The Curious Case of the Giant Boole

08 June 2020

The Boole sequoia is one of the world's largest trees.

It's the last day of the dry season. The winds herald a coming Sierra storm—they blow the golden leaves off a black oak along the trail to the Boole Tree, a giant sequoia and the world's sixth-largest tree.

I first made the trek to the Boole in 1989. Half a lifetime ago for me, but barely a blip in this 2,000-plus-year-old tree's time on Earth, an epoch during which it has survived lightning, wildfires, windstorms, blizzards, drought, and the industrial-scale logging of the forests in Converse Basin, 60 miles east of Fresno.

Last time around, it took me less than an hour on the gentle three-mile loop that climbs about 500 feet to reach the secluded bowl where the Boole Tree stands, towering over century-old sequoias that sprouted after the logging ended. Today, it will be more of a slog; the forest service road to the trailhead has remained closed to vehicles since 2015's Rough Fire, a blaze that raged for 99 days and scorched 236 square miles of the Sierra. It burned close enough to the Boole that firefighters deployed hose lines and sprinklers to defend the tree.

So I start off along Highway 180, adding five miles to the hike, threading through postfire growth in Giant Sequoia National Monument. The road reaches Stump Meadow, a boggy expanse edged by stands of young sequoias. An interpretive sign depicts the extent of the Converse Basin logging, with a schematic of the mills, tramways, flumes, and hoists that operated during the heyday of the cutting, between 1897 and 1907.

The meadow's stumps—several times wider than the trees now growing here—mark where giants once stood and also serve as their tombstones: 8,000 sequoias were cut in Converse Basin, considered the world's largest contiguous grove of big trees. Maybe a dozen old-growth trees survived the onslaught.

One of them is the Boole, which is named for Frank A. Boole, who supervised logging at Converse Basin and is said to have spared the giant. So the story goes, despite the fact that there's little, if any, evidence to back up this lore. And even if it's true, I've long wondered whether the man who oversaw so much destruction merited such an honor. I needed to start at the Boole to figure it out.

The trail edges Converse Mountain, opening to a panorama of Kings Canyon. Rounding a bend, I spot a thick, leafless snag rising above the conical treetops that encircle it, before the trail drops into a drainage and I get my first look at the Boole.

Broken sunlight deepens the shadowed furrows and highlights the cinnamon tones of the column-like trunk, though I can't see the entire tree. The dead treetop that I spotted, the very tip of the Boole, remains out of view, hidden above massive limbs, some the size of oak trunks, that protrude high up on the tree. The limbs don't even begin until 75 to 100 feet above the ground.

If it's impossible to fully grasp the Boole's height, standing at the base I can take measure of the tree's mass. Giant sequoias aren't as tall as their relatives coast redwoods, which can grow to 370 feet. But the stouter sequoias are larger by volume, and by that standard, the Boole Tree is an absolute beast.

