COURTESY OF WOMEN'S FOREST CONGRESS

The inaugural Women's Forest Congress convened in Minneapolis on October 17–20, 2022. This introduction to our special section commemorating that event is followed by the declaration approved at the end of the congress, reflections of four attendees (including a founder), and then two presentations given at the congress—one on the history of women in forest conservation and the other about the present and future roles of women in the forest sector.

BY JAMES G. LEWIS

WHY A WOMEN'S FOREST CONGRESS?

The Women's Forest Congress (WFC) is part of the rich tradition of forest congresses held in the United States. All eight congresses, which have been led or co-led by American Forests, the oldest citizen-led conservation organization in the United States, have been convened to address the forest issues of the day. (American Forests was called the American Forestry Association from its founding in 1875 until 1992.) The first American Forest Congress, held in 1882, helped launch the forest conservation movement. The second congress convened in 1905 to bring attention to deteriorating forest conditions. That one concluded with resolutions calling for the federal government to establish a national forest service and enact (or repeal) laws and policies that made sustainable forestry possible nationwide, which were followed up on over the next few years. This congress made forest conservation a national priority, thus transforming the relationship Americans have with their forests. The WFC organizers intend that the Eighth American Forest Congress, too, will launch a new movement that might, yet again, transform the relationship Americans have with their forests.

At the first six congresses, women had a minimal presence. This isn't surprising. Women weren't admitted to forestry schools until the 1930s and were rarely allowed to take field positions for several more decades. Those who did participate as delegates or appear on the program for the next three congresses weren't from the forest industry—they were leaders of the Garden Club of America or the General Federation of Women's Clubs and were given the opportunity to either present or speak from the floor about their organization's conservation activities.[1] At the third congress, in

1946, at which whether to regulate logging on private lands or not was hotly debated, Mrs. Max J. Schmitt of Wisconsin—the program didn't give her first name but identified her by her husband's name—spoke from the floor against regulation for the allotted ten minutes. At the fourth, in 1953, women were on the program for the first time—though it was just three. The fifth congress, held ten years later, represents another turning point. Plant pathologist Dr. Cynthia Westcott presented a talk entitled "The Sane Approach to Pesticide Use" on a panel about pesticides, a topic of great interest after the publication of Rachel Carson's book *Silent Spring* the year before.

What the third through sixth congresses had in common, though, was they followed the same format and had similar outcomes: delegates attended plenary sessions and heard formal papers, and breakout sessions were by interest group. "Little hard debate occurred on the issues, the political forces driving them, or alternative ways of conceiving of forest policy," according to one assessment.[2] And women had little input, say, or control over the agendas.

The seventh congress, in 1996, broke this mold. It was convened for the first time by the broader forestry community rather than American Forests. The congress was less about "crafting forest policy" and more about finding common ground and agreement about "understanding the things Americans are concerned about with the nation's forests," according to one principal organizer.[3] It engaged a wide variety of participants, including small private forest owners, community groups, urban forestry agencies, and minorities, especially Native Americans and African Americans. When reflecting on the seventh congress twenty years later, its executive director wrote, "One can imagine that once again a group of interests will pull together to be strong enough to call for the Eighth Congress. The players will be different because of many changes in the balance of ownership and in the balance of national vs. local and regional voices."[4]

Since then, the balance between men and women in land ownership and voices has changed, but twenty-five years after that congress, the numbers throughout the forest sector still favor men. Study after study has shown that women are scarce at every level of the forest sector—be it public, private, academic, or industry. In fact, though the past quarter-century has seen more women in forestry and more women landowners, the latest census data show that women account for less than one of every five positions in the forest sector[5] and barely one in five forestland owners.[6] Meanwhile, climate and forest conditions around the world have continued deteriorating.

The idea for the WFC germinated among women in the forestry community who believe the low workforce participation rate is leaving a serious gap in the sector, holding back participation by more women, and limiting opportunities to think about forests in new ways. Whether involved through landownership, industry, conservation, public agencies, or other roles, women in the forest sector are underrepresented. Addressing the gender diversity gap may create room for innovative problem solving to combat the most pressing challenges facing the forest sector and the forests to which all are connected.

The idea of addressing the low participation rate evolved into a forum to develop strategies and solutions for forests through a female lens. Building on the rich tradition of congresses—that of coming together with the intent to influence, if not transform, forestry in the United States—the WFC was founded in 2019 as an organization that would offer a space for women from all over the world to bring about positive change across the forest sector. Today the WFC organization is open and inclusive—trans, nonbinary, and gender-nonconforming participants are welcome, as are women of all ages, perspectives, cultural backgrounds, professional levels, abilities, and educational attainment. To deliver on its promises of connection, inclusivity, and innovation, the WFC organization takes a contemporary approach to representation that incorporates diversity, equity, and inclusion (DEI) to support the voices of women and their allies in shaping the future of forests. With equity and activism among its founding principles, the WFC and its participants have made a collective and individual commitment to DEI.

AT THE CONGRESS

In the runup to Minneapolis, quarterly meetings were held virtually to start building community and momentum for the congress, connect with others, and consider how actions informed by diverse perspectives could profoundly affect the future of forests. The first public gathering was on March 8, 2021—International Women's Day—and had more than 620 registrants from every U.S. state and Puerto Rico, 27 additional countries, and every continent. The turnout boded well for Minneapolis.

After more than two years of planning, over four days some five hundred Congress attendees from ten countries met to address the most pressing challenges for forests and women today and in the future. The focus was not exclusively on forestry knowledge, but the meeting did include opportunities for making connections and establishing a community that organizers intended as an inspiring and safe space for women to come together to address

the world's greatest forest sector challenges.

The structure and offerings at the congress reflected this strong sense of community building. Breakout sessions were designed to be more like collaborative workshops than presentations. Activation spaces—areas dedicated to specific activities—were provided to engage diverse learning styles, provide professional support and guidance, and foster creativity and collaboration in ways that addressed the full needs of attendees. Activation spaces included the Innovation Lab, Wellness Lounge, Career Exploration Experience, and Creativity Space and were intended to set a relaxed and inviting tone and foster a sense of community in which all were welcome.

This broad focus on building community was reflected in the five themes addressed at the congress and subsequently incorporated into the declaration: leadership for equity and inclusion; workforce opportunities for increasing recruitment, retention, and advancement; women as catalysts for change; addressing today's greatest forest challenges; and supporting each other. Thirty-nine delegates to the congress worked in groups based on the five WFC themes to create a declaration for attendees to vote on. The delegates had diverse perspectives, backgrounds, ages, and racial and ethnic identities. They were students and women working in academia, industry, public land management, and other roles in the forest and forest products sectors. In advance of the congress they reviewed and refined draft outcomes, measures of success, goals, and resolutions. During the congress, delegates engaged with attendees, listened to presentations, and met for delegate-only deliberations to capture and suggest revisions and provide the final draft declaration for voting and approval on the final day. The approved declaration was shared publicly immediately following the congress.

The overriding goal of the WFC Declaration was to establish a shared vision for the future of women in forestry. To achieve that vision, the declaration includes calls to action. It challenges organizations in the forest and forest products sector to foster workforce opportunities, build a pipeline of talent, promote supportive and welcoming workspaces that make healthy lifestyles and lives a priority, work toward improving pay equity, and last but not least, "apply models and frameworks to generate and realize solutions to the greatest forest challenges that are built on women's strengths, such as inclusive, collaborative, and multi-scale holistic thinking." The call to action asks the congress's participants, supporters, and partners "to commit themselves to advance the actions through their organizations, networks, partnerships, and spheres of influence." Following approval of the declaration, the Women's Forest Congress adjourned.

It's too early to say whether the congress in Minneapolis will prove transformative, or on what scale. With the exception of the first two forest congresses, the others have had virtually no effect in part because they were meetings and not the beginning of movements. But by bringing together people from diverse perspectives, backgrounds, and racial and ethnic identities, by gathering people at different stages of their careers in academia, industry, and other roles in the forest and forest products sector to discuss the need for transformation and provide new ideas and perspectives, the Women's Forest Congress has shown that the will to transform is immeasurable.

James G. Lewis is editor of Forest History Today. *He thanks Elizabeth Woodworth, a cofounder of the Women's Forest Congress, for her assistance with this special section.*

NOTES

1. Arthur V. Smyth, *Seventh American Forest Congress: Toward a Shared Vision. A Brief History of the American Forest Congresses* (Seventh American Forest Congress, 1995), 8.
2. William R. Bentley, "American Forest Congresses," *Forests and Forestry in the Americas: An Encyclopedia* (2007), https://sites.google.com/site/forestryencyclopedia/Home/American%20Forest%20Congresses.
3. Bob Clausi, quoted in Rich Faltonson, "The Seventh American Forest Congress: What's Next?" *The Forestry Source*, December 1996, 10.
4. Bentley, "American Forest Congresses."
5. Data USA, "Forest & Conservation Workers: Diversity," https://datausa.io/profile/soc/forest-conservation-workers.
6. Between 2006 and 2013, the percentage of female forestland owners in the United States who owned more than 10 acres of forestland rose from 12 to 14 percent. By 2018 it was reported that 20.4 percent of all private forestland owners were female and that they owned about 50 million acres of forestland nationwide. See Jacqueline Miner, Puneet Dwivedi, Robert Izlar, Danielle Atkins, and Parag Kadam, "Perspectives of Four Stakeholder Groups about the Participation of Female Forest Landowners in Forest Management in Georgia, United States," *PLoS ONE* 16(8): e0256654. https://doi.org/10.1371/journal.pone.0256654.

2022 WOMEN'S FOREST CONGRESS DECLARATION — 19 OCTOBER 2022

We, the Women's Forest Congress, convened on October 17–20, 2022, with nearly 500 participants from 38 U.S. states, three Canadian provinces, and eight additional nations, make the following Declaration in light of the unique moment in which we stand.

We recognize and acknowledge: Responsible and sustainable forest management plays an intrinsic role in clean air and water, recreation, and biodiversity; and the products and services of the forest affect all people throughout their lives. Moreover, sustaining and promoting the functions and values of forests requires holistic and integrated thinking about the complex relationships on which these systems depend.

Women are essential to the care of forests, provide leadership, and are catalysts. Diverse women's perspectives are even more valuable as new and innovative solutions are sought for our greatest forest challenges.

The impacts of historic and systemic discrimination on traditionally marginalized groups, including people of color and women, trans, non-binary, and gender non-conforming people, and especially the history of displacement through gentrification and genocide on Indigenous and Tribal nations. This discrimination has limited access and advancement and contributed to marginalization.

LEADERSHIP FOR EQUITY AND INCLUSION

The forest and forest products sector currently lacks gender balance and representation. As of 2019, women represented just 16% of forestry and conservation professionals in the United States as a whole.[1] Women and people of color are significantly underrepresented, underserved, and historically excluded; thus, these perspectives are likely to occupy a minority share of existing answers and be missing in leadership and C-suites.

Gender parity, including intersectional parity, leads to a more sustainable forest and forest products sector. Issues of equal access, discrimination, sexual harassment, assault, microaggressions, lack of support, and mentorship opportunities must be addressed. We need comfortable, safe, inviting, and welcoming work environments.

Black, Indigenous, and other women of color have needs, requirements, challenges, and experiences that White women do not share.

SUPPORTING EACH OTHER

Women are exemplary, focused, resilient, and effective leaders and engaged in promoting healthy living and work environments, thereby strengthening our capacity and capabilities. Addressing the complex and multi-faceted relationships characteristic of forest ecosystems serves as inspiration in supporting each other.

Women are caregivers within communities and families and need to remember to prioritize mental, emotional, physical, and spiritual health to strengthen the ability to cope with daily stresses and, at the same time, model healthy behaviors for those around us.

Forest-based solutions must be inclusive of the perspectives of family farmers, small landholders, forest communities, Indigenous people, women, and youth and respectful of their rights.

Indigenous and Tribal nations, impacted by a history of displacement, genocide, and cultural genocide, hold traditional ways of knowing that have historically been devalued and deserve to be elevated and included in decision-making and sustainable forest value chains.

WORKFORCE OPPORTUNITIES

Equity and inclusion are a path forward as the best way to diversify the talent and creativity needed to address the most critical issues and amplify the opportunities for positive change in the forest and forest products sector.

The sight of a diverse and representative leadership—including at the executive suite and board levels—is a source of inspiration and motivation for a more diverse talent pool to consider the forest and forest products sector as a career goal or next step.

CATALYSTS FOR CHANGE

Research and place-based knowledge provide evidence that inclusive practices and diverse work environments support creativity. Approaching issues through an inclusive lens can lead to longer-term perspectives that support innovation. When all views are taken into account and valued, women can provide a unique perspective to develop forward-thinking recommendations and actions.

The lack of women's perspectives leaves a void in the forest and forest products sector. Limiting professional participation by women and marginalized groups restricts opportunities to think about forests in new ways. Gender parity, including intersectional parity, leads to a more sustainable sector and climate.

GREATEST FOREST CHALLENGES

The challenges facing forests are diverse and include a loss of forest resiliency, disrupted disturbance regimes, wildland-urban interface conflict, transformative market dynamics, political polarization, climate change, and a lack of understanding and trust in forest management.

The world is relying on the forest and forest products sector to provide solutions to global environmental

change. The necessary innovations of today and tomorrow will require interdisciplinary collaboration, creative execution, and the inclusion of a wide range of skills, abilities, perspectives, and talent.

Forests are dynamic and variable across multiple spatial and temporal scales, and taking a longer-term, broader-scale, and inclusive perspective is critical for addressing the greatest forest challenges.

We have the science, experience, and technical expertise, but we need to tap into the hearts and minds of people.

We resolve to:

LEADERSHIP FOR EQUITY AND INCLUSION

Advance our mission and seek to provide all women a space to listen, be seen and heard, and act for the benefit of forests and the forests and forest products sector.

Develop the capacity and the space to pursue our mission with an organizational structure, accountability, and participation that support values of diversity, inclusion, equity, and access.

Educate leaders in the forest and forest products sector on cultural awareness, unconscious bias, and how to be an effective ally and active bystander.

Spotlight and **amplify** Black, Indigenous, and other women of color's needs, requirements, challenges, experiences, and voices.

Be an open and inclusive group within which trans, non-binary, and gender non-conforming participants, including all members of the LGBTQIA2S+ community, and all ages, perspectives, backgrounds, geographic locations, professional levels, abilities, experiences, and education are celebrated and able to contribute based on their unique experiences and expertise.

Unleash the power of inclusive leadership in the forest and forest products sector by inviting, welcoming, and mentoring leaders of all ages, colors, perspectives, and backgrounds.

Collaborate with forest-related initiatives globally to advance the common cause for diversity, equity, and inclusion.[2]

Document, report, and measure success on goals for representation and leadership for women in the sector with an objective of greater than 33% women throughout the sector and greater than 25% women in C-suite positions by 2050.[3]

SUPPORTING EACH OTHER

Foster and **establish** systems for supporting each other, including training, mentorships, educational services, health and wellness, and human resource advancements.

Gather and **tell** our stories to ensure that learning diverse perspectives continues as a shared value.

Invite colleagues, allies, and contacts to join our efforts to foster vulnerability and connectivity.

Ensure forests and the sector are safe, inviting, and welcoming workspaces for all; support those who report or discuss acts or threats of physical, mental, or emotional violence; and allow workplaces to benefit from greater employee wellness.

WORKFORCE OPPORTUNITIES

Create a community of outreach and a network of organizations across the forest and forest products sector, including research and educational institutions, corporations, NGOs, and the public sector, to achieve recruitment, retention, placement, and advancement goals.

Empower women in all levels and positions of the forest and forest products sector; share experiences for retaining and advancing welcoming work environments; and generate and enact innovative ideas for increasing recruitment, retention, and advancement.

Promote the variety of working environments in the sector, whether field, classroom, or lab; rural, suburban, or urban; or home, office-based, or hybrid, whether in solo adventures or on big teams.

CATALYSTS FOR CHANGE

Intentionally identify and prepare more women for leadership positions.

Reimagine frameworks and processes in order to bring a full diversity of impacted peoples and perspectives, including building the structures for greater participation.

Advocate for workplace systems that enable all people to be healthy, whole, and equitably compensated.

Advance intersectional policies that create pathways for transformative and emboldened women leaders in the sector.

Promote the following Women's Best Practices for Conferences and Events so that the unique features of our Congress are captured and documented in a way that can be used to inform future events in the sector.

- Leverage the use of personal experiences so that the effectiveness of gaining knowledge through storytelling and vulnerability is understood and expected.
- Build strong mentorship and peer networks to deepen unity, promote development, and support cross-collaboration.
- Create environments that support holistic health, including asking about and addressing special accommodations for attendees.

GREATEST FOREST CHALLENGES

Demonstrate a change in how forest challenges are addressed to include systems thinking, collaborative leadership models, multiple temporal and spatial scales, and holistic solutions.

Foster a climate of innovation to tackle the social, environmental, and economic challenges within the forest

and forest products sector with the goal of not only solving the biggest problems but also first insisting that we identify and intentionally engage the voices missing from the conversation as we design and implement the solutions.

Commit to supporting, adequately resourcing, and sharing information on forest health, carbon storage and sequestration, and other critical data that address the greatest forest challenges of today and tomorrow.

Communicate and value the many interconnected facets of the forest and forest products sector through transparent, authentic, and inspirational messaging that highlights the sector's role in conserving and restoring our planet's most sustainable and renewable resource, benefiting people, nature, and climate.

Encourage the endorsement of international efforts such as the "Principles for Ecosystem Restoration to Guide the United Nations Decade 2021–2030" and commitments adopted at the 2022 World Forestry Congress[4] (e.g., the Seoul Forest Declaration, the Ministerial Call on Sustainable Wood, Sustain an Abundance of Forest Ecosystems (SAFE), and the Youth Call for Action).

Assert that forests, forestry, and forest stakeholders offer significant nature-based solutions to climate change, biodiversity loss, land degradation, hunger, poverty, and human health. We must act now. There is no time to lose.[5]

The Women's Forest Congress challenges organizations in the forest and forest products sector to[6]:

Foster workforce opportunities for all women through mentorship programs, professional development, scholarships, etc., with a particular focus on reaching out to those who need help or are asking for assistance in any part of their journey;

Broaden recruiting practices to include wider networks, and build a pipeline of talent by connecting with and showcasing forests and the forest and forest products sector to youth and students, creating job shadowing and internship opportunities, etc.;

Build workplace systems that support mental health coverage, and include training and programs promoting healthy lifestyles, such as family leave, flexible work schedules, generous vacation plans, social opportunities, and holistic wellness programs;

Promote a variety of working environments, encourage flexibility, and ensure all work environments are fully accessible;

Enable employees to prioritize mental, emotional, physical, and spiritual health and model healthy behaviors for others;

Create a safe, inviting, and welcoming workspace for all resulting in greater wellness, increased retention, higher productivity, improved creativity, and heart-centered decision-making;

Assess compensation for women and promote paths to pay equity at all levels, including discrepancies in intersectional identities, communities, and demographics;

Intentionally identify and support more women and those from underrepresented groups to achieve leadership positions;

Increase the use of storytelling in conferences, trainings, and workshops; and

Apply models and frameworks to generate and realize solutions to the greatest forest challenges that are built on women's strengths, such as inclusive, collaborative, and multi-scale holistic thinking.

The participants of the 2022 Women's Forest Congress, our supporters, and partners commit ourselves to advance these actions through our organizations, networks, partnerships, and spheres of influence.

NOTES

1. "SAF Celebrates Women's History Month," March 18, 2022, https://www.eforester.org/Main/SAF_News/2022/SAF_Celebrates_Women_s_History_Month; and "Forest and Conservation Workers," https://datausa.io/profile/soc/forest-conservation-workers#:~:text=Demographic%20information%20on%20Forest%20%26%20conservation,White%20(Non%2DHispanic). For global information, see: https://unece.org/DAM/timber/docs/publications-other/Time%20for%20Action_Gender%20and%20Forestry.pdf.
2. For example, see: "Australian Forest Products Association Diversity and Inclusion Charter" at: https://ausfpa.com.au/charter/.
3. For additional context for these goals, see: "25 Women in Leadership Statistics 2023: Facts on the Gender Gap in Corporate and Political Leadership," https://www.zippia.com/advice/women-in-leadership-statistics/; "Women Have Only 18.4% Share of Forestry Sector," https://www.womeninwood.ca/single-post/2017/03/29/Women-have-only-184-share-of-forestry-sector; "Women in the Workplace 2022," https://www.mckinsey.com/featured-insights/diversity-and-inclusion/women-in-the-workplace; and Subodh Mishra, "Women in the C-Suite: The Next Frontier in Gender Diversity," https://corpgov.law.harvard.edu/2018/08/13/women-in-the-c-suite-the-next-frontier-in-gender-diversity.
4. The "Principles for Ecosystem Restoration" are at: https://www.decadeonrestoration.org/publications/principles-ecosystem-restoration-guide-united-nations-decade-2021-2030, and detailed action points from the main sessions of the World Forestry Congress can be found at: https://www.fao.org/3/cc0248en/cc0248en.pdf.
5. For examples, see: IUCN's Global Standard for Nature-based Solutions at: https://portals.iucn.org/library/sites/library/files/documents/2020-020-En.pdf; and the new IPCC mitigation report on the role of nature-based solutions to climate change at https://www.ipcc.ch/report/ar6/wg3.
6. The Women's Forest Congress intends to include accessible resources for individuals to be able to utilize to advance these actions.

