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Jack S. Barrows  
September 13, 1972

Interview conducted by S. Herbert Evison  
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[Side 2--Tape #121]

EVISON INTERVIEW WITH JACK S. BARROWS

Fort Collins, Colorado

September 13, 1972

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Transcriber: Charles Kennedy

[START OF INTERVIEW]

Herbert Evison: Today is September 13, 1972. I'm Herb Evison and this afternoon I am in the neighborhood of Fort Collins, Colorado, in a very attractive new development on the outskirts of that university town at the home of Jack Barrows whose acquaintance I made very early in the Civilian Conservation Corps days. I think I ought to add in here that back in those days Jack Barrows personally always seemed to be the all-American boy, clean cut, straight forward, a swell guy. I haven't had any occasion to change that opinion. Now, Jack, if your blushes have subsided by this time let's get on the record when and where you were born and something about the family you were born in to.

Jack Barrows: Fine, Herb, before I start this, let me just say that I'm delighted to have the opportunity to visit with you. I think what you're doing to record the history of National Park Service people and I'm proud to be one of them. It's a great endeavor and I'm sure it will pay real dividends in the future. Herb, I was born in Denver, Colorado, August 21st, 1911. My parents lived on a ranch near Denver where I spent my early days. My father then sold the ranch, went into the real estate business and he specialized in mountain real estate and did this all the rest of his life until he passed away in 1940. My mother I believe if she'd have had her way of doing things would have really been a naturalist. She loved the outdoors. She loved the mountains. She was a flower collector. She used to collect tree leaves and press them, and our house was always decorated with things from nature that my mother would put together so I was brought up in that kind of environment. I should add also that my dad was one of the early boosters for the creation of Rocky Mountain National Park which as you may recall was set aside formally in 1915 and he always took great pride in the fact that he was one of those citizens in Colorado who worked strongly for the creation of Rocky Mountain National Park.

Herbert Evison: I think you can take pride in that too. I'm sure you do.

Jack Barrows: Well, my dad as you know there were two boys in the family. My older brother Maynard, five years older than me, and I guess dad told both of us he wanted us to go to college and he didn't care what we took in college so long as it was forestry. Well this was a little bit of a tough decision for me because during my high school days I became greatly interested in engineering, and particularly in electronics which if you recall in those days was very new and exciting field and I used to build ham radios so as time came to go to college I enrolled originally in the college of engineering and I wanted to take electronic engineering.

Herbert Evison: Where? Here?

Jack Barrows: Here at Colorado State University, however, right at the outset and I might add the summer before I went to college I had my first job with the National Park Service. I worked as a trail crew member building the original trail up west of Estes Park along an area known as Old Man Mountain and Deer Mountain. This was one of the pioneer trails and that trail of course was still in much use I understand today.

Herbert Evison: Now you would have been how old then before you started high school?

Jack Barrows: Well—

Herbert Evison: I mean college I mean.

Jack Barrows: I was I guess I was I can't remember for sure, but I guess I was eighteen and just graduated from high school, but that experience certainly influenced me because almost from the first month when I started at the university I decided that I better take forestry rather engineering and so I changed right at the outset and my dad really didn't influence it. He would have been very happy if I had gone into electronic engineering, but I made my own choice, and I've never regretted it. I've always retained the interest in engineering and maybe I can tell you something about that later, but that that was the way it all started. The National Park Service experience that first summer in 1930 I'm sure influenced my career greatly in that I guess that's why I started in the school of forestry at Colorado State University.

Herbert Evison: Now who would have been the superintendent at Rocky Mountain?

Jack Barrows: The superintendent when I first went there was Roger Toowell and he was

replaced right at that time by Edmund Rogers, so I worked under Edmund Rogers, John Preston was the assistant superintendent, and Johnny McLaughlin was the chief Ranger and of course he was my idol right from the beginning.

Herbert Evison: My what influences you did start under there.

Jack Barrows: That's right and it was good influence.

Herbert Evison: Yes. Wonderful. Well, you went into forestry, and I would gather that since you said that was the summer of 1930 that you worked there. You got your degree in 1934?

Jack Barrows: I got my degree in 1935. I stayed out one year between my sophomore and junior years. Most of that year I worked, as a temporary employee at Rocky Mountain National Park. The first two summers, 30 and 31 or the summer of 30 I was on a trail crew, the summer of thirty-one I worked as the assistant warehouseman at the old utilities area headquarters Rocky Mountain. Of course, what I was aiming at was getting a Ranger job and Utopia came fast and I really thought it was Utopia I got it my first appointment as a temporary park ranger in 1932.

