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MANAGEMENT TECHNOLOGY OF THE U.S. FOREST SERVICE
AN ORAL HISTORY WITH

Gordon D. Fox

Walter L. Graves

Chester A. Shields

Robert H. Torheim

Forest History Society, 1980

The following series of interviews were conducted by the Forest History Society under contract to the U.S. Forest Service, Management Sciences Division. The four interviews trace the development of management sciences in the U.S. Forest Service. The interview with Robert Torheim was subcontracted by the Forest History Society to the Regional Oral History Office, University of California at Berkeley.

It is expected that this volume is the first of a continuing series of interviews on management sciences in the U.S. Forest Service.

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INTRODUCTION

The United States Forest Service has long enjoyed a deserved reputation for excellence and innovation in management techniques. From its creation to the present, it has experimented with new techniques in an attempt to administer its personnel at peak efficiency and to achieve maximum results from its limited staff.

Born in controversy, the Forest Service has frequently been on the defensive. It has been continuously required to justify itself and its policies to an often skeptical public. This insecurity has caused the Service to run a perhaps more efficient agency than any other branch of the government.

This drive for efficiency only partly explains why the Forest Service became a model of management innovation for government bureaus and oftentimes even private industry. To understand this phenomenon, we must look at the historical context of the agency's birth and the individuals who helped it mature.

The Forest Service was being formed at the turn of the century, concurrently with the rise of professional forestry in the United States. Trained, scientifically oriented foresters were attempting to explain their values to a nation unaware of a need for them. To argue their case, foresters had to claim special credentials that separated them from their self-taught, trained-on-the-job predecessors. They did this by claiming expertise and wearing the mantle of professionalism.

"Professional" was a concept undergoing change. It was being used more and connoted an expert with special knowledge and a sense of ethics. Much of the growth of professionalism occurred because universities had begun to give degrees in fields where previously none existed. This caused a social revolution with mechanics and technicians educated in the "school of hard knocks" giving way to the new breed of

university education "professionals."

Professionalization affected all fields but none as dramatically as engineering and administration. The movement toward professionalism in both of these areas had one central character, Frederick Winslow Taylor, early president of the American Association of Mechanical Engineers and the so-called "father of management science." Its driving thrust was closely allied to mechanical engineering and its ideal of a perfectly running machine.

Forest Service Decentralization:

A Climate of Innovation

In the late nineteenth century, as Taylor was formulating his ideas, there was a climate of excitement and optimism. Political and social activism had reached new heights of popularity and fervor. Women's groups were seeking "social purity" and the right to vote, Americans were flexing their muscles in international affairs, and William James was teaching the truly American philosophy of "pragmatism." It was apparent that the new century would bring new consciousness.

An important part of this consciousness was the growing realization that natural resources were finite and were being consumed at a dangerous and negligent rate. Conservation had become an issue of importance.

In March 1886, professional forester Bernhard E. Fernow was appointed chief of the Division of Forestry of the Department of Agriculture. Congress had seen the need for a better knowledge of timber resources ten years earlier, but Fernow's appointment demonstrated the recognition of and the need for the science of professional forestry.

At the end of his first year, Fernow, in his Annual Report to the Secretary of Agriculture, presented an administrative plan for a forest reserve system. He proposed three territorial divisions (Pacific Coast, Rocky Mountains, and all other areas), each headed by

an "inspector," who was to be in actual administrative charge. Below each inspector there were local inspectors and rangers who were each in charge of a "reserve." Fernow planned to headquarter the three territorial inspectors in Washington D.C., and assign them to inspect their divisions "at least once a year."

In July 1892, a congressional committee reported on the so-called "Paddock Bill" and quoted from Fernow's 1886 annual report. The report called for the transfer of the forest reserves, created only a year earlier, from the Department of the Interior to the Department of Agriculture. "Only a fully developed and separate system of management and administration," the report argued, "carried on by competent men under expert advice, can accomplish the objects of a rational forest policy."

In 1896, the National Academy of Sciences appointed a commission to study the forest reserves. Its report influenced President Cleveland to proclaim, on Washington's birthday in 1897, twenty-one million acres of forestland. On May 1 of that year, the commission recommended a general plan based upon Fernow's earlier system but with more decentralized administration. Instead of locating the inspectors in Washington, the NASC design placed them at regional headquarters. This plan would have transferred much of the administrative authority to the field. The number of regions was extended to four: California and Nevada; Oregon and Washington; the Southwest; and Wyoming, Montana, and Idaho. In June, Congress established policies under which the forest reserves were to be administered. The NASC plan was not incorporated into the act, and administrative organization was left to the discretion of the secretary of the interior.

President McKinley's secretary of the interior, Cornelius Bliss, asked Gifford Pinchot to make a study of the reserves. As confidential forest agent, Pinchot was specifically instructed to design an organization to administer the reserves. He had always believed, as Fernow had before him, that forestland administration was unique among government responsibilities. The natural, economic, and social variance among regions dictated a decentralized system.

Pinchot submitted his "Report on Examination of the Forest Reserves," in March 1898 to the secretary of the interior. The report called for the creation of a "Forest Service" of technically trained and competent personnel. His proposed administration followed the NASC plan but put even more emphasis on decentralization. There was to be an "Administrative Force" in Washington, D.C., composed of a "chief forester" and an assistant "inspector of forests." Fieldwork would be under an "Executive Force" of the seven "forest rangers" assigned to specific forest reserves. The rangers would be assisted by twenty "forest guards" and 165 part-time "fire watchers." Following the submission of the report, Pinchot severed official connections with Interior and succeeded Fernow as chief of the Division of Forestry in the Department of Agriculture.

The "Division of Forestry" was changed to the "Bureau of Forestry" in 1901. That same year the secretary of the interior published in his annual report, "Memorandum Regarding Government of Forest Reserves," which was probably supplied by Pinchot. Hitchcock sent the report on to Commissioner of the General Land Office Binger Hermann, with orders to put the plan into effect. Hitchcock stated that it outlined "the principles and practice which I have concluded shall govern the administration of the National Forest Reserves."

The report called for several elements of decentralization. Each forest reserve was to be dealt with independently. "The present system of uniform rules for diverse conditions," the report warned, "is simply destructive." Administrative emphasis was to be placed on fieldwork rather than on "the basis of papers and reports from the office point of view." It recommended closer contact between field and office and removal of unnecessary steps. This was to be facilitated by the creation of the Office of Superintendent, which would gradually be phased out in favor of "inspectors familiar with the woods." "Local questions," it emphasized, "should be decided on local grounds and on their own merits in each separate case."

Pinchot and his assistants remained dissatisfied with Interior's management of the reserves. They bemoaned the "deadening effect of remote control from Washington, the lack of adjustment to local conditions," and other disfunctions of centralization. In anticipation of the transfer of the forest reserves from Interior to Agriculture, they began to design a new organizational system that would operate more efficiently.

A draft memorandum proposing a decentralized system was submitted to Pinchot in January 1905 by Frederick E. Olmsted and Herbert A. Smith. Titled "Suggestions for the Administration of the National Forest Reserves from Two Standpoints, (1) Future Ideal Administration; (2) The Best Administration Possible Under Existing Conditions," it reiterated Pinchot's earlier arguments for decentralization. Part I provided for a number of "district forest offices" to be located at key points in the West. The district offices were to be headed by "forest superintendents," who each had "direct administrative control of a group of reserves."

Part II covered the placement of "forest inspectors" at "central points in the West." The inspectors were described as "the most important field officers and upon them depends, very largely, the success of the administration." Indeed in the envisioned decentralized organization, the inspectors served as the vital link between the almost administratively autonomous districts and the Washington Office. The inspectors were to act as evaluators and instructors with "all local administrative authority possible under existing conditions." The position of forest inspector was planned to gradually grow into that of forest superintendent.

On February 1, 1905 the forest reserves were transferred to the Department of Agriculture. The new Forest Service operated under the organization inherited from Interior, while attempting to create a system that would best serve its particular, and often unique, needs. Service Order No. 82, issued in July, instructed all forest officers to "begin keeping a file of notes for a revised and improved edition of the 'Use Book.'"

After much internal discussion, Service Order No. 96 called for a "Section of Inspection" to be established in Pinchot's office. These inspectors were to facilitate communications between Pinchot and field personnel. They were not to give orders but were to "render themselves useful on the ground by consultation with the men whose work they inspect." Secretary Wilson approved the recommendation on February 26, 1906.

A year later the field organization under the supervision of district inspectors was described under Service Order No. 125: District 1--Montana, northern Idaho, and northern Wyoming, with headquarters at Missoula. District 2--Colorado, southern Wyoming, a

bit of Montana, South Dakota, Nebraska, and Kansas, with headquarters at Denver. District 3--Arizona, New Mexico, and Oklahoma, with headquarters at Albuquerque. District 4--Utah, western Wyoming, southern Idaho, and eastern Nevada, headquarters at Salt Lake City. District 5--California and western Nevada, headquarters at San Francisco. District 6--Oregon, Washington, and Alaska, headquarters at Portland. This plan was affirmed in Pinchot's 1908 annual report, with District 4 headquarters changed from Salt Lake City to Ogden.

During the years 1907 and 1908, Pinchot sought assistance from the New York firm of Gunn and Richards, organizational consultants. The use of outside management consultants was to become a tradition in the Forest Service. In later years the Service utilized to great advantage the objective abilities of consultants to study organizational needs.

In the fall of 1908, decentralization became a reality. Chief Forester Pinchot sent a personal letter to each forest supervisor, in which he stated:

Under the District organization, all business now transacted with the Washington Office will be transacted with the District Office. All correspondence, reports and papers which the Use Book or subsequent instructions that provide that you should send to the Forester, will hereafter be sent to the District Office, from whose officers you will receive your instructions.

Emphasizing the advantages of decentralization, Pinchot added that "it will unquestionably increase the spirit and efficiency of the whole Service." He also listed the six district foresters he had chosen to head the now powerful district offices.

The letters promised to send a "Manual of Procedure," which prescribed the routine under which business would be transacted with the district offices to the forest supervisors. The manual gave an

official outline of the new operating organization and detailed procedures to be followed in the conduct of official business.

Decentralization has continued to be the Forest Service's governing management technique. It has become even stronger, despite the introduction of such centralizing forces as the computer center at Ft. Collins, Colorado. Pinchot's plan was unique and imaginative. As Earl Loveridge put it:

Pinchot's decentralization is one of those remarkable instances of social experiment based on a consciously-thought-out principle of action. Remarkable, too, that the principle should have been developed at a time when even the term "management" as we know it today had not yet been coined; at a time antedating the first management leaders such as Taylor, with his teachings beginning in the publication of his first book in 1911.

The climate within the Forest Service was one of experimentation. In the following interviews, it can be seen that the scientific principles of problem identification, research and investigation, and solution and recommendation, have been the operating philosophy of Forest Service management technology. Change has never been feared, but complacency has. "There is a tendency sometimes to think of things as they used to be and not be realistic." Interviewee Fox explains: "One has to meet today's situations, today's problems, and you've got to make adjustments to do that."

The Modern Period: The Interviews

Gordon Fox was restating a principle of management science. Intuitive and historical methods are not to be accepted but a cognitive system--a combination of the analytical, behavioral and social sciences--can provide a realistic evaluation of "today's situations."

Shortly following Taylor's publication of Principles of Scientific Management, the Forest Service had its own Taylorite in the person of Roy Headly. Headly, as chief of the Division of Operations, was very innovative and introduced Taylor's ideas to the Service's management. He also brought Earl Loveridge into the Service.

In the 1930s, management fell under the team of Loveridge and Chief of Personnel Peter Keplinger. Gordon Fox describes Loveridge as a "doer" and Keplinger as a "thinker"; they balanced each other and were all the more effective. Loveridge spent much time in the field and experimented with applications of Taylor's "work simplification." He correlated a system of base workload analyses which allowed for the allotment of funds for each administrative level. Keplinger used correspondence courses to train field personnel and expand their expertise. Especially innovative was a course he began in administrative science, which gave foresters expected to act as administrators some formal background. He also began a program at American University under Arthur Flemming (who later became secretary of health, education, and welfare) to grant masters degrees in public administration to foresters. Fox was one of the first two foresters to complete this course.

In 1934, Earle Clapp submitted a report titled, "Chief's Office Reorganization," arguing that the administrative organization needed to be updated. "One of the results of this long outgrown organization," he wrote, "has been a more or less general tendency to condemn or actively to oppose activities which do not bear directly on national forest problems. It has been reflected in efforts to prevent the use of funds for other work." He proposed that staff, budget, and wages be increased and, more importantly, that administration be centralized. Counter to Forest Service tradition, Clapp felt that conditions required that

closely related types of forest work be brought together into "relatively few large groups," with one man delegated to direct each group. His recommendation for a larger Washington Office staff, considered heretical by Pinchot's followers, was to become more and more of a reality, as the Service's problems and duties became more complex. Rather than investing more responsibility in a single man, however, power continued to be dispersed.

Following the tragic death of Chief Forester Robert Y. Stuart in 1933, the Forest Service reorganized so as to alleviate the pressures on any one man. The number of assistant chiefs was expanded and Loveridge was put in charge of Administration. This new administrative layer supported the chief across the board and thus reduced his work load.

After the 1938 reorganization, the Forest Service contracted with Henry Farquhar to study the organization of the Washington Office. Farquhar was the first outside consultant hired since Pinchot had used the firm of Gunn and Richards three decades earlier. For various reasons his efforts were of dubious value, but the use of an outside consultant reestablished a pattern which would be followed by later administrators.

The next large-scale use of outside consultants occurred in 1954. At the suggestion of Gordon Fox, the Forest Service retained McKenzie and Company to suggest a design for a modern directive system. McKenzie recommended a subject-numeric codification for the manual, which had been divided by Washington Office categories such as timber, range, and fiscal. This new design enabled the user in the field to look up policies and instructions by subject, without

having to know what division it fell under. It also used a closed-end decimal system so that writers would be restricted as to how much they could expand a subject.

To facilitate rewriting the manual, the new classification of management analyst was created. For about eighteen months, those selected for the new position, including Chester Shields, worked in the Washington Office coordinating the drafting and publication of the new Forest Service Manual. They then returned to their respective regions to coordinate regional supplements for the manual.

The subject-numeric system devised for the manual was adopted for use on a range of related paperwork. Shields had the responsibility of field testing the application of the system to correspondence. The scheme that evolved enabled a number to be affixed to a form that would relate to all correspondence on the subject and to the proper place in the manual. Paperwork experts had long maintained that such a system was impossible, especially in a decentralized organization.

The Forest Service, however, enjoyed great success with the system, probably because they were able to keep it simple. Other federal agencies, state governments, Canadian and other foreign governments have come to the Forest Service to study the system and have applied it to their own uses. As Shields states, "It has been an international success."

A few years later, Fox and Deputy Chief Clare W. Hendee decided that an organizational review was due. Because of the favorable results of the earlier work done by McKenzie and Associates and because of their familiarity with the Forest Service, they were hired to perform the new study in cooperation with Service personnel. The study and resulting

publication, "Gearing the Organization to the Job Ahead," was of epic proportions and is a landmark in Forest Service administration.

Three members of the McKenzie firm worked on the project with Fox, Hendee, Walter Graves, and Joe Pechanec of the Forest Service. Together they worked out a study plan and interviewed a large cross section of personnel to identify administrative problems and gather ideas for possible solutions. After several months, a draft of "Gearing" was sent out to everyone in the field, asking for comments. Most field personnel accepted the new organizational design. However several objections were voiced, such as fear of staff overload, loss of power at some management levels, and increased inflexibility. Some thought it was "impractical" and "theoretical." One respondent spoke for many by stating, "we got too much planning without responsibility to make it work already."

Comments from the field were synthesized and several drafts were written. Finally, Shields and Art Grumbine, chief of Operations at Atlanta, Georgia, were assigned to redraft the organization section in the Forest Service Manual, incorporating the new plan, and the system was put in effect. Although there were minor problems at first, the effort was successful.

One of the McKenzie recommendations called for the establishment of deputy chiefs and deputy regional foresters. This system had been used previously but had been abandoned. This time Shields did a literature search and wrote job descriptions for the new positions, which were then adopted. As Taylor had argued, it was felt that efficiency could be increased through use of additional management personnel.

The recommendations from the study were put into effect incrementally. Almost immediately, deputies and associate deputies were installed in the chief's office. An element calling for multiple deputies in the larger regions was not well received in the field and was not implemented until 1970. By 1973 all regions had adopted the multiple deputy concept.

After World War II, Fox and Loveridge attended a lecture series on operations research at Johns Hopkins University, which eventually led Fox to set up the Operations Research unit at the Pacific Southwest Experiment Station in Berkeley, California. Patterned after military technology, the Management Science Staff was formed in 1963 at Berkeley, so that they could operate independently from the Washington Office, while utilizing the facilities of the University of California. The "think tank" was staffed by Ernst S. Valfer, project leader; Malcolm W. Kirby, industrial engineer; Sherman J. O'Neill, mathematician; Gideon Schwarzbart, statistician; and Eivor Hinge, secretary. Management science was finally institutionalized.

"OR [Operation Research] is not magic," the staff wrote,

and like other scientific procedures depends on 3 things:

- (1) whether the problem can be stated and defined.
- (2) whether data is or can be made available to describe it, and
- (3) whether criteria can be set up by which solutions can be evaluated. The third requirement is often the most difficult to satisfy.

After the operational research lectures at Johns Hopkins, Fox had another idea. He decided to set up an "experimental forest" for both operations and administration research. Although the early goals were not fully met, it was very imaginative and it was well worth the experiment. The experience also served to make a manager out of Shields,

who was brought in as staff specialist for administration, after a recommendation by Graves, who was then in the Washington Office.

During 1964-1966 the Bureau of the Budget was reviewing management practices and manpower utilization in government agencies, at the request of the department secretaries. The review team was composed of Ed Deckard, BOB team leader; Sydney Freeman, BOB management unit; Ron Landis, BOB budget examiner; a representative from the Civil Service Commission; Joe Loftis, from the secretary of agriculture's office; and Fox from the Forest Service.

Fox convinced the BOB examiners that it would be most advantageous if Forest Service personnel could work jointly with them on the project. It was believed, as it always had been, that the Forest Service could only gain from a critical study of the organization. The result was a study comparable in size and impact to the McKenzie Study.

The "Deckard Study" was an in-depth examination that ran for several months and covered all aspects of Forest Service programs. Forest Service personnel, including the Operations Research team, participated fully and, with the BOB teams endorsement, were able to offer proposals of their own. The myriad recommendations are still being implemented.

One recommendation of the Deckard Study was to review the size of ranger districts, forests, and regions in terms of efficiency. This resulted in two additional studies, the Size of Ranger District Study and the Size of Forest Study. The later study was modest in scope, but the Size of Ranger District Study was the largest of its type in Forest Service history and involved some very sophisticated technical methodologies.

Using "size" to mean acreage, budget, workload, staffing, resource production, level of use, and terrain, a number value was given to various factors. As Shields explains, they "tried to make use of the latest organization theories that related to the technical systems within which social reaction, work patterns and job content are evaluated and related to the technological requirements of the job on the ranger district."

Graves at this time was chief of the Division of Operations in Region Three. His regional forester had given him a leave of absence for at least a year, so that he could run the project. He procured the assistance of Ken Norman, and they made up the field team that worked closely with the management sciences staff headed by Valfer. In Washington, assistance came from Hendee, Fox, and Shields.

Graves and Norman interviewed a cross section of Service personnel from seventy ranger districts, ten or twelve national forests, and regional office staffs. After assigning a numeric classification to each forest, the values were quantified at Berkeley and an ideal numeric range was established. In the end, no districts were found to be too large but several were too small, and were consolidated to form larger districts.

The Size of Forest Study was less thorough. Since an act of Congress is needed to add to or subtract from national forests, the implications were limited throughout the study. Again, no forests were found to be too large. Several forests, however, were administratively consolidated while legally remaining independent. Shasta and Trinity National Forests were combined as the Shasta-Trinity. Sitgraves National Forest was combined with the Apache.

Computers, too, are a part of management sciences. Robert Torheim sees computers as "a management tool, a tool to manage." Brought in following World War II, computers were used first to handle payroll and then more and more complicated analyses of data. Suddenly it became clear that the tool had become the master in some cases, where the agency had lost the older skills to do certain jobs. At the chief's order, procedures were adopted to return the computer to its proper role.

Additional management studies have been conducted by the Forest Service, and their technology has continued to grow and improve. Just as Frederick W. Taylor argued for scientific management and the abandonment of tradition or rule-of-thumb as administrative techniques, the Forest Service has always been ready to reexamine its organizational self. Technical management tools have been developed and used at a tremendous rate, and the Service has been rewarded by an excellent reputation.

The following interviews offer much more detail on the subjects discussed here, as well as many that were not. Graves, Fox, and Shields can say it best, because they were at the center as the technology was developed. Torheim offers his perspective from a vantage point in the field.

GORDON D. FOX June 15, 1978

Ronald C. Larson: Let's begin the interview with a brief biographical sketch such as where you were born and those events in your childhood that you see as maybe contributing to your final choice of careers.

Gordon D. Fox: Thank you, Ron. I will follow that procedure at least up to a point. I was born in Kent County, Michigan, in 1908. My father owned a small farm as most of the people in that area did--what they call a family farm today. At that stage, nobody around there had a college education. The feeling was that you didn't need one to be a farmer. I was lucky to get a high school education because when I finished the eighth grade in a one-room school, the high school five miles from our place changed from a two-year, ninth and tenth grade, to a four-year school just at the time I entered. This was one of the first breaks in my career as otherwise I wouldn't have had a high school education. So I finished high school in 1925, and then, of course, there was the question of a future. Commonly, in that area, the older son got the farm--which was my brother. My mother and I were talking about the future and I recall her urging me, "Why don't you get a job somewhere here and save your money and go on to college?" I thought it was an excellent idea and the question of what to

study didn't come up until later. I found a job in 1926 in a brass factory in Grand Rapids about 18 miles from home. A neighbor was working there, so I rode with him. In the following spring an uncle of mine who was then a township supervisor got a job with the county, so I took over his farm that summer. In the fall of 1927, I started at Michigan State College. I had saved enough money in the interim two years to get the college education under way. My parents did not have the financial resources to pay the cost, although I remember my father offering to mortgage the farm to obtain the financing.

The reason I took forestry is that a distant relative advised me one time: "You know if I were a young fellow starting out, I'd take forestry." He had been a policeman in Detroit for a while and then had moved to Traverse City and was in the clothing business. He didn't know anything about forestry but his advice seemed pretty good to me. It sounded like a hunt, fish, and trap job. I always liked the out-of-doors as I was brought up on a farm and hunted, fished, and trapped, so I decided to take forestry.

As I said I had saved enough money to get started, and through a connection that my uncle had with a member of the Board of Trustees at Michigan State, whose son belonged to a fraternity, I obtained a job at his fraternity waiting on table and wiping dishes which gave

me my board and room. This job continued for four years. During the summers I was fortunate enough to obtain employment so I could continue my education. The summer between my freshman and sophomore years I worked in a private tree nursery. Additionally, I pitched baseball games on Sundays and received a few dollars from that source. By playing on the freshman team at Michigan State and on the varsity, up to a point--I'll put it that way--not a regular by any means, I received a "spare-time" job cleaning the gymnasium which further eased the financial situation to a degree! In the summer of 1929, I was lucky that in the Upper Peninsula, at the Dunbar Forest Station, a forestry professor, R. H. Westveld, gave me one of two jobs that were open at that location. It was during the start of the big Depression and I needed a summer job to get cash for tuition--and hopefully for other necessities. Then in 1930, as a follow-up on the experience I had in 1929, I received a job with the Michigan Department of Agriculture working on the white pine blister rust in the Upper Peninsula.

RCL: You got that job because of your education at that point.

GCF: The education plus the fact that I had had some experience working for Michigan State at that Dunbar Forest Experiment Station.

RCL: What did you do there?

GCF: I did some work on research, establishing and checking experimental plots and also worked a short time on white pine blister rust control.

When I graduated from Michigan State in 1931, I had planned on being back with the state but these were not civil service jobs, and with high unemployment in this severe depression period and all the political pressure, the nephew of a state senator got the job.

This same Professor Westveld told me to join with three graduates that were heading West. Two of them had jobs in Idaho for the summer and one of them had an automobile. So I joined them without a job. They were leaving the next morning. Professor Westveld gave me the cash he had on hand and wrote me a check for fifty dollars. The first night we spent in a cornfield in Iowa, I had one running board of the car for a bed and one of the others had the other running board, and one the back seat and one the front seat. That was about the way we operated during the trip.

We arrived on the Clearwater National Forest at Orofino, Idaho and I went in to see the forest officers of the Clearwater National Forest. It was a few days before Assistant Supervisor Paul Gerard came back from a trip on the forest and I had a meeting with him. By that time I was out of cash. I was staying at night along the Clearwater River. The bank at Orofino would not cash

the check since it was not certified. They stated that they would need to send the check to East Lansing, Michigan, which would take several days. So I was out of cash. After talking with Assistant Supervisor Gerard for a few moments he said, "Now, let me see you do a little lettering." And I did some lettering for him. Paul said, "Well, you seem a little nervous this morning." I said, "I am, I happen to be out of money and out of a job." He said, "I'll give you a job here first drawing up a fire plan organization chart." That's why he wanted to check my lettering ability. He said, "You draw this up and then we'll look at the next step."

RCL: The die was cast right there.

GDF: Yes. That's what I did, so he gave me fire fighter's meal tickets and room tickets that I would just turn in at a hotel, the Lumbermen's Hotel, there in Orofino, Idaho. The Forest Service redeemed the tickets from the hotel. I still remember the Lumbermen's Hotel, the proprietor coming in there with a squirt-gun one morning and spraying around edges of the mattress for lice and other insects. He said, "You got to get in these places. That's where you find them." The loggers and other users of the hotel were not the best type of roomers. When I finished that job, Assistant Supervisor Gerard sent me out on the national forest to a white pine blister rust control camp. I still recall that I had

five cents left that I spent for fish hooks when I left Orofino to go out to that place. The job was as a laborer to start with. About two or three weeks after I was on that job, the camp superintendent, Webster Sterba, a forestry graduate from the University of Minnesota, came to me and said, "You know I've got one foreman who can't see very well and he isn't finding the currants and gooseberries (which are the alternate hosts to the white pine blister rust) and the crew is missing too many. I'd like to have you take over as foreman of that crew because I'm going to have to let that other fellow go." So I took over as a crew foreman. I only have the sight in my right eye and never have had sight in the left eye. He fired a foreman because he had poor eyesight and he put a one-eyed man in his place!

I never did mention that incident because I wanted to join the Forest Service. The standard at that time was 20/20 vision in both eyes. You might ask, "How did you get into the Forest Service?" It happened this way. I was in the first CCC [Civilian Conservation Corps] camp in northern Minnesota on the Superior National Forest in the spring of 1933. They had a camp doctor in each of those camps. In my camp we had a young doctor just graduated from a university medical school. Like the rest of us he didn't have a practice or anything else. There was about 25 percent unemployment at that time.

We became good friends so when I took the Civil Service examination, I had the forms for the required M.D. certification. He said, "You can do anything here that these other fellows can." So he put it down as 20/20 vision in each eye.

RCL: That was all there was to it.

GDF: That was all there was to it. But that's the way some of these things happen and that's just a break. Several of these happenings I've mentioned were just pure luck--just chance.

RCL: A lot depends on chance in anybody's life, really.

GDF: That's right, but sometimes you get those breaks, and you can look back and think of those things that really . . . well, they determine your life for you. Well, I finished the job in Idaho that summer and I returned to Michigan to again take a job with the Michigan State Forestry Department. W. K. Kellogg had given Michigan State College an abandoned, badly eroded farm, between Battle Creek and Kalamazoo, Michigan, with the understanding that it would be reforested. He gave a donation for that purpose also. The camp superintendent on the Idaho job, Sterba, and I became good friends and we went over to Spokane and jumped a freight train and rode that freight train back to his home in St. Paul, Minnesota. We were saving the cost of that transportation. There's no point in going into that in detail here. Anyway, Professor Westveld offered

me the job of reforestation of the Kellogg Tract and running that crew. So I went down to Battle Creek in the fall of 1931 after returning from Idaho, and also in the spring of 1932 during the planting season. Then in the summer of 1932, I worked for the first time for the Bureau of Plant Industry, again on blister rust control in the norther part of the Lower Peninsula of Michigan.

RCL: So you'd become something of a specialist.

GDF: That's right, and I've always thought . . . let's digress just a moment on the white pine blister rust. Warren Benedict has written the history of that program. I can think of a lot of foresters who got their start on white pine blister rust control who otherwise wouldn't have had a job during that Depression period. I think that had been one of the important contributions of that white pine blister rust control program.

RCL: It had been beneficial.

GDF: That's right.

RCL: How did the reforestation take place?

GDF: I hired a crew there. We got the trees from the nursery at Michigan State and planted them. They are forty-eight years old now and I still enjoy visiting the area. The area has been expanded and much larger reforestation has taken place over the years. But to me that first reforestation project has more meaning than maybe the 500,000 acres or more that I was involved in at different times later on in the Lake States. It meant that I had

the opportunity during the one year interval between Michigan State and Yale to build up enough cash to start a graduate degree at Yale University.

At Yale, I was fortunate to get a part-time job with the Yale Landscaping Department. The head of the department was a Yale forester. When I was at Yale, Henry Solon Graves who was a former chief of the Forest Service, was the dean of the forestry school. I requested a loan and still remember well when he talked to me and stated, "We have approved your \$150 loan." It was loaned without interest. That loan plus a job Alf Nelson, a roommate, and I obtained during the Christmas vacation provided the funds for the second semester. I had enough then with what I was earning to obtain a master's degree in forestry from Yale.

I will add that at the time that I was finishing the second semester the CCC program was starting. It was one of the first programs of President Roosevelt's New Deal. To me an interesting side light is that Professor H. H. Chapman helped me financially and otherwise. His picture is right up there on the wall. Professor Chapman was one of the real leaders--one of the driving forces--in development of forestry in this country. Chappy let me drive his car from New Haven to Urania, Louisiana. There was a spring session at Urania, for Yale forestry students. Another student, Bob Beaman, and I rode with him and drove the car from New Haven down to Urania which means we didn't have to

pay any transportation. Chappy stopped at all the state and federal forestry headquarters along the way to find out what was happening in their sectors. I listened, and it was a good indoctrination in those visits. When I finished at Urania, Chappy paid my board bill and loaned me money to help defray the cost of traveling to Duluth, Minnesota for a job in a Civilian Conservation Camp. The CCC camp was one of the first ones in the Superior National Forest in northern Minnesota. My first job there on that forest was as a technical foreman. There were twenty-two camps on the Superior and two hundred boys in each camp. The army was also involved in that with largely reserve officers in charge of the camp. When the CCs left the camp in the morning for work the Forest Service had them until they were returned to the camp at the end of the work day. It worked two ways using the capabilities of the Forest Service at the time. That was the best way to handle it. I was a camp technical foreman for about four or five months.

RCL: What was a technical foreman?

GDF: The technical foreman had charge of the technical forestry activities. There were technical foremen who were foresters and non-technical foremen of various occupations such as civil engineers, for example. There was widespread unemployment at this time. There were enough foresters to provide the forestry capability for the different jobs. The other foremen would be largely

supervising crews and often on projects such as road construction for which the foresters did not have the capability. The foresters would, for example, mark timber stands for thinning and lay out and supervise reforestation projects. One of the first jobs at this CC camp was that we marked some trees to be cut and obtained a portable sawmill to saw them, and the lumber was used for the permanent camp. For the first summer there were only tent camps. Some camps were established in just a few days. There were other camps established on the Superior termed NIRA camps under the National Industrial Recovery Act. The mission of these work camps was giving employment, which I believe was running about 25 percent at its peak. I took over as camp superintendent of one of those camps of around one hundred men. I had a construction foreman and one forester, plus crew foremen selected from the workers.

RCL: How does that differ from the CCC camps?

GDF: We ran them and the Army was not involved. These were older men. They were not in the young age class of the CCs. Many of the workers were from the industrial mining areas of northern Minnesota and the Mesabi iron range. The mines had shut down. They were out of work and needed employment. There was no Social Security or unemployment benefits. When you were out of work, you were done.

RCL: So it was something like the WPA.

GDF: It was during WPA times and there were a couple of thousand WPA workers on the forest also. I was an NIRA camp superintendent for about another four months and then received an assistant ranger job . . . the ranger of the Stony Ranger District had me in there as an assistant ranger to him. There were about four or five NIRA camps in addition to five CCC camps on that Stony Ranger District. The ranger was Frank Crow. We had the NIRA camps and also WPA workers employed on the Stony District. It was a big organization that was put together in about six months! Previous to that time Frank Crow didn't even have an assistant on his district. He had a couple of fire guards. Organizationally, that was it except when there was a forest fire and he picked up some local men to fight the fire. So you can visualize the administrative job that was created. Many of us who started at that time had quick promotions. It was, of course, much faster than normal. So I became assistant to Frank Crow and the job was largely inspecting and supervising those different camps we had.

In the fall of 1934 a ranger district opened up. There had been a considerable period of short funding and tight budgets until all the new programs were started in 1933. They decided to establish a district north of Ely which was the former Kawishiwi District and is now a part of the Boundary Waters Canoe Area. It's a wilderness district up there. I became district forest ranger of the Kawishiwi District.

RCL: What year was this?

GDF: This is the fall of 1934. One of the first jobs on the Kawishiwi was cruising a considerable area north of the old boundary and extending to the Canadian boundary. The cruising was to obtain timber values in fixing the land acquisition costs. It was a big acquisition job with a short time limit. It was one of the big ones. We also had four work camps on the Kawishiwi District. I was probably the last ranger up there to use dog teams in the wintertime across the frozen lakes.

RCL: Why were you the last?

GDF: Because the Forest Service soon purchased airplanes. Dog teams are an inefficient way to travel and in this case we had a big winter cruising for land acquisition.

RCL: That was undeveloped area.

GDF: That's right. It is still undeveloped because, except for the trails and portages, it's been kept that way. In fact, I still remember I had the first radio in Region 9 of the Forest Service on the Kawishiwi because it was a roadless wilderness district. I was out in one of our tent camps in February when I received word over the radio that there was going to be a National Forest Service meeting on radio in Portland, Oregon, with radio experts from all the Forest Service regions. I was asked to represent Region 9. I was the expert as I was the only one who used our Forest Service radios. I still remember snowshoeing in to the Fernberg Guard Station that night

to make connections. It was a bright moonlight night and I had about fifteen miles to snowshoe to reach the station which was at the end of the road. The wolves were howling as they were chasing the deer in that wilderness area. I reached Ely in time to catch a train for Portland the next day.

RCL: You snowshoed for fifteen miles?

GDF: Oh, yes. You see probably half of it was across lakes. In June 1935, I was promoted to a timber management staff position in the supervisor's office in Duluth. At that time, the Superior Forest was not selling much timber. It was in a depression era. The biggest activities were in reforestation, stand improvement, and protection activities. We established two new tree nurseries in my first year in Duluth, one at Ely and one at Two Harbors. A management plan was also completed. I was on that job in Duluth until 1938.

During the five years on the Superior National Forest, Region 9 was building up training programs in administrative management. The region had a large organization and management job almost overnight. It was an emergency in several aspects. At the outset, the eastern regions had considerably greater emergency programs than the West. The unemployed population was in the East and proportionately the largest number and size of the human resource programs were in the East. It was easier and less costly but they gave the biggest workload to a region like Region 9 with

the Forest Service. John Taylor, chief of personnel in Region 9 was very interested and knowledgeable in administrative management. He started a training center at Eagle River, Wisconsin. Groups of Region 9 foresters were given courses in administration at that location. My first exposure to the courses at Eagle River was in the winter of 1936.

RCL: How old was the course by the time you started?

GDF: I would expect it was probably over a year old. They didn't have their own building at that time so they rented one. It was a resort type of building in the summertime and you could rent it in the winter. Later, the region built a building there as a training facility.

RCL: So, it really wasn't begun until two years after the need for it.

GDF: That would be very close because we are only discussing the period from the spring of 1933 to 1936. It was around January or February 1936, that I went down there for a month when they were giving that course. It was our first experience in an organized course in administrative management. I'll give a lot of credit to the personnel staff in Region 9 who set up and staffed that short course in management. They were getting some help, I am sure, from Washington in terms of encouragement from people like Peter Keplinger, the chief of the personnel division, and we'll get to him later. I think it was about the next

year, 1937, that personnel from the Division of Operation came to Duluth and I was first exposed to a formal workload measurement and workload analysis procedures.

RCL: In management terms, what sort of material did you cover?

GDF: We covered everything in terms of planning, organizing, staffing, directing, coordinating, reporting, and budgeting, in the administrative process known as POSDCORB. Planning in forestry has to be both short and long term. You plan and you check on the results.

RCL: How long was the course?

GDF: I was only at the Eagle River Region 9 management school for a month. It was an exposure. It was a start on this science called "organization and management." It was a busy period and those foresters were needed at their staff headquarters, but it was a good initial course. The course was well developed to teach the principles of good administration. The personnel unit at that time was in the Division of Operation in Region 9. They added a couple of staff members who selected material and adapted it to Forest Service operations. They'd send it out to you to study and encouraged its application. It was an important step.

I should mention the job load analysis. It was the first time that we had gone through the procedure of setting objectives and analyzing the best procedures and the time allowances needed to achieve those objectives. What do you need to do? And how are you going to do it? What

are the jobs that have to be done? What are the standards for those jobs? Are they the best ways to obtain satisfactory quality results? For inspections of on-going projects, how frequent and how intensive should they be to insure acceptable performances? How much time will you need to spend in the office? Or spend in field operations? What jobs should be delegated? In inspections, the objective is not only to correct errors and check performance but to recognize and give credit for good performance--a two-way street. After taking all these things into consideration, you had the total job that needs to be done.

RCL: This is really based upon Frederick Winslow Taylor.

GDF: It was based upon Taylor's system of analysis. Where you found the best way of doing a job, what functionalization is needed, what experts should be selected and trained in those functions and to do the most efficient job. Procedures and time allowances were not guessed at, they were measured in Frederick W. Taylor's development of "scientific management." In Forest Service operations the time standards were not as precise as in industrial operations where the repetitive operations could be measured quite precisely with a stopwatch. Many Forest Service standards were based on experience of foresters and others who had become experts on certain tasks. I'll explore this just a little bit with you right here. There is a tendency at times for using just an accounting procedure. For example, on a district, forest or region, they are selling their

timber and it's only taking so much time per thousand board feet, at a certain cost, and that's a lot cheaper than another outfit in an adjacent region or unit. Therefore, why can't the high cost unit perform the job as cheaply as the low cost unit? This approach is often used in the government today, but overlooks the results in terms of quality standards. The Forest Service system of engineered standards avoided a strict unit cost accounting disclosure. Cost accounting, of course has its place in the administrative process.

For another example, without standards, a ranger could sit in the office and point out an area of timber to a potential purchaser and tell him that when a certain volume is cut to let him know and he, the ranger, will have it scaled. From a strictly cost accounting standpoint, the unit costs per MBM harvested would be very low. But the quality of timber sales supervision and management could result in forest destruction. You don't want that type of performance. I've also seen it happen, that if you have on an individual unit twice as many employees as needed to do the work, they will all put in eight hours a day but they will, as we used to say be "sand-papering the stumps." They will be doing the tasks to too high a standard and their planning and accomplishments will be costly. They will, however, put in the required time but on less productive work. With one man on a unit which has work for two men, the one man will likely put in

considerable overtime and will cut the standards to keep on top of the job. So this is another reason for having these engineered standards. They provide the facts for staffing the units on an equitable basis in relation to the workload. The Forest Service system used this basis for many years. Since funds were generally not adequate to finance all units at 100 percent, the funds were allocated on a percentage basis.

The process is a direct application of Frederick W. Taylor's principles of "scientific management." It does not apply to Forest Service work with the same precision as to work in a factory, but it is a much better way to staff than actual time being used in different areas, as a basis for planning and determining manpower and financing requirements to get those jobs done. It also is a training device to insure that the individual has the best instruction on the best way to do a job. Earl Loveridge whose career ended as assistant chief for administration was the first forester, specialist, who applied the work measurement system on a national basis to national forest tasks.

There is a story about Earl Loveridge who was really the main guiding force in obtaining application of this system to the Forest Service. The story has likely been elaborated on considerably. He once went to a ranger district to obtain a volume figure on how many loads of wood were needed on the district for the winter and the time needed for the job. He took a bucksaw and timed himself for

fifteen minutes, rapidly sawing wood. Then he applied the unit time allowance to the volume needed to determine the total time for the ranger in getting his wood cut for the season.

RCL: He worked as fast and as hard as he could for fifteen minutes?

GDF: That's the story anyway, but just one side of the story.

RCL: Why don't we go a little bit into some of the other people. You mentioned Loveridge but before him was Roy Headley.

GDF: Roy Headley was greatly interested in this field. He always appeared to be looking for new ideas and was interested in applying them. I am sure that he was instrumental in getting Earl Loveridge into the Washington office to work on administrative management.

RCL: What was Roy Headley's position?

GDF: At that time, he was chief of the Division of Operation. That was before the support activities were reorganized into separate divisions for the specialized functions. In fact, fire control and personnel and all of the general administrative functions were in Headley's Division of Operation. I give him credit for many administration improvements. I noticed this morning in going through some old files that I had a note from Headley regarding an approach in forest fire control. His note ended with, "Now what do you think of this?" He was asking a young forester that question. He was looking for ideas. His proposal was regarding the need to have someone make a

study of our practices and procedures in fire control. A forest officer would be assigned to go to fires of different sizes and areas and study the organization and methods from start to finish. He would have no control responsibility on the fires, other than to come up with suggestions for improvement. He would be checking and determining what are the best ways of fire suppression such as, what other things should be done or done differently? Loveridge, in my judgment, was an individual who made major contributions to Forest Service management. Peter Keplinger's important contributions were as chief of personnel, in the indoctrination and training aspect, and these were equally valuable for the organization as a whole. You asked about my career and we were up to 1937 and 1938. Do you want me to finish it?

RCL: Yes.

GDF: I was in Duluth for three years, 1935-1938, in charge of forest management, which mostly involved activities in getting work done in the camps and centers, rather than selling timber. I think that Peter Keplinger was the prime starter in 1938 of a program in the Forest Service for bringing in two young foresters with interest and presumably some aptitude in administrative management and offered to provide an opportunity to obtain a master's degree at a university. Loveridge I am sure, was also supporting this project but Keplinger certainly worked

out the plan. There are two types of people in this area, one a studious type and a thinker, and another one who will get things done. Loveridge was the type of individual who got things done in a hurry. He outlined the steps that needed to be done in a planwise manner and followed through them to get the job done. Kep was more of a student. The pressure of the routine job in getting personnel selected, placed, and related functions was not so much to his liking, in my opinion. He was more interested in the employee development functions and, I think, contributed more in planning and looking ahead to the needs of the Forest Service and training employees for those positions. In the summer of 1938 the Washington office program was started to bring in two foresters to obtain a graduate degree in public administration at American University. This request went to the field for applicants who were interested. The forest supervisor of the Superior National Forest at that time was Ray Harmon. Ray brought the Washington office letter in to me and said, "How about you applying for this assignment? Read it over and see if you might be interested." So I looked it over and it sounded interesting. As a part of that application, you had to have a photograph, give some background, and write up something on what you had done, something original that had some relation to the purpose of the Washington office assignment. In other words you had to have some originality. What kind of an effort does

this candidate put into something like that? As I mentioned to you the other day, I had always felt that the "special use" policy of the Forest Service was not logical. We had taken over the public lands for the use of the public and then gave summer home construction permits for exclusive private use on many "key" recreation areas. So I wrote up a memorandum on that issue and said this was contrary to the purpose for which the national forests were established and I still remember saying to Ray, "How about using that?" He read it over and looked up at me with a kind of smile on his face, and said, "I don't think you better send that one in!" So I wrote up another one. I've got a copy of that here too, some place. I saw it this morning. There were several parts to it but one of them was something original. During the fire season in 1936, we had a big fire on the Superior. It started on state land and was about 10,000 acres when it hit us on the national forest. It finally reached another 10,000 acres before we got control but I had that large fire at that time. It was in the south end of the forest that was a populated area. One of the things we had to do was get people out of there with some of their belongings as a first step. I said, "Now here is something." There isn't anything in the manual about that type of a situation. But here is a case where the situation dictates the action. One better forget about

controlling the fire and do the priority things first. You are saving people's property and people's lives and we'll do that first and then control the fire.

Some other questions were asked in the application. Anyway, I was lucky enough to be one of the first two selected for this program. K. D. Flock, was the other individual. "K" was about seven years older than I. He'd been a ranger in Region 1 and forest supervisor of the Beaver Head National Forest. So we went into Washington headquarters, and reported to Peter Keplinger in August 1938. Kep mentioned to us that the USDA was not interested in training people for administration and neither was the Civil Service Commission at that time. The only person that expressed an interest was Dr. Arthur Flemming who at that time was dean of the school of public affairs at American University in Washington, D.C. When we arrived, Kep had Dr. Flemming come over and have lunch with us. I was surprised that he was only a few years older than I. I was then 29. Flemming was very interested in this program. At that time we had to work in the Forest Service during the day and go to school nights and do most of the studying on weekends. They didn't have the authority that we have now to send someone to school and pay for it. We paid for the tuition ourselves.

RCL: You paid for school yourself?

GDF: Yes, we paid all costs. The Forest Service could only

bring us into the Washington office, and provide training on the job during the days in different divisions within the Forest Service and transfer us to the field after completing the scholastic requirements. There was no authority for anything else.

RCL: That wasn't easy then.

GDF: It wasn't easy. It was a hard job because you had to get a graduate degree in public administration in one year by working daytime and going to school nights and Saturdays. You had to get your studying done in any spare time you could find. So it wasn't easy. But it worked out, and incidentally, Dr. Arthur Flemming, as you know, achieved national prominence. He became a member of the Civil Service Commission and then was president of a Methodist university in Ohio, and then president of the University of Oregon. He was secretary of the department of Health Education and Welfare and held several important jobs afterwards. The last one he had was as commissioner on aging until this past year. I met him again then. It was the first time I'd seen him since I graduated.

The Forest Service program is important as a landmark, I think, in public administration in the government as a whole. The Forest Service, in particular, deserves credit for that initiative. The program originally was set up where we would work short periods in each of the divisions to get familiar with the entire organization. At that time Earle Clapp was the associate chief of the Forest

Service and Ferdinand A. Silcox was the chief. Clapp was developing "A National Forestry Program," a plan for forestry in the United States. This was one of those big jobs where you look at the total forest situation in the United States and say what ought to be done and who does it. The states, the federal government, and the private sector were all involved in this total picture and the recommendations for action. Congress had requested this forestry program. It just happened that I got tied up in this national forestry program development in some way.

RCL: Was this after you were out of school?

GDF: No, this was when I was in Washington here.

RCL: Going to graduate school.

GDF: Going to graduate school. I was assigned an office with Bill Kramer who was chief of the Division of Operation at that time. It finally developed almost into a full-time job working for Clapp. I became sort of a custodian of all the cost data in the proposed program and worked out a plan for repayment to the treasury on the basis of value from added timber growth resulting from the program. The American University Administration Program was continued after "K" Flock and I finished our assignment. I left Washington, D.C. in December 1939.

Finally some universities, I believe the forerunners were the University of Montana and the University of Minnesota, started giving short courses in administrative management and our employees were encouraged to attend them. It was

a lot faster than bringing in two candidates per year to D.C. and that practice was discontinued early in World War II.

RCL: Let me interrupt you. On this fellowship program, it wasn't really a fellowship program, why did the Forest Service decide to bring people up from the field rather than hiring people who already had a graduate degree in administration?

GDF: They wanted to train the foresters in it. Foresters occupied the managerial positions but did not have that kind of training. And if you are going to improve the organization then you needed some of those people to have management training.

RCL: I see. That way you had both a forestry background and administration background.

GDF: That's right. You had them both. The theory was that you should be more competent in the managerial jobs if you had both of those degrees.

RCL: Rather than choosing to fill the position with just one type of expertise, either forestry or management, this way they got both.

GDF: Right. I still remember the American University business management students talking among themselves that they should have those top jobs rather than professionals or technicians.

One thing that has been, I think, a change in the Forest

Service staffing is that there are now more laboratory and other technicians than we used to have--particularly in research. I mean that the build up in discipline specialties now provide more slots that are less administrative in character than previously. More particularly, when I was occupying the different positions on the way up the ladder most of the things we were doing were administrative--whether we were out running a crew fighting fire or whatever we were doing. It was administration. We were not isolated. It was always a mixture of duties but strongly oriented to the administration side. I have always thought the emphasis on administrative training was an excellent move on the part of the Forest Service. It was triggered at a time when the workload had built up tremendously as we discussed previously.

RCL: Overnight, almost.

GDF: That's right. And the need was apparent and it was stressed most in the regions like Region 9 where they had a greater managerial workload buildup in a short time period.

From Washington, D.C., I went to Lower Michigan on the Huron National Forest as assistant supervisor of that forest with headquarters in East Tawas, Michigan. That was in January, 1940. It was a small national forest and the administration was not nearly as heavy as on the Superior. In fact, in addition to the assistant supervisor position, I had responsibility for timber management and

land acquisition since we didn't have the workload to justify division chiefs for those activities. We did have some staff people in other activities. I did want to stay on that forest for enough time to gain additional field experience.

RCL: You wanted to stay.

GDF: I wanted to stay out in the field for awhile. But there was a request from the Lake States Experiment Station at St. Paul, Minnesota, from Raphael Zon, the director, for a detail to that station. You probably have seen his name.

RCL: Yes.

GDF: He wanted more attention given to small sales to residents rather than to the big companies. Small sales, i.e., the family type of sales. They'd get the returns and not the companies. It was one of those forested areas where per capita income was very low. A lot of the farming was subsistence farming. There were opportunities for combining both agriculture and forestry in terms of cutting timber during the spare time, such as pulpwood, cabin logs, sawtimber, and posts. Most of the timber being cut was pulpwood and was being sold to the big paper companies. On the small sales that we discussed, the payment for the utilization of KV funds was one of the road blocks. Another problem on the Huron National Forest was that sales for the most part in volume were by the big companies. This was Michigan after the white pine had been cut off

and the major stands had been denuded. We were dealing with the remnants of those stands but there was still enough growth that you could have a fair sized business if the products were diversified. But not enough for these big companies who were dealing in pulpwood. They would hire a contractor and he would bring in workers from the outside, transients such as the Mexican migrants. They wouldn't pay the workers adequate wages. When they got sick or something happened there would be problems in the county and it was unsatisfactory all the way around. And here were these subsistence farmers that needed the cash income. Pulpwood cutting paid so low that there was a saying that nobody but a "damn" fool would cut pulpwood. I got to thinking about that. I had checked on cooperatives, too. We were also having trouble in the forests with selling all the timber. You didn't have just the pulpwood. There were posts, poles, cabin logs, and other products. You need a variety in product sales to manage the forest properly and to produce the most income. So with this detail that I had for three months with the experiment station, I had a chance to see the operations of cooperatives in the northern Lake States. The Scandinavians in these areas had built them up based on "old country" customs. I don't know if you are . . .

RCL: I'm Danish.

GDF: My wife is Swedish. She has some friends in Copenhagen.

Many settlements made in that area were by immigrants from Scandinavian countries. The cooperatives sort of intrigued me. I finished that job and returned to East Tawas.

Cooperatives were one of the mechanisms that were needed to harvest the timber from the forest for all the products under good management practices, and also to provide that cash income needed there locally and avoid all the problems with the migrant labor. So we got a cooperative started. I paid for the articles of incorporation personally because the government couldn't do so. One of my forestry classmates at Michigan State, who was an extension agent at East Tawas, obtained the assistance of an extension expert to help in getting the cooperative established under Michigan laws as a non-profit corporation. There was another classmate in the area who worked for the Farm Security Administration. This classmate, Forrest Potter, obtained some financing from his agency for working capital. Potter told me that this was the first unsecured loan his agency had made--at least in Michigan. There was no collateral at all, just a group of farmers we got together who formed an association, elected a president, and board of directors and did other legal formalities.

RCL: It was probably very important to the community.

GDF: It was.

There were two settlements in that area where the cooperative

was formed. The next step was giving the cooperative a name. The word "cooperative" didn't usually ring a bell in that area either. So I happened to be looking at a map and noticed that the Au Sable River, a famous river up there in Michigan, had one of the two communities on one side and one on the other. I thought we would just name this the Au Sable Forest Products Association instead of cooperative, which we did.

RCL: Why did you switch from "cooperative?"

GDF: There was a feeling at that time in that area--it was sort of a feeling that a cooperative was something . . .

RCL: Un-American?

GDF: Un-American may be too strong. It was possibly a feeling that it wasn't private enterprise, individualism, this type of thing. We got it under way and I think the charter was for thirty years. It did a lot of good for local employment and the forest. It worked up to a half to three-quarters of a million dollars worth of business annually. I don't know whether that ties directly into administrative management. We may be getting a little bit off the main subject except that the association was an administrative mechanism designed to obtain the major objectives of the national forest.

Then the war came along soon afterwards. The Au Sable Forest Products Association was started in 1940. World War II involved the U.S.A. in 1941. Toward the end of 1942, the Board of Economic Warfare, which had as one of

OMB conceived a series of management improvement projects to be used nationally, whereby they would go to the departments and bureaus of various departments with a team, study their organization and management, and come up with substantive recommendations for major improvements. This had been done on one or more departments of other agencies before they came to Agriculture. The Forest Service was selected as one of the Agriculture agencies as well as the Secretary's office. The team was composed of Mr. Deckard from OMB, a representative from the another department, and a Department of Agriculture person. Originally the approach they had been using in these studies was to come in and make a completed study and submit it to the secretary of the department who then would implement it as he saw fit. However, in their initial approaches within the Forest Service, Gordon Fox suggested to Mr. Deckard that a much more useful product might result if the Forest Service could work day by day, item by item, with the study team to help them develop their study report and then jointly formulate a series of recommendations that we would submit to the Secretary of Agriculture. This was accepted.

Now this approach of coming up with a joint recommendation, or at least a mutually agreeable product, suggests

I couldn't get into the regular military because of the defect in my vision. So I went down there and spent a couple of years in the Upper Amazon in Peru. The first stop was in Colombia, as I mentioned, and I also was in Guatemala for a short period advising on the establishment of a nursery there for Cinchona. It was interesting. I had contact with the Mayan Indians in Guatemala. We used the Inca-Quechua tribe Indians as cargo-bearers in the Upper Amazon in Peru. I have had crews of Indians starting with the Chippewas in Northern Michigan, Mayans in Guatemala, and Quechuas in Peru.

RCL: Mr. Fox, what did you do when you got back from South America after the war?

GDF: Upon return, I was assigned to the Clark National Forest with headquarters at Irontown, Missouri, again as assistant supervisor of that forest which was a much larger forest than the Huron. The problems in Missouri were much different than in the northern Lake States forests that I had been on previously. They were new areas and an educational program was needed with the residents particularly to try to stop incendiary forest fires that were customary in that area and educate them to protect the forests and not destroy them.

RCL: Did you run into a lot of problems doing that?

GDF: We ran into several problems. Incidentally, Roy Headley, as we mentioned before, was interested in different techniques and he hired a psychologist to work on the

problem. On one district, they took the strong-arm approach and tried to get convictions. Starting forest fires was a federal offense. In this one district, law enforcement was therefore the primary consideration in trying to stop incendiary fires. In an adjacent district, the educational approach was adopted. Timber sales were made to the residents, educational films shown in schools, etc. The program covered the damages from forest fires and how important it was to stop them and the related benefits. It was interesting to note that in those two districts, at the time that I left, there was no discernible difference between the rate of incendiary forest fires with the two different approaches although the number of forest fires in both cases had gone down very considerably. And, of course, has decreased greatly since that initial period. That was one of the big hurdles to overcome in starting in a new national forest. The public relations aspects on a new forest are much greater.

