

Essay: A New Profession Takes Seed

Introduction

Following the Civil War, America experienced a period of great transition. Rapid industrialization, the growth of cities, and a sharp rise in immigration altered the face of the nation. Additionally, the completion of the first transcontinental railroad in 1869 contributed to a substantial wave of westward expansion. Tired of life in crowded cities many people rushed to buy land in the relatively unpopulated West. Most Americans of the late 19th century were so preoccupied with the development of the nation that few people considered how such drastic changes would affect the environment. Believing that forests were inexhaustible, Americans cleared millions of acres of timbered land to make room for railroads, farmland, and urban settlements. By the beginning of the 20th century a new movement had begun which helped bring attention to the destruction of U.S. forests. During the Progressive Era (roughly 1900-1920) many private citizens, unhappy with how progress had affected society and the environment, lobbied for social change through government action. Besides a desire for government intervention, progressives also believed educated professionals, trained in the applications of science, technology, and reason could apply such knowledge to solve the problems plaguing the industrial American society. Inevitably, this period of reform helped launch a new profession dedicated to the protection and management of the nation's forests.

The Warnings

Although few in number some people did warn that hasty and widespread development would hurt the environment. One of the earliest to sound the alarm, George Perkins Marsh, predicted in his 1864 book *Man and Nature* that the massive clearing of forests would permanently damage the beauty of the American landscape. Marsh's words of caution helped to spark more widespread anxiety about the effects of progress on American forests. Some experts began to challenge the widely believed perception of forest inexhaustibility and instead forecasted a timber famine if the volume of trees cut nationally continued to exceed forest growth. Scientists like Bernhard Fernow gathered data, compiled reports, and testified before Congress urging government protection of forests. Another vital leader of the early



Figure 1: Cutover and abandoned forest land in northern Michigan at the beginning of the 20th century. *Forest History Society* photo

Student Page

conservation movement, Gifford Pinchot, proposed an active solution to the problem. Convinced forests needed regulation, Pinchot embarked on a mission to prove to the American public that wise and efficient use of forests could reverse the damage and ultimately produce a balance between development and the welfare of U.S. forests. All in all, due in great part to the efforts of a small group of private citizens, by the 1890s the federal government seemed convinced that the exploitation of American woodlands demanded action.

The Government Intervenes

By 1900, the government had transferred over 1 billion acres of public land to private citizens. Impressed by the arguments of early conservationists, government officials decided to reverse this long-standing federal land policy of selling public lands for private ownership. In 1891, Congress approved the Forest Reserve Act (also called The Creative Act); the legislation gave the President the power to establish forest reserves prohibited from sale to the public. Between 1893-1897, Presidents Benjamin Harrison and Grover Cleveland declared nearly 40 million acres of land “reserved,” but it was not until the passage of the Organic Act in 1897 that the purpose of the reserves was defined. According to the law, the intention of the forest reservations was “to improve and protect the forest within the reservation, or for ... securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States.” The Organic Act provided the first policy of guidance for the management of forest reserves.

SCHOOLS OF FORESTRY	
<p><i>In the heart of the Reserve Region</i></p> <h3>Colorado School of Forestry</h3> <p>Four years' course in Theoretical and Applied Forestry leading to Degree of Forest Engineer</p> <p>Winter Term at Colorado College, Colorado Springs. Summer Term at Manitou Park, the School Reserve, 13,000 acres of pine and spruce timberland on the borders of the Pike National Forest.</p> <p>Tuition Sixty Dollars a Year</p> <p>For further particulars apply to Professor WALTER J. MORRILL Colorado Springs, Colo.</p>	<h3>Biltmore Forest School</h3> <p>Biltmore, N. C.</p> <p>Theoretical and practical instruction in all branches of applied forestry.</p> <p>The course comprises eighteen months; six twelve consecutive months of lectures and field work and six months of practical apprenticeship.</p> <p>Working fields in the Southern Appalachians, in the Lake States and in central Germany.</p> <p>Catalogue upon application.</p> <p>Dr. C. A. SCHENCK, Director</p>
<h3>ERIC FOREST SCHOOL</h3> <p>POWDER POINT, DUXBURY, MASS.</p> <p>Preparatory Course in</p>  <p>FORESTRY</p> <p>Leading to Biltmore and College Courses in the United States. Dr. B. Knapp, U. S. G. L. T. A. Director Associated with POWDER POINT SCHOOL.</p>	<h3>Harvard University</h3> <p>THE DIVISION OF FORESTRY</p> <p>Offers a two-years' graduate course leading to the degree of Master of Forestry.</p> <p>The course includes upward of six months' field instruction and practical experience in the annual operations on the Harvard Forest, Petersham, Mass.</p> <p>For further particulars address RICHARD T. FISHER, <i>Chairman</i> Cambridge, Mass.</p>