Herbert Evison: That was before the term seasonal came into general use.

Jack Barrows: Yes, I guess that's right.

Herbert Evison: You were all ninety-day wonders.

Jack Barrows: We were all ninety-day wonders and in 32 I actually worked late into the fall as a ranger through the hunting season, then I went back to school the following year and I worked for two more summers, the summers of 33 and 34 as a seasonal park ranger and then in I graduated in 1935. In fact, I hastened to graduate as fast as I could so that I could get a permanent job in the National Park Service and I was appointed as a an assistant forester in Rocky Mountain National Park on the 15th of May, 1935.

Herbert Evison: That was even before you got your degree, wasn't it?

Jack Barrows: Well yes, I got special dispensation from the Dean if I did actually work and you may recall those were pretty exciting days. The CCC Program was under a full head of steam by then and in fact Johnny McLaughlin and Edmund Rogers said they urgently needed people, so I went to work about

a month sooner than I would have gone normally.

Herbert Evison: Now you were on you didn't go to work on a CCC rolls, but on the regular rolls I take it.

Jack Barrows: Well, I was appointed to serve under a Civil Service examination and you know in those days there were quite a number Civil Service examinations available, so I took the junior foresters exam which was really aimed at Forest Service career. I took the assistant conservationist's exam and that's actually the one I was appointed under, but I was actually employed to work with the CCC program and in Rocky Mountain that year we had three CCC Camps and my initial permanent job was as park forester primarily with the CCC Program although I did other things in fire control, and insect control that were part of the regular park activities.

Herbert Evison: Well now I'm interested in knowing just what you did, how much direct concern and activity you had with the boys in the CCC camps. Did you provide a lot of training for them among other things?

Jack Barrows: Oh yes, Herb, in fact that was rather a major activity putting on forestry training schools, not only those that were related directly to the jobs that were being done, but also as a part of the CCC educational program. I remember I used to spend many of evenings conducting classes and I would travel to all three of these camps for that purpose. That was a real thrill to work with these young fellas.

Herbert Evison: I want to interrupt that a moment to get this basic life history off my hands because at some time as I know I met the charming lady upstairs you committed matrimony and let's get that on the record.

Jack Barrows: Okay. The first year of my permanent employment with the National Park Service I was a bachelor. I guess that's one of the reasons I had enough time to do these training programs at night and so forth. Lil and I were married on the 9th of July 1936. A little bit of—

Herbert Evison: Now that's—

Jack Barrows: —over a year after my first permanent appointment.

Herbert Evison: Let's give her a first name.

Jack Barrows: Well, she Lillian Anderson. I met her in college. She also went to Colorado State University, and she stayed on at the university another

year after I graduated and then we were married on the 9th of July 1936 and there's quite an interesting story behind this.

Herbert Evison: Good.

Jack Barrows: Immediately, well we on our honeymoon we did what a lot of young people did in those days. We went to Detroit and acquired a new car. Went back there and got a new Pontiac coupe which of course was our pride and joy. We drove it home to Denver and immediately after arriving home and we really hadn't unpacked in our apartment yet. I received a wire from John D. Kauffman who was then the chief forester of the National Park Service and John D. gave me instructions to report immediately to Isle Royale National Park to assist in forest fire suppression activity. Well—

Herbert Evison: The great.

Jack Barrows: —this the summer of 36 as I'm sure you know Herb, was really one of the all-time dry ones for the Lake States and the Midwest and they had a very serious forest fire on Isle Royale and I arrived in Isle Royale on the 17th of July and I can remember these dates and when I reported to Houghton, Michigan, ready to go across Lake Superior to Isle Royale John Kauffman met with a big smile on his face and he says, "Congratulations, you're going to have a wonderful honeymoon." "Ha ha ha ha." He just John had a great sense of humor, and he thought this was real funny. Well, I stayed on that fire until Labor Day. Six weeks and came back into the fire camp that I was working out of at Rock Harbor on Isle Royale late one evening and the fire was in pretty good shape finally. I knew something was up because there were two airplanes on the water. We used amphibious planes and incidentally I think this was one of the first major uses of aircraft that way in National Park Service history and—

Herbert Evison: I think it was.