As another aspect of this, we moved from Irontown, which is a small town, over to Rolla. I made a study and it was based on the fact that Rolla was a much larger city. Irontown was a very small town. Rolla had housing available for the employees because Fort Leonard Wood nearby had just gone down as the war ended at that time in 1945. Housing was available at low cost for rental or purchase. In the study of a headquarters location I

considered Rolla from the standpoint of a consolidated office for the two Missouri forests, Mark Twain and Clark, as a logical combination. Rolla was in a central location and was a logical forest supervisor's office for the consolidated units. This combination was made a few years ago and apparently is working out well. I don't know that there is any reason for spending time discussing other affairs in Missouri. The big one was the forest fires and getting established.

RCL: What did you do then in 1945 and 1946?

GDF: I was in Rolla until the end of 1946 and on the 13th of January 1947, I was transferred to Washington, D.C. headquarters. I have been here ever since. That's thirty-one years.

There is an interesting sidelight on the transfer. Charlie Connaughton who was director of the Southern Forest Experiment Station was starting some new field stations. He was looking for "group leaders" and Charlie offered me a job in one of those positions at Alexandria, Louisiana. I indicated to him that I'd come down and talk with him about it. I went down to New Orleans. The next day I went up to Alexandria with the station's business manager and we worked out the rental of a new office headquarters with room for expansion of the field station with new members who were coming aboard. At that time, at the end of the war period, the unit was in the county courthouse,

which was so crowded that they had desks out in the corridors for their offices. We went across the river to Pineville and rented a building that day. The next day we went back to New Orleans and there was a telegram from Washington, D.C., informing me that I was not to transfer to the southern experiment station but to transfer to the Washington, D.C. headquarters. I've always kidded Charlie about working for him--for three days! I transferred to Washington with the Division of Operation. The budget bureau had written a letter to the Forest Service stating that the appropriations seemed to be growing way out of line with the volume of business, out of proportion to the benefits and they wanted an answer to that letter.

I want to digress just a moment on that because what had happened was that during the period when we had all the labor from the various emergency programs there was plenty of help on the national forests to do all the reforestation and fight forest fires, build roads, etc. During the war these programs, of course, had been discontinued. Since the regular Forest Service appropriations had not built up proportionally to total workload increases during that period, there was a gap which the Forest Service was trying to fill with increases from the regular funding source. So on paper, it looked to the budget bureau as though the Forest Service was out of line. So I had the job of answering that letter which

required considerable study. In fact, the position they put me in first was as assistant chief of operations in Region 9 in Milwaukee and detailed to Washington, D.C. I think it was planned that I would go to Milwaukee after completing the budget justification. I completed a report on that subject and it took a long time because I never worked on it full time. Shortly after I arrived Dave Nordwall, who was assistant chief of operations, transferred to Region 5 as chief of operations. This meant that I had to try to fill in as alternate chief of operations to Bill Kramer, chief of operations, primarily handling the O & M activities, including budget allocations, which limited the time available on this other project.

Some of the things that were analyzed for the report to the Bureau of the Budget, such as the size of the average fire, which showed a sudden increase when all CCC camps were discontinued, supported a need for additional financing. The same situation prevailed for reforestation activities. There was a substantial gap. I mention this here because possibly the same situation may face the Forest Service in the future if the large human resource programs, which now provide a substantial labor supply on the national forests, are discontinued.

RCL: Sure. This was your first purely administrative job, wasn't it?

GDF: In Washington, yes. I had made an initial contribution on this report requested by the budget bureau on a trip

which I made to Washington, D.C. about six months or a year before. I had been offered a job by the Foreign Agricultural Administration, handling its administrative support activities in the Washington office. In other words, this agency had charge of the USDA assistance in the foreign countries. After talking with them, I didn't want to leave the Forest Service so I turned it down. After I was in the Forest Service office for a couple of days, they asked me to reply to the budget bureau request which had recently been received. I drafted a reply to the budget bureau about our approach with certain justifications and this might have been a factor when the Washington office Forest Service officials heard that I was going to transfer to New Orleans and they wanted me on the other job.

RCL: You'd already done some work on it.

GDF: I'd done a day's work on it, I'll put it that way. That's the way many of these things happen. Happenstance. Anyway, I was transferred here, filled the position of alternate chief of operations and then chief of operations. Later I proposed a change in the name of the unit to the Division of Administrative Management to eliminate many details such as administrative services and space problems, which took time away from the main objectives. We figured we could set up a separate unit for administrative services but keep the responsibilities for administrative management tied in with one unit, dedicated for that purpose. I was

there as chief of the Division of Administrative Management until after some studies, and the workload buildup, we put in associate deputy chiefs. I was given the position of associate deputy chief for administration which is where I ended up.

Towards the end of that period there were several times that I made short trips to developing countries in Latin America on various forestry activities. I had been interested in and had kept contacts in Latin America in the forestry sector. In early 1968 I received a recommendation to assist the Interamerican Development Bank in its development of their forestry programs. They had nothing in that sector to that date. The reimbursable detail to the Interamerican Development Bank (IDB) was to write a forest load policy document and start its implementation. The various trips included heading an AID mission to Honduras to advise on a control program on the Southern Pine Beetle, Dendroctonus frontalis, epidemic in that country. I took trips to Colombia, Guatemala, Honduras, and Ecuador for the Interamerican Development Bank. I spent a month in El Salvador for AID writing a long-range forestry program which coincided in time with the so-called Soccer War between El Salvador and Honduras. You probably heard of that war?

RCL: Yes.

GDF: Which incidentally wasn't the cause. The soccer game fiasco helped to trigger the war but the major reason was

the high population density in El Salvador, which is reflected in the way its forests have been cutover and burned. The colonists cleared the slopes with a "cut-and-burn," shifting agriculture to obtain the few hectares needed to grow the corn and beans in their subsistence economy. They were going over to Honduras which was less heavily populated. Honduras was sending them back on the basis that it needed all of the jobs for its own citizens. The El Salvadoreans, particularly the large land owners, didn't like having them sent back as they would have to make land available, and there were other factors involved. So this was one of the major reasons for that conflict. It demonstrates also what happens to the forests and the relationship to the total economy. There were other minor assignments in those countries also.

I was in El Salvador once to work out a program for management of the mangroves. You know that the mangroves grow at the water's edge in the estuaries of tropical countries. So I had been . . .

RCL: Did you find any use for the mangrove?

GDF: There is plenty of use for them. There are two principal uses. One is they had used the bark of those trees for a tannin extract. Mainly however, the wood is used for poles and posts and also for timber in species that grow to a larger size. Care is needed in harvesting operations since the mangroves grow in a very delicate ecosystem.

They grow in the estuaries where there is a mixture of salt water and fresh water. They gradually grow farther into the water and build up the soil that way. Shrimp start their life cycle in the mangroves and then they go out to sea and they are netted there. Shrimp are economically much more important than the wood products from the mangroves. We had to work out a system to avoid any cutting during the wet season of the year, which was when the shrimp were developing in the mangroves. Then during the dry period, when the shrimp had gone out into the ocean, mangrove harvesting under certain practices could proceed.

I was at the Interamerican Development Bank for about nine months in 1968 and 1969. Then I returned to the Forest Service again, planning on retirement at age 62 and getting back into the international field. I retired on March 1, 1971 and went into the consulting field. I have worked in about fourteen different countries, the majority of them in Latin America, except for the last couple of jobs. One of them was for a year as a consultant to the National Farmers Union, Green Thumb, Incorporated, which is a grantee for about sixty-five million dollars from the Department of Labor. Most of the consultancies have been international. From November 1977 to March 1978 I was with the U. S. Forest Service as a consultant to analyze the workload and staffing in the Washington office.

The taping to this time covers the steps in my career-- probably in more detail than necessary.

There has been some time contributed to other projects.

An example, as chairman of task force on land and building for the Society of American Foresters, I assisted in organizing the Renewable Natural Resources Foundation.

The RNRFF and the SAF headquarters at Wild Acres, formerly the Grosvenor estate, was obtained for that purpose.

There was need for a common umbrella organization composed of all the natural resource professional societies located in a common center where they could work together in the natural resources conservation field. Most of the problems today don't come in one discipline. They are multi-disciplinary. Here was an opportunity to bring all of these renewable natural resource organizations together in one unit and in one location and under this foundation which we incorporated in the District of Columbia. The combination follows the principle which was developed during World War II on "operations research." It brought together in one team all the skills including statisticians required to solve administrative problems.

RCL: Okay. There were some studies that were done during your career that we will get into more. I would like to go back to other people in management in the Forest Service. You talked a bit about Roy Headley. I think maybe we should go into a little bit more about Earl Loveridge. Do you know anything about his education?

GDF: I don't recall his education but I do know that he was supervisor of a forest down near Santa Fe--I think it was the Santa Fe Forest. They may have changed some of the names and area since he left. Incidentally, when he passed away, his will provided for cremation and spreading his ashes over that forest from an airplane. Earl Loveridge was always energetic and productive. He would be down at that office a lot of mornings, I'd say at four o'clock. He wanted to get things moving. By the time the rest of the staff arrived he'd have a few notes spotted on the floor for different jobs for different people. He was really the prime mover in the application of Taylor's theories in "scientific management." Of course, you know the industrial revolution, the speed of it, was pretty much based on Taylor's developments in that field. Instead of guessing at something, he found the best way and developed the specialists that knew those jobs. I don't think there is any need to go into those aspects any further.

So Loveridge started the workload measurement system for the national forests. The title of his basic publication is "Job Load Analysis and Planning of Executive Work in National Forest Administration." He wrote this as a manual for forest officers. You see at that time he was assistant chief in the branch of operations--assistant to Roy Headley in the Forest Service here in Washington.

That was before they set up assistant chiefs. Earl told me, and I think there must be evidence in your records, that when he applied this methodology to the national forests there were many changes in numbers and sizes of ranger districts and forests that previously were largely established on the basis of size of an area rather than workload. They were the same acreage, which disregarded the workload in those individual areas. Some of them, for example, in desert type of country, you might say that the principle purpose served by that particular area is to hold the world together. That is facetious of course, as there are environmental aspects in all cover types. But there might not be work in terms of either timber, range, fires, or other activities which constitute a workload of a caliber that a ranger or assistants should do. This led into a definition of "ranger caliber" work and described what an employee, a fire guard for example, would do such as checking fire caches. Work measured then formed the basis for manning that particular unit and assuring there was enough to justify a staff.

RCL: Why do you think the Forest Service was so advanced in management studies?

GDF: It keeps coming back to individuals. I think it goes back to the climate within the Forest Service, from the time of Gifford Pinchot, as one factor. Pinchot hired a management consultant in setting up the national forest

system which provided for decentralized operations. Secondly, the type of individuals the Forest Service had like Roy Headley, Loveridge and Keplinger. Their selection and development could have been by chance in an organization that was relatively new and growing rapidly. It was therefore more receptive to change. Don Clark contributed a lot in this field. Don was very practical in taking leadership, particularly in workload measurement, after Earl got up to the stage where he was assistant chief. Bill Kramer, chief of operation, wasn't involved personally in detail and in developing these studies. He attended the meetings to be sure that everything was heading in the right direction but left the doing of the job to others. But we had a good man there in Don Clark. And from the field, I brought Ray Connaro in. Ray contributed quite a bit to the program from the South. Ray passed away about a year ago. We could name many others such as Marvin Smith, Walter Graves, Ed Schultz, Dave Nordwall, and Ralph Fields.

RCL: What was Connaro's input?

GDF: I brought him in to work on regional, forest, and ranger district job load analyses. He had been assistant chief of operation in Region 8, at Atlanta, so he had had the field experience.

RCL: Explain to me the workload analysis.

GDF: Let me discuss it in two or three aspects.

RCL: Okay.

GDF: One was what you might call the "tailor-made" analysis, right there locally at a ranger district level, in which the ranger who knew the district worked out a local analysis with the forest supervisor and someone from the regional office. They would go through all the jobs on the district that the ranger and staff had to do and discuss various jobs. They would ask, "What are you trying to do here?" What is your objective in these activities?" Today they call it "management by objectives" but setting the target was always the first step. What do you have to do to attain the objective? You analyzed all the jobs that needed to be done and how to go about getting them done. Standards were set for the job and a unit time allowance for doing them to that standard. There is also a volume of business, which is the number of times the various jobs are done. In other words, if you are going to make a timber sale of this size, how much does it cost you per sale? How many sales of that size are projected? What's the total cost? The time allowances were later converted to dollars to find out costs, but the initial effort was in determining manpower needs. What are the numbers of people it is going to take? Then there is classification of those jobs into caliber of work and organizational level assignments. You can't, for example, analyze the workload at the forest supervisor's level until a determination is first

made of what jobs are going to be done at the regional office level and what will be delegated. The forest supervisor in turn, needs to know what the delegations are from the regional office and what, in turn, are delegated to the ranger district level. The regional office level, for example, retains responsibility for policy and delegates the doing level of jobs to the forests. If you've got similar situations the delegations need to be the same. Then you have a correlation and fund allotments were made on the basis of the workloads. If funds were adequate for only about 80 percent of the workload, then each region or forest got that same percentage of funding for the fixed base workloads and there were changes made where there were volume of business changes. For example, if greater volume of timber was to be sold on a forest, the timber sales project fund would recognize the increase. If you don't know what the delegations are, you don't know what the job is at the different levels. It's been generally found that you get a better job done if you delegate work, and hold that forest officer responsible for the results. If one is going to send a request for approval, the person who approves it is taking the responsibility. There is a human tendency to do a better job if one is going to have to live with his own decision rather than accept the decision of a superior officer.

RCL: It's not correctable.

GDF: That's right. Many aspects are involved, so you have to know what the total job is and how you are going to do it and the work analysis for the year for non-recurrent and recurrent work.

The recurrent job is the most important factor generally, as you first develop these workload analyses. There may be some changes. You may have more fires one year than you have the next. You know that and some of the other jobs may vary, but generally it is the repetitive work which will be recurrent. It needs periodic adjustment but not annually. It is a fixed workload within a district that is a factor in fixing the size of the district.

Let's consider other aspects of it. The field level jobs are getting more multi-disciplinary. It's reaching a point where with increased workloads you need the expertise of somebody that knows wildlife management right out there on the district and another one who knows range, and another who has timber expertise, recreation, etc. We've reached a point where more experts are staffed at these lower levels. You want the job done at that ground level to reflect the expertness of the higher level guidance of the different disciplines. If you don't have some specialists who are knowledgeable right on the ground, then you lose the value of the expertise of the upper levels. You don't have the communication and you don't have the training and the competence at that ground level to get the

job done where it has to be done. So there was the task of expanding these districts in size to increase the workload more than previously and justify manning with greater expertise in different disciplines that are interrelated. That's one aspect of it.

The size of forests came into it from that standpoint too, so that they could justify full-time staff specialists to help plan and inspect the activities in their fields. It was a gradual evolution as the workloads grew and adjustments in unit sizes were made to justify the different specialists for the different activities or disciplines that are related. It's always a part of the package that gets a multiple-use job done.

We talked about the workload analyses as they were prepared out there on the district with the ranger. Now to correlate the workload analyses was another step, in which you are looking at it for the purpose of comparing the workload analysis was used as a basis for an allocation of funds to the regional office level, the national forest supervisor level, and down to the ranger level, for the types of jobs we are talking about. This requires obtaining similar data with the same correlating factors applied the same way for each unit. For that purpose correlating factors have to be broader than when you are only preparing analysis for an individual unit and using it only on that unit. It's a relative thing between these

different organizational units. For example, the correlating factor for preparing time allowances per unit for the information and education sector was based on the population factor and correlated in that manner to insure uniform and reasonable time allowance.

RCL: The units could be of all different sizes.

GDF: Yes, of different sizes. Now, remember that situation that we discussed previously. I don't know if it was when we talked about the differences in unit costs. That wasn't taped, so we'll use a simple example. You can mark a thousand board feet of timber in less time for a timber sale in the Northwest, with the large trees out there, than is the case with the smaller trees in the South. One needs to mark more trees to get the same volume and this requires a higher unit time allowance per MBM marked for sale. In those situations the unit time allowance for the MBM uniform correlating factor is higher in the South. It is the unit time factor that is zoned on a nationwide basis to provide uniform allowances to timber types with approximately the same size classes and other conditions. However, the MBM is the correlating factor that was used in all zones. You are talking about a thousand board feet of timber and it costs more for timber sales in the South than it does in the Northwest with the larger timber.

RCL: I see. So stands would not be . . .

GDF: Uniform. The timber stands vary by timber types, sizes and other factors, such as how long it takes you to mark the timber, the supervision of the sale and all the other breakdowns in the many different jobs. The unit costs are determined for similar zones. The difference between this correlated analysis and the "tailor-made" analysis is that the correlated one is an average and does not apply to an individual sale on a specific ranger district. This cost may be somewhat higher or lower than the average.

Another example is in the public relations field. You know that contacts will need to be made with the public for the different groups, different users and different interests in the forest. It includes writing articles for publication and newspapers, giving talks, and other relations with the general public. There appears to be a greater need for public involvement now than in the past. In fact it is required by legislation. However, public relations has always been important. I can remember what Lyle Watts, in Region 9 and later chief of the Forest Service, said to me one time. We were talking about Region 9 where several new national forests were being established and others were expanding to new areas. Lyle stated. "You know the most important job here in Region 9, at this stage, is the public relations job." Even the people that know something about the national forests, the timber, recreation, fish and wildlife and

range resources, and the need for protection and development have to be kept informed on those activities along with other items. To insure that a fair and reasonable allowance was made for the public relations activity it was correlated on the population factor. The staff time allowance for this activity also was a deterrent to going "overboard" on an activity of this nature. Experience was a factor in determining that allowance. This item is used as an example for an activity where it would be difficult to establish precise time allowance. The volume of business factor used was the number of people in the particular area.

RCL: I see.

GDF: There is another aspect in what was called the allotment base. It was divided into two parts. One was what we called the "base." Periodically you revised that base. These were jobs which were repetitive from year to year and didn't change appreciably, but over a period of years, they needed revision. There were other types of jobs that we called "project" such as timber sales. They were jobs for which the volume of business varied from year to year depending on markets, financing received, and on priorities of regional and forest allocations. That part of the workload analysis was changed each year to adjust for the volume of business allocations. At one time we kept within the base a certain volume. This stabilized a fixed volume you were going to cut every year

regardless. Then above that the remainder was allocated annually depending on market changes, state of the economy and other reasons. Many of the foregoing were details of operation. I don't know how much you want to get into detail.

RCL: I don't think we want to go too far. We need a certain amount of it to understand the nature of what we are talking about, I want to ask about transportation. There always seemed to be a large section in all these analyses on transportation.

GDF: Yes.

RCL: I can see how that would really be an area that would take the greatest amount of management and planning. Can you tell me how that factor evolved?

GDF: I think we mentioned progressive travel. That gets into work planning. This is a factor in work plans. Travel on a district is a big time factor and needs to be summarized by progressive travel. The best way is not to go out to an area today and out there again tomorrow, but insofar as possible to get all the jobs done as you go along. This doesn't apply to a project job such as marking timber on a sale which would take many man-days. To develop the travel time allowance one goes over the location of the routine activities such as inspection of special uses right there with the ranger. By this method you see where he has to go and how much time he is going to be on the job and then he's got a certain number of

miles and it will take him a certain number of hours for travel. The travel time is then expressed as a percent of the work time and added to give the total time allowances. They are by districts and in the "correlated allotment base" an average travel factor is used. For a big area with twice as much travel but the same volume of work, you would have twice as much travel time as a factor in preparing a tailor-made workload analysis for that district.

RCL: The measurement then is a mile?

GDF: Yes, that's right. You are factoring that back into time.

RCL: It seems like what you would call "common sense."

GDF: Well, it is but you would still be surprised sometimes, if you don't do some good planning it just doesn't happen. You think of the many different jobs . . . even say around the house. Here, I'll draw out a little sketch of some little things I want to get done and when I want to get them done. On my list, I've got a call to make this afternoon after you leave. When you have all the multitudinous jobs, you've got to prepare a careful plan for the district with all these different tasks, the employees who are going to do them and when to insure accomplishment. It is work planning. You've got to get that correlated for the unit.

RCL: And perhaps have common sense. Maybe sense isn't common. You need some sort of empirical evidence to make an analysis otherwise such activity has to enter the realm of chance.

GDF: You minimize some of these things, Additionally--I've seen this--if you do work plans for a month ahead and the ranger and his assistant do it together, so that they are together on what is going to get done, it becomes a contract to get those jobs done. You know in the course of that month something is going to come up and it is going to change something in the plan. In fact, if they made that plan and it came out exactly the way it was planned, you might begin to wonder whether they really recognized what really needed to be done and whether the work plan controls the maker rather than being a means to help him. A 100 percent compliance for the ranger and his assistant's plan for a month might remind you of the fellow who was an excellent marksman--he shot first and drew the target around where the bullet hit! In simple terms, one determines the objectives, the jobs needed to reach them, the best way to do those tasks, what time will be required, and then insures that everybody understands and does their best to achieve the objective. You can call the process management by objectives in today's language.

RCL: The basic assumption is, I guess, that it would give maximum output.

GDF: Give you the maximum output and the highest quality. Quality is an important part because you've got the established standards to follow.

RCL: I'd like to talk now about the PWIs--Public Works Inventories. This is something I have . . . ,

GDF: Yes. I think its basis was long-range planning and deals with long-range development needs for non-recurrent projects such as reforestation, roads, recreation areas, etc., to bring the national forests to a high production level in multiple-use resource management. It also included state and private forest lands. This is the non-recurrent work we are talking about here, not the day-to-day recurrent jobs. The PWI was an outgrowth of the emergency programs of the 1930s. We wanted to be ready for any new programs and insure that the labor was used on the priority projects that contributed the most to protection and development needs. Secondly, forestry is a long-term development job and long-range planning is essential. Reforestation and silvicultural improvement are examples of activities with long-deferred returns. In the PWI all of those development and protection tasks were compiled by national forests in units of work and unit costs. Also we needed priorities for those jobs-- a coordinated long-range approach. At the time I started in the Forest Service we had nothing of that nature--just a year-by-year estimate for budget purposes.

RCL: No plan.

GDF: No plan. We had to make those. That was one of the first jobs I got into. Where are you going to go and what are you going to do? Look over the reconnaissance of some of those areas and see what silvicultural, timber stand improvement work should be done, and get that crew working.

We first started out with some clean-up along the roadside, and fire breaks and that type of thing. It was one way to keep them busy.

RCL: Each day you would decide what you were going to do.

GDF: Not quite on a day-to-day basis but there was no inventory from which to select priorities, It was something obvious . . . you know, "Let's go down there and do that job." So we began a systematic way of getting that data together. This gave a sounder basis for appropriations and other purposes in volume of work, of productive work, that was needed on those forest areas. That helped us in many ways during the different programs, particularly in the depression. It helped us also, as I mentioned to you, during the accelerated Public Works Program of 1962 and 1963, during what you might call a "recession" rather than "depression."

RCL: Yes. Is that what they called it?

GDF: Yes. We had the data ready from the PWIs, We knew where the jobs were and the number that could be employed in the rural areas on forestry jobs and do productive work. There were various facets to that program, such as buildings and other construction activities in the cities as well as in rural areas. Roads and all the varied public works were involved in the program. Many of the agencies, of course, did their best to get in on the program and receive fund allocations from the accelerated public works

appropriation. This included federal, state, and municipal organizational units all competing for funds. I handled the program for Secretary Freeman in USDA and worked with John Baker, assistant secretary of agriculture, whose agencies included the Forest Service, Soil Conservation Service, FHA, and other agencies. The PWI was of tremendous help and we were ready to start on a week's notice with almost any potential funding.

RCL: They had this information from the PWIs which was a sort of workload analysis.

GDF: Yes. It was the Public Works Inventory that supplied the information.

RCL: To provide you with an estimate of what might be the norm.

GDF: You knew exactly, at least you had a good estimate. If you didn't have exact figures it was close enough for the purpose, such as what acreage needed this kind of treatment; where they were located; and what the unit cost would be for doing those jobs. When funds were allocated, areas with the greatest unemployment obtained the highest allocation of funds. The PWI was, I think, a development within the Forest Service which put us ahead of some other agencies at that time, including the Department of the Interior, by having our data readily available and ready to start work. We could start the next week and stop the following week. It isn't like building a big building somewhere that you can't quit in the middle of.

With most of the Forest Service projects we could start promptly and quit promptly--gear the work to the availability of funds.

FCL: So having the PWIs available really paid off for the Forest Service.

GDF: Yes. It helped considerably having that available, plus the fact that we could mention the productivity of our projects in returns to the federal government, such as future timber harvests from planting trees, etc. It isn't dollars thrown down the drain to keep people busy, or as they used to say in WPA, "Just raking leaves." The PWI has served a very useful purpose, In building the PWI we developed the projects in more detail for shorter range projects such as priorities in the next three to five years. For the longer-range periods the data were more general. To get too detailed on those longer-range projects would become somewhat of an intellectual exercise as conditions could change in the interim period. The data were accurate enough for the purpose.

RCL: I'd like to know about the development of the Operations Research team, the OR team.

GDF: What happened was that operations research was developed during the war. The navy used it for example, to determine what the losses would be in convoys with different numbers of cruisers for protection. It was mostly confined, I believe, to military operations at that time.

After the war was over, they had a lecture series on operations research at Johns Hopkins University. I attended it with Earl Loveridge. He was interested in it also.

Incidentally, Loveridge never had an automobile of his own, so I drove him over there. He had figured the costs in unit costs and so forth, and decided that he'd be better off and farther ahead to rent when he wanted a car rather than own a car. He could be right. But he was that kind of an individual.

Anyway I drove over there and we attended that conference and the more I thought about operations research, the more the word "research" rang a bell. I thought we've got all kinds of research going here in the timber business, range, fire, and everything else. But we have nothing going in this administrative field so why not start it at an experiment station. We've got just exactly the same responsibilities for research in administration as research in other activities. Then why shouldn't we have research in our administrative research units? For other types of research, we have experimental areas. We've got all kinds of experimental areas where different tests of different kinds of species and different types of cutting, etc. were made. We could have a national forest, maybe one in the East and one in the West, and they would be the experimental forests for operations research and administration research. Gordon Gray was in the Washington

office, Division of Operations at Denver. He and I designated a national forest in Region 2 and selected Chet Shields for the staff specialist for administration on the forest. Gordon Gray, incidentally, was an excellent specialist in our field and made considerable contributions to the projects.

RCL: That was a very innovative idea.

GDF: Some of the groups that have been set up in some organizations in the last ten or fifteen years are a part of that picture. Organization and management, or organization and methods as it's usually called, contains some of the elements but not to the extent as in Operations Research. The Operations Research started out saying that no single discipline can carry out a project of this kind. You need to get all different kinds of experts in on it. In the Forest Service we had people like myself who were foresters and had been exposed to some of the administrative management techniques but you had to get some top people in this area, and statisticians are important in this field of operations research. You get into different specialties but the professionals in management would compose the nucleus of the Operations Research group. You would draw on other individuals with different skills for specific projects and then you'd have a working group and there is a stimulus and a catalytic effect from experts from different fields getting together and the effect it has on each other. Most problems or opportunities

involve different disciplines. This is important. It was part of the thinking on getting a group of this type together.

As stated previously, it was patterned after what the armed forces had done during the war, where they brought all the different specialties together that could have any influence on a solution. If we have these different shipments cross the ocean and there are this number of cruisers for protection and the losses are that number of cargo ships, based on experience records, then one has to determine statistically a justifiable ratio. If the ratio is less or more, then it can't be justified and you need to be able to justify the logistics end of it. It takes a lot of skill to work out something like that. This type of approach apparently was the basis for Operations Research. Some of the things they would tell us about in the Johns Hopkins classes were applications such as knowing when crops in a certain area were ready for harvest and the migratory labor needed in numbers and in timing for that purpose. You have to determine when you need to bring labor into the area and how many you are going to need, and if the season is just a little bit delayed what is going to happen, and all the different elements. I had hoped that the Operations Research project would be justified before the appropriations committee, in the same manner as other research projects.

We had a study under way at that time so I applied this to different areas. Like most projects of this nature, the results depend on the capacity of the people working on it. We were fortunate in the selection of employees for the Operations Research team and they have justified the project many times and proven its worth. It didn't go just as I had visualized it in all aspects, but we got the project under way and that's the important point. When I was back with the Forest Service a few months ago as a consultant, I was interested in looking over some of the different projects assigned to the OR group. I don't know if I would change that any because after all, I'm out of date on it. But they can get too many two-bit jobs assigned. They should always be working on something really important that deserves the high-level support of that group. But somebody is presumably setting the priority and is anxious to get this kind of a job done quickly and they say, "Let's give it to them." You run into that, but that is only one aspect of it. The use of one national forest as an experimental forest apparently didn't work out too well. But there is a need for testing and debugging administrative changes before application on a wide scale and this has always been done and will continue. One needs to try the administration change and select some location to test it before putting it into operation on a service-wide basis. That's what the only purpose is. You test it.

In my judgment the Operations Research Unit established at the Southwest Experiment Station has made important contributions to Forest Service administration.

RCL: Does any other part of the government bureaucracy use anything like that program of operational research?

GDF: I don't know. I am far out of date now with what the others are doing. From my experience with a couple of different departments on some recent jobs, since I retired, I feel that it is not being used to the extent it should be, I'll put it that way.

Some of these techniques are in the management field including 'esprit de corps' which is the most important management consideration. I recall that Orville Freeman, when he was secretary of agriculture, used to refer to the Forest Service as the "Marine Corps" of the department. But I believe there was a higher level of 'esprit de corps,' then than there is at the present time. I don't mean to infer that the Forest Service is not a productive organization. Overall it is still a very effective organization and has considerably more pressures than during the era we are discussing.

There are a lot of different administrative aspects here that I don't know whether we've touched on. We mentioned management by objectives. There is also what is called "work simplification" and "work improvement suggestions." Basically we were trying to find the best way of doing the job.

RCL: Yes.

GDF: And simplifying it to the point where one didn't have any unnecessary steps in the procedures. They have tacked new names, over the years, on some of these. It's history

repeating itself. They talk about the zero-based budget. We went through that once.

RCL: Would you please tell me about the Deckard Study?

GDF: Yes. During the 1964 to 1966 period, the Bureau of the Budget was making joint reviews of management practices and manpower utilization in government agencies, at the request of the department secretaries. One of these reviews had been completed in USDA by the joint team of three members from the Budget Bureau, one from the Civil Service Commission, and one each from the office of the secretary and the agency being studied.

The rumor came to me that a high official in the department had stated that he wanted to see if the Forest Service management really justified its excellent reputation and that he was recommending a review of the Forest Service by the Bureau of the Budget team. It was approved. The team consisted of Ed Deckard, BOB team leader; Sydney Freeman, BOB management unit; Ron Landis, BOB budget examiner (including Forest Service budgets); a CAC representative (I've forgotten his name); Joe Loftus, secretary's office. Chief Ed Cliff appointed me as the Forest Service representative on the team. It was an in-depth study including trips to various field units. It ran for several months. The discussions on recommendations covered all aspects of Forest Service programs. The review gave an excellent opportunity to introduce proposals from the Forest Service and obtain the support of the review team

for them. Examples of Forest Service proposals were closing the Central States Experiment Station and the Region 7 regional office, and establishment of two new State and Private Forestry regional offices--Upper Darby, Pennsylvania and Atlanta, Georgia.

The consolidations and the establishment of the two new State and Private Forestry regional offices in the East provided an opportunity to save some S&PF financing that was then reallocated for providing administrative management specialists to work with the state forestry organizations in advising them in this field. Over the years, the Forest Service had employed specialists to advise state forestry personnel in the S&PF program area, such as fire control and technical assistance to woodlot owners. During that period the state forester organizations had expanded and there was a definite need to assist them in the administration field. In fact, in my judgment, there was a greater need to increase the efficiency of the state forestry units than in some technical fields. The expansion of the state forestry organizations, for example, resulted in their employment of forest fire specialists, but they were weak in the administrative management field. The Budget Bureau review of management practices thus provided an excellent opportunity to extend Forest Service assistance in increasing management efficiency of the state organizational units who were allotted federal funds through the Forest Service for forestry purposes.

As a sidelight, it was rumored that the department official who recommended the study had thought that the finding would result in cost savings in reduced appropriations. I still recall the reaction to Ed Cliff's presentation when increased funding was proposed for activities such as road construction!

Secretary Freeman wrote to President Johnson telling him that our Operations Research group was brought in for implementation of the results. The reply from President Johnson to Secretary Freeman and the secretary's accolade to the Forest Service speak for themselves.

(See appendix)

Presumably, the team report (called the Deckard Report) is available to the historians.

RCL: This ends the interview with Gordon Fox on June 15, 1978. We will continue tomorrow.

RCL: I think I would like to start today by going back to personnel involved in Forest Service management technology. There is one person who we haven't covered and his name doesn't show up too often in the records. That is Henry Farquhar. Can you tell me what you remember about him?

GDF: Henry Farquhar, I believe had a forestry background originally. He had been working in the administrative management field and was employed by Chief Forester Silcox to look at the Forest Service organization as a

whole, but primarily, I believe, he concentrated on the Washington office. I say this because of the material that I've seen and from discussions with him. I remember that the Forest Service had recently been reorganized. The increased workload, as a result of the Civilian Conservation Corps and some of these other programs during 1933 to 1940 period, was such that a study became necessary. It might be that Silcox took an important step in this reorganization procedure. He was chief under the New Deal, at a time in which many of the new programs and pressures were developing increased workload and increased political pressure to fill the jobs that were created and particularly some of the top jobs. This was a pressure that the Forest Service had not been under before. The Forest Service at that time was not organized at the top level, in terms of assistant chiefs, and in delegations to efficiently handle the greatly increased and fast moving programs. In other words, the chief didn't have the kind of a staff that was needed under the circumstances, and under that kind of a workload that was hitting him all at once to get that job done adequately.

RCL: So it was a period of centralized management rather than decentralized.

GDF: In the Washington office the big burden fell on the chief rather than being shared by assistants for the different programs to spread that workload. So prior to Farquhar, I think shortly before he became a consultant,

there was an increase in the number of assistant chiefs, and Loveridge became one of those for administration, and Granger was in charge of the national forests. They had an assistant chief for research and timber. An assistant chief for State and Private Forestry was the last addition. It was the first time that State and Private Forestry was recognized with that program stature. The assistant chiefs were the chief's staff, to give him support on a staff basis across the board and reduce his workload. Farquhar came in to study that organization. He had some voice in the regional set up, but the real study was on how it was working and what changes needed to be made. In other words, his work was to perfect the organization.

RCL: Yes.

GDF: My personal opinion is that Farquhar tried to do the study a little too much alone. He may not have consulted adequately with members such as Earl Loveridge and Bill Kramer and some of the others. They weren't always together on proposals. I recall that Farquhar had a proposal in which each one of three branches--state and private, research, and national forests would have their own administrative setup. In other words, they were to be independent. Loveridge mentioned to me one time that this was not good organization from his point of view, and, I think in this case, I will agree with Loveridge. Loveridge said, "Well, now look, if you go over to the department, or you go to the appropriation hearings, you

would have three units from the Forest Service going independently to the offices of Personnel, Budget and Fiscal Management, etc., in the Department of Agriculture, Budget Bureau, or on the Hill. This will tend to pull apart the Forest Service organization instead of keeping it as a coordinated grouping for greater effectiveness. We need to be sure that we do have that tie-in."

Since my interest was public administration, I would drop in and talk with Farquhar occasionally during that 1938 to 1939 period that I was in Washington. I recall just before I left, Silcox had, I believe it was a stroke-- it was a heart problem anyway. When I said good-bye to Farquhar he said to me, "What will happen to all the work that I have done here, all the organizational analyses that I have prepared for the Forest Service, if Silcox should pass away?" When I reached Atlanta on leaving Washington, a week later, I got the news from our Forest Service office there that Silcox had died. I think Farquhar had that situation pretty well sized-up, because to my knowledge, not much ever did come out of his studies in the organization and management of the Forest Service.

RCL: So, his only support really was from Silcox.

GDF: His major support apparently was from Silcox. I'm not sure what occurred after Silcox's death. You would have to obtain that from other sources. Bill Kramer would be able to fill in the gaps. I went from Washington, D.C.

to the position of assistant supervisor at East Tawas, Michigan, on the Huron National Forest. I had one or two letters from Farquhar but then I have lost track of whatever did happen to him subsequently.

RCL: Did he leave the Forest Service?

GDF: Oh, yes. He was a consultant there at the time.

RCL: Were there, because of the way he was handling it, animosities with, let's say, Loveridge or any others?

GDF: Well, I think this much--that there was not agreement on what should be done--let's put it that way.

RCL: Do you think it was because of the lack of communication?

GDF: I think part of it was lack of communication, and I think part because there were definite ideas that were not reconcilable.

RCL: So it was based on differences on how to approach the problem.

GDF: That's probably right, or how to solve it and improve management.

RCL: Now, I'd like to jump to a whole new subject . . . that will be the use of manuals and files within the Forest Service, particularly as they reflect changes in developments of management technology.

GDF: The manual and handbook system is one that has grown from a time when they first had what was called a Use Book. It was a small handbook. I notice at the present time the Forest Service has about a twenty-foot shelf of handbooks and manuals. I was informed in my recent study for the

Forest Service, that I completed March 1978, that about 4,000 pages were written in the previous year for the manuals and handbooks. That includes new material which was required and stimulated by the new laws and regulations that have been passed and also by revisions to keep the handbooks and manuals current. At the time that we began to look closer at what was going into those manuals and handbooks we had what was called the "four-foot shelf books" which have now grown to twenty.

The main reason for the manual was that, operating in a decentralized organization, our field employees need to know what the policy of the Forest Service is on all the different activities and different areas they were working in. Basic procedures were established to avoid plowing the same ground time and time again. You had those subjects outlined in the "how to do." The handbooks gradually evolved as the area in which the "how to do" would be placed. The policy and other broader phases were also in the manual. As they grew in size and as they were written in different program units, the result was a big variation in the amount of detail. To a specialist his activities were most important and he often tended to write too much detail to be sure that everything would be the way he would like to have it in the field. The detail varied by individuals and would permit greater decentralization in some cases. This would leave more latitude to the field man's judgment. There

was a major job in getting reasonable uniformity in how far you went in detailing specific procedures and instructions for the jobs and the different activities. The Forest Service developed, to a large extent under the saying that "The situation dictates the action." At that stage, we had a consulting firm, McKenzie and Company, come in and make a study. We called it the "paperwork study" because it involved instructions in manuals and handbooks and their coordination with the regular correspondence files in communications between the field and the Washington office. To follow-up on the consultant's recommendations and recognizing their importance in administration of the Forest Service, we brought in a regional chief of operations, Jim Iler, and another assistant to him, to handle that task. That move gave high-level direction to coordinate the manuals and handbooks, and to work with and train the program specialists on how to write, what to put in, and what not to put in the manuals, so that we were not taking all the judgment away from the field man. We needed to still recognize that "the situation dictates the action" in the field and it is poor organization to attempt to spell out everything. The more detail written, the less that is truly delegated. The best approach is to get employees trained and retain high 'esprit de corps' in the organization. The employees should know the policies and general procedures. Then they will carry out the programs in a

manner that is relatively uniform between districts, forests, and regions.

RCL: So that it is flexible enough that it will allow a situation to govern action.

GDF: Definitely, because you've got to let that employee make decisions . . . that's what you hired him for. You want his judgment to be applied locally.

In the same study, McKenzie and Company looked at the files and the filing system. They changed the filing system so that it and the manuals and correspondence use the same system. They were formulated together. That was the first time it was done but as an organization grows the way the Forest Service had been growing and is today, operating procedures that were "good enough" have to change with current conditions, and with new programs. They used to say if you haven't looked at your organization for five years, you better take a look at it because conditions change and you've got to change with them. I don't know of any federal organizations whose programs, over the years have fluctuated to the extent of Forest Service operations. The Civilian Conservation Corps, WPA, NRA, forest fire conditions, accelerated Public Work Program, timber sales and reforestation, and the present Job Corps, YACC, and CCC programs are examples. The point is that these rapid changes have always drawn attention to Forest Service organization and management and this emphasis has been a factor in developing its capability.

RCL: Yes.

GDF: So this has been a factor in the Forest Service. It's a different organization in many ways than it was ten years ago or twenty years or back nearly fifty years ago when I first had contact with it. There is a tendency sometimes to think of things as they used to be and not be realistic. You have to meet today's situations, today's problems, and you've got to make adjustments to do that.

RCL: Yes.

GDF: This is a factor and has been important in administration of the Forest Service.

RCL: I came across some material that indicated that there was another "paperwork study" that was being conducted jointly with several other agencies, and I think McKenzie was working on this too. Do you know anything about that?

GDF: I don't recall any "paperwork study" except this one for which I negotiated the contract with McKenzie and Company. It set a benchmark because, for the first time in many years, we contracted with consultants to study our organization. We also found out that, in the use of consultants, you get the most from a study of this type if you assign one or two employees from your own shop to work with them. It works out best for two reasons. You can get the outside points of view from the company you hire and get their input into it, but you can also get the local input. Our people are more likely to talk frankly to someone from the outside than we put on the study. With this system

we obtain an "in-house" input as well as an outside view from the consultants. You will also obtain better acceptance by your organization because your own people provided that input and participated in the study.

RCL: Not just a bunch of "outsiders."

GDF: That's right. The question is raised, what do they know about the Forest Service? But you've received that important outside, unbiased study. It is a joint study. Both the "outside" and "inside" points of view are reflected in joint recommendations. It is, in my judgment, the best use of consultants.

One of the recommendations was for associate deputy chiefs to give more assistance at the top level. Specialization can be developed to a point that there is a lack of coordination, lack of control over the technical specialists who are looking at limited activities. There is a tendency to break the activities down into more specialized components, and the more you do that the harder it is to get coordination. This has been brought out previously as an outgrowth of Taylor's system, which you are probably aware of.

RCL: Yes. The McKenzie study was published as "Gearing the Organization to the Job Ahead." In the records there are, I think, four very large folders of comments made during your administration on "Gearing the Organization to the Job Ahead." It is quite a thing to go through that. Scores of comments were made from the field which were

pretty thorough. I think everybody must have made some sort of comment. There were comments in there several times saying that it would require too large an increase in personnel.

GDF: Yes.

RCL: Some said it was too theoretical and wasn't grounded in reality. Others said it would cause animosity between the suggested divisions and that there was no reason to do that. The dissension is very interesting, even though most, say 80 percent of the survey, approved the study. It is my guess that, as you've said, people were probably resisting change.

GDF: It's always hard to get change. There is the uncertainty factor with change and when you are used to doing things and you know all the routines and habits it is harder to effect change. When you introduce a change you are introducing something that may have an effect upon the importance of their jobs and their relationships with others. It is always easier in making a change if you can time it as new persons appear in the jobs. You then won't have to change the habits of incumbents. "We've been doing it that way for fifteen years." Also, if you put in another assistant to the top supervisor, you tend to put a buffer in between that top man and important specialists in these technical divisions. Change creates problems which need to be overcome to get the beneficial results.

RCL: Were surveys, like that testing the reactions to the McKenzie study, common? Were they commonly done?

GDF: I would say that they were not commonly done with outside consultants like the McKenzie and Company group.

There is another factor to consider in hiring a consulting company. The company may have an excellent reputation but at the same time few contributions to any study are made by the company, per se. The results come from the particular individuals and their competency, that are put on a particular study by the company. It isn't the company that is going to do the job, it's the firm's consultants. You better look at their pedigrees, backgrounds, and training, and require the individuals with the types of experience and competence in the areas you want studied, to be assigned by the consulting firm for your particular contract.

RCL: You want to match the job with the person who is actually working on the project and see that the project gets processed expertly.

GDF: That's right. So when we obtained another contract we specified the assignment of the same two consultants of the firm who worked on the first one and they didn't have to start from scratch because in this first study they had become familiar with Forest Service operations. I still recall that, at the end of the last study, the consultant who was heading it for the firm told me (most

of their work, of course, had been with private companies), that the Forest Service was better organized in its administrative practices than any private company he had ever studied. Most of their consultancies had been with private companies.

RCL: Do you remember some of the private companies?

GDF: I can remember one. I believe it was one with a railroad company that he had just completed. It was one of the railroads that was not running a deficit. He said, "Look what happened in our last contract with that company. There is unionization in the company and they put in a computer system, which we recommended, for some of their records . . ." I don't remember if it was for their payroll operations or something else, but they couldn't lay anyone off to reduce their organization. So they continued the work about as it was being done as well as using the computers. That's quite a while ago and I remember him mentioning this item. The Forest Service at that stage was not unionized.

RCL: Did the McKenzie study result in another reorganization?

GDF: It was implemented, I think. You don't get 100 percent, probably 75 percent . . . somewhere in that neighborhood. I can remember in State and Private Forestry they recommended an associate deputy chief. Bill Swingler was the deputy chief for State and Private Forestry. He didn't want an associate; he wouldn't have one. There was one example. Well, today the Forest Service has at least one

associate in each branch. For effective operation there needs to be an agreement between the deputy and his associate on who does what and when. It's important to do that type of planning to agree on how you are going to work together.

RCL: How real was this critical sentiment? The report was printed in January of 1960. How long does it take to implement something like this even to only a certain percentage of completion?

GDF: I don't know. I think you'd say that we started right away and how far we went, and how fast, I'd have to really look at closer. I am sure that, 75 percent of the recommendations were implemented. It takes awhile but it was started right away. There was no delay on starts.

RCL: So perhaps it's still being implemented.

GDF: Well, I feel reasonably sure that now there is no one around who remembers the details of organization in the early 1960s and who can compare it in detail with the current functions, because of the changeover of personnel. That doesn't mean that the proposals don't keep recurring to an extent, like the one we were talking about that has again been recommended now with the increased workload and increased pressures that are causing it. We are talking history and there's no point in my getting into some current recommendations such as those made during my recent consultancy with the Forest Service. That's not history.

RCL: It is . . .

GDF: But I think that . . .

RCL: What happens this morning is history. Let's not get into that.

GDF: No. That's right.

RCL: Yesterday we discussed job load analyses with descriptions of workloads and other details.

GDF: And decentralization.

RCL: I think we should get into the annual workloads by forests. Can you describe how that evolved and was practiced?

GDF: The procedure was developed on a national basis and was pretty much handled in the Washington office. They supervised the workload measurements and then available dollars were allotted, based on that workload, on a percentage basis to the regions and forests for the amount of timber to be cut, etc., as we had justified the funds before the appropriations committee. We seldom received 100 percent. We were allotting it proportionate to the recurrent normal workload by organizational levels. With only a percentage, say about 75 percent of the total recurrent workload, financed, there was programming need for annual work plans which would assure that one activity was not financed about 95 percent and another one about a 45 percent level. With a multiple-use program a balance was important. A work plan on an annual basis also took the pressure off a forest supervisor from regional staff members competing to have their activities given

higher priority at the forest level. An annual work plan based on available funds was, in effect, a contract between the regional forester and the chief of the Forest Service and between supervisors and their regional foresters on the program for the year and against which their accomplishments could be measured in both quantity and quality production. Work planning has been an important management tool in planning what's to be done and the way it's going to be done. It still recognized that there would be times during a bad fire season that priority would need to be given to protection. But essentially that's the way it was developed and applied.

RCL: So essentially it results in Taylor's goal: you will have a maximum amount of output from what you have put into it.

GDF: That's essentially it.

RCL: You don't have the waste from poor management planning.

GDF: The work that is being done is still being done with the funds that are available because that is the way it is planned.

Then there was another factor and this gets into a little philosophy too. I can recall thirty or forty years ago we were talking about manning levels and it was said, "When we reach the stage of workload expansion and financing to justify and provide the specialized assistance at the supervisor and ranger level, and you have the competence there and in the regional offices, then we will no longer require specialized assistance from the Washington

office except for new programs that may be given the Forest Service in which policies have not yet been developed for field application." The thought was that for the established programs only generalists who have a knowledge of the programs would be required in the Washington office. The secretary of agriculture doesn't have all the specialists in his office, yet he has the responsibility for the Forest Service. I believe it was Don Clark who first explained this reasoning to me. As mentioned under this proposal you would retain employees at the upper levels, that were experienced and knowledgeable in Forest Service programs. When one considers the amount of new legislation that has added to and changed Forest Service programs in the past few years, one wonders whether the Forest Service will reach the stability we assumed would be the ultimate situation in our long-range discussion and proposals for the Washington headquarters staffing, in our correlated workload analyses some forty years ago. As stated, there needs to be less delegation, until such time as new policies are developed for new program operations and major procedures are established. There is often a tendency to hang onto authority at the top levels for fear of mistakes being made by delegating to lower echelons. There needs to be recognition that delegation carries with it a right to make occasional mistakes. So that's a factor.

RCL: One must also give up a bit of his power.

GDF: One must give up his power of decisions but be held responsible for results.

RCL: What we are talking about is decentralization.

GDF: Yes.

RCL: Can you discuss a bit about the inspection system check?

GDF: The inspection system has had a few changes since I retired. I think we will talk about it as it was originally conceived and implemented. As stated previously there is a definite need for change in organizational practices and procedures with passage of time.

RCL: Each man is himself an inspector.

GDF: That's right, because this in effect was the philosophy-- that you as the man on the ground are going to have to do the jobs and the men above you still carry the responsibility and must be informed how well the activities are being performed. Reports furnish some information. The reports can test the quantity of work as reported but the quality is something else again. That doesn't show up in a report. It was found out early that there was a need for an on-the-ground inspection system to be established along with the substantial delegations to the field, on the principle that the "situation dictates the action." We went to two types of inspections. One is the functional inspection. An example would be for a timber management staff member from the higher levels checking on quality and quantity performance of the timber functional activities

such as timber sales, reforestation, etc. They are specialists reviewing their programs at the lower echelons to which authority has been delegated. The same applies to functions such as wildlife and recreation, etc. The fiscal and accounting and other support activities were included in the functional inspections and audits. The purpose is to determine how well the jobs are being done. You didn't sit in an office when you made those inspections, you went to look at the jobs on the ground. As Loveridge used to say, "You go see." There is one story about him, that while riding along he saw something that didn't look right in one of the telephone lines. He asked the forest supervisor for a pair of climbers, and he climbed that telephone pole to look at a Western Union splice to see if it had been done correctly. The point is that the inspector reviewed the results at the "ground level" and dug deep enough to get the facts.

RCL: Yes.

GDF: In addition to the inspector checking for faulty performance in relation to the policy and procedures for that job, he looked for other aspects. One was whether the policy and procedures should be changed and he received the advice of the inspectee on that aspect on what should be changed in the instructions for improvement. This man on the ground who is doing the job is the one to tell you about that need and suggest changes. In other words, an inspection is more than an "investigation," it is a two-way

street and was always considered that way. In fact one of the reasons they called it "review" instead of "inspection," I notice the term has been changed since I retired, was to get away from an inference that you are just looking down somebody's neck.

RCL: I see.

GDF: But additionally you want to find out as a collateral objective how good a job this fellow is doing and also what he has done that should be passed along to others. Improvements should be known and used on service-wide basis and the innovator should be given credit. You'd include that aspect in the inspection report. Additionally, with the collateral objectives the inspector was given a better reception than if he were only trying to find poor performance in the inspectee's activities. There is another type of inspection that we called the "general inspection." In general inspections out of the Washington office and regional offices, the inspectors reviewed all programs and activities including relationships between the Research, National Forest, and State and Private Forestry branches and their relationships in turn with the state's administration and with local activities and interests. It had an overall coordinating objective.

RCL: They took a broader view.

GDF: As stated, the general inspections included the total

picture, an acceptance of Forest Service programs and relationships with the different groups and organizations together with suggestions. A regular frequency was set for the functional and the general inspections. We found that with general inspections there was the task of writing the reports and they were not getting done promptly after the inspectors returned to their offices. They became busy on their regular work. To avoid this delay we finally added an inspector to the deputy chief of administration staff--a general inspector, who accompanied the deputy chiefs or associate deputy chiefs on general inspections. I made one, for example, to Region 5 and General Inspector McKennan accompanied me. Part of his job was supplying a continuity of approach because there was a tendency for different individuals to vary what they would check, sometimes based on personal interests, and it would result in losing uniformity in inspection procedures and practices. Russ McKennan furnished that uniformity, plus carried the burden of doing much of the writing of inspection reports promptly and eliminating delay. The general inspector also carried a responsibility for checking on functional and limited functional inspections to keep them in accord with the best inspection procedures, as a part of his job. Inspection was and is a part of the management systems for the Forest Service.

RCL: Part of the management is actually coming from the field in that if they have ideas they percolate up to the top.

GDF: Yes. That's where you are going to get most of them.

RCL: Then it's true decentralization, isn't it?

GDF: That's decentralization but who knows better than the forest officer who is out there doing the job? And as another factor, after a length of time, no matter what your ability, you've been away from the direct action level and one tends to lose contact with field operations. That's only natural. I thought that I was in the Washington office too long. I did have other contacts and interests in the international field. There is an advantage in the rotation system of the armed forces which limited the tenure at the upper levels and required transfers to the action sectors on a periodical basis.

RCL: Yes.

GDF: For the top jobs. This hadn't been quite so true after you got up to a certain level in the Forest Service. They had rotation but the rotation down the line was on a promotion basis in career ladders. I never recommended anyone as chief of operation in a region who had not had a tour in the Washington office for a couple of years at least, before he assumed the field job. With the Washington office tour the candidate gets both points of view and functions more effectively. He knows some of the problems in the Washington office as well as in the field. It works both ways.

RCL: It's probably too bad. Washington, D.C. is quite a bit different from any of the national forests.

GDF: Yes. But you see, again, at the middle level some of the incumbents went back out from here as a forest supervisor like Gordon Gray, that I mentioned previously and Dave Nordwall also, and then they went back up the ladder to higher jobs. So there is some rotation at middle levels but it is not a consistent practice. Both the men mentioned took a salary cut upon leaving the Washington office.

RCL: Yes.

GDF: What we are talking about is the top level. If you really look at the total organization, you find the Forest Service working closely together as a unit. It's one organization and if that feeling and understanding is lost, the Forest Service is in trouble.

RCL: Sure. That's how people at the bottom informed you and the people at the top informed the people at the bottom. They also trained them through correspondence courses. Could you tell me about them?

GDF: Yes.

RCL: I think it was Peter Keplinger who started this practice?

GDF: Kep, is the one who had the correspondence courses in administration. Correspondence courses were widely adopted by the regions. Kep was a personnel officer, a teacher, and a disciple of Frederick W. Taylor's theory of scientific management. In Region 9 I can recall taking correspondence courses and administrative management was a part of those courses. I recall that in these courses you had the documents to look up the answers. You could

look at a handbook or a manual. It was in the manual but you found it and wrote the answer down. You learned to use the manuals by that system.

RCL: So there would be a separate worksheet for each manual, is that the way it worked?

GDF: I think the ones I took were "across-the-board."

RCL: So it required some research.

GDF: You learned to know where to look. I often used to say that I was not worried about a "four-foot-section of manuals and handbooks" if you have a good index system that everyone can use and turn to the page that has the answer to the questions immediately. Secondly, they don't have to read through maybe twenty pages to get the one paragraph or so that they are really looking for. That it's indexed, and written that way is the important consideration.

RCL: That's right. How or why did the individual in the field take a correspondence course?

GDF: It was training, as stated, to become familiar with the manuals and to be informed on "key" Forest Service policies and practices. Keplinger, I believe, started the courses in the West. They gave the courses in the wintertime, and at that time in many locations forest officers weren't too busy. Everything was pretty well snowed in until the spring break so they had time to study the manuals and to take the courses.

RCL: I guess I was asking if there was an incentive for taking these? Do they help the student to get advances?

GDF: I think this is a factor; how much of a factor, I don't know. But it's fact that if one didn't send the answers, he was in trouble. How much weight was given to the grading, versus other things, I don't know. I know that a much greater weight was given to actual performance and achievement.

