

TRANSCRIPT

INTERVIEWEE: Hal Flanders (HF)

INTERVIEWERS: David Todd (DT)

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DT: Let's begin. My name is David Todd and I'm here for the Conservation History Association of Texas. We're in Alpine, Texas, at the home of Hal and Mary Flanders. It is April 4, 2001, and we have the good chance to be talking to Mr. Flanders about his work in many different regards on behalf of the environment from recycling work to being a guide to introduce people to the flora and fauna of this area to political work against radioactive waste being disposed in this area. And on many other issues that I probably haven't mentioned here. I wanted to take this chance to thank you for spending the time with us.

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HF: It's good to get a chance to blow off steam.

DT: Well, good. I'd like to at least get us started by maybe asking you how you first might have gotten exposed to the outdoors and interested in conservation. If there is anything you could point to there?

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HF: Well, it was pretty much self-taught experience in the first place. But when I was three years old, I was climbing Lookout Mountain, where Bill Cody's grave is in Colorado. And I was ahead of my father, of course, and I hollered at him, hey dad, look what I got. And he came chugging up the hill with a full pack, got up there, promptly drew his pistol and shot. And ruined what I found. It was a rattler. I can see why he did it, but I thought it was too bad, and I never did like that idea. So I found nature early, just being curious. The important thing, I think, was that as I developed, not a whole lot brought me into contact with nature excepting frequent camping out. We used to do a lot

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of that and continued that into our married life with our own children. So it was pretty much self-taught. And finally realizing that I was only partially informed about anything, I started trying to find ways to organize this. And in my birding activity, fell in love with hawks, raptors. And I had a buddy in New Jersey called Lynn Susee, who runs the Raptor

Trust in New Jersey. It's a wholly privately-owned thing. People finance it to a pretty good extent. But he's kept it up all these years as an animal hospital for birds, and I just got a report from him the other day. This year's produced three thousand, one hundred and eighty-four, if I recall correctly, birds people brought to him to fix. And about fifteen

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hundred of them were raptors, hawks. And then I got to know him, why, we were pretty set up on the Kitty Tinny Ridge banding hawks in a blind and trapping them and all of that goes with that. The recording, sending the information to Washington, learning about the decline of the population of the birds and so forth.

DT: What year was this that you began banding?

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HF: It would have to be about 1953.

DT: So this was before Rachel Carson had come out with her Silent Spring?

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HF: Yes. Yeah. It's one of the bibles, you knew that didn't you? That and the Sand County Almanac. Okay, well, when we got to fooling around with the hawks and banding them and sending them on their way, that was thrilling and a lot of fun. But then—1972, I returned from organized business and was glad of it. First thing we did is to buy a trailer and we pulled nineteen thousand pounds around on the road, all over Canada, United States, Mexico, everywhere, looking for the hot spots for birding, the hot spots for scenery. Every—all this constant contact with nature in one form or another in this biome in that biome and another, in a different life zone—asks questions. Why, why does all of this go on? And I've been doing nothing but thinking about that since then

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and having a lot of fun doing that. Ever so often I discover something. I remember one occasion in Mexico, which I'll tell you about later, we found new spiders and brought them into American Museum of Natural History and were credited with two new spiders. You'd think there wasn't anything new anymore, but there is. Lots. Only thing is, they were out at night. At night there's a great deal of life going on. So, as we traveled looking for a place to settle down, where is the place, almost settled in Mexico but it was

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starting to get politically unstable. So after touring for years and camping all the time, usually in the best places you could get in, like Chiricahuas in southeastern Mexico. That's the best birding spot in the west for migration. Oh boy, those were fun days. Well, about 1970—I guess in the winter of '72, I was in the Chiricahuas, and we were visiting our friends that—who ran the museum there and he came up one night where we were in the

campground and said say, I just got a bunch of students in from Evergreen College in Washington. And there was about thirty of them. They're here—tomorrow they're going to go out and do some experimenting, but tonight they don't have anything to do,

