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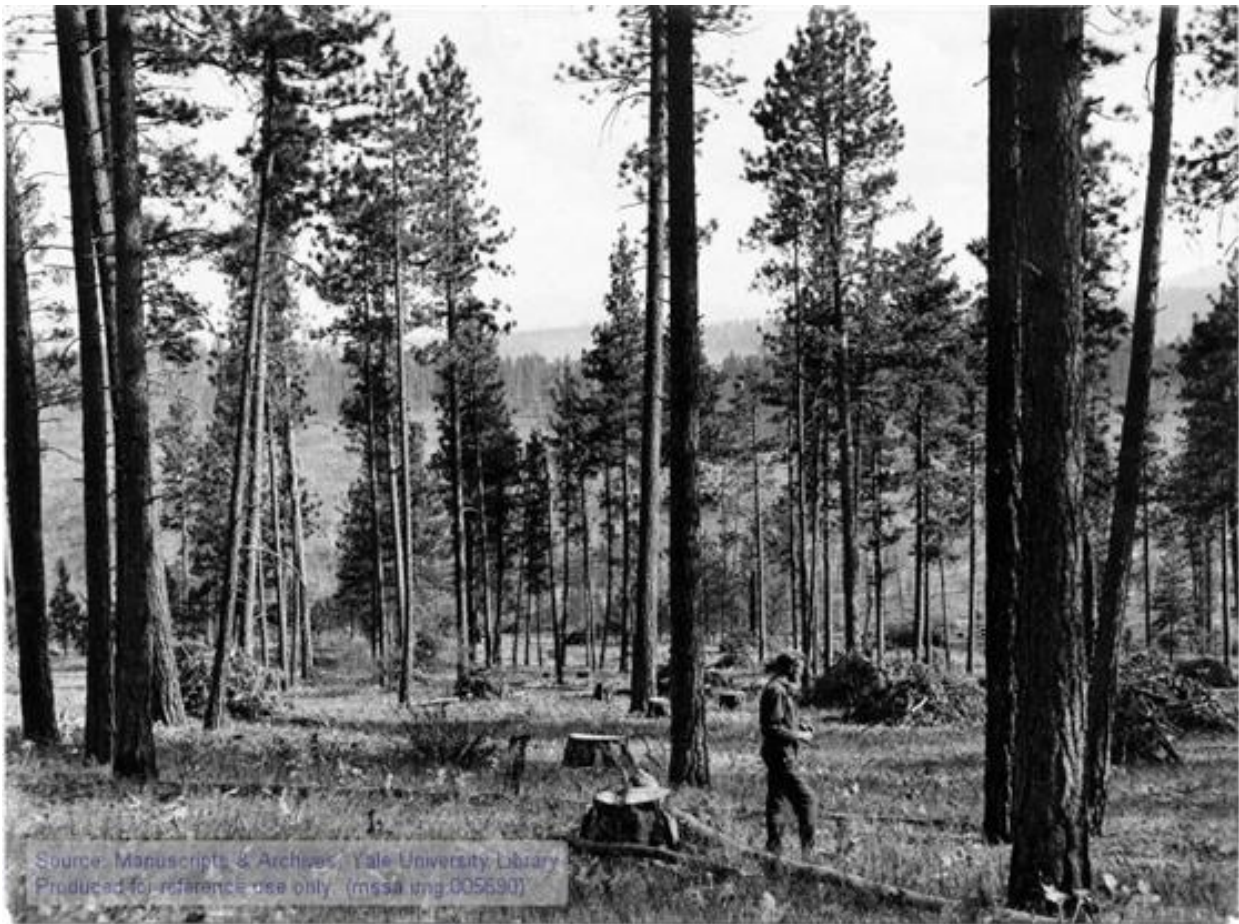
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From Practical Woodsman to Professional Forester:

Henry S. Graves and the Professionalization of Forestry in the United States, 1900-1920



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Senior Essay in History

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In 1896, Henry Solon Graves, Yale class of 1892, received a letter from his college roommate, William Wright, congratulating him on his first book: “You have certainly done a tremendous good work Hal, and can be credited as the first author of our class.”¹ Graves’ book *The White Pine* was not a contribution to history, poetry, or botany. It was a scientific missal on the white pine and “the first systematic description of the growth of a North American tree.”² The book was an esoteric but auspicious start for Henry Graves and its co-author Gifford Pinchot. Just four years later in 1900, Gifford Pinchot, Yale Class of 1889, would be running the U.S. Division of Forestry and Henry Graves would be the first dean at the Yale Forest School. The Ivy Leaguers were pioneers in forestry, a new professional field in the United States.

Over the next decade, Gifford Pinchot grew famous as the leading voice of American conservation, a friend of Theodore Roosevelt, and the founding donor of the Yale Forest School. Henry S. Graves, on the other hand, rarely elicited more than a footnote in the history of forestry. But as the two-time dean of the Yale Forest School and second chief of the U.S. Forest Service, Henry S. Graves not only dedicated his entire career to forestry, he was instrumental in shaping the profession from the start. Graves established a new graduate school at Yale and weaved a program of forest science into America’s fledgling university system. Later, he expanded Pinchot’s Forest Service bureaucracy in Washington. Graves was a prominent leader within forestry who did not attract the ire, national publicity, or historical laurels of his friend and mentor Gifford Pinchot. From behind the scenes, however, Henry Graves worked tirelessly to professionalize forestry and promote its sound practice in the United States.

¹ William Burnet Wright, Jr. letter to Henry S. Graves, November 1896, Personal Correspondence 1896, Folder 122, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

² Henry S. Graves and Gifford Pinchot, *The White Pine* (New York: The Century Co., 1896), vi.

Henry Graves' career adds rich context to the extant historiography on professionalization in the United States. Historians have long observed that the late 19th and early 20th centuries marked a sweeping movement when bureaucratic institutions replaced the rule of amateurs with those of 'experts.'³ In *The Culture of Professionalism*, Burton Bledstein argues that credentialed professions rose out of a middle-class anxiety over the flexibility of one's position in society. Credentials provided upward mobility and led to career tracks that furthered the "self-satisfaction that people derive from becoming 'professional'."⁴ In *The Emergence of Professional Social Science*, however, Thomas Haskell argues that growing interdependences within industrialized modern society had led to these new professionalizing tendencies.⁵ Additionally, Dorothy Ross contends that as American academics reconsidered old definitions of progress following the Gilded Age, "the end product of [this] crisis of American exceptionalism was the disciplinary traditions themselves."⁶

Examining how and why Henry Graves professionalized forestry in particular highlights two central problems within the extant historiography on professionalization. First, intellectual historians often limit their focus to professionalization within the social sciences, carefully

³ This professionalization within American universities occurred in response to a growing movement toward empirical science in Germany, but the United States took this movement further, resulting in more practical tendencies in American social science. For instance, Talcott Parsons, though a sociologist, examined the turn-of-the-century transformation in social thought, and focusing on Max Weber's influence in the U.S., he argued that a practical convergence occurred in the social sciences between idealism and positivism. Talcott Parsons, *The Structure of Social Action: A Study in Social Theory with Special Reference to a Group of Recent European Writers* (New York: McGraw-Hill, 1937), 5. Morton White explains John Dewey's revolt against the utilitarian positivism of Jeremy Bentham and John Stuart Mill. Morton White, *The Origin's of Dewey's Instrumentalism* (New York: Columbia University Press, 1943), 151, ch. II, 40-41, ch. VII, and III. For more on professional bureaucracies, see also Michael Willrich's *City of Courts* and Daniel Carpenter's *The Forging of Bureaucratic Autonomy*.

⁴ Thomas Haskell, "Power to the Experts," review of *The Culture of Professionalism: The Middle Class and the Development of Higher Education in America*, by Burton J. Bledstein, *The New York Review of Books*, October 13, 1977.

⁵ Thomas Haskell, *The Emergence of Professional Social Science* (Chicago: University of Illinois Press, 1977), 39-40.

⁶ Dorothy Ross, *The Origins of American Social Science* (Cambridge: Cambridge University Press, 1991), 469.

deconstructing complex schools of social thought.⁷ As a result, the trajectory of applied sciences has frequently been ignored. Thomas Haskell can explain how a convergence of Emersonian idealism and positivist utilitarianism may have motivated Graves' professionalization, but Henry Graves' forestry career allows us to examine the professionalization of an applied science from closer to the ground. Second, Haskell, Bledstein, and others have downplayed the importance of gender in their theories on professionalization, which Graves' story exhibits in depth. Finally, foresters learned to embody both the grit of a woodsman and the logic of an economist, and Henry Graves' career at Yale and in government exhibited how professionalization involved formal and informal channels of legitimacy.

Beyond adding context to existing historiography, Henry Graves' career invites us to better understand the founding of professional forestry in the U.S.⁸ Within environmental history, the literature on early American forestry has focused chiefly on Pinchot's governance; historian Char Miller writes that Graves was "beneath Pinchot's overarching canopy."⁹ But as a professor, Graves extended forestry to the university, in a way which Pinchot scholarship has not fully explored. Henry Graves employed his own idea of professionalism to legitimize the Yale-educated forester. He argued for forestry as an applied science, reinforced its function in the economy, and defended its worth as a masculine trade. Long after he left the field, Graves' significance lived on in the institution and genealogy he helped to create.

⁷ For instance, a central debate within professionalization historiography exists over whether its driving ideology was utilitarian thought that developed out of positivist philosophy or a more American Emersonian idealism. See Haskell, *The Emergence of Professional Social Science*, 39.

⁸ Histories of American forestry tend to focus on the U.S. Forest Service or its contribution to conservation. See, for instance, Samuel P. Hays, *War in the Woods: The Rise of Ecological Forestry in America* (Pittsburgh: University of Pittsburgh Press, 2007), Harold Steen, *Forest Service: A History* (Seattle: University of Washington Press, 1976), or Char Miller, *Gifford Pinchot and the Making of Modern Environmentalism* (Washington: Island Press, 2001).

⁹ Char Miller, *Gifford Pinchot and the Making of Modern Environmentalism* (Washington: Island Press, 2001), 220.

From School to the Forests and Back

In 1871, Henry Solon Graves was born in Marietta, Ohio into a family of “old New England stock.”¹⁰ That year, his family moved to Andover, Massachusetts, where Henry’s father, William Blair Graves, became a professor of natural sciences at Phillips Academy. Professor W.B. standardized science education at Andover. He wanted to prepare students for the best scientific colleges in the country, such as M.I.T. and the Sheffield Scientific School at Yale. The Andover trustees eventually renamed the science building “Graves Hall” in his honor.¹¹

As a child, Henry Graves spent his summers on a cousin’s farm in Vermont. He loved exploring the woods around “Potato Hill,” but he returned to his studies at Andover each fall.¹² In 1888, Graves headed to Yale and left the woods and home behind. At Yale, Graves was described as one of the “outstanding men of his Class.”¹³ Henry Graves had a penchant for public service and directed the YMCA charity campaign for his class.¹⁴ After graduating from Yale in 1892, Henry Solon Graves taught math at Groton.¹⁵ The following year, he moved to Harvard to pursue postgraduate work in botany.

Having grown up in the forests around Andover, Graves looked for a way to marry his love of the outdoors with a viable career. At the time, the study of botany presented one obvious

¹⁰ “Notes on H.S.G. compiled by G.D.S. in response to W.B.K’s Questionnaire”, Personal Papers 1910-1925, 5 October 1921, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹¹ Frederick S. Allis, Jr., *Youth from Every Quarter* (Andover: Phillips Andover, 1979), 234-240.

¹² Biographical Notes: With History of Forestry 1905-1906, Folder 208, Box 17, Series II, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹³ “Notes on H.S.G. compiled by G.D.S. in response to W.B.K’s Questionnaire,” Henry Solon Graves Papers.