RCL: Sure. I just asked this because it seems it's always the natural tendency to not do something like that. Studying is always a very painful thing for people to do. Were these courses popular?

GDF: I don't know that I can answer that or not. On the ones that I used to work on, I didn't have any particular objection to them. In retrospect I'm glad that I took them.

RCL: And those were discontinued after Keplinger left?

GDF: I don't know the extent they have been used in the last twenty or thirty years. You know that the regions, as I mentioned for Region 9, developed their own training centers. In the earlier days there were more correspondence courses. The ones that Kep stressed were mostly in scientific management. They dealt with management, i.e., administrative management.

RCL: Were those commonly applied?

GDF: Yes, I am sure they were. I recall the ones that I took in Region 9 and they provided a type of training that our foresters had not been exposed to previously. We talked

about the Region 9 training school at Eagle River. With that big program they had to get people trained better in administration and I know that many of the courses including the ones I took were on that important subject. There was little time to lose.

RCL: Can you tell me something about the advisory committees?

GDF: The Forest Service, particularly in the national forests, is dealing with local people and also dealing with resources that are not only valuable locally but to citizens at a distance. The different population sectors are interested in wildlife, recreation, range, timber, and the protection values of the national forests. One of the first advisory committees was in the range sector with permittees as members. They weren't supposed to make any decisions, but it did give them a chance to put forward their points of view on the range resource and also for them to get the Forest Service point of view. I made a count of the advisory committees the Department of Agriculture had several years ago--I expect about fifteen years ago. The Forest Service, as I recall, had 76 percent of all the advisory committees within the Department of Agriculture. You had advisory committees for State and Private Forestry and for Research. The majority of them advised on national forest management. They could be on a national forest level and have members who were prominent in the different activities--the wildlife,

timber, recreation, range, and others who were just interested in the environment or some of the broader aspects.

RCL: Preservationists?

GDF: Preservationists could be involved but it gave a chance to bring them together and get their points of view and also served as an educational process both ways. They would carry it back to their own groups. It was public involvement. This is more and more in the picture today as interest in the forest resources develops and the plans for the resources are under closer scrutiny by all the special interest groups.

RCL: Public relations has really been an active part of the Forest Service activities for a long time.

GDF: It has for a long time and it will continue. There has been increasing public involvement and today public involvement is written into legislation. The RARE II Project is a current example. This present study is of how many areas and the acreage for new wilderness areas and what areas will be managed for multiple use. This is a matter of very considerable interest to the public and particularly to certain organizations. I recall Chief McArdle one time, showing two packs of cards--a small one about one inch thick that listed all the organizations that were interested in the national forests about twenty-five years previously and one about six inches thick with the current special resource interest groups. That last list

has continued to grow. From what I hear lately there seems to be a tremendous amount of planning with public involvement that is taking considerable time away from the "doing" job in the field.

RCL: Yes. I know one example that is taking years, and that is the Mineral King area in the Sierra.

GDF: Yes. And there is a bill pending now, I believe, to turn it over to the National Park Service.

RCL: Using Mineral King as an example--I am not asking for a specific answer--would there be an advisory committee for that group?

GDF: I think there must have been an advisory group in that general area. I don't know whether it was specifically for Mineral King or not. It is probable that they had a National Forest Advisory Committee and I think it is very likely that some meetings involved Mineral King.

RCL: Yes, because it seems the sides involved in the dispute are so diverse and so widespread that it would be impossible to have a committee. Before Mineral King became a large issue, it would have been much easier to deal with but now that area has become sort of a rallying point for both sides.

GDF: Now consider the Boundary Waters Canoe Area in northern Minnesota. There's another one that's been a controversial subject for years and years and made your Journal of Forest History--the one that I got a few days ago. [April 1978]

There is an article on the history of the various conflicts between different interests--the local interests, the interests of people who are not local--and there are many points of view. All of them can't be satisfied.

RCL: The Forest Service should have calluses by now when you can go all the way back to the conflict between John Muir and Gifford Pinchot over the Hetch Hetchy. That's really kind of the birth of the Forest Service; they were born in controversy.

GDF: Of course, the old saying is, "If you get hit on all sides of your head, you stand up straighter." I've always taken the position that if the Forest Service ever reached the point where there weren't these controversies, the Forest Service would have lost its reason for existence. If you don't have those differences of opinion and at the same time if you ever make a decision and you satisfy, say the Sierra Club, or the timber industry, 100 percent, you better take a look at your decision because you are going to be on a middle course if you are doing a good job. If that type of controversy doesn't come up again then you don't need the Forest Service.

RCL: The Forest Service is really managers.

GDF: Right.

RCL: I think that about covers what I had in mind for the interview. Is there anything else you would like to add?

GDF: The point that came up early on and that's on research and its proper place in the Forest Service. At one time,

research was under the regional forester and it was really a part of operations and decentralized. There was a feeling, and some reason for it, of course, that administration would get a bad fire season and pull out a lot of people from research into fighting fires and research would be neglected. It just didn't get continuity and coordination, so it was set up as a separate branch of the Forest Service, reporting to an assistant chief who in turn reported to the chief of the Forest Service. They would have annual meetings between administration and research and talk over the problems and what should be researched and administration would get the input from research and find out where they stood and they would all collaborate in setting up research programs. There was coordination but research was not directly under the other branches after that change. In research, apparently, in the early days before it became a separate branch, if a forester wasn't getting along well in an administrative position on the national forests, he would be transferred to research. That kind of a system didn't place the best research employees into the research units. So that was a change. Earle Clapp was the head of the Washington Office Research Organization who really built research. He headed it up and I remember reading a letter he wrote when he left research for another position under the chief. He pointed out that it had to be watched closely so that nothing happened to research.

RCL: Sure, he became fond of it.

GDF: That's right.

RCL: Now research is one of the main functions of the Forest Service.

GDF: That's right. They built up because, for one reason they've had more support. They are not in a controversial area. They are assisting industry, recreation, and all the other resource users. They are researching all these different fields so they are not as vulnerable, you might say, as certain other national forest activities that are controversial in support from opposing interest groups. A build-up in programs needs congressional support and that depends upon local interest in programs to a great extent.

In the management field, as the research branch has grown, there has been increased analysis given to the composition of the research projects. This has occurred with the increase in research programs and as the trend was more to basic research as the "cream was skimmed" off from applied research. There was further realization of a need for combinations of research specialists on the projects. It should not be overlooked that research leadership was astute and aggressive in promoting projects.

We always used to say that good administrative management in research consisted of assigning the best man available to a project, and providing him with the tools needed to

do the job, and the encouragement and incentive to find the answers.

Also encouraged were the contacts between the researcher and the user to help ensure application of the results. After doing some checking I found that in USDA, one agency which did not have a research unit had a staff unit whose mission was to act as a "go-between" with the research and the operating organization in technology transfers and research needs.

This separate unit had not functioned effectively and we decided to leave the contacts between the researcher and the user as the best practice.

One other comment on research administration should be included. For many years research was dependent upon regional office personnel for all support activities. Finally, the experiment stations reached a size where they could justify specialist personnel for those activities. There was also a greater need for administrative management practices. We went to the stations and analyzed the workload and staffed the units accordingly. I don't recall the date, but it was when V. L. Hooper was in charge of research and he was interested in the change-over and wanted assurance that the experiment station management--assistant directors could be given the same status at meetings, etc., as the chiefs of operations. The foregoing addition, in my judgment, substantially strengthened research management.

RCL: Everybody views research as being progressive.

GDF: Yes, they aren't subject to a lot of problems such as controversies on the national forests. It gives them a continuity and gets the job done.

RCL: Well, I guess that's it then. I'd just like to thank you very much for your participation. You've been very helpful and hospitable.

GDF: I have enjoyed it and I will be looking forward to getting a copy of this transcript.

There are other administrative adjustments which facilitated management that could be discussed. As an example, involving accounting, at one time we had a limitation on the cost of individual buildings which was causing problems, particularly in inflation years. Working with the committee staff members, this limitation was removed. Our fiscal contact unit had been requiring that the Knutson-Vandenberg (CKV) funds that were received from the timber purchasers each sale, for improvement of the cutover area, must be used on the specific area of that sale or returned to the timber receipts fund. With thousands of small sales, a substantial accounting job was involved. Working with a GAO official, we obtained a ruling that the estimates made in advance of the sale were an adequate basis for a project and if the actual cost was somewhat higher or lower than the estimate, it could be paid from a joint KV account. This decision eliminated a lot of unnecessary accounting at all levels and facilitated

better timber management. Additionally, the fiscal control unit had ruled that KV funds could not be used for any purpose other than "on-the-ground" timber stand improvement such as felling snags, reforestation and thinning for stand improvement. The size of the timber sale program had increased in certain isolated areas and shelter for the KV crews was essential, especially in large long-term sales. Regular P&M construction funds had not been adequate for the total construction job. We finally obtained a ruling from the USDA General Counsel that the KV funds could be used for expenditures that were necessary in carrying out the purposes and intent of the KV Act. We also had an overall study of accounting by a consulting firm to up-date procedures. An objective of the study was to bring into closer alignment the fiscal accounts with production data so as to provide unit cost data.

There are other examples that could be listed but the foregoing illustrates management changes that are made to improve program performance.

I wish to close this administrative management interview with the following statement.

The Forest Service owes much of its reputation for administrative efficiency to the fact that almost since inception it has been located in the Department of Agriculture. In my judgment it would have been a "run-of-the-mill" organization if national forests had

remained in the Department of the Interior--or even if that renamed department were to be a Department of Conservation as recently proposed. For one reason, the location in a scientific department such as Agriculture with its emphasis on growing crops--and trees are a crop--has kept it in close contact with professional disciplines as in research, extension, soil conservation, and others which are related to the Forest Service mission. Secondly, and this is important, the Forest Service has been free from political appointments to the higher level positions and this cannot be said of resource and other organizational units in USDI. It has meant that Forest Service employees look forward to career ladders within the organization based on this performance, and further, that the tools for evaluating productivity were available.

The result has been that "esprit de corps" has been high and that, in my opinion, is the most important element in an organization. It has been said that the best organization won't work if the employees don't want it to and that the poorest one will if the employees want it to. There is a lot of truth in that axiom. There will always be attempts to transfer the Forest Service elsewhere in the federal structure--it would be a prize to any department. And if it were transferred there would be attempts to return it to Agriculture with a much better rationale than for other locations.

After having been a consultant for several international and bilateral technical and financial assistance institutions, in over a dozen developing countries, on organization and management of their renewable natural resources, I am convinced that forest management in all its multiple-use values belongs in Agriculture with the charter for rural development. Forestry and agriculture have almost a symbiotic relationship in land use, watershed protection, employment and income sources in planning and operations in rural areas.

WALTER LEONARD GRAVES

June 29, 1978

Ronald C. Larson: Mr. Graves, I would like to start the interview by asking about your background. We can treat your subject biographically for a while until we get to this specific topic which is management technology. So starting at the beginning, where were you born and when?

Walter Leonard Graves: I was born in Chicago, Illinois, on April 27, 1911. We moved away from Chicago quite early in my life, and my first remembrance is of a small town in Michigan called St. Helen where I started grammar school in a one-room schoolhouse. I lived there until shortly before World War I when we moved to Kalamazoo, Michigan. After the war, we moved back to St. Helen where my father ran a little grocery store for several years, and then we moved to Iowa to Oskaloosa where I again entered grammar school. After Oskaloosa we moved seventy-five or a hundred miles from Oskaloosa to a little town called Wyman, and I finished elementary school there and also high school. Upon graduation from high school, in 1929, I entered college at Ames which is now called Iowa State University and four years later, in 1933, graduated from Iowa State with a B. S. degree in lumber marketing.

RCL: What made you decide to go into that field?

WLG: I decided on that when I was in junior high school primarily because I loved the outdoors, and the type of work that a forest ranger did appealed to me greatly. I didn't change my decision throughout my junior and senior years in high school, and entered directly into the College of Forestry at Ames. The reason I majored in lumber marketing was that I had decided I would like to go to South America and work for United Fruit. However by the time I graduated, United Fruit was not hiring any more foresters due to the Depression. I graduated in June, 1933, and that was right during the height of the Depression. The CCC camps had just started at that time and I left for Santa Fe, New Mexico, the day I graduated from Ames. As a matter of fact, there were only two of us left in the forestry graduating class at Ames to receive our diplomas and to attend the graduation ceremonies. The rest were already out on jobs with the CCC program. The other fellow was a Russian who left at the same time I did for a job out of Tucson, Arizona. At that time we had our choice of about any place in the United States we might want to go.

RCL: Do you know his name?

WLG: Nick Ponomerov [possible spelling]. There is quite a story connected with him. When he entered Ames, he

could speak practically no English. He came directly from Russia, and they finally found someone on campus who spoke enough Russian so that he could make his desires known that he wanted to enroll in the School of Forestry. He did and his first year at Ames his sleeping room was the landing between the first and second floors in the Botany Building. He slept there at night and did janitorial work in that building. He lived on stale bread which he could buy at the bakery for I think it was one or two cents a loaf at that time, and he'd go down to the college dairy and get buttermilk for a penny a cup. And he pretty much lived on that during his first year.

RCL: On buttermilk?

WLG: On buttermilk and stale bread. But anyhow just briefly to continue with him, he finally, because of some differences of opinion with some of the higher ups in the Forest Service, resigned from the Forest Service after he had been in Arizona a few years, went back to school and got his master's degree and doctor's degree in forestry or related fields, and then went into the nursery business in Tucson by starting a nursery in his backyard. I saw him I guess it was in 1949 or 1950 and he had the largest nursery in Tucson and was well on his way to becoming a very rich man. So it was fortunate for him, I would say, that he did resign from the Forest Service.

RCL: Dedicated person, yes.

WLG: He was quite an individual.

RCL: What was your first assignment in Santa Fe?

WLG: I was a foreman in one of the CC camps. They were hiring a lot of foresters at that time because they were doing mostly conservation and erosion control work and timber-stand improvement work. I was with the CC in 1933 in a tent camp out of Santa Fe at what is known as Hyde Park. Then in the fall of 1933 they built two camps in Santa Fe, one for the Park Service and one for the Forest Service, side by side, and moved us into that. About the first of September, 1933 I was assigned to mark timber for the ranger at Pecos, New Mexico and was stationed at an elevation of about 11,000 feet up in the cork bark fir belt. My job was to mark mine props until snow drove me out in the fall.

During that time the announcement came out about the Civil Service examinations for junior foresters and, because I was up there, I got my mail late and I missed getting my application in by the deadline. So I went back to the CC camp that fall. The following year I had an opportunity to take the examination and along with 90 percent of those who took it that year, I flunked the exam.

RCL: Why was that?

WLG: I don't know but I assume because of the difficulty of

the exam. Anyway 90 percent of those who took it flunked it, so the Civil Service lowered the passing grade five points. I had only missed it by a fraction of a point and that put me, with a number of others, over the passing grade and in the middle of the summer of 1935 I received a temporary appointment on the Pecos Ranger District, just out of Santa Fe. A year later, I received my permanent appointment and stayed at Pecos until 1939.

At that time the Pecos was a rather large ranger district that had been two ranger districts. When one of the rangers resigned and went into private business they consolidated the two districts and I was the assistant ranger until I got my permanent appointment, and then instead of dividing the districts, they divided the work. The senior ranger that was there took over the range management and fire control and I took over the timber and recreation. At that time those were really just the four main activities on the district. I was there until March of 1939 when I was transferred to another district on the Santa Fe as district ranger. That was at Coyote, New Mexico, and I was there from 1939 to 1944. In March of 1944 I was moved to Arizona on the Coconino National Forest at Camp Verde, Arizona. There we had a summer and winter ranger station. We had one down in the desert which we occupied in the .

winter and then in the summer we moved up on top in the timber country. This was a very large district and we had to move twice a year. A year later because of some differences of opinion I had with my forest supervisor, I was moved to the Lincoln National Forest at Capitan, New Mexico, and was there approximately a year when I was promoted and moved to another ranger district on the Lincoln National Forest at High Rolls, New Mexico. I was there about a year or a year and a half. Then in, let's see, 1948 when I was at High Rolls I was moved to Albuquerque to the regional office. Initially when I came to Albuquerque I was on detail to the Soil Conservation Service for some flood control studies of the Rio Grande River Basin. I was on that for about six months and then was moved into the Division of Range Management in the regional office. At that time I had thought that my specialty probably would be range. I was more interested in range than I was in timber. I wound up being in charge of the range reseeding program for Region 3 and did some of the very first reseeding work that was done in the region. I was in the regional office three years, from 1948 to 1951.

Then in August, 1951, I was transferred to Taos, New Mexico, as supervisor of the Carson National Forest. Of course, this is one of the aims of almost any

forester starting out--to become a forest supervisor. I had always told my wife that if I ever became a forest supervisor I would like to either go to the Santa Fe or to Carson National Forest and it turned out that the Carson was the one that I was sent to. I was there from 1951 to 1956 and then in June of 1956 I was given the opportunity to transfer to the Washington office in what at that time was the Division of Operations.

Since I had become a forest supervisor I had become very interested in the administrative management part of the Forest Service rather than the resource management . . . so I jumped at the chance to go even though it was a horizontal transfer at the time. I knew that there would be promotions and increases in salary as time went on. When I went back there, I was told that probably two years would be the maximum that I would be in Washington. On the basis of that, we didn't buy a home there but rented and five years later, we were still there. We had just about decided to buy a house when I received word that the chief of operation position in Region 3 was open. Of course, this is where I wanted to come and I jumped at the chance. We came out here in 1961 and remained here until I retired in 1972. So that pretty well briefly outlines what my career in the Forest Service came to.

RCL: Okay. So, most of your time was really spent in New Mexico where you live now.

WLG: Yes. I was never in another region except when I was still in college. I had a summer job in Region 1 in Montana. Aside from that I spent my entire career here in Region 3 plus five years in the Washington office. Also I was never a member of a supervisor's staff. The normal progression for most Forest Service career employees was from a ranger position to the supervisor's office as member of the staff. And then from that usually into the regional office, although some go from the supervisor's staff to supervisor. I went from the ranger district to the regional office and from the regional office to a supervisor.

RCL: You skipped.

WLG: Skipped just one step there.

RCL: So, in various degrees of formality, you were in management from the very beginning with the CCC.

WLG: That's right, and particularly once I got into the ranger district and became a district ranger, because a district ranger is a generalist. He cannot be a specialist because he has final responsibility for all activities on his district and he has working for him a number specialists in various phases of resources.

RCL: The Forest Service has always promoted foresters to positions of management rather than bringing in

management specialists with a formal degree in management. I have heard it explained that this works because everybody in the Forest Service is really involved in some sort of management; that's what the Forest Service does.

WLG: Well, I think that is certainly true. I think also that there was a feeling, back in the early days at least, that foresters could do anything and everything in the Forest Service, and since it was a "forest service" that it should be manned and staffed by foresters--even to the point of doing the engineering work on road construction and this sort of thing. It was rather a primitive type of road construction, but nevertheless the ranger himself or one of his assistants did much of this. As time went on, the Forest Service became more specialized and started hiring people who were really specialists. Also I think that as soon as a forester became a district ranger he became deeply involved in the broader phases of administration and became an administrator through experience rather than through training.

RCL: Yes. You knew Earl Loveridge personally.

WLG: Yes.

RCL: Can you tell me something about him as a person--something about his personality?

WLG: Yes, Loveridge was not an easy man to know and, as a

matter of fact, when I knew him I was scared to death of him. But when I first met Loveridge, I was still an assistant on a ranger district and to me anybody from the regional or Washington office was akin to God.

RCL: Yes.

WLG: They were people who were pretty much idolized.

Loveridge, I guess, probably could be considered as the father of much of the management philosophy in the Forest Service. Some was good. Some didn't turn out to be quite so good. I remember one particular case when I first became an assistant ranger at Pecos. Loveridge had designed a method of work planning and accounting for the ranger and his staff which involved planning work by months broken down into fifteen minute periods, and then by also accounting for the time the forest officer spent on these jobs down to fifteen minute periods. This became an intolerable situation with the people on the ground trying to record time down to that brief an interval. It was almost a case of a clipboard and pencil in one hand and a watch in the other. Because of the uproar from the field, it didn't last. As I recall, it was dropped in less than a year. But, I think that many of the ideas that Loveridge had were carried on, and there have been many, many different types of work planning experimented with and tried in the Forest Service. Some of them worked

fairly well, some didn't. It depended to some extent on the individual who was putting it into effect too. We went through at least three or four different types of work planning that I can recall. Everybody agreed and recognized the fact that, to be efficient, the ranger should plan his time. The questions was: how formal should it be? How much detail should there be? The most successful one that finally evolved was one that required the ranger to plan his time by priorities but not try to put time limits on those jobs. There are certain jobs that had to be done regardless, and they had to be done at certain times. Other jobs could be flexible and they could be moved from periods of peak loads to periods when the work wasn't so heavy and the workload sort of leveled off for the year. I think that that one was the most successful really--where they just planned by priorities rather than by trying to say it would take six hours to do this job and four hours to do that job, and one hour to do this job, and so on. And, of course, the time it takes to do a job varies by an individual anyway.

RCL: Yes, certainly.

WLG: They were interesting theories and some were highly theoretical. I think the best part about it was that before any of them were really solidified and put into effect, there was a lot of feedback from people on the ground who were responsible for doing this. I think

this was one of the strong points. The ranger had an opportunity to have his input.

RCL: What was he like as a person? He's been described by Mr. Fox, another interviewee on this project, as being a very dedicated almost machinelike person.

WLG: He was. He was very brilliant and he was extremely dedicated to the Forest Service. He was not the warm type of individual that you instinctively feel close to, and yet I think he probably supported the people on the ground when they might have difficulties as well as anyone.

I had a little experience along that line with Loveridge while I was supervisor of the Carson. We had a timber operator who was especially cantankerous and I had lots of trouble with him. He finally started a political effort to get me removed from the supervisor's job at Taos. A retired Forest Service supervisor up there wrote to Earl Loveridge and protested this and received a very nice letter from Earl assuring him that they were not about to remove anyone just because of political pressure. They would stand by any of their people as long as they felt they were doing right and he told him I had been doing right. He would stand behind those people, no question about it.

I knew his son who was nicknamed "Boots" especially well. Boots worked for me when he was, I believe,

fourteen years old, one summer when I was at Pecos. His dad sent him out to our ranger district because he knew the senior ranger, Ranger Johnson, extremely well. They were very good friends, so he sent Boots out for the summer and told Boots that he was actually working for the Forest Service and would be on the payroll. In actuality, Earl sent the money out to Ranger Johnson, and Johnson paid Boots each month. But he turned him over to work for me and I enjoyed it. He was a cocky little rascal but he was smart and he was willing to work and we had a lot of fun.

RCL: And he thought he was working for the Forest Service.

WLG: Yes. He thought he was an employee of the Forest Service at that time.

RCL: Earl Loveridge seems to be a very devoted student of Frederick Taylor.

WLG: Yes.

RCL: It seems that maybe at the beginning there were problems in that his application of management sciences was too strict. Maybe that's because he was basing it upon Taylor's ideas which were based upon shop practices and didn't apply so strictly to the Forest Service.

WLG: Yes, could be.

RCL: There were other more subjective factors that would enter in with the Forest Service. So it was probably just a matter of time before these things had to evolve.

WLG: I think that's right. The Forest Service has always been willing to try anything. I think that's been one of their strengths. They have never been completely satisfied with the status quo, and they were constantly trying new methods, some of which worked very well. Some others which we will get into a little later didn't work quite so well but at least they were tried.

RCL: Yes. It's an experimental field.

WLG: Right.

RCL: Now getting into experiences that you have had in realms of management technology, one very interesting experiment was the San Juan Experimental Forest and I know you weren't involved heavily in that but could you describe what you remember?

WLG: My memory of the San Juan Experimental Forest is very, very vague, actually. Ed Schultz, who came to the Washington office the same time I did, was assigned the job of carrying through the San Juan study and I got into it very, very superficially, just around the edges. So, actually, I am very hazy now as to just what the outcome of that was. I was not involved deeply enough to really describe it.

RCL: Okay. Let's go to something that you were deeply involved in and that would be the McKenzie study. Can you describe the McKenzie Company and what they did as consultants in 1957 or 1958?

WLG: Yes. I believe it started in 1957. I am not sure but I think the decision to have an organizational study was probably originated by both Gordon Fox and Clare Hendee, of course, with the approval of the chief and his staff.

RCL: Why is this, do you think?

WLG: Well, I think that there was a feeling that maybe there was a better way to organize the Forest Service than we had; that there was a more efficient way of doing business, or at least we ought to determine if there was a better way. At first, the thought was that a management consultant company would be hired or a contract entered into with them to do the complete study with no participation by the Forest Service. Then it was decided that this was not really too good because no management consulting firm would have all of the insight into the Forest Service philosophy and history and the way the Forest Service had operated and developed. So it was finally decided that the best approach would be to contract with a company to do this in conjunction with Forest Service employees who would work right along with the company from the very beginning in developing the study plan and carrying the study through and preparing the report but with a lot of input from the consulting firm. It was put out for bid, no I guess it was not actually put out for bid. I think it was a negotiated contract based on experience and facilities that the

various firms had. A number of firms were contacted and they finally settled on McKenzie & Company. They had done some previous work for the Forest Service and the Forest Service knew them in another operation. There were two members of McKenzie Company that worked on it constantly. A third member was one of the executives with the company who came in at intervals.

RCL: You know the names of those people?

WLG: Not anymore. I sure don't.

RCL: Okay.

WLG: Then there was Gordon Fox and Clare Hendee and myself. Joe Pechanec from Research was the other man on the team since research was going to be covered as well. This was the group that did most of the work. As I recall, there was a regional office representative and a forest supervisor involved in the study also. I'm a little hazy on that.

RCL: We can look that up anyway.

WLG: To get more of a field participation, as I recall, there were representatives from the regional offices and the supervisor's offices. The study plan was developed in Washington primarily, in conjunction with McKenzie Company, and then a schedule of field visits was developed and we started out contacting people at all levels of the Forest Service. It was an interview type of study and we got a cross-section of regional office people,

forest supervisors and their staff, rangers and Research and State and Private Forestry employees--those being the three legs of the Forest Service namely State and Private Forestry, Research and National Forest Administration. This took several months, just the field portion of the study, and at intervals during the field portion, the whole group would get together and discuss what they found and decide what more was needed, and this sort of thing, so we didn't go in different directions.

RCL: Could you describe exactly what you were doing in the field during the research?

WLG: Primarily interviewing people as to what they felt could be improved in the organization and what they thought was good and any ideas they might have on what type of organization would be better than what we had. We were trying to pinpoint problems that at least had arisen in people's minds with the idea that once we knew the problem then maybe we could get a solution for it.

RCL: Yes.

WLG: They were not taped interviews. It was just a matter of sitting down with the individual and taking notes as he discussed what he felt the problems were. We had a cross-section of the whole organization from the ranger district right through. The final report took several weeks or months to finally develop, as I recall, and there were several drafts written which were reviewed by

a number of people. As a matter of fact, the first draft went out to the entire field and we got feedback from all members of the organization.

This study finally developed several major recommendations, some of which were put into effect immediately. A lot were put into effect later on. One of the recommendations, for example, called for the establishment of deputy chief positions in the chief's office and that was implemented rather quickly. They had deputy chiefs and associate deputies under the deputies.

One recommendation that was put into effect several years later was that, particularly in the larger regions, we should consider multiple deputies, the idea being that there should be not less than three: one deputy for Administration, one deputy for Resource Management, and one deputy for State and Private Forestry. The intent of this was that it would be implemented in the very largest regions such as Region 5 and Region 6 and possibly Region 8. This was not too well received by the field and no attempt was made to pressure the regions to put it into effect. However, I guess it must have been in about 1970, the larger regions did go this route, and in 1972 or 1973 it was decided that all regions should go in this direction even though some of the regional foresters objected to it very strenuously. My own personal feeling is that it was an expense that could well have been done without. It had interjected

a layer of organization that was costly, and I didn't feel, looking at it from the standpoint of a staff man from the regional office, that it was accomplishing enough to justify the expense. Now, there was a great deal of resentment by division chiefs toward this type of organization because it deprived them of considerable authority, plus the fact that we all resent and resist change. There was a very definite lowering of morale in the Forest Service for quite some time I think probably that has since been pretty well overcome by the fact that most of us who were in at the time are now retired, and the younger people are not familiar with the earlier type of organization so they have no basis of comparison. They have accepted it pretty well, I think, but I still feel that maybe the expense could not be justified.

RCL: Yes.

WLG: I feel objective analysis now would probably pinpoint this.

RCL: Maybe more time is needed before you can do that too.

WLG: Yes. It would be a difficult thing to measure, and what are you buying with the money that is spent?

RCL: When the McKenzie study was submitted, and I think it was given the title "Gearing the Organization for the Job Ahead," did you have a voice in the recommendations?

WLG: A very minor voice.

RCL: Did you dissent at that time?

WLG: I didn't. First of all, I had not been in a position where I knew how the regional office really functioned. By the time the recommendations were implemented I was on the receiving end. Also, I didn't dissent because at that time I did feel that, in very large regions, it probably would be a good deal. There was no anticipation that they would go to every region regardless of size. For example, in Region 3 before that type of organization went into effect we had a very small State and Private organization. We had only two states, one of which, Arizona, did not have any state forestry organization whatsoever, the other one, New Mexico, had a very small one and the State and Private organization was under the Division of Watershed Management. It's hard to say whether that's a logical place for it or not, but anyhow, that's where it was and it consisted, at first of only one person, and then it got to be two. Well, when the new organization went into effect and a deputy for State and Private was established, it just mushroomed. I couldn't even say how many people are in the State and Private organization in Region 3 at the present time. There are many people, and I wouldn't judge whether they are needed or not since I have been out of the organization this long. I do know that the state and private work certainly has grown in the two states. They have developed their organizations and

they have grown but when the recommendations were made the team was thinking more of state and private organizations such as the East where they are very strong. The state forest service is a very strong organization and every state has it. Region 8 and Region 9 both have lots of states and we could see a very definite need there for something like that, but certainly we didn't visualize it in the West. So, really I didn't object to it at the time.

RCL: You couldn't see all the ramifications.

WLG: No. I had no idea that it was going to go into effect in all regions. It seemed to be one of those things that suddenly becomes very popular, and in spite of the fact that some of the regional foresters thought it was not the type of organization they wanted, they were told to have it, and they did.

RCL: That's very interesting. Well, while you were doing this job you were really functioning as a management technician in a way.

WLG: That's right.

RCL: Had you had any training in management?

WLG: No formal training, just practical experience, that's all, plus whatever reading material I could get my hands on.

RCL: Did you take any of the correspondence courses that were offered?

WLG: No, Not at that time. I don't think I ever took a correspondence course. I attended a lot of training courses while I was in Washington and after I came to Region 3 as chief of operations, but I don't recall any correspondence courses in management except some of the resource activities.

RCL: So you really learned through experience.

WLG: That's right. Now, I did take some courses while I was in Washington through the graduate school there.

RCL: Department of Agriculture?

WLG: Yes, Department of Agriculture Graduate School. They were management courses and were really very good. I felt I got a lot of ideas.

RCL: That's a good program to have, really.

WLG: Yes, very good.

RCL: You have had some other practical experience and on-the-job training with a workload analysis and with a study of business management in stations which resulted in a change in station management. Would you explain that?

WLG: This was made in 1956 and up to that time there had been no workload study made on the administrative phases of the research station. There was no formal organization to handle the business management activities at the stations. So Gordon Fox and I made the study initially. I think the first station we went to was Ashley, North

Carolina, the Southeastern station and from there we went to the Southern station at New Orleans. Through interviews with the members of the research director's staff and the director himself, we identified the business management jobs they had to do at the station level and then arrived at some time requirements to do those jobs. We got some of the time requirements from people doing the jobs and some were just based on our knowledge of how much time it ought to take, and from this we developed workloads so that we could determine what kind of staffing they would need. The result of this study was that a unit of business management was established at the stations. The man in charge was on an equal level with the research people who were doing the various resource and research activities and was considered a member of the regular staff. Up until then all they had was what they called administrative assistants who were Jacks-of-all-trades. They handled fiscal matters, budgeting, and determined all of the business management activities in and around the station. We established the position of "business manager" and then under him the various staff that he would need to relieve him of many responsibilities. That has worked reasonably well, I think. So far as I know, at the present time they still have this type of an organization at the stations.

RCL: This is probably the first formal creation of an actual management technology unit.

WLG: I think so. Yes.

RCL: So Loveridge had a certain position and other people were doing things such as you were in certain positions but now it has been recognized as a department of the Forest Service.

WLG: There had been previous workload studies and organization studies of the ranger districts, national forests, and regional offices of the Forest Service which were used to determine the staffing needs in the supervisors' offices, regional offices, and on the ranger districts. So the workload analysis was not new, and in the business management study of the station we used many of the same techniques as were used in the past. But it was a completely new organization as far as research was concerned.

RCL: Personnel rather than physical facilities.

WLG: Right.

RCL: What do you see as the outcome of that in terms of efficiency, maybe as compared to what you saw as the outcome of the McKenzie study?

WLG: I think it has been very, very beneficial. First of all, it allowed a career pattern between Research and National Forest Administration that had never existed before. People were moved back and forth and they did not ask a

man who was trained as a research individual to do the administrative job since the two are not compatible, really. The research people did not want to have to be bothered with details of administrative matters. That's not what they were trained for. And this, I think, as a general rule is very well accepted by research people since it relieved them of all the responsibilities and worries of the administrative side of the job. So far as I can tell in talking to people at the stations after the business organization was put into effect, it was functioning very well.

RCL: It still is, as far as you know.

WLG: As far as I know, it is.

RCL: A very innovative and important study that you had a good part in was the size of ranger district study. Could you describe the process in making that study and the recommendations that resulted?

WLG: I'm not really sure just what finally sparked the idea that a study was needed as to the size of ranger districts and what was needed to determine the optimum size of a ranger district. But, I know for some time, there had been a general feeling that the spread in size of ranger districts was entirely too big and that there must be some better method of determining size than the hit-or-miss arrangement that was used in the past. We had ranger districts that employed only one man and some that had more employees than many of the forest

supervisors' offices. The McKenzie study touched on this problem and I think played a part in the decision to make the size of ranger district study.

Since I had indicated quite an interest in this type of thing, I was asked to head up the study. At the time, I had already been transferred to Region 3 as chief of the division of operations, but my regional forester agreed to give me leave-of-absence from my job for whatever time it took, which we estimated would probably be at least a year. I was asked to select somebody who I felt would be of most assistance in making the study and preferably somebody from a supervisor's office to give us input from the supervisor's level. I asked for a staff man who had been here in Region 3 and was presently in California as a deputy supervisor on one of the forests in northern California. His name was Ken Norman, and his supervisor agreed to give him a leave-of-absence in order to make the study, so the two of us formed the field team and the Management Sciences staff in Berkeley, headed up by Ernst Valfer, was brought into the picture also. They directed us and assisted in developing a study plan for the size of district study. We worked closely with them in the development of the study plan, and, of course, throughout the study. The plan was developed in Washington and before it was put into effect it was reviewed and

approved by the chief and his staff, so that there was complete agreement that this new approach would be taken. We also selected an advisory committee composed of two regional foresters and one or two forest supervisors. We felt that we could periodically meet with this group and discuss what we had found and have them help direct us. Gordon Fox and Clare Hendee both worked with us very closely on this as did Chet Shields. However they weren't involved in the field phase of it; just Ken Norman and I were involved in that. They met with us at frequent intervals and whenever we met with our advisory committee.

The study was composed of interviews by Ken Norman and myself. It seems to me that we selected something like seventy ranger districts and about ten or twelve national forests. We also interviewed members of the regional office staff and people under them. We developed a list of questions that would point to the problem of the size of the range district, the type of work the ranger did, how he and different people felt the organization was functioning now, and what changes might be needed. After we developed this list of questions, we went out and tried it on a forest in California. As a result of that, several revisions were made and new questions added and some deleted.

RCL: Which forest was this?

WLG: I think it was the Shasta-Trinity. I believe that was the one we initially tried.

RCL: And you were trying to establish a set form of questions?

WLG: Right. Or at least some parameters on the thing. As we got into different parts of the country, we would have different questions which would apply directly to the type of work they were doing, because the type of work would vary. For example, on a heavy range district in Region 4 as compared to a timber district in Region 8 the work was totally different, so we had to gear our questions . . .

RCL: So it was subject oriented.

WLG: Pretty much, yes. It took about . . . oh, I can't remember how many months. It took several months just for the field phase of it. Periodically we would get back to Berkeley from off our field trips and go over the material that we had up to that point. Then this was all put into a computer system at Berkeley--the idea being to see if we could develop some sort of criteria that would tell us when a district was either too small or too big. We finally wound up assigning a numerical value to these districts. Everybody agreed that there is a point when a ranger district would be too large. To be ridiculous, we could say if all the districts on a forest were consolidated it would be too big a district. Also everybody agreed that there was a point below which the district was far too small. A one-man district

where the ranger was expected to be a specialist in all the activities that go on in a district just was not feasible. He couldn't be both a generalist and a specialist. But those were the problems we were wrestling with--trying to find out what could be measured to determine this. Now, I don't think we really came up with anything that was absolutely conclusive, that we could say, "When it reaches this point, the district is too small or too large." But we had a gut feeling from talking with so many people that there was a spread that would be acceptable and that the one-man districts should as soon as possible be eliminated. Not many districts, as they then existed, were too big. As a matter of fact, as I recall, we did not find any that we felt were too big at that point in time, but as time went on they were going to get too big. But then we thought, well, what is the optimum size? What is the size that would be most efficient? And, again we could not come up with anything that was really conclusive. What we finally developed was a numerical value based on various things--the number of staff the ranger had, the workload according to various measurements that had been developed over the years, the types of activities that he had. These were weighted and given values. The acreage was a part of it.

RCL: Yes.

WLG: This did enter into it. We found ranger districts all the way from one in Region 4 of 750,000 acres down to districts that had less than 100,000 acres. And we felt that the district of 750,000 acres, while it had a very small workload, was probably just physically too large an area to cover.

RCL: Yes. Was terrain a factor in this too?

WLG: Terrain was a factor as were types of transportation. If they were strictly by horseback, it was a lot different than if they had roads. Because of all these various factors we couldn't really get a concrete handle on the problem and say, "Now, this is the size," because there were too many variables. How good it is now, I don't know. But I do know that a number of districts have been eliminated through consolidation as a result of the study. I think that was good. I think we are getting more for our money than we did when we had the small, one-man ranger districts.

Because of the change in the activities that go on in the ranger districts now as compared to what it was back in the early days, or the fact that we have special interest groups that are watching what goes on on every ranger district now, we need people on the districts who are specialists in their field--men who really know what they are talking about in recreation management, watershed management, wildlife management as well as range and timber. Some of the ranger districts have no

timber at all but they all have watersheds and almost all of them have recreation. Some of them do not have any range but they have wildlife. So we felt that to ask one ranger to become a specialist and an expert in all this was just too much.

RCL: Impossible.

WLG: Yes. So I think it has resulted in more effective use of the money. There was a strong feeling by some people in the Forest Service, particularly on range districts, that the districts should be very small so that the ranger personally knew all of his permittees, all of his users, and everything there was to know about his ranger district. We on the study didn't feel that this was feasible or that it was practical. But there was a difference of opinion, particularly between range management people and others who were on the staffs of the Washington office and regions. It was an extremely interesting study and we had lots and lots of feedback from the people in the field as to how they felt about it-- the rangers themselves. Some were very, very good and some were pretty shallow. Some of the rangers hadn't really thought the whole thing through and hadn't analyzed what they were doing and what their job was, and those kinds didn't give us too much. Others had done a lot of thinking and gave us some excellent feedback. It was, I think, the most interesting study that I have taken part in.

RCL: You mentioned that some of the internal political problems resulted in more external problems too, didn't you?

WLG: Yes. As a matter of fact some of the consolidations were stopped cold, politically. One in particular that involved moving only two families in a small district in Region 9 was stopped by then Vice-President Humphrey, and it was dropped at that time. Whether it's been consolidated since then I don't know, but everybody agreed that it was the most efficient thing to do.

RCL: Yes. Were they afraid of loss of revenue or something?

WLG: Well, it was a small town and the people didn't want to see any families move out, and they protested to Humphrey and stopped it.

RCL: What about other internal political problems? I imagine some people were replaced if things were consolidated.

WLF: Yes. There was a certain amount of resistance, certainly, to that by a lot of people who didn't want to move. It didn't result in anybody losing a job or being laid off or anything like that; it was merely a move into other positions. But some of them didn't want to move and they would agitate against it. The ones that were the easiest to consolidate, of course, were where we had two rangers headquartered in the same town. This didn't make sense to us on the study team at all. We could not see why we would need two rangers and so much duplication of work. Many times the two rangers occupied

the same office building but were wholly separate. These were the easiest to consolidate and probably caused the least furor since usually one of the rangers would be transferred to another ranger district and the rest of the staff pretty much stayed right in place. So there was not too much of an impact and the community was not losing as they were in some others where the whole group was moved out.

RCL: So the districts' division was rather artificial to begin with in a lot of ways.

WLG: Yes. Very artificial.

RCL: What was the most difficult consolidation that you can think of? Maybe that didn't happen right after the study but did in time. Were there districts that were to be consolidated where it took a large administrative change or anything?

WLG: Well, I'm trying to think. The one that comes to mind as the most difficult was one in this region. It was two districts on the North Kaibab Forest which is north of the Grand Canyon. Both districts were headquartered in the same little town of Fredonia, Arizona, in the same building, a Forest Service owned building, with one ranger being on one side and one ranger being on the other side. Both districts had many of the same main travel routes to get out to this one great big hunk of country which was all one contiguous land mass with an artificial division, and one ranger was responsible for

one and one ranger responsible for the other. The same timber operators cut timber on both ranger districts. Many of the same grazing permittees grazed livestock on the districts. I felt as chief of the division of operation, that there was absolutely no excuse for having two ranger districts. It was a needless expense that they could well do without. There were several people in this region who did not agree with me on this. The regional forester didn't and we had many discussions on it but there were not consolidated then. Finally, they were consolidated in January 1974.

RCL: Okay. When you would give each district numbers according to different aspects of operation, and it was quantified through the computers at Berkeley, would each district end up with a number?

WLG: Yes.

RCL: Like "114" or something like that?

WLG: Yes. I'm a little hazy as to the spread but I think it was from seven to twelve--in other words, seven would be the smallest desirable district and twelve the largest. But we pointed out that this was merely an indicator. If a district measured out as seven, or less than a seven then that was a district we ought to look at very carefully to see if it should be consolidated with something else, recognizing that peculiar circumstances exist on certain districts that might prohibit just mechanical consolidation.

RCL: Yes.

WLG: For example, if you had a five and a two, we did not say "You've gotta make a seven out of it."

RCL: Yes.

WLG: Or a four and a three, or whatever. But this would raise a red flag that these are the ones we ought to look at and we won't be too concerned with those that are within the parameters, only those that are outside.

RCL: I see.

WLG: Bigger than a twelve or smaller than a seven we better look at very carefully and see if we should divide or consolidate them or not. So this is the way it was used, and each region went through their own districts and mechanically determined what their numerical value was. Then the ones that were below and above the limits were the ones that were studies. I don't think we found any in our study that were higher so we didn't have any splits. We did have quite a few consolidations.

RCL: So this gave you a rough idea of the size of workload.

WLG: That's right.

RCL: And then the ones that were . . .

WLG: Workload coupled with land mass were the two main criteria but also to be considered was the variety of workload. For example a district with several activities that were fairly heavy was given more weight than one with only one or two activities of major consequence.

Obviously a district with a heavy workload, in many activities would require more people and it would be a larger district even though it might have a smaller land mass. Land mass was not given as much weight as workload or the variety of activities.

RCL: The things that would keep the personnel busy.

WLG: Right. A district could have a sizable area that had nothing going on there, really--at least it was such rough country that there was no grazing, or timber cutting. There might be a little wildlife, a little recreation, and a little hunting maybe, but none of the other activities. That kind of land obviously doesn't require the attention and the workload. There are districts, for example, in the South where you can get to every foot, and that have hundreds and hundreds of miles of roads as compared to some of the districts in the West where you have very few roads.

RCL: It's rather flat and easily traveled in the South.

WLG: Yes, and as compared to some, for example, which are wilderness districts with no roads on them. There may be one or two roads close to the boundary, but none inside the boundaries. There is one district in the Bob Marshall Wilderness Area in Region 1 that has a ranger station right in the heart of the wilderness, and there is a long pack trip by horseback to get into the ranger station. The ranger can only function on this district

for about five or six months a year. The rest of the time he is a floater, either helping on other ranger districts or helping in the supervisor's office, and has, in effect, only about one-half year's work there.

RCL: How did you select the districts to study?

WLG: They were pretty much selected at random, but it was a structured randomization, really, because we wanted to get a spread of districts across the country in different geographical locations. We also wanted to have districts with varying workloads--big ones, little ones, and medium ones. They were selected at random using workload and geographical locations as criteria in doing that. In other words, if we got too many districts with a large workload, we would go back and randomly select a representative number of small workload districts as well as geographical location. I'm trying to think how many districts we had in each region, but my memory on that is pretty hazy. I believe we hit every region except Alaska and took a sample within each region. We did not include Alaska because they were so terrifically different from anything in the continental United States. The size of their districts, their activities and everything up there is so totally different, we felt they should not be included. For that reason we just ignored Region 10.

The number of districts selected in each region varied depending on the total number of ranger districts within

the region. Here in this region, for example, we only had three or four ranger districts, whereas in Regions 5, 6, and 8 we had ten or twelve. Because we needed to try and get a handle on the range in size, we had to look at the real small ones and the real large ones, as well as the ones which had an average workload and an average size of land mass. We left it to the staff in Berkeley, the Management Sciences people to put the material into the computers and to try to come up with some indices from that, but we, of course, were in on it. We reviewed their results and we had a terrific amount of input, primarily because both of us had been rangers and we knew what the ranger district job was and the Management Sciences people did not. They were looking at it purely from the standpoint of values assigned that could go into the computer, that could be quantified and identified. We knew there were a lot of variables and intangibles which had to be taken into consideration as well. There was no way you could completely quantify.

RCL: They were doing the abstract and you were doing the real.

WGL: Exactly. Which made a good combination, actually. That way we didn't get carried away by pure theory, neither did we get carried away by just the practical aspects of the job. There was a balancing out which was quite good.

RCL: Before we go on could you briefly describe the Berkeley unit--the Operational Research group, I think they were called when they began.

WGL: Well, when I first knew them they were called Management Sciences, and their function was to assist administration in the study of the various management aspects of the Forest Service regardless of what it may be. They have gotten very deeply into the budgeting and work planning aspects, and there have been experiments on forests, especially in Region 5 where they were close to Berkeley, setting up some different types of management and budgeting and staffing on the forests. They have been deeply involved in this. The thing is the Management Sciences group got right into any management study the Washington office or regional offices proposed. They have people skilled in the management sciences and a computer expert who was of great help in telling us what we could get on to the computer, what we might expect to get out of it, and this sort of thing. As I understand it, they are getting somewhat into resources management activities too and the use of computer in this. I think they are really a solution to a very definite need. We had only laymen on our studies before rather than experts in the management sciences. And, of course, they know where they can go--and they did go to outside groups, UCLA for one--for information and suggestions and advice as to approaches that could be used on the size of district study.

RCL: So it is something like the Forest Service's own think tank.

WLG: Yes, very much.

RCL: Very interesting. I think their story is something that has to be added to this history.

WLG: I would think so because they have been deeply involved in so many management studies.

RCL: And still are.

WLG: Yes.

RCL: Concurrently with the size of ranger district study another study was conducted which I think was released later. This was the size of forest study, which was based on geographical size as opposed to the size of ranger district study which was based more on workload. Could you describe the size of forest study?

WLG: Yes, actually the study was much briefer than the size of ranger district study. There were not many field interviews. We tried to approach it from the standpoint of the amount of staff that a forest supervisor could handle effectively. The activities that take place on a national forest, and costs of doing business were important considerations. Actually, the study really resulted in little more than consolidations, nothing in the way of division of forests. No forests were created as a result.

First of all, to create a forest, or even to do away with one, requires an act of Congress or executive order. So in those cases where forests were consolidated, they still retained their original entity as far as the

proclamation setting up those forests was concerned. In other words, if forests "A" and "B" were consolidated administratively, they were kept separate on the books for the payment of monies to the county, based on the amount of money received for the use of activities like range management, grazing fees, timber management, and other activities. Otherwise it could drastically change the amount of money a county received, depending on how much forest land it had in it and the type of revenues that were received from it. For example, one which has been in effect for a long, long time is the Shasta-Trinity. It is still officially on the books as Shasta Forest and Trinity Forest, but they are administered as one unit. Some have not retained their name as the Shasta-Trinity did. The Sitgraves Forest, for example, was eliminated and consolidated with the Apache Forest, but it is not known as Apache-Sitgraves, it is called the Apache Forest. But still the proclamation has not been changed. There has been no act of Congress to change this and throw it all into one forest.

One of the criteria that was used in the size of forest study was the number of ranger districts. For example, a forest with two ranger districts--and there are some--really does not have enough to justify two forest supervisors' offices from the standpoint of supervision, inspections, etc. that are necessary. The staff that a supervisor would need to assist him in administering

two rangers is not enough to justify a separate organization. As a matter of fact, four is still too small. On the other hand, twelve, fourteen or sixteen districts, are so many that a supervisor and his staff cannot effectively administer it. This was used as one of the criteria, plus the physical location, the cost of getting out to the ranger districts, and the cost of doing business. It was, as I say, a very brief study compared to the size of ranger district study. First of all, at that time there were only 124 national forests, but there were some 800 ranger districts, so sheer physical numbers and size had a lot to do with the fact that it was a much briefer study. It did result in consolidation of some forests, certainly.

RCL: So large savings of money and more efficient operation were a result.

WLG: As an example, up until the time when the Sitgraves and Apache were consolidated we had two forest supervisors, and on the Sitgraves which is the smaller forest, a relatively small staff compared to the Apache. However, when they were consolidated, the Apache already had a deputy supervisor, so they still had one supervisor and one deputy and the same number of resource staff people as before the Apache took on the Sitgraves--plus the addition of a few technicians--so there was a considerable savings. Some of the savings was undoubtedly offset by the additional distance that the supervisor and his staff

must now travel to get to those ranger districts that were on the Sitgraves, but the added cost would certainly not entirely offset the savings that were made. The cost of the rental of the building alone was considerable, as it was a GSA leased building on the Sitgraves and it was our own building on the Apache. Regardless of whether we own it or lease it, the cost is there and we saved the cost of one full office, in addition to the salaries of a number of staff people. That was the only consolidation that was made in this region. How many were made in other regions I don't know. Up until the time I retired I don't think there had been any, not even the one here. I can't think of any that I was aware of in any other region.

RCL: Did the size of ranger district and the size of forest studies come about as an outgrowth of the McKenzie studies?

WLG: I think they did. Yes, they were an outgrowth of it. Certainly the McKenzie study gave added emphasis to it.

RCL: So that was part of "Gearing Up for the Job Ahead."

WLG: Exactly.

RCL: They were done completely by the Forest Service?

WLG: Completely in house, yes.

RCL: In 1969 or 1970 a very popular managerial method was attempted by the Forest Service called "managerial grid." First explain how that worked, what the managerial grid was, and then go into how the Forest Service tried to use it.

WLG: Yes, managerial grid was devised primarily, I guess, by two people who published a book on it. Very briefly, what the managerial grid amounted to was categorizing managers into specific types. They illustrated this by a grid which was, as I recall, nine squares across and nine squares down--in other words, 81 squares in total, beginning 1 through 9 across the top and 1 through 9 down to the bottom. Managers then were categorized. The four major categories were a 1/1, a 1/9, a 9/1, or a 9/9. Now a 1/1 manager was one who was a complete introvert. He didn't have much to say; he neither led nor pushed really--pretty much of a Mr. Milquetoast type of individual. The 1/9 manager was a combination of that type and a very aggressive individual at times, primarily, I guess, because he would get so angry finally that he would completely flip over and become very aggressive. The 9/1 manager was the exact opposite of the 1/9; the 9/9 manager was the optimal. He was considerate of his people, he spoke his mind very clearly and logically, took advantage of his staff's knowledge, etc.--the ideal type of manager.

The idea behind this was that the manager and his staff would isolate themselves for several days. As I recall, it took about five days, eight hours a day, and there would be no interruptions. No one could leave. There were no phone calls, no nothing. The group then would very frankly analyze each individual in the group, the

boss and each of the individuals' peers. At times this got pretty brutal, because it was supposed to be extremely frank. There was to be no exchange of criticism. In other words the man who was being analyzed could not become defensive and start defending his position. He just had to sit and listen, the idea being that this would improve the interaction between the manager and his staff. I went through this with my regional forester as a member of his staff, and I went through it then with my own staff. Before we did this we had a week of training in managerial grid, at our regional training center. One of the first requirements, of course, was that we read the book completely and complete a number of exercises that went along with it. We went through it at the training center with supervisors and other members of the regional office division staffs. Then, after that training, we went into it with the regional forester. The result of this, as far as I could determine, was practically nil. I thought the people who needed it the most, who didn't use their staff, didn't know how to delegate, wanted to do everything themselves, really didn't get anything out of it. It didn't improve them a bit. Those that already were doing it didn't need managerial grid and I could see no change except for a very, very temporary period with our regional forester. I couldn't see any change between me and my people as a result of the managerial grid. So at least we tried it,

but it didn't particularly answer our needs. We heard some rather glowing stories of other federal agencies particularly, and some private organizations who had used it who felt it had solved their problems, the Internal Revenue Service being one of the organizations which had found it very successful. It swept the Forest Service pretty much. I think every region went into it, perhaps some more completely than others. I think that at least some of the Washington office divisions also used it, but it died very quickly. It was supposed to be a continuing thing; however, as staff changed, new people came in who had not been exposed to it and knew nothing of what was going on, so it was doomed to die. You would have had to have a complete retraining program every time you changed personnel. Frankly, I could see no results from it other than it sold a lot of books because everyone who took the course had to buy a book.

RCL: It sounds like it was a reflection of what was going on in the broader culture with encounter groups and sensitivity training, which also died.

WLG: We heard some rather horrifying stories in connection with managerial grid where people went through it and it was so traumatic it just about ruined them. Our regional forester went through it with a group of people from other agencies before he went through it with us, and he said there were some in there that it just about

ruined. They were told so brutally frankly about some of their shortcomings . . .

RCL: That they were supposed to forgive, right?

WLG: Right, but human nature just does not work that way.

RCL: I saw some of those forms and it seems the numbers you mentioned were broken down even farther like MBA type before 1955, MBA type between 1955 and 1965, and MBA type 1965 to present which was the highest. How did that work on the grid itself. Would you then be given a number?

WLG: Yes, we were identified as to whether we were a 1/9 manager, a 9/9 manager, or 9/1 manager.

RCL: Who did this, the other people?

WLG: Yes.

RCL: How did people come out? Did anyone come out a 1/1?

WLG: No, I don't think anyone came out a 1/1. Most of our people came out a 9/1.

RCL: That's pretty good.

WGL: Yes, not too bad. We had a great variation, particularly in the area of delegation where some division chiefs, for example, just didn't delegate to their subordinates at all. As a matter of fact, I don't know why they had subordinates because they just couldn't function. Others would delegate almost too much--almost to the point of abdication.

RCL: There appear to be a couple of questionable assumptions behind this: one, that the individuals participating in

the session were in a position to evaluate a person's leadership ability, that is, that they would know good from bad; and the other thing is that the underlings would actually give an honest evaluation of those above them and vice versa. It seems like there would be a natural tendency to not go too far and aggravate somebody you would be working with the rest of the time.