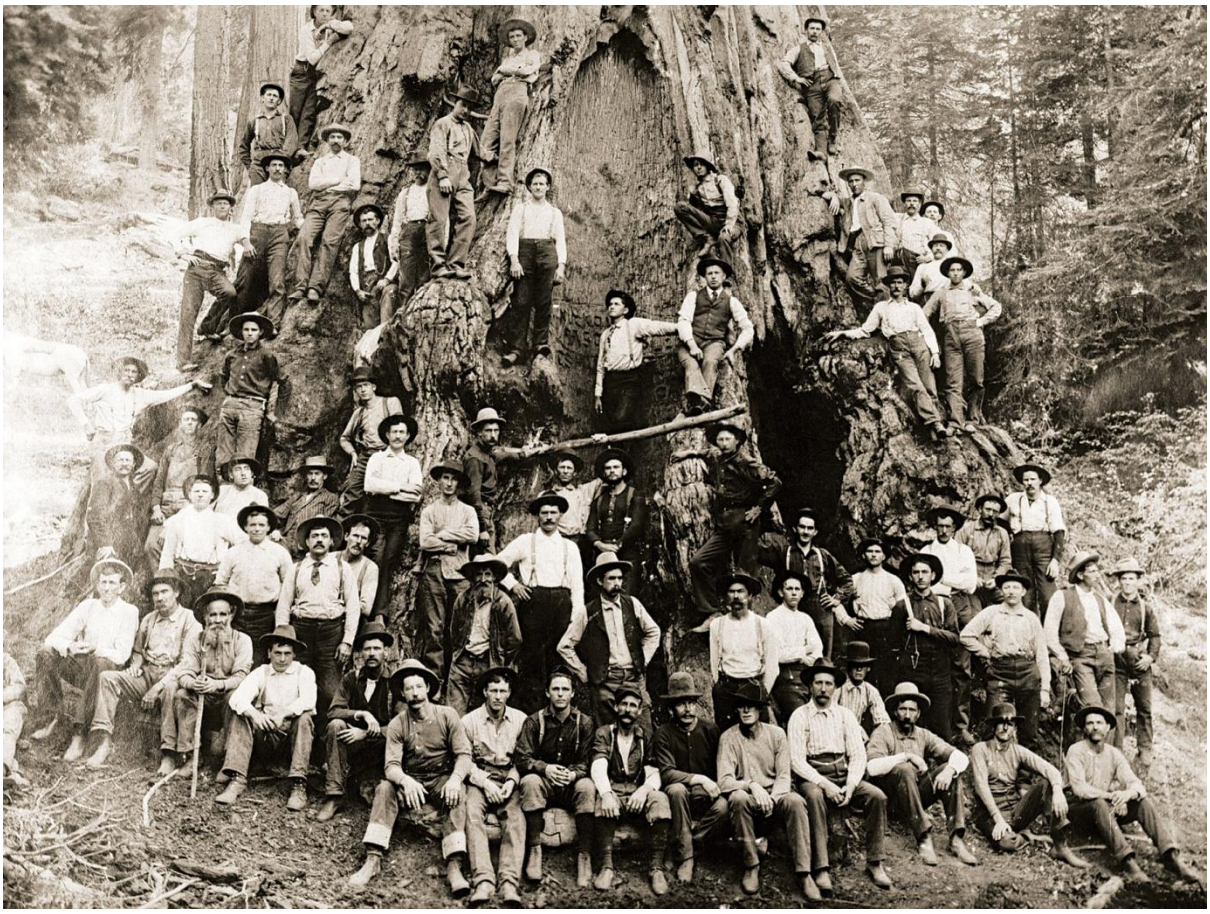
Until 1931, botanists believed the Boole was the world's largest tree. When I first visited, it still held third place. At ground level, the trunk's circumference is 113 feet, the greatest of any sequoia.

Slanting slightly downhill, the base flares like a bell-bottom and bears the scars of multiple blazes that have come through the bowl over the past two millennia. Before the advent of fire suppression, low-intensity fires occurred on an average of every 5 to 15 years in Sierra forests, and the sequoias' fibrous, two-foot-thick bark can withstand these kinds of blazes. Tap on the bark and it produces a dull tone, like knocking on styrofoam.

Fire benefits the trees by clearing out dead materials that fuel hotter, more intense conflagrations. By killing smaller trees, it also opens the forest canopy, allowing additional sunlight to reach the ground, where nutrient-rich ash acts as a fertilizer for sequoia seedlings. Sequoias are so adapted to fire that the cones rely on heat to release their seeds.

A blackened triangular gash narrows as it extends from the Boole's base to high up the trunk. Circling the tree, I come to a twisting, buttress-like section of bark that arches away

from a scorched cavity, then reach another, much deeper burn scar. I squeeze through the gap and enter a cave-like space, then look out at the forest from inside the Boole.



A group of loggers gather at the base of the Boole Tree.

THE TREE CUTTER

In all the times I've visited the Boole, I've never seen anyone else there. The experience is much more personal than seeing the biggest of the big trees in the national parks, where the trails are paved and railings, by necessity, keep the crowds from the bases of the sequoias. The intimacy of visiting the Boole inspired my fascination with the tree, as well as a lingering curiosity and increasing skepticism about the story of how this sequoia survived the cutting in Converse Basin.