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have you anything you could show them for entertainment? How about the Galapagos Islands? Ooh, yeah. I had led a trip there and got a lot of photographing done. And so I packed up and brought this stuff up there and showed it and those thirty kids were pretty interesting and live wire, wanted to find out if it was possible to make a living and still be a field biologist. Not a biologist in a lab, but in the field. Well, that suited me fine and we got along well. It was about three years later that I was settling down with Lynn Susee again, up in Cornell, at a conference for raptors research, and a kid came down and

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sat kind of in front of me in tailor fashion on the floor and he grinned at me and says, you remember me? I said yeah, you're the man that was following the cotamundis around the Chiracahuas. Yeah, he says, there's ten of us here now. None of us were interested in birds at that time, but we are now. Ranger Hunt has gathered us and we came back here in a school bus to attend this conference. Oh? Where did you sleep?

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Under the bus. Okay. There's a—this—here now and—finally I thought—exciting in her stimulus for grabbing at knowledge, said to us, you—you come through Alpine, Texas, don't you when you're going back south for the winter? Yeah, I do. Well, we—we got a raptor research conference coming up there in 1975, and we don't know much about this, but we sure would like you to help us if you could. So I stopped there the next time we went by on the way south and here they all were sleeping on the floor in an—in an abandoned school and grabbing food as they could and so forth, but really into birds and research. So I helped him with this, and with that, helped build a kitchen and some study carols and stuff of that sort. They were sleeping on the floor in the gymnasium.

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They're a great wild group. And do an interesting research. And about that time I met another fellow who turned out to be very important in my life. He was from Montana and his favorite place in the world was Big Bend National Park. Before he moved down there, he'd come down and he photographed everything about the place. I met him—I was doing still photography at the time and he was doing movies and we sort of teamed up and followed these kids around doing their research in Mexico, bat falcons, the Golondrinas cave, so big a cave that you can put the Empire State Building right down inside

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and not touch a wall. That's a real cave. We were after the birds that nested in there at night, swifts and so forth. We were both photographing. Went into Palenque and found out that there was a lot there to photograph. The two of us developed a team and we roamed widely all over the Chihuahuan Desert. Not the Sonoran, the Ch—Chihuahuan. It's the least known desert of them all. And found a lot of interesting stuff to photograph

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and to learn about. And finally we argued a lot and arguments usually centered around what would best show—what would best tell people who can't see this beauty there—it's—it's important that they come to realize that it is beauty or they'll never take care of it. And it's getting worse every year. We can see it even as closely aligned as we were with our trips. So, we ought to make a movie and we ought to make it pretty so that people will come to appreciate the beauty, and if they appreciate the beauty, maybe they'll take care of it. And then we ought to have a part of this trilogy, what man is doing in the desert. So we made the first one, Land of Lost Borders. Second one, Where Rainbows Wait for Rain, that concentrated on the water, or the lack of it, and the third,

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Desert semaphore. Signals, you're getting signals, are you looking? And when we got all done, took a year each to make the films and Burgess Meredith, we got to narrate it. I asked the old man if he knew how big the desert was and he said he thought he did, so forth. Wonderful narration for the background that we'd provided for him. And we were pleased with it when we saw the result so we went down and showed it to the superintendent at the park. And he—well, first we'll get rid of that film that Washington made for us, and we'd like to use your film to introduce the people to the desert when they come in and need to see a show. Okay. Same result with the second one. When we got the third one done, we showed him that. I—I don't know, we—we better not show that one. It was pretty to the point. We needed changes. And government folks are limited with respect to the changes they're able to make. Well, we finally finished those

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films and went to make others and so forth, but Harry had long said, I won't live to be fifty. Nobody—no male in my whole family has ever lived to be fifty years old. And at about forty-eight, heart attack. Bing. Gone. But he left some heritage in those films. I wish he'd lived to be a million because he could have been making them all that time. All these explorations, mine, related items in different biomes, in different life zones sometimes. What's the difference? Why, that why, why, why stuff got to be pretty

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exhausting, but it did enable me to be able to run the rivers down here in the Rio Grande with people who wanted to know—they—they—they wanted a river trip. That's what started it. And they'd ask the Far Flung Adventures people, can you get somebody to go

along to tell us what it is we're seeing? And so we hooked up and did some of that. And it helped the people I think, and me, both.

