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Reactions and Responses to the American Chestnut Blight in the Twentieth Century

Sarah Heavren
Providence College

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As one of the greatest ecological tragedies in American history, the American chestnut blight wreaked havoc on the American chestnut tree during the first half of the twentieth century. Lovingly deemed the perfect tree, the American chestnut tree had been a staple in American culture and economics since the nineteenth century. Despite the unparalleled destruction inflicted on one of the greatest wonders of the American landscape, the story of the American chestnut tree is not well known, and the few scholars who have studied the subject have focused primarily on either the science of the blight or the ecological and cultural losses in the Appalachian Mountain region, which was densely populated by the trees. However, the American chestnut tree populated the northern states along the east coast, and scholars have not directed much attention towards the cultural and economic influences of the American chestnut tree in the New England and Mid-Atlantic states. Examining print sources that reported on the blight offers insight on the evolving relationship that Americans in the New England and Mid-Atlantic states had with the American chestnut tree. The blight compromised the American chestnut tree's cultural and economic identities by decimating its population, transforming it into a subject to be scientifically studied and manipulated and victim to be mourned.

The news of the fungal blight spread as widely and as quickly as the blight itself, which was a testament to the scientific curiosity, concern, and interest in the tragedy that was unfolding along the eastern section of the United States. Throughout the early part of the twentieth century, newspaper and periodical articles provided updates on the latest scientific outlooks, advances in understanding the blight, ideas and experiments for potential treatments, and consequences of the American chestnut tree's decimation. The articles exposed the reasons behind Americans' concern, whether they be cultural, economic, or scientific, which offered

insight on the different perspectives of the American chestnut tree's identity. Although devastating, news and information about the American chestnut blight communicated research findings and consequences of the blight while highlighting the evolving relationship between science and the environment as well as the blight's effect on the cultural and economic identities of the tree.

The attention that the American chestnut blight received was indicative of the magnitude of the issue as well as the novel scientific complexities of the problem. G.G Copp's article that appeared in *Scientific American* in 1906 detailed some of the early discoveries made concerning the blight as well as the scientists' plan of action. Copp reported that a disease had plagued American chestnut trees, threatening "the extinction of these trees in and about New York."[1] Other traces of the disease were appearing in New Jersey, Maryland, and Virginia. George W. Merkel, who was a forester and engineer at the New York Zoological Park, noticed many of the trees dying around the park and that a number of trees in the park's nursery were also infected. Merkel devised a treatment for the trees that he first used on the younger trees then applied to the older trees. He sprayed them with a Bordeaux mixture, a tactic which was only "partially successful."[2] Looking for help, Merkel turned to Dr. W. A. Murrill, who was a mycologist at the New York Botanical Garden. Dr. Murrill made the issue his main focus because the "ravages of the disease ha[d] now become so apparent that the subject [was] one of great economic importance."[3] Copp highlighted that the blight would infringe upon the American chestnut tree's economic profitability, which had grown in prominence over the past

[1] G.G Copp, "A Disease Which Threatens the American Chestnut Tree," *Scientific American*, December 15, 1906, 451.

[2] Copp, "A Disease Which Threatens the American Chestnut Tree," 451.

[3] Copp, "A Disease Which Threatens the American Chestnut Tree," 451.

several decades. The fungal outbreak created tension between the tree's economic identity and its biological nature. Dr. Murrill's immediate dedication to the issue stressed that the American chestnut tree was a foundational component of the economics within the region and that serious consequences would ensue if the blight were not contained. The line distinguishing saving the tree for the sake of the economics or saving the tree for the sake of the ecosystem was blurred in Copp's account. Not only did Copp provide an update on the blight and the research being conducted on it, but he also showed that even the scientists were concerned about the economic fate of the tree.

Because the American chestnut blight had impending widespread effects, understanding it biologically and sharing research outcomes were essential components of containing the spread of the fungus. Scientists conducted experiments to better understand the effect of the fungus on the American chestnut trees. Copp included a detailed account of the method used to study the fungus, reporting:

> Pure cultures were made by Dr. Murrill from affected chestnut sprouts in the Botanical Garden last autumn, and were transferred to agar and sterilized bean-stems and chestnut twigs. In each of these situations the fungus grew rapidly and fruited abundantly. Living chestnut twigs were infected and placed, with their ends in water, under bell jars for inspection and study of the fungus growth and action as a preliminary to experiments in the field.[4]

Among closed-off experiments, there were observations carried out in the Bronx Park, where the fungus was naturally occurring by that point.[5] Scientists like Dr. Murrill were attempting to recreate the effects of the blight in a laboratory setting to help them acquire a baseline understanding of the foreign fungal species. However, at the observational and experimental

[4] Copp, "A Disease Which Threatens the American Chestnut Tree," 451.

[5] Copp, "A Disease Which Threatens the American Chestnut Tree," 451.

stages, there was little that scientists could do to respond to the blight, forcing scientists to adopt a passive stance. Although scientists, like other Americans, wanted to protect the tree, especially for its economic profitability, they had to wait until their experiments yielded results before they could act. While many people desired to put their faith in science to save the American chestnut tree, they were forced to be patient while scientists studied the fearsome fungus. In the meantime, the blight would continue to spread and decimate the population. Despite the promise that science offered to contain and potentially eradicate the blight, it was still subject to nature. The scientists had to learn from the blight before they could stop it, emphasizing that human knowledge could manipulate nature only after it understood it. By discussing the experimental practices of Dr. Murrill, Copp indicated that there was work being done to understand the blight, but the road to understanding was long and slow.

To know how to respond to the blight, scientists needed to know how it spread and reproduced. Consequently, infected American chestnut trees became objects of observation, indicating a new identity that the tree adopted. The American chestnut tree was no longer an ornament of nature, but a victim of it:

> The Fungus works beneath the cortex in the layers of inner bark and cambium. Its presence is first indicated by the death of the cortex and the change of its color to a pale brown, resembling that of a dead leaf. Later the fruitling pustules push up through the lenticels and give the bark a rough, warty appearance; and from these numerous yellowish-brown pustules millions of minute summer spores emerge from day to day to elongated reddish-brown masses, to be disseminated by the wind and other agencies, such as insects, birds, squirrels, etc. In late autumn and winter spores are formed, which are disseminated from the dead branches the following spring.[6]

Squirrels were no longer friends of the American chestnut tree, contrary to Maggie's experience in "Sunday in a Chestnut Tree." It was no longer the tall, sturdy, and revered behemoth of the

[6] Copp, "A Disease Which Threatens the American Chestnut Tree," 451.

forests, but instead the prey of a small organism. Instead, squirrels, birds, and other creatures that aided in spreading the fungus were instruments of the tree's destruction. Even the change of seasons was unfavorable to the tree because it prompted the spores to disperse. In describing the nature of the blight, Copp illustrated nature as destructive instead of cohesive. By falling victim to the blight, the American chestnut tree indicated a shifting relationship that people had with the environment. Instead of appreciating nature for its wonder, science drew attention to the harsh realities of life and death and the potential for majestic wonders like the American chestnut tree to fall victim to a miniscule fungus that depended on the wind and small animals to spread.