The Birth of Forestry Schools in the United States

With the purpose of forest reserves defined by the government, a need arose to train people to manage the vast tracts of public land. In the fall of 1898, Carl Alwin Schenck, a German forester recruited by George Vanderbilt to manage his extensive forest on Biltmore Estate, near Asheville, North Carolina, opened the first American school of forestry. At the two-year Biltmore Forest School (in operation between 1898 and 1913), students spent time both in the classroom and in Vanderbilt's nearby forest learning how to become foresters. Although seen as a step in

Figure 2: Advertisements for forestry schools as listed in the February 1910 issue of *American Forestry*

Student Page

the right direction, not everyone agreed that Schenck's practical approach to forestry (emphasis on fieldwork) adequately prepared individuals for a career in the field. One of the more outspoken critics, Pinchot, supported the popular progressive thinking of the time that emphasized scientific training. Believing that a theory-oriented curriculum rich in the physical sciences served as the best way to produce "experts" capable of handling the complex nature of forestry, the Pinchot family endowed \$150,000 to Yale in 1900 for the establishment of a forestry school at the university. Besides receiving instruction about preventing wildfires and preventing timber theft, the graduate program at Yale stressed a scientific management of forests that required a variety of duties such as the tracking and measuring of forest growth. By 1915, 13 colleges awarded degrees in forestry – a number that rose to 23 by the beginning of the Second World War and continued to increase throughout the 20th century. Today, 48 American universities offer specific training in forestry, including a well-rounded education to train students for the challenges associated with a forestry career. There also are 26 technical schools across the U.S. and Canada, usually offering two-year associate degrees that focus on forest technology and fieldwork.

In the Name of Service

After the passage of the Organic Act in 1897, the General Land Office (GLO) of the federal government created a forestry unit to supervise the newly established forest reserves. Originally called the Division of Forestry, foresters employed by the agency had the reputation of being lazy and unreliable since many of the early appointments were the result of political favoritism rather than merit. Dissatisfied with both the corruption present in the agency and the lack of scientific management being used, Gifford Pinchot solicited the help of his friend President Teddy Roosevelt to improve the reputation of the forestry unit. Roosevelt, a renowned conservationist (during his presidency he added 148 million acres to the already sizable forest reserves) and believer that government should work for social change, approved Pinchot's suggestion of shifting the Division of Forestry from the supervision of the Department of Interior to the Department of Agriculture. Congress also authorized the change, paving the way for the establishment of a new government sponsored forestry unit. In order to clarify its mission, Pinchot, the first chief of the agency, selected the name Forest Service because he believed public service should be the ultimate goal of foresters. Likewise, two years later, Pinchot proposed that forest reserves be called national forests to signify that the land remained available for public use. Besides the name changes, the Forest Service differed from its predecessor in other important ways. First, a forester could only gain employment in the government agency after passing comprehensive field and written service exams. Second, in addition to fighting fires, employees of the Forest Service

also mapped the national forests, protected the lands from game poachers and unlawful grazing or clearing, provided trail access, and administered cattle and sheep grazing permits. No longer viewed as incompetent, foresters of the early 20th century rightfully earned the reputation as custodians of the national forests.

Industry Conserves

Although often overlooked, in addition to the government and private citizens, industry also played a significant role in the conservation movement at the beginning of the 20th century. Mining, railroad, and lumber companies who previously thought little about clearing vast tracts of forested lands for profit, began to reevaluate their business tactics when it became clear timber was not an unlimited resource. With the guidance of foresters, industrial leaders soon came to see that conservation could be an economic asset. Initially opposed to the change in federal policy that sought to safeguard American forests, numerous private companies voluntarily eliminated wasteful lumbering practices when they realized long-term planning and efficient use of the land best served their fiscal interests. Their efforts, combined with the efforts of federal and state governments, concerned individuals, and professional foresters, eventually helped to begin the restoration of the American landscape.

Evolution of the Forest Service

The first era of the Forest Service (1905-1942), the custodial era, focused on the consolidation and protection of national forests. Shielding the nation's forests from timber thieves and preventing forest fires were high priorities during the first few decades of the 20th century. Moreover, in an attempt to ensure foresters possessed the skills necessary to manage forests, Forest Service leaders decided in the 1930s to no longer appoint employees at the professional level if they lacked formal academic training in forestry.

The second era of the Forest Service (1942-1969), commodity-production, had its roots in the Second World War. The high demand for wood during the fighting and the subsequent postwar baby boom prompted the Forest Service to shift away from its custodial approach to a policy of supplying the public with natural resources such as timber when the need arose. The postwar period also signaled a change in image for foresters working for the government. Formerly equated with riding on horseback, fighting fires, and a rugged appearance, foresters of the 1950s and 1960s



Figure 3: Typical early-day Forest Ranger in the southwest, Jim H. Sizer (shown here in 1910), who served as Ranger and Assistant Supervisor from 1909 to 1943 at Apache and Tonto National Forests. *Forest History Society* photo.

drove green pick-up trucks, wore hardhats, and inspected road construction sites and timber sales.