Jack Barrows: —we had one plane that I used and flew a lot in during the entire activity on that fire as I came back into camp that night I saw there were another plane there on the water. Sure enough it was John D. Kauffman and he asked me how the fire was and I said, "Boy, it really looks good. finally." He says, "Fine, pack your bags." I says, "Great, am I going home?" He handed me a wire and this wire said Evans Peak and Glacier National Park, Evans Peak fire in Glacier National Park has blown up and the fire has crossed the Continental Divide into Many Glacier and this wire was from E.T. Scoyen who was then superintendent in Glacier and outlined how serious the situation was, so John D. Kauffman says "We are leaving

for Glacier National Park first thing in the morning, so get your bags packed." (chuckling by both)

Herbert Evison: So, you then headed for Glacier National Park and how much time did you spend on that fire?

Jack Barrows: I was in Glacier on the Evans Peak fire then for about another ten days. The weather changed finally and we got that fire under control, so I thought boy, I'm going home and John D. says you're going home, but we've still got one other job for you to do that we've got a prescribed burning job that has to be done on the shores of Jackson Lake in Grand Teton National Park and this is the only time of the year that we can do this. I want you to go down to Grand Teton and help out with this burning job. So once again I packed my bags and went from Glacier to Grand Teton and this was a CCC activity—

Herbert Evison: Oh yes, I remember clearing up the shores of the lake.

Jack Barrows: —in Grand Teton clearing up the shores of Jackson Lake. When the reservoir was built they didn't clear out the trees ahead of time and this was really an eyesore all the way around the lake so that entire summer two or three CCC camps had been very busy windrowing all this material into big piles and it just had to be burned while it was still dry that fall and it was safe to burn it, so we had quite a prescribed fire job going on in Grand Teton that fall. I finally did get back to Denver after almost two and a half months with continuous fire activity of one kind or another, so my wife Lil certainly got introduced to the National Park Service in great fashion.

Herbert Evison: I was just wondering if by chance she might have while you were on this non-firefighting job in Grand Teton she might have gotten up there but she didn't, huh?

Jack Barrows: No, she had the apartment all furnished and everything ready so it was nice living as soon as I got home and I had I forgot to add, Herb, that we moved to the Denver office from Rocky Mountain National Park at almost exactly the same time as we got married and this was the old district office in Denver under Region Two of the National Park Service and that office was set up primarily to handle CCC activities in the Rocky Mountain States and my job there as forester was to assist in technical supervision of CCC activities in Colorado, Wyoming, Montana, and Black Hills of South Dakota.

Herbert Evison: Hardly any territory at all.

Jack Barrows: And it was a big ranch and I forget how many camps we had now, but at one time as I recall we had sixty or seventy camps in the state parks and in the National Parks over that area and this was a real job and we were at almost night and day.

Herbert Evison: And of course, by that time the distinction between payrolls and other things between the state park and the national park and had been pretty well obliterated. You were concerned with state parks as you were with the national parks, then?

Jack Barrows: Yes, that that's correct and we had some very fine really fine areas state park activities, of course we worked for example with the Denver mountain parks which had been long established but of course needed the kind of conservation help that could come through the CCC Program and there was Custer State Park in South Dakota and Branded Park in Wyoming, Casper Mountain being one of them and in fact that really established that and it's endured right through the years as a very fine state park.

Herbert Evison: Wasn't that on a reservoir?

Jack Barrows: No, the Casper Mountain actually the park sits almost on the top of the mountain—

Herbert Evison: Oh.

Jack Barrows: —above Casper, Wyoming,

Herbert Evison: Oh, yes.

Jack Barrows: —but it's a very delightful site. We were of course very busy and in the national park areas – Yellowstone, Grand Teton, Rocky Mountain, Mesa Verde, Colorado National Monument,

Herbert Evison: And Glacier.

Jack Barrows: And Glacier.

Herbert Evison: Yeah.

Jack Barrows: And this kept us humping.

Herbert Evison: You really had the cream of the National Park System under your guiding eye.

Jack Barrows: Well, we thought so, we thought so.

Herbert Evison: Yes.

Jack Barrows: We thought so.

Herbert Evison: Yeah. Yeah. It would be pretty hard to beat that collection. Well how long were you at that?