A Founder's Perspective

The Women's Forest Congress Is a Movement, Not a Moment

BY ELIZABETH WOODWORTH

COURTESY OF ELIZABETH WOODWORTH

Arriving in Minnesota on October 16, 2022, in advance of the inaugural Women's Forest Congress (WFC), was an emotional experience. The congress was the culmination of a long-held dream of a world where all people—girls, boys, women, men, transgender—are treated with equal respect and consideration, a world where we all see forests as the answer for the health and future of our planet and well-being.

My feelings of pride and satisfaction were balanced by some apprehension as the magnitude of what was about to happen sunk in. Years of effort, meetings, conversations, challenges, celebrations, and deliberations were all coming to a head in what seemed like an impossibly short few hours, given where we had started on this journey in late 2019.

As a co-founder of the Women's Forest Congress and a proud member of the WFC Steering Committee, I had the enormous privilege of working with a dedicated and talented team of leaders. These women all gave freely and generously of their time and talents over the course of months and years. It was hard to believe that the work of so many people, whom I count as friends and colleagues, was finally being put to the test.

Any jitters about the myriad details that can make such an undertaking stressful (like technical glitches, vendor no-shows, or last-minute requests) were calmed as I repeated the mantra that my colleagues and I had relied on over and over again during some of the most challenging times in the lead-up to the congress: It's not just a moment, it's a movement! Letting myself see the scale of what we were undertaking gave me the strength to put things in perspective and really soak up what we were about to achieve.

I can't properly express how delighted I still am that this mantra turned out to be a defining sentiment of the congress. It wasn't just a select group of us who shared this; everyone I met at the congress seemed tuned into a vibe that we were all sharing a front-row seat for a moment in history, which will resonate for generations. We were building something that would be much bigger than any of us could have imagined when we first started the planning process.

Delegates and attendees repeatedly remarked on the intense feeling of shared belonging that pervaded the congress. Part of this social movement mindset was also reflected in the presence of youth and the congress's focus on helping chart a new course for those entering the forest sector. On a personal level, many attendees shared their wish for their daughters and granddaughters to see the sector as a place to pursue their dreams. And my wish for my daughter is that she be considered an equal among all peers in her potential and ability to pursue her dreams, whatever they are.

I now know, after almost thirty years of working, that the inequities we still face today are not a result of merit. Today I run my own company and hire the best people based on skills and expertise, not gender, skin color, physical ability, or any other societal category. And needless to say, there is no pay gap at my firm. The WFC has helped me, and countless others, take these fundamental ideals and move them forward.

IT WAS TIME FOR A WOMEN'S FOREST CONGRESS

The convening of the Women's Forest Congress in 2022 was the latest step in the history of American forest congresses, the first of which was held in 1882. It's a safe bet to say that the 1882 congress looked a lot different from the WFC.

American forest congresses have been held intermittently to shape the evolution of sustainable forestry. Congresses helped usher in the U.S. Forest Service and major legislation like the National Forest Management Act. On the world stage, since 1926, a World Forestry Congress has been held generally every six years.[1] These congresses have helped establish the practice of sustainable forestry that we know today.

The WFC was founded in 2019 to bring new voices and perspectives to sustainable forestry and to create a space to show the world the courage of women to improve the forest sector. We were aware of the important role the congress would play in continuing to write the proud history of women in forestry—a history that is deeper and richer than many may realize.

...we were all sharing a front-row seat for a moment in history, which will resonate for generations. We were building something that would be much bigger than any of us could have imagined...

Consider that over a hundred years ago, women were fighting wildfires in the Mendocino National Forest in California.[2] And in 1910, Eloise B. Gerry became the first woman scientist hired by the Forest Service's Forest Products Laboratory.[3] Trailblazing Black women leaders have also made their mark on the history of women in forestry—in 1999, Gloria Brown was the first Black woman to realize her dream of becoming a national forest supervisor when she took over the Siuslaw National Forest in Oregon.[4] These groundbreaking women would probably feel right at home today as members of the WFC.

BUILDING A MOVEMENT THAT RESPECTS DIVERSITY

Hundreds of women have come together in this movement to share personal and professional experiences, connect with others, shape the latest innovations, and consider how actions informed by their perspectives can profoundly affect the future of forests. The

COURTESY OF EPNAC.COM

WFC is an open and inclusive movement—trans, nonbinary, and gender nonconforming participants are welcome, as are women of all ages, perspectives, and backgrounds.

These diverse delegates were asked whether they could speak truth to power and identify actions to improve the forest sector. The answer was a resounding *yes!* And for most of us, the answer involves addressing the fact that women still account for only about one of every five positions in the sector.

It's an understatement to say that the forest and forest products sector currently lacks gender balance and representation. As of 2019, women represented just 16 percent of forestry and conservation professionals in the United States as a whole.[5] Women and people of color are significantly underrepresented, underserved, and historically excluded, which means their perspectives are likely to account for a minority share of existing answers and be missing from upper-level management and top leadershippositions.

Typically, in discussions of women in the forest sector, the voices of women of color are marginalized. The WFC is committed to actions that address racial injustice. The WFC believes that Black lives matter. We remain committed to diversity, equity, and inclusion for all women in the forest sector.

FORESTS ARE THE ANSWER FOR THE FUTURE OF OUR PLANET

The many challenges facing forests include a loss of forest resiliency, disrupted wildfire management regimes, wildland-urban interface conflict, transformative market dynamics, political polarization, climate change, and a lack of understanding and trust in forest management. But we were undaunted.

Over an inspiring four days, the Women's Forest Congress solidified our shared conviction that forests are the answer for the health and future of our planet. The WFC also shared and fostered a dream of a world where all people have equal access to opportunities and are treated with full respect and consideration. As the WFC evolves, its legacy will continue to grow as the WFC community acts on new ideas, builds personal capacity, and inspires others.

The WFC helped us all envision a forest community characterized by universal equity, inclusion, and a shared sense of belonging. A community where all voices are heard, supported, and empowered. A community where the influence of all is manifest in our relationships with forests.

Together, we accepted a shared mission to create community and cultivate change. Together, we created safe spaces to connect, inspire, and act as catalysts for change for the benefit of forests and all who rely on them now and in the future.

The success of the WFC shows that when you set a table for more diverse people and more voices, you get better outcomes, more innovation, more progress, and more satisfaction for everyone. Together, we established that the WFC is not a moment but a movement—and it's only the beginning.

MAKE YOUR VOICE HEARD FOR WOMEN, FORESTS, AND OUR SHARED FUTURE

My love of forests steered me to focus my professional and personal life on trying to help the world understand the critical role they have in saving our planet. Now, thanks to the WFC, I can work with a group of women, all of whom are on their own journey and come to this with their own stories, their own pains and joys, and their own personal passion. The WFC showed us we could change the future of the forest sector, embrace the unknown, and dream big together, for the future of forests and the future of women.

The Women's Forest Congress was a moment; the WFC is leading a movement. The WFC continues to thrive on the momentum and to engage with all across the forest community through social media and the WFC website at womensforestcongress.org.

Elizabeth Woodworth is CEO of Wood & Co. Consulting and is one of the Women's Forest Congress founders and a principal organizer of the 2022 Women's Forest Congress. She also serves on the WFC Steering Committee.

NOTES

1. Food and Agriculture Organization of the United Nations, "WFC: Historical Context," https://www.fao.org/about/meetings/world-forestry-congress/background/past-congresses/en/. The first world congress was held in 1926, the second in 1936, and the third in 1949. It has been held under the auspices of the Food and Agriculture Organization of the UN (FAO) every six years since 1954.
2. Alex Potter, "The Women Battling Wildfires and Breaking Barriers in the American Wilderness," https://www.nationalgeographic.com/history/article/the-women-battling-wildfires-and-breaking-barriers-in-the-american-wilderness.
3. David Havlick, "Dr. Eloise Gerry," https://foresthistory.org/research-explore/us-forest-service-history/people/scientists/dr-eloise-gerry.
4. U.S. Forest Service, "HerStory: Meet Gloria Brown," https://www.fs.usda.gov/inside-fs/delivering-mission/excel/herstory-meet-gloria-brown.
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I Felt Like I Belonged There

BY DELIE WILKENS

I approached the Inaugural Women's First Congress in the same way I approach almost all professional working events: with muted anxiety and an internal mantra of "It'll be over in a few days."

It's not that I wasn't excited about this event; I was! For the better part of a year, I had been working to develop content for the Women's Forest Congress sessions, so I knew the quality of what would be presented. I was part of the WFC delegate group, working on the Leadership for Equity and Inclusion theme, so I knew that women of color and LGBTQIA+ individuals would be represented. I even helped to develop the U.S. Endowment for Forestry and Communities' Innovation Lab, so I knew there would be engaging conversations, fun photos, and (most important) candy. What I did not know (and the genesis for my anxiety) was how the congress itself would be received by the hundreds of women attending or the multitude of employers they were representing.

What I found genuinely surprised me: these women were all there, representing their employers and talking about their work in forestry, but they were also taking ownership of who they were. As people, as women. Sure, I heard "Can you guess the tree species from this tree cookie?" or "What about a certification in urban forestry?" or "This is how to appeal to a new generation of foresters." Yet I also heard a much louder voice in the collective room: women talking about themselves. They were talking about strong friendships, new babies, old pets, and fast cars. They were talking about being the only female in the sawmill, being the first woman CEO of their company, and being the first two women to canoe from Minneapolis to Hudson Bay. It was awe inspiring to hear so many stories of triumph and perseverance and vulnerability, and it was even more inspiring to see the response.

There was cheering, whooping, yelling, laughing, and—more than anything—supporting. I didn't witness any exclusive side conversations. No sly remarks, no undermining of a message. In fact, several people explicitly stated that type of movement would not work. It was not about the exclusion of anyone. We need the support of other women, of men, of anyone who believes in what we are doing. That is the only way to do this work well.

What began as an anxious feeling soon melted away into a calm elation, a steady hum of inspiration as I slipped in and out of breakout rooms, creativity rooms, and wellness rooms. Occasionally, I would have the familiar nagging feeling of "Should I take a few minutes to check my email?" but it was quickly followed by, "Goodness, I really don't want to miss Mia and Kathy talking about mentorship!"

COURTESY OF DELIE WILKIENS

You don't get very far into your career in forestry before someone reminds you that most of us are in forestry because we like . . . well, forests. The ones far away from people and airports and conferences. That is, of course, a generalization, but we tend not to be an overly extroverted bunch. Yet you wouldn't be able to tell that from this congress. People often tell me that you cannot tell an introvert from an extrovert if they are in the right environment, around the right people. It's almost as if this whole thing was organized not based on your standard template for conferences, but by really understanding the people who would be attending and what they needed to hear.

I don't think I'm alone in saying that I felt like I belonged there—not because I was convincing myself but because others were showing me that I did.

Delie Wilkens is a program analyst with the U.S. Endowment for Forestry and Communities. This article was originally published on the Women's Forest Congress blog as "My Reflections on the Inaugural Women's Forest Congress" at womensforestcongress.org/blog.

I Am a Catalyst for Change

BY AMANDA MAHAFFEY

COURTESY OF KEVIN MAHAFFEY

I was in a room with five hundred women forest stewards. What?! When did that happen, ever? It happened at the inaugural Women's Forest Congress in Minneapolis, Minnesota. The congress was designed to inspire and empower women in the forest sector. This event was the culmination of years of work by women leaders in the field who felt that now was the time for a space dedicated to elevating the voices of women in the forestry profession.

The Women's Forest Congress was unlike any conference I have ever been to. The focus was not on forestry knowledge, though this group could offer a wealth of that, but rather on building connections and community so that together, we might address the world's greatest forest challenges. Why a Women's Forest Congress? Data and experience show that women are sadly underrepresented in the field and in leadership positions within the sector. The women who attended came from industry, academia, nonprofits, government, and everything in between. We represented thirty-eight states, three Canadian provinces, and eight other countries. We came as leaders, mid-career professionals, young foresters, and students. We came to share our passion for igniting a new role for women in forestry.

The program flowed through an arc of experience woven of the five themes of the congress: Leadership for Equity and Inclusion; Workforce Opportunities for Increasing Recruitment, Retention, and Advancement; Women as Catalysts for Change; Addressing Today's Greatest Forest Challenges; and Supporting Each Other. Inspirational speakers from inside and outside the forestry profession taught us to commit ourselves to embodying the values of diversity, equity, and inclusion. To never give up in our determination to blaze a path for girls who will come after us. To have each other's backs and affirm our truths. To support each other and lift each other up. To tell "herstory" in our sector's history in the past, present, and future. To paddle upstream together and breathe in the world around us. To laugh, dance, and celebrate who we are.

Breakout sessions felt more like collaborative workshops than the usual formal presentations. Rooms were packed to overflowing with women asking good questions, providing input in world cafés, and building connections through small group discussions. Special spaces for creativity, wellness, and nursing mothers set this meeting apart from traditional forestry conferences. In the midst of all this activity, delegates worked diligently to articulate declarations that would come out of the congress and establish a shared vision for the future of women in forestry. We heard powerful individual stories and universal support for one another. This special gathering of women was made even more impactful because of our shared experiences through the pandemic, which had a pronounced effect on women.

My mind is blown by the experience of the 2022 Women's Forest Congress. This landmark gathering invited us to bring our whole selves, on equal footing with our colleagues, and with plenty to accomplish together. As I return home, I know inside that I am changed by this experience. I am ready to inspire, train, and empower the women around me to be the change we want to see, to work together to steward our forests for the future.

I am a woman forester. I am a catalyst for change. With others, I will rise, and we will shape the future.

Amanda Mahaffey is a deputy director of the Forest Stewards Guild and is based in Maine. This article was originally published on the Women's Forest Congress blog as "Women's Forest Congress Summary" at womensforestcongress.org/blog.

History in the Making

A Librarian's Experience at the Women's Forest Congress

BY LAUREN BISSONETTE

COURTESY OF LAUREN BISSONETTE

This past October 17, I woke up bright and early to fly to Minnesota. Why was I going there? I'd been before to visit my spouse's family, but I think the state's renowned natural splendor and warm Midwest demeanor would attract anyone. However, I was going there for the inaugural Women's Forest Congress.

As the Forest History Society's librarian, I first learned of the WFC in early 2021, when FHS approached congress organizers to offer our expertise and provide historical background on past forest congresses. FHS wanted to assist with ensuring that the story of this congress would be preserved. By attending I would be both a witness to and a participant in making history.

Speaking of history, you should know this was the Eighth American Forest Congress. It took until the Fourth American Forest Congress, held in in 1953, before women (three, to be exact) were on the program.[1]

So imagine this: I get to the hotel where the congress is being held and go to my room to prepare for a pre-congress field tour. Then I head back down to the lobby. As soon as the elevator doors open, I hear a symphony of women's voices and I know this is where I am supposed to be. I mean that not just literally, but spiritually. I let my guard drop, knowing I am in a safe space and I belong here.

THERE IS POWER IN A SPECIFIC PLACE

Sponsored by the Minnesota Women's Woodland Network, the Native American Culture Sites tour took us to *Bdote*, a sacred site located on an island at the confluence of the Mississippi and Minnesota rivers. *Bdote* has been honored for centuries by the Dakota people as a place of creation. Our guide, the powerful orator Jim Bear Jacobs, told us that as American colonizers moved in, it eventually turned into a site of mass imprisonment and death for Indigenous people. Again and again during the nineteenth century, the Dakota people were pushed from their homes until they occupied only a small strip of land on the Minnesota River. The money promised to them for ceding their land was instead claimed by and distributed to white traders. Negligence and wanton corruption by the U.S. government pushed the Dakota people over the brink—armed conflict erupted in the summer of 1862. Though the U.S.–Dakota War would last only six weeks, it had major consequences for the Dakota people and other Native Americans. Afterward, the Dakota people were held in a concentration camp at this location; this place of creation was now known as a place of death from disease, abuse, and genocidal actions.

Three hundred Dakota men were sentenced to death. After President Abraham Lincoln reviewed the cases, 38 men were hanged on December 26, 1862, in the largest mass execution in American history. Six days later, Lincoln issued the Emancipation Proclamation.

It's one thing to learn about history from a book. It is another to stand in place where history has happened. It literally grounds you. There is power in a specific place and a deeper understanding through the context of a space. This story was shared with us at the *Wokiksuye K' a Woyuonihan* (*Remembering and Honoring*) memorial at Fort Snelling State Park, a memorial that honors the 1,600 Dakota people imprisoned at the fort following the war.

With a newfound appreciation and reverence for the land, our group headed back for the welcome

reception and dinner. Although I am a socially anxious person, I walked into the reception with a concerted calmness and curiosity. "What did I have to worry about?" I asked myself as I waited in line for a complimentary glass of wine that would undoubtedly ease my nerves. I was resigned to mingle with my unknown peers and flex my atrophied networking muscles. It was easier than I anticipated. As I entered the line for hors d'oeuvres, I immediately recognized a woman I'd met just a month earlier at the Society of American Foresters national convention, where we'd enjoyed a dinner together. In a crowd of strangers, I was elated to see her again here. Later on, I was pulled away by another friendly face. Rachel Kline, a historian with the U.S. Forest Service and liaison to the FHS Board of Directors, introduced me to some of her colleagues and we all went into the hotel ballroom for the reception and dinner. Rachel later gave an inspiring keynote talk on women's legacy in forestry and conservation.

INTENTIONAL WELLNESS

Though I'm early in my professional career and have attended some academic conferences, I had never been to a professional gathering like this, where wellness was at the forefront of the organizers' minds. Before each day's events, you could attend a yoga or Zumba session. Between or during sessions we had "brain breaks," where we could get up and move around, dance, stretch, and meditate. There were dedicated spaces for nursing mothers, a wellness lounge for decompressing, and a creativity space to tap into your energy and express yourself artistically. Mental health was a priority, especially given the demands of the outside world and women's common role as caregivers by default. It was refreshing to have a space where we could simply *be*.

These practices are important for all and should be employed at conferences and even workplaces alike. The WFC organization seeks to advocate for workplace support systems that uphold mental health coverage, flexible work schedules, family leave, and wellness programs. Visiting forests is a proven form of therapy—forests provide a space for healing—and those who are lucky enough to work in forestry get that added benefit. But intentional employee wellness practices benefit forestry and other workplaces because of increased worker retention, productivity, and creativity.

One of my favorite sessions was "Communicating through Conflict and Bountiful Boundaries." This session offered tools and techniques to handle heated situations and interpersonal conflict both in the workplace and at home. Once seating had completely filled up, women stood along the walls and sat on the floor. It was no surprise to me that this was a popular class—women are socialized to be people pleasers, and others often step all over their boundaries. (I avoid conflict whenever possible and find it difficult to create and maintain boundaries.) Over the next hour and a half, we learned how to begin difficult conversations with honesty and respect and how to respond with authenticity and curiosity. Attendees shared their own experiences and struggles, and we walked away with empowerment and support.

NOT JUST A SPACE FOR WOMEN

The WFC was not just a space for women. The congress sought to be equitable and inclusive, welcoming individuals of all ages, colors, and genders—this includes trans, nonbinary, and gender-nonconforming folks. I am a queer person and nonbinary in nature (pun intended); to feel more comfortable in a new space, I tend to seek out others like myself. Statistically, I knew others had to be here.

As the librarian at FHS, I've searched high and low for references to queer individuals in forest and conservation history. Unsurprisingly, there's not much out there—historically, it has been dangerous to be an out and proud queer person. Take, for example, Rachel Carson. When she published *Silent Spring* in 1962, Carson faced withering personal attacks, and her opponents tried to censor her book. But perhaps the biggest censor was Carson herself—and for good reason. Surviving letters between Carson and Dorothy Freeman, her neighbor in Maine who was married, reveal their deep and intimate lesbian relationship.[2] They had an agreement to destroy the letters to avoid scandal and to protect Carson's legacy.[3] Her *Silent Spring* changed the world. But to me, Carson's legacy is even greater because of her queerness—that she perhaps hid her own nature and truth in order to expose other truths about nature. I wondered, what would Rachel have thought about this gathering?

By the second day of the congress, there were lively discussions on the conference app, and I was surprised that none surrounded the LGBTQIA2S+ community.[4] So I started one. With a quick introduction of myself and a prompt to get a discussion going, others started following the thread almost immediately. They, too, had been looking for the opportunity to connect with other members of the community! It was because of this online discussion thread that I learned of other resources and meetups for

queer folks in forestry, such as the Forest Steward Guild's "Seeing the Forest for the Queers," a monthly online discussion group for people who identify with the LGBTQIA2S+ community in the natural resources field. I felt proud to have facilitated a channel that connected us.

BUILDING A TABLE FOR ALL

Historically, as one of the speakers noted, women have found themselves not at the table but on the menu: those at the table have denied women representation or the chance to participate and were making decisions about and for us. However, at this congress, women were not only given a seat at that table, but they built the table and chairs from wood they've grown, harvested, and milled—and they invited all to join with them. And I was there. One hundred and forty years after the first forest congress, where nary a lady was to be seen, I was in a room with five hundred women who resolved to foster workforce opportunities for all women, create systems of support that prioritize mental, emotional, physical, and spiritual health, and intentionally identify and boost women and those from underrepresented groups to achieve leadership positions. This was history in the making, and I wasn't sitting in my librarian's office reading about it. I and my peers were making history. I was in that space, and it was powerful.