Because of the ubiquity of the American chestnut tree in local communities, scientists felt that informing the public was a necessary part of containing the blight. By teaching the public about the blight and its effects, scientists were playing a part in morphing the role that the American chestnut tree played in communities. No longer was the tree to be looked at as a resource or a natural wonder, but instead as a victim to the harshness of nature. An article from *The Evening Bulletin* reported on the latest news about the "Chestnut Bark Disease" at the local and the regional levels to help people understand the blight and its impending consequences. The Franklin Society in Rhode Island sponsored a lecture to discuss the magnitude of the blight and the looming danger of American chestnut trees in Rhode Island. Professor J. Franklin Collins, who "studied the subject as a representative of the Department of Agriculture," showed slides to provide visuals, including the appearance of the blight on an infected tree, for the lecture.[7] The motivation for holding a lecture presented by a government-issued specialist indicated the importance of the American chestnut tree at the local and national levels as well as the importance of raising awareness about the blight. Common

[7] "Chestnut Bark Pest Spreads," *The Evening Bulletin,* April 13, 1910, 13.

people, not just scientists, needed to be able to identify the fungus because the blight was a widespread crisis, not a matter confined in a science lab. Collins provided some grim statistics, claiming that "there probably [was] not a healthy chestnut tree within 30 miles of New York, and the disease [was] estimated to have done $10,000,000 damage in New York City and the immediate vicinity."[8] Relating the extent of the damage in terms of money lost indicated the economic implications of the blight. By identifying the monetary consequences of the death of the American chestnut tree, Collins reaffirmed the tree's economic identity. His presentation not only informed the public on the magnitude of the blight, but it also impressed upon them that the blight was problematic for biological and economic reasons.

A consequence of informing the public on the state of the blight and the lack of success in mitigating it was growing doubt in scientists' ability to tame the fungus. The blight unleashed a wave of devastation, and there was also no known way of containing it nor of preventing it from doing future damage. According to Collins, "The cure for the disease, viz. cutting out the diseased areas, is too difficult and costly to warrant its application to forest trees and hardly likely to be practiced even in orchards."[9] Although Collins and other scientists were reliant upon scientific interventions to mitigate the spread of the blight, he had to acknowledge that the breadth of the problem was too great for them to contain by hand. Despite being an economic staple, the American chestnut tree was not worth the investment of time and effort needed to cut the diseased areas, according to the Department of Agriculture representative. Much to their dismay, people had little control over the situation. "'We have tried all the common sense methods for cure that we could think of and now, in despair, are trying all the fool ideas that are

[8] "Chestnut Bark Pest Spreads," 13.

[9] "Chestnut Bark Pest Spreads," 13.

suggested,'" Collins confessed.[10] His dismal outlook indicated that there was a possibility that not even science could defeat the blight. His word choice indicated that the blight could not be rationally conceptualized because it was impermeable to common sense methods. In addition to the fear of the blight spreading, there was also the concern that human beings would be powerless in suppressing it. Collins implicitly expressed the harsh realization that human reason and science might not be enough to overpower nature. Although Collins's presentation raised commonly understood concerns such as the financial losses that accompany the blight, his words also hinted at a bigger issue, which was an increasing fear of science's limitations in controlling nature.

The article from *The Evening Bulletin* assessed the spread of the blight at the time, emphasizing that the American chestnut blight was both a local and a regional issue as well as one spawned by economic interests. Although the blight originated in New York, "infected trees [had] been found in the towns adjoining Providence."[11] However, large-scale tree production in other states has also worsened the situation. The article explained, "In southwestern Connecticut, New Jersey and Pennsylvania chestnut orcharding is carried on a large scale and was proving highly profitable until the bark disease appeared."[12] The reference to the profitability of the American chestnut tree emphasized that the primary concerns surrounding the blight were the economic consequences. Both local and regional economies would suffer from the timber losses. However, the article indicated that economic interests were partly to blame for the spread of the blight: "In these orchards grafting on native trees was practiced, and Prof.

[10] "Chestnut Bark Pest Spreads," 13.

[11] "Chestnut Bark Pest Spreads," 13.

[12] "Chestnut Bark Pest Spreads," 13.

Collins's investigations showed that the disease was spread widely through infected nursery stock. Many nursery-men were ignorant of even the existence of the disease that their stock was spreading."[13] Economics motivated orchard owners to use grafting, a process involving taking the tissue of one tree and combining it with the tissue of another, to produce the most desirable trees. However, in doing so, they inadvertently worsened the blight situation. The American chestnut tree had had a growing economic influence in recent decades, but in asserting the tree as a commercial product, people upset the balance of nature, creating a situation out of their control that had regional implications.

The American chestnut blight posed a unique challenge because it marked the intersection of individual and regionally cooperative efforts to contain the blight. Pennsylvania was one of the first states to attempt a unified response, and in 1912, Governor John Tener of Pennsylvania held an assembly in the House of Representatives to discuss methods of halting the spread of the chestnut blight. Composed of scientists, foresters, businessmen, and bureaucrats hailing from different states, the assembly's goal was to concoct a robust and effective plan to contain the spread of the infectious fungus.[14] Within a few years, the chestnut blight had made its way to ten states, and Governor Tener had previously showed his dedication to the issue one year earlier when he signed a bill that allocated $275,000 (about $5.6 million in today's rates) to combat the rampaging blight. In Pennsylvania, the blight had already had devastating effects on the eastern part of the state, and Tener's plan "was audacious—and heartbreakingly naive."[15] The eastern half of Pennsylvania had already fallen victim to the blight, so Tener sought a way to

[13] "Chestnut Bark Pest Spreads," 13.

[14] Freinkel, "Let Us Not Talk about Impossibilities," 48.