DT: Let's resume, you were telling us about being a guide on some of the raft trips on the Rio Grande.

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HF: Yeah, we had some interesting ones. It's really fascinating to be in a riparian area adjoined by a desert because you've got the water, and as long as you're near that water, you've got the cane and the other things that lie on both sides of the river and make it look green and lush, creatures, yellow-breasted chats screaming at you every foot of the way and you're trying to find them and see them. It's not easy to do. And you beach,

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you walk back in. You don't have to walk very far, a very short distance until all of a sudden you are in the desert and there's a line that's very narrow that divides the riparian area and the desert itself. And that was fascinating. So, everything down there is fascinating. There is more life in a desert than there is in any of the other biomes. But it's at night. Well that's practical. It's hot during the day. So you expect to find things at night that you don't see in the daytime. If you're not going to spend all your time sleeping. And it's fun to do, over a campfire and all that. You can engage people and

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ask them the questions about what do you like about this and so forth and so on. And are you surprised? And as they come to answer and their—their eyebrows are up. They're—they're surprised all right. Well, what are you going to do about it? And talk about that for a while. It's a—it's a recurring theme that goes on and on and on as you acquaint people with what's going on and how absolutely remarkable it is. Nothing a few billion years can't bring about. They realize that the world does not—the sunrise does not—sun—sunrise or sunset on us. There's more. A lot more. And everything I've noticed in

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the news that talks about nature and there's some very good programs on TV about nature, PBS and so forth, but I don't see how people can see that stuff and not be taken by it and ask some pretty important questions about just what's what and who's who. We are not the only creatures on the planet. I—I'm sure I'd get argued with, but I'm pretty much of the opinion that we're not even the—the most remarkable creatures on the planet. Each in his own way, so many of the others outstrip us. We're—if it weren't for

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our minds, we'd be in big trouble. The trouble is that our minds are moving in all sorts of wrong directions. Our revered leader W and his gang busy making money all the time,

are—are ruining us. We don't take the steps necessary to give the creatures the place in the sun that they deserve. We could learn so much from them.

DT: Can you give us an example of the sort of things that are quite remarkable that animals do that we might learn from?

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HF: Well, I think so. Some of the things we should learn not to do stand out. I've got a can up on the shelf here behind me. It's a beer can, little bent. I found it out in the middle of the desert. Somebody had tossed it out there. And in it is the skeleton of what's left of the spiny lizard which found the can after it was thrown out there, perhaps with a little moisture still left in it, stuck his head in, but the spines all point backwards. And when he tried to get his head out, he couldn't do it. So he's still there. And some of those spiny lizards and some of the whiptails are amazing. We got a bunch of whiptails out here that there's no known male in—in that species at all. They're all female.

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Somehow they found the trick to manage to fertilize their sperm, or their reproductive agency, and it goes in and produces another clone. We are very excited about cloning now. If you get so good that you can do something like that, to perpetuate your species, that's—that's remarkable. I don't know that we want to get into that. We already have too many people. This has been a striking example shown to people who scratch their heads. You can't throw it away. There's no such thing as throwing it away anymore. It needs to go somewhere, to be taken care of.

DT: Well, speaking of that, maybe you can talk about your efforts to get a good recycling program started here in Alpine?