As the legend goes, Boole and his crew came upon the giant as they worked northward through the basin. After so much destruction, Boole was sufficiently moved by the sight of the tree that he decided at least one Converse Basin monarch should live on.

Great stuff. I can even visualize an epic painting in which a valiant Boole gazes up, boot poised atop the log of a fallen tree and arms outstretched to hold back a rapacious crew wielding the axes, augers, dynamite, and 20-foot-long saws they deployed to bring the other giants down.

The sequoias ahead of the Boole on the list of the world's largest trees honor generals and presidents, with the Amos Alonzo Stagg Tree, named for the college football coaching legend, an outlier at number five. Does a logging superintendent rank just behind Sherman,

Grant, and Lincoln? Not to mention ahead of the Holy Bible itself, considering that the seventh-largest tree is named Genesis?

Born in Boston in 1855 or 1856, Boole came from a family of Nova Scotian shipbuilders. His father, George, and Boole's uncle operated a Boston shipyard before starting up business in the Bay Area. In his obituary after a fall from a streetcar at age 84, George Boole was celebrated for having amassed a fortune "as one of San Francisco's most prominent ship owners and ship builders."

Frank Boole eventually broke with family tradition and began a career in lumber. He married in 1880. Five years later his wife, Fannie, died at 25, while Boole was managing the Sierra Lumber Company in Tehama County. Boole remarried in 1889 and with his new wife, Rhoda, had a daughter, Margaret (who later figures into the story of the tree's name).

Felling the Joseph Le Conte Tree (named for the cofounder of the Sierra Club), which stood near the Boole Tree.

Resigning from Sierra Lumber in 1897, Boole joined Sanger Lumber, one of the largest such companies on the West Coast. The *Red Bluff News* lauded him as both a gentleman and a force to be reckoned with in the logging industry: "That Mr. Boole is a rustler our people well know. He is courteous and obliging in dealing with his customers and his worth as a lumber dealer has evidently been recognized by the Sanger Company."

It was the beginning of the most intensive logging period in Converse Basin. Boole earned an annual salary of $6,000 (double his previous income and equivalent to about $186,000 today), suggesting that he was not merely a field foreman but a company executive.

Leaving Sanger in 1905, the year Michigan's Hume-Bennett Lumber purchased the company, Boole remained in the lumber trade and applied for a patent for a drying car for freshly felled wood, which was granted in 1907, after which he started the Boole Lumber Company in 1913. In 1918, the lumberman died in San Francisco at 62. But for his role leading an army of 700 loggers in the destruction of Converse Basin, he and his successful career would have faded from history.

As Hank Johnston writes in his 1966 book, *They Felled the Redwoods*, "here were thousands upon thousands of patriarchal forest giants stretching so high they almost blotted out the sky. Here was a sylvan paradise filled with colorful wildflowers, lush grasses, and a variety of animal life. Some timber experts say that the Converse Basin contained the finest examples of Sierra redwoods to be found anywhere on earth."

The aftermath of extensive logging in Converse Basin, 1905.

THE FIRE NEXT TIME

The destruction of Converse Basin's sequoia groves was not only an environmental tragedy but also a financial disaster for the logging companies. As it turned out, sequoias had far less commercial value than coast redwoods. Many sequoias shattered where they fell. At least half the wood (and up to 80 percent of the biggest trees) went to waste, while the usable materials ended up as little more than grape stakes, shingles, fence posts, and pencils.

Nathan Stephenson, a U.S. Geological Survey research ecologist in Three Rivers, 65 miles south of the Boole Tree, has studied Sierra forests for around 40 years. He struggles to make sense of what happened at Converse Basin.

“I can’t get into the heads of those people back then. It must have just seemed like you ought to be able to make money off such big trees,” he says. “But the old-growth wood, at least, just doesn’t have the same desirable qualities as coast redwoods. On my property, we have old fence posts; they’re probably approaching 100 years old or maybe more. They’re giant sequoia wood. They just don’t rot. But you can’t make a living off of fence posts.”