[15] Freinkel, "Let Us Not Talk About Impossibilities," 49.

confine the spread. Freinkel explains the plan that Tener devised, writing, “The state would cut out every single infected chestnut tree--and if need be, healthy ones as well—in the western half of the state.”[16] Tener sought to create a division between the east and the west as a means of isolating the infectious fungus. However, the Pennsylvanians were moved more by passion than science, and they were ill-equipped to combat the enemy with their simple saws and axes.[17] The plan’s execution involved cutting down any chestnut trees that showed signs of infection. “The tree had to be cut close to the ground, and the lumber, as well as the stump, stripped clean of its bark, where the fungus resided. At that point, the wood could be salvaged for use,” but “the field agents never considered that they might be spreading the deadly spores on the soles of their boots or the blades of their axes,” comments Freinkel.[18] However, the plan would only work if there was some economic return, so “the commission persuaded the railroads to offer reduced freight rates for the blighted timber.”[19] Naysayers like Murrill had little faith in the effectiveness of the Pennsylvanians’ efforts and instead viewed it as a waste of money and resources. Although Murrill had originally suggested cutting down both infected trees and trees within about a half-mile radius of infected trees, he did not intend for his suggestion to be carried out as a large-scale, state-wide procedure.[20] Pennsylvania’s vigorous response to the American chestnut blight expressed that the state eagerly took action to defend the prized tree, acting on passion as opposed to science.

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[16] Freinkel, "Let Us Not Talk About Impossibilities," 49.

[17] Freinkel, "Let Us Not Talk About Impossibilities," 49.

[18] Freinkel, "Let Us Not Talk About Impossibilities," 63.

[19] Freinkel, "Let Us Not Talk About Impossibilities," 63.

[20] Freinkel, "Let Us Not Talk About Impossibilities," 50.

The rapid spread of the fungus meant that states had to devise their own eradication plans to protect not only their own forests, but also the forests in neighboring states. The blight knew no borders, so it was both a local and a regional issue. Metcalf noted that the individual and cooperative efforts of the states were crucial because "[a]ll Washington [D.C.] could do was appropriate money for research, and not much at that. It was up to the states to muster their own defenses by establishing their own quarantine lines."[21] Priority areas that had a large number of American chestnut trees, like Appalachia, covered multiple states, meaning that any efforts to protect the trees would require multi-state cooperation. The American Association for the Advancement of Science encouraged all of the states in the Appalachian region to allocate anywhere between $50,000 and $100,000 to both save the chestnut trees and to eradicate the blight.[22] Saving the chestnut tree was a local, federal, and scientific investment, which was a testament to the magnitude of the crisis.

While Pennsylvania was patriotically eager to defend its land by pouring money and manpower into saving the American chestnut tree, Virginia's political leaders were more hesitant to invest time and resources into the cause. Chestnut trees made significant contributions to the state's economics, accounting for about $2.5 million annually, which is about $50 million by today's standards. Although there was legislation that designated funding towards saving the trees, it only amounted to five thousand dollars. The funds went towards the establishment of the Chestnut Blight Laboratory at Virginia Polytechnic Institute and State University led by Flippo Gravatt, a trained plant pathologist.[23] While Gravatt could see the grim reality of the blight

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[21] Freinkel, "Let Us Not Talk About Impossibilities," 52.

[22] Freinkel, "Let Us Not Talk About Impossibilities," 52.

[23] Freinkel, "A Whole World Dying," in *American Chestnut,* 73.

spreading from the northern to the southern part of the state, he also watched as the cicada outbreak of 1911 only worsened the matter. The infestation enhanced the damage of the blight because "the insects' nibbling left chestnut trees in the afflicted areas covered with minute wounds. Each tiny puncture was a doorway for the ravenous spores, a direct corridor to the vital cells under the bark."[24] Like Pennsylvania, Virginia issued cutting projects, but on a much smaller scale. Gravatt's "only objective was to delay it, holding back the main line of infection long enough for landowners in Virginia, as well as the other Appalachian states, to profit from their timber."[25] Unlike Pennsylvania, which was determined to preserve the American chestnut tree through the vigor of the American spirit, Virginia was more concerned with the investment to save the trees, only offering as much time and effort necessary to secure a profit from the trees before they died.

As time went on and the blight continued to rage, newspaper articles provided updates on the status of the blight as well as the research being conducted on it. The appearance of the American chestnut blight as the subject of newspaper articles exemplified the newsworthiness of the tragedy. However, as research was evolving, scientists held different perspectives on the blight. An article from a 1914 edition of the *Springfield Republican* reported on the outlook for the American chestnut tree in light of the blight. Professor A.H. Graves, who had been doing research at Yale, deemed the American chestnut tree to be "doomed."[26] The article explained Graves's reasons for making such a claim, stating, "Between the ravages of insects, fungi, and man, the great natural resisting power of Castanca dentate [the American chestnut tree] can

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[24] Freinkel,"A Whole World Dying," 74.

[25] Freinkel,"A Whole World Dying," 74.

[26] "Toughening the Chestnut," *Springfield Republican*, August 21, 1914, 13.

hardly avail to save it."[27] Despite the American chestnut tree's strength and durability, it faced other threats besides the blight. Although the fungus was clearly a threat, Graves also considered man to be a menace to the majestic tree. When considered along with Collins's report on orchard men grafting trees freely and claims of harvesting timber without replenishing the forests, Graves's assertion appeared to be sound. Having the threat of mankind compared to the threat to the American chestnut as the fungus, which had already decimated the species, was indicative of how drastically Americans' relationship with the tree had changed. Just like the blight, humanity posed the threat of a natural disaster.

Although the American chestnut tree was under threat for multiple reasons, including the influence of mankind, scientists had not yet given up hope on generating a biological solution, showing that there was still faith in science's ability to dictate nature. Graves had been conducting crossbreeding experiments with a "more resistant" species, producing a Chinquapin-Asiatic hybrid with the hope of performing similar experiments with cross breeding a Chinese chestnut tree and an American chestnut tree.[28] However, science could not improve upon what nature had already perfected. "An immune, or at least highly resistant, Chinquapin-Asiatic hybrid has been obtained. Because of its small size this will probably be of little value as a wood producer," the article detailed.[29] Even if the scientifically bred chestnut tree were to be resistant to the blight, the tree would have significantly less economic promise because it would not bear the same favorable characteristics of the American chestnut tree. The result was necessary to point out because economic profitability had become intimately intertwined with the tree's

[27] "Toughening the Chestnut," 13.