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HF: Well I guess that's what I am talking about, isn't it? Recycling. Germany has a very strict code on all that. If you build something and you have to crate it to send it to the buyer, you're responsible for that crate until they send it back and you do something with it. You recycle it. Well, we're not that advanced yet. We begrudge having to spend any money on anything after we've got the money. Money is not the whole answer by any means. So to try and find ways which to convince people that there is the possibility for reducing waste came about at an opportune time. Alpine here had a—a landfill but what's bad about landfills is they keep filling up, then you have to go buy a new one.

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And at that time, they were beginning to get worried about putting sheeting under the landfills in order to prevent leakage into the water. By the way, I should tell you something about the water system in Alpine. Usually bolsons or aquifers are—Willy, lie down—he's my dog, he's smarter than me. Most aquifers are built in sandstone or limestone, porous

rock that can build up and hold a whole bunch of water, acres and acres of it. Not in Alpine. This is a volcanic area. We're only about eighteen miles from the epicenter of the earthquake we had here a few years ago. And our aquifer contains

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nothing but impervious rock, volcanic dry light, stuff of that sort. It breaks brittle and shards, and so forth. So they got these bunch of little bitty rocks and the water is held in the interstices between the rock, not inside it. So, when the earthquake got here and that situation for water, that's what we are depending on. Anybody know that the earthquake will happen next week, or when. When—when, not if. Jars that enough so that it drains. This couldn't happen in other places. There are only about, less than ten of these in the world that they know of. So we're worried about that—that kind of thing constantly.

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Nature has made this an area that's desert-like, dry, the variety. But organisms fill this org—or this—or this—this place too; only it—it makes sense to not be out in the daytime. You don't live in the daytime. I think I showed you an example of the scat of horned lizard? Which is, oh, maybe an inch long and a quarter of an inch in diameter and on the end of this dark scat made up largely of ant shells, is a little bit of white that's fastened to the bottom. It's nothing but uric acid crystals. Don't give up any moisture if you're in the desert. That's an adaptation don't we wish we could come up with. There's

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all sorts of things that are examples for us in the desert about how to live in the desert. Well, that kind of experience throughout nature and everything I talked about with people in all these years, sets the stage for coming into a city like Alpine and we're not doing anything but making more stuff to throw in the landfill. But the regulations are getting tougher and tougher, so finally we get permission to build a landfill and we don't have to

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have a layer under it because there's a thousand feet of rock underneath. It's not going to leak through, but it's a limited kind of—twenty tons a day is all we're permitted by law to put in the landfill that we have now. Thirteen of it comes from Alpine. Alpine is growing. One day we're going to pass the twenty-ton limit. So then what if we didn't put so much in the landfill? All right, that takes recycling. Well, then, let's recycle. And more—more out of stubbornness than anything else, a group of us got together and had a little to bother about but try to wrestle with the City Council. And grudgingly we got them finally to help us a little bit, and then a little bit more, and then a little bit more.

DT: What year was this?

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HF: 1990. I started it in 1990, in June. And we developed, oddly and strangely. We were breaking glass in fifty-five gallon drums by poking them with two and a half inch diameter pipe. All that did is to bend the fifty-five gallon drum out of shape. We broke the glass but that was a poor way to do it. So we invented a way where you have a lid top on a fifty-five gallon drum. A hole cut through it that you can drop the bottles through, and a rotary lawn mower principle with a heavy, heavy object turning around. And put a chute to put it in. So you turn this thing on, the shaft is revolving and this big heavy thing going around bang, bang, bang, crushing the glass very nicely. And it cost thirty dollars to build. We used reused, what's the popular manufacturer? Kenmore. We used a Kenmore motor, the shaft in a Kenmore, and put it together and broke glass. We did this

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big time. We found out right away where we had erred in starting out to encourage people to take stuff to the grocery stores that had the barrels outside. The principle is, you go in and you buy something in a bottle, or glass, take it home, use is up, bring it back to the store, drop it in the barrel, go back some more, nice natural route. And it started working and we got more and more that we had to—but how do you get rid of it? In a little remote rural town, you got a hell of a problem trying to move material. So we finally found somebody who would buy our glass and we put fifty thousand pounds on

