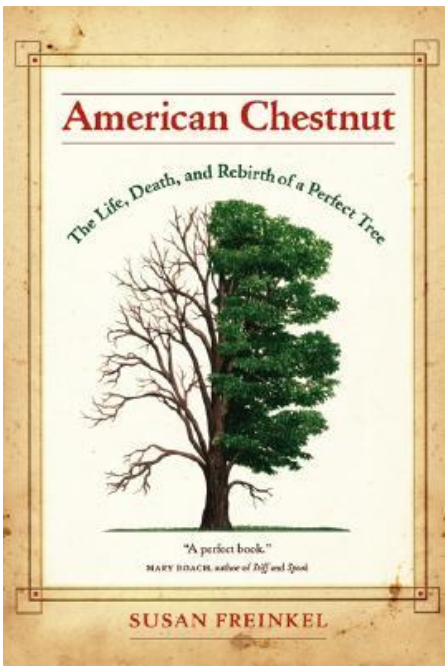

American Chestnut: The Life, Death, and Rebirth of a Perfect Tree

Susan Freinkel

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The American chestnut was one of America's most common, valued, and beloved trees—a "perfect tree" that ruled the forests from Georgia to Maine. But in the early twentieth century, an exotic plague swept through the chestnut forests with the force of a wildfire. Within forty years, the blight had killed close to four billion trees and left the species teetering on the brink of extinction. It was one of the worst ecological blows to North America since the Ice Age—and one most experts considered beyond repair. In *American Chestnut,* Susan Freinkel tells the dramatic story of the stubborn optimists who refused to let this cultural icon go. In a compelling weave of history, science, and personal observation, she relates their quest to save the tree through methods that ranged from classical plant breeding to cutting-edge gene technology. But the heart of her story is the cast of unconventional characters who have fought for the tree for a century, undeterred by setbacks or skeptics, and fueled by their dreams of restored forests and their powerful affinity for a fellow species.

American Chestnut: The Life, Death, and Rebirth of a Perfect Tree Details

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From Reader Review American Chestnut: The Life, Death, and Rebirth of a Perfect Tree for online ebook

Literary Mama says

From "Now Reading" by Literary Mama staff:

Literary Reflections Editor Andrea Lani writes, "I am reading American Chestnut: The Life, Death, and Rebirth of a Perfect Tree by Susan Freinkel. I borrowed the book from my library as research for an essay I'm writing about the chestnut trees we watched being planted when my teenage son was a newborn?and which are now succumbing to chestnut blight?but I'm finding it fascinating reading in its own right. Freinkel brings these near-extinct trees to life by telling their story through the personalities of the people who have loved them, from the botanists who first discovered and tried to control the fungus that would prove the trees' undoing to elders in Appalachia who remember collecting nuts beneath the trees' spreading crowns. I'm about to embark on the part of the story that covers the efforts to cross-breed the American chestnut with its blight-resistant Asian cousins, and I'm looking forward to the hope those chapters will engender, as well as to one day planting another chestnut tree with my son, one that will live to grow 100 feet tall."

Literary Mama's full Now Reading post can be found here: http://www.literarymama.com/blog/arch...

Jim says

A fascinating story about the near extinction of the American Chestnut due to the Chestnut Blight, and the ongoing struggle to restore the tree (even using gene technology!). Very interesting!

Mike says

I first learned of the American chestnut blight after reading Barbara Kingsolver’s Prodigal Summer in which one of her characters, a crotchety curmudgeonly octogenarian euphemistically known as Old Chestnut, is a passionate tree breeder, crossing American chestnuts with other chestnut species, hoping to achieve what no one in a hundred years has been able to achieve—a blight resistant American chestnut. I was so enamored with Old Chestnut’s story that I wanted to know more about his cause, and this book delivered everything I wanted to learn and much more: the history of the imported and invasive pathogen that destroyed nine billion trees; the sciences of crossbreeding and bioengineering; and the passion of generations of chestnut breeders who, in the full knowledge that they will not live to see their dream realized, have worked a lifetime to restore a beloved tree. The demise of the American chestnut is a profound cautionary tale for our time. The tree might have survived the blight, might have still been a viable species today, had not the U.S Forest Service, once the blight was in full force, advised landowners to cut down all chestnuts, even those which showed no sign of disease, so as to receive a fair market price for this prized hardwood. Some of those trees were disease free for a reason. Some of them must have possessed an inherent resistance to the blight, a genetic disposition that in time could’ve perpetuated itself had those trees been given the chance to propagate. So now that the polar ice caps are melting, it’s the same mind set, the same story. The multi-nationals are falling all over themselves trying to get to the oil that is more and more accessible by the day. More fossil fuels extracted means more CO2 in the atmosphere means more warming means more of the polar ice caps melting away. But I’m not going to dwell on that. This is a book about hope too. So many

people have been working so long to correct a terrible wrong that good things, both tangible and intangible, are bound to happen. As the author says, “…faith in a seed has summoned a grace that is far reaching.”