As time transpired the public helped shape the direction of the Forest Service once again. With more money, leisure time, and transportation options than ever before, the middle class that emerged during the years following WWII looked for new places to vacation and recreate. Rather than further restricting national forests from public use, many Americans demanded increased access to the land for camping, fishing, swimming, and other outdoor activities. Additionally, the environmental movement of the 1970s and the resulting momentum to conserve natural resources provoked the Forest Service to reconsider its policies. The third era of the Forest Service (1970-present), often referred to as the environmental era, reflected this change in thinking. Hoping to strike a balance between competing interests, the Forest Service adopted a more holistic approach to manage the forest environment. In promoting the efficient use of products from the forest while simultaneously protecting wildlife, fish, outdoor recreation, and the beauty of the American landscape, Forest Service employees aim to serve both people and the environment.

Today and Tomorrow

Today, the U.S. Forest Service employs over 30,000 people. With an increase in the amount of land to be managed throughout the century, in addition to the growing complexities of the profession, the workforce of the Forest Service gradually has increased. The people now employed by the Forest Service also differ noticeably from a few decades ago. Due in great part to the civil rights movement of the 1950s and 1960s, African Americans and women now work as professional foresters for the government with greater ease than earlier in the 20th century. Moreover, once considered a profession that required a “jack-of-all-trades,” modern forestry has become a diversified line of work that requires specialization in fields such as forest genetics, entomology, ecology, and bioengineering.

In 2005, the Forest Service will celebrate its 100th birthday. Although many changes have occurred throughout this period and it is impossible to predict the future of the agency, one matter remains certain. Regardless of the how the Forest Service transforms during the next 100 years, it will always be required to balance the needs and desires of many different kinds of forest users.

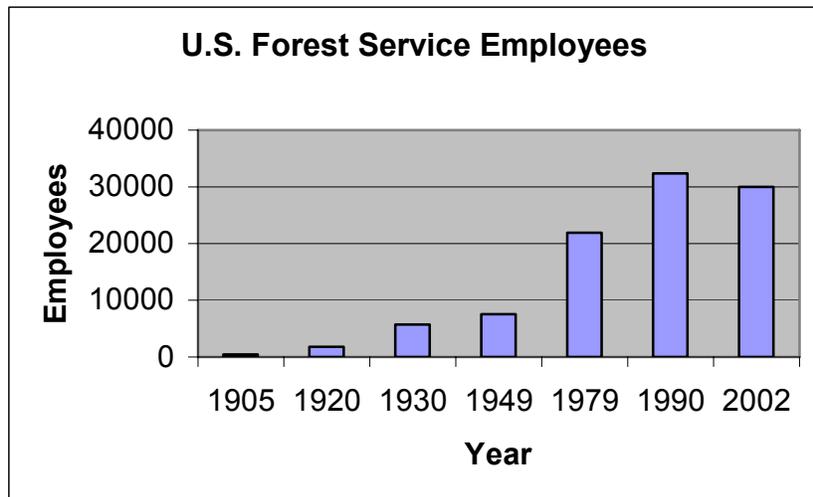


Figure 4: Employment trends of the U.S. Forest Service. Statistics obtained from *Centennial Mini-Histories of the Forest Service*, 1992, except 2002 which is an estimate derived from the U.S. Forest website.
<http://www.fs.fed.us/fsjobs/forests-service/about.html>

Not Just the Government

Even though many foresters work for the federal, state, or local government, countless other opportunities for employment also exist. Private industries, such as manufacturers of paper and wood products, often hire foresters to develop strategies that encourage the rapid growth of trees balanced with a concern for the environment. Individual forestland owners frequently employ foresters as consultants to provide advice on matters like harvesting timber and forest and wildlife management. Foresters also can find work as researchers, educators, computer programmers, geneticists, or as directors of community projects that require knowledge of forest management and good public relations skills. All in all, individuals choosing forestry for a career are sure to find a great variety of employment opportunities.