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one truck, which is all the law would allow. And took it from here to Waco, four hundred and seventy miles. Well, at two dollars a mile, that's nine hundred and forty dollars. And when we got the fifty thousand pounds there and ready to sell it, they gave us a thousand dollars. And volunteers in about three months had piled up that tonnage for which they got sixty dollars. If you have to ship it, no good. So then we realized what we should be trying to do is to develop an area where we could get stuff recycled and sell it to profit. But as long as you have to ship it, you can't do that. So we'll never make money and I've tried to assure the city government that they're foolish to look for anything out of that. The way it's going to come, the way it'll come, is right down here in the corner. These blocks.

DT: Tell us about the blocks.

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HF: The blocks are blocks of paper called papercrete or fibercrete and in the west here, there has been some experimenting with that. What you do is get paper and a little lime and a little dirt. And none of these are extremely expensive, especially if you're recycling paper. So we started out getting law books sent to us, cut the back and the end pieces off, take the paper, sometimes five pounds of paper in one book. And pack it up to throw into a mixer where this is turned into a slurry of paper, very wet paper. And when you pour it out into simple little molds, four sided molds, pour them full, let them dry. It's was better



insulative value than concrete block. There's better fire retardant—not—not better fire retardant, but it's good fire retardant properties. And it's about one quarter the weight among the group messing with this kind of thing, the statement is commonly heard, well, a woman can build a house like this. She can. If you've lifted concrete

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block up to the next story a few times, you'll—you'll know what—what, that again is trying to learn from nature. What has nature done—every creature has to have some sanctuary and you can think of every sanctuary in the world and there's an insect in there somewhere. The desert is full of them because they're all out at night. You can see them then. You can't see the daytime. And people want to go out in the daytime okay, show me something. Well, come on, meet the desert on its own terms. And so that's what we're trying to do is get paper, make building blocks out of it, in the same town that the paper is collected in. No shipping. So we're working on that now and we've got a fellow in town, Tom Curry, who is making these cinder—not cinder, but paper blocks. And that's going to work right in with straw bale development and tire houses and so forth. Using stuff that's no longer useful, using it one more time constructively. That's what man has always done. Teepees, caves—original settlers in Mexico. Adobe—adobe is

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dirt and maybe some straw and water and that's it. You use what you have and you really don't need Italian marble to live in. So we're trying that as an example of the possible movement in the direction for recycling, especially in little towns. It's this travel that—shipping that kills you. So if you're saving all of that expense, it's perfectly practical. Will that go well? Well, if it's a rough exterior as is the case with adobe, plaster over it with some more that slurry, let her dry. Paint it if you must, but don't paint it red. This is a desert. Well, it's that kind of thing and that sort of thinking that has been

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going on for a long time and slowly learn how to—to work the system so to speak. And small town governments are no more giving than large town governments. Now with W, we're going to find out all about how important it is to make money. Money is not the answer. It's learning to cope with nature on nature—nature's terms. You're not going to cope with her any other way. So, that was an upshot of the efforts towards recycling. But it's exceedingly rewarding to go over to the—I only live two blocks from the—the recycling yard and I'm over there frequently, and finding automobiles driving into the compound, little old ladies in tennis shoes getting out, coming around and picking up the

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back of trunk, and taking out glass bottles, flashlight batteries, cooking oil, automobile oil, but no more than five gallons at a time and you have to swear that there won't be any antifreeze in it, refrigerators. But if going to take refrigerators over, don't forget to empty

the freon. Bottle it up and send it back to New Hampshire and recycle it. All metal now does pretty well. About sixty-seven percent of all of the aluminum in the United States is

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being recycled, in about the same tonnage as steel. Well, Mesabi Iron Range just ran out of Minnesota. We got to go find another big place and destroy it completely in order to get the metal we need, or are we going to use the recycle? We're going to be forced into complying with nature, like it or not. So let's get about it. I don't have much respect for government. It advances too slowly, if it advances at all. There are better things we know to do. It's time we got at it.