Jack Barrows: Until December of 1937 and at that time I accepted an offer from the headquarters of the National Park Service branch of forestry to move into Washington to work in the chief forester's office, John D. Kauffman. My job there was chief of fire control training. This was a new endeavor at that time by National Park Service and set up a nationwide fire control training program. The background for this was interesting. You may recall during the mid-30s there were a number of very serious fires in the national parks in addition the CCC Program, both the national parks and the state parks involved a lot of fire control activity, so what John D. Kauffman wanted to do was to really professionalize that job. About the only way to get it professionalized was to get it set up as a nationwide training program, so he offered me the job and I was very glad to accept it. This was an exceedingly exciting opportunity. Well, I stayed in that job from about the 10th of December 1937 until World War II started. While I was on the job I had an opportunity to visit every state in the Union. I went to all the National Parks during the time I was on the job except Hawaii and Mount McKinley. I think those were the only two National Parks we missed. Of course, many national monuments and state parks as well. Well, this was a program of working cooperatively. A lot of very fine National Park Service people working with the regional foresters in each of the National park regions also working cooperatively with people in the U.S. Forest Service. Then when it comes to fire training there has to be a cooperative activity because people really don't regard boundaries too strictly when fire breaks out, so we worked very closely with the U.S. Forest Service and also with various state forestry around the country. This was an education in itself. I regard that assignment as being about as fine an education as a person can get if you're interested in the fire sciences as I was. I think it was easily comparable to doing a lot of graduate work in a university because you were able to see firsthand forestry conditions and fire conditions throughout the United States. The way the job was performed I used to leave the Washington office about the 1st of April every year and come out West and we would put on a series of regional fire schools in the National Parks and these schools would usually last until about the first of July. Well then,

Herbert Evison: How long would each one of them last?

Jack Barrows: They would vary, Herb, usually the schools were three days some of them were a full week and occasionally we put on some two-week fire schools. I remember one we had in Yellowstone that lasted for two weeks, but this was more in the nature of a national school where we brought top fire people from throughout the United States and this was advanced fire training, well then come the first of July I stayed out West then for the next two months. My instructions from John D. Kauffman were to go to every serious fire that occurred in the western National Parks during that two months period. Well, it was interesting. There was never a time while I was on the job but when during July or August that I wasn't on a fire some place. We were always having something break out in California or in Glacier or in the Southwest. Some place there would be an outbreak and of course this John D. Kauffman was very wise in doing this he knew that that's the only way I was really going to learn something in the real world was to get involved in that kind of fire activity, then we would come back to Washington. I would usually spend about two weeks of writing up some reports, then take off immediately again and we would conduct fire schools as you remember in forest or Park Service Region One. We would conduct schools in the Great Smoky Mountains and in Shenandoah and throughout the state park camps in the South.

Herbert Evison: I remember having gone to a fire school down in Islands Hammocks State Park in Florida during that period and you'd be interested in knowing that I taped the superintendent of that camp last year, Allen Altvater.

Jack Barrows: Oh, yes.

Herbert Evison: He put on a very did a very fine job of working up that fire school.

Jack Barrows: Well, this this would usually we usually did this in the fall in the South and so this was a job of travel. I traveled about nine months out of the year while I was on that job. The three months in the winter I spent in the office working up training plans and writing handbooks and doing things of this kind.

Herbert Evison: Now it's interesting how you can't get in one of these you can't get off the professional side of this business to get any family history without getting right back into it again. You got married. I'll have to ask you the leading question. Are there some Barrows children?

Jack Barrows: Yes. I guess I should back up during the early years in the National Park Service when I was traveling to all national parks Lil usually went with me on the western trip. She would go with me when I went to the fire schools, then when the fire season broke out she wouldn't go with me then obviously as she couldn't go to fires and so for about four years that was our routine. When World War II came along, I went into the U.S. Air Force immediately after Pearl Harbor, well not immediately, Herb, I should say that I was I got orders to go immediately, but we had some very important Civil Defense fire training to do in the National Parks early in 42, so I was given special dispensation by the Department of Defense to finish up those schools and then I reported for active duty on July 1st in 42 and my first assignment was Seattle and in an Air Defense Command School and then shortly after that I went overseas to the Southwest Pacific. I was a member of the original cadre for the 20th Air Force which was to be the B-29 air force in the Pacific and I was gone for four years. Came home late in 1945. I am not answering your question yet because I want to give you a little of that background I never just get right to it. I accepted a six months assignment in the Pentagon with the Air Force working on the postwar plans for the Air Force and then on July 1st, 1946, I got out of the Air Force and joined the Forest Service at that time and went to Missoula, Montana, in the old northern Rocky Mountain Forestand Range Experiment Station.

Herbert Evison: Now let me ask you. You came out of the Air Force with what rank?

Jack Barrows: Lieutenant Colonel.

Herbert Evison: Well, I think it's highly desirable to get that in.

Jack Barrows: Went in as a lieutenant and came out as a lieutenant colonel. Shortly after Lil and I moved to Missoula our daughter, Mary Lynn was born. She's our only daughter. She was born in 1948 but she also went to Colorado State University. She is now married and living in Denver and her husband is William Rector. He works with an electronics firm in Denver, and we're delighted that we're as close to them as we are now. We have one grandson whose now little over two years old. His name is Jeffery and we're glad that we're close enough to them where we can at least help spoil him.