Conclusion

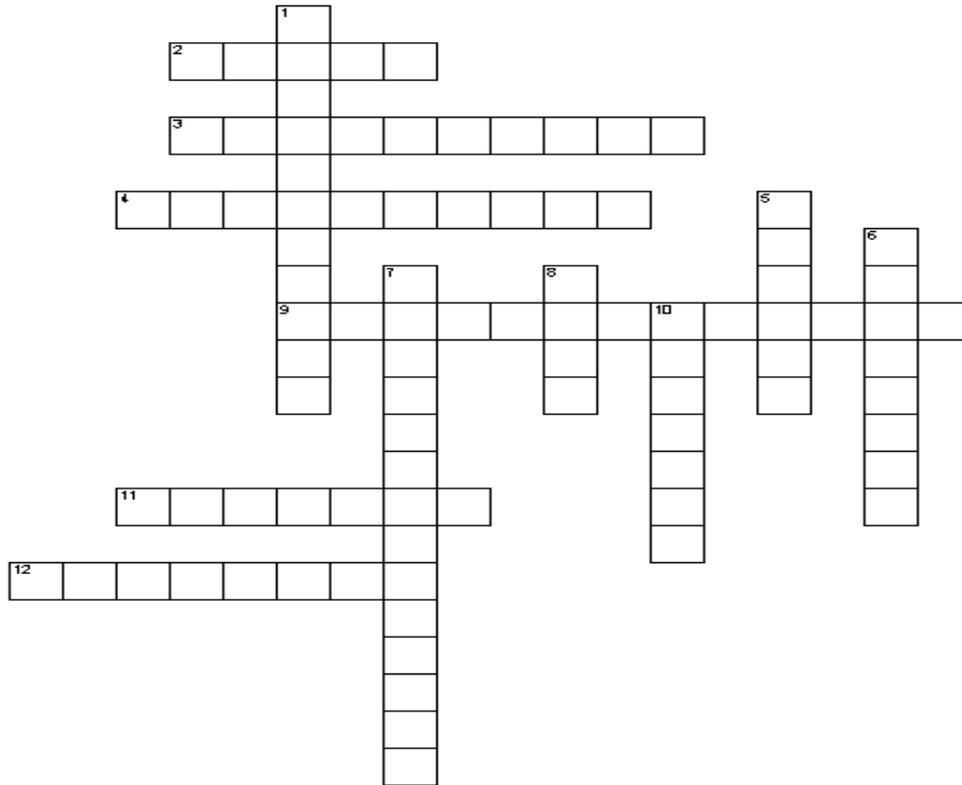
Within a short period of time forestry went from being nonexistent in the United States to a respected career option. By the turn of the 20th century many people no longer viewed natural resources as boundless and demanded that the government intervene to protect forests and wildlife species. Symbolizing the prevalent progressive thought of the era, early conservationists like Gifford Pinchot and Bernhard Fernow, identified the problem at hand and recommended scientific management as the solution. Universities soon began to offer specific

Student Page

curricula to train foresters and the government responded to public pressure by passing legislation to establish national forests and creating the U.S. Forest Service to manage the vast expanse of land. Thanks to the actions of concerned citizens, private landowners, the forest industry, and government officials, efforts have been made to provide the needed supply of timber while still protecting wildlife and the beauty of the forested landscape.

Worksheet 1: Keyword Puzzle

Read the Essay "A New Profession Takes Seed" to complete the puzzle below.



Across

2. Author of 1864 book *Man and Nature* that became a spark for public concern regarding the future of U.S. forests.
3. Legislation that provided the first policy guidance for management of national forests.
4. Type of forestry that reflected Progressive values of efficient management and technical training to solve problems brought about by industrialization.
9. During the latter half of the 19th century many people believed forests were _____.
11. First Chief Forester of the redefined U.S. Forest Service and famous for his "call to action."
12. Now called national forests this was the original name given to land owned by the government and designated for public use.

Down

1. Era at the beginning of the 20th century where private citizens lobbied for social change either at the hands of the government or professional "experts."
5. Early conservationists predicted that the reckless destruction of trees eventually would result in a timber _____.
6. Founded in 1898 this was the first forestry school in America.
7. President known for his significant contributions to the conservation movement.
8. First American university to offer a graduate program in forestry (1900).
10. Formerly called the Division of Forestry this government agency changed its name to the U.S. Forest _____ to symbolize its mission to benefit society.

Worksheet 2: Essay Analysis

Read the essay "A New Profession Takes Seed" to answer the questions below.

1. Why was there a need for a profession of forestry at the beginning of the 20th century?
2. How has the Forest Service changed from its beginning in 1905 to present-day?
3. When the government decided to create forest reserves in 1891 what needed to be done to ensure this land was managed properly?
4. Describe the changes Gifford Pinchot made to the government agency created to manage national forests.
5. Based on figure 4 during what period of time did the biggest increase in employees of the Forest Service occur? Why do you think this was the case?
6. What were some of the actions early conservationists took to alert the public to the devastating effects of development on the environment?
7. What role did industry play in the prevention of the timber famine predicted by early conservationists?
8. Besides working for The U.S. Forest Service, or some other government agency, what are some other employment opportunities available for trained foresters?

Worksheet 3: Oral History

1. Based on the essay “A New Profession Takes Seed” and your class discussions so far list four things you know about early forestry education and employment opportunities in the first column of the table below marked “What I Know.”
2. Next, list four things you don’t yet know about the early forest profession but hope to learn after reading the oral history excerpts in the second column marked “What I Want to Know.”
3. In groups of 2-3 read aloud the stories of **Henry E. Clepper**, **Inman F. (Cap) Eldredge**, and **Rudolph L. Fromme**. Use a dictionary to help decipher any unfamiliar words. When you have completed the passages list four things you learned from the oral histories in the last column marked “What I Learned.”

What I KNOW	What I WANT to Know	What I LEARNED

4. Remaining in your groups answer the following five questions (on the back of this paper):
 - a. In what state was each of the three foresters born? Locate each state on a map of the U.S.
 - b. List three questions not asked by the interviewer that you believe would provide relevant information about the early history of forestry.
 - c. What are two similarities between the experiences of the three foresters? What are two differences?
 - d. Look up the definition of the word *pioneer*. Would you consider these 3 men pioneers? Provide evidence to support your opinion.
 - e. What conclusions can you draw based on your reading of these oral histories?