WLG: I think that's right, particularly not go too far with the individual you were working under, your boss. There was not as much reluctance to speak frankly to your peers as there was to speak to your superior. Of course, your superior was right there and went through the whole thing with you, and human nature being what it is, you just don't say certain things to your superior, so there was a reluctance. Frankly, I was amazed at the frankness with which a number of the people spoke. For example, our regional forester, and he recognizes this and admits it, had a real hot temper and it frequently got the best of him. We pointed this out to him in no uncertain terms, and he realized it all right and I think he made an honest effort to try and control that, but he had a very short fuse and could explode very quickly, and did quite often.

RCL: Do you think if you had been able to keep up the program it would have worked in the end?

WLG: I don't think so. I just don't think it answered the

needs, or if there was a need for something like this. First of all, what it was really intended for, as I view it, was to change people who were not delegating and not using their staff, to get them to use their staff properly and to delegate properly, and I don't think you can change people that easily. You can't put them through a course and get them to flop over. If they are naturally inclined in one direction, I don't think this will solve their problem. If they are good delegators and are utilizing their staff fully, then I don't see the need for this. It was an experiment that did kind of sweep the country all right, and any way you look at it, it is an encounter group, which was popular at that time. There were many, many different kinds of these, and this was selected by our personnel people in Washington as the one they thought had the most promise. I think the people who decided to put it into effect really thought it would meet the needs of the Forest Service, but it didn't. There may be some instances where people felt it was beneficial, but in this region, as far as my own personal contact with it and knowledge of it is concerned, it didn't accomplish anything. Supposedly every few weeks or months we were to sit down with our superior and again go through much of this, a follow-up session, determining what progress had been made, what improvements and so on.

We had about two of those and that was it. It died a natural death.

RCL: Can you think of examples where it was actually harmful?

WLG: Not personally, I can't. I don't think it actually hurt anybody in the group that I went through it with, but I did hear stories. Thinking back, there was one member of our staff who refused to take it, one member of the regional foresters staff who did not sit in on it, and I think one reason was that he was the type of individual who would not delegate to anybody. He felt so strongly about it that he was not going to go through any kind of a course that would change his way of operating and the regional forester agreed--he was close to retirement anyway. He was the only one who didn't go through it.

RCL: It was required of everyone else?

WLG: Yes.

RCL: It could be a very traumatic experience. That was one of the reasons for encounter groups--the idea was to break somebody down and to rebuild them again.

WLG: It is very difficult to change a person's character that quickly.

RCL: Under President Nixon the Forest Service faced a challenge with his request or demand for a consolidation of regions that would coalesce with the other federal regions. Can you describe the efforts that were made to meet those requirements and the results.

WLG: Yes. First of all, even prior to that, it had been tentatively planned within the Forest Service to carry these studies through to a size of region study also, as the final study in the total organization. It was abandoned pretty much when the size of forest study didn't come up with anything very concrete. Anyhow, before anything could be done along that line, President Nixon issued an executive order to the effect that all federal agencies with regional offices and regional units in their organization would all have land boundaries that would coincide. There was a certain amount of logic in this in that it meant that people who were involved within a region would go to one central place to do all of their business with federal agencies in that region. However, one thing that was not considered was the fact that most federal agencies deal primarily just with people, therefore, their boundaries were based on population, whereas land management agencies such as the Forest Service, Bureau of Land Management, and to a lesser degree the Park Service, are based on natural resources rather than people. It was not compatible for agencies like the Forest Service to force their regional boundaries to conform to other agencies. As a matter of fact, if it had taken place it would have gone to the point where one of the regions would have had no Forest Service units whatsoever, and in one

region in the northwest United States where the number of forests would have been tremendous, there would have been something like forty or forty-five national forests in one region.

At any rate, in response to the directive issued by the president, I was involved in a rather superficial study as to what we could do to more nearly conform to the directive and try to get our regions somewhat in line. There was actually no field study done on this. It was merely getting together a number of people in the Washington office and discussing the pros and cons and the problems that might arise and the alternative proposals. We did come up with a couple of proposals different from the one the president had directed, one of which was a possible consolidation of Region 2--which is primarily Colorado and Wyoming--with the New Mexico part of Region 3, grouping Arizona with California. The idea was that the types of activities that take place in New Mexico are more nearly compatible with types of activities in Colorado than they would be with activities in Mississippi, Georgia, Alabama, and the other southern states.

The proposal according to the president's directive would have been to consolidate at least New Mexico with Region 8 out of Atlanta, with possibly a suboffice in Dallas. There was also a consideration given to re-arranging Region 8 so that a few of the states in Region 8

would become consolidated with Texas and New Mexico with headquarters in Dallas. This would probably have resulted in the elimination of the regional offices in Ogden, Utah, and Missoula, Montana, as well as Albuquerque, and the movement of all of the people in those three cities to some other location.

The impact on a community of moving that many families, particularly out of a small town such as Missoula and Ogden, and even Albuquerque, was terrific, and there was a real political uproar generated as a result of this.

It had gone to the point where the chief of the Forest Service had made a trip to the regions and talked to the people in the regional offices who would be affected by it and explained what was going to take place. People were actually preparing themselves to move out of Albuquerque. This I know from firsthand experience.

Many, many of them, knowing that a move was imminent and not wanting to move to either Atlanta or Dallas, took transfers to other western regions. The morale in the regional office here hit an all-time low during this period. Nobody felt like really doing anything because they felt they were going to be moved and whatever they did would have to be undone or redone after the move took place anyhow.

The senior senator from Montana really was responsible for stopping the consolidation of the regions by having included in the appropriations bill for the Forest Service

a provision that no Forest Service appropriated funds could be used for transfer of regional offices from one location to another. This effectively stopped it. The secretary of Agriculture then issued a public statement that the proposed transfer would be canceled. That's been the end of it. There has been no more talk of it even under the reorganization proposed by the Carter administration.

RCL: It seems like a very arbitrary sort of decision.

WLG: Very much. I think the idea behind it probably was not too bad. You can't argue with the fact that it would be more convenient for users who deal with a number of federal agencies to go to one headquarters town rather than having to go to two or three different ones, which they have to do now in many instances. But it was effectively stopped, and the result was that we had any number of vacancies to fill here in this regional office because people, thinking a transfer was to be made, had already moved out. As a matter of fact, many of the stenographic force had gotten jobs in other agencies in anticipation of the fact that there would be no office here. They could not move because their husbands had jobs here, and they couldn't be transferred, so they found jobs elsewhere. The region was down to the point where some of the divisions in the regional office had practically no stenographic help whatsoever--maybe one or two people.

RCL: Weren't the other federal agencies also involved in this?

WLG: Not to any great degree because there weren't many regional offices here, as I recall. I'm trying to think-- the Internal Revenue Service has a district office. The regional office for Fish and Wildlife Service here is a small one. I guess they would have been involved. The Bureau of Land Management is not a regional office here; I can't think of any others.

RCL: If that were to go through, states like Montana, or even New Mexico, would end up with hardly any representation.

WLG: Yes. For example, if this office had been moved to Atlanta, you can imagine the difficulties of people here, users of the national forests in New Mexico, having to go to Atlanta, Georgia to do business with the regional office.

RCL: Yes, and New York City would probably qualify for its own regional office.

WLG: As a matter of fact, I think New York State was just about a region of its own under the proposal and that's a state in which we have no national forest lands.

RCL: Well, it probably wouldn't have gone through no matter what happened.

WLG: It was imminent and if the senator had not stopped it, I suspect it might have gone through in the West, in spite of the fact that I am sure the congressional delegation and the states involved would have been very much against it.

RCL: This took place then just about the time you were getting ready to retire.

WLG: Yes.

RCL: You retired in what year?

WLG: I retired in 1972 and this thing started in 1971, I think. It was after I retired that the chief of the Forest Service came out here and talked to the people in the regional office. I went down to the meeting and sat in because I had just recently retired. At that time it looked pretty certain that the move was going to take place. It was in that fall that it was stopped--the fall of 1972, I believe.

RCL: So that really ends your experience in management technology in the Forest Service in the official sense. Do you have any other comments about what's happening now regarding things that could develop into administrative changes?

WLG: That's a difficult question to answer--as far as what changes might take place.

RCL: You mentioned Jimmy Carter's proposal--

WLG: The Carter administration's reorganization proposal very possibly may be put into effect. Several different proposals have been made and there has been a lot of feedback from various organizations--conservation organizations and resource-oriented groups, as well as the agencies involved. It wouldn't greatly surprise me if a Department of Natural Resources were created.

RCL: As part of the Park Service?

WLG: Yes, and the Bureau of Land Management, the land management agencies consolidated into one department. Most of them are now in the Department of the Interior, with the exception of the Forest Service. This has been tried in almost every administration, I guess, since I came into the Forest Service in 1933 and it has been unsuccessful, as we know, so far. However, the creation of a new department might be somewhat better received by those who have opposed the transfer of the Forest Service to Interior. There is a certain amount of logic to lumping all of the resource agencies into one department, all right. You can also argue that that would do away with some of the checks and balances that exist now with land management agencies being in different departments, so there are some pros and cons to it both ways.

RCL: It would really be a return to the Interior, since in the very beginning that's where the Forest Service fell.

WLG: Yes. One thing that does bother me a little is that they keep dragging in some other agencies that are not really land management agencies--that is including them in this Department of Natural Resources, if that's what it would be called. Oh, I am thinking of the Geological Survey, the organization that handles mining, the Maritime Commission, and some of these are really not very compatible certainly with the Forest Service and Bureau of Land

Management. The Bureau of Land Management and the Forest Service are more nearly similar than any other two, I think. The Park Service's philosophy and objectives and everything else are totally different.

RCL: In opposition really.

WLG: Very definitely in direct opposition in many instances-- such things as no hunting; any harvesting of wildlife is to be done by Park Service employees rather than the general public; no livestock use except in certain rare instances where such use existed before the unit was designated as a national monument or national park; no timber cutting. It goes a little bit beyond what I consider conservation. I consider conservation to be wise use of the resources rather than no use, and the Park Service's philosophy is more nearly oriented toward little or no use, except recreation. Of course, the wilderness areas of the Forest Service more nearly approach the philosophy of the Park Service in that respect, in that they are primarily recreationally oriented.

RCL: There still are other uses, though.

WLG: Yes there are still over uses--livestock grazing, for example. There are a number of uses that do take place that are not permitted in the parks. That's not to say that that shouldn't be their philosophy. Certainly we need the national parks which are set aside for only that purpose. No question about it. But the objectives of

the two agencies are so totally different, I am not sure there is need to have them in one department.

RCL: One of them may overpower the other. All of this is speculative and past the area we are trying to cover. I would like to ask if you have any other comments you would like to add that have to do with management technology.

WLG: I was thinking back to some of the people I have worked with, and one who immediately comes to mind is Chet Shields. I first became acquainted with Chet when he was assistant ranger on the Cibola National Forest and I was here at the regional office in range management. When I went to the Carson Forest as supervisor Chet was there on his first ranger district, so his very first district was under me as forest supervisor. Actually, the first district that Chet was assigned to he was only assigned for a very few months, far less than a year, and it may have been only a month or two. He never did get out to his district really before he was transferred to another district on the Carson Forest.

Then after he had been there for about, oh, four or five years the opportunity came up for us to recommend someone for a year's scholarship at Harvard leading to a master's degree in administration. I recommended Chet for that, and after discussing it with him he agreed to take it, and he was selected. He went back to Harvard at about the time I was transferred to Washington. After he finished

his year at Harvard, I believe he went directly to the San Juan Forest and was involved in the San Juan study. Then when I came to Albuquerque Chet had been transferred into the Washington office and he took my place then in the Division of Administration.

RCL: You wanted to get out, didn't you?

WLG: Yes, I wanted to be moved out. I take it back, Chet was transferred in there while I was still in Washington but he did not take my place; Clayton Weaver took over the jobs I had been doing. Then when Ed Schultz was moved out as division director for Administrative Management, or Operations as it used to be called, I was asked to come back to Washington as division director and I refused it and Chet was then put in that job. He went on to associate deputy under Clare Hendee--Gordon Fox was there first and Chet followed after Gordon retired--so I have watched Chet's career with a great deal of interest.

RCL: You two seem to be pretty good friends.

WLG: Yes, we are good friends. I thought a lot of Chet; I thought Chet was far and above the best ranger I had on Carson Forest. Well, I won't say far and above because I had another ranger there by the name of Alan Lamb who was equally as good. The two of them were really top hands. They both went a long way in the Forest Service. Chet was an exceptional ranger. He had a good understanding of the problems of the people on his ranger district. He

was a very level-headed, cool type of individual. He didn't let things fluster him or get excited at all. I thought an awful lot of him and still do.

RCL: Do you have other comments about things you have done yourself or comments about things that were done outside yourself in this field? I think we have pretty much covered the areas that could be considered management technology that you were involved in, but there were certain things that you weren't involved in. Can you comment on that, or even on the general philosophy of the Forest Service? Maybe an explanation of why they have been so innovative in this field.

WLG: Well, whether this has a bearing on the progress or the changes that have taken place in the management aspect of the Forest Service or not, I don't know, but from way back in the very beginning the Forest Service was made up of people who were pretty much individual thinkers and this type of philosophy was greatly encouraged in the Forest Service. My experience has been that there were very few Forest Service people who were ever reluctant to speak their mind about critical things that were placed in front of them. It has been the practice of the Forest Service, as long as I have known it, that any time a new type of activity was put into effect, whether it be management technology, resource job or whatever, that the field would be asked for input and reactions to it. My

experience has been that the field responded to that very well and would give their opinions on whatever it might be--whether they thought it was feasible, whether it would work and if not, why not. I think this has been one of the strengths of the Forest Service.

In many respects the Forest Service down through the years has actually been compared to the Marines in that they were pretty strict with their people and yet they did have enough freedom to act on their own. It has been a decentralized outfit from the very beginning, and again I think this was one of the strengths. It probably came about because of the great distances, when the Forest Service was first established, between the ranger on the ground and the chief's office and even the forest supervisor and regional office. Because of the slow transportation and poor communications we had in those days, they almost had to decentralize and leave it up to the man on the ground to pretty much run his own show. This has been pretty well carried down through the years. I think a trend is beginning toward more centralization, quite a little more than we have seen in the past, again primarily because of the improved communication and transportation methods so that the ranger now is not very far from his supervisor, or the regional office, for that matter.

RCL: And any single forester is really not very far from any

other single forester because of the computer center in Fort Collins, Colorado.

WLG: That's right.

RCL: The whole agency is getting smaller in that sense.

WLG: I think over the years, if you are looking to the future, decentralization will become less of a factor as we get, for example, closed-circuit television where conferences can be held without ever moving out of the individual offices. We see some things like this coming. There have been some tremendous strides made, all right. I would say the great majority of them were to the good. Some of the most notable, of course, have been in the area of forest fire fighting such as the use of aerial attack and the use of satellites for detection. We will see more and more of this. Many of the things we used to do are already becoming things of the past, fire lookouts, for example. Before too long I think we will see them go out of the picture completely.

RCL: Satellites can see the hot spots.

WLG: Yes.

RCL: They can also see insect epidemics, even the beginnings of the epidemics. So that is another form of management technology.

WLG: That's right. Infrared photography has made tremendous changes both in fighting fire and insect infestation. So the Forest Service that I knew and grew up with is

rapidly becoming a thing of the past, and I think that's probably good, even if I do regret it.

RCL: There is another aspect--I think this is more of a general administrative subject than it is technology, but you mentioned the Forest Service being compared to the Marine Corps in esprit de corps and discipline. I know you probably put in long hours when you were working with the Forest Service, and now overtime is being paid. Do you think this will have an effect in making the Forest Service employees feel separated in terms of being a part of the larger Forest Service? Do you think they will see themselves more as individuals?

WLG: I think so. I know that I have already seen a change in this direction before I retired--even more so since I retired. There is not nearly the esprit de corps today that there was twenty years ago. The philosophy when I came into the Service was that we hired out by the year, not by the day, week or month, but by the year. If it took seven days a week to do the job, that's what we did. In the almost forty years I was in the Forest Service, I didn't ever receive one penny's overtime, and yet I put in constantly from 15 to 25 percent more time, as a minimum, even on the regular job aside from fighting fire every year. I never received, nor expected to receive, anything for it. Today for anything over eight hours the individual expects overtime even though it may not be fighting fire.

I can cite one instance that brought it home to me very clearly several years ago--several years before I retired. I was here in the regional office and scheduled to make an operational inspection of one of the forests. It had always been my practice, if I were to start the inspection on Monday morning, to leave home Sunday morning--depending on how far away it was--arrive there that evening and stay until the job was done. If it took me through the next weekend or whatever, I spent it. The young man I had selected to go with me when he found out we were going to leave on Sunday applied for compensatory time for Sunday in advance. I had to call him in and give him a little talk about what was expected of him and that I was not about to approve his compensatory time. If he wanted to stay home on Sunday, fine, as long as he was at the forest by 8 o'clock Monday morning it was all right with me. Well, he changed his mind then, but it just brought home to me the change in attitude that is taking place. Again, I am not going to judge whether it's good or bad. I think it's a trend throughout the country. You get paid for everything you do and you do only what you're paid for. I think this is definitely the trend.

RCL: It would probably be difficult for the Forest Service not to do that when all the rest of the country is swinging in that direction.

WLG: There is no choice. We have to conform. There is no alternative to it.

RCL: What sort of changes did this require in making up your budgets and your workload analyses? This must have been a factor to be contended with.

WLG: Well, I don't think it had too much of an effect on the workload analysis really because the workload analysis is based on the length of time it takes to do a job, not whether it's all done in one day or several days, but on the total number of hours it would take for an average individual to perform that job.

RCL: Then your budget is based on that, right?

WLG: Yes. There have been, of course, some tremendous changes in the budget procedure in the last several years, and many of these changes have taken place since I retired. We hear also about zero-based budgets and this sort of thing. The Management Sciences staff in California has been deeply involved in what, at the time I retired, was a new procedure of budgeting and work planning. If you can interview them, they would be the ones to go into that in detail. It was a drastic change from anything we had before in the budget area. It was just beginning when I retired; they were just getting started in it and I don't know whether it continued along that line. I understand it has to a degree but there have obviously been some major changes in it, so I don't know what the current method of budgeting really is. They made some

tremendous changes just at the time I retired.

Of course, I think as far as the ranger district itself is concerned, there have been more changes at that level than at any other level of the Forest Service down through the years. I think certainly most of these changes were very definitely needed. When I first started, the ranger seldom had any permanent help, only temporary help during the summer. Maybe he would have one assistant, but that was about the extent of it. When I took over my first district, which was a fairly large district, I had no permanent assistants at all. Therefore, I was expected to become proficient in just about everything from repairing telephone lines, clearing trails in the spring of the year, to doing the more professional timber management, range management and this sort of thing, and did it pretty much singlehanded. The ranger today is almost 100 percent an administrator, and not always is he a forester as he was in the early days. Of course, in the very early days they were political appointees, but as the work became more professional they became professional foresters.

Today there is no need really for a ranger to be a professional forester. He should much better be a professional administrator because, particularly in the larger districts, that's what his job is, in seeing that his staff does the work. Now, obviously, for a man in charge

to be able to administer any unit effectively, he should have a working knowledge of what's going on in his unit, whether it be private business, running a store, or whatever. He should have practical experience, no question about it. Otherwise, you can't judge how well your subordinates are doing their work if you don't have some basis for comparison. But primarily on the larger districts, I'd say from the average-size district up, they are administrators now, and generalists, not technicians. This was one of the bases for our size of ranger district study and one of the things we very clearly defined in that study--that a ranger now is a generalist and has to be if he is to effectively administer his district. So I would say there has been more change there than anywhere else.

There was major change in the regional offices when they went from the regional forester-division chief type of organization to the regional forester, multi-deputy, staff unit type of organization. This gets into another whole new area--well, it's not new in the Forest Service, but one which we had not discussed--and that is the line and staff organization and the combination of those, the line-staff organization, which was so prevalent in the Forest Service, certainly up until the reorganization of the regional offices.

Up until that time, using the regional office as an

example, each member of the regional forester staff was in charge of a resource or management division; division of range management, division of timber management, fiscal management, a man in charge of operation, and so on. If there were two or three relatively light activities, particularly two or three compatible resources such as fish and wildlife and range management, they would be consolidated, and the man in charge was a full member of the regional forester staff and was a line officer to his subordinates. So he was staff to the regional forester, he was line to his subordinates, and he was line-staff to the forest supervisor, sort of a three-way proposition. The theory behind it was that when he was dealing with the forest supervisor, as far as the activities he headed up in the regional office he functioned as a line officer. However, the forest supervisor always had a line of appeal, if necessary, to the regional forester if he could not accept what the division chief told him or directed him to do. I think it functioned quite well. Sure, it had varying degrees of success depending upon the individual in charge of the division. A very strong, aggressive individual was more of a line officer as far as the supervisor was concerned than one that tended in the other direction. But the regional forester had a staff of anywhere from eight or nine to a dozen division chiefs who advised him and functioned as his immediate subordinates.

Late in 1972 or early 1973 they changed to the multi-deputy type of organization which we mentioned earlier as part of the McKenzie report recommendation for some of the larger regions. In each region three deputies were established--let me back up just a little. Prior to that time by several years one deputy was established here in Region 3, as it was in a number of other regions, and the division chiefs still maintained their identity. So there was the regional forester, the deputy regional forester and the division chiefs and it was a question then of knowing instinctively, if no other way, whether or not a division chief would go to the deputy regional forester with a problem for a decision or to the regional forester. The regional forester retained certain specific things as his direct responsibility. One of these was personnel matters, so there was no question there. If there was a personnel problem the division chief went to the regional forester, not to the deputy. From there it got into areas where it was a little on the hazy side as to which one you would go to. Of course, there were times when a division chief would play a little politics in this respect, and if he felt that the deputy regional forester might be more persuasive than the regional forester in getting through something the division chief was trying to get through, he would go to the deputy. If he felt that the deputy might hinder it more than help it, he would go directly to the regional forester. This

was the case rather often, I would say. He had no clear-cut directive as to which individual he went to. But it worked reasonably well. The more aggressive a regional forester was and the more he insisted on handling everything himself, the less effective the deputy became, of course, to the point where he was almost just another high paid division chief.

That was in effect for a relatively few years before they went to the multi-deputy concept and when they did this, there was a complete change in the organization of the regional offices. They changed the nomenclature as well as the actual functioning of the various resource and administrative units. They eliminated the division per se and had staff units with a staff man in charge of each unit. For example, there would be a timber staff, a range staff, and so on. They broke up the division of operation into three: one, was administrative services which took care of procurement, property management and contracting and that sort of thing; computer services which was also a part of the division of operations was broken out; and budget and work planning were broken out, so that the division of operations ceased to be in effect and the staff man in charge of each of these units that I just mentioned reported directly to the deputy regional forester for administration. The same thing became true in the other divisions, however, there was not the diversity in the

others. For example, timber management is still timber management, and recreation and lands were broken apart so that we had a recreation staff and a land use staff. The main responsibility that the old division chiefs had ceased to exist then, and they became almost pure staff. There was no more responsibility whatsoever with the national forest. The regional forester then was working with only three people instead of with the ten to twelve he had in the past. At first, and I think I mentioned this earlier, this was not well received, but I think as time has gone on, it has been accepted or at least tolerated.

RCL: Because new people come in and are not used to anything else?

WLG: Yes. And it seems to be functioning fairly well, as near as I can tell from the sidelines, and I don't get involved at all anymore. I haven't been to the regional office for six months or a year and probably won't be again, so what I get is what I hear from individuals, and depending on who you talk to whether it's good or bad, or mediocre. But it was a major change, no question about it.

RCL: From what I see it seems that the McKenzie study and the results from that study probably started the first major changes in the Forest Service history regarding reorganization and that that might be the signal event of note.

WLG: I think so. I think that's very true. I can't think of any study prior to that which had the impact of that one.

I think that was the turning point, all right. It changed the Washington office; it changed all offices of the Forest Service. Probably it affected the ranger districts the least, except that it did generate the size of district study. This has had some impact on the districts and has resulted in the elimination of some small districts, which in my opinion was good. I think this was long overdue and we needed this sort of thing. Down through the years I think the Forest Service has always been willing to examine its own activities or have someone else examine them, and willing to make changes, willing to try new things. Invariably there were some things that did not work out too well or were not too good, but they had to be tried before this could be determined. I think we cooperated fully with the Deckard committee when they made their study and again this was an interview study.

RCL: That resulted in changes too.

WLG: Yes.

RCL: Several.

WLG: Yes. I think the Forest Service has been recognized as one of the leaders in government in this field, and one that has been willing to try new things and make changes and not become so steeped in its own tradition that it won't consider changes.

RCL: It's always been an innovative organization. It's always

really been immersed in controversy. It was born in controversy and it was born out of experimentation, too. It was a daring type of bureaucracy.

WLG: That's right.

RCL: That has been shown all the way through so that it has the tradition of experimentation and the tradition of change.

WLG: Yes.

RCL: Well, I think that just about covers our interview unless you have further comments.

WLG: I can't think of anything else that has any real bearing on this particular subject. Any of us who have been in the organization for a long time can reminisce about the many things that took place, some good, some bad, most of them interesting whether they were good or bad. As far as I am personally concerned, it has been an organization that I thoroughly enjoyed and did I have it to do over again, I don't think I would change very much. The people I worked with and I met, with few exceptions, were very fine people and people that you would be proud to be associated with. It has been a pleasant experience, not to mention the fact that a ranger district is a great place to raise children.

RCL: You're a lucky man.

WLG: Yes, yes I think that's right. I feel sorry for people who are in jobs they are unhappy with and dissatisfied with. I think that satisfaction in a job is just as

important as the money, if not more so.

RCL: Sure. With that, on behalf of the Forest History Society and the Forest Service I want to thank you very much for your time and the good interview you just gave.

WLG: I appreciate that. I am sure I have said some things that other people wouldn't agree with, which is fine. I don't agree with some things other people say either.

RCL: We all do that.

WLG: That's right, but what I have said is my own opinion and based on my own observations and my own feelings.

RCL: That's what oral history is all about.

CHESTER A. SHIELDS June 21, 1978

Ronald C. Larson: Mr. Shields, since you are just about to retire, it's probably a good time for this interview because you can go back and reminisce about your time in the Forest Service and about the type of job you were doing. Why don't we start with a bit of your biographical background--such as where were you born and when?

Chester A. Shields: Ron, I was born at Olathe, Colorado, on April 18, 1923, on an irrigated farm and orchard owned by my grandfather who was assisted in the operation of it by my father. My father, at an early age, contracted a serious case of diabetes and to get lighter work for health reasons we moved to Delta, Colorado, and then when I was four years old to Durango, Colorado--what I really call home. In fact, that's where I am going back to retire. I attended grade school and high school there. I was active in music, academic and youth group activities. During that time I came to know a number of people who worked on the San Juan National Forest. In fact, the assistant supervisor of the San Juan Forest was one of the principal adult leaders of the youth group I was active with. I became quite taken with the personalities and activities that took place on that forest which during high school attracted my interest in forestry.

I graduated from high school in 1941 and due to the strong encouragement of my father, and in spite of the situation with the Depression and so on, I decided to at least attempt to work my way through forestry school. Just outside of Durango was, at that time, a small two-year branch of what is now Colorado State University, Fort Lewis College. It was located at an old Indian fort at Hesperus, Colorado, about fifteen miles from Durango. It was built in the 1880s, a very small college. The total enrollment was about 129 people. Everybody lived on campus. But I could take two years of forestry there. It is now a four-year college and independent degree-granting school. The campus has been moved to Durango, with a nice brand new campus. In my sophomore year there were only two sophomore forestry students so it meant that the other student and myself sat down at a table with the professor, as we are with our interview here, and really learned the subject thoroughly.

In 1942 I enlisted in the army and was called up to active duty in March 1943. After training in the States, I went overseas for just short of two years. I served in the Amphibian Engineers as an enlisted man. We had landing barge operations on New Guinea, New Britain, Luzon, and ended up in Japan in October, 1945. I was discharged and got back home to Durango on New Year's Eve, 1945. On January 2, 1946, I went back to Fort Lewis.

RCL: I bet you had a celebration.

CAS: Well yes, it was quite a homecoming. I took two more quarters of work there and then transferred to the main campus. I had accumulated enough extra credits due to personal interests in subject matter outside of forestry that in 1947 I got a bachelor's degree in general science and arts, and thanks to the G. I. Bill, the next year I got a master's in forestry. That finished my pre-Forest Service career, although I did have two summers of work experience as a laborer, one on the San Juan National Forest planting trees and maintaining trails in 1942 and one summer of fighting fire and maintaining trails on the Chugach, Alaska, in 1947.

RCL: So those served to fill in your education by the time you got your M.A.

CAS: That's right. Well, it was an M.F.

RCL: Then once you got your M.F. did you go immediately into the Forest Service?

CAS: Yes, I did. In fact the last quarter of school was a field quarter, an experimental program they tried for a short period of time where the entire quarter was spent with the professors in the field. This was in addition to forestry summer camp. There were twelve of us who signed up for this special field quarter. Most of the time was spent either on or in the vicinity of the Coconino National Forest in Arizona. I was seeking

a job and the professor knew it. He let it be known that Chet Shields was looking for a job and if they wanted to size me up, why, more power to them. Towards the end of the quarter, they approached me and asked if I would be interested in a job on the large timber sale that was going on there, a chief's delegated sale. I said I was if I got a regular Civil Service appointment. I was quite gratified to find that two weeks later I had physically in-hand an appointment.

RCL: That was great. Then what assignment were you given at the unit?

CAS: I was a member of a five-man timber sale crew, headed up by an old-time timber salesman, his assistant, who was another old-time timber salesman, and three junior foresters who were in training stages. I was on that for about nine months. From that point, I was transferred to the Mountainair District of the Cibola National Forest in New Mexico as assistant ranger and had that position for eighteen months. From there I was offered a job as ranger on the Jicarilla Ranger District on the Carson. This was back in the days when they still had GS-7 ranger districts. I was a GS-7 ranger for just about five months and then was promoted to the ranger's job on the Penasco District of the Carson. I was ranger there about six years. Most of that time I worked for Forest Supervisor Walt Graves.

In 1956, I was asked by the regional personnel officer if I would be interested in a fellowship to a graduate program in Harvard, the major subject being economics of conservation. This was a program of twelve fellowships that was funded by Resources for the Future, which is a conservation organization, financed at that time by the Ford Foundation. This was before the Government Employees Training Act so it entailed going on leave without pay and being financed through the fellowship. It sounded attractive so I put in an application and received recommendation through the Forest Service and did obtain a fellowship which resulted in a master's in public administration at Harvard. About Christmastime, I received a job offer . . .

RCL: Was this the Christmas after your Harvard graduation?

CAS: No, during the academic year, Christmastime, 1956. I received the job offer through the Washington office. The situation was that they had a requirement for a management analyst assistant to the forest supervisor on the San Juan. The supervisor was Gordon Grey. Gordon had always been a very analytical-minded individual and had worked on activities that pre-dated the formal management analyst's activities when he was assigned in Region 3. Ultimately he was transferred to the Washington office where he was in the peer group and a contemporary of Gordon Fox. He had five years of

experience in the old Division of Operations doing analytical work. As I understood the story from Gordon Grey, he and Gordon Fox had many conversations about ways of improving management technology within the Forest Service and thought that many of the new systems that might be desirable or that should be further developed and tested, should be tested in the field environment to make sure that they operated properly. As long as there was the concept of experimental forest for resource management, why not experimental forest for administrative management or the development of new management technology for administration? Gordon Grey told me that this also appeared to be an attractive way of getting out in the field and having the highly desirable job of forest supervisor, so he and Gordon Fox proposed an experimental forest for administrative management in the East and one in the West. Gordon Fox would be the supervisor in the East and Gordon Grey in the West. It apparently sold because Gordon Grey was made supervisor of the San Juan Forest in southwestern Colorado for this purpose. But before Gordon Fox could get anything set up in the East the director of the division retired and, low and behold, Gordon Fox was promoted, so there never was one set up in the East. The San Juan Forest had a very heavy workload. At that time it had nine ranger districts, and Gordon Grey was

performing his forest supervisor duties plus making a number of studies. Some of the studies that he was actively designing and testing were the "ranger district uniform work planning system" and field tests of a subject-numeric filing system that would be a radical change and improvement over the old system that the Forest Service had had since it started.

Because of the workload the Washington office decided to recruit a junior analyst to do leg work. Understand that at this time there were few formally designated management analysts in the Forest Service except for a few people who had shown analyst aptitudes. Walt Graves, who during this period of time transferred to the Washington office, suggested that I be offered the job and that surely the education I was acquiring at Harvard would be usable for this purpose.

I had some mixed feeling about converting from my career objectives, being a forester, to this type of activity so I sat down to really analyze whether this was the kind of an assignment I would like to have. In the process, I discussed the kind of activity with one of my professors at Harvard, John Gaus. He found it rather amusing that I had these particular qualms. He was an old professional who had done much consulting work as a management analyst. He said, "Chet, there are two approaches to this. One is to get somebody who knows

what I call the tools of the trade in terms of analytical techniques and then teach them the organization that they are going to work with, or you can take someone who knows the organization and teach him the tools of the trade. It works fine either way." He said, "Don't be concerned about it. If you would like me to help you prepare for this, I would be happy to," and he gave me an extracurricular course of reading. But in the process of thinking about this it became clear to me that my interests and perhaps aptitudes and my previous assignments supported this type of assignment. The individuals I had worked for directly during my career up to that time had all been analytical minded, and had set examples of making management analyses that were applicable on the job, and I found that I had been making such analyses on my own. So it appeared a very interesting and challenging area of activity and I accepted the job. I reported to the San Juan. Incidentally, I am sure that no one in offering it realized that they were offering me an assignment in my hometown. I don't think that it would have made any difference, but I found it rather interesting to get that opportunity just out of the blue.

RCL: That must have been another factor in your accepting it.

CAS: Yes, it did offer extra interest. So I converted from forester to management analyst by way of an executive

training plan which was necessary to change professional series. Over the next few months I got special training in terms of job assignments, details, and formal training to fully qualify me in the business management series. There were several projects on the San Juan at that time. Two I have already mentioned. Another one was a Servicewide workload analysis to establish the time allowances necessary for the ranger's general administration activities. But one that was quite interesting was an assignment to write the definition and description for the existing Forest Service form of organization which was called a "line-staff organization."

RCL: How exactly did the San Juan Experimental Forest function? Did you work on specific projects? What sort of control was being used?

CAS: The forest was no different from any other operating forest as far as resource management was concerned, but it became the test bed for these particular studies. For example, in the ranger's general administration base all the rangers of the San Juan forest kept special diaries of their time for these kinds of activities. Now all of these projects were conceived as Servicewide activities. Each one of them was approved by the Washington office. Any special expenses including my salary were funded specially, directly out of the Washington office so that although it became a test bed, I found that in

extending the applicability I had to take samples of various ranger districts throughout the United States where we kept special records. But, of course, I could physically observe what was taking place on the San Juan as part of the validation process to be included in a finished report for national application. Each year as new studies were conceived they were proposed to the Washington office and they were either approved or rejected.

During this particular period of time, one of my training assignments was to participate in an interview of a district ranger by Professor Herbert Kaufman of Yale University who was doing a special project for Resources for the Future concerning the administrative behavior of forest rangers. He had written his Ph.D. thesis on this particular subject. It attracted the attention of Resources for the Future and they contracted him to write a finished case study. One of his samples was a district ranger in Region 2. Gordon Grey, my boss, was aware of this so he arranged for me to be there and observe the interview techniques and gain whatever information might add to my abilities as a management analyst. I found this a very interesting experience. I learned considerably from Professor Kaufman, and in effect I became an additional sample because I was less than one year from having been a district ranger myself.

Also as part of my training experience I had some details to the Washington office to work with Gordon Fox, Walt Graves, Ed Shultz, and others, but my principal assignment was to work on the projects that I have identified. The first one that I actually completed was a definitive study of line-staff organization which was intended for use by the Washington office to publish in the Forest Service manual as the official description of how the organization was supposed to operate. I also finished the evaluation of the subject-numeric filing system.

However, at this time Gordon Grey was promoted to chief of operation in the Denver regional office. Although he was replaced by a highly competent forest supervisor, no one on the forest was a journeyman management analyst capable of providing me the needed leadership and descriptions of techniques and instruction. I was still a junior analyst in terms of experience and knowledge and I found that I was having great difficulty in conducting and completing the studies having to get my leadership and advice from the Washington office or by telephone or in writing from Gordon Grey. Eventually I became frustrated to the extent that even though I was living in the place that I most wanted to live in the world, I requested a transfer to Denver so that I could continue working under Gordon Grey and make progress on the studies.

When I transferred to Denver, I continued the same assignment of working on Servicewide studies under the direct supervision of Gordon Grey. We proposed to continue the field location in the process of conducting the studies, and we developed a year's list of projects that I could work on. However, the Washington office decided there was no particular point in continuing it without the proposition of an experimental forest as a test bed where processes could be directly observed. If we were just going to be working from a headquarters office location it would be better controlled and produced out of the Washington office. After a few months of work I had completed the studies that were already approved and I was transferred into the job of management analyst in the regional office in Denver in charge of the "manual coordination" project in the region.

RCL: That was the name of the project? Manual coordination?

CAS: The assignment was that of manual coordinator. Now at this point I would like to introduce a major subject of development of management technology within the Forest Service.

RCL: Before we go into that, could you describe Gordon Grey? Tell me a little bit about him and his role and contributions to the Forest Service.

CAS: Gordon Grey, as I said earlier, was a forester in Region 3 who had a very analytical mind, which apparently was

very quickly recognized. He was given assignments in the area of workload analysis, which used to be a way of life in the Forest Service ever since Earl Loveridge introduced workload measurement in 1932. Gordon conducted workload analyses in Region 3 and was recognized by the Washington office somewhere down the line as being particularly skilled in this and was transferred to the Washington office where, as I said, he worked for about five years. He had a fantastic ability to analyze figures and facts. His basic interests were internal administration and finding and developing new and better and more efficient ways of doing business. During the time he was in Denver he started looking towards retirement as soon as he was eligible. He had a longstanding desire to be a lawyer and a special interest in being a researcher in the area of water rights law which is a major activity in the state of Colorado. Many law firms in Denver specialize in water rights. So he enrolled in the Denver University Law School as a night student, carried a full academic load, and in four consecutive years obtained a law degree with a straight "A" average.

RCL: Oh, man!

CAS: He still had a couple of years to go to qualify for retirement. He lacked years of service and transferred to the Washington office as a legislative

analyst but in about a year's time died of a heart attack. He was a real pioneer in analytical techniques, as was Gordon Fox. They were almost two peas in a pod in those terms. Very analytically minded with tremendous ability in terms of developing analytical techniques, methodologies, etcetera to apply to Forest Service management.

RCL: Okay, so now why don't we go to the time when you were in Denver and working under Grey. You mentioned that a new emphasis on management technology was just beginning to take place.

CAS: All right.

RCL: What year was this?

CAS: This would be 1959, 1960, along in that era. To establish the background, in 1954 Gordon Fox had gotten approval to make a broad problem identification survey across the entire Forest Service for paper-work-related problems, system needs, or ideas for improvement. I was a district ranger at that time. Walt Graves was my forest supervisor and the forest was the recipient of questionnaires asking for our ideas, suggestions, etcetera. We were not even aware of who Gordon Fox was or what was going on. Neither one of us at that time was working as a management analyst. This was a tremendously worthwhile project that Gordon had conceived and it generated, as I recall from having transferred to the Washington

office and inheriting the files on this, about two file drawers full of data.

That project identified very many basic problems or suggestions for improvement that were broadly recognized by way of citations from these questionnaires which were distributed throughout the Forest Service on a sampling basis. For example, the most frequently identified problem and request for change was to do something about the Forest Service manual. Another suggestion was to get into automatic data processing--in 1954, this was quite early recognition of this particular need. Another one was a comprehensive organization study of the Forest Service, particularly considering the possible need for greater specialization on the part of Forest Service personnel. A great many problems and ideas were identified and a large number were approved as projects for follow up.

The number one problem that was identified, that of the Forest Service manual, resulted in a contract with McKenzie and Company to make a study and recommend a design for a modern directive system. They recommended a subject-numeric codification--in other words, a design that would get away from the previous manual design by Washington office organization identification in which Timber had their part of the manual and nobody else could mess with timber, and Fiscal had their part and so on. The concept was that we have a subject-numeric

classification that would be primarily for the benefit of the field operating units of the Forest Service. The district rangers and the forest supervisors and their staffs would be able to know, by subject matter, instead of by Washington office organization, where to find policies and instructions. It would be a very modern closed-end design decimal system, not an open-ended decimal which allows the writer to expand to the extent that you could never find anything.

A project was approved to implement this and a new segment of organization was approved in the Washington office to head it up. In addition, one position was established in each regional office to be responsible for participating in the Servicewide project of rewriting, of restructuring the entire Forest Service manual using this new design. These positions were determined to be most suitably placed in the management analyst's classification series. That was the origin of the management analyst's formal organizational identification within the Forest Service. The people selected for these jobs spent the first year and a half or so in the Washington office coordinating the drafting and publishing of the new Forest Service Manual. Then when they went back to their regional assignments their job was to coordinate the writing of the regional supplementation for those manuals.

When I transferred from the Servicewide studies, when

they were closed out in Denver, I was reassigned behind the original manual coordinator in Denver as the manual coordinator or the management analyst. When that job of supplementation was done, then I went into the regular analytical activities of organization design, position management, paperwork surveys--in other words the full range of internal management improvement using the technologies that I had learned by experience, etcetera. Other projects stemmed from the 1954 paperwork survey. For example, another contract went to McKenzie and Company to study the Forest Service organization and recommend the best structure. It was done under Gordon Fox's direction. Probably the principal result of that study was restructuring the Forest Service to staff it with specialists and to organize it so that you could utilize specialists. This meant, for example, the departure from the policy of having the ranger district of such a workload size that one professional forester with no professional assistants could handle all of the activities. It meant that at the forest supervisor's level we would staff with wildlife specialists, or watershed specialists or whatever complement would be needed to do the job at that level. The ranger district would be the doing level; the supervisor's office would be the planning level; the regional office would be a broad policy level, plus would have the kind

of specialist staff that could not be supported by way of workloads at the lower levels. So this had a tremendous influence on the future staffing of the Forest Service and how we approached management.

One of the fallout items of the manual study was the adoption of the subject-numeric classification scheme into a range of related paperwork systems. We adopted it as the classification scheme for correspondence designation and filing. The subject-numeric system that I had responsibility for final field testing was a predecessor of this but, of course, with different titles and numbers. We then took the basic subject-numeric system and adapted it to numbering our forms so that if the form has a certain number it could relate to correspondence designations and to the policies and instructions in the manual.

We also had at that time a classification scheme for a composite job list of all the activities in the Forest Service so that we could cross reference all these activities. This coordinated codification of a series of paperwork systems was a scheme that the experts for paperwork had for many years insisted was not possible, that it would result in such a complex situation that it just wouldn't be workable, particularly in a decentralized organization.

RCL: These were experts within the Forest Service?

CAS: No, experts outside the Forest Service. However, we have very successfully adopted it and primarily because we have kept it simple. We did not allow the wide expansion of certain classifications within the manual. We used only the broad numerical classification for form-numbering as far as the basic classification. The net result has been other federal agencies, state governments, Canadian, and other foreign governments coming to the Forest Service and finding out specifically what our design is and then adapting it directly to their purpose using their particular subject matter titles, and so on. It has been an international success.

RCL: Yes. The Forest Service has in many other areas of management technology been very innovative.

CAS: Yes, that's correct.

While in Denver in the regional office, I had further involvement in the implementation of the McKenzie organization study. One that I did on assignment to the Washington office, was to redraft my old line-staff organization report, which was intended for publishing in the Forest Service Manual, into the organization design concepts in the report. Art Grumbine, the chief of operation in Atlanta, Georgia, and myself got the assignment. Bob Lake, a district ranger in Region 2 who had shown aptitudes in drafting training lesson plans, sat alongside us, took our output, and converted

it into training lesson plans for use throughout the Service.

Another involvement I had was with the regional forester in Denver, Don Clark, who had himself been an analyst in assignment in years past, and was also a contemporary of Gordon Grey and Gordon Fox. He had always been intrigued with the concept of deputies to line officers and also the concept of assistants. One of the McKenzie concepts was that of the possibility of having deputy regional foresters and deputy forest supervisors which was not at that time an organization element within the Forest Service. There had been such positions years before but they had been abandoned. Some of the older employees of the Forest Service alleged, at least to me, that the reason they were abandoned was that the deputies became the power behind the throne, and the line officers couldn't quite manage or cope with that kind of situation. Anyway, the regional forester asked me as a personal project to study the proposition and to write him an analysis of how those jobs would function if they were implemented.

I, myself, found this a very intriguing and attractive concept, and so I did a literature search and talked to knowledgeable people who I thought would have practical ideas concerning it. I finally concluded that rather than submit a report to him, the only way to really

communicate how they would function would be to draft job descriptions for such positions, which I did. I was flattered not only to have his acceptance but to have him submit them to the Washington office for consideration. They were largely adopted as the Service-wide job description models for those positions.

About this time, I was asked to transfer to the Washington office. This was in early 1963. I was offered the job of branch chief of Management Studies and Systems Planning. This was the branch of the old Division of Administrative Management that was primarily responsible for developing new management technology and getting it implemented throughout the Service. The principal thrust of my assignment on transfer to the Washington office was to continue the implementation of the findings of the paperwork survey.

We had many projects going on within the Washington office to do this. By this time the Forest Service Manual was pretty fully implemented. We were in the process of refining some of the subsystems that related to that such as the form-numbering systems and other related activities. The organization study was also pretty fully implemented by this time as far as the direct conversion of role statements, job descriptions, and so on, but one of the major, at least what subsequently became a major continuing effort, was the

early identification of the possibilities of use of ADP for activities in national forest administration.

RCL: Excuse me, ADP--is that automatic data processing?

CAS: Correct. Up until this time, except for use by scientists in Forest Service research, we had only one principal ADP application. That one had existed for many years. It was the coding and collating of information from the 929 fire report. Of course, in that early stage, you couldn't really say that it was automatic data processing but we did use ADP codification on these 929 fire reports Servicewide. We had a small punchcard and tab shop operation in the Washington office where the data was punched on punchcards, tabulated, summarized, and used for analysis for fire trends and other activities, so it was extremely rudimentary. At the time I transferred to the Washington office, a new branch of ADP had just started with a man by the name of Leonard Butrym who had previously worked for the Management Studies and Systems Planning Branch. He became a one-man shop, without even a secretary, with the assignment to pursue in depth the need for acquisition of modern computers and implementation of them in the Forest Service.

On completion of our analysis, we had computers installed at San Francisco, Portland, Missoula, Ogden, and Milwaukee. The other regions apparently did not at

that time have enough workload to justify their own hardware. This gave us reasonably good capability for three or four years in the future, but it was obvious that soon we would have Servicewide need for a really comprehensive ADP support activity. So in 1968, we brought Hobbie Bonnett, our computer administrator from Ogden, Utah, into the Washington office to head up a Servicewide study of what our total future needs would be in the ADP area.

Over the next year Bonnett continued this study in great depth, using consultants and sub-contracts to assist him, and developed a report that we accepted as the direction we should go. It was titled "Blueprint for the Future." It called for the most modern future concepts and appeared to be exactly what we needed considering our decentralized organization and the kind of activities that we had.

About the time that we were getting ready to implement it, the Department of Agriculture's secretary's office got very interested in overall departmental needs for Agriculture agencies and imposed a moratorium on agencies going in their own direction. So we had to cancel our implementation efforts and work with the department in their overall identification of computer systems for the Department of Agriculture.

Their eventual decision was to centralize it for the

whole department. Their concept was to have computer centers scattered throughout the United States that would be Department of Agriculture centers, and the Forest Service would have its computing done at these centers. Our concept was to have a network of terminals, some of which would have limited computing capability, where we could communicate directly with one central Forest Service computer and get our work done that way. The department had great difficulty getting approval for all of their concepts. Eventually they restudied their system and with the development of new hardware and technology converted their concept to what we felt was very close to our own internal design. It would permit a distributive network of terminals and mini-computers dealing with a central computer, in our case one at Fort Collins, which is where we had intended to put ours, and this we all agreed, would satisfy our needs.

The growth became so extensive in terms of demands by the field for availability of the new computer technology that the associate chief, Rex Resler, concluded that we needed to update our whole analysis of where we were going and define our policies much more tightly considering the kind of investments that people were wanting to make. So he established another study in 1975 again to analyze what our total needs were and appointed a

very broad-gauged team to make this particular study. Headed up by a regional forester, Doug Leisz, the study was composed of a research station director John Barber; an ADP technical specialist Hobbie Bonnett; a member of our management sciences staff Mal Kirby; three technical representatives from national forest administration Deputy Regional Forester Jeff Sirnon; Rex Hartgreaves, Jim Reid, and myself.

We came up with a recommendation for a substantial expansion of use and a different form of organization to manage all of the activities. Our report was called "Systems Development Action Planning Team Report." It was accepted by John McGuire and his staff, and the form of organization accepted with it created a new additional associate deputy chief in the Washington office administration deputy area and three new staff groups. The new organization was headed up by Glenn Haney as the new associate deputy chief, by Hobbie Bonnett as director of the computer technology staff which is the staff who deal with the hardware aspects, by John Kennedy for data management which is the data base activity, and by Jim Space for computer system applications.

This is a major new thrust in terms of management technology, and I feel confident that it will be a prototype for many other government agencies if not private industry. There are some units which probably have a similar organization already, but I feel there

has been great failure to recognize particularly the basic importance of the data base management and the need for that to occur at a relatively senior level. It does exist at that level in some of the major industrial organizations.

RCL: Can you just give me an example of how the Fort Collins facilities might be used by somebody in the field?

CAS: The Departmental Computer Center at Fort Collins is linked by telecommunications with a significant number of Forest Service field units including all regional offices, all stations and a significant number of supervisor's offices. Probably ultimately all supervisor's offices will be hooked into the network so they can utilize the central computer from their own installation. Fort Collins is also linked with other departmental computer centers around the country.

RCL: So it could supply information in regard to records and also maybe technical information?

CAS: It could do that, of course. One of its major uses is actually computing activities. For example, they could do all the computing for our road design activities or timber computations, etcetera. Any standard type ADP application can be done there. However, with our design of a distributive network, much of the smaller scale activities can in fact now be handled at the local level, and only those needing capacities of such a large computer need to go there.

One of the other significant activities generated during the time I was branch chief of the Management Studies and Systems and Planning Branch was the proposal that had been conceived in the Washington office to have a modern management information system. The system would not necessarily be automated, but where automated techniques could apply it would use ADP. Of course this was back in 1963, so my first substantive responsibility was to describe what such a system would be, and how we would go about studying the proposition of coming up with a system. I described in outline form what the approach would be and what it would encompass. This was subsequently refined by Max Peterson who is currently a deputy chief in the Forest Service, who was in administrative management at that time, and by John Farrell who was a Washington office employee with considerable knowledge in this area.

This was approved and staffed with a project staff and ultimately assigned an acronym--INFORM from information for Management. The project staff were three specialists. Their budget included enough funds to contract for analyses from private industry, and over the next few years we pursued this in considerable detail and came up with concepts of automated mapping systems and data retrieval, accomplishment reporting, etcetera. It eventually got to the point where we were implementing

with the project staff and needed additional staffing to complete the design and to find some mechanism to complete the implementation. At the point that Associate Chief Resler assigned the systems management project for systems development, it became apparent that the new organization that was just described would be a logical place to handle this information system by including it with data base management. So INFORM disappeared as a separate acronym and is now incorporated within the systems management organization that we have implemented. We are going ahead and refining and implementing it using the same basic concepts.

Another effort, in terms of management improvement, that I was assigned a role in at this time was the operation research activities taking place at Berkeley, California. These activities were conceived two or three years previously when Ed Schultz, who at the time I went to the Washington office was director of administrative management, and the director of the Pacific Southwest Station. Keith Arnold, Gordon Fox, and others became very interested in the possibility of the use of operation research techniques on Forest Service operational problems. This, of course, had been a development that came out of World War II where you could analyze a wide range of possible combinations of activities for analysis and decision making.

At the University of California at Berkeley they had a graduate program that Keith Arnold was aware of, which appeared to be pretty well developed. A decision was made to pick out a few possible applications within the Forest Service and contract with the university to apply the techniques to see if they would in fact be successful. The contract was awarded and the university assigned three of their senior graduate students to the project, Ernst Valfer, Mal Kirby, and Gideon Schwartzbart. The project appeared to be working very well and Keith Arnold proposed that we implement our own staff and let them close that contract and get into business ourselves--it appeared to be that successful. We ended up hiring the three graduate students as Forest Service employees. My first contact with the Management Sciences Staff, as it became known, was to go out and become acquainted with what they were doing, to observe the progress being made on completion of the contract which was still in existence with the university, and see where it led us.

Over the years the Management Sciences Staff has provided a very, very substantial number of outstanding, completely new developments and improvements in management technology. It has also been very noticeable that they have adopted for themselves a role wider than just use of operation research technology. Their whole

approach is to develop something that is directly usable by management rather than only the pure research approach of coming out in publication with basic knowledge, which you then have to find a way of applying. They come up with finished applicable systems which have ranged all the way from communication technology to basic research on ways of determining the size of units, to engineering applications, for road networks to--you name it.

RCL: Are they assigned subjects to cover or investigate?

CAS: The way their projects are assigned is that annually we develop a program of work jointly with them. They report administratively to the research station but the technical leadership and project sponsorship are from the chief's staff from Administration in Washington office. The administrators are their sponsors in terms of budgets--in program formulation, I should say. The projects are conceived in a variety of ways. In some cases the Management Sciences staff conceive the projects themselves. In some cases potential projects are suggested by field people. In other cases Washington office staff groups conceive projects. Annually we pull together all of the proposals and make a recommendation on how many projects we can staff and fund, and then the chief approves them and they are assigned through the station.

RCL: How or why are they still in California at the Berkeley station?

CAS: This is, of course, a very useful working environment for them. They can divorce themselves from the day-to-day operating crises that are generated in the Washington office. They have a good body of consultants available to them from the university, from the station, and from other universities in that geographic area. They have closely available to them also the regional office in California and local national forests that they can use as a test bed for projects. So it does seem a desirable location for them.

RCL: You have been describing events that took place or began in 1963. In 1964 you were promoted. Could you describe that and any other events that took place in 1964?

CAS: Early in 1964, Ed Schultz, who was director, was promoted to associate deputy chief for National Forest Protection and Development and I was promoted to director of the Division of Administrative Management. Hardly before I could get my feet on the ground the Job Corps, or what ultimately became the Job Corps, came along. Senator Hubert Humphrey had for two or three successive years attempted to get a modern version of the old Civilian Conservation Corps approved in Congress. When President Kennedy was inaugurated, he

looked around for new major initiatives that could be adopted and this idea was very attractive to him. He set up a task force under Sergeant Shriver and one of their efforts was to come up with a CCC-type program. We still had the background work we had done for Senator Humphrey; we had a pretty complete design on hand. We started immediately and it was assigned to the Administrative Management Division to handle with Personnel to deal with the personnel type activities, and Engineering to develop facilities.

For that next period of time we stopped practically all new management technology efforts and devoted our entire staff to helping with the design and implementation of the new Job Corps program. Then legislation was passed and we were funded under the old OEO (Office of Economic Opportunities) organization. A new segment of organization was approved in the Washington office and our only efforts in support of it from that time on were to design or adapt management technology and activities that the Forest Service had, to this program. That in itself would justify the subject of a major interview but that's not the subject at hand here.

The next major project was when we became the subject of a management improvement study generated by what was the predecessor of the Office of Management and Budget.

