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Wooden Politics: Bernhard Fernow and the Quest for a National Forest Policy, 1876-1898

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Governmental forestry in late nineteenth century America was a joke. No one knew this better than Bernhard Eduard Fernow, a German-born and -trained forester, who became the third head of the Division of Forestry in the spring of 1886. Indeed, his first day on the job was rich in Dickensian humor. After climbing flight after flight of stairs in the even-then historic Agriculture building, he finally reached the tiny office of the division, tucked in the attic. If its size and locale had not convinced him of the disdain with which his profession was held within the federal bureaucracy, then the attributes, if such they be, of his two assistants did. One of these, Nathaniel Egleston—"a reverend, white haired gentle man"—had been the previous division head, and had been demoted to make way for Fernow. This less than ideal work environment was made all the worse by the fact that Egleston was incompetent. His "knowledge of the whole subject was even less than that of his predecessor [Franklin Hough]," Fernow observed, and his administrative abilities were such that he "was at his wits end [about] what to do with the [division's] munificent appropriation of $8,000" per annum. Witless was how the second assistant might best be described; a political appointee, he had no scientific knowledge of nor interest in forestry. But both of Fernow's subordinates knew the central fact of political sinecures: when he came upon them that first morning, they were "cosily, but by no means amicably, ensconced in a little garret room with two small oval windows, quarreling as to whom the credit for their performances really belonged." For Fernow, this was a bad joke. [1]

He fully expected to infuse a more serious note into the division's proceedings, however. That, after all, is why he reveled in the telling of this anecdote. The laughter it was designed to provoke, the sympathy for Fernow it was to elicit, helped distinguish him from that comic pair. So did the anecdote's punchline. Fernow's antidote for his office's languid and slothful air was simple: he introduced a typewriter. This was an "innovation highly resented by the two," not only because it disturbed their quiet, but because it signaled a sharp shift in orientation: there was work to be done. Work that would be done in a rational and efficient manner, work that would be regularized and codified in ways that only a typewriter could then produce. With Bernhard Fernow, modernity had arrived. [2]

So, too, had a certain prolixity. In 1898, for instance, Fernow proudly noted in his final report as
chief of the Division of Forestry that his record of publication had far outstripped that of his predecessors combined; in the ten years that Hough and Egleston had been in office they had managed to produce only four annual reports. The ever exact Fernow knew that annual meant each year, and published the requisite number. Moreover, he tabulated his publications in another way, noting that more than 6,000 pages of reports, bulletins, circulars, and other forms of "propaganda for [the] more rational treatment of our forest resources" poured out of the division's typewriter during his tenure. On top of that he had filled nearly 20,000 pages of letterbooks, "largely containing specific advice given to correspondents." So that none would think that this productivity was but a waste of energy and funds, Fernow calculated that in fact his costs per page ($24.00: "hardly a fair charge for expert writing") were 20 percent less than those incurred "during the preceding period of nonprofessional writing." Efficiency, diligence, and economy were the hallmarks of his administration, or so this telling of the history of federal forestry would imply, a telling that left no doubt but that Fernow had exorcised the ghosts of Egleston and Hough. [3]

There was, however, more to Fernow's governmental service than this. Indeed, the significance of his contribution to the forestry movement in his adopted country—he had become a citizen of the United States in 1883—emerged most fully not in the number of pages he composed as America's first professional forester, but in the meanings embedded within those texts. For it is only by analyzing these writings, these many bulletins, circulars, reports, and lectures, that one can begin to evaluate the philosophical principles that formed the foundation of his work. And that is an important task; these principles, which shaped his understanding of the proper role of government in developing, maintaining, and controlling the American landscape, were at once the product of his training in the Prussian Forestry Department and of his later immersion in the intellectual currents sweeping America at the turn of the century. There was more to his commitment to forestry, in short, than the mere study of trees. [4]

He had had some sense of this even in his youth. Born in 1851 in Inowrazlav, Prussia, a favored son of an elite landed family, Bernhard Fernow was expected to inherit his grandfather's great estate in eastern Prussia. But he never did, because in fulfilling one of the conditions for his inheritance, which family legend has it was that he study law and forestry, he fell in love not with his studies but with a woman.