Herbert Evison: Yes. One of the privileges of a grandparent, no doubt. Now I hadn't realized that you went with the Forest Service right after you got out of the Air Force uniform. You were assigned to Missoula. Now just what kind of a job were you assigned to at that time?

Jack Barrows: This was a, one of the toughest decisions I guess Herb, that professionally speaking that I ever had to make. Now when I went out there my old job was waiting for me in the Washington office in the National Park Service, but you know I was still young and had the desire to work outdoors in the West if possible and this this was the primary reason that I went with the Forestry Service. Right after the war of course all of the conservation agencies were desperately seeking people. There were lots of jobs I think available at least for experienced people at that time and the Forest Service offered me two jobs. One was to be a recreation specialist at the regional office in Oregon and obviously the reason they offered me that job was they seemed sure that my National Park Service experience would be valuable in this kind of a job. I was also offered a job by Harry Gismond who was then chief of the division of fire research at the old Northern Rocky Mountains Forest and Range Experiment Station in Missoula. Well, I'd known Harry for some years before this. I consider him to be one of the really great pioneers of forestry science to the country and the opportunity to work under Harry Gisburn was certainly I felt very promising one and I didn't have too much trouble then making up my mind though I was interested in going into recreation work I was interested you know in broadening myself, but the chance to work under Harry Gisburn at Missoula decided it and I never regretted it this this was a great experience.

Herbert Evison: Well, what made it great aside the fact that you were working under a many you admired immediately? What kind of challenge did you face?

Jack Barrows: Well, the challenge, Herb, was to develop new knowledge and technology in fire science and in fire control technology that could be used throughout the United States and this was immediately following World War II. There were a lot of things developed scientifically during the war and here was a chance to capitalize on some of these scientific breakthroughs that were made during the war and get them applied in forestry and in conservation, so I think this was the real challenge and Harry Gisburn certainly gave me that opportunity. Now we were we were very poor in those days; that is the forest service research organization was very poor. In fact, when we started this program there in 1946 there were only two of us.

Herbert Evison: You and your boss?

Jack Barrows: That's right. Harry Gisburn and me. And at one time before the war, they had a much larger organization there, but this all went by the border during the war so we were just starting again almost from scratch and this gradually of course grew into a very sizable program, but we had to almost start from scratch. Now the very first job that I did

at Missoula in fire research with the Forest Service was the original aerial bombing experiments for delivery of water and fire retardants from aircraft and immediately after the war we entered into a cooperative agreement with the Air Force and we obtained a B-29 bomber, a B-25 bomber and two P- 47 Thunderbolt fighters. Those four airplanes were assigned to Missoula, Montana, for two years.

Herbert Evison: With flyers?

Jack Barrows: Oh, they were based right there, Herb, and we developed the original hardware so that we could drop fire and retardants and actually bomb filled with retardants from these aircraft and the planes at that time were flown by U.S. Air Force personnel.

Herbert Evison: That's what I meant.

Jack Barrows: Of course, I found the reason that they wanted me to do this was because I had been doing quite similar work while I was in the U.S. Air Force overseas and I liked doing it a whole lot better though for the Forest Service because the end result was aimed at a much more useful purpose I thought. Aimed at conservation and it's interesting to note that this pioneering work lead to nationwide use of the delivery of fire retardants from aircraft. Now some other experiments were run in California after this that I don't want to take anything away from what was done in California. This was followed up immediately with some really great work and so within a few years after this original work was started in Missoula this became an effort that became nationwide.

Herbert Evison: You used the phrase the word retardant several times. I have read about airplanes dropping vast quantities of water where the fire was hottest and so on. What other retardants are involved in this work, Jack?

Jack Barrows: Most of it now, Herb, is not water because the retardants are so much more effective and what the retardants now a days are basically it is diammonium phosphate. That's the basic chemical ingredient and this is made up into various kinds of slurries depending upon really what your target is. It may be made in a very thick and viscous slurry that when it's dropped from an airplane will slap right against the fuels and stay right there. Just puts an insulating jacket on the fuel. On light fuels like grass, brush, you want a less viscous material, so it's made up in a variety of compounds, but the chemical itself that's been most effective is essentially diammonium phosphate.