¹⁴ YMCA donation to Henry S. Graves, April 1897, Personal Correspondence 1896, Folder 122, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁵ “Notes on H.S.G. compiled by G.D.S. in response to W.B.K’s Questionnaire,” Henry Solon Graves Papers.

option. Botany was an established part of the university curriculum, with deep foundations in the Enlightenment.¹⁶ Graves, however, soon looked for a more practical, hands-on ways to study the forests themselves rather than plants and their taxonomy. By approaching forests as an aggregate entity, rather than through constituent plants, Graves hoped to explore the social dynamics of a forest to maximize its utility to industry.¹⁷

In the 1880s and 1890s, ‘efficiency’ had become the slogan of the American university; Laurence Veysey argues that it may have “beckoned because it connoted a more thorough union of the scientific with the practical.”¹⁸ The shift toward efficiency occurred in conjunction with the rise of professionals, who, according to Burton Bledstien, attempted to “define a total coherent system of necessary knowledge within a precise territory” to “release nature’s potential.”¹⁹ This new impulse definitely beckoned to the young and idealistic Henry Graves.

In 1894, his friend and former classmate Gifford Pinchot, persuaded Henry Graves to join him in exploring a new line of work.²⁰ Graves noted later: “Pinchot was the first American to take up forestry as a life work...He soon needed help and proposed that I prepare myself for the

¹⁶ See, for instance, Patricia Fara, *Sex, Botany, and Empire: The Story of Carl Linnaeus and Joseph Banks* (New York, Columbia University Press, 2004), and John Gascoigne, *Joseph Banks and the English Enlightenment* (London: Cambridge University Press, 2003).

¹⁷ This notion of “utility” had grown popular among college graduates during Graves’ era. As Laurence Veysey notes: “During the ten years after 1865, almost every visible change in the pattern of American higher education lay in the direction of concessions to the utilitarian type of demand for reform.” Laurence Veysey, *The Emergence of the American University* (Chicago: The University of Chicago, 1965), 60.

¹⁸ Laurence Veysey, *The Emergence of the American University* (Chicago: The University of Chicago, 1965), 116.

¹⁹ Burton J. Bledstein, *The Culture of Professionalism* (New York: W.W. Norton, 1976), 88-90.

²⁰ As an aside, it is worth noting how enthusiastically Gifford Pinchot recruited Graves to forestry. Pinchot wrote: “I knew [Graves] to be absolutely straight and entirely fearless. He was able, steadfast, untiring, he had an unusual capacity to get along with people, and what he began he would surely finish.” Pinchot added, “[Graves’] remarkable capacity for detail and careful and intelligent work was just what was needed to balance my less accurate mental habits.” Gifford Pinchot, *Breaking New Ground* (New York: Harcourt, Brace and Co., 1947), 72.

profession.”²¹ Pinchot had studied forestry in France, and Graves followed in his footsteps and traveled to Europe in the fall of 1895 to study forest science. At the time, no similar opportunities to study forestry existed at Harvard or Yale. Upon enrolling in the University of Munich to study under the illustrious forest scientist Robert Hartig, Graves became only the second American to travel abroad to receive professional forestry training.²² According to Veysey, however, Graves was one of hundreds of American students who traveled to Germany in an attempt explore professionalized education at the graduate level. In the 1850s, “sustained experimentation in laboratories became a more prominent feature of European scientific efforts,” and in later decades, Veysey explains that aspiring Americans “visited Germany and returned with the phrase ‘scientific research’ on their lips.”²³ Graves’ studies occurred at the high tide of this trend; “The numerical peak of American study in Germany was reached in 1895-96, when 571 Americans were officially matriculated at German institutions,” Veysey writes.²⁴

Reflecting on the trip several years later, Graves commented: “It was a most profitable semester in all ways, especially the inspiration and broad viewpoint of [Professor] Mayr, and the insights into the physiology from Hartig... Like many other Germans they were each very jealous of his own scientific views, and they were at odds.”²⁵ Graves found these vigorous debates over empirical research rather extraneous. Veysey states that the American academic scientist “prided himself more on the discovery of truth than its pursuit...He was unable to partake of a

²¹ Biographical Notes: With History of Forestry 1905-1906, Henry Solon Graves Papers.

²² Ibid.

²³ Veysey, 125-127.

²⁴ Veysey, 130.

²⁵ Notes on Graves’ Statement of His Share in the Forestry Movement, Personal Papers 1910-1925, 5 October 1921, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

thoroughgoing relativism.”²⁶ Graves, upon encountering two British forestry students a year later, remarked, they were “well-versed in theory but very inexperienced in the woods.”²⁷

After returning from his postgraduate studies in Munich, Henry Graves fell into an extraordinary opportunity to test his studies in the field. Reflecting later, Graves mentioned how in 1896, “Mr. Pinchot was appointed a member of the Forest Commission of the National Academy of Sciences. He urged the Commission to undertake some real forestry work such as preparation of forest maps, forest description, study of growth, etc.”²⁸ The plan was to spend the summer out in Montana with a forestry expedition doing survey research for the government on public lands. The trip excited Graves, but the famous Harvard botanist Professor Sargent “objected because he could see no value in such work at that time.”²⁹ Graves’ favorite teacher from the Harvard Arboretum, J.G. Jack, however, had faith in the adventuresome young forester and wrote to Graves saying, “I think that fellows like yourself with a practical training are much more likely to bring about that day [when we practice forest conservation] than...those who have never had your experience.”³⁰ The proposal to include Henry Graves on the trip as a paid assistant fell through, but Graves was lucky—“Mr. Pinchot...took me at his own expense, to help in collecting data.”³¹

²⁶ Veysey, 145.

²⁷ Biographical Notes: With History of Forestry 1905-1906, Henry Solon Graves Papers.

²⁸ “Report on Experience in Forestry to Gifford Pinchot” by Henry S. Graves, Undated, Personal Papers 1910-1925, 5 October 1921, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

²⁹ Ibid.

³⁰ J. G. Jack of Harvard Arnold Arboretum to Henry S. Graves, 7 April 1897, Personal Papers 1897-1898, Folder 123, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

³¹ “Report on Experience in Forestry to Gifford Pinchot”, Henry Solon Graves Papers.

Although happy to be working in the outdoors, the environment in Montana threw Henry Graves out of his element. On his first day, he galloped twelve miles on horseback to a ranch. Having not ridden a horse since childhood, he was sore for a week. His father's letters to him during the trip brimmed with enthusiasm. Graves' father thought the trip "will give you acquaintance with leading men, you will get valuable experience, and it will open you to avenues of work which may be of profit to you in the near future."³² Graves' father, as a natural scientist, also believed that the trip offered more intangible rewards—the chance to encounter the "wild":

If you go through the gorge of the Columbia River, you must see some surpassingly fine scenery, and witness also the results of erosion on a most-gigantic scale... You have had a fine opportunity to see a good deal of the "Wild, wild West."³³

The Montana trip not only gave Henry Graves a chance to try on the role of 'forester' but also impelled him to reflect on his future. That winter, Graves was torn between accepting an offer to manage the Boston Municipal Parks Service or to continue more directly in forestry at a government outpost in the Adirondacks. Graves' father remarked on the position in the Adirondacks: "You will have simply forest work to do, while in Boston, you must necessarily be hampered by the landscape architects. I guess Pinchot was right in thinking that you would do better to stay in N.Y."³⁴ Graves took the forestry research post in the Adirondacks but felt stuck

³² Father W.B. Graves to Henry S. Graves, 6 September 1896, Personal Papers 1896, Folder 122, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

³³ Ibid.

³⁴ Father W.B. Graves to Henry S. Graves, 20 December 1896, Personal Papers 1896, Folder 122, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

in a poor paying job.³⁵ His father advised him to “look a good deal at the money side. You have a living to make, as well as a mission.”³⁶ Graves’ former classmate in Munich, A.P. Anderson, now the chief of the division of Botany at Clemson, wrote to a despondent Graves and encouraged him to carry on as well: “I am sorry that you feel as though you were out of the race, but don’t you know within the next two or three years forestry is going to ‘boom’...[Y]ou should like to get in at Washington, as you say there may be openings there now.”³⁷ While in the Adirondacks, Graves kept up his correspondence, completed his forest research, and began visiting logging operations.³⁸

Graves soon observed in those around him a growing interest in forestry. An Andover acquaintance wrote him in 1896, inquiring about forestry studies, “I hope that next year I can begin active studies, perhaps at Yale, if I decide definitely on Forestry. Isn’t it a profession one enjoys, if he likes trees...and a free, outdoor life?...I wish I knew just the studies required.”³⁹ Such encounters encouraged Graves to consider the potential for a professional school of forestry in the United States. Graves’ father told him that he tells inquirers that Graves was “getting an

³⁵ Unfortunately, most of Graves’ personal letters do not include his own correspondence sent out to family and friends. To examine Graves’ position in these junctures, I had to rely on his family’s responses and interpret through his interlocutors.

³⁶ Father W.B. Graves to Henry S. Graves, 8 November 1896, Personal Papers 1896, Folder 122, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

³⁷ A.P. Anderson, Division of Botany chief at Clemson Ag. College to Henry S Graves, 20 April 1898, Personal Papers 1897-1898, Folder 123, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

³⁸ Graves would visit logging firms and ask for the details on all facets of their operations; loggers would reply with definitions on each type of work. Eugene, Oregon logger writing to Graves, 30 May 1898, Personal Papers 1897-1898, Folder 123, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

³⁹ Harry Abbe to Henry S. Graves, 17 September 1896, Personal Papers 1896, Folder 122, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

object lesson for a forestry school, yet to be established.” He told Graves: “they are all interested, because your profession is so new.”⁴⁰

In 1897, the Forest Management Act placed the public forestlands of the American West under new management, and according to Samuel P. Hays, this accelerated forestry’s role within the government and “provided the opening wedge for the rational development which Pinchot preferred.”⁴¹ At the time, what it meant to be a ‘forester’ in the United States was still being defined, but Graves had found some answers through the university curriculum he had been exposed to in Europe. According to Laurence Veysey, “the German influence upon higher education reflected itself in the ‘practical tendency’ of American Universities ... to embrace branches more directly bearing on modern industries.”⁴²

Henry Graves’ own scholarship in the early years emphasized this idea of forestry as a practical science. In 1889, Graves finished his field work in upstate New York and published “Practical Forestry in the Adirondacks.”⁴³ He explained the need for his research in the introduction: “The methods of forestry will not find general acceptance among owners of woodlands until it has been shown by actual trial that they are practicable and profitable.”⁴⁴ Graves defined forestry as an economic enterprise—“The object of the owners... is to cut as much timber as possible without injuring the productive power of the forest.”⁴⁵ Graves further

⁴⁰From Father W.B. Graves to Henry S. Graves, Undated, Personal Papers (Incomplete Dates), Folder 124, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

⁴¹ Samuel P. Hays, *Conservation and the Gospel of Efficiency* (Cambridge: Harvard University Press, 1959), 36.

⁴² Veysey, 132.

⁴³ Henry S. Graves, *Practical Forestry in The Adirondacks* (Washington, D.C.: United States Government Printing Office, October 1899), 9.

⁴⁴ Graves, *Practical Forestry in The Adirondacks*, 9.