Lauren Bissonette is the librarian of the Forest History Society. They serve as Publicity and Outreach Chair for the American Library Association Sustainability Roundtable.

NOTES

1. American Forestry Association, *Proceedings of the Fourth American Forest Congress* (Washington, DC: American Forestry Association, 1953).
2. Carolyn Gage, "Review of Rachel Carson: Witness for Nature," May 27, 2021, https://carolyngage.weebly.com/blog/review-of-rachel-carson-witness-for-nature. In this review of Linda Lear's 1999 biography of Carson, Gage quotes from the surviving correspondence between the two that was edited by Martha Freeman, Dorothy's granddaughter, and published in *Always, Rachel: The Letters of Rachel Carson and Dorothy Freeman, 1952–1964* (Boston: Beacon Press, 1995). Gage also discusses the pivotal relationships Carson had with two other women before she met Freeman.
3. Jill Lepore, "The Right Way to Remember Rachel Carson," *The New Yorker*, March 19, 2018, https://www.newyorker.com/magazine/2018/03/26/the-right-way-to-remember-rachel-carson.
4. The term "LGBTQIA2S+" stands for Lesbian, Gay, Bisexual, Transgender, Queer/Questioning, Asexual, Two-Spirit and other identifiers. For more information about these labels, see "GLAAD Media Reference Guide - LGBTQ Terms," GLAAD, March 15, 2022, https://www.glaad.org/reference/terms.

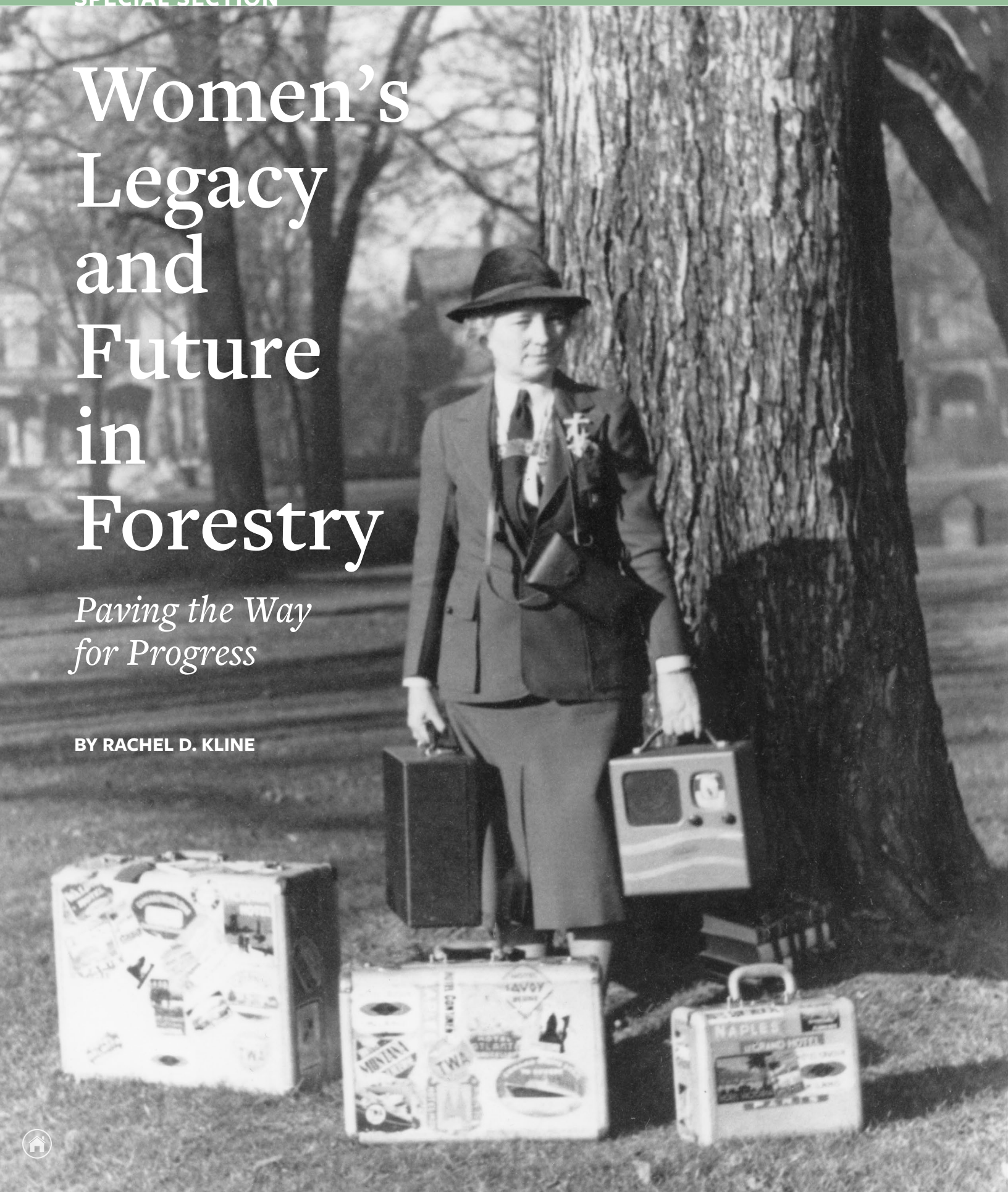
Attendees toast the approval of the Women's Forest Congress Declaration.

COURTESY OF LAUREN BISSONETTE

Women's Legacy and Future in Forestry

Paving the Way for Progress

BY RACHEL D. KLINE



Rachel Kline and Edie Sonne Hall presented as part of the panel "Women's Legacy and Future in Forestry: Paving the Way for Progress" at the Women's Forest Congress. This article is adapted from that presentation.

I'm a historian, so the weight of this moment in history does not escape me. The first American Forest Congress met in Cincinnati's Eden Park in 1882. It was the first time that a large number of men—and a handful of women—from the public and private sectors gathered together to discuss the future of America's forests and what they might do about it. And 140 years later, here we are in Minneapolis, a large number of women—and a handful of men—brought together for similar reasons.

As we see today, women certainly have not just a bright future in forestry but in fact a bright present. But women also have a longstanding history in this field that predates even that first congress. Most of our conversation over the past three days has revolved around diversity and inclusion, and I would argue that in order to have an inclusive present and future, we also have to recognize an inclusive past. Women have a long history in forestry and conservation. You are the inheritors of that legacy.

And what has struck me most while being here and listening is that what has been said here is what women have been saying since 1850, at least in print—though they used different terms than what I've heard here: "access, diversifying, collaborating, creating connections, relationships, an ecosystems approach." These are all things that have been on women's minds for more than a century in relationship to nature. This conference hasn't been focused on the technical aspects of work. Can you all talk about that stuff? Of course you can. But without the relationships and the collaboration, it's just data or process. And that's what women bring—that rich texture of relationship. And they have for nearly two centuries.

I've been researching women in conservation and forestry for a number of years, but this passion goes back further for me to my childhood as I played on the Roosevelt National Forest or spun in my grandfather's chair at the Rocky Mountain Research Station in Fort Collins, Colorado. My grandfather held many roles in fire and administration, and even dressed as Smokey Bear, for the U.S. Forest Service for 30 years. But I also watched my grandmother support his position in ways that I couldn't really comprehend at the time. I now know that my grandparents were part of a richly steeped tradition of an "all hands on deck" approach to forestry and that my grandmother and other women played a tremendous role in the creation, organization, and execution of that forestry. Nana hosted a fish fry every Friday for the staff when Papa worked on the Lincoln National Forest in New Mexico during the 1960s. I've been so fortunate to follow in their footsteps, working for the Forest Service for over thirteen years now. I've visited or worked on more than sixty forests and grasslands and worked in every region of the agency. When I got the job, my papa quipped, "Huh? We hire historians?" But he thought it was really amazing that I joined the agency, and I'm so proud to work in this field and use history to inform land management decisions. And I'd like to note that while I love working for the U.S. Forest Service, today I'm sharing my personal research.

That research shows a story that is too often untold: that women have been involved in forestry and conservation since the nineteenth century. And it's their approach to land and nature that has ushered modern forestry, conservation, and agencies like the Forest Service into the twenty-first century. And how women will take that into the future. To quote the illustrious rapper Pitbull, "To understand the future, we have to go back in time."

Mainstream history has long held that men have been the center of the story. And they have most certainly held, until recently, most if not all professional and leadership positions within the forestry field. We talk about all the greats like Henry David Thoreau, George Perkins Marsh, John Muir, Theodore Roosevelt, Gifford Pinchot, who was the "Father of the Forest Service" and America's first professional forester, and Aldo Leopold, who is considered to be the originator of the term "land ethic," which calls for an ethical, caring relationship between people and nature.

Meanwhile, women were excluded from forestry schools as well as professional and technical forestry positions and leadership for the first half of the twentieth century, and they fought hard to move into those positions in the latter half of the century. But this doesn't mean women

FOREST HISTORY SOCIETY PHOTO COLLECTION, FHS6885

As the stickers on her luggage show, Margaret March-Mount crisscrossed the country teaching women and children about forest conservation.

haven't been present in forestry from the beginning.

So, are these men I've mentioned important? Absolutely. They are very much part of the story. But they're only half. And as Jackie Heinricher spoke about on Monday evening, let's address the other half.[1] Because while they may have been excluded from a male-dominated forestry field, they made their own contributions, what these early women called a "feminine forestry" and a "conservation cause."

FEMININE FORESTRY

First, I would like to introduce you to Susan Fenimore Cooper. Some of you may know of her—she was the devoted daughter of James Fenimore Cooper, the famous American author best known for *Last of the Mohicans*. But she's so much more than that.

Beginning in the mid-nineteenth century, Susan Fenimore Cooper was an integral voice within early American nature conversations. And it would be her work that would lay the foundation for women in conservation.

Cooper's observations of nature as part of the home and community were pivotal in the formation of women's nature appreciation at the time. She provided a model for women to engage with natural subjects and advocate for their preservation as a moral obligation, calling on them to awaken their interest in nature, "which may lead them" to what she called "something higher."[2]

Four years before Thoreau published *Walden*, Cooper published her book *Rural Hours* in 1850. *Rural Hours* is the first nature writing text published by a woman in the United States, and the book saw four decades of success, with numerous editions and reprints.

It was written in the style of a daily journal, capturing Cooper's observations over a period of two years of the seasons, flora, and fauna of her native upstate New York. But more than just daily musings, Cooper saw patterns of climate change, loss of species, and unsustainable environmental practices, and she feared for the loss of the American landscape.

Cooper advocated that Americans approach the landscape "more humbly and gratefully and with less greed," by creating a sustainable balance between humans and nature. While she praised the "social spirit" of the land modestly shaped by the laborer and husbandman, she criticized the unsustainable practices of Americans' depleting forests and species for the use of one generation. Throughout her works spanning forty-three years, Cooper repeatedly reported the loss of American wildflower species, the diminishing numbers of migrating birds, the decrease of fish, and the

PUBLIC DOMAIN (2)

Susan Fenimore Cooper, seen here around 1855, had to use the pseudonym "A Lady" in order to get her book *Rural Hours* published because it was so unusual.

reduction of wildlife like moose, elk, deer, wolves, and martens killed for their fur or displaced by wood-cutters.

On forestry, she criticized practices like pollarding, or lopping the heads off trees. She called such a mutilation of trees unethical and a deplorable practice that wasted whole trees for fleeting pursuits. She also spoke out on the exploitation of old-growth trees.

Cooper's remedy for this exploitation was to connect nature and forests to the home as a way for Americans to understand the value of trees and why they should care. Writing "the earth is the common home of all," she asserted that Americans had a moral obligation to know and recognize the nature around them.

Susan Cooper's call to "something higher" planted a seed in the minds of nineteenth-century women to recognize the importance and value of nature, and she was quickly followed in print. We also know that Thoreau read her because he quotes her, revealing that this was certainly a conversation involving both men and women.

So, who are some of these other women? Elizabeth Wright, Olive Throne Miller, Celia Thaxter, Sarah Orne Jewett, Edith Thomas, Anna Botsford Comstock, Gene Stratton Porter, and Mary Hunter Austin are just a few who wrote on natural history, the importance of nature, the progressive depletion of the natural world, the need for thoughtful preservation, and the assertion of nature not as other but as home. In 1918, Mary Austin credited women's capacity for intuitive judgment as their platform from which to speak, stating that women should bring to nature writing "Not their ability to see the world in the way men see it, but the importance and validity of their seeing it some other way."[3]

During the Progressive Era, which lasted from 1890 to 1920, thousands of women took up Cooper's appeal for nature appreciation and preservation and advocated for the protection of birds, forests, and watersheds. Like Cooper, they claimed that preserving American nature preserved American life.

One of these women was botanist Mira Lloyd Dock. She was the most prominent spokeswoman for scientific forestry at the turn of the century. A wealthy Pennsylvanian, Dock was a lecturer, clubwoman, and public official, being the first woman to serve on an official conservation board. Her scientific know-how and passion for forestry enabled her to educate women about conservation but also gave her the ear of professional men. Friends with Gifford Pinchot and other male foresters, she gained favor within the professional forestry circuit, which enabled her to expand her own education—not available to most women—as well as assert her influence into the pressing forestry issues of the day.

She also taught aspiring male foresters at the Pennsylvania State Forest Academy and even created portions of the curriculum. A forest owner herself, she permitted the school to use her property for its experimental field school. Dock really highlights how women circumnavigated the exclusion of women in forestry by studying something else, like botany, and becoming an authority in forestry anyway.

THE CONSERVATION CAUSE

As I was researching these women, particularly in the early Forest Service, I kept coming across this phrase that they would use: "the conservation cause." While women engaged in all kinds of conservation work, a constant thread throughout their records is their shared idea of a conservation cause based on the "greatest good." Gifford Pinchot captured his philosophy in his use of the utilitarian maxim the "greatest good for the greatest number," derived from eighteenth-century English writer Jeremy Bentham, to which Pinchot added "in the long run." This philosophy for the new agency emphasized that forest management should consider the many needs of forest users and implement long-term decisions that best served the most people as well as the environment over time. The question of who was best fit to determine and fulfill "the greatest good" was answered with the Progressive credo of efficient government regulation based on scientific management.

Meanwhile, the many women who worked for the Forest Service since its earliest days took conservation and, like Pinchot, made it their own. While Forest Service women heartily subscribed to the ideal of scientific management, they added to it a deeper environmental concern and tied it to American morality, culture, and citizenship. In their minds, the practice of forestry was not only for the benefit of the lumberman or the carpenter, but also for the cultivation of relationships between tree life and human life.

Let's take a look at some of these women.

First is Edith Mosher, who worked for the Forest Service from 1905 to 1920. She is known as the founder of conservation education in the agency. And I love how her story begins, almost like a superhero origin story. An elementary school

teacher, Mosher was standing at her blackboard one day in 1900, preparing a lesson inspired by a small peach branch she held in her hand, when it dawned on her: there were no decent instructional books on nature with which to teach her students. Thoroughly irritated at the lack of useful nature texts, she vowed to illustrate her own set of nature books for schoolchildren. So she bought a ticket to Washington, D.C. She told her boss she was going to a teacher's conference. But once she got there, she sold her return ticket, took a civil service exam, and—wham!—was hired by the General Land Office. She moved to the Forest Service once it was established in 1905 and didn't look back.

While she was a clerk under Pinchot, outside of her normal duties she began illustrating those nature texts she had promised herself, and in 1907 Mosher published her first booklet, *Fruit and Nut-Bearing Trees*. The agency saw the value in her work and supported her, leading her to publish two more booklets, *Our Oaks and Maples* and *Our Cone-Bearing Trees*, both in 1909.

The hallmark of these nature texts was her full-page illustrations, roughly thirty close-up scientific—and just beautiful—drawings. In the text, she mixed in scientific observations and lessons for teachers.

Though she started out wanting to provide schoolchildren with more detailed textbooks, her efforts turned into a larger initiative of sharing with students the idea of conservation as a cultural obligation and an entreaty to protect the forests as a civic responsibility.

And how she accomplished this was to connect literature, poetry, and thoughts about American life with nature. She often used poetry and verse to set the stage. For example, she begins the booklet on oaks and maples with the poem from William Wordsworth:

> One impulse from the vernal wood
> May teach you more of man
> Of moral evil, and of good,
> Than all the sages can.[4]

In 1917, she published *Forest Study in the Primary Grades*, the first Forest Service textbook for children that had numerous lessons for schoolteachers, again combining poetry and scientific observations.[5] I think one of her greatest contributions is her poem that gets children to think about fire prevention long before Smokey ever did:

> What do we burn when we burn our trees?
> We burn the home for you and me,
> We burn the carriage house, barn, and shed,
> The baby's cradle, the little boy's sled,
> The book case, the table, the rocker of ease—
> We burn all these when we burn our trees.
> What do we burn when we burn our trees?
> The homes of birds, the squirrels, and bees,
> The home of the brook, and the cooling spring
> Where violets blossom, and bluebirds sing,
> The beauties of nature, so fair to please—
> We burn all these when we burn our trees.

Through this poem and others in her *Forest Study in the Primary Grades*, Mosher emphasized that learning forest conservation issues as a young student made children better citizens and people. She argued that, with a love for nature and an understanding of the interconnectedness of forests and humans, children would grow into adults and citizens more apt to solve the pressing issues facing forests and natural resources. Through prose and poetry, she convinced readers to care for and protect forests as a personal responsibility.

Next, I'd like to talk about Daisy Priscilla Edgerton, who worked for the Forest Service Division of Information and Education from 1923 to 1938. In 1931, Edgerton wrote, "There is perhaps no set of women workers in Uncle Sam's army of federal employees more loyal and enthusiastic for the cause and the job" than those in the Forest Service.

In 1927, she authored *The Forest: A Handbook for Teachers*, which proved quite popular. Like Mosher, Edgerton used literature and culture as a means of helping students understand and relate to forestry, but she emphasized a hands-on approach to learning. "The best way to teach the subject is to take the pupils to the woods," Edgerton instructs. "When this is impossible, specimens and exhibits should be brought into the schoolroom for study."[6] *The Forest* provided information and classroom exercises for grades one through nine that could be carried out over the course of the entire school year. She also authored a textbook in 1930, one of the first of its kind, called *Southern Forests: First Steps in Forest Study*.

"Wherever she goes, young forests begin to grow," a children's newspaper wrote in 1940 of Margaret March-Mount. As the director of Women's Forestry in the Division of Information and Education,

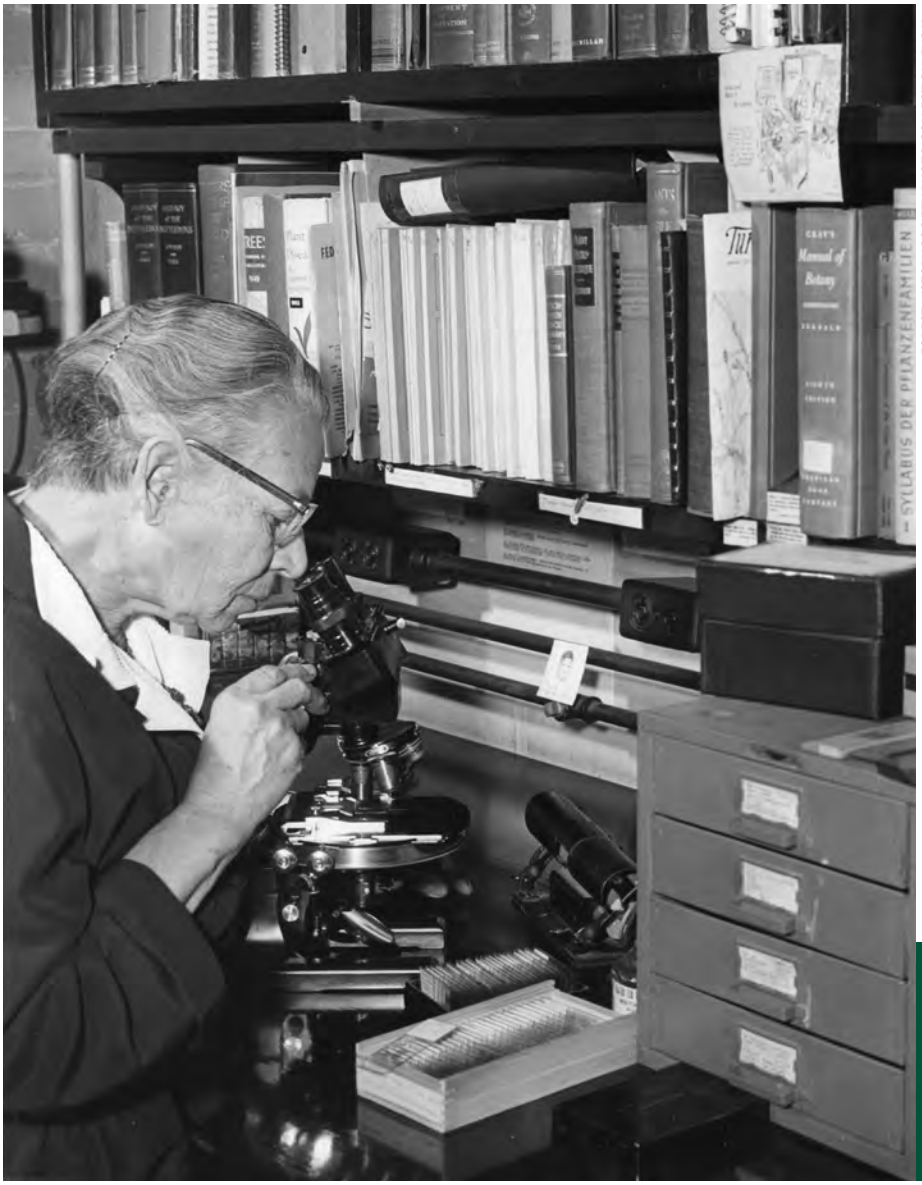
she spoke to thousands of women across the country to convince them of their moral obligation to care for nature and trees. Reading this woman's schedule made me tired. She gave talks to women's clubs, wrote articles, presented lectures, and gave radio addresses. She spoke about conservation programs, planting trees, and fire prevention, and why it all mattered. In particular, she popularized the "Penny Pines" campaign, a children's conservation campaign to encourage students to fund tree planting on national forests. In exchange for every penny given, the Forest Service planted two or three pine trees. For every four dollars received, the Forest Service promised to plant a thousand seedlings in states where pines would grow. She raised so much money for trees, you can still see her forests across the country today.