Herbert Evison: Yeah. Well now you were in that game for a long time and I know that

having worked in the woods on Grays Harbor myself back in 1916 and 17 and having been acquainted with a lot of foresters in the early 20s, people in the Forest Service I know that even before the use of the airplane came into became important there had been some considerable changes in forest fire fighting methods and for instance I don't think in the early 20s anybody ever thought of very much of using water on a fire in the forest. They beat it out or backfired against it or something of that kind.

Jack Barrows: That's right.

Herbert Evison: But now I am interested in getting on the record what you consider have been the real advances that have been made over this period in well right from the start – discovery of fire, getting to fire, what you do with a fire when you get there.

Jack Barrows: Well, Herb, I would think that the most single big advance has been the development of fundamental knowledge about fire and the effects of fire and now this doesn't sound very exciting or sexy, but all these fine new tools that we have – a new airplanes aren't much good if you if they're not used with real fundamental knowledge of fire itself so during the period between about 1960 and the present, during the last twelve years really some real advances have been made in fundamental knowledge and by fundamental knowledge I mean an understanding of the physics and chemistry of fire, an understanding of fuel flammability, understanding of fire ecology, and what does fire mean to all of nature that that's around us. I think this is exceedingly important for example to the National Park Service.

Herbert Evison: Oh, yes. No question.

Jack Barrows: And it's resulting in change in fire control policies in both the Forest Service and the National Park Service and hopefully all of these policy changes will be based on good sound fundamental knowledge. I would say first of all that that's the biggest demand. Now these advances were not easy to come by. They came about of course due to scientific efforts by lots of people in the universities, in the various scientific organizations, in the research organizations, in the country and of course the Forest Service through its research program made some rather substantial contributions in the development of fundamental knowledge, but I think we must recognize this came really from the scientific community as a whole. Now it also came about due to better trained scientists, to better research facilities for these scientists to work in, one of the things that I think is really the happiest part of my career in the Forest Service was the opportunity and the ability to have support for developing a major forestry

research laboratory.

Herbert Evison: I was I was just about to remark that certainly one of the factors involved was a greater degree of open mindedness towards experiment and adoption of new methods, isn't that correct?

Jack Barrows: Yes. I the the climate was established for good scientific effort. Of course, this came about by the efforts of a lot of people. I found that during my whole career in the Forest Service research that we certainly work in a very fine environment. The scientist had complete freedom of the same as they do in universities if anything maybe more so and I think this is essential for good research. Looking at the at the scientific facilities, Herb, here is a drawing of the Northern Forest Fire Laboratories in Missoula which we developed while I was there. This is really a beautiful research facility. It's quite unique. It has a sixty-six-foot-high combustion chamber which is right here on the photograph. That combustion chamber was built so that we could control the climate inside the chamber. It it's a very large chamber. The largest chamber of that kind really that's been built yet in the United States; it controls humidity, temperature, and atmospheric pressure in it. Well, that enabled us to bring nature indoors where we could control it—

Herbert Evison: Control it.

Jack Barrows: —where we could run experiments and repeat them over and over again under exactly the same conditions. We also built two wind tunnels and these wind tunnels are quite unique. There's a high speed and a low-speed wind tunnel and those wind tunnels also are built with the capability to control temperature and humidity in the wind tunnels as well as wind velocity. Well the laboratory was completed and in 1960 and it's been very busy ever since and we were talking about breakthroughs in fundamental knowledge; part of this has come about because of good scientific facilities like this for scientist to not only do experiments outdoors, but also to bring nature indoors where you've got very complex problems that involve meteorology and physics and chemistry where you you've got to set up good controlled experiments which are very difficult to do if you can't control the elements you're working with. So that's really why the laboratory was built. It also has facilities for electronics and physics and chemistry and meteorology and so forth in it.

Herbert Evison: Now how bit how big a staff does that have nowadays?

Jack Barrows: This this laboratory now has a staff of about a hundred people. About twenty-five scientists and about seventy-five supporting personnel.

Herbert Evison: Up from two, huh?

Jack Barrows: Up from two, that's right and the scientists are really in their disciplinary. There's meteorologists, physicists, chemists, mathematicians, engineers as well as foresters. Foresters are actually in the minority—

Herbert Evison: I would suppose so.

Jack Barrows: —in the staff of that. The lab was built of course to service all of the private and public agencies that have problems and interests in all areas of fire sciences. Means the National Parks, National Forests, Forests, private forests, are all really customers of this laboratory. There are now three laboratories of this type in the United States. One at Missoula, Montana; one at Riverside, California; and one at Macon, Georgia; and the one at Macon, Georgia; is just now being greatly expanded. Congress this past year provided another nearly two million dollars to put an addition on the lab down there. It's had good support by the Congress right through the years.