⁴⁵ *Ibid*, 15.

argued for the adoption of forestry in the U.S. by recognizing its role in France and Germany: “In continental Europe the forests have been under careful modern management for over a century; and very thorough methods have been developed.”⁴⁶ “What is [now] needed,” Graves urged, “is an American system of forestry.”⁴⁷

In 1898, Henry Graves joined Gifford Pinchot in Washington as his assistant, and the two began building their forestry program around the paradigm of efficiency. This program often opposed John Muir’s proposed preservationist model, which planned to preserve some public forestlands within national parks. “Those who looked upon the forests as preserves which should remain untouched wanted a program in which the Army would patrol the forests to exclude timber thieves, stockmen, and other interlopers,” writes Hays. “To others, such as Gifford Pinchot, management involved much more: the development of a trained forestry force to control fires, tackle disease problems, and supervise cutting and sales, as well as maintain the integrity of the forests.”⁴⁸ After Graves and Pinchot experienced forest work firsthand in the West, they began to envision the profession of forestry as a management science, one which could integrate industry and bureaucracy seamlessly into the woods.

A School of Their Own: Founding the Yale Forest School

Soon after Henry Graves moved to Washington to assist with the Forest Service, his dream job called from New Haven.⁴⁹ Gifford Pinchot and Yale leadership decided to establish a

⁴⁶ Ibid, 12.

⁴⁷ Ibid, 13.

⁴⁸ Samuel Hays, *Conservation and the Gospel of Efficiency* (Cambridge: Harvard University Press, 1959), 36.

⁴⁹ W.N. Sparhawk, "The History of Forestry in America" in *Trees: Yearbook of Agriculture* (Washington, D.C.: United States Government Printing Office), 710.

forestry school at Yale to train men to study and manage the National Forests. Pinchot explained that he wanted a school oriented toward ‘American conditions.’⁵⁰ Through the Pinchot family’s generous endowment, the Yale Forest School sprang to life in the March of 1900.

The school aimed to provide nationally-oriented forestry training in the United States for the first time. Forestry schools had recently opened at Biltmore and Cornell, but those two schools took a more specialized approach to forestry instruction. The New York state legislature had established the Cornell School to train foresters to manage New York’s forests, and the school founder Bernhard Fernow took a more regional approach. According to Hays, Fernow was “convinced that neither the public nor the forest industry would yet support forest management.”⁵¹ At the Biltmore Forest School, German forester Carl Schenk taught the students practical and sustainable forestry, which Gifford Pinchot had initiated there, but the Vanderbilt family directed the school to manage their vast forest properties rather than public lands.⁵²

At Yale, Pinchot and Graves envisioned a two-year program with a strong institutional reputation and a more practical and national curriculum.⁵³ Gifford Pinchot acted as the school’s “patron saint” while running the Bureau of Forestry in Washington, and Henry Graves took the helm as the school’s first director.⁵⁴ The position required creativity and determination. In training the first professional ‘foresters’ in America, Henry Graves was breaking new ground.

⁵⁰ Ibid.

⁵¹ Hays, 29.

⁵² “The Birthplace of Forest Conservation in America”, The Cradle of Forestry, accessed March 27, 2013, <http://www.cradleofforestry.com/site/home/history/>.

⁵³ W.N. Sparhawk, "The History of Forestry in America", 710.

⁵⁴ Address by J.W. Toumey to the Class of 1910 Yale School of Forestry, p 1., Undated, Director’s Addresses to Graduating Classes Ca. 1910-1922, Folder 90, Box 5, Accession 1982-A-010 , School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

Through their donation, the Pinchot family specified that the Yale Forest School's mission was to advance "the knowledge and practice of sound forestry in the United States," and the school adopted a utilitarian philosophy from the beginning.⁵⁵ Along with an endowment, the Pinchot family provided its own country estate, "a tract of forest land of sufficient size, at Grey Towers, near Milford, Pike County, Pennsylvania," to serve as an outdoor classroom.⁵⁶ The Pinchots also agreed "to furnish the summer school at the outset with the necessary equipment."⁵⁷ As the Pinchots' terms indicated, the intention of the Yale Forest School was not knowledge for its own sake but rather applied knowledge, learning that would have practical and measurable effects.

Henry Graves took pride in building the program from the ground up. Believing that the school would later carry historical import, he compiled extensive notes on this adventurous "Early Yale Era."⁵⁸ Despite its grand founding, however, the Yale Forest School started with only two teachers. Graves wrote that he hired another professor, J.W. Toumey, and that together they "carried the technical courses (seven courses), between them."⁵⁹ The Yale Forest School was still too small to offer a full set of courses, so Graves reached out to other natural science professors and "arranged with other departments to admit students of forestry to courses auxiliary to

⁵⁵ Contract Terms of the Pinchot Family Gift, March 1900, History of the Forest School, Folder 97a, Box 6, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*

⁵⁸ Contract Terms of the Pinchot Family Gift, March 1900, History of the Forest School, Folder 97a, Box 6, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

⁵⁹ "The Early Yale Era", Undated, Biographical Notes: History of Forestry Nd., Folder 210, Box 17, Series II, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

forestry, surveying, entomology, botany, zoology, geology, etc.”⁶⁰ Yale provided the Forest School with the residence of retired paleontologist Othiel C. Marsh on Prospect Street, but Graves found that the house was still full of his dusty furniture. He decided to buy “everything in the building for \$200” to help outfit the school.⁶¹ Although he had no instruction manual on how to run a forestry school, Graves found a way to make it work.

To stabilize the school’s finances and widen its footprint, Graves used his Yale connections to cultivate benefactors, many with Gilded Age fortunes. This cozy relationship did not seem to faze him. Graves called for “the early adoption of the policy to take seniors to the field at the end of senior year,” and held the first session on the “estate of E.H. Harriman, President of Union Pacific RR system.”⁶² He later “secured permission from Mr. Whitney to permit use of Maltby Lake area for practical field instruction” on the outskirts on New Haven.⁶³ Along with the Pinchot gift, Graves’ own dogged resourcefulness helped the Yale Forest School expand into forests across New England.

Henry Graves focused his attention on the Yale program, but in the early years he also closely monitored national interest in forestry by tracking U.S. enrollment. In 1900, it hovered around 50 or 60 students, but at Yale, the “number of students was small,” he noted, “...with seven in the first graduating class of 1901.”⁶⁴ The school received a massive surge in enrollment in 1903, however, when the New York State College of Forestry at Cornell closed its doors.⁶⁵

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Ibid.

⁶³ Ibid.

⁶⁴ W.N. Sparhawk, "The History of Forestry in America", 710.

⁶⁵ “The Early Yale Era”, Henry Solon Graves Papers.

After the Cornell school mismanaged a public forest, the New York State government had discontinued its funding.⁶⁶ In 1903, Graves commented on how he welcomed a “crowd from Cornell.”⁶⁷ The year 1904 again “brought heavy enrollment...[T]otal registration during the year was 63 regular students in New Haven.”⁶⁸ Graves recognized that securing a healthy class size was an essential step to sustaining a successful professional school.

After the Cornell school went offline, Graves felt responsible for nurturing the inchoate field of forestry. In order to survive, Henry Graves understood that the Yale Forest School had to assure college students that demand existed for foresters and that the field would continue to grow. Graves and his faculty devised a practical curriculum to prepare students for work in the U.S. Forest Service and the lumber industry. Along with general science courses, students studied tree growth, the organization of the Forest Service, and the physics and economics of timber.⁶⁹ Graves kept extensive records on his students’ employment, and he worked tirelessly to find students positions in Washington and at new forestry schools.⁷⁰

Fortunately, as Pinchot expanded his own bureaucracy, work was increasing in Washington. By 1905, “There was a steady demand for our graduates chiefly in government service, and also in private work... In a short time, some of our students were attracted by the

⁶⁶ With History of Forestry 1905-1906, Folder 208, Box 17, Series II, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

⁶⁷ Ibid.

⁶⁸ Ibid.

⁶⁹ See, for instance: Weekly Bulletin: Forest Service - Washington Office (Not for Publication), April 19 1920, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library, and “Forestry Faculty Minutes”, School of Forestry Faculty Minutes October 1902-1924, Folder 1, Box 1, School of Forestry, Yale University, Records of the Faculty and Governing Board (RU 42), Manuscripts and Archives, Yale University Library.

⁷⁰ Employment of Students, Folder 62, Box 4, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

opportunities for foresters in the Philippines as well.”⁷¹ Henry Graves argued that a degree from the Yale school, besides providing a practical education in forest science, promised sound training and a lifelong career.

The growing demand for foresters out West made forestry an attractive profession and course of study, and Henry Graves saw to it that his students took advantage. Hays notes, as timber dwindled and forestry “became more interested in using existing supplies more efficiently,” foresters and lumbermen “took up fire protection, utilization of low-grade wood, and measures to guarantee reproduction.”⁷² A list of professions chosen by the Class of 1906 indicated the growing scope of available jobs—graduates worked as lumber manufacturers, state foresters, government forest examiners, professors of forestry, consulting foresters, and forest supervisors in the U.S. Forest Service.⁷³ In Washington, Pinchot launched new investigations to aid the productivity of the public forests, and according to forestry historian Harold Steen, researchers developed “studies of commercial trees, forest fires, grazing, log scales, forests and water supply, compilation of forest histories, and investigations of forest products.”⁷⁴

To further refine the forestry curriculum at Yale, Graves creatively harnessed the network of recent Yale Forest School alumni. Many past students had filled posts in Forest Service regional offices and at university programs around the country. Alumni soon set up a Graduate Advisory Board to provide feedback on the effectiveness of their Yale instruction. The response

⁷¹ Biographical Notes: With History of Forestry 1905-1906, Folder 208, Box 17, Series II, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

⁷² Hays, *Conservation and the Gospel of Efficiency*, 32.

⁷³ “Class Addresses”, Yale Forest School - Class of 1906, Notes from 1916, Folder 233, Box 16, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

⁷⁴ Harold K. Steen. *Forest and Wildlife Science in America* (U.S.A.: Forest History Society, 1999), 5.

from graduates was constructive but tough: “In the judgment of the graduates, the curriculum attempts to cover too much ground at a sacrifice of sufficient drill on the more fundamental subjects,” alumni complained. “We believe that a relatively larger proportion of the time should be given to silviculture, lumbering, forest engineering and forest management, including the study of National Forests and other specific problems, [rather than botany or zoology].”⁷⁵

Alumni in the field pushed the Yale Forest School to adopt an even more technical and “professional” education. Eventually, the Advisory Board itself agreed to donate larger tracks of forestland to the school to facilitate more professional training.⁷⁶ Men in the Forest Service and lumber industry intimately understood the training required for a career in forestry.

The energetic alumni of the Yale Forest School proved to be some of the strongest advocates for the school, and they helped to reinforce a sense of institutional solidarity at Yale. A collection of alumni letters from the Class of 1906 revealed that almost all of the thirty-two graduates had stayed in touch ten years later.⁷⁷ They shared class songs, including one with a spirited verse:

I've come to be a forester
And roam the woods so drear
I want to carry calipers
And axes far and near.
I want to go to Washington

⁷⁵ Alumni Board Letter, Graduate Advisory Board 1911-1915, Folder 82, Box 5, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

⁷⁶ Ibid.

⁷⁷ “Class Addresses”, Yale Forest School - Class of 1906, Notes from 1916, Folder 233, Box 16, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

And work for Gifford P.⁷⁸

As alumni became more involved in the workings of the school and realized a wider range of hybrid employment, the Yale Forest School managed to land on two feet; it built relationships across industry and government and continue to grow steadily for the next decade.⁷⁹

Legitimizing Forest Science

Although forestry's professional applications helped the Yale Forest School grow quickly, the school's practical image also held its drawbacks within the academy. Graves soon found that many scholars were skeptical of the purely scientific contributions of forestry, and he had to decide how best to respond. Economist Thorstein Veblen, for example, lamented the rise of 'mediocre' and 'practical' disciplines within universities. In his 1918 book *The Higher Learning in America*, Veblen worried, "Ideals of scholarship are yielding ground, in an uncertain and varying degree, before the pressure of businesslike exigencies."⁸⁰ For foresters to maintain legitimacy, Henry Graves needed to articulate that forestry was a genuine science. While maintaining the field's practical uses, Graves presented a paper before the Washington Academy of Sciences in 1915 entitled "The Place of Forestry Among the Natural Sciences" to dispel false impressions of forestry.