In 1942, March-Mount wrote in an article for *American Forests* magazine that "No longer is forestry wholly 'a man's profession.' The wonder-world of the forest is now a woman's world also."

She outlined that the goal of the Women's Forestry program was to make women into "forest builders" who would protect the forests as their homes. She claimed that women could build careers at home as foresters, working on the "human side of forestry."[7] March-Mount's program revealed the contrast in men's and women's approach to forest conservation: while Forest Service men predominately viewed timber as a crop to be harvested, women desired to build up forests to enhance American life.

And in the midst of war, she reminded Americans that while bombs explode, trees grow, and from that assurance Americans could find resolve to preserve and protect their forests, homes, and way of life even in uncertainty.

In the tradition of Susan Fenimore Cooper and the nineteenth-century women naturalists, the well-known Dr. Eloise Gerry, the first female research scientist hired in the Forest Service, also connected her scientific findings with community values. In 1924, she wrote a four-part series of short stories for children featured in *American Forests and Forest Life* magazine. The "Pine-Burr Stories" followed a child's adventure into the woods to inspect trees with their father or play with cousins, decorate the Christmas tree made from the delights of the forest, and help plant seeds to grow new forests. By



FOREST HISTORY SOCIETY PHOTO COLLECTION, FHS6859

Eloise Gerry was an accomplished scientist whose field-based studies helped save the naval stores industry in the South.

connecting the stories to the daily lives of children, Gerry showed the importance of large forests and tiny seeds to young children and put a relatable, human face on scientific practice.

These are just a handful of women who carried out the conservation cause through their work and outreach. I've hardly scratched the surface. I could talk all day about lookouts, foresters, librarians, clerks, wives, and more women in research.

I'd like to bring Rachel Carson into the room for a minute. I think she would be in awe at what we're doing here today. Even though she wasn't in forestry, this marine biologist, writer, and conservationist had a profound impact on America's forests with her book *Silent Spring*.

Carson, who was well grounded in science, embodied what might be thought of as the hallmarks of women's environmentalism in the late nineteenth and early twentieth centuries: she brought to scientific resource management a sense of wonder and sentimental appreciation, encouraging parents to share nature with children. "I sincerely believe," said Carson, "that for the child, and for the parent seeking to guide him, it is not half so important to *know* as to *feel*. If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow."[8]

For women in conservation like Carson, Mosher, Edgerton, and March-Mount, the chief aims were educating Americans about resource issues, taking responsibility for nature, and connecting people with the land.

Women's early conservation cause has taken on a modern appearance as "environmental concern," merging contemporary ecosystem management and new professional and field positions with women's historical approach to conservation—focusing less on timber harvests (as men's forestry generally did) and more on multiple uses, increased diversity in forest planning, wilderness designations, and community-based environmental problems. Women's emphasis on a culturally minded conservation philosophy to preserve American life has been instrumental in helping to redirect forestry and, in particular, the Forest Service's management focus to one more closely aligned with the general public's environmental ethos.

Today, women continue to reflect on that philosophy of a conservation cause. Leslie Weldon, a former deputy chief for the National Forest System and now acting chief diversity and inclusion officer in the Office of the Secretary of Agriculture, offered, "I am not alone among women in the Forest Service in sharing a conservation ethic. . . . This commitment has a shared central ethos: that we must work with the people we serve to fulfill our conservation mission."[9] Grizelle González, director of the International Institute of Tropical Forestry, has observed, "Delivering our conservation mission is about openness and willingness to work [across] multiple disciplines and a diverse community of partners."[10] And I'll never forget what Gloria Brown, the first female African American forest supervisor in the U.S. Forest Service, once said to me: that the essence of her career was about her relationships with the people she worked with and the land she cared for.

While my research is primarily concerned with women in the Forest Service, there are so many more stories of women in forestry—landowners, private industry leaders, state foresters, to name just a few—still to tell.

But as this congress proves, you're not alone on this journey. You haven't been for over a century.

Rachel Kline is a supervisory historian for the USDA Forest Service who holds a PhD from the University of New Hampshire.

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U.S. FISH AND WILDLIFE SERVICE

The writings of Rachel Carson changed how Americans thought and felt about nature. She is seen here at the Hawk Mountain Sanctuary in Pennsylvania in 1945.

The Future

Mobilizing Women in Forestry to Save the World

BY EDIE SONNE HALL

Rachel Kline and Edie Sonne Hall spoke at the panel "Women's Legacy and Future in Forestry: Paving the Way for Progress" at the Women's Forest Congress. Edie's presentation followed Rachel's. This article is adapted from that presentation.

My name is Edie Sonne Hall and I'm here to talk about the future of women in forestry. I am going to make the case for why women in forestry are needed to lead the way to help harness the benevolent power of trees to save the world.

Before doing so, I want to give a shout-out to the past. Rachel Kline did an incredible job highlighting the largely unappreciated contributions women have always made to the field of forestry. But it goes without saying that these contributions are largely unappreciated because women were not allowed to be in the jobs that had the most public influence. But I also want to acknowledge the more recent past. I want to acknowledge all of my mentors and all the women in the recent decades who have had to put their foot, toenail, or whatever they could into that weighted elevator door that went to the leadership levels and said: "Excuse me, I believe there's room for one more." You have shown that women *can* do any job that a man can do. Thank you for all the work and sacrifices you have made to get the room ready for us—because look at all of us here today. We are here, and we are ready!

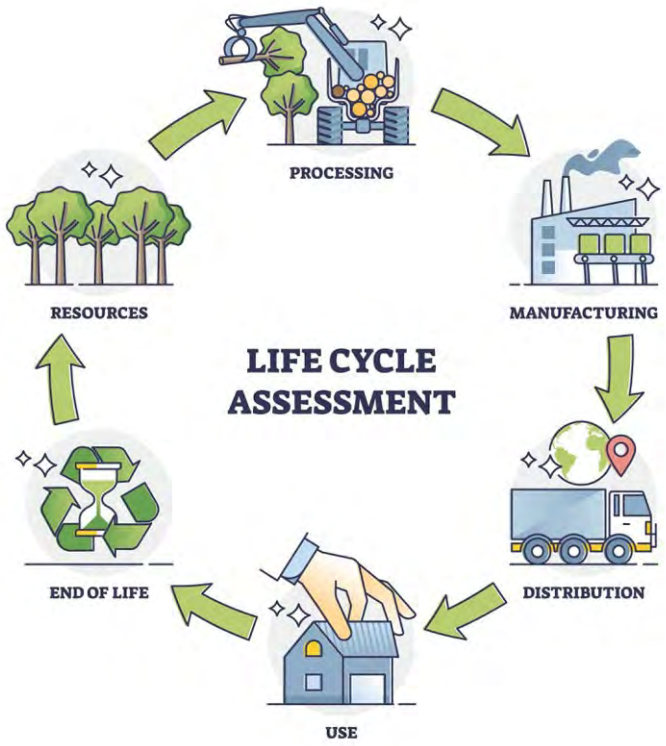
First, a little about me. I love trees. I love trees so much I named my kids after them. But it is the scale of forests and landscapes on which I have focused most of my career. I founded and run a woman-owned small business. I work with organizations of all types—from nonprofits to industry associations to government to individual companies—to help bridge the gap between science and policy and management. I am also a woman tree farmer, with some land that has been in my family for generations as well as some land that I recently purchased with my husband. Some of these trees I love have been purposely planted on abandoned agricultural land in South Carolina, on the land of the Chicora and Waccamah. Others have naturally regenerated around the old stone walls of failed agricultural lands in upstate New York, on the land of the Kanyen'kehà:ka (Mohawk). Still others have filled in and burned after multiple decades of fire suppression and, more recently, fire in north-central Washington in the Syilx tmix (Okanagan) territory of the Confederated Tribes of the Colville. Being a family tree farmer is one of the reasons why I chose a career in forestry, and it certainly provides an important perspective.

Through my jobs and my land and my hobbies, I have studied trees and forests at many different scales—from global projects with the World Business Council on Sustainable Development down to measuring microfibril angles in wood cells when I worked as a wood quality research scientist. I have spent the past twenty-plus years focusing on climate change and how forests and forest products can help reduce atmospheric greenhouse gas emissions. I also follow closely how climate change will, and in many cases already has, altered forests around the world. And every day I am more and more convinced of the power of trees and their ecosystems to help us. I mean, *really* help us.

So what is the problem? We have a planetary resource constraint issue, and we have not been very strategic about it. Currently, the world extracts a hundred billion metric tons of natural resources annually, which we use for society's needs, from housing to transportation to food. The quantity of natural resources extracted annually increased twelvefold between 1900 and 2015 and is expected to double again by 2050.[1] Currently, seventy-four percent of annual resource extraction is of nonrenewable resources.[2] Forty percent of global carbon emissions come from the building sector.[3] Eight percent of global emissions come from concrete alone.[4]

However, much of society's needs can be met with renewable alternatives. Almost anything that is currently made from fossil fuel—from chemicals to packaging to plastic composites, fabrics, and personal

Wood Uses and Their Fossil-Based and Fossil-Intensive Substitutes



Almost anything that is currently made from fossil fuel can be made from renewable resources. This graphic, adapted from Verkerk, et al., *Role of Forest Products*, shows some of the ones made from wood.

Wood foam can be used as insulation in walls, furniture and doors, and packaging and can replace fossil-based polystyrene and polyurethane.

Textiles (made from wood pulp) can replace polyester, polyamides, acrylics, cotton.

Composites (made from wood chips) can be used in decking, siding, roofing, furniture.

Engineered wood (e.g. CLT, LVL, made from sawlogs) used in buildings can replace fossil intensive concrete, steel, bricks.

Bioplastics (made from pulp by-products such as tall oil, wood sugars and lignin) used in packaging (including food grade) can replace fossil plastics.

care products—can be made from renewable resources, including wood. Not only are forest resources the solution to resource scarcity, but they also can play an essential role in providing low-carbon and even negative-carbon products and energy.

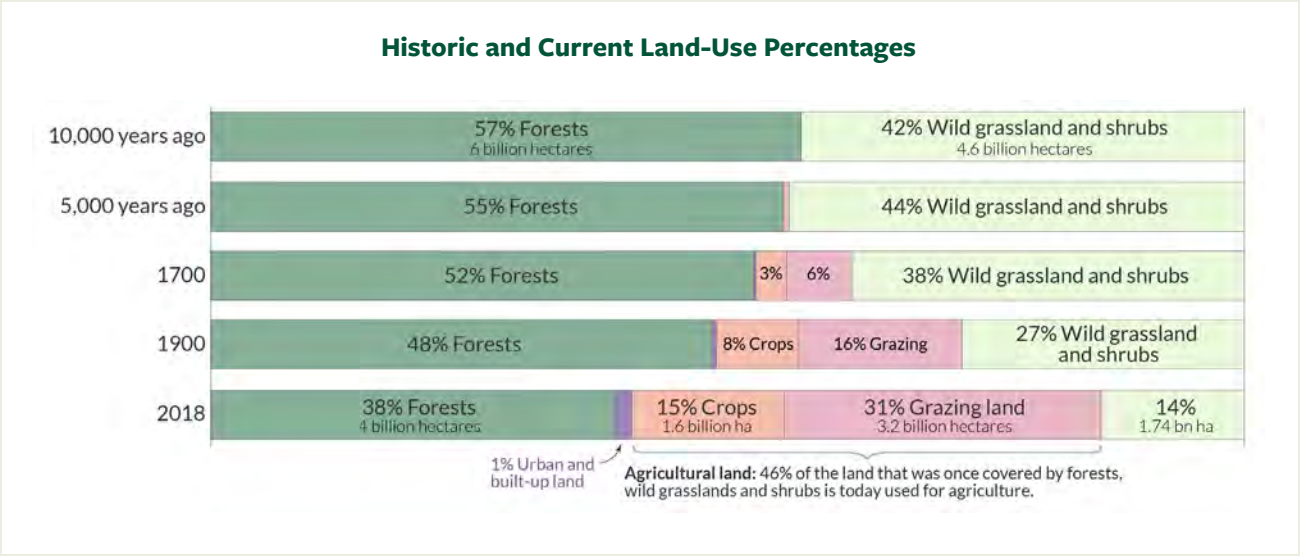
The Food and Agriculture Organization found that the global greenhouse gas (GHG) substitution benefits of using just twenty-five percent more wood-based building materials over the trend line would be the equivalent of 1.9 gigatons of carbon dioxide (CO_2e) in 2050. In addition, the carbon stored in wood products increases the mitigation benefits by another 1 gigaton CO_2e, which together gets us more than ten percent of the way toward the reductions needed to meet a 1.5°C–degree temperature stabilization.[5]

Forests also provide other essential services. They provide drinking water to more than 150 million people in the United States—that's almost fifty percent of the population.[6] Six percent of U.S. forests are within one hundred feet of a water body.[7] U.S. forests support 17,464 native species: 15,256 vascular plants, 1,014 invertebrates (that we know), 459 birds, 233 mammals, 226 reptiles, 216 amphibians, and 60 freshwater fish.[8] Forests also provide flood control, air purification, and shade in cities. And, of course, my favorite—recreation. "Nature Rx" is the real deal.

The bottom line is that trees and forests can do everything! So we have the solution, right? Then why is this so hard? Well, trees are dynamic over space and time, but they do not provide all ecosystem services on every acre or continuously over time. This makes it harder to plan.

Until recently we haven't really had to plan, since Earth is large relative to our population and resource needs. Earth has 10.6 billion hectares of workable land, and that is a fixed asset. However, we have a growing population, and we already overshoot our annual planetary resource allocations. We are now at a point where our population is too large to have inefficient uses of land. This is a reality. But what is also a reality is that we have been really inefficient

OUR WORLD IN DATA, HTTPS://OURWORLDINDATA.ORG/WORLD-LOST-ONE-THIRD-FORESTS



OUR WORLD IN DATA, HTTPS://OURWORLDINDATA.ORG/WORLD-LOST-ONE-THIRD-FORESTS

Over the last 10,000 years, one-third of the world's forests have been replaced by agricultural land. Half of this loss has occurred in the last century alone.

about our land-use management and allocations, and we have not been applying systems thinking.[9]

This is where the natural strengths of women come in. What are some strengths of women? Women tend to be optimizers versus maximizers. Women are good at incorporating trade-offs and managing for both the short and the long term. Women also tend to have compassion and seek cooperation. Maybe it is because women have more practice with all of these. Look around the room at all of you. Over the past week, likely many in your row have been juggling work, arranging carpools, scheduling dentist appointments three months out, and deciding which are the essential actions to meet short-, mid-, and long-term goals. Or caring for your parents, kids, and community members and making sure that no one is fighting. You are all trying hard. And you sometimes fail.

But you are thinking about how to balance it all, and how to find practical solutions to give everyone what they need, including you. I'm not saying that one person needs to do everything—but as a whole, the system must consider everything. And if you are smart, you are enlisting the help of others—your village, your support network. This is important because teamwork and cooperation are what are needed to help harness the power of trees. No one person is going to solve this.

The old saying goes, "For every complex problem, there is an answer that is clear, simple, and wrong."

We know there is not a simple solution. We know that we need to consider context, sustainability, resilience, and the latest research. If we do all these, we can absolutely have a world with healthy, resilient, productive forests that are providing renewable resources for a growing population.

So how do we get there? Here are key elements that will help us help harness the power of trees. Courage. Communication. Teamwork. And balance and joy.

COURAGE

You have information in your brain, based on your set of learned knowledge and experience, that is important to put on the table. It is important because it is likely not already on the table. You have to speak up, even if you don't have the entire answer. And if you don't have the entire answer, say that! Wouldn't it be fantastic if we could all clarify our statements with, "I feel eighty percent confident about what I am about to say." Some people, by the way, absolutely do this, and I think it's a great practice. So speak up, even if you don't think you know everything.

COMMUNICATION

Figure out how you best communicate and what your weaknesses are. Some people provide information only when asked. If it is hard for you to find the courage to provide the information

you know, then find an ally who enjoys being the "butterfly." Align yourself with great partners and allies and appreciate the different strengths of different people. There is not one person who can do everything, so partnerships and teams are essential.

TEAMWORK

A team works well when there is a common goal, when there is trust, and when people care about the goal and about each other. I have been on some incredible teams, and it sure feels good. It is like the energy that comes from within each person coalesces together into one giant superpower. And you know the saying, "There is no 'I' in team"? It's absolutely true.

I've also thought a lot about what our team is in the larger sense. If we are on "Team Trees," then why does it seem like we have so much fighting or miscommunication even among the wide spectrum of people who work with trees, from environmentalists to industry folks across the broad value chain to academics and government officials? We share a common goal, right? We all want healthy, resilient, productive forests, and we all want humans to have the resources they need to live well.

Perhaps we are so accustomed to teams of the people we know—the people we trust. Just as we must embrace diversity of management types over space and time, it is time to ask ourselves, Who is on my team? And what are we fighting for? I'm here to tell you to make room on the field because we are all on the same team, and we are fighting for our planet to not only survive but thrive.

BALANCE AND JOY

First, find your balance. We *all* need this reminder in an age where we are constantly tethered to our phones and on-call for responding to work 24/7. No one is productive 24/7. You need to find the outlet that recharges your battery. Yes, yes, yes—get a hobby, or five. Get rest, get exercise, meditate. But also find the joy. Do something that makes you laugh unexpectedly. Do something foolish, silly, wacky. For example, I spent time leading up to this congress rewriting the lyrics to "Timber" by Pitbull featuring Ke$ha. I was audibly laughing at my desk and then laughed with every person I shared the information with. And you will, too, if you know this song.

Of course, my go-to place for finding joy is in the woods. Which leads me back to forests. They are always the highlight and always the center. We are in awe of their resilience and we are in awe of their longevity. But we are also in awe of their dynamic nature, and we want to figure out how to have ten billion people living well within the limits of this planet. We can't do this without harnessing the renewability of trees. We are at a point where our population is too large to have inefficient uses of land.

In her talk, Rachel quoted the illustrious Pitbull, "To understand the future, you have to go back in time." She helped us understand the incredible ways women have always influenced the conservation thinking of forest and natural resource management. But we had to be sneaky and pretend it was someone else's idea, or prove that we could do anything the same way a man could do it. Now it is time to let our strengths shine. Let's look at the whole system and search for the win-wins across time and space. And you know that room where it happens? That room that we have worked so hard to get into? Perhaps it's time to redecorate it.

Edie Sonne Hall is the founder and principal of Three Trees Consulting, which provides expertise in forest carbon accounting, ecosystem services, green building, life-cycle assessment, and sustainable forest certification.

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PHOTOGRAPH BY CARL RUSSELL. COURTESY OF PAMELA MELÉNDEZ WRIGHT LLOYD

George Wright in Yosemite National Park ca. 1928.