Herbert Evison: Were you at Missoula then the rest of your career with the park with the Forest Service?

Jack Barrows: No, Herb. I stayed at Missoula for eighteen years. From 1946 to 1964 and in July of 1964 I moved to the Washington office of the Forest Service as director of fire research. This was a job that entailed responsibility for technical leadership of the whole nationwide program for fire research. In 1968 a reorganization occurred because of expanded activity in this field and a new division was set up in the Forest Service called the Division of Forest Fire and Atmospheric Sciences Research and I became the first director of that division, and I had that job until I retired in July 1<sup>st</sup> of this year. Now the atmospheric sciences activity involved not only that related to forest fire control throughout the country, but other phases of atmospheric sciences as they influence various forestry activity. Now this stand of course the work that we had done the fire weather field and work that we had done in the fields of weather modification and developing new methods in forestry for measurement and analysis of atmospheric factors as they affect the whole ecologic spectrum in natural resources and particularly where grass and trees grow so that's why the new division was created and I found this to be a very exciting opportunity. I've always I had always had an interest in meteorology and we were able to obtain a very fine meteorologist to join our organization to work with us and have some very outstanding atmospheric scientists working in the program. I can assure you that it was pretty tough to leave this because it was very

exciting, but time comes for all of us I guess to turn the job over to younger hands in which I think is good.

Herbert Evison: Well, in looking back over those years. That's quite a long time from 46 to 72, twenty-six years with the Forest Service and the previous years with the Park Service. Looking back over it is there any one thing that you would point to and say there – all the things that I was involved with in those years I think I'm a little bit the proudest of that.

Jack Barrows: Herb, that's an awful tough question to answer. I guess I need to go right back to Park Service days first of all in answering that question. I really believe that one of the things that I'm happy with I had a chance to be part of was the CCC Program in the National Park Service. I think this was a great effort. It started, you know, in a big hurry, an emergency crash program, expenditure of millions of dollars, but it also put hundreds of thousands of young men to useful work. I'm sure it made better citizens of them and I guess in countless numbers of CCC personnel, enrollees and supervisory personnel both, well I'm sure it made a great contribution to this country because they got an opportunity to be something in the CCC and frankly I think this country very badly needs another CCC. Maybe not exactly like that, but I know in particular my recent experience in the Forest Service and in traveling around the United States in both the National Parks and National Forests there is so much work, conservation work, that needs doing that is not getting done that I would like to see this kind of program come about again, but perhaps on a somewhat different basis, but I would sure a lot rather see people put to this kind of work than drawing welfare checks for example, and I hope we can find some way of doing this. I think it it's a job that needs doing.

Herbert Evison: Yeah. Well looking back on those days with this your connection with the CCC we remember that the Army had a place in the picture, the Labor Department had a place in the picture and the various agencies had and I wonder if you have any ideas about any major change in that set up you'd like to see if this thing did come back to life again?

Jack Barrows: Well I'm sure you remember from your own experiences it's always a little bit tough to run a show that has too many bosses and by this I meant if too many agencies involved in some aspect of supervision it always leads to some uncertainties and some difficulty, but I think I would prefer to see the program set up so that the National Park Service, the Forest Service, Bureau of Land Management and the state foresters et cetera they would run their own program and have complete supervisory responsibilities for it. National guidelines obviously would have to be laid out so that the various social and scientific and work aspects were properly planned and

carried out, but I think I WOULDN'T like to see too much divided responsibility as we had in the CCC program.

Herbert Evison: Of course, I remember that frequent complaints the Army in its housekeeping job pulled too many enrollees every day off doing useful work.

Jack Barrows: You know its surprising when you look back at it the complications in the program that the Department of Labor, the Army, the various conservation agencies all involved that it came out as good as it did I guess. It showed that people did learn how to work together pretty well, but there were always some administrative difficulties that that probably caused some inefficiency.

Herbert Evison: On the whole though I think you and I would both agree that those millions of dollars and there were quite a lot of millions of dollars on the whole were extraordinarily well spent.

Jack Barrows: Yes, I think they were, well I just recently Lil and I just recently made a trip back through Rocky Mountain National Park and I wanted to go back and look at some of the developments that were done in the CCC days and Herb, there's campgrounds up there functioning very well today. They're really the basic work was done back in the CCC program. There's trails and lots of other facilities that were developed by the CCC and they're still in service.

Herbert Evison: Well, I'm kind of at the point that I don't know just what next question to ask you, Jack, but the floor is yours for any observations you may want to make. I tell you one thing that I might be that you might be interested in making some commentary on. I think I was starting to ask you if you'd like to make any observations on let's say yesterday and today on the two services that we both know fairly well.