Oral History #1 Henry E. Clepper

Henry E. Clepper was interviewed by Elwood R. Maunder of the Forest History Society in 1975. Born in Lancaster, Pennsylvania 1901, Clepper graduated from Pennsylvania State Forest Academy at Mont Alto in 1921 with the degree of Bachelor of Forestry. He soon left his post in state government to assume the position of associate editor of *The Journal of Forestry*. In 1936, Clepper moved to Washington, D.C. to become an information specialist in the United States Forest Service.

* Bracketed information has been added by the editor for clarity. Ellipses (...) indicate that text has been omitted.

Interviewer: Would you discuss what you remember about the academy and people at Mont Alto?

Clepper: The history of the institution is an interesting one as regards forestry education. One has to introduce its history by mentioning one of the eminent men of America, Dr. Joseph Trimball Rothrock, who in 1886 helped establish the Pennsylvania Forestry Association, helped establish the Department of Forestry in Pennsylvania, and was the first Commissioner of Forestry. After he saw the commonwealth acquire nearly a million acres of state forests and found there was no institution in the state that would be willing to prepare young men for careers as foresters to manage state forests, he asked the University of Pennsylvania to begin a curriculum in forestry. He was turned down by the University of Pennsylvania as well as by the Pennsylvania State College, so in 1903 the state legislature, at his request, adopted a law providing for what was first called a school of forest wardens but became almost immediately known as the Pennsylvania State Forest Academy.

Interviewer: Are young men today [1975] who seek the same kind of careers afforded as much opportunity to get an academy-like training in forestry as was true then? Or have the professional schools tended to foreclose that possibility to a great extent?

Clepper: My friends in professional education have taken considerable pride, which is merited, in the development of curriculums that are broader, containing more cultural subjects, based more profoundly on the humanities than was the case when I went to school. Back in the early years of forestry education in America—roughly the period 1900 to 1920—the emphasis was on practical fieldwork and technical knowledge. They were technical schools in the highest sense. Many a young man graduated from forestry school in those days without having studied much English and without having done any required reading of the classics, but he had a thorough knowledge of how to estimate timber, erect fire towers, construct roads and trails, and manage field crews. Perhaps that was the kind of training that was most needed for the period. The curriculums today have much less of the so-called hardware courses that the forestry student was expected to complete years ago. For example, one of the courses we had to pass was in truck and automobile mechanics. Why? Simply because in those days roads in the mountains were primitive and paved highways were few. Skilled mechanics and garages were in towns and cities. A forester in charge of a state forest had equipment, which in those days frequently broke down, so that he had to know something about the repair of it. Even though he may not make the repair himself, he had to be able to direct others in what to do. This is probably a minor matter, and I don't think any dean of forestry today would, for a moment think of having truck and automobile mechanics even as an elective course.

Oral History #2 Inman F. (Cap) Eldredge

Inman F. (Cap) Eldredge was interviewed by Elwood R. Maunder of the Forest History Society in 1959. Born in South Carolina in 1882, Eldredge went to the Biltmore Forest School to receive training on how to become a forester. Eldredge worked for both The U.S. Forest Service and Superior Pine Products Company in Georgia.

* Bracketed information has been added by the editor for clarity. Ellipses (...) indicate that text has been omitted.

Interviewer: Do you remember, Cap, what your first knowledge of Biltmore was based on? Was it an advertisement for the school, or a circular they sent out?

Eldredge: I think it was probably was a report on some speech that Dr. Schenck had made, which carried with it the location of his school, and that was in 1904. The school then was about six or eight years old. It was very small; I think our class had about fourteen or fifteen men. We all were required to have horses, which appealed to me greatly. Schenck himself said it was based on the master schools that were prevalent in Germany, in which a master took a number of young men with him, and they could watch him, hear him lecture, ride at his heels, and pick up forestry in that manner....

Interviewer: Who do you remember among your classmates?

Eldredge: There was E.D. Bronson for one, known as "Tod" Bronson for some reason – I think because he was a very poor horseman and there was at the time a jockey Tod somebody, so they called him Tod because he wasn't a horseman. He was from New York and was afterwards Chief Inspector in the Forest Service....

Interviewer: Do you know of anybody in private forestry at the time?

Eldredge: In 1905? I don't remember now. There were probably one or two scattered about somewhere, but very, very few.

Interviewer: From your description of the men who were in school at the time you were, the school seemed to attract men who might have been drawn to it by this camaraderie that they'd heard about.