Compared with coast redwoods, which saw an estimated 95 percent of their old-growth groves logged, the big Sierra trees got off lightly, losing maybe 25 percent of their population.

But Stephenson can’t think of any natural catastrophe that compares to the destruction that Boole and his loggers inflicted on Converse Basin. The closest event, he says, happened at the Mountain Home Grove, about 80 miles to the southeast, where a severe wildfire in 1297 killed a number of mature sequoias, according to the University of Arizona’s Laboratory of Tree-Ring Research.

While giant sequoias once grew widely in the Northern Hemisphere, their current range compares favorably with their distribution 4,500 years ago; it’s also greater than during the extended hot, dry period that began after glaciers retreated roughly 11,000 years ago.

And unlike coast redwoods, nearly all giant sequoia groves enjoy permanent protection. Save the Redwoods League closed a deal to take over the 530-acre Alder Creek Grove, which was the largest giant sequoia forest still in private hands and is home to the Stagg Tree. “It’s an absolutely incredible property,” says Paul Ringgold, the organization’s chief program officer, “one of the most phenomenal groves that I’ve experienced.”

Ringgold and Stephenson agree that the potential for larger, more devastating fires as the climate becomes hotter and drier poses sequoias’ greatest threat. The region’s fire suppression policies have resulted in an accumulation of debris and dense forests of smaller trees.

Stephenson emphasizes that while sequoias have adapted to resist fire, they are not immune to its ravages. The fuel buildup in the groves—smaller trees, shrubs, and debris—supercharges conflagrations, which burn with such intensity that they scorch sequoias’ foliage, killing the trees. Sometimes the litter and duff ignite surrounding trees, which then act like ladders, sending flames all the way into the sequoias’ crowns, also virtually guaranteeing their demise.

The Rough Fire illuminated the perils of fire suppression. In the Grant Grove, the east side of a trail had undergone prescribed burns to replicate the natural fire regime and was spared. On the west side, however, where no prescribed burns had taken place, the blaze burned hotter and killed mature sequoias.

Stephenson believes that the drought the region experienced from 2012 to 2016 may have foretold what’s to come. Sequoias fared well, especially compared with such Sierra species as white fir, incense cedar, and ponderosa and sugar pines, which died by the millions after weakening and coming under attack by bark beetles.

Jim Tobin, Colonel John White, and Frank Oberhansley, longtime superintendents with the National Park Service, take a rest at the Boole in 1945.

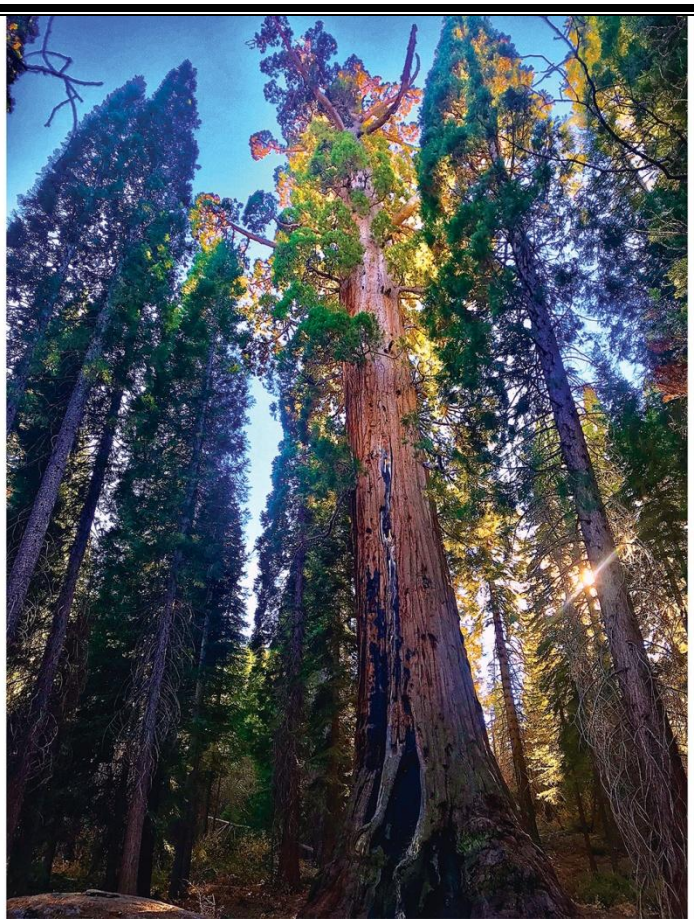
But this “hotter drought” had two sides, he says: a supply side, in the form of reduced precipitation, and a demand side, created by increased atmospheric evaporation. The sequoias responded in ways never previously observed. The trees shed older leaves, sometimes half of them, as a way to lessen water needs. And some sequoias were killed by bark beetles, which had always been considered harmless to the trees.