In the speech, Graves himself acknowledged the common misperceptions among

⁷⁸ "No. 9 I want to be a Loidy", Yale Forest School - Class of 1906, Notes from 1916, Folder 233, Box 16, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

⁷⁹ The class of 1910 was the largest class up until that time, and the class size continued to grow. Address by J.W. Toumey to the Class of 1910 Yale School of Forestry, p 2., Undated, Director's Addresses to Graduating Classes Ca. 1910-1922 Folder 90, Box 5, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

⁸⁰ Thorstein Veblen, *The Higher Learning in America* (U.S.A.: Cosimo Classics, 1918), 190.

academics: “It is quite generally believed that foresters are pure empiricists; something on the order of gardeners who plant trees, of range riders who fight forest fires, or lumbermen who cruise timber.”⁸¹ The field of forestry, Graves noted, indeed “depends on experts in other branches of sciences; on the botanists for the taxonomy of the trees; on physicists, chemists, and engineers for the proper understanding of the physical, chemical and mechanical properties of the wood.”⁸² Forestry was an interdisciplinary science. Since forestry also dealt with the “big task of administering 165,000,000 acres of forest land” and “involves many large industrial and economic questions,” however, Graves admitted that “administrative activities appear to overshadow research work.”⁸³ Graves was concerned that all of this practical work had damaged the applied science’s credibility and “strengthens the idea that no real science is done.”⁸⁴

Graves argued that “while it is true that forestry as an art, as an applied science, utilizes results furnished by the natural and engineering sciences...there is nevertheless a fundamental forest science which has a distinctive place.”⁸⁵ Henry Graves had a modern, utilitarian view of science, however, and believed strongly that “sciences do not develop out of curiosity; they appear first of all because there are practical problems that need to be solved, and only later become an aim in themselves.”⁸⁶ From that supposition, Graves believed that “the object of

⁸¹ Henry Graves, “The Place of Forestry Among the Natural Sciences” delivered before the Washington Academy of Sciences, December 3, 1914, accessed March 27, 2013, http://www.foresthistory.org/ASPNET/Publications/graves_place_of_forestry/index.htm.

⁸² Ibid.

⁸³ Ibid.

⁸⁴ Graves, “The Place of Forestry Among the Natural Sciences”.

⁸⁵ Graves, “The Place of Forestry Among the Natural Sciences”.

⁸⁶ Ibid.

forestry as an art is to produce timber of high technical quality.”⁸⁷ Henry Graves took the ‘applied’ notion of applied sciences quite literally, and he argued for forestry’s categorization as a science on the basis that it solved the practical problem of furnishing and managing timber.

Even though Graves had collaborated with other scientific departments in the past, he sought to separate forestry from botany and other sciences. In his speech, he argued that specific rules governed the social nature of trees—“as a community the forest has individual character and form... Its form, development, and final total product may be modified by external influences.”⁸⁸ Graves sought to rationalize this dynamic community through scientific study, and he posed, “Forestry may be called tree sociology, and occupies among natural sciences the same position as sociology among humanistic sciences.”⁸⁹ He tried to appeal to emerging trends of scholarship within the American university.⁹⁰

Graves gave an example of forestry’s method of inquiry: “If, for instance, in the Douglas fir-hemlock forest the Douglas fir is cut out, the remaining hemlock trees are likely to die out because their shallow roots are left exposed to the drying effect of the sun and wind. It is only by a thorough understanding of such mutual adjustments that the forester is capable of intelligently handling the forest.”⁹¹ According to Graves, botany was not up to this task, because “the present knowledge of plant associations in botany has not yet reached a point where foresters could leave wholly to botanists the working out of the basic facts about the life of the forest.”⁹² Graves was

⁸⁷ Ibid.

⁸⁸ Ibid.

⁸⁹ Ibid.

⁹⁰ Ross, *The Origins of Social Science*, Chapter 7.

⁹¹ Graves, “The Place of Forestry Among the Natural Sciences”.

⁹² Ibid.

not merely carving out an academic niche; he was defending the very nature of his work against competing fields of study.

To illustrate his point further, Graves presented a review of recent forest science research undertaken at the U.S. Forest Products Laboratory. He discussed studies of how tree survival rates relate to age, highlighted models of dynamic competition within forests, and explained how the soil, climate and the trees of a given region affect the density of that forest's lumber. Along with being a distinct scientific endeavor, Graves argued that forestry explores trees on a timescale different than other plant sciences; "Forestry, unlike horticulture or agriculture, deals with wild plants scarcely modified by cultivation. Trees are also long-lived plants; from the origin of a forest stand to its maturity there may pass more than a century. Foresters therefore operate over long periods of time."⁹³ The long-term nature of the work allowed foresters to invoke the impressive year "2050" in making official growth projections, Graves added.⁹⁴

Despite the fact that his audience was the Washington Academy of Sciences, Graves closed his talk by reiterating the economic benefits of forestry to the nation. By applying "forest mathematics" and using the "the preparation of a large number of local volume tables", foresters can determine how many board feet of lumber one could harvest from a given acreage of forest.⁹⁵ In explaining forestry to a room full of academics, Graves decided to highlight forest education's importance within the private sector—rational management improved profit margins.

Graves concluded that forestry's greatest asset was its "contribution to what one economist

⁹³ Ibid.

⁹⁴ Ibid.

⁹⁵ Ibid.

has aptly called the "science of social engineering."⁹⁶ Graves heralded the dawn of a new era: "The transfer of the forest reserves in 1905 to the Department of Agriculture marked a new departure in the national economic life. It recognized the new principle that the Nation's resources should be managed by the Nation and directly in the interests of the whole people."⁹⁷ Graves believed that the utilitarian rules of forestry could be applied to a broader strategy for managing the national economy. Graves' thought forest science could influence a grand schema for society: "In the administration of the national forests there is being developed gradually what I believe to be a truly scientific system for attaining a concrete economic end, a system of controlling certain correlated industries with a single purpose in view—the maximum of the welfare of the Nation as a whole."⁹⁸ Graves saw rational management as the core concern of American scientists. Pursuing scientific truth for its own sake was not even a consideration.

Graves' logic sheds light on how the applied sciences hold a unique position within the history of professionalization. While Thomas Haskell argues that social sciences developed due to an "interdependence" among the increasingly complex bodies of knowledge existing in our capitalist society, Graves shows that forestry's existence, as an applied science, depended directly on its relation to the capitalist structure itself. In fact, Graves understood all of science to be a practical enterprise. Professionalization, at its most basic, is the transformation of the pursuit of knowledge into a codified, structured use of that knowledge.⁹⁹ Forestry, however, first looked

⁹⁶ Ibid. And while it is unclear which "economist" Graves was referring to, the talk was delivered just after the onset of the "efficiency" craze in American economics and sociology. See for instance, Edwin L. Earp, *The Social Engineer* (New York: Eaton and Mains, 1911).

⁹⁷ Graves, "The Place of Forestry Among the Natural Sciences".

⁹⁸ Ibid.

⁹⁹ See for instance, Thomas Haskell: "The new theory gave close attention to law-like regularities in human existence and reached for the power to predict and control." Haskell, *The Emergence of Professional Science*, 5.

toward a capitalist function, or more precisely, a capitalist reaction, and then built its pursuant knowledge around that specific use. Originally, forestry had grown out of the state's desire to reign in capitalism—the U.S. government took control of land and created national forests to ameliorate the environmental harms caused by the capitalist exploitation of American forests. To counter that exploitative process, Graves employed the language of the market to convince people that sustainable forest management could be economically efficient as well.¹⁰⁰ In creating this utilitarian silver bullet, however, Graves did not seem to fully appreciate the contradictions between the diverse interests of the public and the capitalistic aims of the logging industry.

The Yale Forest School as a Professionalizing Force

After a ten years of steady growth, the Yale Forest School had established itself as the premier institution for forestry training in the United States. Beyond legitimizing the science of forestry, Henry Graves employed the school's name to promote the profession and guide a national discussion on forestry. The school acted as a lab where Graves could tinker with the latest aspects of the field and expand forestry into new roles in society.

Henry Graves reached out to forester trade associations to expose forestry education to men across the field.¹⁰¹ While the most well known organization, the American Forestry Association (AFA), originally focused on arboriculture, Samuel Hays writes, “The businesslike approach of Pinchot and his co-workers persuaded many in the forest industry to join in the new

¹⁰⁰ While the two men attempted to argue for a different capitalist logic in forest management, this does not mean that they were actually fully successful in achieving this goal or convincing the general public. Eric Rutkow, Yale PhD candidate, helped me reach this conclusion.

¹⁰¹ Trade and member-based associations were a common entity in the process of professionalization. Bledstein discusses in depth how these associations contributed to policy and professional identity. Bledstein, *The Culture of Professionalism*, Chapter 5.

movement,” and lumbermen and foresters began to take part in AFA meetings.¹⁰² Soon, the AFA shifted toward forestry and conservation. It lobbied for forestry policies in Washington and published a journal, *American Forestry*, to educate the public.¹⁰³ In 1901, Pinchot brought together foresters with scientific training and founded a new group, the Society of American Foresters. Graves acted as its vice-president.¹⁰⁴ The Society eventually raised \$125,00 to endow a chair for the Yale Forest School.¹⁰⁵ In its brochure, the Society of American Foresters explained the central role it took in shaping a national policy for forestry education:

The society has always taken a deep interest in the schools of forestry. It has consistently stood behind efforts to strengthen their curricula and to improve their standing... [T]he Society may justly claim part of the credit....A committee of five was set up to report on the standardization of instruction in forestry. All the members were influential members or officers of the Society. The report of that committee, in 1912, formulating the standardized curriculum, was a “classic” contribution. It stabilized the schools at a time when such action was vital.¹⁰⁶

In order to standardize forestry practice at the university level, Graves worked to unify its instruction across the country. By 1911, only Penn State, Syracuse and Yale had fully independent graduate schools of forestry in the United States, but programs existed in many

¹⁰² Hays, 30.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ “An Historical Summary” by Ralph S. Hosmer, The Society of American Foresters Program, November 1940, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

agricultural schools at public universities.¹⁰⁷ Graves contacted dozens of state institutions and inquired about their forestry programs, asking for syllabi and proposed courses of study. In response to his circular in 1906, he received syllabi from the Department of Botany at Miami University in Ohio, the Rhode Island College of Agriculture and Mechanic Arts, and from a pre-forestry program at the University of California-Berkeley.¹⁰⁸ Graves compiled this information, so when he and the Society of American Foresters met to devise a course of study for Yale, they could propose a national model for forestry education.

Conversely, other young leaders in forestry education reached out to Professor Graves as well. They routinely sought his advice. In 1906, an alumnus of the Yale Forest School, E.G. Cheney, wrote to Graves from his new post as a professor of forestry at the University of Minnesota Agricultural School. He inquired, “I want to get some pointers on running a summer school, for we expect to have one here in a few years, and I think a knowledge of your system would help us very much.”¹⁰⁹ As director at Yale, Graves was a central conduit for American forestry education.

The Yale Forest School also worked closely with the U.S. Forest Service to drum up interest among students to propel the profession forward. In a “career bulletin” published for college students by the National Resource Council in 1922, Graves expounded on the job

¹⁰⁷ “Founded to Save Trees”, February 7, 2002, The History of Penn State, accessed March 26, 2013, http://www.psu.edu/ur/archives/intercom_2002/Feb7/montalto.html, and “A History of ESF”, About the College, accessed March 26, 2013, <http://www.esf.edu/welcome/history.htm>.