Eldredge: Well, that could have been, or it could have been that they were young chaps like I was. I didn't tell you the full history of why I entered forestry. Nobody knew what it was except us youngsters starting in. After my mother pointed out that forestry was a new thing and might be attractive, I started to read up on it and I read in some magazine or other on an account of a forest ranger mounted on a white stallion with a huge black hat and riding boots and spurs six inches long, and his horse was jumping a log. Underneath it said, "This is a forest ranger." Well, on the strength of that I said, "That's what I want – to ride a white stallion with a big hat and spurs and jump logs." As far as I knew, that's all a forester did.

Oral History #3 Rudolph L. Fromme

Rudolph L. Fromme was interviewed by Elwood R. Maunder of the Forest History Society in 1967. Mr. Fromme was born in Richmond, Indiana in 1882. He received a bachelor's degree from Ohio State University in 1905 and a master's degree in forestry from Yale in 1906. He worked for the U.S. Forest Service for 37 years in a total of 8 national forests.

* Bracketed information has been added by the editor for clarity. Ellipses (...) indicate that text has been omitted.

Interviewer: What did you do when you graduated from Yale?

Fromme: My first assignment was in the office of the U.S. Forest Service to get combed over by Gifford Pinchot and Overton W. Price on my qualifications. Then I got shipped to Northern Idaho to the Old Priest River Forest Preserve. In about a year it was changed to Kaniksu National Forest. ...

Interviewer: Can you give me a little detail of what your life was like in that first year in the Forest Service? What jobs did you do?

Fromme: I went up to Priest Lake as soon as I heard that McConnell [Forest Supervisor] was up there that summer. I arrived in 1906 and I introduced myself. He said, "Oh, you're one of those technical guys. I don't know of any technical work around here but maybe you can make up some. Anyway we can use you fighting fires because we are always having fires in the summer. You can live right here in this cabin with me if you'd like to. There's a double bunk there down on the floor because I don't believe in climbing up to get in the bed, I just plop down. You can sleep in there and when a fire breaks out we'll take you on it. Of course, if you want to study some of the trees around here or something like that or maybe return some of these General Land Office lines, why you could be doing that. Sam Davis is the District Ranger here. He lives right up there by the hotel and you can work for him if you want to." I said, "I'll do anything you can spare until I get the experience."

About two weeks later McConnell said, "There's a fire over on the branch of Priest River."... McConnell didn't have any telephone service but he'd gotten word from somebody who'd come up from the town of Priest River. Everything was by word of mouth. We had quite a time getting up to Granite Creek. There was a trail about half way and the rest of it was fighting brush and following the creek. When we got over on the other side, it was a little better.... We came across the remains of a fire. It was still burning inside but the fire line seemed to be pretty good. We went around the thing and it was ten acres in size and it probably was a lightning fire but there was nobody there. [McConnell] said, "I've got word from the General Land Office at Couer d'Alene that some guys have been cutting timber on the national forest land up there and selling it to a pole company in Newport, and they tow it down the river in a boat. We've got to look into it."... Well, McConnell and Dave McKenzie went on down to Newport then on the train ... to where the pole cutting was being done. When they got down there, McConnell saw the poles piled up along the shore of the river and he thought a boat would be here to take them away pretty soon. He said, "I don't need to stay, Dave, you've got your good six-shooter. You guard the poles tonight and I'll send Fromme down in the morning..." Dave said, "I'll guard the poles today because you've got to make a report on these areas that have been cut. See whether they're really the legitimate cutting for homesteads or whether it looks like timber thievery."

Worksheet 4: Help Wanted!

With a partner, use what you have learned about the forestry profession, in addition to the clues provided by your teacher, to compose two “Help Wanted” advertisements for a newspaper. Your second ad (2002) will run in a local newspaper for three weeks, with the exception of Sundays. With the cost per word, per day being 5 cents and your budget set at \$60.00 your challenge is to create an accurate advertisement for a modern forester without exceeding your spending limit. When you have completed this task think about what a forester might do in the year 2020. On the back of this paper list three possible responsibilities of future foresters.

Forester	1935
Job description:	
Skills needed:	

Forester	2002
Job description:	
Skills needed:	

Early Foresters

Clue #1

UNITED STATES CIVIL SERVICE COMMISSION DEPARTMENT OF
AGRICULTURE
FOREST RANGER EXAMINATION
OCTOBER, 1925

GENERAL

A good 1,100-pound saddle horse doing average work requires _____ pounds of oats per day.

An 800-pound pack mule will in an emergency, without injury, carry _____ pounds for 5 miles over trails with slopes not exceeding 20 per cent.

FIRE

As a ranger you find a fire burning in the woods in old timber with little undergrowth, but considerable leaves and duff and some grass. What tool would you prefer to put it out with, provided only one were allowed? _____

FORESTRY

Of the following species, check the one which grows readily on hillsides or flats away from streams or wet places: _____ Cottonwood _____ Bald cypress _____ Pine _____ Willow.

WOOD

The most durable fence posts are made from _____ pine, _____ oak, _____ cedar, _____ aspen.

LUMBERING

A tree which has the following dimensions -- small end, least diameter 8.2 inches, greatest 9.4 inches; large end, least diameter 10.2 inches, greatest 11.6 inches -- should be scaled as a _____ -inch log.