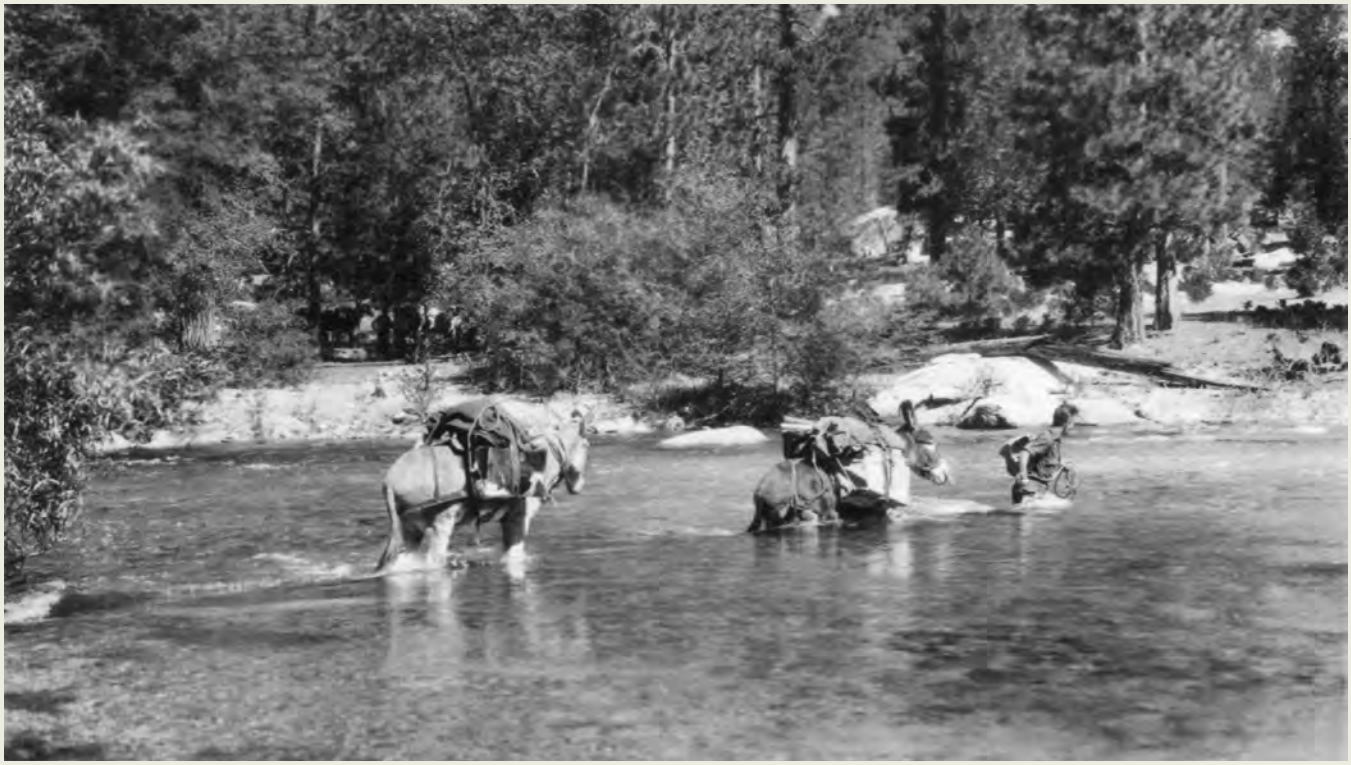
George Meléndez Wright (1904–1936)

By Jerry Emory

George Meléndez Wright's career with the National Park Service (NPS) has been described as brilliant;[1] his views on wildlife and ecosystem management (before, even, the term "ecosystem" was coined), predator control, and wilderness preservation, as revolutionary.[2] And yet, his pioneering ideas were initially stymied in the early 1930s by an entrenched park service bureaucracy and culture that prioritized so-called "façade management": management that disregarded wildlife except for the role it played as spectacle for visitors in its large western parks.[3] Nonetheless, Wright's ideas prevailed.

Wright was born June 20, 1904, to a Salvadoran mother and an American father in San Francisco. Two years later his mother died suddenly and his father passed away shortly thereafter. Wright's two brothers were sent to El Salvador to live with the Meléndez family. Wright, however, stayed in San Francisco and was raised by his step-grandmother, Cordelia Wright, whom he called "Auntie."

Auntie encouraged Wright's intense interest in nature and the outdoors, and soon he was exploring the San Francisco peninsula and beyond. While attending San Francisco's Lowell High School, he wrote for the school newspaper and organized the school's first Audubon Club. "Many field trips will be made," Wright announced in *The Lowell*. "The purpose of the Audubon Club is to study animal life, particularly birds. The work is very interesting."[4]



COURTESY OF PAMELA MELÉNDEZ WRIGHT LLOYD

George Wright crossing a stream in California's Sierra Nevada, Kings River Canyon, on a Sierra Club High Country trip, 1922.

His senior year the gregarious and popular Wright was elected class president. Then, in late 1920, Wright and Auntie moved to Berkeley, and he matriculated at the University of California at the age of 16.

BENEFITTING FROM CROSS-FERTILIZATION

His timing was fortuitous. While at Berkeley, he became a student of Joseph Grinnell, head of the school's Museum of Vertebrate Zoology (MVZ) and a noted conservationist and early advocate of managing forests for wildlife habitat. Though Wright would later be known for his wildlife conservation work, what few today remember is that he actually graduated from Berkeley's Division of Forestry after studying under one of the nation's leading foresters, Walter Mulford.[5] Mulford and Grinnell shared an enthusiasm "for complete interdepartmental cooperation in many projects" and worked toward the school taking "the long lead in forest biology."[6] They even lectured in each other's classes. Wright benefitted from this rich cross-fertilization of forestry and zoology. After graduation, Wright maintained close relations with both professors, and his forestry training served him well in the NPS while working as a biologist.

Although little is known about Wright's academic records in forestry (they were inadvertently destroyed), it is well documented how he built on his formal classroom lessons during his summers—foretelling his future with the NPS. In 1921, he ventured north to Alaska, via steamship, winding through the Inside Passage. The next summer he hiked into California's Kings Canyon and the Sierra Nevada high country just north of Sequoia National Park as part of the Sierra Club's annual outing, one of many he participated in. With other club members, Wright trekked to the top of 14,505-foot Mount Whitney, the tallest peak in the lower forty-eight states, and summitted several mountaintops well over 10,000 feet.

Over the next few summers, Wright and a handful of school friends packed into "Peter," his Ford Model T, and visited all of the western national parks—no easy feat in the mid-1920s, when paved roads were scarce. An early convert to journal keeping and photography, Wright memorialized his 1924 trip with a small illustrated booklet: "The Pilgrimage of Ponderous Peter." While on the shores of Flathead Lake in Glacier National Park, he was moved to write, "Is there anything on this earth that approaches the heavenly state more closely than a night spent at the foot of a noble pine beside a beautiful lake?"[7]

Back on campus, at the MVZ he met Joseph S. Dixon, a former student-turned-colleague of Grinnell's who served as the museum's economic mammologist. Twenty years Wright's senior, Dixon would quickly become one of Wright's key mentors, alongside Mulford and Grinnell.

In the summer of 1926, Wright accompanied Dixon on a three-month expedition to Alaska's Mount McKinley National Park (today's Denali National Park). Their overall objective was to collect bird and mammal specimens. Specifically, however, they were on the hunt for an active surfbird nest, to solve an early twentieth-century ornithological mystery: where the elusive bird reproduced. It was Wright who ultimately found an active nest—turning him into a minor celebrity in ornithological circles. (The next day the duo collected the nest and eggs, as well as a male surfbird.) While in the park, Dixon and Wright hiked approximately 500 miles—lugging along with them their shotguns and knapsacks. In addition to numerous specimens, the two naturalists captured 350 photographs, and recorded a combined 280 pages of fieldnotes.[8]

PHOTOGRAPH BY JOSEPH DIXON. COURTESY OF PAMELA MELÉNDEZ WRIGHT LLOYD

Wright interviewed Yosemite park employees and those who lived nearby, like Maria Lebrado, known as "The Last Yosemite Indian," in order to better understand wildlife and range conditions.

PIONEERING NATURALIST

Wright started a four-month internship at the MVZ in January 1927. In early May, he had just enough time to finish his work at the museum, pack, and drive to the Division of Forestry's Camp Califorest outside of Quincy, California. Participation at the camp was required of all Berkeley forestry students. However, Wright was busy on the side, applying for a job with the NPS. In October, the Department of the Interior hired him as a ranger at Yosemite National Park. A month later, Wright and Auntie moved to Yosemite Valley, and he began working as a ranger naturalist. A year later, Auntie passed away in the Ahwahnee Hotel, where she had been living, leaving Wright financially independent.

Based on his extensive travels throughout the western parks and discussions with his mentors, Wright began to conceptualize, organize, and eventually self-fund a pioneering wildlife survey of western national parks. By late 1929, at the age of 25, Wright convinced NPS Director Horace Albright to approve a three-year survey to scientifically study the best way to "restore and perpetuate the fauna in its pristine state by combating the harmful effects of human influence."[9] Wright paid for all expenses, including a new customized Buick for field work, and he hired Dixon and Ben Thompson, a student of Grinnell's, to join him on the survey. After two years the NPS began funding a portion of the survey's costs.

Together the team conducted some of the first scientific studies of elk, deer, and numerous other species, including groundbreaking work on the endangered trumpeter swan in Yellowstone. Wright served as the principal author of the classic two-volume study of wildlife in the national parks based on the survey's findings: *Fauna of the National Parks of the United States*, commonly known as *Fauna No. 1* (1933) and *Fauna No. 2* (1935).[10]

At a time when national park rangers organized the routine feeding of garbage to bears as part of "shows" for tourists, and the U.S. Biological Survey oversaw the killing of thousands of "bad" predators such as wolves, mountain lions, and coyotes, Wright argued that both practices should be stopped within the parks—and beyond their borders. The wildlife management policies suggested at the end of *Fauna No. 1* were no less than revolutionary for the NPS. The following year, they were declared as official policy; eventually, they would form the foundation for the modern

science-based management of parks and other public lands for generations to come.

In *Fauna No. 2*, Wright forcefully and eloquently argued for the long-term benefits of and need for a holistic approach to wildlife management in parks and other public lands, giving voice to the shift in thinking then underway by a handful of fellow wildlife conservationists:

> If we destroy nature blindly, it is a boomerang which will be our undoing. Consecration to the task of adjusting ourselves to the natural environment so that we secure the best values from nature without destroying it is not useless idealism; it is good hygiene for civilization. In this lies the true portent of this national parks effort. Fifty years from now we shall still be wrestling with the problems of joint occupation of national parks by men and mammals, but it is reasonable to predict that we shall have mastered some of the simplest maladjustments. It is far better to pursue such a course though success be but partial than to relax in despair and allow the destructive forces to operate unchecked.[11]

After *Fauna No. 1* was published and distributed in early 1933, a memo was sent from the NPS's national headquarters to all field offices with reviews solicited from prominent biologists and academics. Mulford took a decidedly personal approach with his endorsement of Wright, Dixon, Thompson, and the publication: "I am so pleased," he wrote, "that I cannot refrain from sending each of you good friends a note of sincere congratulations. You know how deep and loyal is my interest in you three and in the pioneering which you are carrying on so effectively. It is all a source of such great satisfaction to me and my mind often turns in your direction with real happiness."[12]

Before publication of *Fauna No. 2* in 1935, Wright had begun the next phase of his career. By this point, he had conceived of the service's new Wildlife Division and was appointed as its first chief—one of the first Latino staff in the NPS. As chief, he managed nearly thirty wildlife technicians working throughout the parks, primarily in the West, who continued to survey and evaluate the status of wildlife, identify urgent problems, and suggest management solutions. The funding for most of this team came through the New Deal's Civilian Conservation Corps (CCC). His new position necessitated moving his young family from Berkeley to NPS headquarters in Washington in 1934.

About the same time Wright was settling in as Wildlife Division chief, John D. Coffman, a seasoned U.S. Forest Service employee and a fire specialist, had taken charge of the NPS's forestry division, which included overseeing the CCC's efforts within the parks.[13] Coffman's background and training were at odds with Wright's perspective on forest management in the parks.

Wright and his team possessed an unequivocally holistic view of forests as part of the biotic communities of national parks. Many of Wright's professional beliefs about forests came directly from Grinnell, with additional input obviously from Mulford. Grinnell had argued in 1916 that in order to maintain the "original balance" in national parks, "no trees, whether living or dead, should be cut down. . . Dead trees are in many respects as useful as living, and should be just as rigorously protected."[14] Wright echoed him in *Fauna No.1*, stating, "It is necessary that the trees be left to accumulate dead limbs and rot in the trunks; that the forest floor become littered."[15] A year later, he wrote, "One standing snag may be worth more than ten or a hundred living trees in supplying the peculiar habitat requirements of certain bird species."[16]

So while Wright and his team's NPS forestry colleagues concurred, as a whole, that a holistic approach to the parks' forests was best, Wright's primary focus on wildlife and wilderness nonetheless led to disagreements over suggested forest management plans. And nowhere was this truer than when it came to the aftermath of fires, beetle-damaged trees, and the work of the countless CCC crews in national parks.

To reduce the risk of wildfires and for aesthetic reasons, the CCC crews were instructed by the Division of Forestry to cut down all dead trees along park roadways, vigorously clear the forest floor of brush, and burn all debris. At Crater Lake National Park in Oregon, Ben Thompson came across a CCC crew doing just this. The crew was managed by a civilian "straw boss" who, when asked by Thompson what they were doing, said his instructions were to make everything look "prettier."[17] Unsurprisingly, the biologists quickly became concerned with these efforts in the parks, and debates between the divisions of wildlife, forestry, engineering, and planning would continue for years.

Meanwhile, Wright and his team were also questioning the efficacy and environmental impact of the various bark beetle treatments within the parks; the clearing of dead timber in Glacier National Park after the disastrous 1929 Half Moon fire; and the desire to plant ponderosa pines on the north rim of Mesa Verde

National Park in southwest Colorado to make the sparse forest look more verdant, among many other issues. But if nothing else, Wright was a calm, observant diplomat, and a good listener—someone possessed of the ability to get his position across without alienating his colleagues.

In late February of 1936, along with a few NPS colleagues, Wright and Roger Toll, superintendent of Yellowstone National Park, and a dear friend of Wright's, were dispatched to the Texas-Mexico border by President Roosevelt to research joint U.S.-Mexico parks and wildlife refuges with Mexican colleagues. After exploring the region that would eventually become Big Bend National Park, the party drove west, en route to the borderlands of Arizona, to continue their research.

Outside of Deming, New Mexico, Wright and Toll were killed in a head-on collision. Wright was only thirty-one years old. He left behind a wife, two young daughters, and a résumé of remarkable accomplishments and writings one might expect from a biologist twice his age. With Wright's death, the National Park Service lost one of its most promising men and widely recognized conservationists.

After Wright's death the Wildlife Division was never the same. The staff attempted to carry on, but many of the deep-rooted cultural traditions within the NPS that Wright had been able to keep in check reemerged and found new strength.[18] The NPS's emphasis on park infrastructure during World War II and the postwar period to cope with booming visitor numbers pushed science further into the background, and, seemingly with it, Wright's ideas. They would reemerge in a different form in the 1960s. With them, Wright's name and legacy survived throughout the decades—manifested in varied ways. Mountains in parks where he did important work were named in his honor: Mount Wright in Denali National Park and Wright Mountain in Big Bend National Park. The NPS named a building at Acadia National Park's research center after him.

His intellectual legacy is honored as well. In 2010, the agency named a climate change research fellowship that supports graduate student research for him. Forty years before that, though, perhaps the most fitting honor was bestowed when NPS biologists and other public land scientists established the George Wright Society, a nonprofit organization to promote "protected area stewardship by bringing practitioners together to share their expertise."[19] Through its journal and other publications, and its programming, the society fosters the exchange of ideas and encourages collaboration and cooperation with the goal of improving ecological health for the benefit of all, just as George Meléndez Wright had done throughout his brief but influential and inspiring career.

Writer Jerry Emory lives in Mill Valley, California. His book George Meléndez Wright: The Fight for Wildlife and Wilderness in the National Parks *was published by the University of Chicago Press in early 2023.*

NOTES

1. *Outdoor America*, Izaak Walton League of America, April 1936, 10.
2. Richard West Sellars, *Preserving Nature in the National Parks: A History* (New Haven, CT: Yale University Press, 1997), 98.
3. Sellars, *Preserving Nature*, 4–5.
4. George M. Wright, "The Lowell High Audubon Society," *The Lowell*, Lowell High School, San Francisco, 36, no.1, August 17, 1920, 2.
5. The Division of Forestry became the Department of Forestry in 1939, and eventually the School of Forestry in 1946. Paul Casamajor, ed., *Forestry Education at the University of California, Berkeley: The First Fifty Years* (Berkeley: California Alumni Foresters, 1965), 33, footnote.
6. Walter Mulford, Letter to Joseph Grinnell, March 27, 1935, Museum of Vertebrate Zoology Archives, University of California, Berkeley. Mulford and Grinnell failed in their attempt to establish a combined master's program.
7. "The Pilgrimage of Ponderous Peter" is held by the Wright family.
8. Joseph Dixon, *Birds & Mammals of Mount McKinley National Park, Alaska*, Fauna Series No. 3 (Washington, DC: Government Printing Office, 1938), X–XI.
9. George M. Wright, Joseph S. Dixon, and Ben H. Thompson, *Fauna of the National Parks of the United States: A Preliminary Survey of Faunal Relations in National Parks*, Contribution of Wild Life Survey, Fauna Series No. 1–May 1932 (Washington, DC: Government Printing Office, 1933), 4.
10. *Fauna No. 1* was finished in May 1932 but wasn't published until 1933. *Fauna No. 2* was completed in July 1934 and printed in 1935.
11. George M. Wright and Ben H. Thompson, *Fauna of the National Parks of the United States: Wildlife Management in the National Parks*, Contribution of Wild Life Survey, Fauna Series No. 2–July 1934 (Washington, DC: Government Printing Office, 1935), 25.
12. United States Department of the Interior, Office of National Parks, Buildings and Reservations, Washington, DC, "Memorandum for Field Offices," August 25, 1933. Document held by Wright family.
13. John C. Paige, *Civilian Conservation Corps and National Park Service, 1933–1942: An Administrative History* (Washington, DC: National Park Service, 1985), 39.
14. The only exception, they suggested, would be if lumber was needed for building purposes or trees needed to strategically be removed for fire prevention. Joseph Grinnell and Tracy I. Storer, "Animal Life as an Asset of National Parks," *Science* 44, no. 1133 (September 15, 1916): 377–78.
15. Wright, Dixon, and Thompson, *Fauna 1*, 33.
16. George M. Wright, "Men and Birds in Joint Occupation of National Parks," *The Condor* 35, no. 6 (1933): 217.
17. Ben H. Thompson, Memorandum for Messrs. Vint, Coffman, and Wright, August 7, 1934, RG 79 NPS, Region IV, Regional Naturalist, Wildlife Files, 1929–1940, Accn: 82-001 (FRC 52-0235B), General Program and Pest Control Files, Container #1. NARA–Pacific Region (SF), San Bruno, CA.
18. Lowell Sumner, "Biological Research and Management in the National Park Service: A History," George Wright Society, *Forum* 3, no. 4 (1983): 14.
19. "About Us," George Wright Society, accessed September 8, 2022, https://www.georgewrightsociety.org/our-story.

Hobcaw Barony, Georgetown, South Carolina

By Sydney Miller

Belle Baruch was not accustomed to losing. A natural athlete, she won more than 50 sailing trophies by age 17. While living in Europe between 1928 and 1937, the accomplished equestrian captured more than 300 medals in show jumping and steeplechase. But in 1935, she almost lost the prize she desired most—her family's beloved home, Hobcaw Barony.

Hobcaw Barony is the sixteen-thousand-acre preserve on the coast of South Carolina where Belle spent her childhood winters learning to track, trap, hunt, and fish. When she took over the property, she had to learn forestry as a science and as a practice. Gifted and smart, she succeeded at both. In doing so, she made possible the institute for marine and forest research that today has a global reach.

Hobcaw was initially owned by her father, Wall Street financier Bernard Baruch. His career began in 1891 when, three years after graduating from City College and just shy of twenty-one years old, he was hired as an office boy by the brokerage house A. A. Housman & Company. In his free time he not only read, studied, and researched the American industrial landscape but also took night school classes in bookkeeping and law. By 1895, he had become a junior partner. A calculated but risky $300 investment in the American Sugar Refining Company in 1897 earned him a profit of $60,000 in just a few months, a payoff worth $2.1 million in 2022. After buying a seat on the New York Stock Exchange, he began investing his energy and cash in mining, rubber, sulfur, and railroad concerns.

His wealth led to new opportunities and friends. When in 1917 America entered the Great War, Baruch was named chairman of the War Industries Board and then served as a member of the delegation advising his friend President Woodrow Wilson at the Paris Peace Conference. While in Paris, he struck up a warm, life-long friendship with Winston Churchill. Churchill was one of the many politicians and powerful friends who spent time with the Baruchs at Hobcaw.

Isabel Wilcox Baruch—born in 1899 and known as "Belle" to all—accompanied her father on the mission to France, a country to which she would return often. But both Belle and Bernard were always glad to return to his sportsmen's retreat: Hobcaw Barony in Georgetown,

The Hobcaw Barony tour includes a stop at Bellefield Plantation, the home of Belle Baruch, completed in 1937. Belle interspersed indigenous flowering plants of the South with the live oaks.

South Carolina, a little more than one hundred miles east of his birthplace.

Barony does not refer to the nobleman's title *baron*. Rather, it is a measure of land—twelve thousand acres—granted by the English king to one of the eight Lords Proprietors of the Carolinas. In 1718, John Lord Carteret (later Earl Granville) received Hobcaw Barony. Twelve years later he sold the undeveloped land without ever seeing it.[1] Over the next century it was divided and subdivided into plantations.

The barony land reached from the Waccamaw River to the Atlantic Ocean; "Hobcaw" is a Waccamaw tribal word meaning "between the waters." The land Carteret sold was rich and productive. In addition to cypress swamps, which were converted to rice fields, the barony included pine forests that produced timber and naval stores, high ground for subsistence crops and livestock, and tidal marshes.