¹⁰⁸ Yale Forest School - Class of 1906, Notes from 1916, Folder 233, Box 16, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

¹⁰⁹ E.G. Cheney to Henry Graves, 25 September 1906, Yale School of Forestry Degree Requests 1907-1922, Folder 240, Box 16, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

opportunities within forestry in a piece entitled “Forestry as a Career.”¹¹⁰ He emphasized both the diverse and practical nature of the work: “Forestry...deals with the management, use and perpetuation of forests, and with the handling and utilization of their products. It has to do with a natural resource that is of great importance to many industries.”¹¹¹ Henry Graves underlined the connection between forest school graduates and the U.S. government, noting, “The greatest single employer is the federal government.”¹¹² After Gifford Pinchot’s bureau took full control of the National Forests in 1905, U.S. Forest Service rangers were sent to the American West to manage the forestlands.¹¹³ While employment opportunities abounded, Graves reminded students that forestry was a profession that required advanced training. “The old methods of rule of thumb no longer suffice for many undertakings,” he declared. “Scientific methods of determining the quantity and value of timber are now needed... [O]wners are seeking men who have a scientific knowledge of forests and of wood as well as practical experience.”¹¹⁴ In promoting the career to curious students, Graves invoked the same message of forestry as a legitimate science.

As Henry Graves continued championing forestry, he looked to extend its practices deeper into the private sector. Lumbering, for example, was one messy industry which Graves thought he could rationalize into a standardized science. Developing a management science for lumbering required comprehensive research and communication with men across the industry, however, so Graves worked to garner their support. The National Lumber Manufacturers’ Association donated \$65,000 to hire a professor at Yale to teach courses in the practice of

¹¹⁰ Henry Graves, *Forestry as a Career* (Washington, D.C.: National Resource Council, December 23, 1922), 3.

¹¹¹ Ibid.

¹¹² Graves, *Forestry as a Career*, 5.

¹¹³ Hays, 39.

¹¹⁴ Graves, *Forestry as a Career*, 9.

lumbering, and the new Professor Bryant taught lessons on “the lumber industry, the minor industries, and field work in lumbering.”¹¹⁵ The course investigated “what are the factors that determine what logs are to be left in the forest” and how to “determine quantity of sound timber left per acre.”¹¹⁶ The incorporation of lumbering into the curriculum revealed that forest science was often a science of profit. For Graves, professionalizing forestry did not connote simply filling the demand for foresters which existed in the field; it also meant creating new areas of employment to spur an even greater need for foresters.

While Graves allowed lumbermen to help fund instruction at the Yale Forest School, he guarded against excessive commercial influence on the curriculum. He realized that “it is probable that the motives of the different men who have contributed to the lumbering fund were very divergent.”¹¹⁷ Graves justified the decision to the university, however, by arguing that forest scientists needed industry knowledge: “The lumbermen of the country are going to do business with these foresters, and it is of great importance that the training which they have received in lumbering be of the right kind and of the highest quality.”¹¹⁸ In developing the training program of the Yale Forest School, Graves worked to bring different parties together: lumbermen, industrialists, conservationists, botanists, and agricultural school professors were encouraged to

¹¹⁵ “Lumbering”, Outline of Courses on the Lumber Industry, Folder 237, Box 16, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

¹¹⁶ Ibid.

¹¹⁷ Ibid.

¹¹⁸ Ibid.

donate, take part, and offer their expertise. This pile of extended interests, however, often blurred lines between scholarship, collaboration, and industry support.¹¹⁹

By 1910, the first decade of the Yale Forest School had come to a close, and Graves' validation efforts could be seen in the vigorous enthusiasm for the school. In an address to the class of 1910, the newly appointed Dean James W. Toumey spoke to the largest class of the school to date, thirty-five men. He stressed the idealistic and professional ethos of the Yale Forest School that Henry Graves had built up under his tenure.¹²⁰ Dean Toumey declared that Henry Graves and Mr. Pinchot had bequeathed noble aims on the Yale Forest School, and that their "optimism, indomitable courage, and high ideals led the nation in making forest preservation popular in this country."¹²¹ Through Graves' efforts, the Yale Forest School was a major legitimizing force for the field of forestry. Toumey claimed, "The curriculum established at Yale and modified from time to time...serves as a model for most other American institutions where forestry is taught."¹²²

Beyond offering a biased glimpse into the school's ideology, Toumey's speech displays how Graves' efforts to professionalize forestry had led to the Yale Forest School perpetuating a mission of its own, carried on by the his successor. The commencement speech exemplifies the language of dutiful professionalism that had come into vogue with progressives in the early

¹¹⁹ In later years, Pinchot would lament the rise of lumbering interests with the U.S. Forest Service. See for instance, Miller, *Gifford Pinchot and the Making of Modern Environmentalism*, Chapter 11.

¹²⁰ Address by J.W. Toumey to the Class of 1910 Yale School of Forestry, p 1., Undated, Director's Addresses to Graduating Classes Ca. 1910-1922 Folder 90, Box 5, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

¹²¹ In 1910, President Taft fired Gifford Pinchot at the U.S. Forest Service, and a new position opened to Graves. See for instance, Gifford Pinchot, *Breaking New Ground* (New York: Harcourt, Brace and Co., 1947), 419.

¹²² Address by J.W. Toumey to the Class of 1910 Yale School of Forestry, p 2., School of Forestry and Environmental Studies, Yale University, Records of the Dean.

1900s, but unfortunately, it also reveals how professionalization tended to exploit middle-class anxieties and invoke imperialist ideals, as argued by Bledstein and Ross.¹²³

In his speech, Dean Toumey addressed the ‘professional’ character of the Yale Forest School. He urged the graduates to reflect a “high professional standard, which it is the chief aim of this school to impart.”¹²⁴ Competition in the forestry profession had grown, however, and success was no longer assumed to be automatic. As Bledstein speculates, career-driven fears may have motivated these young graduates.¹²⁵ Dean Toumey warned: “From now on, the organization of the profession is such that the able man will be more clearly different from the indifferent and poor man. Your advancement will be determined by the quality of the work that you do and its value to the nation, the state, or the private employer.”¹²⁶ Although Dean Toumey still appealed to forestry’s higher moral cause, the practical goals of the Yale Forest School took precedent. The school encouraged its students to enter the new ‘forestry’ field, replete with its own institutional hierarchy.

To impel students to serve in the field, Toumey argued that practicing forestry was the Yale graduates’ civic responsibility.¹²⁷ However, in describing the forester’s global role in places such as the Philippines, Toumey’s call for responsibility took on a more imperializing tone.

Toumey believed in the rationalization of the wild territory: “In these far-away regions graduates

¹²³ See for instance, Bledstein, *The Culture of Professionalism*, Chapter 1, and Ross, *Origins of American Social Science*, 98.

¹²⁴ Address by J.W. Toumey to the Class of 1910 Yale School of Forestry, p 5., School of Forestry and Environmental Studies, Yale University, Records of the Dean.

¹²⁵ Bledstein, *The Culture of Professionalism*, 4.

¹²⁶ Address by J.W. Toumey to the Class of 1910 Yale School of Forestry, p 6., School of Forestry and Environmental Studies, Yale University, Records of the Dean.

¹²⁷ This civic responsibility was also a common trend among bureaucratic professionals in the progressive era. See for instance, Daniel Carpenter, *The Forging of Bureaucratic Autonomy* (Princeton: Princeton University Press, 2001).

of the Yale Forest School are helping to turn the jungle toward greater usefulness to humanity.”¹²⁸ While not uncommon in the spirit of the times, the Yale Forest School’s message treaded a thin line between humble service and prideful patronage. As Dorothy Ross elucidates, professionalization frequently promoted itself on the basis of American exceptionalism and social Darwinism.¹²⁹ This normative conception of American history may have convinced Graves and Toumey to apply rational forestry methods to the taming of remote jungles.¹³⁰

Toumey’s commencement speech is a strong example of how a professional school, which Graves had just started ten years before, had molded its own institutional identity. Dean Toumey asserted: “We welcome your going out into the field of action, that you may gain worthy laurels not only for your own sake, but because they help to crown the institution where you secured your professional training.”¹³¹ Individual achievement lay in the students’ hands, but the professional ambitions of alumni were sublimated back into Yale’s orbit. With the Yale Forest School’s future safely in the hands of new leaders such as Toumey, Henry Graves now moved to prove himself on the other end of the profession that he had helped build.

While Henry Graves was in New Haven

Between 1900 and 1910, a battle had been fought in Washington between different departments over control of America’s wilderness. Following the passage of the General Land

¹²⁸ One area specifically of interests was the new U.S. Territory of the Philippines. Address by J.W. Toumey to the Class of 1910 Yale School of Forestry, p 7., School of Forestry and Environmental Studies, Yale University, Records of the Dean.

¹²⁹ Ross, 156-57.

¹³⁰ Ross, 156-57.

¹³¹ Address by J.W. Toumey to the Class of 1910 Yale School of Forestry, p 7., School of Forestry and Environmental Studies, Yale University, Records of the Dean.

Law Revision Act of 1891, the U.S. Government soon owned massive tracks of forestlands in the West.¹³² To many observers, this provided an opportunity to rethink the management of the nation's resources. Due to lax regulation, the timber industry had already stripped the virgin forests east of the Mississippi. Outdoorsman and advocates fell into multiple camps—preservationists such as John Muir advocated for the protection of wilderness within national parks, and conservationists, such as Gifford Pinchot, sought to extract maximum utility from the forests through a system of 'mixed use.' Some advocated for a combination of the two strategies.¹³³ With the ascension of Theodore Roosevelt to the presidency in 1901, Pinchot's policy of conservation won a supremely powerful friend in government, and Pinchot did not hesitate to increase his influence.¹³⁴ While Graves grew busy establishing an educational vehicle for forestry, Pinchot devised policies to advance forest conservation through bureaucratic power.

Pinchot became head of the Division of Forestry in 1898 and immediately argued that the General Land Office in the Department of the Interior was administering the nation's forests inefficiently. According to Pinchot, Interior "was hopelessly involved in a maze of political appointments, legalistic routine, and personal favoritism."¹³⁵ He claimed that forest reserve management was a technical task requiring professionally trained men.¹³⁶ Pinchot worked to

¹³² Hays, 36.

¹³³ See for instance, Hays, *Conservation and the Gospel of Efficiency*, Chapter 1.

¹³⁴ Theodore Roosevelt also believed in preservation and supported the creation of national parks and bird preserves, but his stance often fell somewhere in between pure preservation or conservation. During Hetch-Hetchy, for example, John Muir appealed to President Roosevelt to save Hetch-Hetchy from damming, but Gifford Pinchot's side won out and the project went forward. See for instance, Hays, *Conservation and the Gospel of Efficiency*.

¹³⁵ Hays, 39.

¹³⁶ Hays, 39.

transfer control of the public lands to his own bureau, and he won the support of Western congressman by advocating for the forests' commercial use.

Gifford Pinchot finally got his wish in 1905 when a bill passed Congress, transferring control of the national forest program to the U.S. Forest Service. Pinchot had succeeded in establishing conservation as the de facto policy of the U.S. Government. Through his own bureau in the Department of Agriculture, he began implementing a forestry program for America's public forests. Daniel Carpenter writes in *The Forging of Bureaucratic Autonomy* that Pinchot's U.S. Forest Service was a prime example of a trend toward bureaucratic autonomy: "Autonomy prevails when agencies can establish political legitimacy—a reputation for expertise, efficiency, or moral protection and a uniquely diverse complex of ties to organized interests and the media—and induce politicians to defer to the wishes of the agency."¹³⁷ With this independent bureaucratic power, Pinchot looked to Yale to recruit professionally trained foresters to staff his Washington office and manage the Western forestlands.