His pursuit of forestry was what did him in. He had begun his apprenticeship in the Prussian Forestry Department, and after that had received advanced training for two-and-a-half years at the department's famed academy at Muenden, where he studied under G. Heyer, among others, and worked at several of the department's forests. His future seemed assured; his family pleased.

That assurance and pleasure vanished when Fernow, in the midst of his academic career, met Olivia Reynolds, an American living in Gottingen, sometime in the early 1870s; she was keeping house for her brother, a medical student at the university, one of many Yankees absorbing the German academic scientific concepts that would forever transform the American pursuit of knowledge. To this marriage of cultures, Olivia and Bernhard would contribute quite literally. They became engaged in 1875, over the Fernow family's objections, and when Olivia returned to the United States shortly thereafter, Bernhard followed, after having wrangled an appointment as an official Prussian observer of the American Centennial celebration to be held in Philadelphia in 1876. He remained, and the couple was married several years later, a train of events that reinforced Fernow's philosophical
fatalism. "I am a . . . believer in chance and accidents shaping to a large extent our lives," he once observed, the social consequences of which Olivia Reynolds Fernow was quick to claim credit for: "If anyone should ask me who was the originator of the forestry movement in this country, I should modestly reply, 'It was I.' She had seen the forest for the trees. [5]

Few in her generation shared her insight. That is forestry, as it was practiced in much of Europe, was generally unknown in the United States. Or to be more precise, few considered large-scale management of forested lands necessary, since the supply of lumber here seemed so great. That perspective had a decided and economic impact on the new Fernow household, of course. Without a culture in support of forestry, there was no call for foresters, and in the decade before Fernow became head of the forestry division, he held a variety of jobs, few directly related to his chosen profession. But he kept up with his field, continued his studies of North American trees, and of economic conditions of the lumber-based industries, published a number of relevant articles, improved his English to the point where he was no longer embarrassed to speak in public, and emerged as a driving force in the fledgling American Forest Congress which had been established three years before Fernow had arrived in America. He had become such a presence within forestry circles that he was the obvious choice to succeed Nathaniel Egleston in 1886. But so difficult had been his struggle to establish himself in this country that two years later, when a Yale undergraduate wrote inquiring about America's future need for "educated foresters," Fernow could only reply "Qui en sait?" Well, Fernow did know, and in his reply to Gifford Pinchot, the Yalec destined to create the U.S. Forest Service, he urged the young man to study forestry with an eye on its usefulness "in other directions," including "landscape gardening, nursery business [or] botanist's work . . . ." Pinchot's prospects, the head of American governmental forestry assumed, were as dim as had been his own. [6]

Fernow's present was not all that exciting, either. Although he was chief of the forestry division in the Department of Agriculture, that title masked a bureaucratic maze in which he labored. Public lands, after all, were under the purview of the General Land Office (GLO) in the Department of the Interior, which meant that the forester had no forests under his direct control. The GLO might ask his advice about how to manage the forests, but that assumed that management was both desirable and possible. It was not. When Fernow assumed his office in 1886, there was, for instance, no delineation of a federal forest system, no public lands set aside for the practice of his profession. Such regulations would emerge in time, and Fernow was active in their initiation. This was as true for the Federal Reserve Act of 1891, Section 24, which enabled the president to "set apart and reserve, in any State or Territory having public land bearing forests . . . as public reservations," an addition to the bill for which Fernow took perhaps more credit than he deserved, as it was in ensuing ancillary legislative initiatives that sought to protect these new forest reserves. By the early '90s, there were approximately 18 million acres set aside, a total President Cleveland sought to more than double with the so-called Washington's Birthday Reserves announced in 1897. The concept of national forests, and by extension of forestry, was coming of age. [2]