“It could be a warning for the future,” Stephenson says. “If it continues to get warmer, as models project, we could get longer, more severe hotter droughts. That could create vulnerable sequoias, and maybe the bark beetles will pick them off.”

“I don’t predict a sudden catastrophic loss of big sequoias from bark beetles,” he adds, “but fire could do that. More area is burning than in the past, and it’s burning at a higher severity. People argue whether it’s due to past management actions, like fire exclusion, or because of a warming climate. Personally, I don’t think it’s either-or. I think it’s both.”

NAME GAME

I stop at the visitor center in Kings Canyon National Park’s Grant Grove, and as I discuss the Boole with park service interpretive ranger Tina Rolfsema, she brings out a document that casts doubt on the legend of the tree’s name



Only a dozen or so old-growth sequoias, like the Boole Tree (above), survive in the Sierra's Converse Basin, which now enjoys protection against logging. The Boole is listed as the sixth-largest tree in the world.

Titled "Mills of the Sequoias," it's a history of timber activity in the area written in 1951 by a Lizzie McGee, who Rolfsema says had family ties to local logging. McGee presented her account during a picnic at Big Stump. The stump is what's left of the Mark Twain Tree, which a photographer captured in midair as it toppled after eight days of cutting ended the sequoia's 1,350-year life. A 16-foot cross section of the trunk remains on display at New York's American Museum of Natural History.

McGee's chronicle reaches no firm conclusions about the Boole and includes a few obvious errors. But she also cites "several on the spot writers" who said that the Boole was simply too large to cut: "In falling, the breakage of so large and brittle a tree would have been too great a waste for even a lumber milling company to tackle."

I have never previously found any credible documentation of the naming. Some sources say that loggers decided to pay tribute to their boss, others that Boole spared the tree in order to name it for himself. McGee's telling is the first I've seen suggesting that the legend so long in circulation may not be fact.

As I look deeper, elements of her history—in particular, references to the Sierra Club's apparent intervention—show up elsewhere. A Fresno doctor named A.H. Sweeney, who worked as a physician in the logging camps, is often credited with bestowing the Boole's name. A 1925 *Fresno Bee* article even describes a christening one Sunday in 1901, the morning after Sweeney is said to have painted a sign that read "Boole" and placed it on the trunk. Sweeney, however, makes no mention of Boole's goodwill in commuting the tree's death sentence.

Instead, the article says that the doctor had learned the Sierra Club planned to name the tree for John Muir (who stopped at the Boole in the 1870s) or Joseph LeConte, a club board member and famed UC Berkeley natural history, geology, and botany professor. “I called the tree after Boole because he was one of the whitest, squarest men I ever knew,” Sweeney tells the *Bee*.

Part of this version may be true. A photo dating from the 1890s shows four men posing at the base, one sitting within the burn scar, and just below a painted sign that reads “Boole.” Trees in the background, including what appears to be a mature giant sequoia that’s no longer standing, signal that the photo was made before logging began in the vicinity of the Boole.