Henry S. Graves as Chief Forester

In 1910, President William H. Taft fired Gifford Pinchot, Chief of the US Forest Service, for intransigence. The dismissal came in the aftermath of the Ballinger-Pinchot Controversy, in which Pinchot had criticized President Taft for failing to support the pro-conservation agenda out West.¹³⁸ The affair had wide implications including a split between progressives in the

¹³⁷ Carpenter, *The Forging of Bureaucratic Autonomy*, 4.

¹³⁸ The Ballinger-Pinchot Controversy arose after President Taft appointed Richard Ballinger to run the Interior Department. This angered many conservationists. Ballinger proceeded to transfer thousands of acres of government (and Forest Service) land back to private use. Eventually, Pinchot decided to "make the boss fire him", and he wrote a letter to Senator Jonathan Dolliver who read it into the Congressional Record. Pinchot criticized Ballinger for his mismanagement, and as a result, Taft fired Pinchot for intransigence. Samuel Hays, *Conservation and the Gospel of Efficiency*, 168.

Republican party and a falling out between Taft and Roosevelt, but it also held direct sway over Henry Graves' own path. Due to his experience and even-keeled 'agreeable' nature, Graves was seen as a prime candidate to succeed Pinchot.¹³⁹ Even though Pinchot and Graves shared many philosophies, Taft offered Henry Graves the helm of the U.S. Forest Service.¹⁴⁰ While he was entering a tense political climate, Graves was finally handed a golden opportunity to put his lesson plans into practice. The National Forests were a growing business for the U.S. Government, and they required a disciplined corps of forest rangers to manage their vast resources.¹⁴¹

After Taft had weakened Pinchot's authority, Graves' first task in taking over the U.S. Forest Service was to achieve stability. The publication *The Outlook* later commented in 1920 that Graves' "task has been hard. On the one hand, there is Congress, penny-wise-pound-foolish... On the other hand are the timber owners and lumbermen, above all, the several State Governments, resisting a centralized Federal policy."¹⁴² The Interior Department and state governments constantly clawed at the land controlled by the foresters. Mother nature influenced the direction of the Forest Service too. Following the Great Fire of 1910, which erupted on National Forests in Washington and Idaho and killed 87 people, the U.S. government decided that the Forest Service should receive extra support to fight dangerous wildfires.¹⁴³ While the

¹³⁹ Miller, *Gifford Pinchot and the Making of Modern Environmentalism*, 220.

¹⁴⁰ "Notes on H.S.G. compiled by G.D.S. in response to W.B.K's Questionnaire", Henry Solon Graves Papers.

¹⁴¹ Henry Graves, *Business Aspects of the Work of the Forest Service* (Nd, 1939), 1-5.

¹⁴² Mr. Graves and Mr. Greeley", *The Outlook*, 24 March 1920, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁴³ Timothy Egan, "Ideas & Trends: Why Foresters Prefer to Fight Fire With Fire", *The New York Times*, August 20, 2000, accessed March 23, 2013, <http://www.nytimes.com/2000/08/20/weekinreview/ideas-trends-why-foresters-prefer-to-fight-fire-with-fire.html>.

event was a terrible tragedy, it provided Graves' office with more funding and expanded the Forest Service's bureaucratic aperture.

Through administering the National Forests, Graves was running a federal agency and a timber business. He had to learn to cooperate directly with both politicians and lumberjacks. In a report entitled "The Business Aspects of the Work of the Forest Service", Graves commented on the complicated nature of the work itself: "The timber sales business involves exploration to locate merchantable supplies, cruising and appraisal, engineering plans of operation, scaling, supervision and inspection of operations, and business records of current work."¹⁴⁴ Appreciating his business sense, the community of lumbermen in the West grew to respect Graves and welcome his advocacy.

In December 1910, E.T. Allen from the Western Forestry and Conservation Association heard rumors that Graves may abruptly leave the Forest Service, so he wrote to Graves, imploring him to stay in office. He expressed to Graves that lumbermen "felt that you were still more technically competent and less likely to discredit your own strength by mixing into matters not connected with the Service. In short, at a time when the Service was under fire because of the Ballinger-Pinchot controversy, and when the manufacturers' natural allegiance to the stand-pat administration tended to line them up on the wrong side, your personality was the chief thing that held their backing."¹⁴⁵ By combining practical knowledge in the field with keen administrative oversight, Graves quickly made many friends in the timber industry. He acclimated to the work outside of the Ivory Tower.

¹⁴⁴ Henry Graves, *Business Aspects of the Work of the Forest Service* (Nd, 1939), 19.

¹⁴⁵ E.T. Allen of the Western Forestry and Conservation Association to Henry Graves, 29 December 1910, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

According to Char Miller, the connection between Henry Graves and the lumber business rankled Gifford Pinchot. Miller writes, “Unlike Pinchot, who loved dustups, Graves preferred to seek consensus with his potential opponents.”¹⁴⁶ Pinchot grew angry as Graves began to advocate for state-level forestry regulation and “to map out a closer alliance between public foresters and private lumbering interests.”¹⁴⁷ As chairman of the Society of American Foresters, Pinchot appealed to the forester community and urged his men to side with him over Graves: “The choice lies between the convenience of the lumbermen and the public good.”¹⁴⁸ Miller claims that Graves was shocked by Pinchot’s rebuke, and eventually he recognized that “some regulation was necessary.”¹⁴⁹ Graves had always tried to steer forestry practice around problematic special interests, but in this case, he ran right into Gifford Pinchot.

Along with the political struggles, Graves’ job in Washington had its benefits. Unlike the directorship at Yale, the position of Chief Forester allowed Graves to explore the movements of the Forest Service out West, opportunities that Graves, ever eager to be in the field, accepted with alacrity. Graves frequently jumped at a chance to put his skills to the test in the wilderness; and if given the option, rather than settle a dispute in his office, he would choose to prove his mettle as Chief Forester out in the woods. As a bureaucrat, however, this represented an unique

¹⁴⁶ Miller, 278.

¹⁴⁷ Miller, 278.

¹⁴⁸ Miller, 280.

¹⁴⁹ Miller, 280. According to Miller, Henry Graves was late in realizing “that lumber interests talked more about cooperation than they practiced it”, but his opinion comes through the lens of Pinchot, who was always quicker to voice his opposition to industry. Graves, through his experience teaching forest science at Yale, working across industries, and with his alumni planted in the industry, had learned how to navigate his relationship with the lumber industry in a more cooperative manner, and he thought that the most effective terms of regulation came through cooperation. Miller, however, seems to believe that Pinchot “continued to do more to articulate and set the agenda of American forestry than did his successor,” but Graves may have been less interested in setting the tone and “national agenda”. He was more dedicated to realizing sound and feasible forest science and policy. See Char Miller, *Gifford Pinchot and the Making of Modern Environmentalism*, Chapter 11.

impulse—instead of trusting the professional expertise of the men in the field whom he had helped train, Graves wanted to lead by his own masculine example.¹⁵⁰

The most illuminating reports from Graves' time in the Forest Service are not inter-office memos or political discourses, but his own personal diaries, which describe his trips out West in crisp detail. The entries reveal Graves' love for the outdoors, but they also show him deftly handling issues that arose on public land. Graves' trips out West were not merely chances to encounter nature; they had a keenly practical purpose. Graves endeavored to handle political issues through direct action—by heading to the forest acreages in dispute. The trips represent a departure from the rationalizing techniques Graves was so eager to promote in his classes at Yale. In many ways, Graves' diaries reveal that for him, rational forestry and the draw of the profession were also linked to his own masculinity. Like Roosevelt and Pinchot, Graves was an Ivy League north-easterner who sought to prove his own virility in the outdoors.

In 1914, Henry Graves jumped at an opportunity to examine timber fraud on public lands in Idaho and Montana. He wanted to “examine typical cases in order to make some impression on” the Interior Department, which had ignored Graves' petitions to arrest timber thieves.¹⁵¹ It was a business trip and the “culmination of our effort to prevent continued clear-listing of palpably fraudulent timber claims entered prior to the establishment of the National Forests.”¹⁵² Graves moved back his schedule in Washington and committed to traveling from May through September.

¹⁵⁰ While Gifford Pinchot also practiced this type of leadership from time to time, Graves' jaunts to the Western wilderness were probably unique among other bureaucrats and Yale administrators.

¹⁵¹ Henry Graves' Diary: 5 May 1914, Diary: Alaska 1914-1915; 1921, Folder 233, Box 19, Series II, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁵² *Ibid.*

As he traveled across the country, Chief Forester Graves still fulfilled countless obligations. Upon arriving in Chicago at 9 A.M. on May 6, he wrote, “I was interviewed by four reporters. I then went to the Blackstone, and made a 5-minute speech to the National Lumber Manufacturers Association. Then I attended the lunch of the Association of Commerce and gave a talk. Later I read the same paper before the National Manufacture Association (NAM). I then attended the Forest Products Exposition, and left for the West that night at 10 o’ clock.”¹⁵³ While this shorthand itinerary of a single day may seem commonplace, it is a perfect snapshot of the complicated network of relationships that Graves had to navigate as Chief Forester. He hoped to align commercial interests, labor groups and lumbermen in support of the Forest Service.

In the summer of 1914, Graves took a steamer from Washington state to Alaska to continue his investigation of government land there. Due to its vast territory and rich resources, Alaska was a region that was heavily disputed by different governmental organizations. Graves could likely have stayed in Washington, D.C. and handled the land disputes with the Interior Department from there, but he enjoyed seeing developments as they unfolded on the frontier. Revealing his true woodsman colors he noted near Ketchikan, Alaska, “There is an immense amount of bear sign everywhere. Offal and tracks as common as deer sign in the Adirondack’s.”¹⁵⁴ In Graves’ view, a charismatic Chief Forester should be as comfortable in the woods as he was in the office. Just as he ordered his seniors at Yale to spend their final months in a forest, Graves believed the same approach applied to his own work. Due to the tense climate over land allocation in Washington, D.C., he may also have been avoiding fierce political debates for a chance to work things out on the ground.

¹⁵³ Henry Graves’ Diary: 6 May 1914, Henry Solon Graves Papers.

¹⁵⁴ Ibid.

In September 1914, Henry Graves traveled back to Washington State to stop a political effort by miners to abolish the Olympic National Monument. Again, he was confronting a federal issue by visiting the locale in question. In his diary, he wrote: “There had been a drive to have the Olympic National Monument abolished. Rep. Johnson of Washington was the leader of the drive. Mining interests were behind him. The Service and I were hammered in the press and in the house...One day I told [Johnson] that I was going out to inspect conditions on the ground...He urged me not to go, on account of the public sentiment. I told him that I would go with all the publicity I could get.”¹⁵⁵ Graves wanted to show the mining lobbyists and the public that the Forest Service would not be intimidated by special interests. Graves reported: “We were joined by...H. Stannard...a mining man who had been in Alaska a good deal.” Mr. Stannard had objected to the strict restrictions on mining in the Olympic Mountains. Graves said, “We had invited him because I wanted to show him up in the woods, and see if he had any legitimate complaint.”¹⁵⁶ On the trip, Graves stood up to the mining man, employing his manliness to prove his authority. He wrote on September 25:

In the morning we went up about 2,000 feet to some manganese prospects. Some of the alleged veins were covered with timber. In the afternoon we went on foot to the base of an abrupt rise in the divide. Stannard had an Alaskan backboard. He boasted a great deal about his Alaskan experiences, and the great packs he had carried. As it was, he had a heavy pack, with numerous mineral specimens. After about two hours, Stannard stopped frequently to rest. Finally he vomited on the trail. I said: “you are sick and not up to carrying a pack.” And I took the pack myself. One of the Rangers left us that evening. I told him to spread throughout the Olympics that Stannard, the sturdy miner and woodsman,

¹⁵⁵ Henry Graves’ Diary: September 1914, Henry Solon Graves Papers.