These dramatic changes notwithstanding, Fernow's work in Washington remained largely a matter of giving advice and serving as a conduit of information about forestry. These alterations in the numbers and sizes of forest reserves, then, did little to change his early and rather gloomy assessment of the forestry division's activities: "under present conditions," he had written a friend in 1887, "no practical work will be done and we might as well satisfy ourselves, that all we can do is talk." [8]
Talk was not cheap with Fernow, however. Indeed, it is in his public discourse and private musings about how a system of forestry management ought to develop and function in the United States that the radical quality and political impact of his ideas emerge most clearly. For him, forestry was more than just an applied science, it was also an art, an art whose success would require the reformulation of the philosophical basis of American political life. [9]

The first step, acquiring the plans for systematic forestry management, was simple enough. The United States need but look to Europe for its models. The European nations, after all, had been experimenting with increasingly centralized forms of control of forested lands. It is not surprising that Fernow, educated within the German forestry system, would believe that its methods were the most effective and most culturally adaptive. They were, he observed, as applicable in British India as in Japan, two diverse Asian societies that had hired German foresters, adopted their silviculture strategies, and then created forestry schools modeled after German educational programs, so as to perpetuate this methodology. There was little reason why the United States could not follow suit, reaping the benefits of his homeland's technology and expertise. [10]

Fundamental to this transfer of knowledge was the adoption of a set of principles of forestry management that assumed a central place in what Fernow called his "propaganda work" on behalf of the federal government. In report after report, in bulletin after bulletin, he argued that forestry was best defined as the Germans had defined it: "forest growth is to be treated as a crop to be reproduced as soon as harvested," and thus involved the idea of a "continuity of crops." In this, foresters were like farmers. Husbanding the "natural forces and conditions upon which the thrifty forest growth relies" was also part of the forester's charge, however, for it was no less critical that foresters produce "the largest amounts of material (or revenue) in the shortest time without impairing the condition and capacity for reproduction of the forest." That made foresters more like bankers than farmers, in fact, for proper forest management "involves the curtailment of present revenue for the sake of a continued greater revenue in the future"; this in turn required "continuity and stability to a greater extent than agriculture." Timbered land, then, was permanently invested capital, from which the only interest is used." One never cut into this capital, either: "the amount harvested or the revenue to be derived" should be "as nearly corresponding to the annual accretion" as possible. Good foresters balanced the books. [11]

To set up these books in the first place, to establish these principles on the ground, required intensive planning, as the Germans' experience so vividly demonstrated. During the nineteenth century, Fernow reported, the various states had begun to invest heavily in topographical surveys of state-owned lands, both to record boundaries and topography, but also to determine the location of markets, and thus the cartographic relationship between forests and consumers. On to these maps were then platted forest districts that established administrative and supervisory lines of authority running between the Oberlandforstmeister, or director of the agency, and the Foersters, or district rangers. The Germans were nothing if not organized. [12]

That organization extended to the very construct of the forest itself. A key task of the Foersters, for example, was to conduct a survey of the district that would be carried out "to the utmost minutiae." Each district—especially those in relatively flat terrain—would be divided up into "oblong compartments" of 60 to 75 acres, along each side of which, and at evenly spaced intervals, were cut a series of "openings or avenues" that ran north and south, east and west; each of these received a
particular alphabetic designation depending on its orientation on the compass. At the intersections of these avenues, the Foerster would place "a monument of wood or stone" that carried the identifying marks of compartment and avenues, "rendering it easy to find one's way or direct any laborer to any place in the forest." In Fernow's revealing commentary, this structure gave the German landscape the look "of an American city regularly divided into blocks." The forest had become a gridiron. [13]