[28] "Toughening the Chestnut," 13.

[29] "Toughening the Chestnut," 13.

identity, showing that economics were still at the forefront despite the impending ecological tragedy. However, "Graves calls attention to the probability that a similarly immune hybrid, of forest timber size, might result from a cross between the Chinese chestnut and our native tree."[30] Graves sought to use science not only to preserve the American chestnut tree but to also preserve its desirable qualities that made its timber ideal. Even though Graves acknowledged that humanity posed a considerable threat to the American chestnut tree, he had no reservations about using science to breed two species of trees that did not naturally mix to generate a tree suitable for American economic interests.

The blight affected different regions and varying ways, but the newness of the blight made devising an appropriate response a challenge. A newspaper article published in Portland, Oregon, in 1914 reported on the arrival of the chestnut blight in Seattle, Washington as a result of the importation of Japanese chestnut trees. "The 1500 trees in the shipment will be burned" and the "chestnut blight has threatened entire destruction of the American chestnut tree, which is abundant in the forests east of the Mississippi River, and has already caused enormous losses," the article stated.[31] Although there were significantly fewer American chestnut trees in the Pacific Northwest as there were along the East Coast, people were learning that mixing foreign species with domestic species could be problematic. However, despite knowing that the blight arrived in the United States via shipments of Japanese chestnut trees, importations of Japanese chestnut tree would continue. The article promised, "Future shipments will be inspected closely," but it offered no guarantee on preventing infected trees from being imported.[32] There

[30] "Toughening the Chestnut," 13.

[31] "Japanese Chestnuts Affected," *Morning Oregonian*, March 20, 1914, sec. News/Opinion, 14.

[32] "Japanese Chestnuts Affected," 14.

was the possibility that importing the Japanese chestnut tree might be part of a plan to replace the dying American chestnut tree with the foreign species. The article explained, "The Japanese chestnut has been supposed to be immune from the disease and preparations had been made for large importations."[33] Not only did the article indicate that the American chestnut blight was having national consequences, but it also indicated that the trees were just another commodity. Although the latest shipment was to be burned because it was tainted by the blight, there would be plenty more shipments, which would presumably meet the same fate if they carried the blight. Consequently, from the perspective of Japanese chestnut tree imports, the blight was a defect in a product than the proponent of a natural disaster. The economic identity of the trees conflicted with scientific understanding of the blight. Despite the destruction that the blight had already caused on the eastern side of the Mississippi River, there were no intention of halting the importation of the foreign species, despite the risk of importing infected trees. The article reflected that not only did the American chestnut blight have national implications, but that the identity of chestnut trees as a commodity prevented people from realizing the magnitude of the blight and the importance of taking preventative actions.

The chestnut blight not only altered the landscape, but it also wrought cultural and economic shifts. An article from a 1917 edition of the *Wilkes Barre Times Leader* reported that by 1917, American chestnuts were very hard to find. In fact, "[y]ou can walk for miles through the woods of some section and never see a chestnut burr."[34] The lack of chestnuts was devastating because they were an important food and economic staple to many people. The

[33] "Japanese Chestnuts Affected," 14.

[34] "Blight Forcing Chestnut Trees out of Existence. Scourge Crept into This Country from China About Five Years Ago," *Wilkes Barre Times Leader*, October 15, 1917, sec. News/Opinion, 7.

author of the article captured the intersection of culture with economics when he explained, "The sizzling roasting pans with which fruit stands formerly did a flourishing business now rarely roast anything but popcorn, and persons desirous of celebrating Hallow'een according to its ancient traditions are having as much difficulty in procuring chestnuts for the event as patriotic little boys have in obtaining firecrackers with which to celebrate the Fourth."[35] From the author's perspective, culture and economics influenced each other when it came to selling chestnuts. The ubiquity of street vendors selling chestnuts was an aspect of local identity as well as a sign of a flourishing small business endeavor. Additionally, roasting chestnuts was engrained in a holiday tradition, which emphasized the place that chestnuts held in American culture. The author of the article went to great lengths to emphasize that the American chestnut tree had more than economic value: "For, alas, the American chestnut tree—dear to poets, humorists and epicures of this country—is afflicted with a blight that is rapidly forcing it out of existence."[36] The American chestnut tree inspired creativity, which preserved the special place that the tree and its nuts held in people's lives. The author acknowledged that the American chestnut tree was a valuable economic resource, but he also unequivocally enforced that it also bore a notable amount of cultural symbolism that shaped American creativity and imagination.

Although there was reason to mourn the loss of the American chestnut tree for its cultural significance, the impending economic losses were drastic. Researchers within the Department of Agriculture had grim prospects for the fate of the beloved species, and as of 1917, the Department declared that within two more years, chestnut trees would be wiped from the

[35] "Blight Forcing Chestnut Trees out of Existence. Scourge Crept into This Country from China About Five Years Ago," 7.

[36] "Blight Forcing Chestnut Trees out of Existence. Scourge Crept into This Country from China About Five Years Ago," 7.

forests. Reportedly, the chestnut forests "were worth over fifty million dollars; now, they are worth hardly half a million."[37] The blight was an economic tragedy, as well as a natural one. For many, the devastating reality of the situation was amplified by their feeling of helplessness, especially because of the lack of successful and immediate scientific advancements to combat the blight. Commenting on the overlap in timing between the blight and World War I, the author conceded, "It is not one of those innumerable calamities that will end with the war."[38] Amidst domestic turmoil, there were also troubles on American soil as scientists attempted to combat the biological warfare that the fungus waged on the trees. Families' tables, railroad companies, farmers, and other industries were suffering with the disappearance of the American chestnut tree because "the chestnut tree [was] valuable from the trunk up. Every part of it can be utilized."[39] The anticipated feelings of loss that people in various walks of life experienced was a testament to the role of the American chestnut tree as a pillar of American life. Influencing agriculture, economics, transportation, domestic life, and culture, the American chestnut tree supported many aspects of American life, and its decimation threatened to bring many changes, including changes to Americans' relationship with the environment.

Although no scientific solution had proven successful in combatting the American chestnut blight, scientists continued investigating ways to save the tree. "Inasmuch as the blight which his destroying the chestnut tree crept into this country from China," the article stated, "the scientists of the department of agriculture made investigation in that country."[40] Through

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[37] "Blight Forcing Chestnut Trees out of Existence," 7.

[38] "Blight Forcing Chestnut Trees out of Existence," 7.