Jack Barrows: Well, Herb, I think it was fortunate to me personally that I had an opportunity to work for several years in both of the leading conservation agencies in the country – the National Park Service and the Forest Service and I'm sure that us old timers are free to say that neither service is like we once knew, but they've changed greatly and some of the changes have been rather traumatic experiences to personnel within the services or I think in all fairness if we look at these changes and really get to the bottom of them we can see that they come about first of all due to the

tremendous pressure that's being put on natural resources and believe you me it's not quite as easy and also not as enjoyable a job as it once was when you didn't have the pressures so extreme, but of course having been most recently in the Forest Service and having been in the Forest Service during one of the most critical periods I think that the service has ever gone through a lot of things have happened. For example the statements have been made by many people and perhaps in some cases with some foundation that the Forest Service has sold out to the timber industry and other people have said they sold out to the grazing industry and still others that are on the other side of the fence say that the Forest Service is setting aside too much wilderness and so you get it from all sides, and I don't think, Herb, this is going to stop. I think the only position this service can take is to really be right smack in the middle and any time you're in the middle where you've got special interest groups, pressure groups, on both sides of the middle, you're in a very uncomfortable position and I don't think this is going to go away and I think that unfortunately there are a lot of things written and said about this that aren't always true, but we've both seen a lot of this over the last two or three years the clear cutting issue is a perfect example. I think, however, that the only way such problems are going to be solved is first of all any agency of the Federal government that has responsibility for management of land and resources is above all got to take a one hundred per cent professional approach to the problems at hand. That it just has to do everything possible to be one hundred per cent objective. Nowadays that means you've got to bring the general public into your closet. The general public really has to be given a bigger role in decision making and the minute you do this I can guarantee you're going to have traumatic experiences because there are just as many opinions on the ways things should be run as there are people, but we all of us who are professionals in this job I guess have to listen a little bit more and be sure that we hear what the citizen is telling us and try to run out jobs accordingly.

Herbert Evison: With an open mind.

Jack Barrows: With an open mind. Well I think we've also always need to go back to natural resources I think have to be made in a very professional way and that means that the people who are doing this job whether they be in the Forest Service or Park Service, boy, they'd better be the very best pros that you can find and I think if that policy is adhered to that and very carefully that you can put yourself in a position where you're not going to get toppled over too badly by public opinion that's sometimes looks like it's not going your way. You have to be professional most of all.

- Herbert Evison: Well, I think that's a wonderful statement, Jack. You are welcome to expand it, add to it, or add anything else on this tape that you feel like or when you feel like we've come to the end we'll end it.
- Jack Barrows: Well one other thing perhaps I would like to make some observations on Herb, is, again going back to the Forest Fire problems of the country. I think as we said in this conversation earlier these policies are changing. In fact, we find areas where we're letting fires burn, where we'd never would have done this years ago. This is happening in both the national parks and national forests. We're making much greater use of prescribed fires to help out in in our management and these are changes. Well, I think we have to be rather careful in in the way we handle the fire management decision and the plea that I make for all the people that follow us in this job is again that they do it in a one hundred per cent professional way and I think of the problems that some National Park Service chief rangers have got now a days. I think they've got a tremendous problem in front of them in Yellowstone or in Sequoia where we are going to let some back-country lightning fires burn. We're not going to rush right in there and put them out. Well we're doing this because we want fire to play its natural role in the ecology, but we've always got to remember that man is a part of the ecology too and that every time one of those decisions is made you better make it in light of really good information and supply the very best professional skill that we can muster and make it and there's some cases when fire danger is high, when people's safety is involved, but it would certainly be unwise to let fires burn and I when I am pleading for is a real professional approach to this job. I think it will come. I know both the Forest Service and the Park Service have got rangers who've got some very tough decisions to make and I hope that the scientific community can provide them with the very best knowledge and technology so they can make those decisions and have the tools to carry them out properly.
- Herbert Evison: I think that makes a marvelous wind up statement if you're satisfied with it? If so, I want to say Jack, it's been a great privilege to sit across this desk from you and listen to you and I'm very proud of the tape that I've gotten from you.
- Jack Barrows: Well, thank you, Herb, and let me say it's been a real pleasure to do this and I certainly want to record on this tape for people in the Park Service who might hear it I send you my very best greetings and I want to tell you that I'm proud that to be an alumni of both the National Park Service and the U.S. Forest Service.

[END OF INTERVIEW]