Through 1861 the various owners prospered, but none of their fortunes survived the Civil War and Reconstruction eras. By the late nineteenth century, instead of cultivating rice, many impoverished landowners were "cultivating" northern sportsmen to hunt the abundant game. Bernard Baruch initially came to Hobcaw as a fee-paying duck hunter in 1905. He clearly enjoyed the outing and the place. So much so, that he surprised his hosts with an offer to buy the property. Within two years, he had reassembled most of the original barony and added another four thousand acres and was soon inviting guests to his private game preserve.[2] Baruch was one of the first northern millionaires to purchase a former rice plantation for hunting. These sportsmen-owners helped rebuild the depressed agricultural economy of South Carolina in the early years of the twentieth century.

"THE YOUTHFUL DIANA"

When Baruch and his family arrived at Hobcaw in 1905, the forest consisted of young timber and trees left from a diameter-limit cut in the late 1800s.[3] Most of the uplands that had been cultivated for vegetables and feed crops were allowed to revert to forest. Baruch's goal was a forest that supported high game populations for himself and the guests of the hunting preserve. This land plan suited that purpose admirably.

Belle was five years old in 1905. The Baruchs' typical residency at Hobcaw was November through April, so she grew up spending winters there. Guests were always coming and going, eager to enjoy the family's hospitality and the duck hunting—both legendary. In addition to Winston Churchill, the guest roster included such luminaries as businessman Solomon R. Guggenheim, publisher Joseph Pulitzer, General George C. Marshall, popular composer Irving Berlin, writers Jack London and Edna Ferber, and President Wilson's widow, Edith Bolling Wilson.

On arrival every November, each of the Baruch children signed the guest book with name, address, and comments. When she was eleven, Belle entered, "This place is nicer than words can express." At sixteen, under "Address," Belle wrote, "I wish it was Hobcaw Barony instead of West 52nd Street," and in the "Remarks" column, "Home again."

Belle's love of Hobcaw Barony was enhanced by its superintendent, Jim Powell, who taught her about the woods and waters. She learned to ride horses (and would later become an accomplished equestrian) on the still unpaved roads. All three children hunted with their father, especially enjoying his annual deer drive. In 1913, with hunters from all over the county, Belle shot her first deer. As the *Georgetown Daily Item* reported, "There were 40 deer jumped, and eighteen shots fired, which resulted in only one deer being brought down, and that was killed by Miss Baruch."[4] Her success was also reported in the New York papers, with one dubbing her "the youthful Diana."[5]

Once the Great War had concluded, Belle began to spend most of each year in France, eventually settling in Pau, a horsey enclave near the Pyrenees. However, her heart was always in Hobcaw, which she called the "friendliest woods in the world." By Christmas 1934, she was asking her father about buying Hobcaw from him. Even after having spent the last several years competing in Europe, she considered it home. She was worried that as her father aged he might give it to her brother or sell it to somebody else or—worse—divide it, then sell it. A skillful hunter, she wanted to keep the wildlife habitat intact. After some delay, he agreed to sell her part of Hobcaw Barony—initially five thousand acres—in 1935.[6] He was delighted Belle shared his love of the place and made a gift to her of one-half the purchase price as a demonstration of his pleasure. With another war in Europe looming, he wanted his high-profile ex-pat daughter with a Jewish surname out of Europe. Offering her part of Hobcaw proved to be the perfect lure. Included in their bargain was the condition that Belle begin managing the place.

Management of Hobcaw Barony was a tall order. As Mary Miller details in her biography of Belle, *The Baroness of Hobcaw*, responsibilities included oversight of "the various water systems and power and refrigeration plants, laundry, ninety miles of roads, four bridges, three Black villages, the church, two schools, the dispensary, docks and water

Belle Baruch turkey hunting at Hobcaw in 1937. Her desire to maintain good wildlife habitat motivated her to purchase the property from her father.

towers, boat landings, and several houses for various White employees on the property."[7] Not to mention all the boats, motor vehicles, farm equipment, machinery, and Belle's two airplanes—she was a licensed pilot—and the fuel tanks and pumps necessary to keep them running.

Up to this point of her life, Belle, who knew the land from years of hunting on it, understood little of forestry and forest management. Then war came. With wood desperately needed for the war effort, the War Production Board formed the Timber Production War Program in 1943 to increase the nation's lumber supply.[8] Belle and her father began supplying Hobcaw wood to the Georgetown Paper Mill's newly established container plant, which made weatherproof boxes used by the U.S. Armed Services to ship supplies to troops overseas.

Bernard Baruch once again served his country during wartime by acting as a presidential adviser. Early in 1944, President Franklin D. Roosevelt's declining health concerned his doctors, who prescribed rest. The president accepted his friend's invitation to do so in South Carolina and stayed nearly a month. Baruch turned over Hobcaw House to FDR and his people, opting to stay with Belle in Bellefield—the house she had built a few miles north. The exhausted president fished and enjoyed the grounds and sites. "At night, driving through the great corridors of trees, he might see the deer . . . motionless, against the mossy trunks."[9] His wife Eleanor wrote, "Hobcaw was just the right place for Franklin, who loved the country and the life there."[10]

Shortly after the president's visit, more woods were logged. With Belle as manager and her father as owner, two tracts were cut in 1944 and 1945; the proceeds were donated to Converse and Clemson colleges. The decision foreshadowed a closer relationship with Clemson.

In 1943 Bernard sold another portion of the property to Belle, bringing her holdings to fourteen thousand acres. After the war, many of the African American men who had lived and worked on Hobcaw Barony did not return, instead leaving for factory jobs in nearby Georgetown and elsewhere. Belle then hired White residents of Georgetown. A local man named Nolan Taylor was her superintendent; with the help of seven other employees, the two of

Bernard and Belle Baruch in 1957. Of the three Baruch children, Belle had the strongest attachment to Hobcaw.

them maintained the property and all its woods, waterways, shores, and structures.

One new structure was the hangar Belle built to house her airplanes. She took up flying as her arthritis began to curtail her horseback riding. Many times Belle flew her plane to personally pursue and buzz poachers on her property.

In 1951, she invited Ella Severin, a friend from her days in France, to come for a visit. Although she never intended to remain in the United States, when Belle asked her to stay on, Ella accepted. She proved to be a highly compatible partner for Belle, aiding her in the running Hobcaw Barony and other pursuits.

Three years later, Hurricane Hazel was the catalyst for Belle's return to logging at Hobcaw Barony. The Category 4 storm made landfall just north of Hobcaw, bringing an eighteen-foot storm surge and peak wind gusts of more than one hundred miles per hour. Belle and Ella were in Paris at the time. Bernard Baruch cabled them about the hurricane and said he was selling the fallen trees on his property; he urged her to follow suit.

The hurricane salvage that she sold to the Beal Lumber Company totaled two million board feet. A Beal vice president advised her to cut the rest of her land because "60% of the timber was overmature (ripe in his words)."[11] With that and the offer to pay $100,000—$1.1 million in 2022—Belle was convinced. A few months later, she signed her first timber contract and began actively managing the Hobcaw Forest.[12]

For the next ten years, Belle set out to methodically cut and regenerate the forest. She sought professional management advice but personally supervised the implementation. Each year from 1955 until her death in 1964, Belle sold at least 1.4 million board feet to local mills; usually her total was in excess of 2.5 million. Because her goal was to protect soils and residual timber, her sales were run two at a time, one on a wet site and one on a dry site. Such a plan allowed logging even during wet weather without harming the soil.

According to Thomas M. Williams, professor of forest hydrology at the Baruch Institute of Coastal Ecology and Forest Science, all sales were made only on marked timber. The residual stands contained from thirty to sixty square feet per acre of basal area. The adopted forest plan called for cutting the entire forest to this density to allow regeneration, then removing the residual after the new stand was established. The cuts done in 1964 and 1965 on the northeast corner were the second cut in this sequence. When done with proper care, prepared seedbed, and control of competing vegetation, this type of cutting is called the seed tree or shelterwood method, depending on the residual stocking. Shelterwood was Belle Baruch's preferred system of natural regeneration and an accepted practice of the day.[13]

Belle placed Ella Severin (right) and a board of trustees in charge of carrying out her vision for Hobcaw.

WITH HER WILL, THERE'S A WAY

Belle died from cancer in 1964, one year before her father. By the terms of her will, her estate established a private foundation "for the purpose of teaching and/or research in forestry, marine biology, and the care and propagation of wildlife and flora and fauna in South Carolina, in connection with colleges and/or universities in the state of South Carolina."[14] She named the foundation after her father, but he demurred and requested that the trustees so honor his daughter. Thus it is the Belle W. Baruch Foundation (BWBF, or Baruch Foundation) that holds Hobcaw Barony.

In her will, Belle wrote, "I have spent many happy hours on the Hobcaw property . . . This property came to me through my father, Bernard M. Baruch, and I wish to establish a memorial to him for charitable and educational purposes and use the Hobcaw property as the nucleus for these beneficial uses." She named as trustees New York City businessmen and her long-time companion, Ella Severin, also granting the latter life interest in her house Bellefield.

Once settled at Bellefield, Ella and the nonresident trustees went right to work. Decisions about the land, water, buildings, employees, heirs, and animals (both domestic and wild) had to be made, so the trustees needed to become familiar with the place quickly. Resolving how best to move forward while executing Belle's wish that the plantation become a place for teaching and research dominated their efforts in the early years. Especially daunting was determining how to use the seven thousand acres of forest. Is an undisturbed forest the best for research? Should they allocate a portion for tree farming? Many experts volunteered their unsolicited advice, including Richard Pough, president of the Natural Area Council; Matthew J. Brennen, a director of the Pinchot Institute for Studies in Conservation; and Kolman Lehotsky, chair of the Department of Forestry at Clemson.

In a letter to her cotrustees dated March 1, 1976, Ella wrote, "Belle's concept of beauty was the way the woods look today and that she on numerous occasions told me she would like them to look this way always." She continued, "We do not need any more experts [to] come and tell us what we can do. There are only two alternatives and the sooner we decide the better it will be for all concerned." Belle's wishes won the day.

The Baruch Foundation works with colleges and universities in South Carolina on its many research projects, and hosts school groups, at Hobcaw. Belle set up the foundation "for the purpose of teaching and/or research in forestry, marine biology, and the care and propagation of wildlife and flora and fauna in South Carolina."

The Belle W. Baruch Foundation Forest Policy, declaring that no more than a thousand acres would stand as an undisturbed forest and the remainder be managed in an "manner agreed to by the trustees," was adopted on May 11, 1967. To carry out this policy of forest management, the board of trustees engaged Clemson University.

The goal was a forest for research and education. (Today, Hobcaw is open to families and school groups; guided tours highlight the barony's history, ecology, and research and begin at the Hobcaw Discovery Center.) The management strategy was to create "a mosaic of stands from 50 to 200 acres in size which represented the distribution of species best suited to available sites and distribution of ages throughout the life span of loblolly and longleaf pine."[15]

Early in its affiliation with the foundation, Clemson foresters employed three approaches: thinning the stands established by Bernard Baruch to encourage vigorous growth plus insect and disease resistance, completing the second cut of stands managed by Belle Baruch in the shelterwood sequence, and executing a series of salvage cuts to contain the southern pine beetle epidemic. The merchantable timber sold in those years did not reach the volume of Belle's sales, but the research value of the forest was increased with the harvesting of overmature trees and eradication of the pine beetle.

By the early 1970s, the Belle W. Baruch Forest Science Institute of Clemson University had constructed a small building on the property for resident scholars and staff. A forest research lab, built in 1989, facilitated on-site research: no longer would samples have to be sent to Clemson for processing.

Hobcaw Barony researchers have produced some influential results. For example, Thomas M. Williams's studies in forest hydrology led to the first statement of best management practices for forest operations in South Carolina and formed the basis for the South Carolina Forestry

Commission's *Best Management Practices for Forestry* handbook.

For more than twenty years, the Hobcaw Forest was managed as outlined in the initial policy implemented in the late 1960s, with a thousand acres undisturbed. By the late 1990s, however, how to manage a forest for timber production was no longer a pressing question; scientists now needed to know more about managing for wildlife, aesthetics, and other values. Accordingly, the board changed the foundation's purpose and adopted a plan to focus on unique, threatened, and endangered species.

To execute their updated objectives, the trustees brought the land conservation function in-house, relieving Clemson of its supervisory duties and hiring forester George Chastain to administer the management plan. His charge was to increase the forest's research value, especially as it would inform protection of the threatened red-cockaded woodpecker and the longleaf pine ecosystem.

Longleaf pine research results have proven meaningful in many applications. Hobcaw's longleaf forests are a laboratory for studying carbon and water cycling. Clemson University, in partnership with The Nature Conservancy and South Carolina Natural Resources Conservation Service, is currently conducting a multiyear project that will determine the longleaf pine forest's ability to sequester carbon and water. The team measures the rate of ecosystem carbon sequestration from 120-foot-tall research towers positioned in newly restored and mature longleaf stands. The data will not only inform private landowners about the merit of this valuable species but also aid policymakers in managing land for mitigating climate change.[16]

On the forest floor, another recent study focused on the firefly. Researchers at the Baruch Institute of Coastal Ecology and Forest Science—as the Baruch Forest Science Institute is now known—had received anecdotal reports that the lightning bug population was diminishing. Initially, they thought to examine the response of fireflies to prescribed burns, a regular occurrence in every pine tract. In the first year of the project, the researchers used twelve habitats found on Hobcaw Barony as their study area and invited citizen scientists to assist in the count.

Word spread, and by the next summer the Vanishing Firefly Project went live with a mobile app for citizen-science census takers to use. Researchers learned that "fireflies are a very local animal," according to J. C. Chong, an entomologist at Clemson who co-leads the project with Clemson biogeochemist Alex Chow. "They don't disperse very much . . . [so] if you destroy that particular environment, the fireflies will be gone too." The app is now used around the world to determine whether firefly populations are declining and why.[17]

These are just a few examples of the research carried out at Hobcaw Barony today. In the last years of her life, Belle Baruch spent time thinking about what would become of Hobcaw Barony after her death. Did she ever imagine that its future would include research with global implications for something as big as longleaf pines or as small as a firefly? We don't know. But her decision to devote this unique property to research on forests, wildlife, and waters has made both possible.

Sydney Miller is director of development at Hobcaw Barony. You can learn more about the history of the site from precolonial times to the present, and the different research conducted there, at hobcawbarony.org.

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The Mineral Tree

By Stephen Arno and Carl Fiedler

Douglas-fir is the most widespread conifer in western North America. The range for both the coastal (*Pseudotsuga 1 menziesii var. menziesii*) and inland varieties (*Pseudotsuga menziesii var. glauca*) extends 2,500 miles from central British Columbia to tropical southern Mexico, and from the California coast to Colorado's Front Range.

The first scientific name for Douglas-fir was proposed in 1803 based on foliage collected in 1791 during a voyage along the Northwest coast. Incredibly, 17 more names were submitted over the next 150 years before botanists formally agreed on a name. Its genetic diversity exceeds that of all other conifers in the Northern Hemisphere (13 pairs of chromosomes compared to 12 pairs or fewer in other species), and Douglas-fir occupies more kinds of forest habitats than any other tree in its domain.

In moist coastal environments, the species depends on fires, logging, and other disturbances to avoid replacement by shade-tolerant western hemlock and other evergreens. In drier inland environments, it is often the most shade-tolerant tree, replacing ponderosa pine, western larch, and sagebrush-grassland.

Douglas-fir was prized by native peoples for crafting specialized fishing-related implements and for fuel. They used the bark, resin, and pine needles to make herbal treatments for various diseases. Native Hawaiians built double-hulled canoes from coastal Douglas-fir logs that had drifted ashore. Today, the species is valued for its strength, hardness, and durability, and is widely used for timber frame construction and timber trusses, and in veneer and plywood.

The coastal variety can reach 330 feet in height. The tallest Douglas-fir measured, and repeatedly photographed, by foresters was located near Mineral, Washington. The Mineral Tree was 393 feet tall and more massive than any other known Douglas-fir, as reported by canopy researcher Dr. Robert Van Pelt. Located southwest of Mount Rainier, it was 1,020 years old when felled in 1930. It was about 13 feet taller than the tallest coastal redwood. Van Pelt explains that the Mineral Tree and even 400-plus-foot Douglas-firs, measured by loggers where they fell, were logged in the early 1900s, while redwoods have been protected by Save the Redwoods League since 1918.

The Mineral Tree was cut down in 1930.

Stephen Arno was a retired forest ecologist with the U.S. Forest Service. Carl Fiedler is a writer. This article is from their book Douglas fir: The Story of the West's Most Remarkable Tree *(Mountaineers Books, 2020).*

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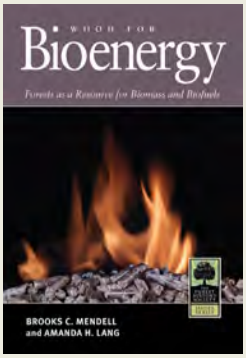

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by Brooks C. Mendell & Amanda Lang
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Today, as much of the world seeks to reduce dependence on fossil fuels, energy companies and nations alike are turning once again to our oldest renewable energy resource—wood. Both developing and industrialized countries are increasing their use of wood biomass as a direct substitute for fossil fuels for heating and producing electricity.

But using wood for bioenergy and biofuels is not without its issues. Of primary concern is if the wood needed for those purposes can be secured on a sustainable basis. And without sizable subsidies, it is not yet cost effective to convert wood to liquid fuel at a commercial scale. Other issues include the relation between biomass harvesting and carbon emissions, evaluating supply chain systems for energy markets, and the effect subsidies can have on the price of wood. By reviewing the historical context and contemporary issues surrounding this topic, ***Wood for Bioenergy: Forests as a Resource for Biomass and Biofuels*** provides a primer for teachers, policymakers, energy producers, landowners, forest managers, and journalists on this critical energy source.

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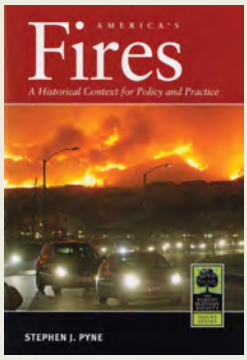

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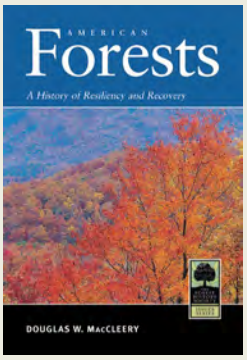

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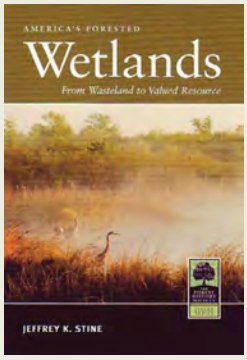

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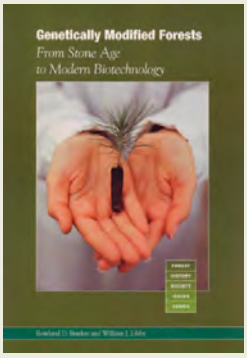

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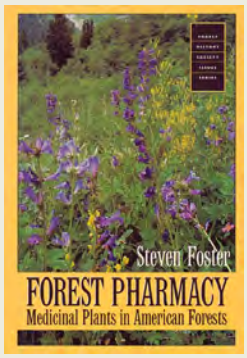

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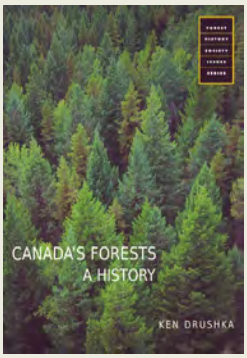

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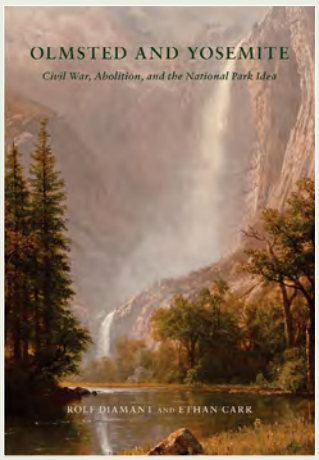
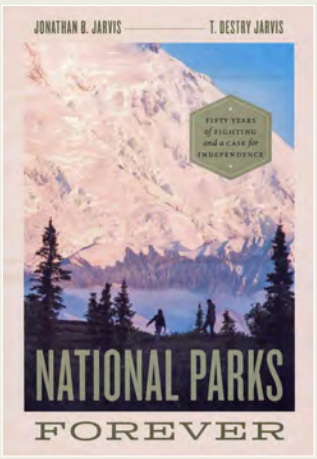
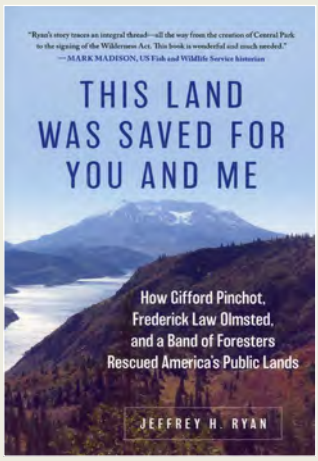
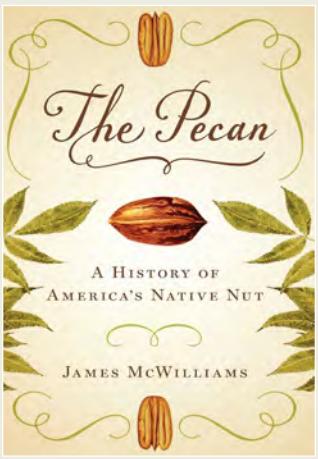








BOOKS

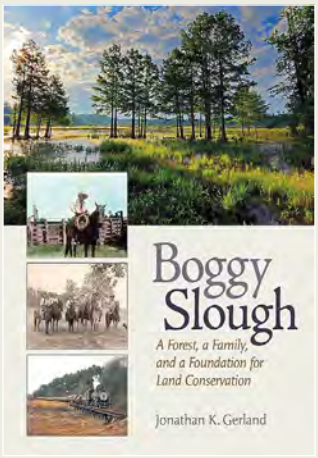
The American Civil War transformed the nation and the federal government in many ways, some more obvious than others. One lesser-known area was in natural resources conservation. In ***Olmsted and Yosemite: Civil War, Abolition, and the National Park Idea*** (Library of American Landscape History, 2022), Rolf Diamant and Ethan Carr revisit Frederick Law Olmsted's "Yosemite Report" and its enduring vision of how popular government could use its powers to improve the lives of those who had fought for a new birth of American freedom. They demonstrate how antislavery activism, war, and the remaking of the federal government gave rise to the American public park and concept of national parks.