This artificial quality, this emphasis on what Aldo Leopold denounced as the German penchant for "slick and clean forests," appalled generations of American foresters; such detailed plans would not go into effect in the National Forest System, either. But for Fernow, and the tradition of which he was a part, there was a larger point to regularizing the land in this fashion. Once this was accomplished, then human activities upon it could be controlled and rationalized. This involved establishing a set of legal regulations that determined rights and uses of the forests, drafting fire protection policies, and ascertaining what Fernow called the forest's "arithmetical basis"; among other things this meant evaluating soil conditions and conducting precise tree measurements to create a database from which to assess rates of growth, timber yield capacity, and future productivity. On the basis of these facts was "rational management" of the land defined, a definition that accommodated neither wilderness nor irresponsible resource exploitation. [14]

This was the kind of management that Fernow expected to import to the United States, too, though he was shrewd enough to know that the German experience, born as it was of different historical, social, and political circumstances, was not an exact model for the American republic. "We in the United States are fortunate in that we can learn from the experience and profit from the assiduous work of these careful investigators," even if "we may never adopt [their] admirable administrative methods." But of necessity would Americans adopt the "technical measures" of German forestry, for these were based on "natural laws and proved by experience"—hundreds of years of experience Fernow was quick to point out—and thus were essential to the attainment of "proper forest management." [15]

Yet even these technical measures would not be adopted readily without a wholesale change in Americans' conception of the powers and obligations of government, local, state, and national. With this, Fernow happily elbowed his way into the then-raging debate over the appropriate relationship between the individual citizen and governmental authority. He had no sympathy with what he conceived to be the contending parties in this issue, however, either with the "individualists" or the socialists, groups he disagreed with on intellectual and professional grounds: neither political posture meshed well with the principles that guided forestry, and that thus shaped his political philosophy.

The individualists, those for whom a Social Darwinian conception of society held great explanatory power, were misguided, Fernow declared. "It will be part of my theme," he wrote in essay, "The Providential Functions of Government with Special Reference to Natural Resources," which contains the most mature expression of his political ideology, "to point out the danger and impropriety of considering the social development of man as closely analogous to, nay, as of the same order as the biological development of plant and animal." That analogy, favored by Herbert Spencer and his American acolytes, perpetuated the notion that humanity had little control over its environment, that biology was destiny. [16]

Not so for Fernow. He deftly separated the idea of biological and social development and argued
that the latter was well within our control. After all, there were "two qualities by which the human individual differs from the brute, the head and the heart, the intellect and the soul, the reason and the emotions. . . ." And these "have had, and will in the future have still more influence upon the social development of the race." This must be so, he concluded, for "if we content ourselves to accept these [biological] forces as the only ones now at work in shaping social development, we shall fail in understanding, explaining or directing that development." [17]

No human society could evolve under these conditions, he affirmed. Progress could not "depend or . . . shape itself entirely under the working of the natural law of competition," a law the individualists championed. True, Spencer and others believed that individuals would "independently of society, develop the social instinct," and would "do so sooner and with less friction if let alone." But Fernow believed that a laissez-faire approach was by definition absurd: "It is not very clear why such a result should occur, how the free exercise of competition is to produce cooperation, which is its very antithesis." [18]

How then obtain social cooperation? Not through coercion, Fernow argued, an argument that set him apart as well from those whom he labeled as "rational socialists," those who proclaimed not the principles of laissez-faire but those of faire-marcher. Their detailed prescriptions for social improvement, their propositions "to hasten the millennium," depended on "making cooperation compulsory and reason rule supreme." Those goals, however laudable in the abstract, could only be achieved at a great social cost: the socialist alternative would only suppress "the individual as in a colony of ants," Fernow declared, "each existing only as a part of the whole." The forester could hardly accept such social regression. [19]