[39] "Blight Forcing Chestnut Trees out of Existence," 7.

[40] "Blight Forcing Chestnut Trees out of Existence," 7.

returning to the source, researchers found that the Chinese and Japanese species of chestnut trees were actually immune to the blight. However, they did not possess the same desirable qualities as the American chestnut tree: "One of them is a short bush with large nuts not as sweet or as tender as American chestnuts, and the other is a tall hardwood tree whose nuts are not edible at all."[41] Consequently, the two alternative species could provide nuts and timber, but the all-in-one appeal of the American chestnut tree would die with the blight. No other cultivated nut was as abundant or as great of a staple in American diets, and the scarcity of the nuts came as a harsh blow during wartime.[42] Although science showed that other species of chestnut tree could produce nuts and timber, they would have difficulty replacing the American chestnut tree, a model of resourcefulness and versatility.

By 1923 the fate of the American chestnut tree was looking very grim. People watched helplessly as it slipped away with little hope of recovering. Newton Fuessle covered a number of issues surrounding the American chestnut blight, starting with the cultural impact and hopelessness inflicted upon the people by the blight. He opened his article by stating, "The autumnal fragrance of a pan of chestnuts roasting over a ruddy little bed of charcoal is almost a thing of the past."[43] Roasting chestnuts, an act that was inseparable from the season, was growing increasingly scarce as the number of American chestnut trees plummeted. By emphasizing the tragedy of the loss, Fuessle indicated that traditions such as roasting chestnuts had become engrained in American life and would be missed. Urban areas were known for

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[41] "Blight Forcing Chestnut Trees out of Existence," 7.

[42] "Blight Forcing Chestnut Trees out of Existence," 7.

[43] Newton Fuessle, "Plagues That Imperil Our Trees and Plants: How Uncle Sam Quarantines American Ports Against Infected Nursery Stock, Stamps Out Plant Epidemics, and Keeps Vigilant Scientists on Guard Against the Spread of Infections," *Outlook*, July 4, 1923, 329.

having chestnut vendors selling the roasted nuts as the weather turned cold: "The swarthy vender, balancing himself and his apparatus adroitly along the curb where the traffic of city streets is invariably the thickest, must soon be abandoning his usual stock in trade during the hazy days of October and November, when nothing smells so good as a chestnut."[44] The familiar sights and smells associated with the chestnuts were disappearing with the blight, leaving a noticeable gap in the corners of American life. Fuessle mourned the loss of a common experience of seeing chestnut vendors that was characteristic of New England and the Mid-Atlantic states. His tone expressed the fear of a future without chestnuts, a future that was on the horizon because "the native American chestnut trees are practically extinct along the Atlantic coast to-day, and it is believed that nothing can stop the blight that is gradually consuming the ones that remain."[45] Overcome with a sense of defeat, Fuessle acknowledged that the lack of success in containing the blight did not bode well for the future of the tree. Fuessle was mourning more than the loss of the tree; he was mourning the loss of tradition and culture, the loss of common experiences that united people and offered them the comfort of familiarity.

Just as the blight was an ongoing cultural tragedy, it also resulted in continual economic losses as it spread across the eastern half of the country. The blight acted quickly, and "as early as 1911 [it] had already devastated fully $25,000,000 worth of timber," spreading "at a rate of about twenty to twenty-five miles a year with a virulence that science has been unable to check."[46] The blight appeared to be a whirlwind of destruction, consuming the timber industry while also engulfing the forests. Fuessle echoed the common fear of the blight's potential to

[44] Fuessle, "Plagues That Imperil Our Trees and Plants," 329.

[45] Fuessle, "Plagues That Imperil Our Trees and Plants," 329.

[46] Fuessle, "Plagues That Imperil Our Trees and Plants," 329.

defy science and be unstoppable. Although trees in New York, New Hampshire, and Virginia had fallen victim to the fungus, the more southern reaches of the tree's native range were yet to be conquered. However, Fuessle confessed that "even the forest pathologists of the United States Department of Agriculture admit their inability to protect the trees of the region against it" and that the "trees are doomed."[47] Although economic losses were a concern, Fuessle included them as a way of emphasizing the scale of the issue and the anxiety over scientists' lack of success in containing the blight, let alone eradicating it. Fuessle acknowledged that the blight had financial implications, but he framed the bigger issue to be the blight's apparent invincibility and the reality that human beings could not conquer nature.

Although scientists were yet to devise an effective solution to the blight, they formulated some ideas to mitigate the spread and prevent future biological environmental tragedies. One of the potential preventative measures involved monitoring the health of imported plant species. Explaining the rationale behind plant quarantining, Fuessle wrote, "Quarantining American ports against the entry of immigrants infected by contagious diseases has long been a painstaking measure of public safety. But plant quarantines to protect American trees and plants against the importation of diseased nursery stocks is a development of only recent years."[48] Just as immigrants had to be inspected for public health reasons upon arriving in the country, so too should foreign plants. The American chestnut blight acted as a prime example of the consequences of not inspecting imported plants because the "blight unquestionably owe[d] its origin to the admission of diseased nursery stock from Japan."[49] Fuessle portrayed the American

[47] Fuessle, "Plagues That Imperil Our Trees and Plants," 329.

[48] Fuessle,"Plagues That Imperil Our Trees and Plants," 329.

[49] Fuessle, "Plagues That Imperil Our Trees and Plants," 329.

chestnut blight as an instigator for Americans to become more aware of what was entering the country. However, interestingly, the solution was to inspect imported plants instead of banning them, showing that people still believed that they could mix domestic and foreign species without risking another environmental disaster. The devastation of the American chestnut tree inspired people to view imported plants as immigrants that need to be inspected and quarantined, becoming more defensive and skeptical of what entered the country.

The seriousness of the American chestnut blight issued an awakening of awareness of environmental fragility, inspiring Americans to take steps to protect their staple crops from the ravages of foreign pathogens. After seeing the blow dealt to the chestnut crop, people became fearful of similar devastation falling upon other staple crops such as apples, potatoes, corn, and wheat. The onset of the blight caused by the foreign fungus "marked the advent of an era of exceedingly interesting and dramatic warfare that has since been waged vigilantly, resourcefully, and incessantly by Uncle Sam against pathological perils that trees and plants, no less than the human body, are heir to."[50] Any threat on American soil, whether it be to the people or to the flora, was not to be taken lightly but instead combatted with a determined American spirit. Fuessle subtly compared the blight and other foreign plant pathogens as threats to the nation that must be suppressed with warlike dedication and effort, instilling a sense of environmental patriotism. As a protective and cautionary measure, a "total of fifty-four different plant quarantines have been issued, of which thirty-five continue in force."[51] Just as Americans attempted to protect themselves from diseases brought by immigrants, the Department of Agriculture issued an incredible amount of plant quarantines as a way of protecting the country's

[50] Fuessle, "Plagues That Imperil Our Trees and Plants," 329.