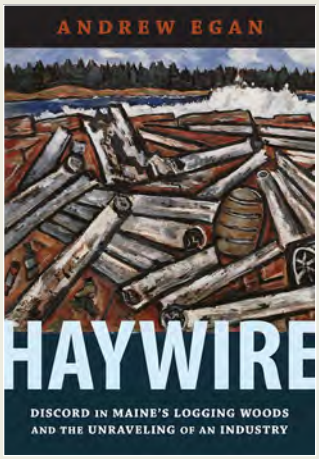
The past half-century of U.S. national park history is covered in ***National Parks Forever: Fifty Years of Fighting and a Case for Independence***, by Jonathan B. Jarvis and T. Destry Jarvis (University of Chicago Press, 2022). Jonathan Jarvis, the eighteenth director of the National Park Service, and his brother Destry Jarvis, who spent forty-six years in nonprofit and government conservation work, offer a history of the agency and an argument for making the NPS an independent agency—comparable to the Smithsonian Institution, separate from the Department of the Interior. Their history also details how Congress and administration appointees have used budget and staffing cuts to sabotage NPS's ability to manage the parks and even threatened their existence.

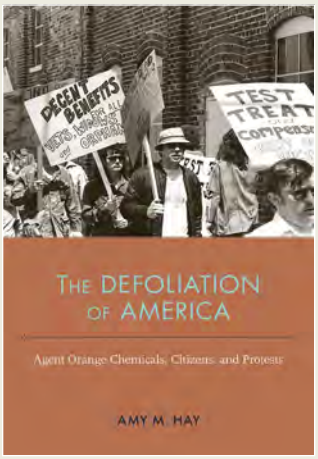
This Land Was Saved for You and Me: How Gifford Pinchot, Frederick Law Olmsted, and a Band of Foresters Rescued America's Public Lands (Stackpole Books, 2022), by Jeffrey H. Ryan, tells how America's public lands—its celebrated parks, forests, and wilderness areas—can be traced to a handful of conservation pioneers and protegees who shaped policy and advocated for open spaces. Ryan provides context for their decisions and the political and economic factors that contributed to the triumphs and pitfalls in the quest to protect public lands.

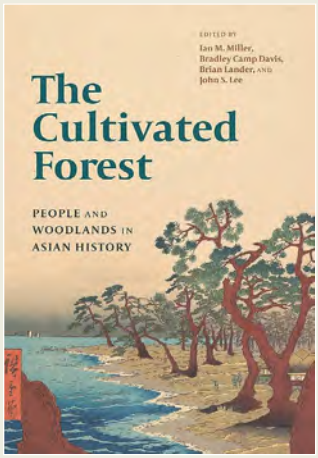
The Pecan: A History of America's Native Nut, by James McWilliams (University of Texas Press, 2022), is the latest in a spate of books focused on a single species, and the second in three years on the pecan. This natural history about America's most important commercial nut describes how essential the pecan was for Native Americans. Because of its edibility, abundance, and ease of harvesting, the pecan was left in its natural state longer than any other commercial fruit or nut crop in America. Like so many other commercial trees, however, the pecan is vulnerable to a "perfect storm" of economic threats and ecological disasters that could wipe it out within a generation.

Boggy Slough Conservation Area is a 19,000-acre unbroken tract of pine and bottomland hardwood forest in East Texas's Trinity and Houston counties under conservation easement. It is owned by the descendants of T. L. L. Temple, a lumberman who established the Southern Pine Lumber Company in 1893 and once controlled a 1.2 million–acre forest empire. A blend of environmental, cultural, and business history, ***Boggy Slough: A Forest, a Family,***









and a Foundation for Land Conservation (Texas A&M University Press, 2022), by Jonathan K. Gerland, presents a narrative of the land, people, and evolving purpose, from time of European contact to the present, and follows the family's efforts to ensure the land remains a sustainable working forest.

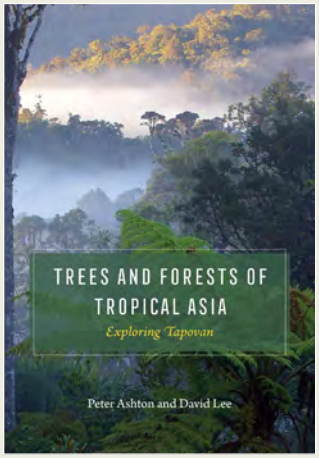
Seeking greater profits after World War II, logging companies in Maine let go of their crews, hiring instead a workforce of independent contractors who were forced to purchase expensive equipment and compete for contracts with the mills. That decision still reverberates. Drawing on his own experience with the region's forest products industry, interviews with Maine loggers, and court documents, Andrew Egan follows the troubled history of the industry and its battle for survival in ***Haywire: Discord in Maine's Logging Woods and the Unraveling of an Industry*** (University of Massachusetts Press, 2022).

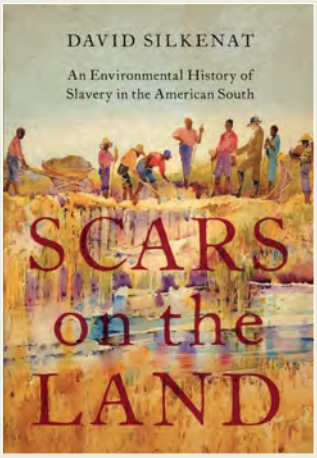
In ***The Defoliation of America: Agent Orange Chemicals, Citizens, and Protests*** (University of Alabama Press, 2022), Amy M. Hay offers a much more complex story of Agent Orange and other phenoxy herbicides than has been told to date. Coverage ranges from the battlefields of Vietnam to the political battles in the American West from the 1960s to the 1990s. The inclusion of case studies of grass-roots activism in Arizona, California, and Oregon makes this text worth considering for classroom use.

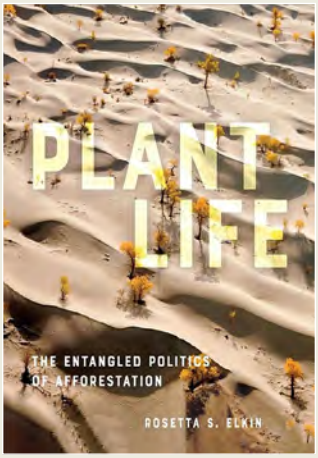
The next two books provide a much-needed understanding of forests in Asia. ***The Cultivated Forest: People and Woodlands in Asian History***, edited by Ian M. Miller, Bradley Camp Davis, Brian Lander, and John S. Lee (University of Washington Press, 2022), presents case studies from China, Japan, Korea, Taiwan, and Sumatra that explore continuities in the history of forest management across millennia and the different roles that wood and woodlands have played in the histories of East and Southeast Asian regions. Taking a multidisciplinary approach, the volume transcends "the frameworks imposed by colonial or national histories" and places studies of Asian forests into conversation with global forest histories.

In ***Trees and Forests of Tropical Asia: Exploring Tapovan*** (University of Chicago Press, 2022), Peter Aston and David Lee discuss the geology and climate that have produced the leafy, humid, forested landscapes of tropical Asia, the diversity of species that inhabit them, and the role of humans in modifying the landscapes over centuries. This book is a condensed, accessible, and updated overview of Ashton's previous work, *On the Forests of Tropical Asia*, and is aimed at students as well as conservation and tropical forest biologists and ecologists. It includes two chapters devoted to forest history.

Scars on the Land: An Environmental History of Slavery in the American South (Oxford University Press, 2022) presents a comprehensive history of American slavery, examining how the environment fundamentally formed enslaved people's lives and how slavery remade the southern landscape. Wherever they lived, argues David Silkenat, enslaved people found their lives indelibly shaped by the southern environment.







The chapter "Dragged Out by the Roots" investigates the role of slavery in the destruction of southern forests and how enslaved people used forests.

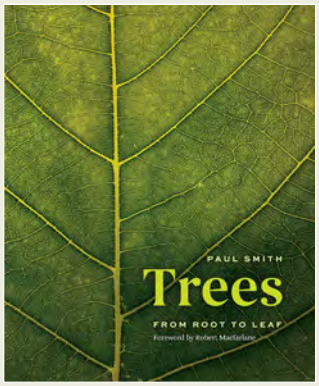
The morality of tree poaching is not as simple as we might think: stealing trees is a form of deeply rooted protest, a side effect of environmental preservation and protection that uproot or marginalize communities when park boundaries are drawn. This is what writer, researcher, and oral historian Lyndsie Bourgon discovered when investigating tree poaching. ***Tree Thieves: Crime and Survival in North America's Woods*** (Little, Brown Spark, 2022) introduces readers to tree poachers, law enforcement, forensic wood specialists, the residents of former logging communities, environmental activists, international timber cartels, and indigenous communities along the way.

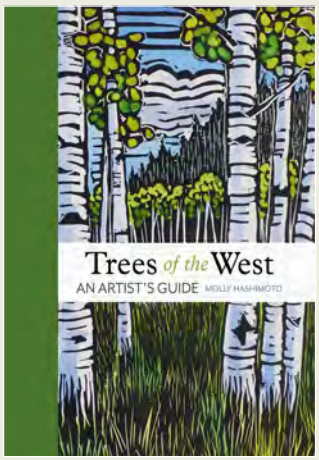
The large-scale planting of trees in otherwise treeless environments, including grasslands, prairies, and drylands, is both panacea and problem. Rosetta Elkin, in ***Plant Life: The Entangled Politics of Afforestation*** (University of Minnesota Press, 2022), uses three case studies—scientific forestry in the American prairies (including the Nebraska National Forest), colonial control in Africa's Sahelian grasslands, and Chinese efforts to control and administer territory—to explore the political implications of planting trees as a tool of environmentalism. *Plant Life* ultimately reveals that afforestation cannot offset deforestation, an important lesson that sheds light on current prescriptions to simply plant our way out of climate change.

Two books use art to help readers appreciate trees in a new way. Paul Smith's ***Trees: From Root to Leaf*** (University of Chicago Press, 2022) celebrates the great diversity and beauty of the sixty thousand tree species that inhabit our planet. It's illustrated with more than 450 images organized according to trees' life cycle—from seeds and leaves to wood, flowers, and fruit. In ***Trees of the West: An Artist's Guide*** (Skipstone, 2022), Molly Hashimoto presents forty-five major species of trees found in different bioregions of the western United States, illustrated in a variety of artistic styles and mediums: block prints, watercolors, intaglio etchings, and pencil, pen, and wash sketches. The author includes a rich natural history and brief ethnobotanical notes for each featured species, plus poems and quotes from other writers and artists celebrating our connection to trees.

Two children's books are worth seeking out. In 1971, astronaut Stuart Roosa carried hundreds of tree seeds with him to the moon. When he returned, the U.S. Forest Service germinated the seeds into "moon trees" that were planted all over the world. In Carolyn Bennett Fraiser's ***Moon Tree: The Story of One Extraordinary Tree*** (Reycraft, 2022; for ages seven to ten), with illustrations by Simona Mulazzani, a girl finds a sycamore tree dubbed a "moon tree" and wonders why it is called that. She and her third-grade class determine to find the answer. Their quest leads them to NASA and an extraordinary boy who grew up to be an astronaut (Roosa), a broken metal container, and a story more fascinating than they could have ever imagined.

Written by Julie Dunlap and illustrated by Megan Elizabeth Baratta, ***I Begin***





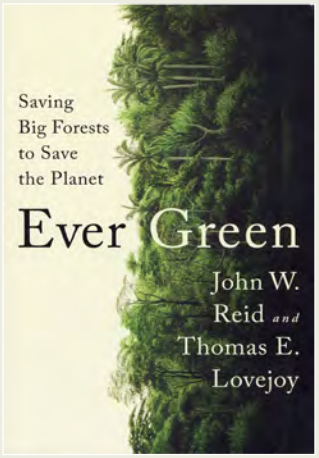
with Spring: The Life and Seasons of Henry David Thoreau (Tilbury House Publishers, 2022; for ages nine to twelve) weaves natural history around Thoreau's life and times in a richly illustrated field notebook format that invites browsing on every page. Beginning each season with quotes from Thoreau's schoolboy essay about the changing seasons, the biography follows him through the fields and woods of Concord, the joys and challenges of growing up, his experiment in simple living on Walden Pond, his participation in the abolition movement, and his thoughts on self-reliance, science, and literature.

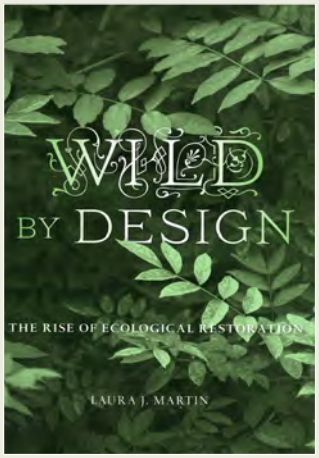
Megaforests are vital to preserving global biodiversity, thousands of cultures, and a stable climate, argue economist John W. Reid and biologist Thomas E. Lovejoy in ***Ever Green: Saving Big Forests to Save the Planet*** (W. W. Norton, 2022). The Taiga, the Amazon, the Congo, and other megaforests serve an essential role in decarbonizing the atmosphere, and saving them constitutes the fastest, most affordable way to start addressing our planet's most formidable ongoing crisis. Clear, provocative, and persuasive, *Ever Green* offers practical solutions—from supporting indigenous forest stewards to planning smarter roads—in an inspiring call to action for the planet.

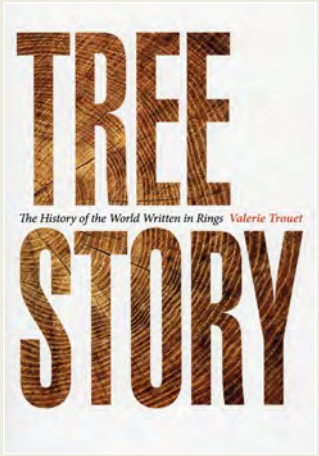
Ecological restoration work leads us to reimagine nature—and the nature of environmental justice. Since the early 1900s, restorationists have confronted vexing philosophical questions: Which states of nature should be restored? Who should choose? Is human-designed wilderness really wild? In ***Wild by Design: The Rise of Ecological Restoration*** (Harvard University Press, 2022), Laura J. Martin examines ecological restoration's long history and addresses those questions.

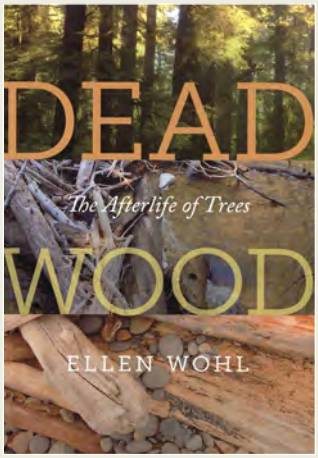
Recent findings of tree-ring research have included the fate of lost pirate treasure, successful strategies for surviving California's wildfires, the secret to Genghis Khan's victories, the connection between Egyptian pharaohs and volcanoes, and even the role of olives in the fall of Rome. Valerie Trouet weaves together these fascinating tales in ***Tree Story: The History of the World Written in Rings*** (Johns Hopkins University Press, 2022) while showing how dendrochronology sheds light on global climate dynamics and uncovers the clear links between humans and trees.

Most readers know that downed wood in the forest provides habitat for diverse plants and animals and that the progressive decay of the wood releases nutrients into the soil. Wood in rivers provides critical habitat for stream insects and fish and can accumulate in logjams that divert rivers repeatedly across their valleys, creating a floodplain mosaic that is rich in habitat and biodiversity. But Ellen Wohl goes beyond common knowledge in ***Dead Wood: The Afterlife of Trees*** (Oregon State University Press, 2022) and explores the importance of standing and downed dead wood along beaches, in the open ocean, and even at the deepest parts of the seafloor.







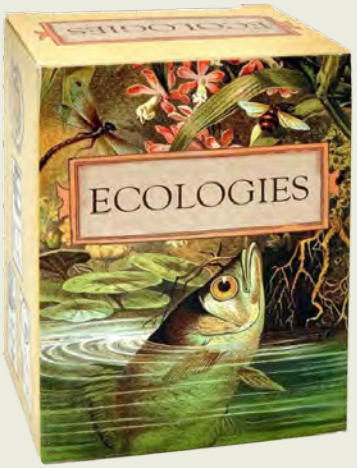


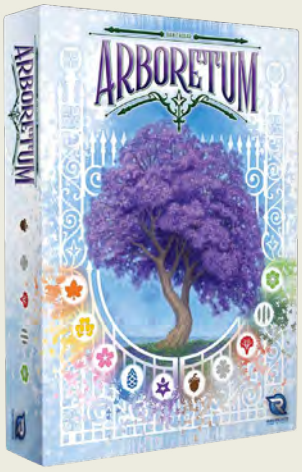
GAMES

In the card game **Ecologies**, developed by a biology teacher and appropriate for classroom use, players build and maintain food webs in diverse biomes around the world. Each of the three biomes has its own ecology and gives unique rewards when it is healthy and balanced. However, your opponents may decide it's easier to disturb and degrade your ecosystem than nurture their own. Players must choose how best to protect and care for their biomes. Designed for ages eight and up and for one to six players. (https://montrosebiology.com/ecologies/)

Arboretum is a strategic card game that challenges players to create the most beautiful path through the garden, accomplished in part by denying resources to their opponents. Choosing the correct cards and placing them in the most efficient orientation will earn the most points at the end of the game. Though the rules are simple, Arboretum offers players surprisingly complex choices. (https://renegadegamestudios.com/arboretum/)

In **Photosynthesis**, players plant different species of trees in a forest, taking them through their life cycles while competing with opponents' trees for access to the sun. Making this game challenging (and educational) is an unusual feature for a board game: the sun circles the board, which means the angle of light and shade change. This forces players to think strategically about where to plant their trees because they cannot be moved once placed. For ages eight and up and for two to four players. (https://www.blueorangegames.com/index.php/games/photosynthesis)





The Forest Service and the Greatest Good: A Centennial History

by James G. Lewis

The Forest Service and the Greatest Good takes an in-depth look at the Forest Service's conservation efforts over the last one hundred years. Jeffrey K. Stine of the Smithsonian Institution says, "It is a work of real clarity and substance that both reinforces *The Greatest Good* documentary film and extends its arguments and coverage."

The documentary film *The Greatest Good* is available as part of a three-DVD set, containing six hours of bonus materials, including extended interviews and more than forty short-subject films. The feature film includes the directors' commentary.

Soft cover; 286 pages
3-DVD set $18.00
ISBN-13: 978-0-89030-065-7
$19.95 + shipping and handling

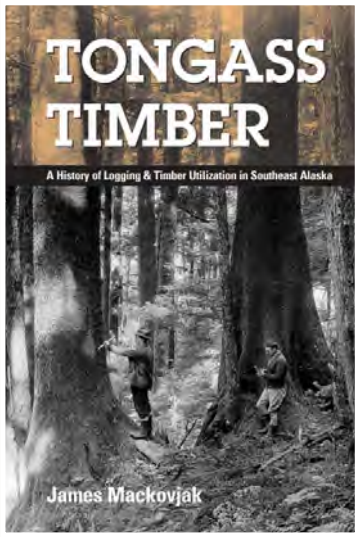
Order at ForestHistory.org/Greatest-Good-book, or scan the QR code ►

Tongass Timber: A History of Logging & Timber Utilization in Southeast Alaska

By James Mackovjak

By the late 19th century, the forests of Southeast Alaska were being eyed for economic development and commercial interests had begun harvesting the high-quality Sitka spruce and other species in Alaska's panhandle. The arrival of high-intensity logging in the 20th century and the establishment of wood pulp mills beginning in 1954, and lasting more than four decades, exposed the environmental and economic limitations of an integrated wood products industry in Alaska.

In *Tongass Timber: A History of Logging & Timber Utilization in Southeast Alaska*, independent scholar and longtime Alaska resident James Mackovjak traces the history of the many attempts to develop the region's forests, revealing the forces that influence the present choices about forest management in Southeast Alaska.