OMB conceived a series of management improvement projects to be used nationally, whereby they would go to the departments and bureaus of various departments with a team, study their organization and management, and come up with substantive recommendations for major improvements. This had been done on one or more departments of other agencies before they came to Agriculture. The Forest Service was selected as one of the Agriculture agencies as well as the Secretary's office. The team was composed of Mr. Deckard from OMB, a representative from the another department, and a Department of Agriculture person. Originally the approach they had been using in these studies was to come in and make a completed study and submit it to the secretary of the department who then would implement it as he saw fit. However, in their initial approaches within the Forest Service, Gordon Fox suggested to Mr. Deckard that a much more useful product might result if the Forest Service could work day by day, item by item, with the study team to help them develop their study report and then jointly formulate a series of recommendations that we would submit to the Secretary of Agriculture. This was accepted.

Now this approach of coming up with a joint recommendation, or at least a mutually agreeable product, suggests

something that I would like to describe which is a very constructive and very useful process that we use deliberately in the Forest Service. The way it operates is that we deliberately assume a constructive attitude about any effort for reviewing the Forest Service or identifying weaknesses or problems or whatever. Our assumption is that if it is properly done, actions or recommendations that will come out of an inspection or investigation or study of the Forest Service can be useful to the Forest Service. It will provide something that we will be willing to accept and implement because it will improve the Forest Service. We have found over many years of applying this principle that it, in fact, will operate that way if we openly display this attitude. If we volunteer not only our willingness to operate in this context but our willingness to help identify problems, help identify mistakes, or whatever it will be constructively received. We can then discuss constructive ways of solving these problems which usually results in recommendations phrased in terms that we can willingly accept and implement.

I have not operated outside of the Forest Service to any extent but I have discussed this proposition with many people outside of the Forest Service. Apparently it's not the usual approach in most agencies, but it helps us so much that we welcome outside people to come

and work with us in inspections or whatever. We don't always agree on the end results but we usually agree on the majority of it. And it has one other effect that was particularly noticeable in terms of the study we have just been talking about. It was that the Forest Service to this day is still implementing recommendations that came out of it. I don't know of any recommendations that we rejected out of hand. We did modify our implementation somewhat but there was not a single one that in some way or another we did not implement long after anybody was concerned about asking for progress reports.

RCL: So, in effect, you are using outside bureaus to carry on as an arm of your own management technology. It seems like a wise thing to do.

CAS: I guess you could think of it in that way. But it's awfully difficult sometimes. If you, for example, are dealing with an investigator who is suspicious, it is difficult to get him to accept the fact that you are open and that you want to be constructive about it. If he does not accept it, it's very difficult to retain your constructive attitude.

RCL: Sure.

CAS: But, as a matter of deliberate policy and approach we train our people to operate in this way, and when somebody doesn't want to operate this way we still attempt to persist in a constructive way. And it is something

that I think is well worth preserving. It has a very great effect in terms of how we come up with improved ways of doing business.

Well, getting back to the management improvement survey, as I recall there were forty-nine substantive, comprehensive recommendations involving many different areas of management but twenty-nine of those became the responsibility of my division, Administrative Management, to implement. They all had very tight deadlines or due dates for implementation, way beyond our capability to handle with the staff we had. We also had, of course, a large backlog of projects which we had been bypassing because of the efforts we had made on the Job Corps program design and implementation. Other crises or unanticipated requests for studies and projects were also pending. So there was just no way that we could conceivably deal with those recommendations, and yet they were priority assignments by the secretary of agriculture. So I sat down with my staff and analyzed the expected time required, the staff we needed to do those jobs, plus the other jobs we already had been assigned to do, and then went to the deputy chief, Clare Hendee, and Gordon Fox and said, "Here's what we have to do; here's what we have to do it with; here's our estimate of what it will take to do the job, and I suggest that we need relief on some of the projects or approvals for expansion of staffing."

We sat down and either delayed or totally eliminated many of the jobs, calculated the need for staffing the remainder, and then presented our proposal to the chief. After asking very, very critical questions, he agreed that, yes, we needed that staffing and approved it.

RCL: How was your approach in the presentation to the chief? How did you spell out exactly what had to be done and how much time it would take?

CAS: It was defined in terms of the project identification. The priority in all cases was already established as high because the chief had agreed to them with the secretary. We had an analysis of the time requirements to the man-month and the time required staffwise based on our experience of making studies. We also defined and described the approach that we would take to do each job and the completion date that we were expected to abide (which was originally included in the report).

RCL: Was this presented in the form of a graph?

CAS: No, it was more in terms of figures--so many man-months to do such and such a job. Under questioning, he said, "Well, how are you going to do this job? How are you going to go about it? What's involved?" I had project job descriptions for each one and they were accepted and we went into a recruiting program for people. There obviously were not enough people within the Forest Service who were experienced and qualified to do these

jobs so we had to accept the fact that we would have to train quite a few people. We could not strip all of the regional offices of their knowledge and capability. We would have to do some work by contract, some by detailers or whatever. So we developed an expanded staff, all specialists in management analysis, to do this job. We did recruit some people from outside the Forest Service. We didn't just automatically assume they had to be Forest Service people. This then became a reservoir of administrative management people for the next period of quite a few years. These were people who succeeded to positions as chiefs of operations, deputy regional foresters, or research station directors of support services. Throughout the Service most of these people have pretty well succeeded to senior positions.

RCL: Then you did a lot for the Forest Service through the Deckard Study.

CAS: That's correct. A number of very significant new developments came out of implementing these recommendations. There were also some fairly traumatic experiences, one or two of which I would like to relate. One of them was the determination by the study group that the Forest Service had more regional level and research station level units than were justified, which we agreed was true. The analysis we felt was basically sound.

However, we did not agree that it would be wise to attempt to make all the changes that were recommended. So we agreed to make a first partial implementation, and we closed out one research station and one region. It was a very, very sensitive matter, needless to say--closing out any unit always is--and the decisions were made without any publicity, internally or externally. The chief, Ed Cliff, was very concerned about the effect on people. The research station to be closed out had so few people involved that this could be rather quickly dealt with, but closing Region 7 involved quite a few people, and Ed Cliff wanted it done very quickly. We were troubled by his request for very quick closure because our judgment indicated that quite a few actions would be needed and would take time. Many of them were sequential type actions. You couldn't do everything simultaneously. Two of the people on the staff, Max Peterson and Don Smith, decided to use one of the emerging techniques that we had not really much experience with in an administrative area, and that was a version of "critical path charting" called PERT. They sat down and constructed a critical path chart that showed all of the actions that would be involved: the personnel actions to close out jobs and transfer people; the property actions to transfer the property accountability to other units; the records transfers;

a whole range of activities of about six major categories altogether. They charted these out in the sequence that would have to take place and assigned the best judgment time-estimates to do these jobs. It turned out that the critical path, or the path of activities that would take the most time which therefore became the "critical path" so-called, were the personnel actions. Indications were that it was going to take three to four times the length of time that the chief wanted and that it would also involve actions not within control of the Forest Service. Some actions would require approvals by department Office of Personnel and also by the Civil Service Commission.

So the three of us went to the chief, Ed Cliff, and described to him the process that we would have to go through, the sequence of events, and our best time estimates of how long it would take to do the job. We tracked through the activities with him and pointed out to him that there was no feasible way to accomplish it in the short time that he wanted and minimize the impact on people. We also pointed out some of the concerns everyone impacted would have, such as knowing what their job would be and whether they would have a job at all, and that this was going to take three or four times as long as he desired.

After he had studied it and asked questions as to what

was involved, he said, "Well, I guess that's what we will have to do. Go ahead and do what you have to do."

I use this example to illustrate how administrative management technology can be a major assistance to an official who has to deal with a tough situation. This showed him what he could do and what he could not do and probably saved him from forcing us into some actions that we would not be able to accomplish as promised, which would probably disappoint or upset people much more than if we said, "Look, it's going to take this much time. This is the very best we can do."

RCL: Yes. The advantage of management technology is that it really allows you to do some planning based on reality rather than just hopeful thinking.

CAS: That's correct. For a number of years I had this particular critical path chart in my office to use to illustrate to management analysts how they could present analyses that would have significant effects on management--that these weren't playthings that you just used for yourself. Later on we used the same charting process not only for closing out units but for setting up new units. We could logically identify all the jobs that had to be done and which one was the critical path, which ones we could take more time with, and so on.

RCL: Why don't we continue with the Deckard organizational study, and discuss some of the spin-offs. Perhaps the best place to begin would be the size of district study.

CAS: Okay. One of the major thrusts of the management improvement study that Mr. Deckard headed was the number and efficiency of organizational units within the Forest Service. He made a series of recommendations and provided some analysis suggesting that we might be able to efficiently administer the Forest Service programs with many fewer units. That is, the number of ranger districts, the number of forests, the number of regions, the number of stations. We've already talked a little bit about some of the experiences in terms of closing out Region 7 and one research station. In our inventory of studies to be made, we had a proposition to study the number of ranger districts that we had and saw this as an opportunity to actively pursue it. In my own experience and in the experience that we could identify from a literature search not very much had been done in terms of studying the relative size of units, other than manufacturing activities or mechanical activities that are very much subject to detailed work measurement. So in attacking this proposition, we were applying new approaches to management technology.

In describing this study I guess I should first clarify

what I mean by size. Size could, of course, just mean a number of acres contained in a ranger district but really size denotes much more than an area. In reference to ranger districts, we defined size as a combination of acres and other indicators such as budget, workload, staffing, resource production, volumes, levels of use, and the complexity of multiple-use sustained-yield management of natural resources. So you can see, in this context the size is a conglomeration of variables all of which have an influence on the complexity of job, and the amount of work that one man or a group of individuals could accomplish in administering the area and all the resources on it.

The previous size policy was based strictly on the amount of work that we could expect a professional ranger to do. We identified work in two categories--the kind that was possible for anyone to do and the kind of work that our judgment indicated must be done by the ranger personally. We called that non-delegable work. We developed and applied workload factors to make this determination or evaluation.

RCL: This would be something like the regular workload analysis?

CAS: It stemmed from that. We used the regular workload analysis, but we separated it into what we called base work or nondelegable work which the ranger should

do as far as the policy determination. The rest could be delegated to other district staff. We arbitrarily determined that the nondelegable work would equal fifteen hundred hours as determined by the workload factors that we had. At least fifteen hundred hours of so-called nondelegable workload was a proper size workload for a ranger district.

We also decided we wanted to tie the size (size being this collection of variables) more directly to the consequences of organizational effectiveness. And in so doing, we tried to make use of the latest organization theories related to the technical systems within which social reaction, work patterns, and job content are evaluated and related to the technological requirements of the job on the ranger district.

To design this study, we pulled together a number of technically skilled people and experienced managers to assist in coming up with the basic study approach. In other words, we sat down and defined the study in terms of the problem and the constraints within which we would make the study such as the number of people we could assign, the data available, the length of time in which acceptable results could be obtained, when the final report had to be finished, etc. We included the first ideas on methodology that would be used to make the study, and the objectives of the study. We

drew very heavily upon the skills of the Management Sciences staff not only in doing this but ultimately in participating in the study.

Briefly, the objectives of the study were: one, to determine whether a relationship exists between size of ranger districts and district effectiveness; two, to develop criteria to determine the acceptable range and size of ranger districts by carrying out Forest Service program objectives effectively and economically; and three, to establish procedures for evaluating each district or combination of districts for desirability of size change.

Some of the basic assumptions or constraints on the study, as I stated a while ago, were first, that we would not re-examine the existing Forest Service organization design or the definition of the district ranger responsibilities. We, of course, had just completed basically implementing the new look at our organization, through the McKenzie study, "Gearing the Organization to the Job Ahead." We saw no need to start over again in questioning the particular role of the ranger district as was defined in that study. Acceptance of this assumption or constraint for the study, of course, led to general acceptance of existing operating and organizational characteristics. We also were constrained to obtain results in a relatively

short time, although ultimately it took us about two years to complete the basic study.

We organized the study by assigning a good cross-section of people, management people, from throughout the Forest Service. The chairman of the actual study group was Walt Graves who was at this time chief of operations of Region 3. Others assigned were Ken Norman, who was chief of the branch of Watersheds in California and the Management Sciences staff composed at that time of Frank Bell, Mal Kirby, Gideon Schwartzbart, and, of course, the chief of the staff, Ernst Valfer.

To guide or steer the study itself, we appointed a steering committee. It was chaired by Gordon Fox, associate deputy chief, for Administration, and manned by Regional Forester Charlie Connaughton from Region 5, Regional Forester Floyd Iverson from Region 4, Forest Supervisor John Franson from Mississippi, Regional Engineer Ward Gano from Portland, and myself as an ex-officio member.

RCL: Could you explain to me the findings of the size of ranger district study and then how those findings were implemented? What difference did it make in the organization of the Forest Service?

CAS: Very briefly, we found that the most dominant factor in determining the effectiveness of a ranger district is the competence of the ranger and his staff. That

may sound like a truism and a less than astounding finding, but we definitely proved this by way of study and documentation. We also learned and not too surprisingly, that the effectiveness of a district is related to the number of professional employees on that district. You recall that I mentioned earlier that one change in our organization policy was to staff with specialists. Well, one of the consequences is that if you have some specialists available on your immediate staff you have greater competence in the specialty activities.

We discovered that there were some generalized size-effectiveness relationships. For example, the larger ranger districts tended to be more effective than the smaller ones, which correlates with the number of specialist employees that you might be able to afford. Also, interestingly enough, the amount of time rangers spend in the field is independent of district size.

We found by study that on a very tiny district he spends generally about the same amount of time in the field as he would spend on a larger district. But there was a great deal of difference in what he did. If he had a large district with a staff, he spent this time on management activities. If he had a very tiny district, he did considerable technician work. So there was an interesting relationship there.

We also found, not surprisingly, that economies of scale exist which relate to the cost of operations. A large operation, as is classically true, had a lower unit cost of operation. We designed a simulation model for determining the effects of the various variables and worked out a formula that could be applied from acquired data in any unit or combination of units to determine what the relative size index range was.

We came up with a number of recommendations for the chief in 1967, and they were adopted and published in the manual section governing the size of ranger districts. Briefly the general factors as adopted were first to consolidate, to the extent feasible, districts that have headquarters in the same community. We had many districts working in the same community and we found that the large sized districts, given an adequate staff, could manage a larger district and eliminate one headquarters. Another similar recommendation was to adjust the districts, to the extent feasible, to fall within our computed optimum size range using the simulation size factor that we came up with. The reason I say to the extent feasible is that considering the physical characteristics on the ground in some cases you just can't create additional acres or something like that to make a district larger.

We also recommended that where feasible, the area of land to be administered should be of a size to support a staff of at least four employees, including the ranger, in grades GS-7 and above. Another recommendation was to attempt to adjust district boundaries so that there would be enough workload in the major resource functions to warrant the assignment of a staff man to each major resource function.

All this size evaluation was to be done under the overall criteria of giving adequate service to the public, good solid resource management, and minimum costs of administration--not only now but projected ten years into the future. The net result has been the reduction of the number of ranger districts.

RCL: Another spin-off of the Deckard study was the size of forest study as was presented in "Size of Forest Policy in the Forest Service," dated October, 1971. Could you discuss that as you have the size of ranger district study?

CAS: We made the forest size study in sequence with the size of ranger district study because the ranger district is the basic ongoing organizational entity and is the foundation on which we build organizationally in terms of resource management. So it was not really practical to study it at the same time or to do it first. We approached it basically the same way as we did the size

of ranger district study, though not with as elaborate a study design because we had the data already collected by ranger districts and the ranger district size policy to build upon.

The basic study was made by Len Lundberg and Gene Hawks. They had basically the same technical people available for assistance and consultation that we had for the size of district study. We established the objectives of the size of forest study first, which was to determine the size range that provides acceptable economies of operation while at the same time meeting Forest Service criteria for standards of effective service, including service to the public, service to the national forest users, permittees, etcetera. We first asked whether or not there are significant relationships between the size of a forest and its cost of operation and effectiveness. Secondly, we looked at the types and amounts of one-time costs which would be generally expected by creating actual adjustments of forest boundaries. Thirdly, we projected the types and amounts of long-term and short-term savings, if any, which may accumulate as a result of adjustment of forest boundaries.

We felt that if the size of a forest has a definable relationship with efficiency and effectiveness, then it should be possible to recommend a size-of-forest

policy that sets guidelines for developing more efficient and effective forest limits. We did find that the effectiveness of the forest is in general the cumulative effectiveness of the ranger districts that make up a given forest. This, of course, dictated that before you deal with adjusting any forest boundary you must first deal with the size and effectiveness of the ranger districts that might be within that forest. We also determined that the total number of ranger districts of reasonable size (the size being what we determined in the ranger district size study) has little influence on forest effectiveness. In other words, if you have a few effective districts or if you have a large number of effective districts, the number by itself doesn't have much influence on the forest effectiveness.

Another finding was the number of ranger districts that make up a forest does have a significant influence on the costs of operation. For example, the cost of operation tends to be highest on small forests with small districts. We also found that forests with a certain sized budget had a better chance of obtaining optimum conditions for effective and efficient operations. In other words, if you don't have enough dollars to do a certain level of work, there is no way you can be very efficient. In 1968 dollars, it was \$3 million so I

suppose you could apply an inflation factor of about three percent to that today. We also determined that annual savings from the closing of a forest supervisor's office through combining two or more forests, usually exceeds one time closing costs in a one-to two-year period. The size of forest policy that we developed and recommended was adopted by the Forest Service in 1969.

Another suggestion in the Deckard management survey was that we should have had a policy on size of regions, but considering there were only nine regions, it did not seem reasonable to invest in a comprehensive study to develop a policy. (Although if you wanted to make an adjustment it would end up being a total major study anyway.) So we did not pursue the proposition of a study to develop a size of region policy.

A number of months later the Ashe Reorganization Commission under President Nixon made a study of organization governmentwide and recommended a set of standard federal regions. Strong efforts were made at that time for all agencies to conform, and a detailed study was made by the Forest Service to match as closely as possible the standard regions. However, Congress was unwilling to accept the elimination of any regional offices in the Forest Service and, by way of legislative language in the appropriations bill, forbade it without

their permission. So that went by the wayside.

RCL: I bet it took a lot of your time just to make a presentation, didn't it?

CAS: The size of forest?

RCL: To try to combine the regions into a broader federal pattern.

CAS: Yes, this was a very difficult experience to go through. One of the reasons it was particularly difficult for us was that the intent of the concept of standard federal regions was to decentralize departments and bureaus headquartered essentially in the Washington area into field locations. But they started out with social programs departments whose workloads were based on resident population, which meant that you had a whole region encompassing just New England, another region just for New York State, and quite large regions geographically in the West. The national forest regions are just the opposite with large acreages where there are few people. So the literal application would result in eliminating most of our regions in the West and not having enough workload to justify additional regions in the East.

I think it would be a matter of historical interest to tie to the national forests size policy study a very interesting study we went into with the Graduate School of Business Administration at the University of California

at Los Angeles. At the time we were designing a study to deal with the sizes of ranger districts and forests, Dr. Valfer was working with Dr. Lew Davis at Berkeley who very soon transferred to UCLA. Lew Davis was interested in studying organizations that appeared to have effective decision-making mechanisms in response to a changing population of relevant professional groups from which it draws its managers and senior staff. He also had in mind to study organizations who were failures in this regard. In Dr. Davis's view, the Forest Service would be an example of an organization that was successful in this regard. At the same time we were interested in studying our forest organization in terms of being able to respond more effectively to budget pressures, the increased need for intensive management in face of increased population, and to provide a mechanism to respond to social problems and the changes in professionalism of the labor force. So it seemed to be a mutually supportive proposition. We agreed to have a cooperative research project where the Forest Service would provide our organization as a subject and test bed, and the university would provide us with any resulting information that we could use in our study of forest organization and in development of career ladders for professional people. Dr. McWhinney headed up the project for UCLA.

RCL: When was this project undertaken?

CAS: It was started in the fall of 1967. A report was published in May, 1970. Both groups found this a very interesting project.

The report points out there is probably not much startling information in the study in terms of the observations of Forest Service people, but their observations are actually important in understanding the organization and therefore, should be used in terms of adjusting the organization's design and for controlling the organization. The first observation in the report was that the Forest Service seemed to have a very conservative attitude and body of techniques which applied not only to research management but to management of the organization. The organization adapts to change, but it seems to resist rapid change. As a side comment, I would say that we are conservative in terms of having to make sure of the direction of change before we invest in implementing that kind of change. Another observation was that the organization seems to reflect the personalities of the kind of technical people that compose the organization. In other words, for many years, we had a forestry image and seemed to be directed by the concepts taught at forestry or training schools and picked up in the Forest Service.

RCL: That makes sense.

CAS: But interestingly, they also observed that there appears to be an entirely different breed of individuals entering the Service in terms of attitudes and personality compared to the early members of the Forest Service. I would suspect that a good part of that comes from our deliberate policy of staffing with a variety of specialists rather than foresters, to gain better professionalism in all of the responsibilities that we have. It has yet to be seen, of course, whether over the passage of time these people revert to some of the older attitudes and personality traits. I would say at this date, 1978, I don't see that reversion. Some of the broader findings on the conclusions of the UCLA study were one, that the Forest Service appears to have a distinctive competence in social and ecological management of the land and in environmental design in the broadest sense. What they are saying is that the Forest Service has organizational capability to do a number of things that would not necessarily be land management. I think since that time, we have done a number of things which illustrate the capability. For example, we have been involved in social employment programs, training programs for the socially and economically deprived, such as the Job Corps, the Youth Conservation Corps, etcetera. So it is very

complimentary to have an organization like this conclude that the Forest Service was capable of handling an even bigger job than they were assigned. Second, the report also strongly urged that decision making be retained as close to the field as was consistent with the environmental conditions. This, of course, is a restatement of our basic concept of organization--that you place the decision-maker as close to where the decisions are made as possible. Those acres of land out there in the national forests are where the decisions need to be made. At least the operating decisions.

The third thing of considerable hindsight interest is that there are great values to be gained in increasing the amount of joint decision making particularly for those decisions directly affecting forest operation. What they had in mind was greater involvement of a spectrum of specialists which would result in a better job of making decisions, but they also suggested that it would be valuable to include outsiders from government, industry, and the public. Since that time we have gone very far in terms of public involvement in our decision making. We have actually done other studies of our own on how to accomplish this, how to make it effective. Since we have gone into considerable depth with public involvement, there has been legislation pushing all of the federal government in this direction.

Here again, we were early pioneers in the public involvement concept in decision making. I like to use as an example the earliest documented recognition of this process that I am aware of, which is that when Gifford Pinchot took over the administration of the Forest Reserves for the Department of Agriculture in 1905, he directed that a Forest Service manual of instructions be developed which was called the Use Book. He was very explicit in the foreword that it was not only to be used by the people administering the organization but to be available to the full public so they could see the rules and regulations under which their lands were to be administered and used. So we had a long tradition in history of the concept of public involvement in decision making although in those days it was quite autocratic in comparison to what we now view as desirable.

The first finding of the UCLA study was that there should be mechanisms developed for rapid response to change demands on the local and national levels, particularly for timber, but also with regard to jobs for absorption of funds made available late in the planning period. All I can say about that is "Amen." We have been struggling with rapid increases in programs, changes in programs, the requirement that the public be greatly involved in the decision making etcetera, etcetera. We have an ongoing conflict between rapid response and

public involvement in that the greater the amount of joint decision making or whatever, the more time seems to be necessary and therefore your ability to rapidly respond seems to be constrained. There is always the tendency, of course, on the part of many people in the federal government to centralize decision making but centralized decision making is not necessarily the fastest kind of decision making for an organization with the mission of the Forest Service.

The study also has suggestions for areas of constraint. One is that care should be taken in developing any evaluative accomplishment measures which rely on periodically probing in quantitative form. With the growth of computers there has been a very strong trend towards doing just what Professor McWhinney and others suggested we ought to restrain.

RCL: There have been problems lately on that subject, haven't there?

CAS: Yes, and of course, there is a very strong tendency by the present administration to synthesize as much as possible.

Another proposal for constraint which they suggested was that we attempt to combat the proposition of letting the budget accounting system dictate the organization management of the Forest Service, but use it to serve as a vehicle of support.

This UCLA study was a very interesting body of research into the socio-technical aspects of the Forest Service. The insights provided were very useful to us in applying the size of forest policy and other organization analyses as well as a substantial body of knowledge which is useful for understanding how to successfully make decisions in a multiple-use environment and to utilize specialists.

RCL: I see. Can you give me the full proper name of that study?

CAS: It's "Socio-Technical Systems on Organization Development Research Program," Graduate School of Business Administration, Division of Research, University of California, Los, Angeles.

RCL: Can you give me an example of how this was used by the Forest Service?

CAS: It was used primarily as a source document. It has a great deal of information useful for analyzing the forester career ladder. It contains statistical information concerning promotions, universities as a source of professionals, and has a very useful discussion of the use of authority. It also contains a detailed description of the national forest organization and methodology useful for analyzing the forest organization.

RCL: It would be something like a reference book that

maybe you would go back to if you were looking into some subject relevant to this.

CAS: That's correct, yes. In reviewing it for the purpose of this interview I rediscovered that it has insights fully valid today and that it so specifically covered some of the major aspects that it seems a shame we don't dust it off and recycle it. However, anyone wanting to pursue it can find it in the Forest Service Library.

RCL: . Okay.

CAS: I might mention that UCLA also extended their study into a second volume called "Technicians in the United States Forest Service" by one of McWhinney's associates, James F. Koch. It was published in 1970 also.

RCL: We have been discussing at some length the spin-offs and ramifications of the Deckard organizational study. It appears that it was really a turning point for the Forest Service in that so many other things have followed. Would you have any sort of comment on its overall impact?

CAS: It was one turning point in the Forest Service in terms of administrative management. In terms of resource management, that went on as it was, but consider that basically we have only talked about three of the recommendations--those dealing with the closing out of some of the regional installations, the size of forest

policy, and the size of ranger district policy. Those were only three of some twenty-nine recommendations directed to my division to implement. We would be here for another week if we explored even superficially the effects on the Forest Service generated by that particular effort. As I mentioned earlier, we were proud that we could constructively engage in the formulation of the findings and, in fact, implement them. Even though it was a pretty tough job to implement them, it resulted in some very worthwhile results.

RCL: Going back to 1965, where we left off in your story with the beginning of the Deckard study, that year wasn't spent doing just that. You also did a study of research station support. Could you go into a discussion of that?

CAS: Yes. For many years we had been struggling with the best way of providing support service activities. By this I mean, personnel, procurement, office management, etcetera, to our research station. Of course, the primary mission of these stations is scientific research and publication of the findings. We have tried a great variety of ways of supporting this activity, all to considerable dissatisfaction of the researchers. In 1965 we kicked off a project to study in some detail the best way of providing it. Offhand, I can't remember all of the participants, but the chairman of the study group was Keith Arnold who at that time was one

of the research division directors in the Washington office, who had previously been director of the station at Berkeley. Russ Cloninger, of my staff, Don Morton from one of the field installations and Gideon Schwartzbart from the Management Science staff were also involved. We made a very comprehensive survey of the kinds of support activities needed and the best way of organizing them, and produced a study report and recommendations which were adopted by the Forest Service. Basically it is still the design that we have today, although two or three years ago we updated it.

In 1967, the administration became very interested in a system of program planning and budgeting that had been developed in the Department of Defense and which was required to be implemented in all federal agencies on very short notice. The Forest Service was quite interested in this because for many years we had had a rudimentary version of program planning and budgeting which was basically similar. We thought we could very usefully and successfully implement this particular system. The problem was that the system was not fully designed and tested before it was implemented. The proposal was that everybody should develop the necessary implementing details as they went and it was a very complex large-scale system.

I suspect the Forest Service was at least as successful

as anybody else in implementing it, and we did positively attempt to use the required system, but eventually it fell into complete disuse as a required federal governmentwide system because of this failure to fully develop and test it before it received such massive application. Of course, when it was abandoned by the federal government, we necessarily dropped that version of the system, although we have continued to use basically the same principles.

RCL: Was part of the problem the fact that the Defense Department had a whole different mission than the Forest Service?

CAS: I expect that basically that was part of it but I believe one of the major reasons it failed was that it was not tested for different missions or different applications. There was such a crises atmosphere to it that you had to develop it as you went and it just wasn't a very suitable approach. Wherever we can, we prefer to fully develop and fully test and de-bug anything before we implement it as a matter of good principle, although that is not always possible.

About this same time, in 1967, we started a comprehensive study on an inspection system. For quite a number of years various individuals had been suggesting that our basic inspection control system should be reviewed, updated, and hopefully made simpler and more responsive. This was at the same period of time when we had a large number of studies under way from the Washington office

so we asked Region 7 to use a basic study design that we jointly developed and to make a study of the inspection system. The design called for a fairly wide range of alternative approaches. We let this test run for two or three years and then tried to evaluate it. I think the basic findings were quite useful but we were unable at that time to get any agreement generally throughout the Service as to the best direction to go. I don't know whether it was the "not invented here syndrome" or not, but I suspect that may have been at least part of the problem. So we decided that we would take what lessons we had learned there, and all the suggestions we had in hand, and redraft our policy and instructions and again attempt to get agreement. Here again we had a problem with getting acceptance throughout the Service on any of the approaches that we had, and we were experiencing substantial separation between the various units in terms of each going his own way as to how to make inspections. At the same time we had a very substantial cutback in terms of personnel, program activities, and so on, such that we were having difficulty doing all the jobs required of us. So during this period of time we also cut way back on the number of inspections. Finally there was general agreement we couldn't let our inspections slide any longer. We pulled together a small group of

individuals under my direction, with Howard Beaver as operating chairman, to take all the material we had accumulated--that is, the Region 1 studies, the two redrafts we had on policies, and the suggestions on hand--and completely redid it.

Over the next few months we spent considerable time working on this. We established several basic criteria, the main one being that the inspection system is the basic quality control mechanism in the Forest Service. We concluded that the system which the Forest Service had been using for the last fifteen or twenty years was basically sound. Much of the problem was generated because people were not adhering to the system as it was intended and designed to be used.

It did have several distinct weaknesses. One was that there were only a series of single, best recommendations being formulated by inspectors. They were not formulating alternatives for consideration by their own management. When a manager saw only one set of recommendations presented to him he had no way of knowing in most cases what all of the considerations were and what the other possibilities for action might be for correction of deficiencies or whatever unless someone described them to him verbally.

The first thing we did was to require comprehensive identification of need for an inspection before it was

made and a description of the plan under which it would be made. We built in a process describing alternative courses of action for decision making and eliminated the system of having recommendations in the inspection itself. Only findings and, as I described, alternatives for possible actions that could be taken were to be included. We then added an entirely new part to the process which was the joint formulation of an action plan by the unit being inspected and the inspector level.

RCL: Why were recommendations taken out?

CAS: Because, as I explained, the old system didn't fully describe all the possible ways that action could be taken. Perhaps more importantly, by experience we found that when the recommendations were not jointly formulated the inspected unit, more often than not, did not in fact implement the recommendations. For example, in our old system we had a process of frequent reporting on accomplishments but often there didn't seem to be very much accomplishment. More importantly when we made the next inspection we found inspectors coming up with the same recommendations. In an effort to change the old attitude, we decided to have the report document findings of commissions or descriptions of situations, and then suggest alternative actions. This then would be transmitted to the people who had to make the decisions, the line officer in charge of the

unit, and the line officer at the next higher level. They would then jointly develop an action plan and sign off on it. It then becomes a contract for action. So far we found that this is working out as intended. Another change we made was to attempt to eliminate the massive paper job of periodically making an elaborate status report and require only certification of accomplishment. Those were some of the major changes. With all of this, we implemented a comprehensive training program and emphasized the need to catch up on quality control. We found with the elimination of much of our scheduled inspections from the years past that our quality control had suffered.

Another change we made which I think ended up being cosmetic was that we changed the title of our control system from inspection to reviews. I would agree that there was an acceptable reason for changing the title-- to give it a more constructive, positive connotation-- but on hindsight I rather strongly feel that it was not worth the cost in terms of getting people to change their use of language and to find and eliminate all the references to inspections in the Forest Service Manual and correspondence. I think in many cases we come up with valid reasons for changes in nomenclature, and many times the changes are not actually worth the cost.

RCL: It's merely semantical then?

CAS: Well, in this case, it was intended to be more than semantic but I think in fact it ended up being a semantic change.

RCL: That's right. In early Forest Service administration, Gifford Pinchot urged very strongly a decentralized form of management, and this was at a time when it was rather unique in government agencies. One of the basic elements of decentralization in terms of communication is the inspection, and to a large extent this is a very historical element in the Forest Service. It is interesting to see how it has evolved but it is still maintained even though it is now called review. Do you have any comments on the real necessity of reviews to maintain a workable decentralized administration?

CAS: Yes. You have to have controls to have any efficient organization. I'd point out that we have many different aspects to controls. For example, organization design is a form of control. Recruitment and selection of people is in fact a very real control for the organization. Reports of accomplishment or whatever are a very real form of control, but for activities there is no way that you can determine whether or not the responsibility is being redeemed short of a knowledgeable person's going out and observing on the ground and making a quality evaluation. Now if we made all of the decisions in the Washington office regarding all Forest

Service activity, you might not need to go out and see how it was being done, but I submit that even there you probably would have to.

Another aspect of this is that the secretary of Agriculture holds John McGuire, the chief, personally responsible for what goes on. And John McGuire has to either go out or have somebody go out and see whether those responsibilities are being redeemed. Without the system of going out and inspecting you couldn't really afford to have the decentralization.

RCL: Could you describe for me the types of reviews now being conducted?

CAS: We have basically three levels of reviews. The broadest category is the general management review where we look at the totality of the management of a selected organization or combination of organizations. This is made at the national headquarters level and at the regional level. We also have program reviews of major program activities such as timber or range, or personnel or combinations of those, and then we have more detailed technical reviews which we call activity reviews. These are narrowly technical in nature and they are made at all levels.

I might point out one interesting aspect that may be somewhat unique to the Forest Service compared to other organizations and that is that our review system deliberately is designed not only to look at the unit being

reviewed but also to look at the effect of the management or direction from the reviewer level, on the lower level; and the findings, conclusions, and recommendations are directed to both levels, which is in great contrast to, let's say, the military view of inspection. We also consider the individuals being reviewed as part of the review team.

RCL: So the process goes down and up--goes in both directions.

CAS: And the action plan generally includes actions directed at both levels.

RCL: It is a decentralized form of administration if that is true. People at the bottom are also running a few people at the top.

CAS: It certainly has an effect on it, that's right.

RCL: I understand that in 1969 the Forest Service began the design of a new accounting system. Could you describe that and how it developed?

CAS: A number of years before 1969, Congress passed a law requiring an accrual accounting system. The General Accounting Office was assigned the responsibility for seeing to it that all federal agencies implemented such an accounting system. So we set out to design a system that would fit the requirements. We hired a consulting firm, Booze, Allen, and Hamilton, to assist us and pulled together a project team to come up with a modern accounting system that would fit the full

requirements of management. We had in mind to do some things that were beyond just the basic requirements, that had we been successful would have been innovative. We conceived the idea of tying the basic accounting work to our work planning system. We not only started the basis for the accounts right with the operational planning and early on assigned the account numbers, we planned to continue to use these same numbers throughout the management process, so that ultimately when the accounting data was transmitted back to the managers, it would be in terms they could understand relating specifically to their project activities. So it was more than just the accrual of financial data, it was also the accrual of performance data and accomplishments beyond just the dollars.

As part of this design, we decided that to serve for a long time in the future, it could be best and most efficiently handled with one national finance center. In our studies of this, particularly considering the lines of telecommunication that would be needed to do this, plus the mail routes where you had to do it by mail, we found the Denver area would be most centrally located to the geographic workload of the Forest Service. We did not select Denver, because the Department of Agriculture had a policy of locating offices in nonmetropolitan areas whenever feasible.

Instead we selected Fort Collins, Colorado, which was a nonmetropolitan area, and contracted with GSA to have a lease building built to our specifications which would contain a national accounting center plus a national computer center, and it, in fact, was built. About the time we were completing the design details, the Department of Agriculture concluded that all the agencies within Agriculture could best be served by a centralized departmental finance center; and that to make it successful all agencies within Agriculture should participate. In the spirit of teamwork to make it successful for all agencies, we agreed to be a party to a centralized, overall system. In order to accomplish this a number of things had to be done by the Department: first the establishment of a physical location, the acquisition of computer hardware capable of doing it, and so on. Of course, they were starting pretty largely from scratch although they did have a payroll center at New Orleans and selected New Orleans pretty largely because they already had this partial operation going there. Over the next number of years the Department's finance office was implemented. We stayed with our existing accounting systems pretty largely up until about a year and a half ago when the Department was ready to take on our work. At this time we constituted a task force of specialists who

designed a new accounting system. We had learned by our experience in the intervening years since 1969. As a result, we modified some of our basic criteria and found some simplifications that we could implement. In the beginning of the current fiscal year [1978] we started pilot testing the system in two regions of the Forest Service and the Washington office. We called our new accounting system PAMARS which is an acronym for Program Accounting and Management Attainment Reporting System. It contains some modern innovations beyond what we had originally conceived, but it still retains the tie to basic work planning and provides a way of getting very quickly the current management attainments of the Forest Service. It will ultimately provide us with the kind of units of work-dollar costs that Forest Service management has been desiring and demanding for quite a number of years. We evaluated the pilot test this month. The Service has accepted the system design and is extending the application of it this next fiscal year. It will be a year and a half before we will be able to completely implement it in all our units because we have to acquire additional telecommunications capability to get all units on line.

RCL: So eventually you might have the capability of using this system to apply to your older techniques of work-load analyses and these other types of things.

CAS: In March, 1971, I was promoted to associate deputy chief and had, as I imagine you would expect, somewhat mixed feelings about succeeding to the position that Gordon Fox had so ably filled for so many years. When I first met him, why I was not even yet a journeyman analyst, but having been in the Washington office for eight years and having been in the acting position many times I didn't find the transition to be any problem.

RCL: I bet you felt his shoes were large ones to fill.

CAS: I certainly did.

This latest period of time in my career, being associate deputy chief has been primarily administrative. When I changed from my previous job, I was the senior management analyst but now I became an administrative officer with a wide range of responsibilities across the entire spectrum of administration. This left me very little time to work on any new management technology projects but gave me the role of providing the means and support and approvals for others to go ahead and do the management improvement work.

During this period of time the Management Sciences staff made great progress and published a large number of study reports that were implemented. In some other areas during that time when we had cutbacks, we found ourselves retrenching and trying just to keep the regular organization running. There was not much time to develop new

activities although the review process that we have talked about and the new accounting system, PAMARS, took place during that time.

One activity of historical interest, relates in the sequence of some of our earlier discussion having to do with organization design. It has been a principle of the Forest Service for many years to look periodically at where we are in our organization. For example, the McKenzie report we talked about is titled "Gearing the Organization for the Job Ahead." Ten or more years after that study it was widely felt by Forest Service management that it was timely, and I am speaking now of 1972 and 1973, to review whether or not we had the right form of organization considering the changes that had taken place in the nation and the projected new activities

RCL: What was the title of this study or the report that was published?

CAS: The study that we made that was printed in July, 1973, was called "Design for the Future, the Forest Service Organization Review." It was never officially published. However, we did complete it to the point of the chief's staff approval and implementation, and actually had it reproduced in a draft form that was distributed within the Service.

This particular study reviewed the role and functions of all administration levels of the Forest Service,

although we concluded that at the district level we did not need any particular review. The role there was pretty well accepted as it was. We did develop and evaluate alternative structures for the Washington office, regions, stations, and areas, and we evaluated the various alternatives. It resulted in some substantial shifts in the way we were organized at the Washington office level and in the regional offices. Probably the biggest change of all was the implementation of the "multiple deputy concept" at the regional office level, which was introduced as a possibility back in the McKenzie study. The study was directed by a steering group chaired by Rex Resler, the associate chief, and the study team was composed of a wide range of field people which I chaired. We had analysts from the Washington office and the field and a wide spectrum of line officers.

RCL: Jumping ahead a few years to 1977, there is another aspect of your work that would be considered management technology, which was a study in work force planning.

CAS: Yes. We had a great demand for accurate, current and usable work force planning information. We had already approved an effort, to which I have already alluded, to design a new and better workload measurement system, but there were other aspects that needed to be coordinated at the same time. So we put together a group of representatives from various staffs

who had a piece of the action as far as work force planning is concerned and engaged in a series of coordination and development efforts. Now what was involved was a need to coordinate short-range budgeting work force needs and long-range work force projections for the Resources Planning Act; inclusion of the accounting system so we could acquire related attainment and unit cost figures; and, of course, the workload measurement system. We also needed to make sure our recruitment, skills inventory, and placement planning were coordinated. All this is intended to pull together the total work force planning needs of the Forest Service. However, typically, some of the pieces will probably not be fully developed for another two or three years, particularly the workload measure part.

RCL: This is really pretty current so it is difficult for you to give any sort of discussion and certainly no analysis on its effect or implementation, since it hasn't come to that point yet.

CAS: That's correct. I failed to mention that the Management Sciences staff has an approved project that will also contribute as part of this in the overall project, particularly in the workload measurement area.

RCL: Well, I think that you have come all the way through your story. I wish you luck in retirement in Colorado

and at this point I would like to thank you very much for your interview, and thank you also on behalf of the Forest History Society for contributing your share to this history.

CAS: I've enjoyed it very much. I'm sorry to say that we have only been able to touch on a few highlights of the wide-ranging accomplishments of the Forest Service in management technology.

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U.S. Forest Service Management Series

Robert H. Torheim

MANAGEMENT TECHNOLOGY IN THE U.S. FOREST SERVICE:
EXPERIMENTATION AND INNOVATION IN THE FIELD, 1948-1979

An Interview Conducted by
Ann Lage
March 13-14, 1980

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INTERVIEW HISTORY

The Robert Torheim interview is the fourth in a series on the subject of management technology in the United States Forest Service. Conceived of by Dr. Ernst Valfer, chief of the Management Sciences Staff of the Forest Service's Southwest Experiment Station in Berkeley, the interviews explore changes in the techniques of managing the Forest Service organization over the past half century. Individual interviewees were selected to represent various eras of Forest Service managers and to reflect the viewpoints of the field--the ranger districts, forest supervisors, and regional offices--as well as of the Washington office. Taken together, the completed interviews will offer a broad perspective, based on firsthand experiences, on how the Forest Service has devised and adapted modern management technologies to fit the needs of its rapidly growing organization and to respond to the increasing demands placed on it by federal legislation of the 1960s and 1970s.

Robert Torheim was selected as an interviewee for the series in part to give the view of a manager whose primary career experience has been in the field. From this perspective he demonstrates in his interview how changes in management techniques repeatedly resulted from a felt need at the field level, experimentation with new methods in the field, and finally adoption and standardization of the new methods by the Washington office on a service-wide basis.

For six years from 1965 to 1971, Torheim served in the service's personnel division, both in the Region 6 office in Portland and in Washington, D.C., where he directed employee development and training for the Forest

Service nationwide. His work in personnel coincided with the onset of Forest Service involvement with the Job Corps and the service's active efforts to bring minorities and women into the work force. His accounts of Forest Service efforts to respond to these societal needs is particularly insightful. Also of special interest are Torheim's views of the art of "people management," and his account of the introduction of behavioral science methods and principles into management, primarily through the vehicle of the management grid training system. His comments in this area illuminate one of the ways in which the service has been able to deal with increased complexity and conflict as the business of national forest land management has become a focus of national concern and public involvement in the sixties and seventies.

Mr. Torheim participated fully in the preparation for this interview, exhibiting a clear sense of the purpose of the series and providing the interviewer with a well organized and thoughtful outline of suggested topics. The interview was conducted on March 13 and 14, 1980, in the Region 6 offices in Portland, Oregon, close to the suburb of Beaverton, where Torheim now lives with his wife, Marjean. The three lengthy interview sessions proceeded in an orderly and concise fashion, covering all the topics as planned. Mr. Torheim made no substantive changes in the text during the editing process. The cooperative and quietly efficient manner in which Mr. Torheim joined in the entire interviewing process exemplifies for the interviewer the skill of participative management which Mr. Torheim describes so well in the text of this interview.

Ann Lage
Interviewer/Editor

August 11, 1980
Berkeley, California

I BACKGROUND IN THE PACIFIC NORTHWEST

[Interview 1: March 13, 1980]##

Seattle Youth, 1920s-1930s

Lage: This is an interview with Robert Torheim who has recently retired as regional forester for Region 1 of the U.S. Forest Service. Today's date is March 13, 1980, and I am Ann Lage from the Regional Oral History Office of The Bancroft Library. The subject of this series of interviews is management technology in the Forest Service. We're going to start out with something a little closer to home, with some discussion of your personal background. Do you want to tell me where you were born, and when, and what type of community it was?

Torheim: I was born in Seattle, Washington, February 18, 1923. I was really living out on the fringes of the city near the University of Washington which now of course is right in the middle of town, but at that time it was on the fringe of rural; it was on the edge

##This symbol indicates that a tape or a segment of a tape has begun or ended. For a guide to the tapes see page 178.

Torheim: of suburbia as we know it today. It was suburbia creeping into the fringes of the farm lands and cutover timber lands.

Lage: What did your father do?

Torheim: My father was an immigrant from Norway. He was a steel worker building buildings all over Seattle and the Northwest. My mother was a registered nurse, an immigrant from Sweden. She worked part-time as a surgical nurse. My growing up days were mostly in the Depression.

Semirural Setting

Lage: So your father's occupation wasn't rural? You were oriented toward the city?

Torheim: Well, sort of. You have to know Seattle. Seattle was a large city with a small town atmosphere. Living out in the fringes, we lived close enough to a dairy just three blocks away, a very large dairy, that I worked at milking cows and delivering milk. So you see it was a mix. In fact, if you go west of Portland where I live now it's still that way. You'll find dairies intermingled with creeping suburbia. Our family was oriented to the outdoors, though, because my father was a native of the fjords of Norway, way back, from a little farm. My mother was from northern Sweden in the forested area, so the orientation was much toward the salt water and the forests.

Lage: How about brothers and sisters?

Torheim: I had one brother two years younger than me.

Lage: Did your family enjoy outdoor activities? Did you hunt or fish?

Torheim: Yes, both; more oriented toward salt water--Puget Sound. We used to fill the boat with salmon before there was any kind of limit. But then we lived on salmon year around. That was our principal source of protein, in fact, during the Depression.

Lage: So it wasn't just for fun.

Torheim: We enjoyed it, but it was more than for fun and, as people did, we traded. Our neighbors had a chicken farm so we traded salmon to them for eggs. There was a lot of that.

Influence of the Depression

Lage: Now, you mentioned the Depression. Would you say that this had a lasting effect on your own perceptions?

Torheim: I think so, quite profound, because our family had some tough times during the Depression as did all our neighbors. It was very much a coalescing and a gathering together of people in the community for self-support. It was kind of a tough time.

Lage: I would think it would affect your vision of the government's role and maybe of the Forest Service's role.

Torheim: Probably. I have never thought of it that way, but I suppose those imprints were made. Sure, they had to be.

Lage: Different from someone raised in the fifties.

Torheim: Oh, very much, yes.

Lage: Shall we go into your education?

Torheim: All right. I went to grade school and high school there north of Seattle near the university. I wasn't sure what I wanted to take, however, but I knew I was going to the university. I didn't have any money. So at age seventeen I enrolled in the Civilian Conservation Corps and was a \$30-a-month enrollee for a year. It wasn't very far from Seattle just by pure chance. It was at North Bend, which is east of Seattle near Snoqualmie Pass in the Snoqualmie National Forest, the North Bend ranger district. I got quite well acquainted then with the Forest Service.

Training in Woodsmanship

Torheim: Prior to that time, during high school, I spent a lot of spare time in the mountains, also that same area—hiking, fishing.

Lage: Was that common among youth in your neighborhood?

Torheim: Yes, we all did that. It was very common. This was kind of an evolutionary process, I suppose, in retrospect, finding one's way into the forest. So I knew much about woodsmanship and much about getting along in the forest before I even graduated from high school. Then I belonged to a conservation club in high school. We planted trees each spring on the Snoqualmie National Forest. This was all part of it too. Many of us did this.

Lage: Was your first contact with the Forest Service with the CCC?

Torheim: No, my first contact was as a hiker--backpackers they call them today, but we were hikers. Fishing, hitting the mountain lakes, going crosscountry, and climbing mountains and that sort of thing.

Torheim: We used to have to get fire permits from the ranger. We used to run into trail crews. I knew quite a bit about the Forest Service from these contacts.

Lage: They were very visible in these areas.

Torheim: Very visible, and I knew all about the difference between national forests and national parks. I used to hike in Rainier and Olympic National Parks too by the way. So I didn't have to have a course in the difference. [laughs] But I really wasn't thinking at that time of a career necessarily. That was solidified in the CCCs. When I was an enrollee then I was saving part of my money. I was saving \$22 out of the \$30. It was required that you send \$22 of the \$30 home, and my father was banking it for me. So when I got out of the CCC camp, I worked for a while for a bank as a messenger, and then I enrolled in the University of Washington in 1941 in forestry. I had enough for my tuition, and then I worked part-time to keep me going. It gave me a start.

War and Education

Lage: Then the war intervened. Was that after college?

Torheim: No, it was in the middle like happened to so many people. I got through my freshman year at the University of Washington. Then I got through the fall quarter of my sophomore year. Now, to show you how lucky one can be, I was among the first group of teenagers to be drafted in Seattle. Nineteen-year olds and eighteen-year olds had to register for the draft in 1942 in the

Torheim: summer while I was working in the Forest Service at Skykomish, Washington as a student. By golly, the first group that was selected out of those eighteen and nineteen-year olds was in January of '43, and I was in that first group, so we all got our picture in the Seattle Times--the first teenagers to be drafted. That's the only thing I ever won! [laughter] I went off to war then.

Lage: And then returned to the University of Washington afterwards?

Torheim: Yes, I came back in November of 1945 and simply picked up where I left off.

Lage: No change of purpose?

Torheim: No, no, I was eager to get my discharge and get on with finishing my education, and I did. I worked again seasonally for the Forest Service while going to school and graduated in 1948.

Career Choice and Family

Lage: Did you ever have any other thoughts of what you might do? Was the Forest Service the first real--

Torheim: I took courses in high school, college preparation courses, that would prepare me for either science or, well, we called it business then. I was torn between whether I was going to be a business administration major or something related to the outdoors. It might have been fisheries; the university offered a fisheries course. Now, I spent lots of time as a kid on the campus. We lived only a mile and a half from campus, so I used to prowl

Torheim: around the College of Fisheries and the College of Forestry, and I knew all about the texts they used and stuff.

Lage: This was an early interest.

Torheim: Yes, a very early interest but it wasn't solidified really until I was in the CCC camp and began to work in the forest, doing forestry work and seeing the men in it who are foremen, what they were doing.

Lage: Did the type of individual seem particularly appealing to you?

Torheim: Oh, yes, yes, very much, and the type of organization, the quality of the people, and the kind of work of course.

Lage: You really knew what you were getting into probably more than most young people do.

Torheim: Very much, yes. Then the seasonal experiences as a student really solidified it.

Lage: As you look back on it, are you glad that this was your career choice?

Torheim: Oh, yes, I should say so.

Lage: You don't have regrets?

Torheim: None whatsoever. I should say not. I'd do it all over again if that were possible, sure.

Lage: How about your own family? Do you have children?

Torheim: Yes.

Lage: What lines have they taken?

Torheim: Well, this is not unusual I understand. Neither of them are interested in forestry as a career and aren't pursuing it, but much of their free time is spent in outdoor pursuits, which is

Torheim: interesting. Our daughter graduated from Oregon State University in political science. She had thoughts of going on to law school, but then she got married and has two children. She's moved around a lot and happens by chance to live here in Portland now, but they'll probably move on to other things. So we have two grandchildren and are rather close for the first time, and that's kind of pleasant. She works too. She's an administrative assistant for an insurance company.

Lage: You have a son also?

Torheim: Our son has always been in Portland since we first lived here. He went back to Washington, D.C., with us for a couple of years and then upon graduation from high school came right back. He went to school and took communications--television and radio. Now he is in radio advertising for a local radio station here. He's married, and they have a little daughter. So we have three grandchildren, all right here in Portland, which is very unusual for us Forest Service types who usually are scattered around. [laughs] But that's just pure chance.

Career Summary: From Junior Forester to Regional Forester, 1948-1979

Lage: Why don't you give us a brief outline of the direction your career took, and then we can go on to specifics when we cover different topics?

Torheim: Okay. In getting into the Forest Service I had to come the route that everybody does by taking the civil service examination. But actually I evolved into the Forest Service, and this was not unusual with a number of Forest Service people who live somewhere near the national forest and became acquainted with it. My experience wasn't all that different. The CCC experience was a little bit different, but many of my contemporaries that I went to high school and college with had exactly the same experience. By the time that we got our civil service appointments upon graduation, we were already in the outfit so to speak. Our seasonal work responsibilities were quite broad.

By pure chance again, my first appointment as junior forester was on the North Bend district of the Snoqualmie Forest where I had been a CCC enrollee.

Lage: It was just chance?

Torheim: Yes, I had not worked there seasonally at all. But I had worked on the Snoqualmie. So I worked there, and we got married, my wife Marjean and I, in that same year, 1948. I worked as a timber management assistant for that district, an assistant to the ranger for timber management work, and I was there for five years. People didn't advance so rapidly then as they do today in the Forest Service.

Then I was appointed as district ranger at Naches, which is also in the Snoqualmie, or was at that time, but on the east side of the Cascade Mountains, a completely different kind of district

Torheim: but a very interesting one. I was there three years. Then I moved from there to the Olympic Peninsula, the wettest part of the United States outside of Alaska or Hawaii, at the Quinault Ranger Station which is about fifty miles north of Aberdeen and adjacent to Olympic National Park. The average annual rainfall there is between 140 and 180 inches. We used to say it rained twelve to fifteen feet, which it does. It's very, very wet.

I was ranger there for less than three years. Then I moved to a dry climate again, to southern Oregon (Medford, Oregon) and became the staff assistant to the forest supervisor for fire control, range management, and watershed activities.

Lage: What was that forest?

Torheim: That's the Rogue River National Forest. There we went down to twenty inches annual precipitation and got dried out a little bit. By the way, this was a typical career pattern from assistant ranger to ranger, probably two districts or more, to staff. I was there for five years and like most people I was aspiring to be a forest supervisor. But I began to see working as principal staff to the supervisor that a lot of the managerial problems were not about things; they were about people, and I knew very little about people management. So I decided to take a side step in my career, and I applied for a job here in the regional office in Portland in the division of personnel management. There was a vacancy there as a placement officer. This was 1965, and by chance this was when Job Corps came along, so I was involved right off

Torheim: the bat in recruiting for Job Corps. I specialized in that for about close to six months. Then I was promoted to the branch chief for employee development and training.

Lage: Had you yourself had training for this kind of people management?

Torheim: No.

Lage: It was just an interest?

Torheim: It was an interest. I had no formal training. Now, the job that I competed for and was promoted to was employee development. Having been in fire control, which was the principal training activity in the Forest Service, I had lots of experience in training and in safety. So technically I was quite well prepared for that. That's how I got to be chief of the branch of training as we called it. I was in that job for almost three years. Then I was selected for the national job in Washington as the employee development officer for the whole Forest Service in the division of personnel management in Washington.

Lage: Was that about in '68?

Torheim: That was '68, yes; Washington, D.C., '68. Of course, one doesn't plan all the steps in one's career. There's an awful lot of luck, when openings occur, and when you're qualified at a particular time. I was in Washington, D.C., only two years before the opening in the regional office in Portland as a regional personnel officer came up, and I was selected for that.

Page: Are these jobs that you hear of and apply for?

Lage: In Portland?

Torheim: Right here, yes, in Portland. So I moved then back into line jobs, from staff to line.

Lage: You're going to have to elaborate on that terminology at some point.

Torheim: Staff jobs are jobs that are responsible for certain programs. Line jobs are generalist jobs that manage a unit. The line jobs in the Forest Service are district ranger, which manages a ranger district, a part of a national forest; a forest supervisor who manages a national forest; a regional forester who manages a region; and a chief who manages all the Forest Service. So there's a very direct and short line from the ranger to the chief.