[51] Fuessle, "Plagues That Imperil Our Trees and Plants," 329.

native species. Defending American plant life was just as important as protecting the lives of Americans, offering a new perspective on the value of the environment in the United States. "It is as important, from the point of view of human life," Fuessle wrote, "to protect our ports against these afflictions, as it is, from the point of view of human life, rigidly to bar from our ports of entry immigrants suffering from scarlet fever, yellow fever, or smallpox."[52] The American chestnut blight had made people realize the potential devastation that could occur from mixing foreign and domestic species, giving them a reason to rally behind a sense of environmental patriotism and protect their own. The issue of the American chestnut blight was not just a biological and environmental one, but it was also an issue of national security, a threat originating outside of the nation's borders.

Much of Fuessle's language was evocative of the anti-immigration attitudes that were prevalent throughout the end of the nineteenth century and beginning of the twentieth century. The legacy of negative attitudes towards immigrants in the United States originated around 1880, which marked the birth of the concept of Americanization. American-born citizens became concerned by the waves of immigrants flooding the nation. As Anne C. Schenderlein explains, "Americanization initiatives were generally geared to transforming immigrants into 'good Americans' by teaching them English and educating them about the country's history, politics, economy, laws, customs, and ways of life."[53] These initiatives "remained particularly strong until the passage of the National Origins Act of 1924, which restricted the immigration of eastern and southern Europeans and essentially stopped that of Asians."[54] While many immigrants were

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[52] Fuessle, "Plagues That Imperil Our Trees and Plants," 329.

[53] Anne C. Schenderlein, "Americanization before 1941," in *Germany on Their Minds: German Jewish Refugees in the United States and Their Relationships with Germany, 1938-1988* (Berghahn Books, 2020), 25.

[54] Schenderlein, "Americanization before 1941," 25.

viewed as a threat to American identity, Japanese immigrants in particular were also seen as a threat to American ecological and human health. Jeannie N. Shinozuka describes that "dominant images of Japanese and Japanese Americans as a contagious and poisonous yellow peril played a key role in shaping anti-Asianism, including legislation that sought to exclude foreign plants and human immigrants."[55] Bubonic plague outbreaks on the West Coast in the 1890s led many skeptical Americans to associate Chinese and Japanese immigrants with plague and pestilence. Other issues with imported foods caused the USDA to blame Asian imports for bringing invasive species that damaged crops such as citrus trees.[56] "The perception of Japanese immigrants as a menace," writes Shinozuka, "continued in the 1910s in the form of contaminated fish sold by the isseri [Japanese immigrants], chestnut bark disease believed to be imported from Japan, and the destruction of thousands of original Japanese cherry trees that would have been planted in Washington, DC, had they not been infested."[57] Fuessle was writing at the height of anti-immigration sentiments, publishing his article just one year before the National Origins Act of 1924 was passed. His opinions about quarantining plants and defending American flora from unwanted pests was an allusion to the anti-immigration attitudes of the time.

Along with expressing his anxieties and concerns about the blight and importing plants, Fuessle also provided an update on the work of Dr. Metcalf, the head pathologist working for the government to contain plant pathogens.[58] Metcalf initially "urged the Government to open official fire upon the chestnut blight long before actual operations were undertaken; and again it

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[55] Jeannie N. Shinozuka, "Deadly Perils: Japanese Beetles and the Pestilential Immigrant, 1920S-1930S," *American Quarterly* 65, no. 4 (December 2013): 831.

[56] Shinozuka, "Deadly Perils," 832.

[57] Shinozuka, "Deadly Perils," 833.

[58] Fuessle, "Plagues That Imperil Our Trees and Plants," 330.

was he who advised that the fight be abandoned when it became clear to him that it could not possibly be won."[59] Dr. Metcalf was a pioneer in the field of tree pathology, which has been understudied prior to the outbreak of the blight. Although little could be done to protect the American chestnut tree from foreign pathogens after the arrival of the blight, its fate testified to the importance of the field of research and the hope that science might be able to help prevent similar devastations in the future. Fuessle portrayed Dr. Metcalf as an advocate for regulating imported plants, stating, "He [Dr. Metcalf] was the first to recognize that the chestnut blight was an imported disease, and since 1908 has constantly preached the doctrine that it is easier to keep out a foreign peril to plants than to fight it once it is intrenched."[60] Dr. Metcalf's research showed that preventative measures were more effective than responsive ones, encouraging people to consider the consequences of importing plants. Despite having little hope of a cure, the American chestnut blight acted as a catalyst, inspiring research in the under-explored field of plant pathology with the hope of protecting other domestic plant species from foreign enemies.

The American chestnut blight not only instigated advances in the field of plant pathology in the United States, but it also motivated Congress to act by establishing regulations and protocols for imported plants to avoid future crises. Already a cultural, economic, environmental, and scientific issue, the American chestnut blight also influenced national politics. In 1912 Congress passed the Plant Quarantine Act, which instituted the Federal Horticultural Board to inspect plant imports and to establish quarantining protocols. Once the Board began inspecting imported plants, it became very aware of the importance of inspection: "The rapid discovery of one new disease after another became so alarming to the Board that

[59] Fuessle, "Plagues That Imperil Our Trees and Plants," 331.

[60] Fuessle, "Plagues That Imperil Our Trees and Plants," 331.

public hearings were held to arrive at a basis of reasonable yet sufficient action."[61] A mandate from June 1, 1919 issued the "general exclusion of all nursery stock except fruits, vegetables, cereals, and seeds."[62] The Board attempted to strictly regulate the species entering the country while respecting people's dependence on imported plants for food. However, the mandate "caused a storm of protest, and has resulted in almost continuous controversy."[63] The people were upset by having their ports regulated, indicated another carnation of the economic upset caused by the blight. The blight had extended its influence to include legal and federal matters, which was a testament to its multifaceted expansiveness. The federal government was picking up the states' slack on enforcing plant quarantines, which "developed into a general rigid limitation of entry, but now it seems that the point has been reached at which the authorities must strike the proper balance between a rigid general quarantine and the pressing requirements of America as a factor in world trade."[64] Not only was the American chestnut blight compromising domestic economics, but it was also negatively influencing the United States' role in the global economy as well. The blight was an issue of competing values: domestic safety versus economic prestige.