DT: Speaking of your efforts to minimize waste through recycling...

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HF: Yeah.

DT: I know you've been active in trying to dissuade powers to be using West Texas to dump the hazardous, radioactive waste. Can you tell us a little bit about your efforts there?

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HF: Well, I'm satisfied that when Teller and Oppenheimer got together and came up with a bomb that worked, they were exulting about it one day in Einstein's presence. They told him all about what they'd done and how the—problems they'd solved and so forth. After they quit talking he sat there and scratched his head, Einstein did, a little while and he looked at them, he says, what are you going to do with the waste? Oh.

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That's why I say that one of the most common words in the world of science is oops. And that's what we don't do. We—we do things, which are remarkable, completely remarkable but we don't think of all the things that could happen. And we should explore, okay, we can do that, next question. Should we? I think we gave the wrong answer to that question, we should not have. We don't know enough about it yet to do it well. So, when I hear that little Sierra Blanca up the road a piece is picked out for a target, they're going to put atomic waste that's been gathering for a long time now and—not only from Texas but also from Vermont and from New Hampshire—Maine, Maine

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and Vermont. We're in a compact. That's a little community of about three hundred people, most of them Hispanic. Now we're going to go out there and dig up a great big hole and put all this stuff in there. Well, sure, that ought to be all right. What if it isn't? What do you do to that place, what do you do to those people? They can't defend themselves. No way. So we got excited about it down here because this is not that far from Sierra Blanca as a practical

reason, but also as a simple justice. It's—it's wrong to target areas that are not able to defend themselves. So Gary Oliver and Susan Curry and I

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went back to Vermont thinking to let them know what they're doing to us. And the first day back, I was shocked. They had set up a Senate hearing and one of the Senators that ran the hearing in the courthouse at, oh I forget, but the capital, had a hearing and we were, the three of us, allowed to put our point of view across. And when we got all done talking, they turned the meeting on to comment for the public and no less than fifteen

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people in the audience sputtered around, no way to inter—communicate to each other, got up and apologized to the state of Texas for what they were going to do, send all that stuff from the Vermont Yankee down here to put by those defenseless people. And that shocked me. That could never have happened in Texas. We don't apologize for the way we do. That's the way granddaddy did it, that's the way I'm going to do it. It's my property; I can do whatever I want with it. I heard the man that ran for Governor make that statement when he was asked about why he was selling water out of Comanche

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Springs. That's arrogant. So I thought we ought to shape up and we went on then to march varying degrees in about a ninety three-mile trip down to Brattleboro, to hold a rally. The—the people up there had gotten together to march, which was abolition. You know, that's enough already, stop, don't do anymore. First find out what the heck you got to do in order to be safe. Well, we did our best to join them in good spirits, and they joined us all the way along the line, every little town we'd come to, some people would meet us a

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mile or so out of town, and walk all the way with us to the end of the town, talking about what we were doing and so forth, but that was one of the highlights I think. Gary and I kidded a lot, he pushed me up a lot of hills. But this again was a done deal, it's just formalities and it would be signed, signed off on. But when it came right down to push and shove, in Austin they had a hearing and finally decided, no, we better not do that. So usually I find myself fighting for a battle I lose. This time we won.

(misc.)

DT: I understand that you are a self-educated person yourself about the environment and conservation. I was wondering if you could comment on how awareness is slowly evolving among society?

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HF: Well, much as been made of what all we have learned and I have come to feel that much should be made of what we haven't learned yet. The—you remember Rachel Carson, she tapped us on the shoulder pretty good, and should have. There are people today doing the same thing and the more I learn about what we do, the more I'm chagrined at some of the actions we do take. Much of it, almost all of it now, it seems like, comes out of corporations abusing their power and running things to suit them. And we just elected a president who's bound and determined to make money the big issue of living. I don't see the sense in making money if you're not going to sustain yourself.