GRAZING

A lamb going onto range three weeks after lambing should gain _____ pounds in 60 days on good open grass and weed range.

LANDS

A field 10 chains wide and 80 chains long contains _____ acres.
For access to the complete exam please see:
http://www.lib.duke.edu/forest/Research/usfscoll/people/Ranger_Life/ranger25.html

Clue #2

The 1938 *New Dictionary* defined forestry as "The art or science of forming or cultivating trees." The 1911 *Concise Oxford Dictionary of Current English* defined forester as "An officer in charge of a forest, or growing timber."

Clue #3

Forest Rangers' Song

When we rangers ride the trail
In sunshine, wind or snow or hail
We're always ready
We're true and steady.
There's a friendly laugh, a joke,
We're cheery until we see a smoke,
And then we'll fight, sir,
To get it right, sir.
We never leave a fire till no
spark is to be seen;
Our job's to guard the timber,
keep the forest green.

chorus:

We're all pals together,
Comrades, birds of a feather
Rootin' pals, tootin' pals,
Ridin' pals, fightin' pals.
In rain or sunshine.
Pals! Say there brother,
Pull for each other --
Always play the game, fight the
flame
For we all belong to the Forest
Rangers
Man to man.

-Service Bulletin, vol. 16, no.
23, June 6, 1932

Clue #4



Walter Field, assistant forester (right) and Chris Hansen, one of the marking crew, measuring the diameters of trees and calculating the volume of the stand, in order to determine which trees there shall be cut. [Weyerhaeuser Sales Co. photo] *Forest History Society*

Modern Foresters

Clue #1

Working Conditions for Foresters

Although some of the work is solitary, foresters and conservation scientists also deal regularly with landowners, loggers, forestry technicians and aides, farmers, ranchers, government officials, special interest groups, and the public in general. Some foresters and conservation scientists work regular hours in offices or labs. Others may split their time between field work and office work. The work can be physically demanding. Some foresters and conservation scientists work outdoors in all types of weather, sometimes in isolated areas. Other foresters may need to walk long distances through densely wooded land to carry out their work. Foresters also may work long hours fighting fires.

Tools

Foresters use a number of tools to perform their jobs. Clinometers measure the height, diameter tapes measure the diameter, and increment borers and bark gauges measure the growth of trees so that timber volumes can be computed and growth rates estimated. Photogrammetry and remote sensing (aerial photographs and other imagery taken from airplanes and satellites) often are used for mapping large forest areas and for detecting widespread trends of forest and land use. Computers are used extensively, both in the office and in the field.

~Information obtained from The Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2002-03 Edition. [accessed 11 June 2002] <<http://stats.bls.gov/oco/home.htm>>



Clue #2

Forester Lea Dotson examining new growth on a pine tree. Photo from *The USDA Forest Service—The First Century*, Gerald W. Williams, Washington, D.C.:USDA Forest Service, July 2000.

Clue #3

The Dictionary of Forestry (Helms, John A. ed. Bethesda: Society of American Foresters, 1998) defines forestry as “The profession embracing the science, art, and practice of creating, managing, using, and conserving forests and associated resources for human benefit and in a sustainable manner to meet desired goals, needs, and values.”

Clue #4

Quick Forestry Facts

- Greg Smith, former director of science and education for the Society of American Foresters (SAF) cites 5 traditional management uses of the forest:

1. timber
2. water
3. wildlife
4. recreation
5. grazing

- Smith also made the following declaration:

“In the past, timber received most of the attention. A few years ago, there was a shift toward considering integrated uses of the forest. ...Foresters now look at managing for the whole property rather than harvesting timber at the expense of degrading other resources.”

- Even though modern foresters often ask scientists like botanists and biologists to help them identify and protect endangered plants and animals, they must have a strong background in science so they can understand and analyze the complex forest ecosystem.

- In the past, forestry was characterized by a small number of jobs (“jack-of-all-trades”), but the profession has become quite specialized. The following are a few of the many possible careers in the forestry profession:

1. Forest hydrology
2. Forest recreation and wildlife
3. Forest economics
4. Soil science
5. Bioengineering

- Foresters can perform a variety of tasks, for example:

1. Research the various aspects of forestry
2. Consult government or industry about forest issues
3. Analyze how environment affects growth of trees and plants
4. Protect forests from fires and find ways to promote growth

~*The Complete Guide To Environmental Careers in the 21st Century*, The Environmental Careers Organization, 1999, Island Press, Washington, D.C.

Worksheet 5: Tracking the History of the Forestry *Profession*

Directions: Use the handout Forestry Follows the Professional Path to complete the following timeline. For the section labeled “profession,” use the **hints** on the handout to describe in 1-2 sentences how each action helped to make forestry a profession.