Eric says

really lovely. Hopeful and sad.

Keena says

Very informative, well-written, and engaging.

Sharonewoods says

I may be a little biased on this book because this is a subject that has always fascinated me. This is a comprehensive and absorbing account of the whole story of the American Chestnut. From a description of its admired qualities and its crucial role in rural Appalachia, to the arrival of the Asian-origin blight at the turn of the last century and the subsequent die off of an estimated three to four billion trees over the next twenty five years. But what is most interesting is the near century of work that has been done since trying to bring this tree, which was once as common as the oaks, back to Eastern forests.

Freinkel's research is well documented and meticulous, and she presents all sides, including some things that might surprise you. (For instance, a program that has found that tree saplings thrive on the loose, rocky soil scars of mountain-removal mining.) She admits to some of her biases, such as a discomfort at the possible implications of bioengineering efforts, but then goes on to report them clearly and without favoring her opinion. Most notably, she admits to never have caught the "chestnut bug" -- the infatuation with this tree that has led so many people to dedicate so much of their lives to restoring it. I am actually grateful for this, because it allows her to keep an impassionate viewpoint to everything.

In any case, a far more absorbing read than I expected. But then again, I am the type who gets all excited at finding chestnut sprouts in the forest, so I may not be the best judge.

Adam says

Freinkel provided just what I was looking for: a short, readable overview of the history of the American Chestnut in American culture, its decline due to the ascomycete fungus *Cryphonectria parasitica*, and all of the attempts to restore it using breeding and genetic modification. She went into personal detail about the main figure in the story, including William Murrill, who identified and studied the pathogen at the NY Botanical Garden; Phillip Rutter, the super badass curmudgeon who lives off the grid on his farm in the woods, is obsessed with evolutionary ecology and history, and co-founded the American Chestnut Foundation; and William Powell, the guy working to put blight resistance genes into chestnuts directly.

I am interested in chestnuts as a flagship, staple perennial polyculture food crop. As far as I can tell (I haven't seen anyone speculate so flagrantly) they were at one point the largest producer of food in the Eastern US.

They fed the enormous flocks of passenger pigeons, native Americans and settlers, squirrels, and practically any other professional or amateur seed predators around. Chinese and European chestnuts have been domesticated for ages and easily substitute into a perennial polyculture farm like Mark Shepard's. But I hear the American tree is better - while its nuts are smaller, the trees produce them in greater abundance, and they are tastier. When the restoration program succeeds (and I have no doubt at this point that it's just a matter of time), the tree will be essentially wild. That's what I want: a wild ecosystem that makes tons of food. I am having a hard time envisioning non-native trees in my ideal restoration agriculture.

There are three main paths of research in the modern era include that of the ACF, back-cross breeding to obtain the immunity genes from Chinese chestnuts and then eliminate undesirable genes; that of ACF NY, genetic modification; and that of the ACCF, cross-breeding survivors to stack immunity among 100% American trees. By 2013, some of the genetically modified trees have been planted at the NYBG and elsewhere.

Mark suggested in his talk that, following standard disease ecology, if people had just left American Chestnuts alone when the blight struck, a few would have survived, sufficient to repopulate. In the beginning of the book, it seemed like Freinkel was implying this wasn't the case, that the trees were doomed by an accidentally super-thorough disease. Pennsylvania was the only state to employ a systematic removal plan, and they couldn't convince any other states to spend money on it. But later in the book, people she talks to say pretty certainly that cutting was a major factor in preventing the tree from weathering the blight. While most states didn't enact a formal program to destroy the diseased or threatened trees, the logging industry had been waging that war for decades anyway. Many resistant trees were surely killed simply because they were worth good money. Once they were doomed to die anyway, even people who valued their nuts saw no reason not to cash in on the lumber. It's a good example of the synergy between human forms of ecological destruction - in this case, logging and invasive species.

While Freinkel provided most of what I hoped she would, there were plenty of things I would love to have her talk more about. Perhaps some of this is specious, since the tree may have disappeared before these things were studied. But anyway: more about the ecology of the tree, how creatures interacted with the burs and nuts, where the tree grows and how it relates to other plants, and most especially how it evolved! Tim Flannery implied in The Eternal Frontier: an Ecological History of North America and Its People that the nut-squirrel ecosystem in North America was in some way unique, but he didn't get into how or how that happened. I would also have loved more on the cultural relationship between native American cuisines and economies and the chestnut. Besides all that, Freinkel did a good job, though.