Even Boole’s daughter, Margaret Boole Baird, disputed her father’s heroic legend. In a 1951 letter to the *Bee*, Baird lamented the loss of the giant sequoias and, like McGee, suggested that the Boole survived because it was impractical to cut down such a massive tree. She also wrote that it was Sweeney who discovered the tree, years before logging began in Converse Basin.

As for her father’s intervention, Baird recalled that prominent Central Valley citizens came to Boole to see if he could save the tree from the ax. But she downplayed her father’s role: “I have read that the Boole tree was spared by my father because it was named for him. I have also read that the tree was spared so he could name it for himself. Neither statement is true.” Baird concluded that the Canadian Bank of Commerce, which hired Boole upon taking control of Sanger Lumber following the company’s 1897 bankruptcy, issued the final edict about the tree’s fate.

A few weeks after Baird’s account was published, Dr. Harry C. Mitchell wrote in with his own version of the story. He worked as a bookkeeper for Sanger Lumber and as Boole’s secretary there between 1902 and 1904. In his telling, Sierra Club members led by LeConte visited Converse Basin after stopping at General Grant National Park (now part of Kings Canyon National Park). The group measured the Boole and determined that it might be the largest tree in the world. Club members then implored Boole to save the sequoia

Boole didn’t have such authority and advised them “to appeal directly to the department of the interior in Washington,” wrote Mitchell. After the Sierra Club did so, “a deal was made with the owners of the Sanger Lumber Company whereby they were to receive additional timber land in exchange for this one tree. All of the other redwoods in the grove were felled.”

Mitchell speculated that it was LeConte who named the tree for Boole, given that the professor had tagged so many Sierra geographic features; LeConte’s name, however, was ultimately stripped from the Sierra Club’s LeConte Memorial Lodge in Yosemite because of his theories positing the racial inferiority of nonwhites.

I ask both Ringgold and Stephenson what they think of the Boole name. Ringgold says that Save the Redwoods League believes “these trees shouldn’t be named at all” and prefers a focus on forest health, not individual trees, especially in the age of social media.

“We have seen in the last five years that there’s publicity around these very large trees that has attracted inordinate levels of visitation,” he says. “There are recreational activities that are now burgeoning, including tree climbing. We have definitely seen impacts, primarily in the coast redwoods, but certainly in the giant sequoias as well.”

Between 1897 and 1907, up to 8,000 trees were logged in Converse Basin. Compared with coast redwoods, sequoias had little commercial value, and they would often shatter where they fell; half of their wood went to waste.

Stephenson acknowledges the irony of the Boole Tree’s name, then explains that what draws him to sequoias is less their size than the character they take on during such long lives. “By personality, I’m not as much an aficionado of the biggest trees as a lot of people are,” he says. “I definitely love certain sequoias. But they’re smaller and totally beaten up, and I like them because of their artistic, sculpted shapes.”

I hike into the nearby Redwood Mountain Grove, the largest surviving area of unlogged sequoias, to get a sense, at Stephenson’s recommendation, of what Converse Basin looked like before the cutting. There’s an open feel to the grove, the floor virtually devoid of undergrowth in most places. The big trees dominate the forest, and groups of sequoias step downslope, while a few isolated giants stand out by themselves.

Like Stephenson, I’m drawn to the trees that most graphically reveal their past. Fire has burned all the way through the base of one sequoia, carving a 20-foot archway. There are trees that have broken in half yet retain living foliage, and one burned, tortured snag still stands 60 feet tall in death.

With the storm forecast to dump up to eight inches of snow, by late afternoon the park service has closed the highway, and a ranger waits to open a gate near the Wuksachi Lodge to let me through. In the morning, I wake up to dense fog but no snow. Driving down the mountain through the brume is dreamlike as I round bend after bend, never entirely sure what’s ahead. In the Giant Forest, sequoias suddenly loom along the roadside, their massive trunks reduced to soft silhouettes. Passing by, I catch fleeting glimpses of veiled red bark before the trees disappear again, ghosts in the mist.

Source: https://altaonline.com/boole-sequoia-tree-matt-jaffe/