Now, the deputies who fill the same box, so to speak, are also line; they just help to do the same job.

Lage: Then you have the staff.

Torheim: The staff then serves as program managers for each of the program areas, and this is true throughout the Forest Service.

Lage: But isn't that one of the new changes?

Torheim: Well, yes. There's a change in responsibility. When we talk about organization we can go into that, and I'll describe that in some detail, a profound change in functioning, yes, and the change in nomenclature from assistant regional forester to director really is an example of that.

Anyway, I became the deputy regional forester for Region 6. Then the reorganization took place (and we can go into that in more detail) which resulted in Region 6 having three deputies

Torheim: instead of the one--a deputy for resources, for administration, and for State and Private Forestry. So I became then (as other deputy regional foresters in the country, most of them anyway), the deputy for resources. I was in that job from 1974 until 1976.

In 1976 I was selected to be the regional forester for Region 1 in Missoula, Montana.

Lage: That was the first time you had had any contact with Region 1.

Torheim: It was the first time I had worked in Region 1, yes.

Lage: Is that unusual?

Torheim: A little bit. Yes, a little bit. The usual route of travel is for a person to have spent some time in at least two regions and the Washington office. I had spent my regional time in one region and the Washington office and that's not typical.

Lage: At some point we may also want to discuss differences in regions.

Torheim: Yes, there are conspicuous differences in regions and they are just as noticeable as the differences in society in different parts of our country.

Then I was regional forester in Montana for three years and I retired last June, 1979. That's the whole story.

Lage: That's a good outline. We're getting the background built up here. So your formal career was about thirty years or more.

Torheim: It was more than that. With my seasonal time, my total time with the Forest Service was thirty-two years. Then I was in the army for three, so my total federal service was thirty-five years.

II RESOURCE AND MULTIPLE-USE MANAGEMENT, 1950s-1960s

A Custodial Role, 1905-1945

Lage: You've seen a lot of changes in the Forest Service, particularly, you said, since World War II.

Torheim: Particularly since World War II. That's when the Forest Service itself changed, of course, as far as its mission—not mission so much but level of activity I should say.

Lage: Why don't you give us an overview of that change, and that will give us a good picture to build on.

Torheim: All right, I'll see if I can do it concisely. The Forest Service from its beginnings in 1905 until World War II was principally occupied with protecting the national forest and serving the users of the national forests. Commodity production from the national forests, particularly timber, was not a big activity. It was in some national forests prior to World War I, and it was in the twenties. But then after the Depression occurred in 1929 it trickled to almost nothing, part of the reason being that the demand for timber and forest products was low enough that it was public policy to have the private sector provide

Torheim: that and not have the government compete with the private sector, which was having trouble enough keeping its head above water.

Lage: So the private sector really preferred that the government maintain just a protective role.

Torheim: Yes, particularly during those tough economic times when the public timber wasn't needed, at least in the short run. Of course, the plan was (and it was public policy) that these forests would be available later when it was needed. So as far as timber management was concerned, or timber production, it didn't really amount to a whole lot from 1905 until 1945.

On the other hand, the Forest Service did produce much forage for cattle and sheep and horses during all of this period and even prior to the creation of the national forests. So grazing was a very large activity in the western national forests, and that was a commodity. And also public recreation--concessionnaires (we called them special use permittees) as they are today with resorts and campgrounds and hot springs and ski areas.

Wartime and Postwar Predominance of Timber Management Activities

Torheim: The big change, though, started during World War II when the demand for timber rose dramatically during the war years. Certain specialty products were removed from the national forests. Noble fir, for example, to make airplanes--to make mosquito bombers--was one type of logging activity that was really related to the needs of the war.

Lage: Sitka spruce—

Torheim: Sitka spruce was a World War I activity for the same reason, by the way. There was some of that in World War II also, but not like there was in World War I up on the Olympic Peninsula and in Western Oregon where the army did the logging actually, the spruce division. Noble fir is a limited range species that has many of the characteristics of spruce in that it's lightweight but it's very strong. It was used to make the plywood that the mosquito bomber out of Britain was made of and other things too, I'm sure. It had the characteristic of great strength. It had a very narrow range from the Columbia River north on the west side of the Cascade Mountains.

Anyway, the Forest Service in many places got into timber management activities during these war years. Immediately after the war the timber activity began to increase dramatically. The demand for housing is what triggered that. You see, with all of this low activity during the thirties and the need then for veterans and others establishing new families, the housing market picked up very dramatically. Also, with the rise of the standard of living, the use of paper products (which is correlated to standard of living) rose also.

So then the public forests were needed, and private industry began to bid on national forest timber sales, and the Congress began to appropriate money to manage the timber and sell the timber. That increased the activity on the ranger districts, particularly

Torheim: those that had a large resource of timber to manage. The budgets became larger, and Congress appropriated more money for us. That made the Forest Service grow then over time, but pretty much on the timber forests. In the Rocky Mountains and the desert Southwest these activities didn't increase at the rate they did particularly on the West Coast, Region 6 especially, Region 5 in California, Region 1 in Montana and northern Idaho, and in Region 4. That's where the level of activity really increased substantially. It didn't happen overnight.

It's this level of activity and this change that took place, from an outfit that protected the national forests, mostly from fire, and provided service to the recreation user, to a business, particularly the business of selling timber--preparing timber for sale and selling it and then being sure that the resource is perpetuated under sustained yield principles over time. That brought about reforestation programs, and, of course, all the research and state and private forestry activities that were related to timber management.

Lage: Did that require a different sort of preparation for the rangers or had the ranger always had a lot of diversified preparation?

Torheim: Well, this is interesting. It depends on where you went to school. If you went to school at Oregon State, the University of California or the University of Washington you could land on your feet, as we used to say, because you got well-prepared in those universities to manage timber. If you didn't, it was difficult.

##

Torheim: These timber management districts began to generate a lot of dollars. The Congress appropriated dollars to produce timber sales. They began to get larger staffs and more technicians and more foresters, so these so-called timber forests and timber ranger districts became rather sizeable business enterprises. In the meantime the bulk of the Forest Service in terms of numbers of national forests--for example, the Rocky Mountains and the southwest and other parts of the country in the East and South--didn't have this same accelerated activity. It was substantially larger than it was prior to World War II, but there was not this dramatic change in activity. So we found that the Regions 6, 5, and 1 grew very much faster in terms of people and budget than did the other regions in the Forest Service.

That meant that the recruiting activity picked up dramatically in the forestry schools. So you found a ranger then, who prior to the war would have himself and an assistant ranger and maybe a part-time clerk and a fire control seasonal person, soon had a staff. That was the job that I had. I was the timber management assistant in a rather sizeable ranger district. I had assistants to help me and students in the summer.

Engineers and Foresters: Conflicting Cultures?

Torheim: They began to get engineers to build roads. Foresters used to do all of this. I was well checked out and had an education in logging engineering, as did most of my contemporaries. So I used to do

Torheim: the whole job. I'd cruise the timber, and I'd lay out the roads and the whole works. Then we began to get in tougher country, and the Forest Service began to get engineers to help build these roads. Actually, they were much more technically able to do this. We didn't think so at first, I must say! There was a lot of conflict between foresters and engineers that lasted for a number of years.

Lage: Did the engineers bring a background of any forestry?

Torheim: No.

Lage: Or did they come out of forestry schools?

Torheim: No. A few did. There were a few logging engineers who took the engineering jobs, but the Civil Service Commission never recognized logging engineering as a professional specialty. There was great conflict over this between the Forest Service and the Civil Service Commission for a long time. The forestry schools that taught logging engineering failed to get the Civil Service to recognize it as a distinct profession. The closest profession to logging engineering was civil engineering, but it lacked the emphasis on applying engineering technology in a forest environment. Still, civil engineers could qualify on Civil Service examinations (and logging engineers could not), so the Forest Service got civil engineers. The logging engineer got a lot of civil engineering education, but the civil engineer, of course, got more structural education, and they were better able to do other things besides road engineering.

Torheim: There was a lot of conflict between the engineers and foresters. Many engineers had trouble working under the direction of a forester. So in many places, engineers were assigned to the supervisor's office, and they worked out in the forest. Well, the ranger didn't think he had control then or the ability to coordinate the engineering and the forestry activity on a given timber sale.

Then [there] were the pure cultural differences. It was thought, rightly or wrongly, that engineers had no land ethic. All they wanted to do was build a superhighway, and the forester would oftentimes want to modify that. But the rules of engineering were quite stringent, so there was a lot of conflict.

Lage: Who would make the final decision in a case like that? The higher-ups would have been the foresters.

Torheim: Yes, but engineering was by that time developing a very powerful subculture in the outfit, and I must say that the managers who were foresters didn't really enter into that. They decided that if engineers were hired to do engineering jobs, they were more expert than foresters, so by edict they were determined to be the ones who were even directive in that activity. You have to understand something about our old organization, what it used to be. Staff people, both at the forest headquarters and regional office really were line/staff in that they had a directive role in their staff function. I'd like to talk about this a little later on when we talk about budget because that's where the power was.

Torheim: So the district ranger then had to field all of these staff inputs as if they were line directed. The penalty you paid for not [doing this] was not being able to get sufficient budgets to carry out a job because there was always this club. That line/staff role was an interesting one.

At any rate, this happened particularly I would say in engineering, and it also happened in fiscal management--accounting--particularly where managers who were not foresters let these staff people--and probably rightly so because they were all very excellent people--kind of run it. The ranger's input was often in conflict with the staff's. On many national forests, the style of management of the supervisor was such that he really paid more attention to the staff's input in a conflict situation than the ranger's input. Now, this differed with people, but there were a lot of managers who operated that way. So rangers had to be very light on their feet and very adept at trying to work their way through the staff communication and staff human relations roles to make their rig run.

Lage: You sound like this was where you began to see the people management was important.

Torheim: You bet! If you got in trouble with the staff person you were in trouble because there was nobody to take the ranger's side. So it was difficult. Now, that's the human part of it. In retrospect, as far as managing the public's business--getting the best use of the public's dollar and treating the land right--this worked okay because these staff people were terribly responsible.

Torheim: They weren't out just to do the ranger in. They were really working from a base of expertise and what they thought was really for the best. The ranger, being a generalist, couldn't be an expert in all of these things, even though he took logging engineering and knew how to build roads.

Lage: But he, as you say, did have more of a land ethic.

Torheim: Yes, but that's funny. When you really got to poking into it, I discovered that there were many engineers who had a greater land ethic than a forester. It's an individual characteristic. I also discovered that many engineers who chose Forest Service careers rather than construction in private industry did so because they had a feeling for the land. That's the way it really turned out. So this was myth.

Lage: Could the ranger have also been more "lost in the forest"— thinking about timber management rather than land ethic?

Torheim: Yes, right, and this is where the term "sawlog" forester became such an epithet from certain interest groups. But these kinds of absolutes when you dig into them really don't stand up, as we know. But anyway, if you have those perceptions, you work around and work in the context of those perceptions, and it does affect your behavior. So it did affect our behavior.

Strength of the Multiple-Use Ethic

Torheim: Anyway, these timber management districts and forests--I don't know what percentage of the total forest activity or national forest activity there would be--but [it was] rather small in terms of numbers. Just think, we're talking about the west side of the Cascade Mountains in Northern California and the Sierras, some of the eastern Washington, eastern Oregon, Idaho, and Montana, and that's it.

Lage: Not typical Forest Service.

Torheim: No, but the people working in these areas thought that was typical Forest Service. I used to meet people on fires. The great melting pot was on fires. You went to a fire and people came from all over the country, and then you began to be able to compare your activities with activities on ranger districts in the South or the Rocky Mountains or wherever. Then you began to learn that there were a lot of people--and I'm speaking about people at the ranger district level early in their career--who really would never move, they said, to Region 6. "That big timber activity simply dominates everything, and you really can't be a multiple-use forester, can you?" they would say. Then we would say, "What's your budget? How many people do you have?" So there was a lot of bantering that took place. But even the bantering had some elements of serious thought behind it.

Lage: Would you agree that multiple-use ethic wasn't as strong in these regions?

Torheim: I think that varied. I would say this. In my own experience it was hard to maintain the multiple-use ethic on a district that had a high quota for timber production but still didn't have the numbers of people and budget to carry it out. I'm speaking now of the early fifties, that period right after the war when the Congress really didn't provide all of the dollars that were needed, but yet we had a contract with the administration, with the Congress, to produce certain allowable cuts of timber. The way we got that job done (and we, of course, would never do that today), we would locate timber sales on paper after a general reconnaissance of the lay of the land. Then the timber purchaser, the successful purchaser in the auction, would lay out the timber sale according to our paper location with their own people and then would lay out the road entirely with their own people.

Lage: This would be the private—

Torheim: Private sector. We had no people to do that. Then we would have to approve it. They had to go by the plan. That's quite different from the way it was done later where the Forest Service people actually did all of the layout, marked it on the ground, and the whole works. However, the demand for lumber and plywood was so great that was the only way we could get the job done. This didn't last for very many years, but it shows you the kind of innovative activity that took place in order to get those kinds of timber on the market, at least in western Washington and in western Oregon.

Increasing Specialization and Complexity, 1960s-1970s

Lage: Was the time of this intense activity through the sixties?

Torheim: Oh, do you mean the timber management activity? It goes on today.

Lage: It was continuous?

Torheim: Oh, yes, very much so.

Torheim: No, but then the phase change took place this way. Keep in mind that the numbers of people on the ranger district were still relatively small, and they were foresters and engineers. But then as we moved along in improving our multiple-use management activities, and as the Congress became more willing to appropriate other dollars, we began to hire other disciplines—soil scientists, wildlife biologists, fisheries biologists, landscape architects. In the business management field, we began to hire accountants more than just clerical types. So then the job of managing became more complex to coordinate all of this activity.

Again, these activities that generated the need for these other specialties, were principally timber sale activities, so they occurred first on the timber sale districts. This is what caused the expansion of the numbers of people. That's still the case because the principal activity on the land which creates a need for these specialties is the removal of the vegetative crop, principally timber, and the rehabilitation of it, and starting the new crop so that it's compatible with all of the other resources on that forest.

Torheim: This was an evolutionary thing. The engineers came along in the fifties. The other specialties, in any number anyway as I described to you, started coming along in the early sixties and continue today. Now we're even hiring sociologists as this thing evolves. The complex nature of management, the society and its complexities and all--the Forest Service has simply been part and parcel of that. But think of the difference of a district ranger in 1938 managing 400,000 acres--he and one assistant and some part-time help--compared with that same district today, in say a westside Oregon or westside Washington district or other places, which probably has fifty or sixty people. Of course, they are doing more, but that's the difference.

Lage: Now, they're doing more. Are we measuring this by how much timber is being produced or other demands on the land?

Torheim: It's quality. I described to you the laying out of the timber sale on paper and then the purchaser building the road in and taking care of the layout on the ground. There was little or no thought, I mean no intense thought, given to soil erosion, to stream siltation, to the effects on wildlife, to the visual appearance. All of those things now are part of preparing a timber sale, and that's vastly more complex than it used to be, and the trade-offs. Also, the land that was entered in those early years were the lower slopes, the easy country as we call it.

Now timber sales are laid out in very difficult terrain where the chances of damage to the resources are very great unless you have some really highly technical decisions made. So that's

Torheim: the difference. It's really of quality more than of quantity. The laws that Congress has passed over the years (and we'll talk about some of these later), the Environmental Policy Act, the Resources Planning Act, and the National Forest Management Act, have also generated judicially decreed requirements on the land.

Land-Use Planning in the Fifties: Functional Plans

Lage: Okay, if you think it's the time to do this, give us an example of how a land-use planning effort was undertaken in one of the earlier periods. Then we can see the increasing complexity in a later period.

Torheim: I'll give that a try. The planning that was done--and the forester has done this way back since the very earliest days and I'd say up into the fifties--were what we called functional plans; they were resource plans. On a ranger district we would have a timber management plan, and a very good one. It would lay out the inventory of the resource and how over periods of time this resource would be harvested and managed and regenerated.

Lage: It covered the district?

Torheim: It covered what we called working circles. The district was divided up into geographical units that were most logically managed for timber production let's say. They were called working circles. This is a piece of forestry jargon. It's still used, but not very much. But there would be a timber management plan for each of these working circles, subunits of ranger districts.

Torheim: Then we'd have a recreation plan, including how summer homes are to be managed and ski areas and campgrounds and dispersed recreation and so forth. We'd have a wildlife management plan and a fisheries management plan (again all by the various resources), and range management plans and very intensive plans, I should say.

Lage: Who developed these plans?

Torheim: These were developed by the ranger with, of course, assistance from the experts in the supervisor's office. A large part of the staff role was to help with these plans. The supervisor would approve these plans. The ranger didn't have ultimate approval. So they were really the supervisor's plans for the ranger district, prepared by the ranger and the staff.

Multiple-Use Planning and Its Drawbacks

Lage: Did the various functional plans intermesh?

Torheim: That's the next job! Do they intermesh? Well, in the fifties the vehicle [for coordinating the plans] was designed, and this varied according to regions. Region 4, the Intermountain region, was probably one of the leaders along with some others in the Rocky Mountains in what we called multiple-use planning. Then this became national policy. This was the vehicle for coordinating all of these plans so that you didn't engage in some timber management activity that would have a detrimental effect on

Torheim: wildlife, for example. The allocations were made as to which areas of the ranger district were to be managed for these particular uses and where the coordination would be done between uses effectively. You could, for example, harvest some timber and maybe improve the wildlife habitat as a result. So you would use silvicultural techniques then to enhance wildlife. That's an example.

But curiously enough, the multiple-use plan was made entirely by the ranger. I say "curiously" in retrospect. It didn't seem curious at the time. You'd have the resource plans approved by the forest supervisor, and yet the ranger had responsibility for the multiple-use plan to coordinate all of this.

Lage: What time period are we talking about? After the Multiple-Use Act in 1960 or before?

Torheim: No, before. Usually the laws emanated from things already started by the Forest Service, and the laws were passed to make that public policy.

Lage: So the ranger devises on his own the--

Torheim: No, no. Nothing was devised on one's own. We had manuals and handbooks galore. They were originally conceived in that fashion, but soon, as the Forest Service has done for all the years, things developed in the field that are good practice become policy and then it becomes standing operation procedure. That's the way this happened. Albeit there were differences between regions

Torheim: as to the form that these took, but the multiple-use plan was the coordinating mechanism, and I'd say a pretty good one. Then the Multiple-Use Act came along and required this. So it became the law to do this.

Well, it worked fine except that what really happened so often was that the multiple-use plan was really never used much because the conflicts between uses would overpower the multiple-use plan. For example, in a timber district you'd be substantially budgeted for timber, but you were under-budgeted for the other activities. The Congress was unwilling and still to this day is reluctant really to balance out the budgeting between the various resources. It's not nearly as bad as it was, but gosh, the money we got for wildlife, for recreation, for range management was a mere pittance compared to the budget for timber management.

Lage: The plan was there but more on paper?

Torheim: Yes, it was difficult to actually do the coordination, particularly on the timber district, because, with that overpowering timber management budget, and with the budget comes a goal--to produce the timber--it was very difficult to still do anything effective in the other areas. This was solved later on with the concurrence of the Office of Management and Budget and the Congress by putting into the cost of timber sale activity those coordinating costs which many of us in the field thought should have been in a long time before that. I'm really speaking of history now. This doesn't occur so much today. But before, they were all separate pieces you see.

Torheim: The forest supervisor really wasn't pushing the multiple-use plan so hard either for the same reasons. It was the ranger's responsibility. In the sixties, as it frequently happens in the Forest Service, as I mentioned before, dissatisfaction began to occur at the ranger district and forest level about this way of doing business. In the Forest Service, changes most often take place from the bottom up rather than the top down. That's just a natural organizational phenomenon, but this is especially prevalent in the Forest Service. This dissatisfaction then, as it usually is, was not turned into disruptive organizational activity, but into suggestions for change. The Forest Service typically has done this, too: people would experiment on a given forest or a given ranger district with a different way of doing things before it was adopted [nationwide].

So Region 5 and to some extent Region 6 and I imagine other places in the Forest Service too--the informal communication system was getting the word through--decided that there needs to be a better way of planning, that land allocation just wasn't getting done through the multiple-use planning process. As we moved ahead in timber sales, for example, you just had to accept what happened rather than laying out way ahead of time just exactly how the resources were going to be allocated. The multiple-use plan wasn't really serving as a coordination mechanism.

Lage: Was it pretty much a yearly plan also?

Torheim: No. These were long-range plans. Timber management plans are ten years. Other plans have various planning periods. The multiple-use plan was revised periodically too. It's not static.

Field Experimentation in New Planning Techniques

Torheim: In the later sixties, then, this dissatisfaction resulted in certain forests, probably on their own actually in many cases, experimenting with something different, until finally in the seventies Region 1 and Region 6 and probably some other regions too began to experiment with land management planning that was really allocating the resources by planning units rather than having a multiple-use plan do that. So that whole drainages would be planned for all of their resource activities. Then the thought was that someday we could put all of these together, all of the resource allocations together, instead of having a separate plan. That's just now coming to be under law, interestingly enough.

But this began to take place and after some experimentation and some differences and the natural conflicts that arise when there are differences between how regions go about it, the Washington office took this over then and said, "This is how we're going to do land management planning."

But there were still differences between regions, and some regions had gotten in so deep (particularly Region 1) that they had great trouble modifying to a general land-use planning format that the chief wanted for the whole country.

Lage: Is there a difference between land-use planning and land management planning?

Torheim: Yes, my nomenclature is a little bit loose. It's really land management planning and "use" is probably too specific. We kind of use this jargon pretty loosely. It's land management or resource management planning, that's really what it is.

Public Involvement in the Fifties: Local and Unstructured

Lage: Let me ask you another question about the earlier period to get a contrast because public involvement becomes so important in the later period. What kind of input was there from the public in, say, the fifties in developing these plans?

Torheim: Very little.

Lage: Of any sort?

Torheim: Yes, it was very local and not structured. The Forest Service through its decentralized organization has always been very close to the public it serves, but over the earlier years mostly locally. So local people who were interested of course were involved--sometimes more informally than formally--and state legislators for their district if they were interested. But it was only on an "if you are interested" basis.

Lage: Were they involved in the sense of having a conference with the district ranger?

Torheim: No, not so much. It was kind of "what do you think about this?" and "do you have some inputs to make here?" Most of this was really done over the years in the range management plan because the user had so much influence upon how that plan was carried out. Probably in range management planning the user had more to say than anybody else.

Timber management planning varied some according to the interest of local people. That was usually through organized recreationists--outdoor clubs, sportsmen's clubs, and this sort of thing. Then where there was conflict, these kinds of people representing their group would get involved, again in kind of an informal way. The ranger would go down and meet with the group and get their input and probably make some modifications. But it was not structured, and it was done because the ranger was so close to the action and the people as well.

Lage: Would the ranger develop contacts deliberately with, say, mountaineering groups?

Torheim: Oh yes, yes, and this varied again.

Lage: So they knew the people?

Torheim: Yes, but I would say that the forest users probably had the most influence. The public at large was not well represented and didn't seem to be interested. This, as a ranger, used to worry me and others. We used to try all kinds of techniques to get the public interested in the management of the national forest, and

Torheim: we were always frustrated that we couldn't get that interest generated. And now look how it is! They're so interested that you can hardly figure out how to handle it.

Lage: Now you're frustrated that they are interested!

Torheim: Yes, it's hard to manage. We used to talk among ourselves a lot about this and we would devise all kinds of I & E (information and education) techniques that were well established in all regions.

Lage: What was your reason for wanting to get them involved? Did you think you would come up with a better plan?

Torheim: Yes, and we thought that since we were serving the public, and they were our employers, they should have that interest. We felt that just a few of us working on a ranger district shouldn't be making all of these decisions simply by ourselves. We wanted a broader base of understanding.

But we didn't really invite their interest as we look back in retrospect. We didn't invite involvement. We usually made up our minds what we thought ought to be done as professionals, and then we went out and tried to sell people on it and say, "don't you agree?" or "isn't this good stuff?" A lot of them would, as a matter of fact. Not all. As I say, occasionally there was conflict and we really honestly tried to solve that. But we had no techniques for doing that. It was rather crudely done, albeit we surely made the attempt.

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Lage: I was interested in what you were saying about public input in the earlier times, in the fifties. The impression I've gotten through reading was that foresters sort of fell back on their expertise and didn't want the public involved that much and resented it at the later date when the public more or less demanded it.

Torheim: In my experience, just the opposite is true. Now, that's not to say it might be true somewhere, but quite the opposite. I don't mean just my personal managerial responsibility, but I mean all the other people I knew in the units I worked on were that way. Let me give you an example, and this would be typical.

Public Input: Yakima Valley Elk

Torheim: When I was ranger at Naches on the east side of the Snoqualmie in the Yakima Valley, one of our biggest resources there was a large herd of Rocky Mountain elk—well, several herds. Now, we worked closely with the Washington State Department of Game in managing those animals, the state being responsible for managing the animals and the Forest Service being responsible for the habitat. So we had to work very close together, and there was always danger of the elk getting too numerous and overgrazing their habitat.

To help us, and the Washington State Department of Game too, to get some feedback on hunting seasons and the condition of the range and the numbers of animals, we would typically, with the Washington state game representatives, go to the Yakima Sportsmen's

Torheim: Club. We wouldn't wait for an invitation. We would go there annually or more frequently and get their feedback. We would have elk feeding stations in the winter on the national forest and we would invite citizens to come out. But it would usually be sportsmen. We had an annual elk count. Again it would be sportsmen. We never got any feedback from anybody else, except the organized Yakima Sportsmen's Club.

Lage: Who were interested in hunting.

Torheim: Yes, and the propagation and perpetuation of these elk. We and the state knew that the newspapers and the radio stations would certainly be interested and would cover it. But we could never get whoever the public-at-large was. There was a public-at-large, but they weren't organized to communicate. We had a few individuals, and they were motivated people who didn't belong to anything, and they would give me plenty of feedback. William Douglas was one of these, Justice Douglas.

Lage: On this particular issue?

Torheim: On every issue. Justice Douglas was interested in the Naches district, particularly because he had his summer home at Goose Prairie. But it was difficult to get input from the public.

William O. Douglas: Naches District "Assistant Ranger"

Lage: Do you have anything further you want to say about those early experiences with Justice Douglas?

Torheim: As most folks know, Justice Douglas grew up in Yakima and his interest in the mountains were just like mine as a young person. He would come back frequently, and he kept a particular interest in the Naches and Tieton districts, these two Yakima Valley districts in the Snoqualmie forest. I remember one instance. As I told you earlier, we used to have trouble getting budget dollars for things other than timber. The Naches district had over 450 miles of trail to maintain, and I was trying also to reconstruct some trails that were left from the old mining days and were unsafe. There was one trail in particular that went from Goose Prairie up to American Ridge. It served this general area including a Boy Scout camp and a lot of recreationists, and it just happened that Bill Douglas's place was nearby too.

So by golly, I remember that it didn't look like I was going to get the dollars for that. I hope later on we talk about the budgeting process, how it used to be and how it is today, because it's terribly important to learn about that in the context of history. [see pages 69-73]

Anyway, this was on my work list, and I submitted it for a couple of years to the supervisor and never got a nickel. Then it turned out that all of a sudden I got some money--the whole amount--to reconstruct this trail. This is how it happened. I don't think that the supervisor ever believed me when I said I didn't lobby Bill Douglas for these dollars. But what happened was that two women owned the Double K Dude Ranch (and still do)

Torheim: at Goose Prairie, and they were interested in perpetuating the trails and improving them because they took guests every year, including the American Forestry Association Trail Riders, on summer trips. This trail would be a much safer trail for their use and for the Boy Scouts. They were old friends of Justice Douglas. They lobbied him. Justice Douglas went to the chief of the Forest Service, who then went to the regional forester, and somehow an agreement was made that the Naches district ought to get these dollars.

Now, the sad thing is though that no extra money was appropriated by the Congress, so it had to come out of somebody else's hide. I never knew whose, but the supervisor had this tough choice. So it didn't help the Forest Service any, but it was interesting to see that somehow the influence of Justice Douglas made it possible for me to construct that trail, which was very much in the public interest as far as I was concerned.

Lage: Well, that's public input.

Torheim: Yes, that's public input. I guess some would say today that that's special interest input. [laughs] But that's the great American process. Apparently, for \$6,000 or something like that, nobody really wanted to get Justice Douglas's back up. It wasn't really worth that, I guess.

Another personal sort of thing. Justice Douglas in the summer used to travel a lot as we all know. He took hikes here and there. He used to occasionally go overseas. One summer (I think it was

Torheim: about 1955 I would guess) he came back from Nepal, and he wrote me a letter. He asked me if I would go up into the Bumping River country come fall and collect some bear grass seed. He had been traveling in Nepal, and he saw some country that looked just like the Cascade Mountains east of Mount Rainier. He was just sure that bear grass would grow very well there. So he had contacted some botanist over there who thought the same thing. So by golly, he asked me if I'd collect some bear grass seed, and then he gave me the address that I should send it to, which I did. But I never did hear whether that bear grass grew or not! [laughter]

That's the way he was--very direct and he'd always relate to that part of the country.

Lage: So he knew you directly from your activities--

Torheim: Yes, he knew every ranger there. No matter how long you were there, he would get acquainted with each one that came along. I am sure other rangers have had similar experiences. No, he was a very human person to deal with. He spent a lot of time in the district--horseback trips and that sort of thing. He was very interested in the management of the district, very much wilderness-oriented as we know, and somewhat opposed, I think--although he used to go about it in rather left-handed ways--but rather opposed to commodity use of the forest. He wanted to be sure it didn't dominate the activities. He was a great proponent of wilderness.

It was kind of interesting. I used to call him my assistant ranger because he kept very close track of everything that happened in that district. Well, that's just a little aside!

III LAND MANAGEMENT PLANNING, 1970s

National Forest Management Act: Forest Service Input

Lage: We were comparing the early planning efforts with the later planning efforts.

Torheim: Of course, then that brings it up-to-date. The important thing is that it was really an evolution from resource planning, which goes way back to the early beginnings of the Forest Service and was essentially that until the fifties, to the first attempt to coordinate these resource plans into multiple-use plans, the passage of the law by the Congress which legalized that [the Multiple Use Act, 1960], and now the National Forest Management Act [1976] which further legalizes but spells out very specifically how this planning should take place.

All these processes were developed from the ground up and finally formed into legislation by the Congress using the experimentation of the field, not designed at upper levels and then handed down to be implemented, which is interesting.

Lage: So you would say the Resources Planning Act and the National Forest Management Act grew out of the experience and needs of the grassroots Forest Service.

Torheim: That's exactly the case, you bet.

Lage: So the Forest Service was in agreement with the new requirements placed on them.

Torheim: Absolutely; we helped formulate them. The Congress added its own dimension to them, though, that makes it different. For example, the Congress in the National Forest Management Act was quite specific. The National Forest Management Act, of course, emanated from that problem with the Organic Act in the Monongahela case, put the urgency behind having something like that as law. Had we not gotten that case and the act, I would venture to say that the process would be essentially the same.

The RPA [the Forest and Rangeland Renewable Resources Planning Act, 1974] grew out of an earlier effort by the Forest Service to put together a program of work planning and budgeting over time--an environmental program for the future--that actually the congressmen picked up in whole and made into the Resources Planning Act, again with the help of the Department of Agriculture and the support of the administration. The Forest Service doesn't do it all by themselves. I suspect that lots of legislation comes about in that fashion. The Clark-McNary Act did way back in 1924.

Lage: Then there's other input as well, I'm sure.

Torheim: Yes, and that's what makes the difference. The flavor of it then becomes more public because other interest groups get to make an input, and that's the way it should be.

Lage: That's an interesting evolution. It certainly made a difference in the way things are done.

Torheim: Yes, I think it's for the better because it does put into law, and into regulations that emanate from the law, the way the national forests should be allocated and managed. That takes away a lot of the worry that many of us had about making these kinds of decisions without the public policy being defined, and it should be.

Lage: Do you think that your view is the typical one, that you welcome a more rigid--

Torheim: Oh, yes. Well, it's not so rigid. As a matter of principle I think most of us would agree. There are some individual differences of opinion on the specifics because, particularly on the National Forest Management Act there was great conflict among the user groups and interest groups about how the regulations should be stated. But that was because there was so much conflict in the way the legislation was put together, a tremendous conflict. So the legislation was a compromise by the Congress. Then the interest groups sought to get regulations formulated out of the legislation that would espouse their own point of view. So this again became compromise. So at least I think it makes it better for the manager on the ground in these complex times to know what the direction is.

Lolo National Forest Plan, a Case Study

Lage: Do you think we can take a recent land planning effort that you've been involved in and talk about how experts are used, how the public is involved, and how the data is gathered? Would that be useful?

Torheim: Yes, we could give it a shot. I wonder how to narrow down the universe. It becomes such a complex thing. Let's see, where should I start? I was involved right up until the day I retired in the land management planning effort for the Lolo National Forest in western Montana. I just learned here last week that it's about to be completed, and it will be the first plan completed in the United States under the National Forest Management Act.

Lage: The National Forest Management Act was in '76, so this planning effort went on for several years.

Torheim: Oh, yes. It's a perpetual thing. Of course, the National Forest Management Act caused many changes to be made, so in spite of the act being passed in '76, the regulations under which the activity is carried out didn't take place until just a little over a year ago. The regulations are the trigger, not the law. So this is quick; we did this in anticipation that the regulations would be coming out soon.

The Lolo was selected. Each region, by the way had one or two forests selected and agreed to by the chief to be the first. Well, there is inherent competition between units of the Forest

Torheim: Service. So many of us, being in Region 1 and being the "Number-one region," were insisting that we have the number-one plan. We broke our backs a bit to do that. But that's just the natural competition.

From Unit to Forest Planning

Torheim: First off, the plans [formerly] were not made by entire forests, but by taking units of land on a national forest. Some forests had as many as twenty or more units. Then there was kind of a forest plan that put them together so to speak. Well, the National Forest Management Act required--and by the way we were already evolving toward that--that a plan be made for each national forest. Then you could have sub-units naturally, but the plan would be for the forest. Then there would also be a regional plan to put all of the forest plans together. In addition to that, the plan was related to RPA [Resources Planning Act] and eventually to the budget process. So it all becomes one system.

In the Lolo Forest they were nearly completed with their unit plans, as we call them. So we took and bagged those all up and devised a system to put the unit plans together and make the forest plan.

Public Involvement in Determining Issues

Torheim: Now, the forest plan is built around what we call issues. That's the starting point. The issues introduce the public to the process. The issues come out like this: What are the areas of concern in

Torheim: the Lolo Forest that you, the public, either organized or not, consider to be those things that need to be dealt with in an allocation plan? They can be very specific, such as "what are we going to do with the Rattlesnake Creek; should it be wilderness or it should it, not be wilderness?" to as broad a topic as "what should the allowable harvest levels, annual timber cuts, be on the forest as a whole?" and then everything in between.

These issues were first generated by the forest supervisor and his staff and myself as regional forester and his staff. The forest supervisor and I came to a tentative agreement of what are the issues. Then the forest supervisor goes to the public in formal meetings and lays this out with a lot of homework, of course, and a lot of publicity and [makes] very much available the issue that he's generated to them, and gets feedback then.

Lage: Tell me who the public is?

Torheim: The public is anybody who wishes to come.

Lage: Is this a public meeting?

Torheim: Public meetings were scattered all over the Lolo Forest at the smallest communities to give everybody a chance to come in. Usually they are formulated into workshops. You have to have a mechanism. People just don't come and work unless you have some way of doing it. So the technique that we used, and many other units do this for this kind of public input, is to have a workshop. People will gather together. Most times the groups in the workshops are made up of people with conflicting interests. So this generates some synergism, and you get a pretty good answer from them.

Lage: Are you looking for data from them?

Torheim: Not at this stage. We are saying, "What are the issues? Let's agree on the issues." Of course, the public is invited to write in. A lot of people don't want to attend meetings and make inputs in that way and many do.

Lage: How do you reach the public to invite them?

Torheim: It's done through public notice, and mailing lists, and the newspapers, the radios. If anybody is interested, there is plenty of opportunity and plenty of time. I must say at least in the state of Montana, with the very high level of interest in national forest management, it wasn't difficult. It varies throughout the country. The same in northern Idaho, which is part of our region, and North Dakota, so we had no problems with that.

Evaluating Public Involvement

Torheim: But at any rate, this generation of issues then is very important because it is what eventually the plan will speak to. Then the supervisor gets all this input and formulates a new set of issues based on the public input. There is some sophisticated approach made to counting public input because it's such a laundry list, and this has been developed over time.

Lage: Is this a regional development?

Torheim: No, this is national. The processes of evaluating public input have been pretty well generated through Forest Service efforts with external help from the universities, because there is no

Torheim: body of knowledge that we could draw on at all. I remember when we first began public involvement, public input, in the RARE I process--Roadless Area Review and Evaluation--how we naively went (and I went personally) to the University of Oregon, the sociology department. We said, "Now, Mr. and Ms. Sociologist, why don't you help us out?" They said, "There is no body of knowledge here. We can create ways of gathering public input. We know all about questionnaires, and we know about polls, but then you have to evaluate it."

Anyway, this has changed over time. The university has become interested. There has been some research and that sort of thing. So anyway, public input is evaluated, and the issues then are finalized to a number that can be dealt with. For the Lolo Forest, I think it was something between twelve and twenty issues. Then this is circulated again. We say, "These are the issues. How do you feel about these now?"

Lage: Again are they variable in terms of the breadth of the issues? It can be a very specific question or--

Torheim: Yes, most of them are broad so they can be dealt with because the objective is land allocation. But each forest usually has what we call a sensitive area or an area of high public interest, where the interest is so intense it has to be set aside. The Rattlesnake Creek, even though it's one drainage, had national interest even in its allocation so that it was set aside as a special area for consideration in the planning process.

Torheim: I can't get into all of the technical details of the process, but anyway, these issues then really formed the skeletal framework for designing the plan because it would speak to these, and land allocations must be made to give some solution to these issues.

Then [comes] the process of inventory which is still difficult, and assigning the objective of the plan and then the RPA (what we call desegregation of goals, of mostly outputs) has to be integrated into that. So it's a very integrative process that only computers can do. There is a lot of alchemy that takes place here unless you are a computer technologist.

At any rate, the important thing is that the regional forester personally and the forest supervisor personally sit down at check points along the way of making these decisions and all along the way there is public input at periodic intervals. So that's the system. Of course, I left before it was finalized, but the plan, as I say, will be coming out. It will, along with the forests and the other regions that were selected initially, become the model. Naturally, the interest groups that had much input into the National Forest Management Act--the outdoor interest groups, the Wilderness Society, the Sierra Club, and the commodity interest groups are all watching this very carefully. So it's done in a big glass bowl--intentionally. They're all watching this, so I'm sure a good product will come out.

Torheim: Now, think how different that is from the multiple-use plan that was created at the ranger district, signed off by the ranger with probably the local input from ranchers and forest products people and some recreationists, compared now with each plan being a national sort of thing.

Forest Plans and the RPA: An Iterative Process

Torheim: Now then, the regional plan is really built out of the RPA and drives the forest plans. The difficult chores are to take the commodity outputs and service outputs of the Resources Planning Act and then desegregate them to the forests within the context of their land resource base that gives them the ability to carry it out. It is very complex.

Lage: Are the output levels predetermined before you start on your forest plan?

Torheim: Well, they're negotiated between the regional forester and the forest supervisors. The regions' output levels came out of RPA before the National Forest Management Act. It has to be an iterative process to distribute the outputs to each national forest.

Lage: Iterative?

Torheim: Yes, where you have to cut and fit, so to speak, and you kind of work your way up in increments, and it develops. You bounce one against the other and keep building, instead of empirically where you [develop output levels] just by formula. It's a mathematical

Torheim: way of negotiating I guess you might say. The important underlying principle is that the product and service output levels must be realistic and compatible with the capability of the natural resources on the forest to produce and provide.

Lage: This is all computer-based I would gather.

Torheim: Oh, the data and the varieties of data are so complex that without the computer none of this could be done. But to reduce it to what the Congress intended--the Congress intended that the Forest Service budget be not just an annual thing but be a five-year thing based on ten-year assessments of the resource base in the country, and that certain outputs should be made and funded using good cost accounting principles, but within the ability of the land to produce those outputs. That's what the plan does. So the plan then allocates according--

Lage: Is this the regional plan?

Torheim: The forest plan. The main plans are the forest plans. The regional plan is simply an umbrella to put them together for communicating with the Congress and the chief and the president. So it's usefulness, then, when the forest plans are put together, is to take the RPA outputs and actually allocate them to the forest, only again within the context of its ability to produce. It becomes then a two-way vehicle; it allocates the resource, and then it forms the basis for Congress to appropriate the dollars to carry it out.

Lage: We're talking about a number of different resources here.

Torheim: Oh yes, all of the resources in the national forests, every one of them.

Lage: They're all put into dollar value, recreation, wilderness...

Torheim: That's where it becomes difficult and probably always will be. The outputs for timber and for grazing are finite and easy to compute, easy to identify. But what about recreation, dispersed recreation? How are you going to evaluate that--number of visitors in the wilderness, for example? The wilderness doesn't even have to be a wilderness. Is that a measure? Wildlife habitat? How do you put a dollar value? A lot of these unit measurements are still being developed through research.

Lage: Is the public involved in those determinations, like how do we judge the value of the wilderness?

Torheim: Oh my, yes, I should say so. The Wilderness Society and the Sierra Club are clear up to their necks in this. We rely heavily on the public. The public is very much in the Forest Service's business, and I think this is terribly healthy. It's working very well, especially now that Forest Service managers have become very comfortable with dealing with the public. I don't mean comfortable meaning no conflict; I mean comfortable in the manager's ability to deal with the conflicts that naturally emanate from different interest groups.

Lage: Was that a difficult process, having them become comfortable?

Torheim: Oh my, it was terrible.

Lage: Do you think they are comfortable now?

Torheim: Oh, yes. I mean comfortable with their ability to carry it out. Conflict I wouldn't say is ever comfortable, but conflict has become a way of doing business. In fact, you'll find now managers are even inviting conflict and stimulating conflict. Now, I don't mean disruptive conflicts. I mean differences in points of view that really result in a better decision. Some of our managers even go out and invite conflict by structuring public inputs so people of different points of view can get together. So this is a pretty mature way.

Team Management, Conflict or Consensus?

Lage: Could this give the expert a little more power also? If you have conflicting interests balancing off against each other, does the expert get to come in with his point of view?

Torheim: Yes, this is a dilemma. This is the modern management dilemma in the Forest Service, if I understand what you're talking about. Maybe we could digress a little bit here. I mentioned earlier that the forester had an education and experience to do everything in managing resources, but as the job became more complex and the stakes became higher, and the Congress appropriated dollars for higher quality of work, we began to employ other professions. Then the ranger's job became ultimately more complex, to take the input from these experts and come up with a consensus to result in a plan of action.

Torheim: As long as there were just a few—for example, I told you about the conflict between the engineer and the forester--

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Torheim: --two people can usually resolve then what course of action to take, particularly, say, on a timber sale for a road location, albeit sometimes the engineer would, with his support from the supervisor's office, win out.

Let's compare that with the ranger district later on. It had a wildlife biologist, a soil scientist, and a landscape architect. Well, let's just use those for examples. Now, all of them participate as a team to put together a timber sale or any other activity that has an impact on the land. Their job is to come together with a consensus for a plan of action. But when you think about it, these expert specialists came from different backgrounds of education. They didn't learn in their professional discipline leading to a baccalaureate degree in school, that they had to compromise, as they would call it, their professional opinion. They learned quite the opposite--to stick with their professional opinion and with great conviction see that it's carried out.

The problem with resource management is, though, being very complex, certain trade-offs have to be made. You can't manage, for example, a timber sale strictly to get the maximum wildlife because you probably couldn't even build a road to it to get the timber out. There has to be a consensus of opinion that optimizes

Torheim: all of those activities. So you have these people working together on the ranger's staff, men and women as a team, and they'll not come to a decision because they have all of these minority reports. Well, the ranger sends them back. He can't arbitrate between all of these, so he sends them back. Then they come up with a consensus finally, and it becomes a report. But then some of them will go outside of the organization and lobby in the public arena quietly for their own position, usually through an interest group that really supports the maximizing of their particular resource.

Lage: So you have people from within the organization?

Torheim: Yes, this is very foreign in the Forest Service, but it's understandable when you get a mix of people like this. I think it's the way society is heading too in many ways with more and more specialists; these people with great conviction really believe it's unethical to compromise, as they say, their professional judgment. They honestly feel that this plan is going off in the wrong direction.

So think of the dilemma, then, of the manager trying to get all of this together and then dealing with the conflict that results generated by some of his own people. I don't mean to say that this happens all the time, but there's enough of this activity around that it's something every ranger with any kind of business activity at all has to deal with periodically. That's quite different, you see, from what it used to be.

Lage: Is that officially forbidden in the organization, this going outside and lobbying?

Torheim: Well, what can you do?

Lage: Is it frowned upon?

Torheim: Certainly. It's an anti-organizational activity, but it's not illegal. It's not something you can fire somebody for unless they're overt about it. The way society is today there is some condoning of that. It's usually looked on by some as whistle blowing. So the interest group that supports this minority opinion would fight to the bitter end to keep this employee from being fired, naturally. So that usually never becomes an issue. I don't want to convey the idea that this is happening all over the place, and it's all disruptive. I don't mean that at all. But the point I'm trying to make is that there has to be a change, and it's taking place slowly.

The first thing that has to change is (and I used to advise college deans that were in the resources field), they've got to begin at the college level to educate the specialists that they may wind up (whether it's private or public) in team types of activity because that's the way the world is put together today, with experts, and that they will have to come to a consensus if they want to work in an organization. At the same time, I used to encourage our forest supervisors and district rangers to learn how to manage this. Some would just draw the curtain and blow. They have to anticipate it. They have to give the specialists some time to learn the process, and they themselves have to learn about the process of team activity, that it is difficult.

Learning the Art of Personnel Management

Torheim: Now, this is just 180 degrees away from where the Forest Service used to be. It used to be that would be completely not tolerated. In fact, the ranger would just not be a ranger if he could not really run the rig, so to speak, and keep his people in line.

Lage: So there's a lot more people-managing?

Torheim: Yes, it's tougher now and much more complex. But again, it illustrates that the art of management has to be relearned, and there has to be a continuing kind of learning about this as things crop up.

Lage: Is the ranger given specific training, personnel training in managing his staff?

Torheim: Yes, more so than it used to be. It used to be just learned by experience. I expect maybe that's still the most learning that takes place, except a lot of this is on-the-job training and also there are a lot of continuing education opportunities and learning by experience and, oh, some of them come now with pretty broad backgrounds from universities more than technical training. But it's mostly learned really on the job.

Lage: Is the ranger's job now a higher level job than it was?

Torheim: Oh, yes.

Lage: You must work many years before you become a ranger now.

Torheim: That varies some. I worked five years and became a ranger. But my grade level was GS-9. That's the entrance level for some people today. If they have a master's degree it can be.

Lage: How long would the average person work today before becoming a ranger?

Torheim: Probably ten years. There are exceptions all over the map, but I'd say probably ten years. Now, that's not true in some ranger districts in the Rocky Mountains and the Southwest where they still have a rather low level of activity in terms of people and resources. There probably are many people making ranger in five years there, but they would have to move off to other places before they could really move on to a higher grade level. Now we have three levels of ranger depending on the work load--grade 11, 12, and 13.

Lage: You'd almost have to.

Torheim: Yes, that's how the change has taken place.

Lage: If you have several experts working under you, and you are coordinating their activity.

Torheim: When I started, we had two kinds of rangers. We had what we called the subprofessional ranger and a professional ranger. You see, when a lot of the folks came into the Forest Service, starting in the very beginning days of the Forest Service and up into the thirties, they didn't have to be college graduates to get a sub-professional assignment that might even lead to ranger. So we had two kinds. We had the SPs and the Ps. Many of these sub-professionals, right after World War II, were converted to professional positions.

Lage: Would this be the time to talk in any more detail about computers and their use in land planning? How the various computer programs are devised and how they are accepted?

Torheim: I think I'd like to talk about computers from the point of view of management and not limit it to land-use planning. There's kind of a story chapter on computers whenever that would be appropriate. We'll talk about the management of information systems, which includes computers.

Washington Office Guidance for Land Management

Lage: I'm looking forward to that. To finish up our discussion about land planning, what has been the guidance on these plans from the Washington office? I read a very interesting pamphlet that the GAO put out (I think it was in '78)* where they analyze the progress the Forest Service had made toward fulfilling the RPA. They were a little critical of the fact that the land planning effort seemed to be going off in all different directions, and there wasn't enough guidance. Now, would you agree with that?

Torheim: Oh yes, very much. In my judgment I don't think that on a national basis we really got hold of this as fast as we should. Things were moving so rapidly though, it's not hard to understand. As I

*General Accounting Office, The National Forest--Better Planning Needed to Improve Resource Management, 1978.

Torheim: described earlier, these changes in planning techniques and the change from multiple-use planning to land management planning were born of frustration at the field level, that the multiple-use planning process was not working like it should. So the Forest Service being very decentralized, of course, is quite capable of beginning experimentation without any blessing from on high as long as you stay within your budget, and a complex unit can do that. Now, there is informal communication that takes place so this isn't done in secret, but it just doesn't have holy water on it. It isn't in the manual is what I'm saying. So usually, through the informal process and oftentimes formalized by letter if not in the manual, the unit or region or forest would be given license to experiment and try it out. And that's pretty good. I think if an organization isn't willing to experiment, then change never does come about, any kind of meaningful change that the outfit will accept.

Uniform Work Planning: Imposed from Above

Torheim: In the 1960s we had a system called "uniform work planning." It was developed at the top levels of the Forest Service and passed down to be implemented. It was a new way of doing work planning as compared to the old way which I guess we'll talk about a little later. I'll just use this illustratively.

Lage: Give me a date on it also.

Torheim: I'm just getting the date--1959. I was just leaving the ranger district and going to the staff job on the Rogue River. My district at Quinalt was one of the experimental districts, but again this was formalized experimental (top-down). I remember I couldn't move to the Rogue River until I completed that uniform work planning. The next year then I was in a staff role and it was SOP--standard operation procedure.

But by golly, through the years of uniform work planning, which weren't too many, it was changed every year. It was never accepted in the field. It was done by rote simply as part of the budget and allocation process and put in the drawer and left.

Lage: It didn't relate to the program decision?

Torheim: No, because you could go ahead anyway, and cuff records were kept. The field didn't see that it was useful to the carrying out of their business, although I am sure it was useful at higher levels perhaps for budget development; I would guess it could be. So I think probably in that experience (and I don't know this for sure, but I think so) enough people were dissatisfied that it conveyed the idea that really things ought to start from the bottom, up.

Land Planning: Experimentation in the Field

Torheim: Also, and I'm sure we'll talk about this later, we began to get behavioral science inputs into our techniques of management. We probably overdid it a little bit because one of the principles there is participative type of management--to let the user be

Torheim: involved in the development. As often happens when you take on a new technique, you go too far.

Putting this together (and I'm making some assumptions here), there was great license given informally and to some degree formally, for regions and forests to experiment with land management planning because it was agreed that multiple-use planning was not working. So as a result, Region 1 getting started the first, eager, had hundreds of units. Some of our national forests in Region 1 had as many as fifty or sixty units or more. Just think how long that would take, small units of land.

Lage: Each one developing a plan?

Torheim: Each one developing a plan, a full blown plan for that.

Lage: This is what time period?

Torheim: This is in the early seventies, '74, '73 and on into '76, until the National Forest Management Act came along. Other regions, like Region 6 here, had not that many but quite a few and then elected on their own to consolidate because they saw that it wasn't working. Then the method of the technology of planning was not well developed. So there was experimentation in this and this was done differently all over the place.

Lage: A different computer program?

Torheim: Oh, yes, different computer programs with high ownership in your own methodology--the not-invented-here complex, the NIH factor, all that, all the things that organizations characteristically go through when they're free to do their own thing and then later

Torheim: find they have to put it together. They have a high sense of ownership because they put so much into it of their own creativity, and that's something that you can't pull back too well. So this is the way it went, and that's why I mentioned earlier that I think the passage of the National Forest Management Act and RPA and the regulations, the need to get some uniformity, were things that people accepted because nobody liked this lack of uniformity. That's why the forests, including the Lolo in Region 1 that I mentioned, were selected with the regional foresters, the forest supervisors, and the chief together, to be formally the first forests. It was under the guidance of the Washington office to put it together.

Lage: And serve as an example.

Torheim: You bet, and this was done nationally. All these forests were doing their first plan, but it was coordinated and communicated between regions.

Lage: When you moved from Region 6 to Region 1, did you notice a big change?

Torheim: Oh yes, oh yes. We had some changes to make, some of which were already underway.

Lage: What types of differences were there in the land planning?

Torheim: Region 1 having gotten the first start had all of the small unit plans. The supervisors were not terribly satisfied with it, but they had gone so far they were reluctant to change. Some forests that hadn't gotten much of a start didn't have any trouble. But

Torheim: what we did was to consolidate units drastically. That was started before I got there. Then, interestingly enough, we had two forests that all this time unit planning was being done, were doing a forest plan. This was the Beaver Head National Forest in Montana and the Willamette National Forest in Oregon. This was done, formally approved by the chief as an experiment, while unit planning was going on to see how the forest plan might work out. Concurrently with this, the timber management plan was being done on the forest at the same time. So there was, you see, a little background even before the requirement in the National Forest Management Act. But this was done by design.

The Plan and Program Decisions in the Field

Lage: How did these elaborate land management plans relate to the decisions that the rangers are going to make, the program decisions in the field?

Torheim: They relate very well, and when they're completed probably even better. Even the multiple-use plan did to that extent, although as the resource management job became more complex it became less useful, but the multiple-use plan did that too. It relates when it comes to doing an activity on the ground and I'll keep referring to timber management not because that's the only activity of the Forest Service, but because probably it has the most profound effect on all of the resources, and it does take the coordination of all of the resources, and because it's in a short enough period of time

Torheim: that you can see the results. But it doesn't mean the other resources aren't involved too.

The timber management plan and all of the other resource plans now, under this new system, need to be subordinated to the land management plan. In other words, the land management plan makes the allocation, and then the resource plan is carried out. But of course, realistically it doesn't happen that way entirely because the timber management plan, having been generated over time, contributes to the decisions made in the land allocations, so they're together. But eventually when that first plan is done, then the resource plans will reflect back on the land management plan.

Lage: Will the resource plans still be long term?

Torheim: Yes.

Lage: Will they cover the same time periods as the land management plan?

Torheim: Yes, right, and they will be part of the land management plan. That's the important thing. They'll be chapters of it so to speak, yes. But this initial goal, you see, has to put the two together so it's not quite a classic model yet, but that's the way it will be. In fact, that's the way it is working. A timber sale, for example, would be guided by the timber management plan. The timber management plan, though, was guided by the land management plan which allocated this particular area for timber use, but also speaks to the other resources and how they too

Torheim: should be allocated, so that the trade-off that I talked about earlier are made in that timber sale to optimize all of the resources according to the plan. Or sometimes one resource is maximized if it's a critical resource.

So the land management plan then really guides it. Now, another interesting feature is that the public who had a large hand in this is going to be looking over the manager's shoulder to be sure it's carried out that way, and I think that's very healthy. There's a lot at stake.

Lage: So how might the district ranger's role be changed or altered in some way by the land management process? Does the district ranger then have less discretion than he used to in managing the district?

Torheim: Yes, less independent, unthought-out discretion because the plan is a forest plan. But the ranger, if it's done right, had a hand in its preparation. He didn't actually prepare it, because that's the supervisor's and staff's job, but you can't do it without the ranger's participation because he has the most intimate knowledge of the land and he has to make inputs at both the inventory stage and trade-off stage when it comes to optimizing various resources. So he should, if it's done right, regard it as his plan because he had a hand in putting it together.