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Sustainability seems to be a new word. They don't understand what it means. But, ever so often, nature taps us on the shoulder again. We better listen. Slowly we're getting into worse and worse shape with our concentration on money and pride, aggression. I don't see a good future unless we learn—learn to shift our—our attitudes. We've got the greatest teacher—nature—teachers in the world in nature, watching how she copes with problems. She's been practicing it for billions of years and she has some pretty good

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answers. We're unfortunately not developing as fast in education, in science, as we should. Even there, we aren't just excluding all interest in our egos, we're fighting with each other about who invented what first and so forth. We're not going to make it, the prospect is not good. If I had to guess at our hope of survival, I'd have to hedge by saying, I don't think our hope of survival is very good at all unless we have a major change in attitude towards sustainability. Much of what we do is anything but sustainable. Here the water situation is so terrible on the Rio Grande, it's dirty, there's

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something like two and a half million people in El Paso, Juarez, Elephant Butte Dam controls a lot of water for agriculture. Everybody slices up their share of the water and it turns out that there's none left for the wild animals at all. Haven't got time for that. Well, everything in nature is built to counterbalance—balance, counterbalance, balance, and if you're going to do—get into an escalation war, which we've done with pesticides and so forth, you escalate with a bug that will kill, with a drug that will kill some bug. And the bug, a lot of them get killed, but some don't. And they develop ways around

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that. Pretty soon you've got this bug. Now that—yesterday's solution is no longer a solution. You're escalating. You do something to harm nature, nature does something that takes care of that. You really think we're going to es—out escalate nature? I don't think so. So I'd say the human animal, unless he changes an awful lot and decides that sustainability is what's important, not your size of your fortune, and the bigger the fortune, the less that you get in danger from doing things that are illegal. That's not right.

DT: You mentioned pesticides as being one example of where people inevitably lose out, and the war is escalating attacks and I was wondering if you might comment on a little bit about some of the newer ways that scientists are trying to protect plants and us through genetically engineered organisms. You have any thoughts about the wisdom of that?

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HF: I don't have as many thoughts as I have misgivings. The food we eat developed over eons. And until we started messing with that sort of thing, we were a pretty healthy lot. As a young man eighty years ago, I didn't have any friends in school that had allergies or that were suffering from this, that and the other, cancer, all that was unheard of. Now grade school kids know about that stuff because there's so much of it around. Isn't that telling us anything? It seems to me we are involved in trying to, again, out escalate nature and it's not working. Some remarkable work as been done, it's true. But again, the old question that Einstein proposed, you know, what are you going to do with the waste? You come up with something that gets escalated above and so forth. Then

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something else is going to come up. You're fighting a war with nature instead of trying to benefit from her. And in the long run, I don't think that's going to work. A lot of innocent bystanders in the way of organisms and insects and—I'm appalled at how little attention we pay to pollinators. Where do we think the food comes from? But we just—kill the bugs. I got personally involved in 1979 when the question came up about, where

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the heck do the monarch butterflies go when they leave in the fall? In 1974, science found that they go down in the volcanic belt west of Mexico City. And they wouldn't tell anybody where, but Paul Spitzer, who is a ornithologist, a—one of the people that Roger Tory Peterson helped a lot. He wanted to know if they go down there in such masses as they're said to do. All of a sudden now, here's a food supply. A big, huge, inexhaustible food supply. What takes advantage of that? Something in nature will. So what? Well, we know who, everybody said, it won't be birds that eat them, because we have big blue

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jay experiments up in Cornell. And a blue jay eats a monarch butterfly and throws up because the monarch butterfly eats milkweed plant and there are cardiac glycosides in that, and it—it infects their body enough so that if you eat it, you're going to throw up. So rule out boards—birds. Well what else would it be? We went down there to find out in 1979 and had to find the place on our own. We got maps out and looked at the description of the areas and so forth. We found them. And we set out on a metric system grid, posts on a random area and smeared pie—peanut butter on all of them. If anything that's in the way of rodents around is sure going to eat the peanut butter. Well we were