1899

Year:
Action:
Profession:

2002

Forestry Follows the Professional Path

During the Progressive Era, many people complained about government inefficiency. Impatient with the sometime slow response of government officials to the problems of society, progressives believed individual “experts” could promote change that would better society. Regarding proper training as crucial to success, progressive thought sparked a wave of professionalism. Inspired by such optimistic thinking, influential doctors and lawyers advocated stricter standards in their line of work during the early 20th century in an effort to distinguish themselves from other forms of employment and to convince private citizens that they possessed the skills necessary to combat the ills of an industrial society. Besides requiring more education and training, law and medicine also formed organizations to monitor the performance and behavior of those people choosing to practice the profession.

For over 100 years foresters have attempted to demonstrate how their work constitutes a profession. Similar to other types of employment like medicine and law, forestry has a set of standards in place to define the field and establish credibility. Below are examples of some of the steps taken by foresters to improve their line of work and become a recognized profession during the previous century.

1. In 1900 Gifford Pinchot founded The Society of American Foresters (SAF).

Hint: What is the purpose of an organization affiliated with a specific type of employment?

2. In 1935 the first accreditation of forestry school programs took place.

Hint: If you are unsure of the meaning of **accreditation** use a dictionary to find its meaning.

3. In 1948 the SAF adopted its first written code of ethics.

Hint: Why do organizations create rules to guide the behavior and actions of its members?

4. In 1955 a handbook for foresters was published. Over 200 specialists contributed to the reference book that included techniques, formulas, and tables regarding forest management, forest recreation, and forest-wildlife management.

Hint: How could a reference guide help both the public image of foresters and their overall quality of work?

5. In 1981 the SAF awarded the first certificates for its newly created Continuing Forestry Education program.

Hint: Why would an organization encourage its members to take additional courses even if they already hold a college degree in forestry?

6. In 1994 the SAF created the Certified Forester Program to establish standards for certification in the field of forestry.

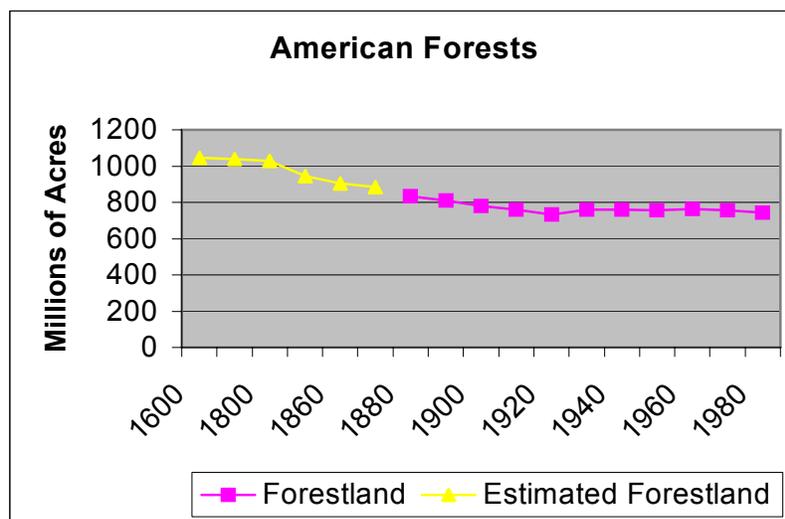
Hint: Why would an organization want its members to have specific credentials?

ASSESSMENT 2: TEST

1. Describe how progressive thinking of the early 20th century influenced the curriculum in the initial forestry schools like Yale.
2. Provide three examples of how the government intervened to protect American forests during the late 19th century and early 20th century.
3. Why did President Teddy Roosevelt agree to help Gifford Pinchot improve the government agency responsible for the management of national forests?
4. Explain how the creation of the U.S. Forest Service reflected the progressive idealism of the era.
5. What were some of the reasons that the government decided to take measures to protect American forests?
6. What is the relationship between scientific management of forests and the Progressive Era?
7. Explain the significance of the Organic Act.

Use the graph located at the bottom of this page to answer question 8:

8. Did the progressives who advocated a change in federal land policy have a legitimate basis for concern? (Use the graph to support your conclusion).



*Statistics obtained from *American Forests: A History of Resiliency and Recovery*. Durham: The Forest History Society, 1992.

ASSESSMENT 3: IN YOUR OWN WORDS

Write an essay analyzing how the government acts to meet the needs and wants of its citizens.

The Government Lends a Helping Hand

Use the notes below to help you write a cohesive essay.

Paragraph 1: Take a stance.

Do you believe the government should have interceded to protect American forests or would it have been better for private citizens to manage the problem without any help from elected officials? Provide at least 2 reasons for your choice.

Body: Provide evidence to support your argument.

Why did the government feel it was necessary to establish national forests? What specific actions did the government take to accomplish this goal? If you were a farmer in search of land during the late 19th century how would you have felt about the government's decision to protect millions of acres of forested land? How would you have reacted if you supported the Progressive movement at the beginning of the 20th century? Speculate as to what you believe would have happened to American forests if the government had decided not to act.

Last Paragraph: Conclusion

Restate your stance. Summarize your proof. State the long-term consequences of your argument on society.