How astonishing and emotional is it that chestnut trees killed by the blight a century ago have been putting up shoots every year since then, only to have them killed by the blight whenever they get big enough? So much trying, so much frustration. Poor trees.

I was lucky enough to see one of Powell's GM chestnuts at the NYBG the same week I read this book. They planted like a dozen last year, and all but one seems to have died, either completely or back to the roots.

Leslie says

Enjoyable and enlightening account of the devastation that the loss of the American Chestnut played in Appalachian life and of the efforts to restore the species in the wild. This book certainly reveals how we humans have affected our environment. As a native of Patrick County, Virginia, the book was particularly interesting to me because the author interviewed people that I know in the area. There were a couple of very small errors that only a native would notice: the name of the wife of one of the sources was incorrect and a

mountain was placed in the wrong county, among others. Minor, I know, but it kept me from giving the book four stars.

Carl says

This was a very readable account of the blight and the current efforts to restore the tree. I hadn't realized that there were several different approaches being taken - let us hope that one succeeds in our lifetime.

Larry says

Susan Freinkel’s American Chestnut, subtitled The Life, Death and Rebirth of a Perfect Tree, is the perfect book for the reader who loves things natural. It is nicely written, wide ranging, easy to follow, built on good science and, despite being the biography of a tree, overflowing with human interest. The final chapter in the tragic story of our native chestnut is yet to be written, so it isn’t clear if it ends in tragedy or redemption. If you are like me, by the time you reach the last pages of Freinkel’s book you will be cheering for redemption.

To enjoy this story requires several qualifications. You must cherish nature. You must have the capacity for empathy, not just for fellow humans, dogs and koala bears but for distant living things, too, like trees—specifically, for our American chestnut.

You say you don’t know much about American chestnuts? Well, you really should. Chestnuts can’t walk or talk, of course, but they are (or were) beautiful and majestic in a grand way, at least back in the day. But in the warp and weave of time, almost suddenly, as by a slow-motion lightning bolt, they were struck by misfortune.

The culprit was a fungus, a disease. Fungal blight from China came for our chestnuts like the grim reaper in slow motion, much like the black plague that decimated Europe in the 14th century. The difference between chestnut blight and black plague was that Europe’s population recovered after only a couple of generations. There has been no recovery for our American chestnut, not in the wild, anyway. Just a few chestnut trees with their sweet nuts and durable wood are barely surviving today out on their own, hanging over the cliff’s edge still. The blight passed a hundred years ago.

If you are even lightly curious, you will be swept up by this story, as by a dust devil. Your imagination—hopefully you are blessed with a bit of it—will allow you to picture in your mind vast American chestnut woodlands, ranging hundreds and hundreds of miles, from Mississippi to New England, from Indiana to the Virginia piedmont. Thousands of square miles of chestnut forests were eventually smothered to death by that fungal disease that first popped up in a New York City park, in 1904. It spread from there inexorably, like a crawling woodland fire, reaching everywhere chestnuts grew, snuffing out their lives like billions of candles. In areas where the blight had passed a few years earlier, it looked like a roaring forest fire had passed, killing every tree, leaving behind dead trunks like standing skeletons.

The best readers will find room in their hearts for sparks of hope. Could it just be possible to save this on-the-verge-of-extinction native tree? Some determined people with big hearts are trying hard to do just that, hoping to move resistance into our species from Chinese chestnuts. The Chinese version, which has lived with the fungus for thousands of years, has evolved to tolerate it. Maybe its resistance can be moved into its American cousin? There is hope. Read the book and learn why.

Michael says

http://theethicsoflandscape.wordpress...

The legacy of the American chestnut is as much cultural as it is botanical, as shown in Susan Freinkel's superb book length study, American Chestnut: The Life, Death and Rebirth of a Perfect Tree (University of California Press, 2007). For the uninitiated, the American chestnut, the dominant tree of the Piedmont and Appalachian forest canopy of the eastern states prior to European settlement, was wiped out by the twin scourges of a root fungus in the mid-19th century and an Asian blight in the early-20th century.

The politics and in-fighting involved in the discovery, diagnosis and treatment of the chestnut blight are seedy and sad, a case of misspent energy and misguided actions. As a keystone species, the American chestnut supported a whole system of life which was greatly diminished and weakened with its disappearance. It has taken us too long, in respect to the chestnut blight, to realize a simple human evil can only be overcome by a great human good.

The story of the chestnut's restoration is the story of men and women driven by something much deeper than personal profit. The specter of biotechnology and genetic engineering looms large and threatening over the attempts to restore the chestnut. While Freinkel in no way grasps the scope of ecological restoration's complications, she at least mentions the difficulties faced by chestnut advocates in reintroducing the trees to their drastically altered native range. One criticism: Freinkel could have given even more historical context concerning the tree's abandoned place in our culture.