To draw attention to the necessity of the government's intervention to prevent future plant pathogen outbreaks, Fuessle utilized patriotic language and imagery, depicting fighting foreign pathogens as a war fought for the American people and landscape. Despite lacking proper funds and public support, the government would continue regulating imports because "the

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[61] Fuessle, "Plagues That Imperil Our Trees and Plants," 332.

[62] Fuessle, "Plagues That Imperil Our Trees and Plants," 332.

[63] Fuessle, "Plagues That Imperil Our Trees and Plants," 332.

[64] Fuessle, "Plagues That Imperil Our Trees and Plants," 332.

men charged by the Government with keeping infections out of our ports are making one of the bravest and most brilliant fights ever conducted on behalf of the American public."[65] Fuessle viewed plant quarantining as an issue that transcended economics and politics, one that was for the greater good and being selflessly waged. The American chestnut blight was not the first foreign plant pathogen to wreak havoc on domestic species, and it would not be the last. He applauded the government's fight and saw it just as much as a means of protecting the people as it was of protecting the plants. In explaining the seriousness of the threat and the paranoia of the unknown, Fuessle wrote, "In torrid jungles and in distant forests unknown and unnamed infectious diseases of plants are thriving, and are lying in wait for the opportunity to attack American fields and orchards."[66] The foreign plant pathogens were the enemy, and they were targeting American soil. The people needed the government's intervention to protect them as well as to protect the bounty of the American landscape. Fuessle evoked a sense of patriotism as well as a suspicion of foreign plants to instill the idea that another outbreak like the American chestnut blight would be just as serious as war waged by a foreign nation.

Americans reacted and responded to the American chestnut blight in various ways, mourning the loss of the tree's cultural and economic influences while fearing the devastation of outbreaks among other species. Although many people had hope that science would provide a solution, they realized that nature was far more complex than they anticipated, and they had mixed reactions to the importation restrictions, highlighting that people were conflicted between preserving economics and protecting the American landscape. For much of the beginning of the twentieth century, the fate of the tree was grim at best, but scientists remined dedicated to finding

[65] Fuessle, "Plagues That Imperil Our Trees and Plants," 332.

[66] Fuessle, "Plagues That Imperil Our Trees and Plants," 332.

a way of protecting the tree, showing that the tree held such an important place in American life that it was worth fighting for the impossible. While tragic, the American chestnut blight forced Americans to confront the potential dangers of mixing imported plants with domestic species. However, people like Fuessle patriotically and nationalistically rallied behind the government-issued plant quarantines because they were meant to protect both the American soil and the people from pathological enemies. The way that the blight raised cultural, economic, political, and scientific concerns exemplified the complex, multilayered, and evolving relationship that the American chestnut had with the American people.

Annotated Bibliography

"Blight Forcing Chestnut Trees out of Existence. Scourge Crept into This Country from China About Five Years Ago." *Wilkes Barre Times Leader*. October 15, 1917, sec. News/Opinion.

This article highlights the role that the American chestnut tree played in the lives of average people. It reported on the devastation that many people experienced as a consequence of the scarcity of the chestnuts. The nuts were a food staple for many people but had become increasingly difficult to find since the blight began killing off the trees. The author of the article also provided testimony to the cultural losses inflicted by the reduced number of chestnuts. He commented on street vendors who would sell roasted chestnuts and the Halloween traditions that involved chestnuts. In addition to mourning the impending loss of traditions, the article reported on the economic losses that had already occurred. While the Department of Agriculture had been investigating potential replacements for the American chestnut tree, but no other species could provide favorable timber and delicious nuts like the American chestnut tree. The article shows that the issue of the American chestnut blight highlighted the tension between the tree's cultural and economic identities, both of which were threatened by the blight.

"Chestnut Bark Pest Spreads." *The Evening Bulletin*. April 13, 1910.

This newspaper article features news about a lecture by Professor J. Franklin Collins, who discussed the nature of the American chestnut blight and the damage it inflicted both locally in the state of Rhode Island and regionally in neighboring states. Collins was a representative from the Department of Agriculture, and his distinction indicated the seriousness of the blight. He bore grim news, reporting on the rapidly expanding radius of infection and the monetary losses. Collins also told his audience that there was little to be done to combat the destructive fungus. His tone indicated that the gravity and novelty of the blight perplexed scientists and that they did not have a solution to the problem. At a time when people had nothing to rely upon other than science, Collins confessed that scientists themselves were at the point of desperation. Not only did the blight have economic, local, and regional consequences, but it also exposed the reality that science could not always provide an immediate fix for problems presented by nature.

Copp, G.G. "A Disease Which Threatens the American Chestnut Tree." *Scientific American*, December 15, 1906.

G.G. Copp recorded the discovery and early observations of the American chestnut blight. He explained that George W. Merkel first observed the blight at the New York Zoological Park and attempted to treat the trees with a Bordeaux mixture. After that failed, Merkel turned to Dr. W.A. Murrill, who began observing and conducting experiments on the unidentified fungus. Copp shared some of Murill's findings regarding the means through which the fungus attacked the American chestnut tree and the means through which the spores of the fungus spread. The style and language that Copp used indicated that the blight was first a scientific issue before it affected economics and culture. Additionally, Copp's article showed that the American chestnut tree and the fungus had become subjects of science, which were manipulated and observed through experiments. The increased reliance on science was indicative of American's shifting relationship with the environment and greater confidence in scientists' abilities to understand and control the natural world.

Freinkel, Susan. "A Whole World Dying." In *American Chestnut: The Life, Death, and Birth of a Perfect Tree*, 1st ed., 71–88. Berkeley and Los Angeles, CA: University of California Press, 2007.

Susan Freinkel discusses the different approaches that states along the eastern seaboard took in response to the American chestnut blight. In her chapter, she highlights that Virginia had a less enthusiastic response to containing the fungus compared to the response in Pennsylvania. She expressed that regional attitudes influenced opinions about the blight and that Flippo Gravatt, the plant pathologist in charge of the blight response in Virginia, had already accepted defeat and viewed containing the blight as an insurmountable task. Freinkel's chapter is key to the American chestnut narrative because it shows that different states had different reactions to the blight, posing challenges in creating a localized as well as regionalized solution to the widespread problem. Her research complements primary source articles that indicated the struggles of having New England and Mid-Atlantic states implementing intra- and inter-state response plans to prevent the blight from further spreading throughout the state as well as from state to state.