¹⁵⁶ Ibid.

had puked on the trail and the Chief Forester from Washington had to carry his pack. That night it rained hard and I woke up in a wet bed.¹⁵⁷

Rather than by dispassionately analyzing data from a distance, Graves legitimized his authority through feats of strength. Occasionally, this “manly” leadership seemed to suit the job at hand, but it often seemed tied to more atavistic yearnings. Graves relentlessly criticized Stannard in the coming days and discredited him for his lack of backcountry skills: “Stannard boasted of knowledge of the country... but demonstrated very quickly that he did not possess the instincts of a woodsman. He constantly followed elk trails, mistaking them for real trails.”¹⁵⁸ In Graves’ view, to perform the role of professional forester, one should be able to navigate politics in Washington and go through the trials of the forest. This approach to power is similar to that of his contemporary, Theodore Roosevelt. In *Manliness and Civilization*, Gail Bederman claims, “As a mature politician, [Roosevelt] would build his claim to political power on his claim to manhood. Skillfully, Roosevelt constructed a virile political persona for himself as a strong but civilized white man.”¹⁵⁹ Henry Graves saw himself as a taming influence on the West—he believed he could rationalize the woods through his forestry training.

Although Graves saw value in leading the U.S. Forest Service from a tent, he knew when to balance this rougher persona with a more cooperative and bureaucratic approach. Through speaking engagements and town hall meetings, Graves used his time out West as an opportunity to educate the general public. He wrote to his friend E.V. Preston and declared the key issue—an educated public: “There is no question that interest in forestry is more widespread now than ever

¹⁵⁷ Henry Graves’ Diary: September 1914, Henry Solon Graves Papers.

¹⁵⁸ Henry Graves’ Diary: September 1914, Henry Solon Graves Papers.

¹⁵⁹ Gail Bederman, *Manliness and Civilization* (Chicago: University of Chicago Press, 1995), 171.

before, but there is much to be done and continued progress will depend upon an intelligent public opinion regarding this subject.”¹⁶⁰ Graves himself took up this task in talks out West. In one speech, Graves explained, “The National Forests can serve local interests, I believe, in a way that nothing else could.”¹⁶¹

Henry Graves employed the idealistic language of the Yale Forest School during his trips, but at times, he was quite tough on local communities. In Port Angeles, Washington, Graves bullied the town mayor into giving the Forest Service land for a field office by threatening to transfer a federal timber depot to another town, Port Townsend.¹⁶² And a few paragraphs later in his diary, Graves wrote: “Note that I was taking boxing lessons.”¹⁶³ Graves was a complicated man; he used his Yale training to argue for forestry’s role in the public, but he believed that his own authority rested on manliness.¹⁶⁴

Graves’ success in the West attracted attention back in Washington, D.C. Representative Johnson, who had scoffed at the Chief Forester’s idea to travel to the Olympics, proposed that Graves head a completely new cabinet to manage the nation’s resources. *The Washingtonian* newspaper stated on September 28, 1914: “Of Mr. Graves’ handling of the forests of the country Mr. Johnson spoke in high terms, praising his policy as more calculated to the development of

¹⁶⁰ Henry Graves to E.V. Preston, 15 June 1910, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁶¹ Henry Graves’ Diary: September 1914, Henry Solon Graves Papers.

¹⁶² Henry Graves’ Diary: October 1914, Henry Solon Graves Papers.

¹⁶³ Ibid.

¹⁶⁴ While this conception of manliness was not much different from Theodore Roosevelt or Gifford Pinchot, Henry Graves worked to incorporate this identity into his agenda as Chief Forester as well.

the conserved resources.”¹⁶⁵ Henry Graves’ relentless work out West helped prove that foresters were capable men and not merely sheltered academics or small-minded functionaries.

To legitimize forestry in the eyes of Western miners and loggers, Henry Graves fused forest management directly to his own masculine identity. He demonstrated his woodsman skills to carve a public perception of the professional forester. While professionalization is typically viewed as a process which required students to “disciplin[e] themselves” and acquire “customs and established roles” within elite society, Graves presents a case in which his professional legitimacy wrested on not being overly professional or tied too close to the Ivy League.¹⁶⁶ Burton Bledstein recognized that college men of Graves’ time participated in athletic competition, but its purpose was not animalistic but to “purify the mind through rational discipline of the body.” Bledstein claimed, “The college of the future had a more important task than to cater to wild boys.”¹⁶⁷ Chief Graves had to work with miners such as Stannard, however, and he had to beat them at their own game, not by playing football like he had done at Yale, but by roughing it out on the trail.

Leaving a Lasting Mark on the Service

Henry Graves exhausted himself while serving the Forest Service from 1910 to 1920. His ability to effectively administer the nation’s forests and maintain a self-reliant and hardy persona had its limits. By the end of World War I, Graves began fainting occasionally, and he

¹⁶⁵ “Graves Seeks to get Resources Developed”, Newspaper clipping, Sept 28, 1914, *The Washingtonian*, Diary: Alaska 1914-1915; 1921, Folder 233, Box 19, Series II, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁶⁶ Bledstein, 254.

¹⁶⁷ Bledstein, 248.

suffered from dizzy spells induced by vertigo that his doctor diagnosed as “Menier’s syndrome.”¹⁶⁸ But his doctor added, “You show every indication of being tired out. This, to me, is a most important factor in your case.”¹⁶⁹ Graves’ doctor recommended two months of rest, with limited correspondence and no reading—undoubtedly, Colonel Graves needed a break from both the woods and public service.¹⁷⁰

In justifying his retirement, Colonel Graves touched on both his health and the pay of his government foresters. He believed that their salaries were too low and hoped that retiring would call attention to the lack of respect shown to career foresters. *The Asheville Times* noted, “Colonel Graves is a man of independent fortune, and tenders his resignation to bring forcibly to the attention of the government the fact that salaries in his department are inadequate from the top to the bottom.”¹⁷¹ Graves promised to rest, but told the paper, “After that, I shall consider how I may contribute to the advance of forestry, which will continue to be my chief objective in life.”¹⁷²

Once more, Graves emphasized that the Chief Forester must be an active leader of men who cannot confine himself to the bureau in Washington. He admitted that he could “remain in Washington, play golf and all that sort of thing; but that is not what has got to be done. The Chief Forester has got to be kept personally in touch with men and sufficiently in close touch with the

¹⁶⁸ Dr. G.A. Waterman to Henry S. Graves, 27 December 27 1918, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁶⁹ Ibid.

¹⁷⁰ Char Miller argues that Graves retired to avoid the political problems following the dispute with Pinchot, but I could find no evidence of this myself in Graves’ papers or other sources. Graves appeared to be genuinely exhausted from his service in World War I. See Miller, *Gifford Pinchot and the Making of Modern Environmentalism*, 281.

¹⁷¹ “Colonel Graves Resigns”, *The Asheville Times*, 23 March 1920, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁷² Ibid.

work on the ground.”¹⁷³ Graves wanted to ensure that the Forest Service would carry on its work, and he emphasized, “I believe that we will continue to go forward shoulder to shoulder in this struggle towards the big things that are so well worth while.”¹⁷⁴ Echoing the tenets of public service, Graves situated himself within a movement of men who were fighting for a collective cause.¹⁷⁵

Upon hearing news of Graves’ retirement, progressives, foresters, and the general public praised his tenure at the Forest Service. The progressivist publication and Roosevelt’s mouthpiece, *The Outlook*, wrote on March 24, 1920: “Mr. Pinchot’s enduring work was in creating the Forest Service and in eloquently showing the people the necessity for it. Mr. Graves’ has been the more prosaic but equally important work of administering it and maintaining it... He has given his whole interest to the actual work in hand; he has not misused the service in any personal propaganda.”¹⁷⁶ The Federal Office of Information also highlighted Graves’ efforts to rationalize the vast forests of the West: “A gigantic task of land classification has been nearly completed. This segregates and opens to settlement agricultural lands while insuring that the real forest land will be permanently held and administered as a public enterprise.”¹⁷⁷ By extending the reach of the U.S. Forest Service and making it more permanent, Graves guaranteed that rational forestry would continue being practiced in the National Forests.

¹⁷³ “Remarks of Col. Graves to Members of the Forest Service on the afternoon of March 8, 1920”, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁷⁴ “Weekly Bulletin: Forest Service - Washington Office (Not for Publication)”, 19 April 1920, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁷⁵ Bledstein, 268.

¹⁷⁶ Mr. Graves and Mr. Greeley”, *The Outlook*, 24 March 1920, Henry Solon Graves Papers.

¹⁷⁷ U.S.S.A. Office Of Information Release, Undated, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

Out West, Graves' approach to forestry was seen as even-handed and sympathetic to the needs of the public. *The Washingtonian* commented, in an article titled "Good Man Will Quit": "He has not looked upon every person who sought concession in a national forest, who tried to buy federal timber, who asked changes in the regulations or laws, as a thief trying to rob the 'dear people'."¹⁷⁸ Lumbermen were satisfied with his administration too—one article stated, "He has at all times shown a sincere appreciation of and sympathy with the practical problems of the lumbermen, and while there have been times when the lumbermen differed with him, they always recognized in him a public official who was honest and fearless in his administration of his duties, and whose activities were always free from the influence of any private or political feeling."¹⁷⁹ These testimonials show how professionalization within a bureaucracy could be a democratizing process as well—Graves believed that the Forest Service held common benefits to the public, and they concurred.

Graves won public support because his leadership was not seen as wedded to specific political interests. In 1920, *The Survey* reflected: "With him conservation was not merely a negative process of conservation by fire prevention and similar methods—important as this is—but also of renewal, of planning, of restoration of cut-over lands and arrest of erosion by suitable planting." The newspaper concluded, "Mr. Graves has given to the older forestry economics of continental Europe a distinctly social and democratic new tendency."¹⁸⁰ Bernhard Fernow, a German forester who had emigrated to the United States in 1876, outlined this distinction in a

¹⁷⁸ "Good Man Will Quit", *The Washingtonian*, Undated, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁷⁹ "The Resignation of Col. Graves", Source unknown, March 1920, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁸⁰ "The Survey", March 20, 1920, Personal Papers 1910-1925, Folder 126, Box 10, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

1911 report *A Brief History of Forestry*. Fernow explained Germany's case: "From its earliest history, it was broken up into many independent and, until modern times, only loosely associated units," therefore, forest management was not very consistent.¹⁸¹ The United States, with its centralized federal government and attendant bureaucracies, offered an opportunity to exercise more uniform management.¹⁸² According to Char Miller, however, Gifford Pinchot was dissatisfied in 1920—Graves had grown too close to the lumber industry and failed to push the right policies.¹⁸³ Even if Graves' mission was still to establish a distinctly 'American' model of forestry, the needs of the public, from lumberman to farmer to forester, were not always consistent and not all parties were satisfied. Despite some major setbacks, by the end of the Progressive era, the U.S. Forest Service had become an integral player in national land management.¹⁸⁴

Graves Returns to Yale

Henry Graves' hiatus from forestry was short lived. In 1921, Yale offered Graves the chance to return to New Haven as Dean of the Yale Forest School. His time in Washington and out West had helped him better understand forestry's systemic problems, and rather than think of his work as complete, he now he believed that extending education was the key to promoting

¹⁸¹ Bernard Fernow, *A Brief History of Forestry* (Cambridge: Forestry Quarterly, 1911), Section 23, accessed March 23, 2013, http://archive.org/stream/briefhistoryoffo00fern/briefhistoryoffo00fern_djvu.txt.