Greg says

Very interesting subject matter, and I thought the author was excellent. That's what you get when you have science writers writing on scientific subjects instead of partisans or journalists. You don't get much half-baked non-sense or misunderstandings of the subject. Freinkel interweaves her thoughts and observations throughout the story, but does not attempt anything more than an exposition of the subject at hand. The book is not a prescription, and I don't feel like it was lacking a prescription for the reader about how to act next.

Ultimately, the book was depressing (for me). I am a lover of forests, and the coda of the book only serves to remind me that even when we restore such an important tree as the chestnut, we have already lost more than can ever be replaced (and we're losing more, at an increasing pace, all the time). It seems the only true remedy to our abuses to nature will be human decline.

Laura says

Favorite quotes:

In 1963, after a decade of searching and weeding out false reports, USDA breeder Jesse Diller confirmed 180 large survivors across the chestnut's vast historic range, including a mammoth seventy-two-foot-tall tree in

Chelsea, Michigan, which one writer described as "a really notable survival, like a dinosaur turning up in a backyard swimming pool."

Restorationists start out with a vision of the landscape they wish to restore: the sinuous line of a river before it was dammed, a Midwest prairie circa 1870, or a pre-blight chestnut forest. Yet there's also a recognition that once the original cogs and wheels are set back in place they may turn in unexpected, unpredicted directions. How can it be otherwise? The ultimate goal is not to create a static museum display or a perfect tree that will last unchanged into perpetuity. It's to restart the chaotic choreography of natural change itself -- to reopen evolutionary pathways that were knowingly or carelessly disrupted when humans entered the scene. The aim "is precisely to set in motion processes we neither fully control nor understand," as Steve Packard, a leading figure in the field, has put it. "A restorationist, like a parent, needs to protect an unsteady being from certain great insults to its health or existence...The goal is to help some life go forward on its own -- an in the process become more truly itself." Like parenting, restoration is a perpetual tug between control and letting go.

Appalachia mourned the chestnut because it was, for mountain dwellers, a true and trusted member of their community. But today most of us don't live in the kind of culture that explicitly acknowledges how the fate of the human community is entwined with the fate of the broader biotic community.

Fox says

I was recommended this book by my mother, an ardent gardener and lover of nature. From the start I was curious about it, and over the course of her reading it she shared many little tidbits here and there that only further piqued my interest. I was lucky enough to grab it from the library shortly after she finished the book, and together we've now embarked on our own minor mission to discover an American Chestnut in the wild. Only time will tell if we'll be successful. This is the sort of passion that this book has the ability to evoke, though. I firmly believe it will soon create a new generation infected with a brand of *chestnuttiness*.

The story of the American Chestnut is not a particularly singular story. Other trees and species have followed a similar fate, and therein lies the strength of the story itself. What the chestnut has that other plants and species do not, is an intrinsic weaving of its life with our own, and an all too quickly forgotten fate. This is a fascinating story, a very human story, and one that will ultimately affect how restoration and conservation goes in the future. Will the American Chestnut be brought back? I have faith it will, and that the passenger pigeon will as well. The question, however, is in what *form* will these things be brought back? It made me incredibly happy that Susan Freinkel discussed that issue in detail. It's one that will soon (hopefully) be a more common discussion.

This book is fascinating and really heightened my interest in trees and the complexities of them. Forestry, by its nature, is complicated and I'm glad that the author really discussed how vital every part of the ecosystem is to restoration. I would highly recommend this book to anyone and everyone - it has within it the chance to start some important discussions that more people should be participating in.

I, for one, look forward to the full return of this species.

Patrick says

A very readable, often compelling story of a tree that had a central role in ecosystems and economies, before

a blight decimated the species. The tenacious drive to produce a blight-resistant version is a hopeful sign that intervention might possibly be positive.

Freinkel displays a muted skepticism for the possibility that genetically modified variants may succeed where traditional (if advanced) cross-breeding would not. Nevertheless, and although she adds in a footnote that there are patent issues to such products, she shows a remarkable and disappointing naivete about what happens when Monsanto gets involved in any commercial crop. Their history indicates that they would be happy with a tree that is sterile, requiring growers to purchase seed stock from them for any propagation. Further, if the GM trees did cross-pollinate non-GM trees, Monsanto's pattern has been to sue the owner (in this case, possibly the state), for failure to license Monsanto's patented technology (!). Even allowing Monsanto to participate in any research into a blight-resistant variant of the chestnut is at best careless, and at worst a cynical attempt to undermine or commercialize the attempts to re-introduce the chestnut to North America.