Freinkel, Susan. "Let Us Not Talk about Impossibilities." In *American Chestnut: The Life, Death, and Rebirth of a Perfect Tree*, 1st ed., 48–70. Berkeley and Los Angeles, CA: University of California Press, 2007.

Susan Freinkel features the politically, scientifically, and emotionally charged responses to the American chestnut blight through her discussion of Pennsylvania's reaction to the invasive and deadly fungus. She explains that the governor allocated thousands of dollars towards containment efforts and implemented a clear-cutting strategy that involved cutting down infected and healthy American chestnut trees in the western part of the state to prevent the blight from spreading to the eastern part. Freinkel also highlights the tensions between scientists, who wanted time to observe and study the fungus, and politicians, who wanted to act on their American passions to protect their land and environment from any type of predator. She also initiates her discussion of the expansiveness of the blight as well as the need for neighboring states to cooperate with each other to contain the fungus. Her research provides context on reactions to the blight within individual states and among certain groups of people and the need for regional unification in combatting the issue.

Fuessle, Newton. "Plagues That Imperil Our Trees and Plants: How Uncle Sam Quarantines American Ports Against Infected Nursery Stock, Stamps Out Plant Epidemics, and Keeps Vigilant Scientists on Guard Against the Spread of Infections." *Outlook*, July 4, 1923.

Newton Feussle published his article at the height of the American chestnut blight, and his report included the cultural, economic, and national implications of the dying chestnut trees. He mourned the impending and seemingly unavoidable loss of the familiar scent of roasting chestnuts and claimed that millions of dollars' worth of timber had already been lost to the blight within the first ten years of its discovery. Additionally, he confessed that the plant pathologists working with the Department of Agriculture had no plan for stopping the blight, inevitably meaning that the American chestnut trees were doomed. Fuessle discussed plant quarantines, which involved inspecting imported plants upon their arrival to the United States. The American chestnut blight was paramount in raising awareness about the potential risks of mixing domestic and foreign plants species. While describing plant quarantines and the 1912 Plant Quarantine Act, Fuessle adoped a very isolationist and nationalistic tone, comparing the imported plants to

immigrants who ran the risk of bringing disease to the United States. His article expressed the desperation and paranoia that many Americans were experiencing over the chestnut blight, and it attempted to instill a sense of patriotism by encouraging people to rally against foreign threats, whether they be biological or social, to protect American plants and American people.

"Japanese Chestnuts Affected." *Morning Oregonian*. March 20, 1914, sec. News/Opinion.

This article reported on the arrival of infected American chestnut trees in Seattle, Washington sent from Japan. The lot of 1500 trees were to be burned in attempt to prevent the blight, which had already destroyed much of the forests along the east coast. Future foreign importations from Japan were to be inspected, but they were not to be stopped. The article expresses that, despite being primarily concentrated in the New England and the Mid-Atlantic states, the American chestnut blight was a large-scale issue that had national implications. Additionally, the article highlights the tension between economics and the environment by reporting that chestnut tree shipments from Japan would not stop despite running the risk of bringing the blight with the imports.

Schenderlein, Anne C. "Americanization before 1941." In *Germany on Their Minds: German Jewish Refugees in the United States and Their Relationships with Germany, 1938-1988*, 22–52. Berghahn Books, 2020.

Anne C. Schenderlein defines Americanization and relates it to German immigrants who arrived in the United States in the early decades of the twentieth century. To provide context for anti-immigrant attitudes that were prevalent and frequently directed towards German immigrants, Schederlein looks to earlier waves of immigration that began in the 1890s. Skepticism towards immigrants led many native-born Americans to fear the cultural, economic, and social consequences of the influx of foreigners. Americanization involved teaching immigrants English as well as American history, politics, and culture. Schenderlein reports that anti-immigrant sentiments remained rampant until the passage of the National Origins Act of 1924, which restricted immigrants from certain countries. Shenderlein's article provided context for the isolationist attitudes that appeared in Newton Feussle's 1923 article entitled "Plagues That Imperil Our Trees and Plants: How Uncle Sam Quarantines Ports Against Infested Nursery Stock, Stamp Out Plant Epidemics, and Keeps Vigilant Scientists on Guard Against the Spread of Infections." Her commentary on anti-immigration attitudes explained Fuessle's comparison of foreign plants to immigrants and the need to quarantine foreign plants just as infected immigrants were to be quarantined upon arrival.

Shinozuka, Jeannie N. "Deadly Perils: Japanese Beetles and the Pestilential Immigrant, 1920S-1930S." *American Quarterly* 65, no. 4 (December 2013): 831–52.

Jeaning N. Shinozuka describes the intersection between anti-Japanese sentiments and the infestation of Japanese beetles in the United States during the twentieth century. To strengthen her argument, she examines incidents prior to the 1920s and 1930s that acted as fodder in feeding the anti-Japanese and anti-Asian attitudes prevalent in the United States. Skepticism towards Japanese and Asian immigrants were connected to a bubonic plague outbreak as well as contaminated crops and foods, leading many Americans to associate pestilence with the Japanese and Asian people. Shinouka specifically mentions the effect that the American chestnut blight had on the negative attitudes of native-born Americans towards the Japanese and Asian immigrants. Because the blight allegedly arrived in the United States via a shipment of Japanese

plants, Americans used the blight to further justify their belief that the Japanese people posed both biological and ecological threats to American society.

"Toughening the Chestnut." *Springfield Republican*. August 21, 1914.

This article reports on the commentary of Professor A. H. Graves of Yale University, who was studying the American chestnut blight. He deemed that the tree was doomed, not only because of the blight, but also because of the influences of mankind on the environment. However, the blight had escalated the American chestnut tree's demise, and the consequences of the blight could be found in New England and the Mid-Atlantic states. In addition to bearing bad news, Professor Graves also stated that he was conducting research on cross-breeding the American chestnut tree with another species of chestnut tree that was resistant to the blight. Although the article bore bad news and a humbling perspective on the damage mankind inflicts on the environment, it also offered a sense of hope. Crossbreeding had emerged as a potential means of combatting the blight, giving people a reason to put faith in science amidst grim circumstances.