Now I think, just people being people, this might not always come out in the classical sense because certainly I think I would have to expect that there would be some rangers who would be

Torheim: somewhat less interested in a plan than some others, and there might be some forests that would involve the rangers more than some other forests. You know all the human foibles that you get into in organizations. But that's the way it's supposed to work. I know in putting together the Lolo plan that the entire forest was very much involved and the rangers indeed did feel ownership of that plan to carry it out.

Allocation and Funding under the RPA

Torheim: The real proof of the pudding though is in the allocation and funding process. If the allocation of funds out of the budget doesn't come somewhat close to the plan or at least follow the plan in the trade-offs between resources, there's a danger it seems to me then that cynicism will develop in the field. The cynicism would result in "the plan is just a paper plan." I hope that doesn't happen. I think with the RPA it's not so likely to happen.

Lage: If it happens is it because Congress doesn't come through with funding?

Torheim: We can't lay it all on the Congress because the Congress in recent years has been more generous than the administrations have been. The Congress has seen fit in the last several years to appropriate more dollars for national forest management than the administration has put in the budget.

- Lage: When the plans are being developed, what attention is paid to the promise of getting them funded? Do you have an eye to that?
- Torheim: Yes, the RPA is the guide for that, and it's five years out. The president adopts the RPA and presents it to the Congress, and that's a five-year program. So that's really the benefit of the RPA. It used to be in annual increments.
- Lage: When you're doing the land management plan, you're going to have some idea of what funding you'll have?
- Torheim: Yes, that's correct. Yes, integrated into it. The RPA is integrated into that. That's an important part of it.

The Budgeting and Allocation Process, Pre-1970

- Torheim: Perhaps, Ann, this would be a good time to describe the old process of budgeting, do you think, as compared to what we just talked about?
- Lage: Yes, I think it fits right into it.
- Torheim: It's quite different. It's tremendously different. When I was on the ranger district (and this is typical). This would take us from the very early days of the Forest Service up to the end of the sixties, the budgeting and allocation process was essentially the same. The ranger really had nothing to do with it formally. Now, informally the ranger would communicate (and I'll elaborate on that a little bit), the basis for getting work done on the ground was through what we called a "project work inventory."

Torheim: This was an inventory of jobs to be done, all kinds of jobs on the national forest as monies became available to do them.

The difficulty was prioritizing, or to translate them into budget requests. This was done, but the ranger was really never much involved in that. That wasn't the ranger's role. So the staff then played an important part beginning at the forest level to put together budget proposals, but really the job was done mostly at the Washington office and the regional office. It was done by staff who then were line/staff. As I mentioned before, they had directive authority for their particular activity like fire, timber, wildlife, range and so forth.

Each ranger district had a work load analysis which was used to budget the basic management activities on the district. This was called the "base funding level." The work load analysis was updated periodically. Project activities, such as recreation facilities construction, range revegetation, and timber sales were summarized in the project work inventory. These were budgeted on an annual basis. The region and forest line/staff had great influence on the budgeting and allocation of these "project" funds.

The problem that the ranger faced was that each year, at the beginning of the fiscal year, he'd get dollars, and they'd all be labeled as to what they could be used for. His job then was to make those dollars work. Now, they would vary from year to year sometimes and wouldn't always equate with the work force that he had, and there was great trouble financing the work force. Many

Torheim: people had to be laid off in the winter or work on other activities. The ranger was cutting and fitting, and then his goals were determined by the dollars that came down to him. He didn't have goals that were financed and a contract made as it is today through a plan.

Power of the Staff in Allocating Funds

Torheim: So here's where the problem came in. A good ranger would negotiate informally with staff people in the supervisor's office. He would convince through deed mostly and guile if he didn't do it entirely, that the dollars allocated to the district were really producing a lot of timber sales. My unit cost was low, and my quality was high, and so really if the forest supervisor wants to spend his bucks wisely it should be on my district. He should fund me with the full amount that I think I need.

Lage: So you're in competition with your fellow rangers.

Torheim: I'm in competition, right, but the staff is the key. He's the guy that doles out the money. When it finally comes, it comes out of the appropriation and was dealt out all down the line. Then it was up to the supervisor through his staff to allocate it to the districts, and that's when you got your bucks.

Lage: But each staff member had a particular interest. Is that right?

Torheim: Yes, but the monies came that way. You see, the monies still do [come] from the Congress with labels on them--you know, fire money, wildlife money, timber money, recreation money and so forth.

Lage: Then each staff person could give so much fire money to each district?

Torheim: Yes, right.

Lage: That sounds like a lot of politicking.

Torheim: It was.

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Torheim: The ranger then, of course, had the duty to get along with the staff person, but he also had the duty to get a high quality job done, at least cost on the ground. I mean you couldn't just talk your way into getting dollars. So there was a lot of effort made to do a good job, and particularly to convince the staff. Now, sometimes interpersonal relationships, in spite of the quality you might be accomplishing, would interfere, as it does in human endeavor, so really you didn't want to get all crossed up with the staff person because he might then get negative vibrations about you and might not really agree with you that the quality is all that good. So negotiation on the same basis was done between the supervisor, but through his staff with counterparts (the assistant regional foresters in the regional office) and they with the Washington people. So the staff people, from the Washington level down through the forest, were quite powerful, and there was a lot of job satisfaction to being a staff person that way because you were expert in the field, and you helped the ranger, but you also had a little power which you lost [in the seventies] when you were no longer line, that you had as a director of activities in a staff position.

Torheim: I don't mean to caricaturize this really, but that's just the way that it worked. Well, it worked quite well actually as far as getting the job done because the staff people got there because they were experts. Really it was not too hard then for a ranger to move into a staff job with that kind of a role because he can kind of play ranger for six districts instead of one, although there is a lot of conflict that goes with this. But he could do it; he had the authority.

Lage: It sounds like you people do have a good background in conflict resolutions!

Torheim: Oh yes, and what I don't want to do is caricaturize this. I'm emphasizing this only because that ingredient of management is not written about much but really is what makes the rig run. It also keeps people's interest up, instills loyalty and has a lot of good features. But then as the world around us became more complicated, this kind of thing became more disruptive. It got too big. When you have a small number of people and a small output, you could live with this. But gosh, you couldn't live with this system very well when you had big outputs and lots of people to finance. It's just an awful job.

Motivation for Forest Service Reorganization

Torheim: So tomorrow I'm sure we'll get to talk more about reorganization, but let me introduce it this way. One of the motivating forces for reorganization was to change this staff role from line/staff

Torheim: to staff, and take the directive role out of staff, but put the responsibility then with the line more directly. One of the necessities was to devise a new budgeting system and a new work planning system that would get away from this negotiation between line and staff.

Lage: So the staff of the supervisor no longer could allocate the money to the rangers.

Torheim: No.

Lage: And the supervisor himself allocated it?

Torheim: Yes, but it's done now through a system, a planning-budgeting-programming system, and that's the difference.

Lage: What effect did that have on the morale of the organization?

Torheim: Well, it affected a lot of staff people very negatively. They thought that the really important features of their job were cut out. The assistant regional forester for fire management became a director of fire management. Some other changes took place, too, in that their roles were described as not being directive anymore. So they felt, "Well, god, the forest supervisor can do any damn thing he wants, and all he'll do is he'll just throw quality out of the window in favor of production and by golly, the regional forester won't even know what's happening." Well, it didn't really.

Lage: What responsibility did they have then?

Torheim: No, let's take an example, the fire one again. The fire management director used to be able to tell the forest supervisor, to direct him to do this, to do that. The fire management director would

Torheim: also allocate the dollars to the forest supervisor. The new role was that he could not direct the supervisor to do anything. The regional forester and deputies could direct. The budgeting and the fund allocation was done through the regional forester and deputies and was done through the system that we'll talk about tomorrow.

Now, his input was that of an expert. You know the realities of life are that a supervisor and the people on the ground who wanted to do the best quality would certainly do nothing to alienate that staff man and prevent him from coming out, he and his staff, to help them do a good job because that's where the expertise lies.

Some people perhaps overplayed this directive versus non-directive role and that's been sorted out. People are more comfortable in their roles now than they used to be, I'm sure. But for the transition period—where one day a person was assistant regional forester for fire management and the next day he was director of fire management and seemingly didn't have much of this authority anymore but only really functioned as an expert to the forest and, of course, the staff person to carry out the regional forester's policy, for instance--some people were in their own head really dramatizing it, and so it took away a lot of job satisfaction. This occurred at the Washington level as well.

Lage: They had the same change then?

Torheim: Yes, they had the same change.

Lage: Was this related to putting extra deputies in?

Torheim: Yes, it was all part of a massive reorganization in the Forest Service from top to bottom. But this is a budget example only. Tomorrow we can talk about some of the other things around reorganization.

Lage: And more about how the new budget--

Torheim: Yes, and the new system. We need to talk about how the new system works.

Lage: Okay, shall we stop here?

Torheim: Yes, okay.

IV MANAGERIAL METHODS AND STYLES IN THE FOREST SERVICE

[Interview 2: March 14, 1980]##

Hierarchical Structure, Authoritarian Management, 1920-1950s

Lage: We were going to start out this morning talking about managerial styles and how they've changed.

Torheim: Okay, let's see how we can handle this. Oh, a bit of historical perspective first of all that even precedes my interest in the Forest Service. The Forest Service in the twenties, right after World War I, adopted a lot of the style and organizational structure of the military. There was good reason for this. Many of the folks in the Forest Service who were in high management executive positions served in the military during World War I. Many of them schooled in forestry or engineering had served in the military. So their management styles were already well-honed to the military experience. Also, the type of work the Forest Service did, and especially fire control, lent itself well to the military style of organization and management techniques.

So although not patterned directly, there was a lot of the military influence on the development of the managerial systems and styles during the twenties.

Lage: Did you have career officers coming in?

Torheim: No, they were people with experiences like my own in World War II, who were foresters and had been in the Forest Service and then went off to war and came back. Others had a military experience and went to school after World War I. But significantly, they were in the policy making positions and the Forest Service was very young yet, you see, and so a style and techniques were still being put together. Even the Forest Service uniform to begin with was a military type of uniform.

Pioneer in Scientific Management

Torheim: Then along about the beginning of the thirties and into the thirties, the Forest Service executives began to adopt early for a government agency, it seems to me, some of the scientific management techniques that were developed even prior to World War I and during the twenties. They fit well with the Forest Service mission and with the early military type of organization I spoke about.

The Forest Service even then in the thirties pioneered (for government anyway) much of the management techniques, and they were things like directive systems (formal), work load measurement, and planning that emanated from that, project work inventories and that sort of thing. The Forest Service was very decentralized early in the game, so this worked well too. So the Forest Service in many ways, for the government at least, did some pioneer application of scientific management principles.

Torheim: Now then, these principles really were built on a hierarchical style of management where you had goals to achieve and people certainly needed to put their personal goals and their organizational goals together. Authoritarian type of management was very acceptable. The line and the staff, which came from the military, really could function that way to get work done at the lowest level through policy established at the highest level, through quick communication. It worked quite well.

The type of people that came into the Forest Service fit this too. A lot of them were woods people and hard-working people, who put in long hours and had a dedication to the job and the land, and weren't in it for money. So it was a highly structured organization. Managers, by today's standards I would say, were rather authoritarian. I don't mean that's a negative, but that was perfect for the times.

Then the CCC, the Civilian Conservation Corps, came into being about this same time. So that made the Forest Service a much larger organization very suddenly. Much of the CCC program was conducted on the national forests, and it was handled by the military. So there was a big rush of work to do with all of this manpower, and the Forest Service was well prepared to do that. So this simply enhanced the need for this kind of management and the very structured way of communicating, and the directive system being put together, and the manual, and how we do things.

Autonomy, within Set Limits

Torheim: Yet there was a lot of personal responsibility given in the decentralized organization to the person in the field. So there was a lot of job satisfaction, even with authoritarian-type management.

Lage: It seems almost in conflict. I'm sure it wasn't in reality.

Torheim: Not if people accept this, that's fine.

Lage: Authoritarian, and yet a lot of autonomy at the same time.

Torheim: Oh yes, right, autonomy as far as making decisions in the field within the structure of the manual policy. Then the inspection system kept that thing glued together, a very structured inspection system. That inspection system was used not only to check out quality and quantity of activity, but it also was kind of a coaching tool. It wasn't just an audit. It was used for coaching and for training people certainly, and it worked very well. The CCC program also brought about quite a structured approach to training and the Forest Service mission, especially in fire control which required (and still does) a very military type of organization to respond immediately to the emergency helped [reinforce this approach]. The Forest Service culture was much influenced by the fire job in these years because most of the job was protection of the national forests.

So it was all very fine, very satisfying. This increase of activity in the CCC days of the thirties caused forestry schools to blossom and bloom because there was great demand for foresters.

Torheim: So the Forest Service grew quite rapidly in that period between 1932 and 1942. I came on the scene then, as I mentioned, about 1940 and '41 and '42, in that period.

Postwar Changes

Torheim: Then my perceptions and those of my peers of what kind of management the Forest Service had is where I pick up the thread. It was obvious that these were dedicated, hard-working men, these forest supervisors and district rangers, that they brooked no nonsense. You either toed the line or you got out, and that was okay. You knew exactly where you stood.

After World War II then, most of us rejected the military life. Of course, the whole society was that way. We got our discharge, we got out, we went back to school, we finished, we got out and went to work. And then we began to wonder a little bit about this style of management. I know I did, and I know my peers did (the new junior foresters that were coming into the outfit). We began to--I don't say we didn't accept it. We did, but we began to wonder really if that's the way it should be. For example, if a district ranger failed on a forest fire in some way--made some gross management error--he was really forced to leave the service in many cases.

Lage: I didn't realize it was that severe.

Torheim: Yes, I don't mean he was fired summarily because the civil service system provided due process. But they could make it so uncomfortable that usually a man would seek other employment, or sometimes if he didn't he'd be relegated to a rather disagreeable assignment. We observed this in Region 6. I know we had certain Siberias, so to speak, where rangers would be moved, usually because they failed on a fire.

On the other hand, if you succeeded in the fire game you moved very rapidly through the outfit.

Lage: So fire control really dominated--

Torheim: Very much, very much. There was a period in the thirties and into the forties when many of the Forest Service executives earned their spurs so to speak early in their careers in fire fighting and fire management. It's a very difficult and demanding job and a very fine way to learn how to manage people and programs.

Lage: In that style though.

Torheim: In that style, yes, that's the difference. There were all kinds of managers, but generally the theme was very authoritarian. In other words, they demanded that people do things the way they should and the way that they wanted them to do. The supervisor was really the person who called the shots.

Lage: Is this the forest supervisor you're speaking of.

Torheim: Yes, when I say supervisor I mean forest supervisor.

Lage: Did the ranger himself follow this type of style?

Torheim: Yes, that's right. But of course, there were a few who didn't and there was always some conflict. Those rangers that really had trouble with that kind of style, who wanted to play it a little looser or use more of their imagination or depart from the manual really got in trouble very quickly.

"The Way the Rig Ran," an Illustration

Torheim: Let me give you an example with some names. This is not an aberration either because I'm sure there were lots of similar stories like this. There was a ranger at Naches on the Snoqualmie who preceded me. His name was Horace Cooper. Coop was a well-loved ranger by other rangers and all, but forest supervisors had an awfully hard time with Coop because he didn't fit this mold. He was a fellow who really regarded the manual as something that guided his activity, but his view of the manual was that if it didn't say in the manual "thou shalt not," it was okay. So he read the manual in quite a different way from most people. However, his objective was to do a good job of management and he did on the ground.

Lage: How old a man was he? Was he in your age group?

Torheim: No, he's half a generation ahead of me. Coop lives here in Portland. I suppose he's about seventy today. We all know him well and love him dearly. He's just a great person, and he tells these stories on himself, by the way, so I don't feel uncomfortable about telling this. But it's illustrative of management style.

Torheim: This was about 1950, I don't know the exact date, but I was a young forester on the North Bend district so we all knew this story, and Coop used to tell it. The forest supervisor was a man named Herb Plumb who came along in the Forest Service early in the game before World War I. He was typical of many forest supervisors. He retired about 1952 or '53 or somewhere in there and is now dead.

Well, Herb ran a tight ship. He had been on other national forests and in the RO [Regional Office]. He was a fine man, but he was two different personalities. Off the job he was a very fine social person and just a real fine human being. On the job he was really a martinet. He ran a tight ship. He and Coop had opposite personalities, so we had trouble!

The rangers' grades for a long time were P-2 on many districts. P-1 ("P" means professional) was the entrance grade for professionals and P-2 was ranger. As the work load increased after World War II though, the classification of some of these jobs caused them to go up. So some ranger districts became P-3. The Naches district being a large district rated a P-3. So one day Herb Plumb drove over to Naches, and he had in his pocket Cooper's P-3 promotion. He got to Coop's office (which later became mine), and it looked across the ranger station compound to the ranger's house. Herb Plumb walked into the office, greeted Coop, and exchanged a little small talk. Then he looked out the window, and he saw a new breezeway had been constructed between the house and the garage, which was separate. Now, this is in country that's twenty below zero and four feet of snow for about four months!

Torheim: So he said to Coop, "Coop, did you build that breezeway?" Coop said, "Yes, I built that breezeway." Herb said, "I didn't approve of that." Now, think about that! Today a forest supervisor wouldn't know one way or other whether a ranger was building a breezeway, but that's the way it was. Herb, like many of his peers at that time, knew every facet of every job on the ranger district. He spent a lot of time in the field. Of course, you have to put this in the context of Coop being a maverick and probably Herb also held a rather tight rein on his use of funds.

So then they got into a discussion of no approval and what kind of funds did you use and that sort of thing. It turned out that Coop was in the soup one more time with Herb Plumb. So Herb took the promotion out of his briefcase and showed it to Coop, tore it to pieces and threw it in the wastebasket, and Coop never got his P-3 until some time later.

That's illustrative of that style of management. Coop just didn't follow the processes properly. I'm sure he did a good job with the breezeway because we lived in the house later on, and you could walk, even when the snow was quite deep, from the woodshed garage to the house. [laughs] But there are lots of stories around like this, and if you talk to other people, you will find other national forests had the same kind of management style and behavior and the strict adherence to manual instructions and these same kinds of things. So that was the way the rig ran.

Torheim: Now then, as these folks that had been forest supervisors and the like during the twenties and thirties retired, then the Forest Service's new managers began to change. That's because times had changed. Younger people coming up, and many of them having been in the war, didn't ascribe to that kind of management. So there was evolution in a way from the authoritarian-type of management to, oh, more of a humanistic I would say [type]. Some of them, as you typically find, some of them went over the brink a little bit and got, as a reaction to authoritarian management, a little too humanistic--some of us thought anyway, if that's possible. But really there was a mix during the fifties because so many of the scientific management type of people and some of the newer people were all kind of mixed together. This was the state of affairs until the sixties really.

At the same time, the Forest Service really stuck with the manual and the directive system, and they still do. The use of work load measurement was refined. Uniform work planning came into being. These were really merely extensions of scientific management principles with humanistics kind of built into the mix, which meant that the ranger began to participate a little more with the supervisor in planning together instead of being directed from on high.

The Work Planning System in the Field

- Lage: Do you want to say more about how the work load analysis and the planning system worked, from the viewpoint of the field?
- Torheim: Yes, I'll try that. I probably don't remember all of the details as much as those who have studied it more. The work planning system--first of all, you got your fund allocations and then the ranger and his staff would put together an annual program of work based on the budget and the allocation of funds, and it was in much detail. We had ledger-type forms to use. So these were put together and became the gross work planning for the year. Now, these were backed up by project work plans, so the detail was there.
- Lage: How did they relate to these longer range functional plans?
- Torheim: Not very closely because the fund allocation drove the whole system, and that was an annual thing. Sometimes it went up and down like a yoyo.
- Lage: So the other functional programs that we talked about were more like dreams?
- Torheim: Well, they were wish lists, yes. But they guided the activity. We didn't stray from those, but we only did the increments of those plans which the funding permitted and it would vary.
- Lage: So they were long-range goals which may or may not be worked towards, depending on the budget?
- Torheim: Yes, if you didn't make it this year on your trail construction program, you hoped to get money next year and get a little farther. Sometimes you kept slipping back, which we did in

Torheim: campground activity. Campground improvements were built in the CCC days. We didn't get the money to maintain them, and this is still a problem, by the way.

It was very structured, but worked quite well I must say. The project work inventory that each ranger district had was a list of things to be done that was updated periodically. So you had lots of things to dip into that were real and you could cost them out. Then the work plan for the year was put together and all of your people were funded. Many of them were only funded for part of the year and only worked part of the year. We had lots of seasonal employees.

Then that was translated into monthly work plans. We sat down--the ranger and his people--each month and made a monthly work plan by day, everyday--what you were going to do everyday--and out of what fund you were going to work and what you were going to accomplish. Then you'd have a contract so to speak with the forest supervisor. The staff, of course, would join in too in the supervisor's office. But that was your contract and at the end of the month you went down through it with your people, and you checked off in red what you accomplished and what you didn't, and you made a new plan and picked up those things or some things would cancel out or change or you had a fire and you had to delay the whole thing and do it all over. But it was done by days.

Phasing Out the Diary

Torheim: Then for many years, Forest Service employees kept daily diaries. The daily diary served a number of purposes. For one thing, it was used to account for your time on your work plan, to account for your time on the payroll sheet, and to let the supervisor and the staff know, if you just sent the diary in every month, what you did. Then it was used for future work planning as well—how long does it take to do a job? It also served as a useful record and reminder, particularly for rangers in their contacts with permittees, if there is a dispute or something later on, or if you want to recall something.

So all of us, or most of us, made diaries for many years. Many of these are in the archives yet today. They form a useful source of history.

Lage: Would you say that would be an accurate historical record? Did people really put down exactly what they did?

Torheim: That would vary with the individual. Some people were very creative about their diary writing.

Lage: [laughs] I like your terminology.

Torheim: Yes, some people didn't like to write diaries. I remember one fellow who had his clerk write his diary all the time. He would tell the clerk periodically what he did.

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Torheim: But generally the diary was used appropriately. I know in my own experience, I didn't make lengthy narratives (that wasn't the intent of the diary), but I noted, and I know my colleagues that

Torheim: I worked with did, what we did during the day. We put down the functions account too if that were appropriate.

Lage: Was that well accepted or did people gripe about it?

Torheim: It was well accepted until the fifties again. We began to change, and there was a lot of dissatisfaction about the diary, as we moved along particularly in the fifties and sixties, and finally the diary was abandoned. You know, we'd never think that the diary would be abandoned. But it didn't get abandoned without pressure from the bottom. It got abandoned because it wasn't a useful tool anymore, and we got into a different kind of work planning.

Lage: Was it abandoned along with the work load analysis and other things that it tied in with?

Torheim: Sort of. I probably am a little fuzzy on the history, and it didn't just stop forthwith. It varied. Again, experimentation took place. Most change in the Forest Service begins with experimentation. Only certain individuals were required to keep a diary. Then for a while selected positions just for historical purposes kept the diary. Then finally it was just wiped out completely. By that time, though, there were things to replace it like a little modified budgeting process, more participation up and down the line, a uniform work planning system which was a pretty good one but didn't work because it was developed at the top.

But in a way, this was an evolutionary period between the more directive type of management and the--I use the word "authoritarian" for lack of a better word--but more directive

Torheim: really is what I'm talking about. I don't mean authoritarian in a negative context at all. It was simply that the person who was forest supervisor or ranger had a lot of power and exercised it overall, I'd say, wisely.

Participative Management and Management by Objectives

Torheim: There was an evolution then, you see, between this type of work planning I was talking about and the present system which is related to land management planning and is much more complex and it's computer-based.

Lage: Can we get into a description of that?

Torheim: Yes, I probably won't go into it in detail because it is quite detailed, but let's compare it with where we were.

Lage: Is that management by objectives?

Torheim: Yes, it's all tied together. The system is still being perfected, of course. But generally speaking, the budget is now put together three years out, and it's even more than that. It just gets a little less accurate as you move out, but it's tied to the Resources Planning Act, which is a five-year plan.

In land management planning the ability of the land to produce or provide services is considered. The interesting difference though is that the ranger and the forest supervisor participate together with their staffs in the formulation of these plans and budgets out over time, based on objectives that are also jointly agreed on up and down the line, and related to the RPA.

Torheim: The Congress, having passed the RPA, has a certain commitment to fund at these levels, that didn't exist before. There is still conflict between the executive branch and the legislative branch though when it comes to trying to beat inflation and prioritizing this. At any rate, it's quite different in that respect.

Then the ranger--having participated (and it's updated annually) in the objectives to be accomplished and the funding required to do that and the people power to accomplish it--has ownership. Then there are no surprises. You get funding estimates that are fairly close to the budgets that were submitted. So you can really plan out ahead instead of just starting from scratch each year.

Now, they always don't turn out exactly that way because priorities aren't always the same at the national level. At any rate, it works quite differently then, so that the ranger indeed, in comparison with the past, can really be participative in the formulation of the budgets which resulted in fund allocation, and then he can expect that over a period of time they'll generally be carried out.

Lage: Does he have any more discretion in how he's going to use the money that year or is it still allocated--

Torheim: He has more discretion. There are certain rules of the game, and most of them are by law and regulation on fund integrity, because it relates to how the Congress appropriates the money. Those rules are well known. But there is more discretion in putting

Torheim: together the budget within those guidelines by far. As compared with the way it used to be, when it was done really at the supervisor's office and at the regional office's level and simply handed to the ranger. He didn't participate formally like he does today. [He] merely competed for funds, as we talked about.

The staff assists the ranger doing that and doesn't direct him. I don't think they play quite as many interpersonal games as there used to be.

Lage: So the ranger before, it sounds as if he did have some power, but it was on the informal level of gamemanship.

Torheim: Well, yes. He didn't think he had power when it came to fund allocation because the staff really had command of that. But that's not true anymore. It's in the line now between the supervisor and the ranger, with much help from the staff. The staff really makes it work. That's the basic difference I'd say.

Lage: Is there a milestone date or approximate time span for these changes to more participative management?

Torheim: Approximately 1965 to the present.

Introducing Behavioral Sciences into Management

Torheim: Now, management styles, of course, have changed, too, to make this possible. Again, they're evolutionary, and they change among people. One of the profound events in my judgment that took place in the Forest Service and made the Forest Service managers able to cope with the rapid change in the social structure in the country

Torheim: and recent legislation was the introduction of behavioral sciences into management. This happened again, as it often does, not in a planned "let's do this" sort of a way, but again through individuals becoming interested, and then the time was right.

I think I can describe that to you because I was a part of that activity. Keep in mind the background again of new people coming into the organization, many having been in the military, the old style of management disappearing and new kinds of people coming into the Forest Service, more than foresters--other disciplines--that's all part of the background.

In 1964, the director of personnel management in Washington was a man named Hy Lyman who had come up through the ranks and had always been interested in management as a science and an art and was interested in the business of management, in addition to having been forest supervisor and ranger and all those sorts of things. So he had a more than usual interest in this subject. (He was director of personnel management.)

The people in personnel at that time in the regions and in the Washington office, were not all personnel types. When I say that I mean professionals with an education and background in personnel. The Forest Service had quite a mix, and I was one of those. They had lots of foresters who had moved over to personnel management [who] really had experiences in the field personally too. Among those there were also some professional personnel people who were being moved into the outfit. They had a greater

Torheim: and deeper knowledge of personnel systems and of human behavior and psychology.

Lage: They came out of the business schools?

Torheim: Right, or they came out of political science or all kinds of places--liberal arts types. So there was this mix. The training arm of the Forest Service was used during this period to effect change. They were kind of a licensed change agent. Now, I say this only in perspective because it didn't seem so at the time, but as I look back now it seems that this was the focal point. That's where the interface took place between people who had technical backgrounds like myself, and people who were coming in new in the outfit from universities and [who] had contact with behavioral sciences.

Lage: When you say "the training arm" was that a certain division?

Torheim: Yes, it's part of personnel management--employee development and training still is there, and most personnel departments have that. The Forest Service was always very strong in training and still is.

The Managerial Grid Training System

Torheim: It just happened that the kind of mix of people that were interested in this happened to be in the right places for something to happen, and it happened this way. Hy Lyman and some of the folks in personnel management, and some of the interested other staff people in Washington went to a managerial grid seminar. This seemed to put all of their latent feelings about organization management into

Torheim: a formal focus in a laboratory setting, highly structured, that they could understand. It seemed like it would surely work well for the Forest Service in these changing times, of trying to get the various disciplines working together (they weren't just foresters anymore), team action, participative management, and it seemed good to them.

They selected a couple of regions who had regional foresters that were known to be people who were also interested in management and experimentation and might be willing to try it out. So they went to Region 1 where Neil Rahm was the regional forester. Neil had always been interested in the business of management. In fact, he was kind of an experimenter himself, and the region was a region that had that kind of culture. So with some help from the Washington office then, Region 1 was going to try out the managerial grid with groups of people and see how that would work.

Regions compete, and so some of the other regions also thought it would be a good idea. I was the chief of the employee development branch in Region 6, and Dan Bulfer was the regional personnel officer. He was an old fire man and trainer and everything else. He didn't like to see Region 1 going off into something he thought was pretty good and not have big Region 6 also have an opportunity to do that. I was new in heading up the training branch, and I kind of felt like Dan did. This looked interesting to me, and we had a group of people in the region who had also been kind of chipping away at old traditions. You can't do this just in the

Torheim: regional office. These were forest supervisors and rangers, and they were all well known to us.

Our regional forester was Herb Stone. Herb was near retirement and had been around a long time. Herb was a very open-minded man who liked to try new things too, so Dan's job, with our staff's help, was to convince Herb that this would be a good idea to experiment with, and he bought it.

Then some other regions here and there got involved too. Some regions thought this was a bunch of junk and just rejected it completely. Anyway, this caught fire. What helped it along, in my judgment too, was the Job Corps that came into the Forest Service's realm of responsibility at exactly the same time. It was a very difficult program for us to manage because it was really a social program. It wasn't like the CCC program. We thought it was going to be. But it was really to permit young men--unemployables--to become employable. It wasn't to get work done in the woods.

They came from the darndest social background and troubles and, gosh, we had all of the human problems you can possibly imagine.

Lage: Did you have rangers in charge of Job Corps people, or did you have specially trained people?

Torheim: Well, we had a mix. In Region 6 anyway, we chose our very best young managers in the field to go into Job Corps and manage these centers, and it was a good thing we did. But the Job Corps

Torheim: staff weren't from our culture at all. They were educators, they were sociologists, they were psychologists, they were people from the penal institutions all over the country. They were the people that came into the Job Corps to do the work. They were managed, though, by Forest Service managers. We selected young managers that we felt might go on up, and they just weren't equipped, especially to work with this disparate group of people, to run a center (Job Corps camp).

So the managerial grid and the introduction of behavioral sciences through this method seemed to work very well, and it coalesced and made it possible for these units to work together to accomplish their goals.

Lage: So you used the managerial grid in the Job Corps units?

Torheim: You bet, right.

Lage: How did it work? Can you tell us more about what the managerial grid is?

Torheim: Yes, the managerial grid was simply a system of training managers in what I call participative management. Now, that's an oversimplification, but it's a way of learning how to work together with people to accomplish the organization's goals. It teaches teamwork, and it teaches the synergism of people getting together without all having the answer and through the synergistic interactions of this group, it can come up with better answers than the sum of the whole. Of course, this fit the Forest Service needs to a "T" because this was the way the Forest Service worked.

Torheim: We never had a vehicle to do it, nor did we have the understanding of how people functioned this way.

There were some elements of sensitivity training in it which later were at least modified by us. A lot of people rejected it on that basis. I must say it wasn't a large part of the managerial grid, but at least it caused people to interact with each other on a personal basis to see how they really felt about each other working in a team.

Lage: How did that go over? I think this is referred to in one of the other interviews where he describes it as sort of a lengthy session of several days of interaction.

Torheim: It was very, very, very tiring. But if you think it was tiring for the participants, you ought to see how tiring it was for those of us who conducted it. We conducted many dozens of training seminars.

Lage: I would think it would be very hard for sort of a traditional Forest Service type to accept.

Torheim: That's why it was hard on the people conducting it. It just tore the outfit apart sometimes. People had well-established niches or they had pretty solid coats of armor around their personalities, and it was just all laid out. We modified it in Region 6 though because that didn't seem to be terribly important. We didn't want people to modify their behavior, and we didn't think it was possible. We felt the psychologists were wrong there. It turned out that that's the way it worked best.

Torheim: One thing you could do with the managerial grid was to actually modify it to suit your own needs. Now, the first seminars were simply to learn. The real payoff in managerial grid though was the subsequent follow-ups where you worked with actual working groups. The first session was a laboratory mixed bag of people from all kinds of units. The real payoff though was in what we called "phase 2s" and "phase 3s" and on, where you dealt with a facilitator. The training people and others learned to act as facilitators. You worked with an actual group, a ranger and his staff, a forest supervisor and his staff, or groups of people that worked together. They worked on real life problems and, with the aid of the facilitator, learned how to work them out together better.

Lage: You were sort of along while they were doing their routine work to help them?

Torheim: Yes, we had sessions, but they'd bring to the sessions the real life things they were working with, and that was the payoff. If there hadn't been a managerial grid, I suppose over time some other techniques [would have been] used. But that opened whole new doors. It opened up the outfit to the use of consultants from universities, other than the forestry faculty. It got us into schools of business, of public administration. It got us into private industry, which was also doing the same thing, by the way.

Longterm Benefits from Managerial Training

Torheim: It just opened up the interaction of managers at all levels to the world around them much larger than just managing the national forests, and that was a profound change. Coupled with the Job Corps, and the selection of our best people in this cauldron of management activity who now had moved up to executive positions, it put the Forest Service in fine shape for the resource conflicts which have come along since then, particularly in the wilderness issue and timber management issues and that sort of thing.

Lage: Would you say it was more successful in training your younger people rather than changing the behavior of more established people?

Torheim: Yes, it didn't change the basic behavior of the established, but many of the established people really modified their behavior within the context of this because it worked. Another thing you saw was that people out on the outer fringes, the typical change agents, were going a little too fast. They were leaving folks behind, so they had to kind of back off. There's a tendency, at least in the Forest Service there always has been, that when you get something new that works, we just jump over the cliff. Then you find out you jumped too far and too fast and you haul yourself at least halfway back up to reality and then get on with it. We did this too. A lot of it was over done. This turned off a lot of people, particularly the critics who said it wouldn't work.

Torheim: But the payoff was, at least to getting the whole organization into this way of thinking, is that it became a way of doing business. I don't mean only the managerial grid, because that was just a vehicle to learn, but the participative type of management, the ability to deal with conflict, the ability to understand group interaction and what's really happening to your group, and then stop the action and critique it and say, "We're getting all hung up"--that was a new business. Usually you kept all of this inside of you and hoped you could work it out through your force of personality or intellect. It particularly fostered an ability to deal externally with conflict and not be all torn up about it or go into a shell, but actually nurture it with the idea that this is going to work out good.

This all came about over a period of time up through the latter half of the sixties and into the seventies as a way of doing business. But what really institutionalized this way of managing was that those managers who really had accepted behavioral science techniques as a way of managing seemed to be the ones who were getting promoted. They were the ones that were actually producing and getting credit because they were better managers. This became very obvious then [that] this is a way of doing business. The heads of the agencies--the chief and the staff and the forest supervisors and the regional foresters--accepted this too. So again, it started really from the bottom up.

Torheim: The last folks, I would say, to really accept this as a change of style were the people at the Washington office. But that's only natural. The felt need was at the ranger district level. You had new people. You had a whole mix of people other than foresters. The conflicts were there, and could be dealt with. And the younger people, the people that are always tapping on the egg shell. In my judgment (and I think others, probably in my peer group, would support that), I think that was a milestone of change in the way the Forest Service has done its business.

Adapting to Change, Dealing with Conflict

Lage: I would think that your peer group would be a key group, as the ones who came in under the old style, but had to adapt.

Torheim: Yes.

Lage: Did you find that a lot of them fell by the wayside? If they had been attracted to a certain style in the Forest Service, how well did they do when it changed so drastically?

Torheim: That was a highly individual thing, I'm sure. It's hard for me to say. I don't know of anybody falling by the wayside so to speak, although there must be some who did. When I was in personnel management, I began to learn about these things personally for the first time. You don't otherwise so much, but in personnel management lots of people came to consult with me about their careers. It had nothing to do with change so much but just careers in general.

Torheim: There were a lot of people who were not achieving their career expectations, and this is true in any organization. But I was never so aware of that until people would come to see me because of my job. We'd have a chance to talk and look at the alternatives. I think perhaps this abrupt change--I shouldn't say abrupt, but a rather short span of time anyway--this change from a more structured type of management style to a more open style really did trouble some people and made it difficult for them to move up because they were already locked into the old style of management. That was standard procedure for them.

Lage: Also, I think it fits with a certain personality structure that's hard to change.

Torheim: Yes, that's right. It's awfully complex and in an organization as you move along, a lot of it's pure chance. One doesn't take his or her career and design it and then proceed. He may have some goals but, gee, there's an awful lot of chance! It walks you around from here to there as you move along. But that's life; that's what makes it exciting. I'm sure this happened too.

At any rate, this is the way the Forest Service does business today and it's really not labeled; it's understood. I suppose as time goes on, there will be further evolutionary changes as society changes. But it's made the Forest Service very adaptable over the years. The Forest Service has adapted quickly to the norms of society and the society that it serves. That's been the strength of the Forest Service.

Lage: Do you think this helped in dealing with all the increased level of public involvement?

Torheim: Very much, and that's how the Forest Service actually became a leader in government in public involvement in a field that was never touched.

Lage: Some of the same skills--

Torheim: The same skills, yes; the ability to deal in conflict situations, the ability to understand the group process and the communication process, and the ability to actually create synergism to get the best answers. That's all a spin-off from the adoption of behavioral science techniques. This is most unusual to me because foresters, engineers, and biologists of various kinds, which really make up the bulk of the Forest Service work force, had zero education, most of us, in these fields. So, many of us were boning up. I read psychology books. I attended classes, seminars. All of us did for these kinds of subjects that we never got in school.

Lage: Has any of this filtered down to the professional schools so that they do train--

Torheim: Oh, sure, sure. Still not so much, but then the Forest Service picks this up by continuing these as inhouse training programs. It was pretty exciting to get into these fields because I used to consider these as rather theoretical ivory tower sorts of activities and probably would have, too, if I had taken it on campus. But if you can apply it to your real job and see immediately whether it works or doesn't, that does make it pretty

Torheim: exciting and makes it useful. So this is what took place and then, of course, getting into the conflicts that emanated from special interest groups having different views about how the public lands should be classified and all, there was work to do with these new techniques. I guess that's about my view of it anyway.

Cliff and McGuire: Managerial Styles Illustrated##

Lage: You had something you wanted to add on differences in style.

Torheim: Just a little personalized input to illustrate changes in management style we were talking about. Ed [Edward P.] Cliff was chief of the Forest Service [1962-1972] had come up through the organization in the traditional way we had spoken about. He was a very capable forest supervisor in southern Oregon. He came up through experiences with a heavy fire forest, lots of management problems in the thirties with arson and everything else in this forest. He was a good manager. He worked his way up as regional forester and through the ranks and eventually to chief in the characteristic way.

[He was] well-liked by everybody. We knew exactly where Ed stood, the typical espouser of scientific management principles. When I was in the Washington office I used to on occasion attend chief and staff meetings in Ed Cliff's office. Ed had a rectangular table, and each of the deputy chiefs had their chairs around this rectangular table. Then Ed managed the meeting. They always sat

Torheim: in the same chairs. The associate deputy chiefs had chairs away from the table and generally kind of behind their deputies. Then those of us in staff roles would come in to make certain inputs on certain items of the agenda. We sat in kind of a peanut gallery off to one side. Now, this wasn't a big room. It was a rather small room. But it was very structured. The interaction then was also quite formal. I don't mean stuffy, but rules were certainly well understood if not written down [chuckles] on how one communicated. It worked quite well.

There was a real shift when John McGuire succeeded Ed Cliff [1972], and this was noticeable to all.

Lage: Were you in Washington?

Torheim: No, I was in the field then. I was deputy regional forester in Region 6, but we go back frequently to Washington and deal with the chief. John McGuire was one of the early people in the behavioral science input to management. He was director of the southwestern experiment station at Berkeley. He was quite an espouser of new principles of management. He had come out of research and so he was a little closer to the field later in his career. His personal style was different, too. But it was quite noticeable what John did differently then about these chief and staff meetings. He didn't use a rectangular table. It was gone. He had a very large circular table in the middle of his room, and he and his deputies sat around the circular table, so they were interacting eyeball to eyeball. It was a low coffee-type table.

Torheim: Then the others, the associate deputies and those of us who had come in to make inputs, we just sat casually around where we wanted to pick a chair. John then stimulated conflict and conversation. In fact, one of his techniques was if they weren't getting enough input on the problem to be solved he would be a devil's advocate or he would say something that was certainly challengeable and stimulating. That's the research approach, by the way.

So it's an interesting difference in styles even to the very furniture in the chief's office. [laughter]

Lage: Were you quite aware he was only playing the devil's advocate, or you weren't quite sure?

Torheim: Oh, yes, quite sure. He always used that technique very openly-- no games.

Lage: He came out of the research branch?

Torheim: Yes, most of his career was in research.

Lage: Was that unusual?

Torheim: No, Ed Cliff's predecessor, Dick McArdle was also out of research. Chiefs have come both from administration and research. Well, I thought that was just a little story illustrative really of a small part of management activity, but it expresses not only a little difference in personnel but a little difference in managerial style to be more at harmony with the way the outfit was moving.

V THE FOREST SERVICE ORGANIZATION: CHANGES AND CHALLENGES

Reorganization in the Seventies##

Lage: Should we move to more discussion of the reorganization in the Forest Service?

Torheim: Yes, let's do that. I'll probably have a little trouble with dates and all, but I can get into the general area. The Forest Service had, as we talked about earlier, the line/staff type of organization with the assistant forest supervisors and assistant regional foresters having line direction in their activities. We talked about that quite a little bit. Now then, as we moved along with getting more and more different kinds of people in the organization, beginning to introduce behavioral science principles into management, the drifting away of scientific management and more authoritarian type of management, and learned more about the participative approach to getting the job done better through team action, it soon became obvious that the line/staff organization wasn't working all that well.

Torheim: Land management planning had an influence on it, too. There was a lot of what we called functionalism. Functionalism (and it's not a very good word, but for lack of a better one I'll use it) meant that we dealt with a bag full of functional activities with strong, directive staff members pushing their activity at the expense (now, this is a bit of a caricature), but at the expense of the other activity. The supervisor had a lot of trouble sorting out all of this direction he was getting from assistant regional foresters who were pushing their own program, and likewise the ranger was having trouble sorting out priorities among all the direction he was getting from the various forest staff members, and playing the budget and fund allocation game at the same time.

This wasn't working well, as the job became more complex--land management planning, trade-offs, increased work force, and that sort of thing--and our increased awareness about what was happening to us. So it looked like maybe a different kind of organization was needed. Also, at the same time, with the tremendous increase in work load brought about by new legislation and more public interest in national forests, the ranger couldn't keep track of everything in a big district anymore personally. The forest supervisor couldn't run every ranger district like he used to either. He couldn't keep track of all this stuff. All the public job--public involvement and contacts with the public--this is all part of the things that were happening in the sixties.

Torheim: The generic term for the managerial grid system and the introduction of behavioral science was called organization development. This was the generic term for all of this activity we talked about earlier. The objective there was to improve your organization along the lines that you thought needed improving.

Lage: Was there a particular individual who was connected with pushing this?

Torheim: No, this was pushed from all directions, and that's what's interesting about it. It's kind of like I described the move for multiple-use planning to land management planning. There was a general overall feeling of dissatisfaction. No individual pushed it at all. It was at the field by the way, at the field level.

Field Experimentation for Structural Change

Torheim: Again, experimentation seemed to be the way to make this change, if necessary, work out. Some forests were selected by the chief and the regional foresters to do experimentation. One of them was the Eldorado National Forest in California, and there were some others too. But they began to experiment with organization change, a little different type of staff alignment, more deputy supervisors and that sort of thing.

Again, [with] the intense interest and competition and need, other regions wanted to get in on it too. So here we go again!-- which is healthy. In every region there is always a forest, a

Torheim: change-agent forest, somebody willing to try. So it turned out that several regions, with or without blessings from the Washington office, began to do some organizational experimentation--not going outside of the directives from the chief, but really teetering on the edge.

After a while, the chief acquiesced (let me put it that way) because a lot of people had already started organization change without the blessing of the chief, so the chief said, "Okay, let's try this." We found several regions trying organization change, but it wasn't well-directed, kind of like the land management planning, and it got out of hand. But I think in retrospect it was useful because it caused a lot of experimentation to take place.

Lage: Where were you as an observer? How were you involved in this?

Torheim: I was deputy regional forester in Region 6. We had some forests in Region 6, and I guess every region did, that were trying different ways of organizing. With the informal communication systems between regions and forests, these supervisors would talk to each other, and they'd get new ideas. I don't mean anything dramatic was happening, but we were trying to learn how to change and cope with all of these ways of doing business. Usually on the forest level, it was decided to consolidate the various resource activities so the forest supervisor wouldn't have so many subordinates. In some of these big forests, the supervisor would have thirteen staff people and six rangers all reporting to the forest supervisor. So that was where the problems were in the larger forests.

Torheim: The upshot of this was that this [experimentation] couldn't go on, so the chief grabbed hold of the thing and kind of stopped the action of experimentation and based on the experimentation, laid out some organizational structures for forests that would be okay. They could work within these various organization patterns. Then eventually this was done for the regions as well. They were done together. This happened about 1972.

Multiple Deputies and Line/Staff Adjustments

Lage: What was the actual outcome?

Torheim: The basic change was, in most cases—well, all of the regions were organized the same. (Let's start with the region.) I'll talk about the western regions because the eastern regions have a little different responsibilities for state and private forestry. But the western regions typically had a regional forester and a deputy regional forester. The regional forester and deputy occupied the top management slot as a unit, the typical alter-ego deputy type.

Then there were assistant regional foresters for each of these activities that we've talked about, not just in resources but also in business management and state and private forestry. Now, that was quite a span of control when you think of all of those staff people reporting to the regional forester and deputy, plus all of the forest supervisors. There can be as many as thirty or forty people. The new structure consolidated the assistant

Torheim: regional foresters into groups under multiple deputies. So the job that I had as deputy for Region 6 was changed to deputy for resources, which meant I was responsible for all of the resource management activity, but not for state and private forestry anymore and not for business management. There were two other deputies that handled that, one state and private and one in administration. This was the same organization for all of the western regions.

Lage: Then the staff people would report to you?

Torheim: Yes, the staff people reported to me. Now, at the same time the role of the staff, or the assistant regional foresters, was changed. They were no longer assistant regional foresters. They were called directors of timber management, directors of fire, directors of wildlife and so forth. The line/staff was eliminated; they were staff. So they could not direct a [forest] supervisor. The deputy's job was to coordinate this activity, so that policy and personnel selection and budget formulation was done through the deputy, from the forest supervisor through the deputy. Of course, the interaction takes place, but the responsibility [lay with the deputy], and conflict was resolved that way.

Now, the forests were organized a little similarly, but forests differ in size and mission and geographical location. In essence the roles of the staff people on the forests (the assistant forest supervisors) were changed also. That was a profound change.

Lage: You mentioned yesterday that these staff people had had personnel powers--the selection of personnel.

Torheim: Yes.

Lage: How did that work?

Torheim: Say a region was going to select a forest staff person or a forest supervisor within the authority of the regional forester. Typically, this would be done with a selection committee made up of the regional forester and all of the assistant regional foresters in the staff organization with input from personnel, maybe some input from the forest supervisor and maybe not, it depends on how that particular region was managed.

If the selection was to be, say, for a forest staff person in range management, the assistant regional forester for range management really had the most say about that and very frequently it was his recommendation that prevailed. Sometimes that was not acceptable to the forest supervisor, but he had to take it anyway.

Also, the review of promotion rosters and the general personnel activity was done that way, again with the assistant regional forester in charge of the activity, having the dominant say about the people who were moving along in the field in his activity. Again, frequently there would be conflict--not always, but sometimes.

With the new role of directors then, they didn't have this kind of clout so to speak. They would advise the regional forester about who they thought ought to be selected, but then there would be a smaller group probably just a few of the assistant regional foresters. It depended on the system that was used, but it would be a smaller group, and he would just recommend. He wouldn't veto.

Torheim: Before the reorganization, the assistant regional forester had an out-and-out veto--maybe not formally written down--but by golly, if he didn't approve, the regional forester absolutely wouldn't go along with the choice.

There was more debate and then in many cases the supervisor had something to say about it. He could make an input. Sometimes he was overruled, but at least he was part and parcel to the decision-making process, instead of wondering who they were going to send him. So this changed it.

That had really been a job-satisfying activity for the assistant regional foresters, that many of them felt they had lost. There was a sense that they should watch the people coming along in their activity and keep close track of them, and they had lots to say about the future of the technical expertise in the outfit, particularly in the staff roles. Then in selecting line people like supervisors they had a lot to say too. Sometimes if an assistant regional forester didn't think that a person was suitable they weren't selected. The regional forester paid close attention to his staff in these matters, again often to the dissatisfaction of the supervisor. This was shifted around.

Reaction to Changed Staff Responsibilities

Torheim: Again, many of the now-called "directors" thought that the supervisors had just rejected them, that it was just a matter now between the regional forester and the supervisors and they were just clear out.

Torheim: They weren't even asked anymore. Now, this is a caricature again, but some of them felt pretty strongly that way.

Lage: You must have seen this at close hand from your job.

Torheim: I was very much involved with this, yes. I was an arbitor lots of time between the staff person--the director--and the supervisor. Again this was an individual thing. Lots of people were, in fact, quite comfortable with this change.

The other power loss (job satisfaction) that many directors felt was the inability to influence fund allocation. Some felt very strongly that the funds should go to those supervisors who, in the judgment of the director, were making the best use of those funds. After the reorganization, of course, it was more formalized. All the directors did was to recommend, and then the deputy would make the decision. Then we moved over toward a more management by objectives kind of thing.

A number of directors at all levels--and this was true at the forest level among the staff people, the Washington office level, and the regions, it was an individual thing--felt that their job was much diluted. I noticed, however, that this wasn't universally true. Some of the former assistant regional foresters moved over to the director role or changed their way of operating quite easily and comfortably.

Lage: Did some move up to the deputy role as well?

Torheim: Yes, oh sure, but there aren't too many of those jobs. But what I think I noticed mostly was that people coming into the director's jobs for the first time, with their role established before they

Torheim: got the job, had no trouble at all with it. So over time this was taken care of.

What interested me was that we were very much aware of this, because we had a greater sensitivity of how to work together, we actually critiqued this problem, talked about it. It was there. In years past, that would have been kind of underground. You wouldn't have talked about that kind of a personal thing. No, we put it up on top of the table and dealt with it.

Lage: With the individuals involved?

Torheim: Oh sure, you bet. We talked about it, how we were going to overcome this. So that was kind of a healthy way of dealing with it.

Lage: Was it effective in bringing planning in a more unified--

Torheim: Yes, I think you'd be honest to say though that there are still some who would say, "No, it didn't do anything." That's an individual judgment. My own judgment is that after the trauma of change was overcome, it works well now. But some other things have happened. Some of the supervisors finally realized that they had indeed pulled away from the staff--"Gee, this is great; my shackles are gone"—and they quit communicating with staff directors. What they discovered was that the quality of work on the ground that the director and his staff can help them achieve was missing. Then they began to have a self-awareness that if they didn't really open up the lines of communication between their staff and the expert staff in the regional office, they were going to [lose] quality thereby. So they got back together so to speak!

Lage: The staff person for timber management in the regional office didn't have a line at all to the staff person for timber management in the supervisor's office. That wasn't a direct line either.

Torheim: Yes, it was; informally, a very direct line. You bet. In the old system that was a directive line as well. In the new system that's a consultative line and a quality control line. But you see why the supervisor and ranger sometimes felt that the staff was really running the show because he had direct staff communication from Washington to the regional office to the forest, and the ranger was directed to perform. The regional forester and the forest supervisor never got involved. Now, that would be a worst case example, but it could happen.

But any organization structure change by itself isn't good enough unless the people make it work. There's the old cliché that a good bunch of people can make any organization structure function. I think that's still true. But what interests me is that this change was brought about through field dissatisfaction and a felt need by the field. It wasn't imposed by the Washington office. In fact, the Washington came along somewhat reluctantly I would say after the fact. But that's okay. I think effective change is made only that way.

Lage: The sense I get is that the dissatisfaction on the field level was related to the change in their missions, the new needs.

Torheim: The new need. Not so much mission change, but the greater complexities of managing the national forests--public awareness,

Torheim: new legislation, a different mix of people instead of just foresters, Job Corps--they were all together.

Lage: It's such a complicated--

Torheim: Complicated; yes, very complex.

From Inspections to Management Reviews

Lage: We haven't talked about the inspection system and the way that that changed. Is this a good place to go into it?

Torheim: Yes, it would be involved. The inspection system in the Forest Service was a very useful tool in management and really has kept the outfit together getting the job done rather uniformly and well I think, between regions and from top to bottom. That was developed, of course, out of the scientific management principles of the twenties, the militaristic background of management and some of the good things that come out of that kind of management activity. The Forest Service used the inspection system for more than just quality and quantity control as we mentioned earlier. It was also used for training.

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Torheim: The inspection system was quite structured. Generally it was made up of several kinds, but the principal kinds of inspections were first of all functional inspections. These were inspections carried out in a functional activity like wildlife management or watershed management or fire or timber. [It was] conducted by the staff person at all levels, by the way. The Washington office inspected

Torheim: the region, the region inspected the forest, and the forest the ranger district. So functional inspections were carried out on a regular programmatic basis periodically over time. That's the way the Forest Service really maintained quality control and perpetuated training because there was lots to be learned this way.

Lage: Was this a tense event for the ranger?

Torheim: Let me talk about styles again. I'll describe the types of inspection, and then I'll tell you how they were really carried out. Within the functional there was also a limited functional. Take fire management. A general function will be all of the activities in fire. A limited functional might be a slash burning activity (a piece of the fire activity).

Then there were the G.I.I.'s (general integrating inspections) at all levels, which looked periodically at the whole management picture--all activities together. Then there were special audits required often by law--personnel audits and fiscal audits principally. So this was all part of the inspection system.

With all the background that we talked about earlier, that inspection system didn't work well within the context of the new organization, the new way of managing the Forest Service and the moving away from functionalism with all of its board fence syndrome to a more team-oriented way and integrative way of managing. This time again, there was experimentation at the field level in various ways of changing inspections. Certain regions

Torheim: like Region I were selected formally by the chief, in this instance, to try out some new ways of inspecting. The upshot is that out of this experimentation and a really felt need again, the inspection system was changed to put together management reviews mostly based not just on periodic scheduling but on perceived need. Also it was a participative type. Really the change was made more in how it's done rather than what was done.

Let me describe the way that the other inspections were carried out. With the old type of inspection carried out from one level of the hierarchy down one notch, naturally you'd find the problems of gamesmanship and some of the negative things, along with all of the positive things that occurred. Now, I want to say right at the outset that I always thought personally the inspection system had many more positive things than negative. But the problems that would come about would be the usual problems of trying to show your best face and not really laying out your problems much. Problems should be discovered by the inspector-- this was the inspectee's point of view, if you want to carry it to the utmost.

If you generated problems or demonstrated problems to the inspector sometimes really you didn't get much help. All you got was a poor report, and then you had trouble crawling out of the hole. Now, compare that with the present type. The present type of inspection is a problem-generating activity by the inspecting group and the inspectee who work together as a team, and it's a problem-solution.

Lage: So the ranger wouldn't feel threatened to bring up the fact that he had a problem.