There was, of course, a third path to social cohesion. Standing between the individualists and socialists, those twin peaks of American political thought of the late nineteenth century, was the "true democrat, in whose creed society, the demos, stands recognized as the supreme ruler with the ideals of progressive civilization as the goal of associated effort." This figure was confronted with a tricky balancing act, negotiating between the needs of society and its individual members. As Fernow put it, the democrat must give "all liberty possible to individual activity that does not interfere with the good of society," a good that included "the moral and intellectual development and material comfort of all its members, present and future." To fulfill this required the acceptance of a new understanding of government, required a recognition that government was not an "evil," not something separate from its people, "but as a good created by [the individual] for the attainment of his highest human ideals." This was a government to which Fernow could pledge allegiance, this, he confirmed, "is the creed to which I subscribe." [20]

His subscription makes sense in more than just political ways. In granting that this was the only form of governance that could secure not only "social existence, but social progress," in affirming that this meant that government had certain "providential functions," Fernow laid the ground work for the development of a welfare state whose hand was quite visible in directing the present and future well-being of its citizens.

This overt guidance was especially necessary in terms of a society's natural resources. Of these it is not surprising that Fernow focused on the forests. This resource was particularly prone to exploitation, he noted, exploitation that was legitimate under the then-reigning economic theories. But
when the profit motive and speculative greed confronted a seemingly inexhaustible supply of timber in the United States, the end result was an environmental disaster: lumber interests razed this well-wooded land, leaving behind a landscape filled with stumps. At the mercy of the "unrestricted activity of private individual interests," Fernow concluded, the forest "is quickly exhausted, its restoration is made difficult and sometimes impossible, its function as a material resource is destroyed." No progressive nation should accept such despoilation, and its only protection lay in the "exercise of the providential functions of the state to counteract the destructive tendencies of private exploitation." [21]

In this sharply etched critique of American political culture, Bernhard Fernow was not alone. Indeed, he was but one of many government scientists—C. Hart Merriam and Frank Lester Ward among others—who argued for a dramatic rethinking of Americans' fervid commitment to unrestrained individualism. These new professionals were convinced that their academic training alone had fully prepared them both to understand the necessity for social restraint as well as to direct its evolution. That is one reason why Fernow had been so dismissive of his amateur predecessors at the Division of Forestry, Nathaniel Egleston and Franklin Hough. Why, too, he thus applauded the government of New Jersey when, in 1894, it appropriated funds for a study of the conditions of the state's forests and then entrusted this task "not to a commission of ever so respectable, intelligent and patriotic citizens . . . but to an existing bureau of technically educated men, who were equipped to do this work thoroughly and authoritatively." For Fernow and his peers, government should not be left to dilettantes. [22]

Neither should it have been left to those he called the "cheap men," to politicians. Alas for Fernow, he spent a dozen years surrounded by such cheapness, rubbing shoulders with those for whom compromise was an addiction, men whose social graces and political perspectives were equally coarse. They more than anything else had inspired his quest for a "providential government," they most of all were a daily reminder of how wide was the gap between the ideal and real forms of governance. His job was thus a constant source of frustration; indeed, he spoke of it as a "leaden anchor" that weighed him down. Each time the division's budget was slashed or other bureaucracies encroached on his already small terrain, he was pressed down farther, and his "vigor and enthusiasm" were sapped anew. Things went from bad to worse when congressional leaders periodically pressured Fernow to shut down his beloved studies of timber physics in favor of conducting constituent-pleasing weather modification research, and became worse still when each secretary of agriculture—he suffered through four of them—proved no more supportive than the next. Not surprisingly, Fernow constantly spoke of retirement from governmental service, and yet even when this came to pass in 1898 were his interests frustrated. He had hoped, even expected, that his able assistant, Charles Keffer, would replace him. Instead, Secretary James Wilson selected Gifford Pinchot, for whom Fernow held no great love. Moreover, in his letter of transmittal to Fernow's last report from the Division of Forestry, Wilson made it clear that not only was Pinchot working in "distinctly different channels" from his predecessor, but that these meet with the secretary's "full approval." Things had come full circle: Fernow, who had dealt roughly with those whom he had succeeded, now knew something of their pain. [23]

There had been a greater irony in the year before he left that accelerated his departure. In 1896, at the urging of a National Academy of Sciences Commission on National Forests, President Cleveland set aside 20 million acres of national reserves on which forestry would be in time be practiced.
Fernow should have been pleased with the president's actions, given their implicit endorsement of his professional concerns and the bright prospects they offered for finally establishing governmental management of forested lands on a large scale; these Washington's Birthday Reserves could have marked the debut of germanic forestry in the New World.