¹⁸² Fernow, *ibid.*

¹⁸³ Miller, 281.

¹⁸⁴ Although it occurred after Graves' tenure, his successor William Greeley would go on to dismantle some of the federal power held by the U.S. Forest Service by pushing for the Clark-McNary Act in 1924, which ceded some timber regulation to state governments. Miller, 284 and Chapter 11.

conservation and sound forest science. For Graves, the revolving door between the Forest Service and the Yale school could help refine the profession of forestry.

Before he returned to Yale, Graves wanted the university administration to recognize the rising stature of his profession by increasing his program's endowment. In a memorandum to Yale's President James Angell, Graves argued that, "An endowment of \$250,000 would, I believe, furnish such an occasion [for my return], and it would justify the enlarged work and increase of the faculty."¹⁸⁵ Graves tried to use his rehiring as a chance to influence the direction of the Yale Forest School and expand its operations.

Upon returning from Washington, Graves sought to use the Yale Forest School to educate the broader public on forestry. Graves believed that the school should bring together scientific experts, bureaucrats, and forest owners to further the public good and "to place at their disposal appropriate material for public instruction."¹⁸⁶ Graves wanted the Yale school to extend forestry knowledge beyond professional students to the general public as well. Graves acknowledged, however, that the school would have to continue charting its own course: "I venture to emphasize that we are still engaged in a pioneer enterprise" in which "the schools must play a large part." Just as before, "the country looks to Yale as the leading educational institution."¹⁸⁷

Not every member of the Yale Corporation was eager to follow Graves' ambitious designs. Howell Cheney, a member of the Yale Corporation and an old friend of Graves, wrote to

¹⁸⁵ "Memorandum Re: Graves Return to Yale", December 1921, Folder 89, Box 5, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

¹⁸⁶ Henry Graves to Dean James Toumey, 27 October 1921, Folder 89, Box 5, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

¹⁸⁷ Ibid.

Dean Toumey at the Forest School with some concerns about Graves' national plan. "I seriously doubt whether we would be justified in venturing into the undertaking from this point of view... After all, Yale's work must continue to be measured by the productive scholarship within our own walls."¹⁸⁸

James Toumey, however, jumped to Graves' aid and argued his case to the Yale Corporation. He agreed with Graves on the need to educate the public, adding, "The hardest as well as the most vital task of present day leaders in forestry, on whose shoulders rests the responsibility of selling forestry to the public, is to awaken the people to the national dangers in timber depletion."¹⁸⁹ Toumey thought that with Graves' help the Yale school could direct national forestry policy in the future: "Leadership in public education, and in the establishment of public policies, should be an essential part of the work of the faculty of this school."¹⁹⁰ Graves' mixed experience in Washington had led him to believe that Yale should try to better inform the public on what constitutes sound forestry policy.

In promoting forestry among the public, Graves could also rely upon the authority endowed in him by being past director at the Yale school and former Chief Forester. Toumey acknowledged that Henry Graves' "known ability and reputation will tend to crystallize present conflicting programs into a practical program of forestry for the entire nation."¹⁹¹ Eventually, the Yale Corporation agreed to Graves' terms. His credentials had begun to carry some weight.

¹⁸⁸ Howell Cheney of the Yale Corporation to Dean Toumey, 29 November 1921, Folder 89, Box 5, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

¹⁸⁹ Dean James Toumey to Yale President Angell, December 1921, Folder 89, Box 5, Accession 1982-A-010, School of Forestry and Environmental Studies, Yale University, Records of the Dean (RU 40), Manuscripts and Archives, Yale University Library.

¹⁹⁰ Ibid.

¹⁹¹ Ibid.

Following Graves' own process of legitimization, professional forestry was beginning to perpetuate itself within existing institutional networks. Rather than taking the time to revel in it, Dean Henry Solon Graves went back to work.

Conclusion

Few men have contributed more to American forestry than Henry Graves, but his name is conspicuously absent from its history. Although Graves dedicated his entire career to building the idea of the forester, his work was eventually subsumed into the profession itself. Even after Graves retired from Yale in 1939, he humbly returned his pension to the school to pay for "damage to the Yale Forests from the hurricane."¹⁹² Despite his unassuming nature, Henry Graves' story is also important beyond forestry. By employing his own methods to legitimize the forester, Graves' career complicates our history of professionalization and illuminates how an applied science such as forestry emerged at the turn of the twentieth century.

The rise of professionalization around 1900 has often been seen as a process that transformed our work into narrow careers and reinforced a capitalistic hegemony.¹⁹³ And as a patrician Ivy Leaguer, Henry Graves was certainly a product of that 'system', however, in starting the Yale Forest School, Graves also recognized that he could co-opt the system to promote conservation in an age of industrialization. In 1892, when Graves' graduated from Yale,

¹⁹² Henry Graves to Yale Treasurer Thomas Farnam, 2 June 1939, University Business, Folder 142, Box 11, Series I, Henry Solon Graves Papers (MS 249), Manuscripts and Archives, Yale University Library.

¹⁹³ Burton Bledstein acknowledged that by the 1970s his "students were intent on showing that 'every professional was co-opted by the System.'" In Haskell review, Haskell, "Power to the Experts." Clearly, this view is seen as more true for certain careers than others, as forestry is not a typical office job, but on the whole, professionalization has elicited a mixed response. See, for instance, Eliot Friedson, *Professional Powers: A Study of the Institutionalization of Formal Knowledge* (Chicago: University of Chicago Press, 1988).

few dynamic forces existed to counter deforestation and land degradation.¹⁹⁴ Professionalization, while at times a dispassionate and mechanical process, may have been Graves' best path to enact change. In Henry Graves' view, rationalizing the woods likely helped save them.

Although Graves worked within established channels, he was not your run-of-the mill administrator—he pioneered and expanded the role of forest science by linking it to the wave of professionalism. The story of the birth of forestry has so far been dominated by Gifford Pinchot and his political actions, but Henry Graves highlighted how the field required legitimization among scientists, students, and the public as well.¹⁹⁵ The two men approached forestry from different perspectives. While Pinchot imagined a conservation ethic and organized forestry from above, Graves was more directly concerned with academic forest science and the opportunities available to his young graduates on the ground. Pinchot himself commented that Graves was “due the high credit for setting up the standards of training ethics, and performance which have given the profession of forestry so high a place in American life.”¹⁹⁶

To prove to lumberjacks that foresters held authority, Graves also had to work in the field and appeal to the identity politics of males in the American West.¹⁹⁷ Graves backed up his leadership through masculine strength and hard work. By 1920, a phrase had grown popular with these no-nonsense foresters: “The scientists said it can't be done, but the damn fool engineer

¹⁹⁴ John Muir had created Yosemite in 1890 and Arbor Day was started in 1872, but Graves and Pinchot's approach to deforestation was altogether different.

¹⁹⁵ Char Miller's portrait of Gifford Pinchot in *Gifford Pinchot and the Making of Modern Environmentalism* shows central Gifford Pinchot was to American forestry through his engagement with politics and conservation, but Henry Graves was also critical in promoting the forestry agenda through the educational sphere. Pinchot himself commented: “One of the luckiest things that ever happened to me or to the cause was Harry's decision to adopt Forestry as his profession... Through the years he has been a strong pillar in the growing structure of practical forest management in the United States.” Pinchot, *Breaking New Ground*, 72.

¹⁹⁶ Pinchot, *Breaking New Ground*, 73.

¹⁹⁷ While this same approach was often taken by Pinchot, Graves' applied it to his students as well, as a way to further the professionalization of the forester.

didn't know that— so he went ahead and did it.”¹⁹⁸ U.S. Forest Service rangers continue to do field work and fight fires, and many men have tread over Graves' career arc. This bureaucratic momentum, which Graves helped set in motion, was supposed to efficiently manage the nation's forests year after year. But Graves' successor at the Service, William Greeley, would prove otherwise. In the mid-1920s, Greeley betrayed Pinchot and Graves and pushed for deregulation bills that were “obviously written from the point of view of protecting special interests,” in Pinchot's words.¹⁹⁹ The model that Graves had promoted continued to encounter struggles in later years, as the Forest Service ceded authority to state governments and faced pressure from private timber interests.²⁰⁰

Graves' own vision undoubtedly had its limitations, which are reflected more broadly by the limits of forestry in the modern world. The U.S. Forest Service has frequently failed to live up to its highest ideals, and over-logging and forest fires continue to plague National Forests.²⁰¹ In his own work, Graves seemed to place the practice of efficient forest management above other wider concerns, and he routinely took an uncritical stance on the timber industry's role in forestry education and policy.²⁰² While an innovator, Graves nonetheless exemplified the hallmarks of a disciplined bureaucrat; he avoided conflict when he could, and he was not flexible

¹⁹⁸ “Weekly Bulletin: Forest Service - Washington Office (Not for Publication)”, 19 April 1920, Henry Solon Graves Papers. Also, by ‘scientists’, the foresters referred to pure natural scientists, rather than applied scientists.

¹⁹⁹ Miller, 286.

²⁰⁰ See Miller, Chapter 13.

²⁰¹ In 2012, for example, forest fires ravaged National Forests in Colorado and a logging dispute erupted in Alaska's Tongass National Forest. See for instance, Thomas Peipert, “Colorado Wildfires 2012: Worst Wildfires in a Decade”, *Huffington Post*, June 25, 2012, accessed March 28, 2013, http://www.huffingtonpost.com/2012/06/25/colorado-wildfires-2012-v_n_1623695.html. For the logging dispute, see Deborah Zabarenko, “Alaska's Tongass Forest Sparks Battle Over Logging”, *Reuters*, June 17, 2012, accessed March 28, 2013, <http://www.reuters.com/article/2012/06/17/us-alaska-tongass-idUSBRE85G0GC20120617>.

²⁰² Graves seemed to put the ambitions of the Forest Service above the development of the local communities, such as his approach to Port Angeles.

in adapting the nature of his role. As environmental issues evolved over time, Graves' own deterministic optimism toward rational forestry caused him to sidestep looming issues outside of professional forest management.²⁰³ Henry Graves wanted to bend forests toward human needs, but rationalism soon evolved into a reflexive process: just as foresters systematized forests, the function of the forester soon standardized into its own utilitarian track.

Nevertheless, the forestry education which Graves started at Yale continued to produce promising individuals, including Aldo Leopold, who graduated in 1909 and went on to redefine conservation.²⁰⁴ In 1972, the Yale Forest School expanded its horizons and changed its name to incorporate "environmental studies." And today, the Yale School of Forestry and Environmental Studies' mission is still to apply interdisciplinary knowledge to practical problems. The school maintains: "Conservation is a practical and moral imperative."²⁰⁵ The proper relationship between policy, education, and business is no clearer now than it was in 1910, but Graves' ethic of service continues to permeate through the school. Henry Graves kickstarted an institution that has perpetuated his pioneering spirit and carried on his work to the present day.

Word Count: 12, 373

²⁰³ This deterministic optimism and narrow focus were signature trademarks of men that forged the new professions. See Bledstein, *The Culture of Professionalism*. Graves did not seem as interested in broader environmental concerns of water pollution and community developments; his studies of forests centered on economics and sustainable use.

²⁰⁴ See, for instance, Susan Flader, *Thinking Like a Mountain: Aldo Leopold and the Evolution of an Ecological Attitude toward Deer, Wolves, and Forests* (Columbia, MO: University of Missouri Press, 1974). Aldo Leopold founded the science of wilderness conservation.

²⁰⁵ Yale School of Forestry and Environmental Studies Mission Statement, About the School, accessed March 27, 2013, <http://environment.yale.edu/about/mission/>.

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