Torheim: No, there's no threat. Right, that's the whole objective. So there's a complete change in how that's done.

Lage: Now, it really happens that way? The ranger is not looked at critically because he hasn't been able to solve his particular problem.

Torheim: No. Besides, it's no surprise. If a supervisor and the regional people are doing their job, they know currently how a performance is taking place anyway through informal visits and the usual interaction, so there aren't any surprises. Usually there are truly management problems that need solving, and they're laid out. The old system was based more on discovery. Now, again that's a generalization that wasn't always carried out that way by individuals. Certain individuals didn't believe in that and had a personality and a way of looking at the world around them that permitted them to actually do problem solving even under the old system. We had certain people who were candid and above board that could make even the old system work well. But generally it didn't fit the new way of managing. In my judgment, the new system (the management reviews and the program reviews) are working quite well.

Now, keep in mind that also under the old system, the assistant regional forester and staff people generally were directive. Remember, they had line direction, so there was a high level of threat there to one's career. There still is a

Torheim: threat if you don't perform, but it's based really on that performance and not on discovery and game playing that might take place.

A Growing Openness in the Organization

Lage: Now, the other thing that occurs to me (and this may be wrong), as you describe the new plan, you're describing it from the point of view of a higher-up, whereas you were down in the bottom of the barrel during the older system. Do you think that you're in touch enough with how a ranger perceives it now--?

Torheim: No, I'm not naive enough to believe that. One of the prices you pay as you move up in the hierarchy is that you don't really get all of the bad news from below. You have to really understand that or you can't function. So I'm sure there must be all kinds of problems that people are solving today, too. There always will be and that will cause further change in the future. It's only natural that if you have something to do with instituting and installing new ways of doing business you have a lot of ownership and you feel good and positive about it, and you're sure it must be working beautifully at all levels. But it's probably not!
[laughs] So I don't deny that.

Lage: On the other hand, if it's not as authoritarian an organization, you probably know more about what's going on.

Torheim: I think so, and we've had enough external feedback, I think, to reinforce that. One of the things that you get from almost any consultant that comes into the outfit or, even the public, is the

Torheim: openness of the Forest Service, the willingness to lay things out in the open, the nonthreatening atmosphere and kind of a general aura of constructive candor that seems to be an inherent characteristic of the outfit. So I think people feed back better than they used to.

Also, the young people in the outfit aren't inhibited. They're not overwhelmed by organization. I was kind of overwhelmed by just the organization itself when I came in--the expertise of everybody, and where I sat, and that sort of thing. The young people I've met with today, they just lay it out. My children do that, too. So there's a different social conscience and social behavior in the nation that the organization has too.

Lage: Less fear of authority maybe.

Torheim: I think so and just a general more openness. I think so.

The Forest Service on the Defense: Public Involvement

Lage: Some of the reading that I've done sort of contradicts a couple of things you've said. In reading about public involvement, for instance, a couple of the studies that were made mentioned that the Forest Service was terribly defensive in dealing with the public and very threatened. Now, this of course was back say in the earlier part of the seventies.

Torheim: That's true. We had a real tough time in the organization to really get aware that the good things that we thought we were doing in managing the national forests really weren't thought to

Torheim: be so good. We felt sincerely that they were. Besides, as I mentioned earlier, the Forest Service always was getting pretty good feedback--but it was pretty small feedback, as we talked about yesterday--and not really much feedback by people who didn't agreed with the way we managed; mostly by people who agreed. So it was kind of a shock to us in the outfit, who were convinced that we were doing a good job, to hear from so many people all of a sudden, practically, that all was not that well. So, yes, we got defensive. Then we sought to find a way to prove to the public that things were okay. But I think the turning point was when we got into a massive public involvement effort nationwide for the first time, or western regionwide, in the so-called RARE I, The Roadless Area Review and Evaluation, for the first time, trying to segregate out wilderness for the future.

That was the most massive attempt at public involvement that any government agency or private agency as far as I know had ever engaged in. We were pure amateurs at it. But we had a dedicated purpose to really make it work. That changed everything in my judgment. Then we really got feedback--honest feedback--from a broad spectrum of the public. Because of the new ways of managing, we didn't find conflict so threatening. Now, many individuals did for a while, but it became more--

Lage: You get de-sensitized to that kind of thing.

Torheim: Well, it didn't seem so personally threatening because you could work on the issues, and we used to take it personally because when you work with forests or live in the forest, you have a lot

Torheim: of ownership as to how that land is managed and you feel that if people are criticizing land management, they're criticizing you personally. We got over that and got to working with things-- of course you can't get away from people. You still have personal responsibility for your actions but at least you could get down to dealing with conflict on a land allocation issue for the merits of the case by various interest groups. So, yes, this was a tough change but I think the Forest Service accomplished it. It took several years.

Lage: But there is still a lot of attacks, and you still are in a defensive posture.

Involving the Public in Management Decisions

Torheim: I think there always will be. I think that's healthy. It's the way society is put together. I know this is an oral history, but if you want to look ahead a little bit, here's my judgment of where we're headed just briefly, and I think it's the way we ought to go.

As I mentioned earlier, the public generally was not interested for many years directly in what we were doing in managing national forests. Then they became terribly interested particularly in the land allocation issue and resource allocation issue. This is continuing today, but I see that the land allocation issue through legislation and land management planning is going to be dealt with pretty soon. What I see then on the horizon is

Torheim: that the public interest groups will begin to be watching how the national forests are managed--are they being managed to a quality standard and are they being managed within the confines of the law and the land management plans and the resource plans. So I think we will see a transition, I think a very healthy one, for the ranger having segments of the public watching how he does his business everyday.

Lage: Do you mean how he cuts his timber?

Torheim: You bet--some of the nitty gritty.

Lage: You don't find that threatening?

Torheim: Oh, no. I think that's healthy. In fact, we were preparing our people for that in Region 1 just before I retired. We were actually preparing for that. It won't happen all of a sudden, but we see some evidence of that already. Why not get ready for it? So we found rangers inviting more and more people and interest groups right out to the woods to see what we're doing here.

Lage: When you invite them up there is it kind of a "show me" effort?

Torheim: It used to be, it used to be. Now, we invite criticism. It used to be. Gosh, it used to be a "show me" trip and you put your best foot forward, and you showed all of the good things you did and put up signs and the whole works. No, no. [laughs] No more! And I think that's great. That's the way it should be.

Lage: So maybe you're involving them a little more in some of the problems that you have as well.

Torheim: Sure, that's what public involvement is all about. It should be an integral facet of the management activity--the way you do business--and beyond the land management planning, eventually, as I think anyway, into the actual techniques of management.

Lage: That's a long way from considering the forester as the expert.

Torheim: Right.

Lage: Do you think the public is becoming more expert in the field? Is that one reason that you are able to--

Torheim: Those who are interested enough to do it, certainly are, I should say. Take a look at forestry courses and classes on the campuses today. It used to be that only forestry majors were in forestry classes, and they were darn small classes, many of them. Now forestry classes are huge classes on many campuses because there are lots of nonmajors taking forestry electives or taking minors in forestry. There are also people taking forestry who never intend to practice forestry, just like people who take law but never become lawyers or whatever. When I say "forestry" I mean in the broadest sense.

Other resource courses too--wildlife biology, soil science. There are not just professionals in these courses anymore. So that, plus the general interest of lots of people, plus the organized groups that make it their business to kind of watch how the public lands are managed.

Lage: How do you feel after one of these plans has been developed in such an intricate fashion with all of the public involvement and then it's set aside by a court decision?

Torheim: Oh, I feel very neutral about that and wish we could have done better. I used to feel defeated and [that it was a] disaster. No more! That's part of the process. Now, I don't mean to say that one gets cynical about it because you do feel disappointed. But what you do is go back and find out where it went haywire and do it again. That's been done many times.

Lage: It sounds as if at least you personally are able to really step back and take a more objective view.

Torheim: Yes, and I think our managers are. The people who hurt on those kinds of things are the technicians who really put their soul and body into that. The managers today in the Forest Service, if he or she can't take that, they can't be managers. They have to regroup their forces. But it's easy to see where the technicians who put all of their professionalism and technology into those plans really feel put down. Particularly the pesticide issue, where they know through scientific evidence that 2, 4-D is absolutely not toxic. The professional can show you the scientific literature for thirty years on this. What they don't realize is that it's not a scientific question. It's a political question. That's tough for the technologist and scientist. It's really tough. But if the manager doesn't believe it's a political issue and deal with it politically, I mean with a small "p," as well as a large "p," then he'll miss the boat. He won't get the job done. So that's what it's all about. I guess we're philosophizing a little here! [laughs]

Political Responsibilities of Field Administrators

Lage: We talked just briefly yesterday about the political responsibilities of field administrators, and we were going to discuss that further. What were you talking about?

Torheim: Let's take it in an historical perspective again. First off, I want to say again that there has been, historically, marked differences between regions. So I'm going to speak really for the western regions and my own experience, particularly Region 6 and Region 1. The job of dealing with members of Congress in particular (the senators and the representatives), at least in my experience in the western regions, was handled for many years quite closely by the regional forester and his immediate staff and by maybe a selected supervisor now and then, but again closely directed by the regional forester. Now, the reason for this was that it was thought that the supervisors and rangers had little opportunity to get very sophisticated in dealing with members of Congress and might really step across the boundary of the separation of powers or would get into a political hassle and put themselves in jeopardy as professionals when they really are carrying out the mandates of Congress. So the general feeling in the field then was that we should not be political, so to speak, and we shouldn't really have any oral communication. Now, that doesn't mean that when congressmen come out to the district that you don't show them around, but they were usually escorted by the regional forester or by the forest supervisor.

Torheim: So I would say that the communication in the field with members of Congress was extremely limited. In the seventies, with the proliferation of new laws and with the increased public interest in the national forest and all of the conflicts and special interest groups, congressmen began to get (in the West anyway) terrifically sensitized by national forest issues. In fact, they became campaign issues very often. In Region 6 this meant that the regional forester even hung on more tightly to that. Charlie Connaughton, who was regional forester, and Herb Stone before him, both espoused this philosophy--not to put the field folks in jeopardy.

The level of activity became so great, finally, and the members of Congress themselves began to communicate informally with forest supervisors that this became very hard to manage.

Lage: Would the members of Congress be trying to affect policy on the forest?

Torheim: No, not really. No, they don't do that. But you can fall into a trap. I'll give you some examples as we go along, particularly on when you have interest groups that have different opinions and the congressmen were trying to sort them out.

Charlie retired in 1971 and Rex Resler became regional forester and I became deputy, as we talked about earlier. Then we began to think--and, of course, this had been developing while Charlie was regional forester, too--that we really ought to find a way for our supervisors to communicate with the members of

Torheim: Congress. For instance, all the congressional constituent mail used to have to come right to the regional office and be signed off here--every one of them. I was doing a lot of this.

Lage: Any mail to a congressman they would send straight on over to the Forest Service?

Torheim: Yes, indeed. You bet. A congressman would write to a forest supervisor sometimes (or staff) asking about this problem--this constituent was unhappy or wanted information. That supervisor would send a copy of that letter right away to the regional office. He would write a draft reply, and it would come to the regional office for my or the regional forester's signature, and then go back to the member of Congress. We kept tight control, and that was to be sure things were done properly.

We were having trouble being responsive. The communication time began to lengthen because there was such a volume of this activity. All these things were happening gradually. So Rex and myself and the supervisors and the assistant regional foresters put on our thinking caps about how we might want to change this. We decided we ought to really find some way for the forest supervisors to respond directly. So we opened the manual a crack and permitted the supervisors to respond to some things but not to others. Then we let them get a little experience, and we had some training sessions in congressional relations and all. Anyway, finally over time, that's opened up now so that there's free communication between forest supervisors (not so often rangers)

Torheim: and members of Congress and their staffs. It's quite normal and it's not controlled. The timing is controlled, but at least the communications can be made directly now formally between the forest supervisor and members of Congress.

Lage: But you don't find the congressman--I would think they would have a tendency, if there's a lot of constituent dissatisfaction, to try to influence your policy directly.

Torheim: Oh, of course, and they do. That's always been the case because if you get a letter from a congressman about a problem, you're sure as heck going to find out what it's about. Many constituents use the congressman for leverage. That's okay. That's just another input. Now, that's on things. It's "this special use permit" or "this road" or "this timber sale" or "my contract," that sort of thing. Those are pretty straight forward.

Forest Service Input on Legislative Policy

Torheim: The other increased level of activity in the political arena, though, has occurred in the policy formulation in legislative business, and that's a little more tricky. We didn't get involved in that at all much until recent years. That was closely held by the Washington office and, of course, still is. There are some definite routes to travel because in legislation in particular, the Forest Service being part of the executive branch then testifies for the president on positions. So you can't take positions in the field. Everybody understands that. But it's

Torheim: awfully easy to get in a bind if you're not careful. This has happened most recently with all of the wilderness legislation because there is so much of it and because the expertise really is at the forest level, that the forest supervisors now are frequently called upon to testify at hearings, to give technical information. They had to be careful that they keep it to technical and not to positions. Members of Congress are very sensitive to this too.

The real bind though is when the member of Congress gets in trouble with constituents when he tries to sort out some middle ground between polarized positions on wilderness, for example. Here's an example. The Alpine Lakes wilderness legislation in the state of Washington on the Snoqualmie and Wenatchee forests was in the hopper while I was deputy regional forester in Region 6. The member of Congress in whose district this was mostly located was Representative Lloyd Meads from Everett, Washington. Lloyd was putting a piece of legislation through the house, and there was a companion bill in the Senate that Senator [Henry] Jackson was sponsoring, to create an Alpine Lakes wilderness.

The Forest Service had a plan--this is a very typical case--the Forest Service had done its study and had a plan. The timber industry and other commodity users had put together a coalition and working group. They came up with a plan for an Alpine Lakes wilderness that was quite a bit smaller than the Forest Service plan. The Federation of Western Outdoor Clubs and the Sierra Club

Torheim: and others put together a similar working group and they came up with a wilderness proposal much larger than the Forest Service. This is very typical. This has been repeated in many pieces of wilderness legislation. Nobody disagreed that some of the Alpine Lakes area should be wilderness. This is north of Mount Rainier, very beautiful country. The question is how large should it be?

The congressman then had really three positions he could take to produce a bill. Naturally, he was trying to seek the compromise position. Without getting into all of the details, frequently the Forest Service study is typically somewhere in between, so that generally they use the Forest Service study and then build their legislation out of that; then through public hearings [they] will modify it. It never gets to be as large as the wilderness interest group wants, nor does it ever become as small as the commodity interests want typically.

The problem is though that the congressman or senator latches onto the Forest Service study, and this becomes the basis for a bill. A lot of the public interest groups and the members of them attack the Forest Service then because that's the one that he selected. Well, everybody knows that it's not necessarily going to come out that way, but that's a convenient one for him to select because it's typically in the middle. So then the lobbying goes on and the forest supervisor is attacked in editorials--not always attacked--but it's espoused to be the Forest Service position. It really isn't at that point because the Forest Service hasn't been called upon to testify yet.

Torheim: But anyway, there's an awful lot of lobbying going on at this stage of the game. The forest supervisor gets accused of generating wrong information--"his study information data is no good"--by both parties. So it puts you in a bind, a national public bind, that in the past our supervisors never experienced at all. So they've got to handle this quite astutely, and I must say that most of the time they do. But they have to really know and learn about the legislative process and the political process.

So now our supervisors are very sophisticated in this area. We have training sessions for all of our forest supervisors nationwide in Washington where they actually visit committees of Congress and get accustomed to them. Many of them have visited congressmen annually to keep them updated on what's going on. I think they do a marvelous job. Now, this interestingly enough is not new to the supervisors in the East and the South. They've been doing this for years.

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Torheim: In the West the national forests were created out of the public domain and in any given state there are a number of national forests. In the South and the East, the national forests were created under the Weeks law through purchase of private land (much of it went back to counties for taxes) and other purchases and donations. So for example, the southern region, with headquarters in Atlanta, extends all the way from Texas to Virginia. The eastern region, with headquarters in Milwaukee, extends all the way from Maine to Minnesota and West Virginia.

Torheim: So supervisors really have to represent the regional forester in their states. The regional forester couldn't take care of that many members of Congress. So they characteristically dealt on a state basis as an arm of the regional forester with the members of Congress. Now, of course, the issues there over these years were mostly local issues pertaining to that national forest. In the West, because of the wilderness issue and the need to allocate these lands, they were national problems on the western national forests. So that's why everything was held so closely until finally the volume of activity got so big, the forest supervisor had to be expert in dealing with it. So that's the reason.

Lage: As you describe that process, how the Forest Service became involved and is now involved in the political process, it sounds as if the Forest Service takes a very passive role—they're drawn into it, and then they have a need to be able to testify. Is that always the case or does the supervisor ever try to promote his plan through the political process?

Torheim: No, no, he certainly doesn't do that. You have to really make that distinction because that can turn on you. That's not the role of the supervisor. The role of the supervisor is to keep the member of Congress informed and to make technical input in a formal way. The Washington office takes on the chore at committee hearings in Washington to represent the administration, but frequently the supervisor will go back and assist from a technical

Torheim: point of view. But he really has to be sure that he stays in that role.

Now, this sometimes is difficult, and that's the dilemma, because in high spirited debate, one interest group or another will accuse the forest supervisor of lobbying for his position. That may not be true, but they try and make a case that way. The supervisor really has to establish a record of not having done that. There's been many times in the heat of debate with polarized groups who feel very strongly about their position, and the member of Congress trying to sort this out and satisfy both sides, [that] the heat really becomes more intense than the light. It takes a very astute forest supervisor not to get defensive about his study plan and start lobbying for that.

Lage: I would think that would be hard to do.

Torheim: Yes, he really has to know the political process. He has to know his role, and he has to stay with it. Sometimes that doesn't work out so good. They slip a little bit in the heat of the battle, and we have to pull back. But that's a new role for the western supervisor, and a very high risk role, that our folks as managers had never learned and had to learn through doing. Now we have training programs, hopefully before they become supervisors or soon after, to become acquainted with it.

Lage: The supervisor's job sounds a lot more difficult than it used to be.

Torheim: It really is. Oh, I should say so.

Computers: A Management Tool, a Tool to Manage

Lage: We wanted to get into the question of computers and I thought you had a very interesting way of describing computers—"a management tool, a tool to manage." What brought that characterization to mind?

Torheim: It's just my perception, I guess. But it's an interesting story and, as I've come to learn over time, not really peculiar to the Forest Service. But here's the way it happened with the Forest Service. A computer was used by the Forest Service pretty early in the game when it became part of getting the job done as an accounting tool, like a big calculator. Most regions had computers not too long after World War II, but again they were used for payroll, engineering, road design, and mathematical types of things. So they were really run by the technicians and they were budgeted for getting technical work done.

Most of us didn't know anything about computers. We had no education in that, and we (managers, generalists) regarded the computer to simply be a number-crunching rig. Of course, as we all know, the technology of information systems and computer technology have advanced quite rapidly, and the machines became cheaper. Then the new people graduating from the universities came into the outfit with an education in computer programming and computer technology so things were changing at the bottom. We found, at least when I first was aware of it, when I was a staff person on the Rogue River National Forest, some of the

Torheim: new foresters coming out to ranger districts wondered why there was no computer.

Lage: How early was this? This was quite a while ago?

Torheim: 1961, 1962, in there. They had learned how to use computers. Computers were then beginning to be a little smaller. So that was my first insight that computers might even possibly be used on the forests. I thought they were things you used up in Portland or Washington or in the bank. Then first the technology developed rapidly. The first thing we did in Region 6, the first change that I can recall, was that we got into what we call "desk top" computers. These purchases were closely controlled so again it was done on an experimental basis. It was done for road design mostly (that was well adapted) and other kinds of activity-- management planning, where you had lots of data, was done on computers. But still a central computer system was doing most of the work.

Then we got to the point where the computers were costing an awful lot of money. By that time, I was in the regional office and working on budgets and things and, gosh, it was clear into the early seventies when I was deputy regional forester that Rex Resler and I suddenly called a halt.

What we realized was when we looked at our budget, and we were trying to make savings here and there, that decisions we had made years ago (or somebody had) about the use of computers had mortgaged our souls for the future. Because once you put

Torheim: activities that used to be done by hand on the computer, you've lost the hand technology and you're wholly dependent on that computer to get the job done, or you designed your output needs to be more complex than they were and they can't possibly go back to hand cranking. So what we discovered was that decisions made at lower levels of the organization in project work requiring computers had mortgaged our opportunity to make any changes for the future. So we just had to stop to understand what was happening.

Well, this was happening simultaneously all over the outfit. I've learned since that industry had the same problem. The technicians had been managing the computers because it was regarded to be a tool to get the job done, and really its costs were not even being paid attention to [by] management, or decisions weren't being made in terms of priority or how the dollars were going to be used. Should we really get a new computer for this national forest, or should these dollars go for some other activity?

Lage: Do you mean this is more in terms of the purchase of computers rather than in the types of programs?

Torheim: Yes, and then the maintenance of them afterwards too.

Lage: But didn't they become essential in your land planning as it got more complicated?

Torheim: Of course, but by that time we had gotten hold of the management of it. The point is that the managers were not managing the use and the funding of computer technology. It was just kind of a

Torheim: given in the budget and then everything else was subordinate to it because we were locked in.

About that time, the Department of Agriculture was trying to do the same thing department-wide to get hold of it. So there were lots of stops and goes, and that's been happening periodically since, trying to get a management handle on it. The technology was advancing so rapidly, too, that the small computer--\$10,000 or less--became very feasible at the ranger district level.

Then we had to find ways to link these computers, to make the most of our money. Then we had the internal arguments about centralized computer systems versus distributive networks, with the department pushing for a centralized system and decentralized organizations like the Forest Service pushing for distributive networks, using outside and internal computers in a mixed network.

The upshot of all this was that a lot of managers really got turned off by computers--"stop the action right now; this thing is a monster." They didn't understand it either. I know that we felt that this thing had really gotten away from us because we had abdicated our management role. We spent lots of time working on the fleet of equipment (trucks and cars and all of that stuff), and how we managed that in cost-effective ways in deciding whether we were going to acquire new ones or not, but we just let this computer thing run itself with the technicians telling us that we got to have this computer for this! [laughter]

Torheim: This was felt service-wide, so the chief put together a study and I think now each region and the Washington office too have management involvement completely. There are all kinds of management committees to get the technologist and the manager together, and then management by objectives has helped so we can look out to the future. Also, of course, the technology of information systems has been simplified a lot so you don't have to put huge million dollar investments anymore into incremental change, into hardware.

So that's the small story of computers. As I say, it's been repeated, I'm sure, in many organizations but the Forest Service was awfully slow to pick up on it [laughs] until it became a crisis.

Lage: What about the proliferation of computer programs throughout the service? It sounds like there again was an instance where the decentralized development may have had some benefits, but also was inefficient.

Torheim: The benefit is, it stimulates creativity but it isn't always cost effective when you find that regions are re-inventing the wheel. But it does stimulate creativity. The trick is to find the middle ground where you can stimulate creativity by giving opportunity for experimentation, but then when you find something that works, let's spread it around a bit so everybody doesn't have to spend their own developmental time and dollars. That's really what's taking place now. It's going to be a while before it's all fixed, though, because a lot of people have ownership in these programs.

Lage: Yes, and the other thing I think would be difficult is managers without a lot of knowledge of computer technology having to make the decisions or evaluate them.

Management Information Systems

Torheim: The job ahead, and this has taken place now visibly for the first time, is the use of computers for management information. Still, the dominant use of computers in the Forest Service until very recently has been for a number crunching, as I call it.

Lage: What do you mean by that?

Torheim: Taking a mass of data and getting mathematical solutions, whether they be for payroll or for engineering design, weather information, cost accounting and that sort of thing. Now they're being used more for management information systems linked to land-use planning and the budgeting process.

Lage: How does that work?

Torheim: Well, it's terribly complex and I probably don't understand all of it myself, but you can take the data that you generate (inventory data) and you can ask the "what if" questions and assemble data in various ways for different management objectives. Computers nowadays even print out in real words instead of numbers.

Lage: So it prints out possible alternatives?

Torheim: It prints out possible alternatives, so you can select alternatives or mix and match them and it does it very rapidly. And it does more than that. Word processing--regions now are communicating by

Torheim: computer. Mary was telling me here in Region 6, and Region 1 was headed this way, that when they write a circular memorandum to go to national forests, they just put it on their computer in Portland. Then periodically during the day, forests will simply interrogate the computer with their terminals and see what the letters of the day were in the mail.

Lage: So it's a communication system as well.

Torheim: Yes, that's good. But there's a tendency, if you're not careful to let the technicians use it as a toy that's darn expensive, particularly when lower parts of the organization have the most knowledge, and they're pushing the top to fund some of these things which they sincerely believe will work well. This was the dilemma that we were in in the Forest Service, but I think it's being managed much better now. It took some organization change, too, to do that, by the way, and get the managers more involved instead of just putting it off in a subunit, technical subunits, of the organization.

A Centralizing Influence

Lage: Does the use of the computer affect the organization? I think you're saying some of this too, but does it make it more centralized or does it allow it to be less centralized, or can you pretty well control that effect?

Torheim: You can do it both ways.

Lage: Do you feel like you can control the computer?

Torheim: Yes, you can control its use and what it's used for better. I guess in many ways it has a tendency to centralize. In fact, looking ahead a little bit, I see the Forest Service probably moving back to more centralization in certain activities, simply because of the complexity and cost. I don't mean the organization generally to become that way. We talked earlier about all of the experimentation that took place in the past in reorganization and in work planning systems and land planning. That was not very efficient. So the changes for the future and even in the recent past have become a little more centralized and a little more organized than simply saying let's see what the next push from the field is. That's evident in land management planning emanating from the National Forest Management Act. I think that's been done very well.

Lage: Do you think that's a good thing? Or will that lead to less experimentation and change?

Torheim: Well, I don't know but I think it will still permit experimentation or change but more organized and directed. I think so, but we'll have to wait and see. That's future oral history! [chuckles]

Innovative Response to New Technology

Lage: Are there any other communication systems that you might comment on--for instance, use of satellites--or are there other new technical advancements that have changed the way the Forest Service operates?

Torheim: Of course, all of the communication systems and transportation systems that society in general has. The Forest Service has spanned transportation all the way from horseback to the jet airplane. Satellites are used not directly by the Forest Service to my knowledge anyway, but the resource inventory and mapping is done now by satellite using NASA equipment. The Forest Service has had an ongoing program with NASA in Houston to adapt NASA technology to the Forest Service, for instance. That's mostly in the mapping and inventory area.

Lage: So you use NASA experts or do you have Forest Service--

Torheim: We have Forest Service people on board as liaison, and they take new technology and adapt it. They're mostly engineering people. It's an ongoing program. It's been several years. There are a lot of technical changes in fire [fighting]--the use of aircraft, infrared imagery, of course fire retardants out of airplanes.

Lage: Would you describe the Forest Service as an innovative organization? Does it pick up on these new technical advancements?

Torheim: Yes, very much, very much--within the confines of budget, of course. We have development arms in the Forest Service, not only in ongoing research, but we also have development centers for equipment in California at San Dimas and at Missoula. We're very active in developing equipment that private industry then picks up on if there's a market for it and manufactures.

Lage: The Forest Service itself has developed the equipment?

Torheim: Yes, it's those kinds of things for which there isn't enough market because it's so specialized that industry would not make capital investments. So the Forest Service has these small equipment development centers and is funded by the Congress. It's small scale--trail diggers, for example, special tools for fire fighting, safety equipment for fire. Nobody else does this except the Forest Service. But that's not a large part of our business.

Lage: You mentioned that you didn't have too much to contribute on the subject of mathematical models.

Torheim: Not really, except as it's used in land management planning and budgeting and the computer's end product. I was not, of course, the developer of any of those things. But they were useful tools, and so I fostered their development. That's the manager's job anyway. You have to see what the end product is and if it's useful. Then you make it possible for the innovators to get their job done. If roadblocks are in the way, you knock them down. Then if after the periodic checks it fails, you go back and try it over again, but [managers don't get involved] in the technology itself.

VI PERSONNEL MANAGEMENT

Civil Rights and Equal Opportunity

Lage: We're going to turn now to the question of personnel management and particularly you have mentioned you wanted to talk about civil rights and equal opportunity.

Torheim: The Forest Service has had great trouble trying to get a better representation of the population in its work force mix. A lot of it is historical. The Forest Service, because of the nature of its work and the types of people who were attracted to it from the very beginning, turned out to be mostly white Anglo-Saxon Protestant males. The business was woods work and forestry. So for many years it was really a single-profession, male outfit. There were many women in the organization, but mostly in support roles, in administration roles, clerical roles. I expect very important roles, but they were not well represented throughout the work force at all.

Also, in most of the Forest Service, there were very few black people, Chicanos, or other minorities--very few Indians surprisingly, even though the national forest are adjacent to all

Torheim: kinds of Indian reservations. No particular attempt was made to attract people—women and minorities—to the work force because the nature of the business was that people sought jobs. There was no social awareness or even concept of reaching out, which there is today. That was true in society as a whole, and the Forest Service was no different.

Now then, when the Civil Rights law was passed, and it became a matter of public policy to begin to expand the work force to represent the population better, the Forest Service, with its gung ho attitude of getting things done, plunged right in. But even today, the Forest Service has done poorly in this regard, and you just can't believe how much effort has been put into doing this. I've been troubled by this for a long time because we did put so much effort [in it], and anything else that we did in the Forest Service with this kind of effort usually produced results. This has not happened in getting better representation in the work force.

Efforts to Recruit Minorities

Lage: What type of effort are we talking about? What kinds of things were done?

Torheim: We conducted nationwide, probably the first among government agencies, a very highly sophisticated sensitivity program, first of all, on the culture of minorities, what they're all about from a manager's point of view; how to attract minorities into the work

Torheim: force. You see, many Forest Service people, as we were discussing with my wife Marjean last night, lived out in the woods and really had no contact with people other than people who looked just like themselves and had the same value systems. Very few inner city people wanted to work in the woods. They didn't like it. It wasn't part of their culture, and they were not even much involved in recreation activities in the forest.

So we thought it necessary, first of all, to have an internal training program.

Lage: Was this when you were in Washington?

Torheim: Yes, and then later on when I was back out in the region again. We started this in the sixties, and it accelerated in the seventies. The Forest Service was characteristically low man on the totem pole in the Department of Agriculture in achieving its minority mix goals, and the Department of Agriculture was low in government. So we were the lowest of the low.

It was easy to rationalize this, but we didn't do that because we had a job to do. We approached it just like achieving any other goal, and managers really worked their tails off to accomplish this but with disappointing results. So it became terribly frustrating.

Then we employed minorities in staff positions to help us do this. We set up civil rights groups in regional offices and in the Washington office. We began to reach out. We had sophisticated recruiting programs to reach out and get people.

Torheim: We had great trouble finding qualified people who wanted to work for us. There was great competition to get female and black, particularly, professionals. We couldn't compete with the pay that industry was giving. We'd get some aboard, and they'd do well, and they'd go off to another agency who would offer them better jobs.

Lage: Were the people you were able to recruit did they tend not to be in forestry? Did they tend to be in business?

Torheim: Yes, right, you couldn't find forestry students who were black or female for a long time. So then we began to work with the universities and encouraged them to recruit minority students themselves and we would provide work for them.

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Torheim: As I was saying, this was frustrating and continues to be to quite an extent in achieving minority goals. The effort the Forest Service made continues. I think we were quite innovative in putting together structured civil rights training programs and using some of the techniques we used out of behavioral science to see if we couldn't get our attitudes turned around and get our people acquainted with what it takes to have minorities on the payroll and what it takes to attract them to our kind of business.

We even, on a service-wide basis, used the southern region to recruit black people because, after all, Montana had no chance of getting black people. They just don't live there. So we were attempting to get people out of the South and Chicanos out of the

Torheim: the Southwest. There was some success at that. But again, with such cultural change, people didn't stay long. They found another job later on back where they used to live, and they would take it.

Lage: I would think you would have more success with Indians or Chicanos that might have more ties to the land.

Torheim: That very thing was done. We faced reality then and decided that really Region 1 should concentrate on the Indian population because, after all, there are lots of employable Indian young people that live close to national forests. It's right within their own culture, close to their homes, and they don't have to go through cultural shock necessarily. So this is what Region 1 is doing now. It isn't realistic to encourage people unless they want to and some do now. There are some who do and who do very well. So this is the thrust in Region 1, and it's beginning to work quite well, with lots of help from the forest supervisors.

Lage: Have there been any particular problems connected with such things as different time concepts among some of the people employed?

Torheim: Yes, that's true. You have to understand the culture of the society from which these people are entering the work force. In Region 1 we contacted the community colleges, and we made a contract with the tribes. The tribal councils are very interested in getting their young people into the community colleges. Then we would provide the work for them, even while they were in school, and this seems to be working well. They're close to home. The

Torheim: community colleges were even willing to put on training programs right on their reservation. This is the way it's finally working now.

Lage: Would they come in in technician roles?

Torheim: Yes, they'd be technicians. It wasn't realistic, right at the outset, to encourage people to go to professional schools because you really have to make it visible that there is a career, and you have to get enough Indian people into your work force to make that real, not just theoretical. It was easier to do something in the short term and, besides, there was an employment problem for these young men and women. So it met all those needs. I hope this continues to work well.

In the other regions, Region 6, of course, has a mixed population. I don't know how they're doing now but we were having troubles retaining people once we got them because they would go onto other work, which is okay. The goal should be to give them opportunity and not necessarily to stay in your own outfit. But still it's not going along like it should and I don't know really why. I suppose it's going to take a while.

Employment of Women, a Success Story

Torheim: This is not true with women. The employment of women in the Forest Service is an utter success story compared with where we were. I don't say that the goal achievement is as high as it should be, but compared with where we were and the progress that's

Torheim: being made, I think it's working well. We have women graduates now in forestry that come into the work force just the same as men and in wildlife biology, landscape architecture, archeology, you name it. The big gap is the lack of women in managerial roles. As I was mentioning to you earlier, the first woman ranger has been appointed in Region 2 (Colorado). I think this is just one of many to come.

We have moved some professional women from other places from private industry and universities directly into the work force, but at rather high grade levels. The Forest Service has been doing this for years.

Lage: In what types of work?

Torheim: The chief archeologists in Region 6 and in Region 1 are women. They're at grade 13 or 14. The personnel officer, administrative officers for forests, are more and more women. But we don't have any women forest supervisors. That's what I'm talking about. We have one director of information in San Francisco who has been there for a couple of years, a woman. But I'm talking about women in the mainstream of policy formulation and generalized management, and those are line jobs. But I think that will come as more and more women enter the work force. It's common now to have women in all kinds of jobs at the ranger district and forest level.

Lage: Is this well-accepted from this predominantly male organization?

Torheim: I think this is an individual thing. My perception is that it's so common now, it's accepted as an organizational norm. I think some people still have personal hang-ups about it.

Lage: Did you have the kind of training for that as you did for minority employees?

Torheim: Yes, we did. Yes, we had a lot of problems. When we first began to bring women into the work force, in traditional male roles, we had a lot of opposition by some forest supervisors and rangers and particularly the wives of Forest Service professionals. There were really uprisings.

Lage: That's interesting. Men do work with women in other settings.

Torheim: The forest setting, though, is a little different. It's a pair working together, small groups, much on their own; women living in bunk houses for which we were not prepared. Now we build bunk houses for men and women. There are all of these hang-ups that people get into, not so much on what happened but what they anticipate might happen--that kind of thinking. Wives who really didn't want their husbands to go out in the morning in a pickup with a female partner on a timber cruising job, something like that. They would say, "I didn't want that to happen."

Then the response to that would be that forest supervisors and rangers would not place women in roles like that. So therefore, they couldn't get women to work in the forests because those were the jobs. But this was overcome through experience. So now I perceive that it's pretty well accepted as far as women in the work force is concerned. Getting women into managerial roles is the next step, but we're doing that. The way to accomplish things is through goal establishment. Characteristically

Torheim: in Region 1, we exceeded our goals annually in the hiring and upward mobility of women. It was no trouble at all.

Lage: You found women eager to get into it?

Torheim: Yes, women were eager. They were competent. They were willing to make the transition. They had an understanding that this was a difficult thing for them to be accepted in the work force and they performed as we expected them to--outstandingly. Put that all together and it's not too hard finally to get acceptance. But, gee, it took a long time. So I see that continuing, and now if you look at the colleges of forestry and in other natural resource curricula at universities, you'll see in some of them - as much as 50 percent women.

So I think we're on the way. Now, if we could only integrate blacks, Chicanos, and Indians, particularly, into the work force in a similar manner I think we would then achieve the social goals we are supposed to achieve. But I think that will come. It's just a little slow and the Forest Service has had great difficulty in spite of massive energy.

Lage: Now, you, I can tell, have been committed to this goal. Was the commitment as widespread? Was there a difference between age groups in the degree of commitment?

Torheim: Not once it became organization policy. We had trouble with commitment originally because the people didn't think it was possible. Since they didn't think it was possible then if they had personal biases against it, they could put that right together

Torheim: with seeing to it that it became impossible. It takes more than just, "Well, our door is open." It takes a commitment to go out and bring people to your threshold and invite them in and then nurture them while they're in. A lot of our folks wouldn't take that step. They didn't think that was right. People, if they were motivated, as they were, to get into an organization should compete equally and find their own way. We had difficulty overcoming that.

However, once it became a matter of the Forest Service's reputation and the chief's reputation, and esprit de corps of where we are a "can-do" outfit and we were a "no-do" outfit, then even the people who were having trouble personally set that aside and began to achieve this objective for organizational purposes.

The Job Corps

Lage: Did the Job Corps provide you any help in this?

Torheim: The Job Corps was a great help in this, yes. At least it got our people acquainted with women and minorities in a work environment. Still the work environment wasn't quite the same.

Lage: What about developing interest, like so many people came in through the CCC?

Torheim: The Job Corps didn't do that. We thought it was going to. We thought, gee, you'll have so many black people and Chicanos as Job Corps enrollees and, boy, when they graduate they'll come

Torheim: right into the Forest Service. They were so far behind, even when they graduated, they couldn't even qualify for the smallest job. There were some, and a lot didn't want to I must say too. A lot of them weren't trained for that. The education in Job Corps was not in natural resources. It was to be a cook, to be a carpenter, to be a painter, and we didn't employ those kind of people.

Lage: So the Job Corps wasn't oriented to natural resources?

Torheim: No, it provided a natural resource environment to learn other things.

Lage: Did it take them out for the most part into the forests?

Torheim: Oh, yes, that's where they lived, yes. It was a good environment, an excellent environment.

Lage: That's interesting that they picked that environment, and yet they weren't training them for that kind of a life. There is some mystique about that environment.

Torheim: Because the original objectives of the Job Corps were not that clear, it was thought that we would provide them woods work, and that was the reason for putting them out there, and making them employable through learning the world of work. It became evident though that that wasn't a skill that was marketable, and we had to provide them with the kinds of job skills that were marketable. That became the trades--heavy equipment operators, for instance. Then we began to, with contracts with the unions, put together a really meaningful trade apprentice program. That's

Torheim: what it is. It serves them better. They can go back into their own environment and get a job. In fact, with the apprentice program you were guaranteed a job. So it changed. Then the character of the people who came into the Job Corps changed too. So it was different.

Anyway, I'd say that women's role in the Forest Service is moving along quite well, albeit slowly. At least it's easy to see where it's headed. It's not so easy for me to see where we're headed, at least in the western regions, with minorities yet, but it will come.

Lateral Entry and the Promotion of Specialists

Lage: You mentioned lateral entry into the profession and that might be something we should follow up on. Hasn't there been sort of a traditional objection to it?

Torheim: Yes, that's changed a lot in recent years, but yes, when it was really foresters who were the largest professional body in the Forest Service, you started from scratch and worked your way up; everybody did. When we began to introduce other disciplines in the Forest Service, though, we had to have instant expertise. So we had to hire people at all levels. For example, we had to have soil scientists who were truly professionals. We went to universities and hired some to take on the director jobs and upper staff jobs and the same with wildlife biologists and fishery biologists. We got them from the state game and fish

Torheim: departments. We picked up people from the Park Service, the visitor information services naturalists; that sort of thing.

It wasn't until we began to have a need for these other disciplines that we moved people laterally into the Forest Service.

Lage: What about laterally at higher levels? Say, into personnel management in Washington.

Torheim: Oh, we've done that, yes. Oh, yes, and that continues too; not as much, but yes, there's some of that too, much more than it used to be. That used to be rare. Now, just because of the nature of the experience necessary, it isn't done maybe as much as some agencies do, but still it's not a bit uncommon. It's also not as uncommon if somebody leaves the Forest Service and then comes back. It used to be that that was it. If a person would resign from the Forest Service and go to work for private industry or the state or somewhere, they really weren't welcome back. But that's not true anymore.

Lage: That was disloyalty?

Torheim: No, no, in fact, in many instances it's an excellent broadening for them and they're oftentimes welcomed back if their performance was good when they left and their performance was good where they worked during that time.

Lage: At the higher levels, is it still the foresters who get the higher jobs?

Torheim: Our chief of the forest service now is an engineer. That's the first time. Max Peterson is a civil engineer.

Lage: Was there any objection to that on traditional grounds?

Torheim: No, not that I know of. The Society of American Foresters didn't rise up in arms or anything like that. We've had a regional forester, as I remember, who was an engineer, at one time. Engineers who have been in the outfit long enough have had the same experiences as foresters.

Lage: They've come up the traditional way?

Torheim: Yes, as Max has. I would say though that, yes, most of them are foresters and probably will continue to be because the profession of forestry leads in that direction. But as these other disciplines begin to work their way up from the specialist role into the managerial role--I'm speaking of the wildlife biologists, the fishery biologists, soil scientists, and landscape architects and others--I think we'll see them assume the generalist roles more and more. It's just natural.

Lage: More into the managerial end of it?

Torheim: Yes, and it's a personal choice. Lots of professionals in a specialty really don't want to be in a generalist role. That brings up a problem that I and others have tried to solve for years and it hasn't been solved yet. Because of the civil service classification system, you can achieve financial compensation in increments of increase only by movement upward in the hierarchy, not by becoming more proficient in your profession. There are limits on that. I'll give some examples.

Torheim: A wildlife biologist can work up in his or her specialty to about grade 12 or 13, maybe 14 at the very most. But if they've gone that route, then that's the end of it for them. If they want to achieve higher level grades though, they had to make a decision sometime back when they were a GS-11 or 12 that they would move over to a more generalist position, which they could, like a forest supervisor and ranger or whatever. Then they could achieve higher grades up in the managerial roles.

That forces a specialist to make a decision at that earlier time if they want to be the very best wildlife biologist in the Forest Service or if they want to get compensated a little better in the future and be a generalist. Now, private industry handles this in a very effective way which I wish the government would emulate, and that is, why shouldn't an expert wildlife biologist, who wants to remain in that specialty be paid according to his or her expertise rather than where that person sits in the hierarchy? It's conceivable, for example, that a director of wildlife management in a regional office might have some expert employees getting more pay than the director. Research does this. Research scientists are compensated not on the basis of where they sit in the research hierarchy, but on their expertise.

Lage: What about that director himself, the director of wildlife management? Isn't he an expert in that field?

Torheim: Not so much. When he moves there he's not so much anymore. He's getting to be program manager. Anyway, the principle is that if we could somehow compensate people for their expertise we would

Torheim: not force them off into generalist roles just to achieve better compensation. We could provide distinct career ladders for those people who want to choose between either being an expert specialist or being a generalist. It shouldn't have to be movement upward in the hierarchy to achieve pay compensation commensurate with their expertise. You should be able to do it with your specialty. This will happen someday. It happened in research many years ago, but we just haven't made the grade. But the Forest Service is still working at it.

Lage: How does the research division feed back into your specialists?

Torheim: There's a technology transfer mechanism. Research in the Forest Service does research not just for the Forest Service in forestry but for the nation as a whole--private industry and the states and other federal agencies, as well, and internationally. So the Forest Service is one client. But the Forest Service is responsible for the forestry research in the United States. Then there are mechanisms to link the research knowledge to the practitioner and it's done through the staff people--sometimes well and sometimes less than well. That's a whole subject in itself--technology transfer and some of the problems that are attendant thereto. But that's the way it's done. I think that's about the story on the intent of integrating more of society's representatives in the work force of the Forest Service.

Employee Dissatisfaction in Region 6##

Lage: I read a UCLA study report (which pointed out that Region 6 had the highest level of employee dissatisfaction--ranger dissatisfaction--with their job. You said you had some explanation for that.

Torheim: Region 6 got trapped a little bit, and it had to work its way out of the trap. It came about this way. With the rapid increase in timber management activities (timber sale programs) in Region 6 with the national need for housing, the region began to be funded by the Congress with rather substantial increases to put more timber on the market. Therefore, the region began to employ foresters, as many as 80 to 120 a year and some years more.

So during a period of about 1957 or '59 somewhere up until about 1965 or '67 (a period there of seven or eight years), large numbers of foresters were coming into Region 6. They were being recruited to do this job. Then the timber sale program was brought up to the sustained yield levels and it flattened out. The region then had a large number of forestry graduates. The way you work your way up in the Forest Service is to work your way up in the hierarchy. That's the way the classification system is. So traditionally, you'd have to work your way up from an entrance level of GS-5 or GS-7 and GS-9 working in a specialty and then

*William McWhinney, The National Forest: Its Organization and Its Professionals, 1970, p. 137.

Torheim: you'd have to go to GS-11 as a district ranger or maybe a forest staff.

But there were so many people at this entrance level (GS-5, 7, and 9) that there weren't enough jobs for them to move up in any reasonable span of time to GS-11. In fact, many of them weren't even able to get out of GS-7. So there was a tremendous blockage.

This caused an awful problem. These folks couldn't really find employment in other regions either because the high level of activity was mostly in Region 5 and Region 6. Region 5 had a similar problem. It just wasn't in the same dimension.

I was in personnel management at the time that we began to really consider this as being an issue. This was 1966. So Region 6 tackled the problem and decided that we needed to do something about it. So we worked out an elaborate system with other regions and with the Washington office to find other assignments for these people. We had to do that.

The other thing that we had to do was begin to put technicians in the work force. What we discovered we had done was to hire foresters and really were putting them in technician-type jobs because they could land on their feet so to speak, particularly if you graduated from a western school! So we had foresters that were really not promotable because they were in technician jobs.

Lage: But their expectations were higher.

Torheim: Yes, right, of course they were. Then we had some foresters that we hired who truly weren't foresters. They were indeed technicians, even though they had a forestry degree. So we had to sort out those folks and redirect their careers. We were taking any forester who graduated there for such a long time. Anyway, with all of this we began to then tackle the problem. We worked with the community colleges in Oregon and Washington and helped them strengthen their technician programs, their two-year associate degree programs. We worked closely with them. We found opportunities for foresters to move on to other regions in some cases. Some were moved into technician jobs and sought careers--found careers--moving up the technician ladder.

Lage: How far can you move up the technician ladder?

Torheim: Well, not very far compared to professionals but then some people want to be specialists and be very good at a narrower job. So we found some of those who really were more comfortable doing that--not a great number, but some were. Then we almost stopped the recruiting of new foresters until we got this sorted out. But there was a period there of about five years when there was tremendous dissatisfaction by this great pool of GS-7s, essentially foresters.

Then as we began to sort this out and get people distributed better in the work force (and of course retirements and people moving on helped too), we designed a different kind of recruiting system on a much lower level and a planned experience program for

Torheim: new foresters so when they came into the work force, they knew that if their performance justified [it], that they could work their way up to a journeyman grade in five years, and if they couldn't they ought to go out. So that's kind of the way it works now. It's changed a lot because the work load is different now. It's more diversified and the levels of recruitment are much lower. There are personnel ceilings now. So that was a temporary thing that we tackled, but it was a great concern to the service as a whole even though most of the problem was in Region 6.

Role of Technicians in the Work Force

Lage: You mentioned the technicians. Has the role of the technician changed over the years?

Torheim: Yes, the junior colleges (the community colleges) have done a marvelous job of educating technicians to a very high level of competence. So the Forest Service really has many technicians, not just in forestry but in engineering and in the business-management activities as well.

Lage: These work under rangers primarily?

Torheim: Right, mostly.

Lage: How is the relationship between the professional arm and the technician?

Torheim: The technician is the doing arm; they're the experts. In timber, for example, they would cruise the timber and lay out the timber sales and do the technical work of that kind. The forester would

Torheim: prescribe the kind of silvicultural techniques to use--the latest professional technology to regenerate timber and that sort of thing. The technician would raise the trees in the nursery. In fire management the technician is really highly skilled in fire fighting, fire management, forest fuels work and that sort of thing.

The professional is in the policy area, new technology, the translation of research results into new ways of doing business. They are two jobs. Early in a person's career, a professional might well be working for a skilled technician of a much higher grade. They work together, and technicians train new foresters so to speak, and other professionals as well.

Lage: Does that create some ill feeling?

Torheim: Well, no. I suppose there might be some individuals. That was true when I started in the Forest Service too, by the way. We didn't call them technicians. The oldtimers that really ran the district trained all of the new professionals in how to do things. We would impart our knowledge of more theoretical things and that sort of thing to technicians. It's always been a very close relationship.

One of the changes that's taken place, however, between technicians of today and the past is that technicians today are much more mobile than they used to be. The technician of the past for many years was usually a local person who grew up in the same locale as the ranger station that he worked at, oftentimes

Torheim: lived just down the road or had a small ranch; very often worked only seasonally, but never had any idea of moving because their roots were firmly there where they worked. That kind of identified the technician. Now, that was great. That kind of tenure when the professionals were moving around a lot really kept the warp and the woof of the outfit together.

That's not true anymore. There's some of that, but we find now that technicians move readily from one region to another, from one forest to another, just the same as anybody else. But for those who don't wish to, there is still a fine career with tenure being very much a plus, if they keep up with the technology of the business.

Regional Differences and Washington Office Coordination##

Lage: I wanted to go back again to some other questions on some of the things we've already covered. I was telling you about the GAO study of '78 that seemed to indicate that the integrating of all the aspects of the RPA had fallen short, at least by '78. They mentioned that in Washington the headquarters groups for RPA budget and programming, and land management planning were uncoordinated, were separate.

Torheim: We felt this in the field as well. Of course, it's quite complex and the organization to carry it out wasn't fully developed. The goal was to integrate the RPA and the land management planning

Torheim: under the National Forest Management Act, to distribute the national RPA goals then to each national forest, and assist them through the regional plan, and then have those mesh with the ability of the lands in that forest to produce those goals. That's a tall order.

At the same time, the techniques for doing that were still being developed. But it was not done in a coordinated fashion at the Washington office level. So as typically happens in the Forest Service, the regions then have a tendency to go off on their own and make it work. This is happening less and less as this becomes an established way of doing business. It's now become okay for regions to do that and the chief will actually select a region or two to do the experimentation for the Forest Service. We're doing that in Region 1. I suppose that in the past Region 1 might have, just on its own, as we did in land management planning, say, "We're going to go out and make a product and see if the rest of the service will accept it."

Now it's a little better managed and regions are actually selected to do that. So we were doing that in Region 1. The inherent competition though, again, between regions makes other regions want to also reach out and see if they can't do it too. So they were doing this. So a forest was selected for each region this time to experiment. Our region developed the computer program to do this very job of integrating. So when the GAO made its remarks, they were appropriate. The will to integrate it was there,

Torheim: but it hadn't been achieved yet. So it was partially achieved. On those forests where land management plans had been essentially completed, they were being used (although crudely) to formulate budgets and then to see if we couldn't get the RPA goals at least in part distributed downward through that plan.

But with the new forest plans, now, it looks like RPA and land management planning will get together in the system that was envisioned originally. This will take a little while.

Fostering and Controlling Innovation in the Field

Lage: It sounds from what you've said that Region 1 is particularly innovative. Is that true?

Torheim: In certain areas. Each region is innovative in different things I suppose. Region 3 was the most innovative region to my knowledge when we were doing work planning. They had a very sophisticated system which was adopted by the regions later on, and they probably did better. Region 4 was a leader in the Forest Service in multiple-use planning. Each region will kind of pick up on something that they're particularly interested in and had probably some experts or people interested also—a regional forester and other managers—who thought that that was a good thing to do.

So this was one of the strengths of the Forest Service in my judgment; it just needed to be managed a little bit. Occasionally we would go out and get so innovative individually and so possessive of our own innovative ability that we would find each

Torheim: region inventing its own wheel. That's counter-productive and expensive. The service has kind of gathered all that up, and the field feels good about that. The field used to complain about this, that "we don't really all have to do our own thing." On the other hand, it's a fine line about how far do you let innovation go and make it manageable without stifling creativity which I think can be managed.

Lage: You mentioned that the Forest Service has a reputation in Washington for being very innovative and that other agencies come to them as an example.

Torheim: Yes, I experienced that a lot in personnel practices and training, employee development, organization development, especially, but not limited to that; Forest Service work planning techniques [have been] adopted by other agencies. The Forest Service has been a leader in using modern management techniques to get government business done.

Lage: Then why did they have this openness? It's been described as kind of a closed organization coming from, in the past, basically, one profession--and yet they've been open to using techniques outside their field.

Torheim: I think it's--well, I can only speculate--one thing is the very nature of managing the public lands and natural resources, it's something that's being developed as you go. There is no body of precise knowledge, like mathematics or engineering, that permits you to manage and integrate any trade-offs between natural

Torheim: resources. So the person in the field has to use basic education and ecology and the biological sciences and apply all of them and like a big grand organ—with some kind of plan, of course, and whatever research knowledge is available—to make it work. So there is a way of looking at the job to be done that isn't precisely defined. Couple that with a decentralized organization that puts personal responsibility at the lowest level of the organization for significant achievement. I think you have the ingredients then that stimulate creativity and willingness to innovate or try new things.

Coupled with that, the policy of transferring people from one unit to another and to Washington from the field and back has a tendency to disseminate this kind of thinking from the bottom of the organization to the top. Then the esprit de corps and good feedback that accompanies that, perpetuates it, I think. The living close to your job, the close amalgamation between family life and the job itself in the early part of most people's career contributes to that feeling also, and the willingness to work more than eight hours a day, the willingness for wives to pitch in and kind of live the same job life their husband does, at least for that part of your career when you're in a ranger district.

Lage: Is this still current today?

Torheim: Yes, to a lesser extent than it once was, but there is much of this still there. Let me put that altogether. That's the ingredients that make up the culture of an organization over time,

Torheim: I would guess, so a lot of it becomes kind of subliminal really. You just pick it up as you would any culture in any organization or society. So I think probably that's speculation, but in my judgment [it's] what makes the outfit tick.

Lage: From what you've said the field has been the leader in so many of the changes and the innovations, and the Washington office sort of comes along afterwards.

Torheim: Yes, that's right in some things. I don't think that's unusual either because the felt need is at the field level. Now, the Washington level has a different mission too. As every Washington office does in government, they had a difficult job of making the span from the legislative process (the political process) to the administrative process. In other words, translating the laws and regulations into how the job is to be done. So they lived in a world that was quite different from the field world which is getting jobs done on the land and dealing with the users directly. So it's hard for Washington office people to even find time to get into their heads the field needs on a day-to-day basis. Now, this is, of course, worked at very strenuously through visits to the field, the management review system, and the simple process of moving people back and forth keeps a sense of reality at that level. So that's not unusual. In fact, I think it's healthy for innovation to really come from the field level.

Torheim: The key though is not letting it go wild, but accepting that and managing it. I see the Forest Service doing that more now by actually designating regions, even at their own suggestion, to experiment, and then "let's monitor it and we'll help you with it and other regions can look in your window while you're doing it." That's becoming the accepted way of doing business now and I'm glad to see that.

Lage: Is there anything else you think we need to add to this picture of management technology?

Torheim: I think we've covered about all I know and probably a lot of stuff I don't know! [laughter]

Lage: That's good! That's what oral history is all about. Okay, let's sign off then.

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