But that was not how Fernow interpreted the presidential proclamation, instead arguing that it was injudicious and perceiving it more as a repudiation than a triumph. One key to his response lay in the politics surrounding the call for a National Academy of Sciences' Commission in the first place. Particularly galling was the fact that the call had originated within the American Forestry Association at its 1895 meeting, had been brought forth by Gifford Pinchot who had had the temerity to claim that the Association, and indirectly Fernow, had failed to protect America's forested domain. Affronted, Fernow fought to rebut Pinchot's "harangue," pointing out that congressional action was forthcoming, and that the formation of such a commission might imperil the legislative process, but to no avail. The association's executive committee was charged with formulating a call for action, and in February of 1896 the secretary of the interior signed a letter requesting the National Academy to establish a commission. [24]

Fernow was no more pleased with the commission's composition than he was with its creation. Although its membership included both academic and governmental scientists, some were more professional than others; one whose academic credentials were smaller than his ambition was large, was the ubiquitous Gifford Pinchot, chosen as the commission's secretary. Then there was the chairman, Charles Sprague Sargent. He, John Muir, an unofficial member of the commission, and others demanded that the military protect the reservations and that the forests therein be forever preserved, twin blows to the very concept of foresters and forestry. Finally, there was even more personal snub: Fernow was not selected as a member of the commission. As he confided to one correspondent, "I have neither been consulted nor in any way asked to contribute my share, nor recognized in my existence as the representative of the Government of this question." Having not chosen to consult its resident expert, the government should expect little from the commission's junket tour of the national reservations during the summer of 1896. [25]

Fernow could not have been more wrong, as President Cleveland's startling announcement of 20 million acres in new reserves demonstrated. His action, based on the commission's report, dramatically upstaged Fernow's own decade-long and painstaking labor to establish a national forest system by working within the tortuous maze of congressional politics. Fernow also believed that the Cleveland reserves threatened what success he had been able to achieve. They infuriated western representatives in Congress, who were fearful that the reserves would be closed to development, touching off a legislative battle to rescind the president's action. Although the reserves were saved, and Fernow figured prominently in their salvation, the whole affair deepened his disenchantment. He felt unappreciated within the federal bureaucracy and challenged, if not outmaneuvered, within the forestry movement that he had done so much to establish. More, he now seriously doubted that a full-fledged national forest policy, complete with a centralized system of forest management, could ever develop, given in the fractured character of American politics, a doubt he readily shared with his successor, Gifford Pinchot. The government had not proved to be providential after all. [26]

Neither would Cornell University. In the summer of 1898, he resigned as division chief to become the first head of Cornell's new state-funded school of forestry, believing that his vision for the profession
could best take root in the groves of academe. That was not to be: Fernow encountered many of the same problems that had dogged his efforts in governmental service. Although the curriculum that he devised drew heavily on "the most advanced German ideas in forestry education," as did his working plan for the school's 30,000-acre demonstration forest, his budget was never large enough to sustain his ambitions. The program was also understaffed. It did not help that the Pinchot-led Bureau of Forestry lured away Cornell faculty and snapped up most of the graduating students, depleting the numbers who could work for Fernow. The chief blow, however, came in the guise of a crippling lawsuit filed against the school when it failed to produce the amount of lumber it had contracted to cut. In its wake, the state legislature withdrew the school's operating funds, thus killing the Cornell program in 1903, less than five years after its commencement. This effectively ended Fernow's career in the United States, too, for in 1907 he become the dean of a new forestry school at the University of Toronto. [27]