Soft cover; 386 pp.; 77 figures; maps
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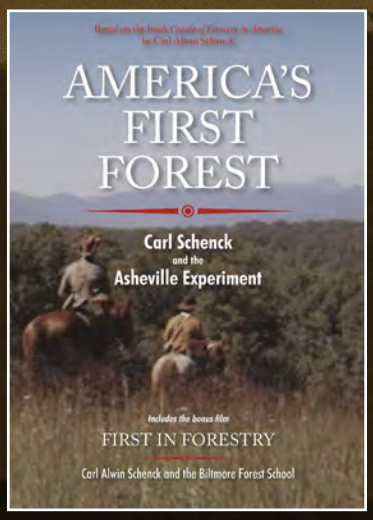
Carl Schenck & the Asheville Experiment

In 1895, at the magnificent Biltmore Estate nestled in North Carolina's Blue Ridge Mountains, German forester Carl Alwin Schenck began restoring the land using the "new" science of forestry. Then he established the Biltmore Forest School, the nation's first. Using a log cabin for their school house and George Vanderbilt's Pisgah Forest as their outdoor classroom, Schenck taught "his boys" how to manage a forest—and demonstrated how America could conserve *all* its forests. Based on Schenck's memoir *Cradle of Forestry in America*, the Emmy Award–winning documentary film *America's First Forest* tells the story of the birth of the American conservation movement through the efforts of one of its founders. The DVD includes this film and the 28-minute featurette *First in Forestry: Carl Alwin Schenck and the Biltmore Forest School*, adapted from *America's First Forest* and is ideal for classroom use.



DVD includes *America's First Forest* (55 min.) and *First in Forestry* (30 min.)
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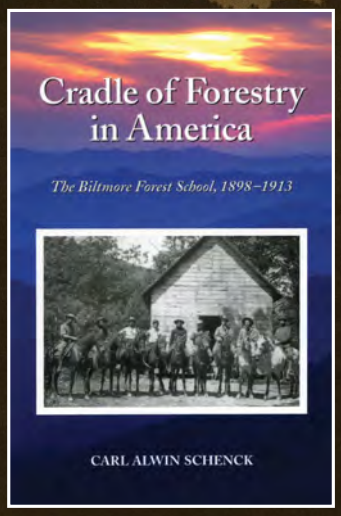

Cradle of Forestry in America: The Biltmore Forest School, 1898–1913
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To order the DVD and book, please visit AmericasFirstForest.org. Order both together and save!
Look for *America's First Forest* on public television stations around the country.

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Barber, Bill: One book: *Tyrell Timber: A History of the Branning Manufacturing Company and Richmond Cedar Works* by Bill Barber.

Burak, Steve: 20 boxes of forestry and appraisal reports, maps, and other forestry-related materials from the offices of Sizemore & Sizemore.

Cantrell, Rick: One bankers box of historical records from the Sustainable Forestry Initiative (SFI). Includes records from the 1990s through 2021: newsletters, brochures, annual progress reports, information on the development of standards, and audio interviews with 13 individuals involved in the development and implementation of the SFI program.

Difley, Jane: Thirty-nine issues of *Forest Notes* magazine from 1999–2008.

Dillon, Chip: Six bankers boxes of materials providing detailed forest products industry financial analysis, from the 1990s through 2010s. Includes reports, data, and market analysis from Salomon Brothers/Salomon Smith Barney/CitiGroup covering the paper and forest products industries in United States and globally.

Doggett, Coleman: 2,500–3,000 historic 35mm photo slides, documenting forests and forestry activities throughout the United States, primarily in the 1960s and 1970s (includes 17 slide trays, 5 binders, and additional small boxes); 1 box of publications, mostly early-20th-century North Carolina Geological and Economic Survey Bulletins related to forestry, including: *Wood-Using Industries of North Carolina; Forest Fires in North Carolina During 1913; The White Cedar of the Dismal Swamp; The Vegetation of Shackleford Bank; Forest Conditions in Western North Carolina*, etc. Also one copy of *Forest Protection in Canada, 1913–1914*.

Eller, Andrew C., Jr.: Twelve boxes of books related to forestry, wildlife, North Carolina, and related topics; 1 framed poster: "Redwood Endures the Ages," courtesy of the Pacific Lumber Company, Scotia, CA. Copyright 1960.

Gerow, Tom: Three boxes, including 96 books related to forestry, 55 films (electronic files), and 8 maps.

Gunderson, Dave: Ten books: *Small Stories, Big Changes: Agents of Change on the Frontlines of Sustainability* by Lyle Estill; *The Man Who Climbs Trees* by James Aldred; *The Language of Trees* by Steve Wiegenstein; *River of the Angry Moon* by Mark Hume; *Imposing Wilderness: Struggles over Livelihood and Nature Preservation in Africa* by Roderick P. Neumann; *Cities in the Wilderness: A New Vision of Land Use in America* by Bruce Babbitt; *A Park Ranger's Life: Thirty-Two Years Protecting Our National Parks* by Bruce W. Bytnar; *American Monster: How the Nation's First Prehistoric Creature Became a Symbol of National Identity* by Paul Semonin; *Where Mountains Are Nameless* by Jonathan Waterman; *On the Wild Edge* by David Petersen.

Harrigan, Virginia: Over 60 accounting, payroll, and other general ledgers, from the 1930s to 1970s, from Scotch Lumber Company / Harrigan Lumber Company.

Hersey, Mark: One print journal copy, *The International Journal of Wood Culture*.

Hunter, Paul: One book: *American Buffalo: In Search of a Lost Icon* by Steven Rinella.

Jones, Scott: Records of the Forest Landowners Association. Nearly 100 boxes of materials, including issues of *Forest Farmer* and *Forest Landowner* magazine, various books, photographs, meeting minutes, and other selected organizational files and historic records.

Lawrence, Kevin: *The Forestry Primer* (by American Tree Association, 1926), 2 copies; *Paul Bunyan's Quiz* (AFPI booklet); *Forest Planting on the Farm* by C. H. Guise.

MacCleery, Douglas: Ten boxes of papers, notes, research files, publications, and more from MacCleery's Forest Service career.

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Murk, Quinn: One book: *Soldiers in the Woods: The U.S. Army's Spruce Production Division in World War One* by Rod Crossley.

Phares, Ned: *The True Story of Smokey Bear* comic book; *Smokey Bear's Story of the Forest*.

Podskoch, Martin: Five books by donor: *Connecticut Civilian Conservation Corps Camps: History, Memories, and Legacy of the CCC*; *Rhode Island Civilian Conservation Corps Camps: History, Memories, and Legacy of the CCC*; *Adirondack Civilian Conservation Corps Camps: History, Memories, and Legacy of the CCC; Firetowers of the Catskills: Their History and Lore*; *Adirondack Fire Towers: Their History and Lore—the Southern Districts*.

Rhude, Andreas J.: Two boxes of historic papers, publications, and promotional materials related to the American Institute of Timber Construction (AITC).

Sanders, Donald H.: "Innovations In Wood," Vol. VI, no. 2, 1970, a Weyerhaeuser Company publication.

Sedjo, Roger: One book: *My Eye on the Prize: An International Economist's Search for the Nobel Prize* by Roger A. Sedjo (memoir).

Snellgrove, Tom: One box of books from the personal library of forester William M. (Bill) Cannon.

Sloan, Robyn: One box of architectural veneer wood samples by U.S. Plywood.

Smith, Carrie: Two boxes of aerial photographs of California National

Forests, 1939; 1 box of glass lantern slides (125-plus slides) depicting various California national forests.

Sorenson, James C.: One box of Cooperative Forest Fire Program materials from the 1960s through 1990s. Includes various program files and correspondence as well as campaign materials and Smokey Bear promotional items (including over 20 vinyl records of Smokey Bear radio spots and PSAs).

Summerville, K. O.: Seven art prints by artist Ken Brauner depicting logging and naval stores scenes (2 framed).

Swift, Lloyd W., Jr.: The papers of Lloyd W. Swift Sr. (1904–2001). Over 20 boxes of materials, files, reports, correspondence, etc., accumulated through 70 years of professional life. Includes diaries maintained by Swift from the 1940s through 1990s.

Turner, Doug: Two boxes of forestry books from donor's personal library; 1 Abney Hand Level tool.

Wright, William M.: "Nature Unbound: What Gray Wolves, Monarch Butterflies, and Giant Sequoias Tell Us About Large Landscape Conservation." PhD dissertation. Montana State University, 2021.

The Forest History Society Awards program enables the Society to recognize research and writing in forest and conservation history and to stimulate further research into our understanding of the relationships of people and forests. The following is a list of awards for 2022.

THEODORE C. BLEGEN AWARD

The Theodore C. Blegen Award recognizes the best article in the field of forest and conservation history not published in *Environmental History*. This year's winner is **Ana Córdova**, a research professor at El Colegio de la Frontera Norte, Department of Urban and Environmental Studies in Ciudad Juárez, Mexico, for her article "El Colorado Sawmill: A View into 20th-Century Timber Extraction from the Chihuahua Sierra Madre." It was published in the *Journal of the Southwest* (Autumn 2021): 385–425. Her work introduces readers to El Colorado Sawmill, one of the largest sawmills in the state of Chihuahua between 1952 and 1970. It operated with up to three shifts daily, processing lumber extracted from its surroundings and providing employment for hundreds of workers. Impressive as it was, the mill lasted less than two decades, meeting the same fate of mills in other logging and mining towns in the extractive boom-and-bust economy of the northern sierra of Chihuahua during the twentieth century.

JOHN M. COLLIER AWARD FOR FOREST HISTORY JOURNALISM

John M. Collier was a New Orleans journalist skilled in many areas of communication, including advertising and sales promotion and public, government, and media relations. He was a working scholar and a prolific writer of articles and special features for forest industry press publications. Established to honor his memory, the John M. Collier Award encourages excellence in journalism that treats forest and conservation history.

The winner, **Agostino Petroni,** is a freelance journalist and author living in Apulia, Italy. He is a 2020 MA-Politics graduate from the Columbia Journalism School and a 2021 Pulitzer Center Climate Science Reporting Fellow. His article, "Death by Many Cuts," was published in the Autumn 2021 issue of *Earth Island Journal*. Petroni tells the story of how ancient olive trees in the Puglia region of Italy are being killed by a deadly bacteria, *xylella fastidiosa*, which obstructs nutrients and water from flowing through their vascular tissues.

LEOPOLD-HIDY AWARD

The Leopold–Hidy Award honors the best article published in the journal *Environmental History* during the preceding year. Named for forester and ecologist Aldo Leopold and business historian Ralph Hidy, the award is presented jointly by the American Society for Environmental History and the Forest History Society. The 2022 recipient is **Kendra Smith-Howard**, an associate professor of history at the State University of New York–Albany, for her article, "Absorbing Waste, Displacing Labor: Family, Environment, and the Disposable Diaper in the 1970s," (April 2021): 207–30.

According to the judges, Smith-Howard's article skillfully joins arguments about labor and consumption to offer an innovative interpretation of an ostensibly familiar subject: disposable diapers. Tracing the rise in popularity of single-use diapers, the article connects stories about family structure, political economy, and commodity chains that are typically disaggregated to draw together the knowledge-creating work processes of diapering that had offered women a way of knowing nature prior to the 1970s with the environmental footprint of disposable diapers that followed. By calling attention to how the work of disposal replaced the work of maintaining diapers, Smith-Howard underscores how the changing dynamics of family life shaped the material world in the late twentieth century.

CHARLES A. WEYERHAEUSER BOOK AWARD

The Charles A. Weyerhaeuser Award is given to a book demonstrating superior scholarship in forest and conservation history. This award goes to an author who has exhibited fresh insight into a topic and whose narrative analysis is clear, inventive, and thought-provoking.

There was a tie for first place between *The American Chestnut: An Environmental History* by **Donald Edward Davis** (The University of Georgia Press) and *Timber and Forestry in Qing China: Sustaining the Market* by **Meng Zhang** (University of Washington Press).

Davis's *The American Chestnut* tells the story of the titular tree species from Native American prehistory through the Civil War and the Great Depression. Davis documents the tree's impact on nineteenth-and early twentieth-century American life, including the decorative and culinary arts. While he pays much attention to the importation of chestnut blight and the tree's decline as a dominant species, the author also evaluates efforts to restore the American chestnut to its former place in the eastern deciduous forest, including modern attempts to genetically modify the species.

In the Qing period (1644–1912), China's population tripled, and the flurry of new development generated unprecedented demand for timber.

Standard environmental histories have often depicted this as an era of reckless deforestation, akin to the resource misuse that devastated European forests at the same time. This comprehensive new study shows that the reality was more complex: as old-growth forests were cut down, new economic arrangements emerged to develop renewable timber resources. Historian Meng Zhang traces the trade routes that connected population centers of the Lower Yangzi Delta to timber supplies on China's southwestern frontier. She documents innovative property rights systems and economic incentives that convinced landowners to invest years in growing trees. This carefully constructed study makes a major contribution to Chinese economic and environmental history and to world-historical discourses on resource management, early modern commercialization, and sustainable development.

F. K. WEYERHAEUSER FOREST HISTORY FELLOWSHIP

The F. K. Weyerhaeuser Forest History Fellowship is awarded annually to a student at the FHS university affiliate, Duke University, whose research is historical in nature and related to forestry, land use, or the environment. This year's recipient was **Alyssa Russell**, a PhD student in the Department of History, for her project, "Economic Development at What Cost? The Fantus Company, Corporate Subsidies, and Working-Class Communities, 1919–1999." Her examination of the Fantus Company reveals how the nation's most prominent site selector altered the U.S. economy and explores the impact of these deals on communities throughout the country. Fantus's primary private clients were businesses from the industrial sector that were seeking to either relocate or expand their operations. Throughout the twentieth century, many private companies moved from predominantly urban areas to more rural and peripheral suburban lands at the behest of Fantus. This industrial migration blighted once-used urban areas while further industrializing more natural environments. The company, as a consultant, provided its clients with various positive and negative points about their potential new communities, often providing in great detail environmental reasons to move to or not to move to a new area. Fantus often recommended areas with lax environmental laws, abundant natural resources, and clean water. Fantus was also contracted by the U.S. federal, state, and local governments to provide feedback on how environmental factors may affect existing and future industry in a certain location.

WALTER S. ROSENBERRY FELLOWSHIP IN FOREST AND CONSERVATION HISTORY

The Walter S. Rosenberry Fellowship provides a stipend to support the doctoral research of a graduate student attending a university in North America whose research contributes to forest and conservation history. The winning student for 2022 is **Sophie FitzMaurice** from the University of California, Berkeley. Her dissertation project, "Wood and the Making of Modern Communications: Telegraph Infrastructure in the U.S. Empire, c. 1846–1910," examines how wood provided the material foundations for the modern forms of communication usually associated with wire and electricity. The story of modern communication is best understood not as a story of electricity but as a story of wood. These forms of communication ultimately hinged on the ability of states or corporations to capture colossal amounts of wood and command cheap human and animal labor to move it. Telegraph construction transformed landscapes and disrupted animal habitats, even as insects, birds, and mammals disrupted telegraphic communication by interfering with poles.

FHS FELLOW AWARD

The Forest History Society bestows the honorary title of Fellow of the Forest History Society upon persons who have provided many years of outstanding leadership and service to the Society or many years of outstanding sustained contributions to the research, writing, or teaching of forest, conservation, or environmental history.

With this award, we recognize **Hayes D. Brown II** for his leadership on the FHS Board of Directors. During his time on the board from 2010 to 2017, he served as vice-chair, chair, and immediate past-chair. Throughout his eight years, he was a member of the Finance Committee. Hayes was active on the Nominating Committee, the Program and Strategic Planning Committee, the Facilities Working Group, and the Campaign Cabinet for the New Facilities Campaign. Above and beyond these official capacities, he has provided counsel that assisted the Society in some challenging situations, including the status of the U.S. Forest Service Headquarters History Reference Collection and the *Environmental History* journal.

In addition to his FHS duties, since July 2000 Brown has served as host and moderator of the interview program "Capital Ideas–Live!" for the Alabama Forest Owners Association, which provides significant educational opportunities for landowners in topics across the field of forestry and land ownership. He often includes historical contexts for the current events–focused topics.

Order these books and films at ForestHistory.org/Publications or by scanning the QR code ▶

From the FOREST HISTORY SOCIETY

Issues Series—$9.95 each

Books in the Issues Series bring a historical context to today's most pressing issues in forestry and natural resource management. These introductory texts are created for a general audience.

America's Fires: A Historical Context for Policy and Practice, Stephen J. Pyne
America's Forested Wetlands: From Wasteland to Valued Resource, Jeffrey K. Stine
American Forests: A History of Resiliency and Recovery, Douglas W. MacCleery
Canada's Forests: A History, Ken Drushka
Forest Pharmacy: Medicinal Plants in American Forests, Steven Foster
Forest Sustainability: The History, the Challenge, the Promise, Donald W. Floyd
Genetically Modified Forests: From Stone Age to Modern Biotechnology, Rowland D. Burdon and William J. Libby
Newsprint: Canadian Supply and American Demand, Thomas R. Roach
Wood for Bioenergy: Forests as a Resource for Biomass and Biofuels, Brooks C. Mendell and Amanda Hamsley Lang

Other Publications

A Hard Road to Travel: Lands, Forests and People in the Upper Athabasca Region, Peter J. Murphy, et al., cloth $29.95, paper $19.95
Bringing in the Wood: The Way It Was at Chesapeake Corporation, Mary Wakefield Buxton, cloth $29.95, paper $19.95
Common Goals for Sustainable Forest Management, V. Alaric Sample and Steven Anderson (eds.), $24.95
Cradle of Forestry in America: The Biltmore Forest School, 1898–1913, Carl Alwin Schenck, $14.95
Forest Aesthetics, Heinrich von Salisch, trans. by Walter L. Cook Jr. and Doris Wehlau, $24.95
Forest and Wildlife Science in America: A History, Harold K. Steen (ed.), $14.95
Forest Management for All: State and Private Forestry in the U.S. Forest Service, Lincoln Bramwell, $10.95
Forest Service Research: Finding Answers to Conservation's Questions, Harold K. Steen, $10.95
From Sagebrush to Sage: The Making of a Natural Resource Economist, Marion Clawson, $9.95
Ground Work: Conservation in American Culture, Char Miller, $19.95
Jack Ward Thomas: The Journals of a Forest Service Chief, Harold K. Steen (ed.), $20.00
Lands Worth Saving: The Weeks Act of 1911, the National Forests, and the Enduring Value of Public Investment, James G. Lewis (ed.), $14.95
Millicoma: Biography of a Pacific Northwestern Forest, Arthur V. Smyth, $12.95
Pathway to Sustainability: Defining the Bounds on Forest Management, John Fedkiw, Douglas W. MacCleery, and V. Alaric Sample, $8.95
Plantation Forestry in the Amazon: The Jari Experience, Clayton E. Posey, Robert J. Gilvary, John C. Welker, and L. N. Thompson, $12.95
Proceedings of the U.S. Forest Service Centennial Congress: A Collective Commitment to Conservation, Steven Anderson (ed.), $24.95
The Chiefs Remember: The Forest Service, 1952–2001, Harold K. Steen, cloth $29.00, paper $20.00
The Forest Service and the Greatest Good: A Centennial History, James G. Lewis, paper $20.00
Tongass Timber: A History of Logging and Timber Utilization in Southeast Alaska, James Mackovjak, $19.95
View From the Top: Forest Service Research, R. Keith Arnold, M. B. Dickerman, and Robert E. Buckman, $13.00

Digital Media

America's First Forest: Carl Schenck and the Asheville Experiment (55 min.); *First in Forestry: Carl Alwin Schenck and the Biltmore Forest School* (28 min.), $24.95 (DVD)
The Greatest Good: A Forest Service Centennial Film (2005), $18.00 (3-DVD set includes two discs of bonus materials)
The Greatest Good film soundtrack (2005), $15.00 (Audio CD)
Timber on the Move: A History of Log Moving Technology (1981), $20.00 (DVD)
Up in Flames: A History of Fire Fighting in the Forest (1984), $20.00 (DVD)

All webinars are available for free at youtube.com/foresthistory.

For a list of oral history interviews available for purchase, visit: ForestHistory.org/ohi.

With DUKE UNIVERSITY PRESS

Changing Pacific Forests: Historical Perspectives on the Forest Economy of the Pacific Basin, John Dargavel and Richard Tucker, paper $5.00
David T. Mason: Forestry Advocate, Elmo Richardson, $8.00
Bernhard Eduard Fernow: A Story of North American Forestry, Andrew Denny Rodgers III, $9.95

With ISLAND PRESS

The Conservation Diaries of Gifford Pinchot, Harold K. Steen (ed.), cloth $29.00

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Forestry in the U.S. South: A History, Mason C. Carter, Robert C. Kellison, and R. Scott Wallinger, $65.00

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George S. Long: Timber Statesman, Charles E. Twining, $19.95
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The U.S. Forest Service: A History (Centennial Edition), Harold K. Steen, cloth $30.00, paper $20.00

FOREST HISTORY *Society*

The Forest History Society is a nonprofit educational institution. Founded in 1946, it is dedicated to advancing historical understanding of human interactions with forested environments.

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For gift planning inquiries, please contact Laura Hayden at (919) 682-9319.

FRANK MANNO PHOTOGRAPHY, DREAMSTIME

The illegal harvesting of rosewood is a global issue. See page 6 to learn more.