Cornell's fall aside, Fernow could take comfort, ironically enough, from the fact that many of the ideals he had hoped to institute at the governmental and academic levels were taking hold. In 1905 Gifford Pinchot and President Theodore Roosevelt shifted responsibility for the national forests from the Department of the Interior to the Department of Agriculture, established the U.S. Forest Service and its regulatory powers, and pumped up its budget. Fernow could take partial credit for all this, for although he had had strong doubts that this level of governmental management of forests would ever come to pass, he had been one of the first to articulate its necessity. More credit still belonged to him in terms of the growth in academic forestry; through Cornell, and later at Toronto, he had helped establish the idea of forestry within the university curriculum, an idea that advanced with the increased social need for professional foresters. Their professional status, in the end, is perhaps his most important legacy: New World forestry was no longer a laughing matter.

Notes


3. Bernhard Fernow, "Government Forestry, 1876-1898," U.S. Government Printing Office, 1899, p. 7; He added to his extraordinary publication record, so that by the time of his death in 1923 he had published more than 250 articles and bulletins, as well as several books—a productivity that might just put contemporary, computer-aided scholarship, to shame.


9. Samuel P. Hays, Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920, (Cambridge: Harvard University Press, 1959); Dupree, Science in the Federal Government; Donald Worster, American Environmentalism: The Formative Period, 1860-1910, (New York: John Wiley & Sons, Inc., 1973), p. 73, all suggest that Fernow accomplished little during his tenure as division chief, believing, as Worster has put it, that all he was able to do was keep his "desk tidy." Only Worster has read Fernow's political commentary with some sense of its implications for a new form of governance.


13. Ibid.

14. For a discussion of Americans' reactions to German forestry, see Miller, "The Prussians are Coming," Journal of Forestry (March 1991): p. 23-27, 42; Fernow "Forest Policies and Forest Management in Germany and British India," p. 239.

15. Ibid.; Fernow, "What is Forestry," p. 14-15. Fernow's emphasis on the historical validity of German methods was over-emphasized. As he recognized, European forestry, or at least his
idealization of it, had not been fully realized either in Europe generally, or in his beloved Germany. What his historical investigations revealed, in fact, was that the United States was not as far behind the Europeans as Fernow implied. Most countries had not begun a serious program of rational management until the nineteenth century, until after Napoleon. Indeed, many had only begun to buy up large tracts of land after mid-century, and some not until the 1890s. The German states were more advanced than most, but even here Fernow acknowledged that more than half of German forests were owned by private interests, and majority of these did not employ systematic and rational forestry. Germany was thus a model for American by its successes and its failures. See Fernow, "Forest Policy and Forest Management in Germany and British India," passim; Fernow, "Economic Conditions Antagonistic to Conservative Forest Policy," Proceedings AAAS, 1892, p. 330; Twight, "Bernhard Fernow, Journal of Forestry (February 1990): p. 21-25; Miller, "The Prussians are Coming," Journal of Forestry (March 1991): p. 23-27, 42.


17. Ibid.

18. Ibid., p. 255. In this set of arguments, Fernow was indebted to the insights of Frank Lester Ward, and especially to his Dynamic Sociology and Psychic Factors of Civilization, both of which he cited in his text. Fernow was thus allying himself with one of the progenitors of 20th century liberalism.


24. Gifford Pinchot, Diaries, June-December, 1895, Gifford Pinchot Papers, Library of Congress; Fernow, "The Birth of a Forest Policy;" Fernow to H.H. Chapman, Jan. 4, 1912, quoted in Rodgers, Fernow, p. 220, indicates that Fernow wrote the letter for the Secretary of Interior, but did so grudgingly, to "satisfy the parties which held with Mr. Pinchot." Fernow would later take credit for initiating the letter, and thus creating the commission; see Steen, U. S. Forest Service, p. 30-31.