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there for about three weeks and never saw a tooth mark in anything. It isn't that. There were millions and millions of butterflies and a lot of them dead on the ground, one of which had a number on a tag on the wing. I picked it up and sent it back to [Frederick] Urquhart in Toronto and he wrote back and told me that butterfly was tagged near Hawk Mountain in Pennsylvania. And it had made the trip all the way down. Others were there by the

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millions and they—they're still there, still viable. We—we studied them for about three weeks and found out that they were going to, being all together, start mating in about February. And this goes on until it's safe to head north again where they can get into bad weather. The butterflies then eat milkweed plant. They use them to lay—lay eggs on. They eat whatever — pollinate all sorts of things, but they lay eggs only on the milkweed plants as they go north. And some of them make it back up there, not all the way, but along the way they planted a whole lot of eggs. They, in turn, develop and go

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north, build up that big population again. And for three, four, five, I don't know how many differing, I suppose, generations, they don't think about migration at all. The fifth generation on, what does it know about what the experience is, where is the place that they should go, so forth. I don't know. I've never had anybody explain it. But the fifth generation, if—that's the one, comes out and starts exercising. Never a thought about mating. This group is going to go, mating comes on the way back. It's some kind of a system. And we found it as remarkable as it could be that that whole thing was taking

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place under our noses. The Indians have known about them for years. But now industry's come down there. Logging, cutting down the trees, and the big Oya mills are where the butterflies are. And you have to build terrible roads through the places to try to get at their ten thousand foot altitude and it's rough country. And they're going commercial. And so what's happening? We found the answer to our question. Birds do take advantage of all that easy living. They come in early in the morning. The birds eyes

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are very sensitive to motion, any motion, bing, leave, don't question, don't think about it, beat it. Something's wrong. That ought to be the way they go. But these butterflies are dormant. Their wings are locked back, absolutely motionless. The degrees are down around thirty-five, thirty-seven degrees. Thirty-two they can handle, thirty-one they can't. They have to be high, near water, so forth. We studied them for quite a while. And finally saw some birds come in early in the morning before their wings started moving, no motion, everything is absolutely still, so the bird is not alarmed and it'll come

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in, here's these butterflies. They hop along a branch, bite one on the wing. Get another, bite it on the wing, bite another. Oh, this one's all right. Peel off the abdomen, let the rest float down. Finally we located where they were going, when they were doing that, up above, by this spiraling down of the wings. And we found about seven species and subspecies of birds that were coming in there early in the morning, sampling, and not being disturbed by any motion, nothing else happening. Just—then as the butterflies start to opening up their wings and moving, leave, too much motion. So birds do do it. Why

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do birds flo—throw up in the states? Because there are a hundred and five different species of cardiac glycosides plants in the milkweed. Some are more, some are less. Sample, find one that's less that you think you can handle. Leave the others alone. We found what we wanted, but we also discovered logging trucks starting to come around on rickety, terrible roads, shifting loads, dangerous. But they were starting to clear out lumber. And just recently there's—you read about outrage, and that's what outrages me,

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is people realizing that this is probably the most remarkable migration in the world of all the migraters there are. I don't know of any that match that poor little butterfly flying two, three thousand miles. I found one that went at least two thousand, probably more. Why don't we learn something from that? But no, we got to make money. Sustainability, not good. Prognosis poor. Wake up.

[End of Reel #2153]

DT: Mr. Flanders, at the end of the last tape you talked a little bit about the pessimistic outlook because people weren't trying to live in a sustainable way. I thought that it might be useful to show that there are some alternatives that are much more sustainable and perfectly feasible. There's some examples right here around us in the way you designed and built your house. The way you planted your garden. Could you tell us about that?

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HF: Well, that's been kind of an outgrowth of being in the desert and finding out that you have to live with the sun, you—you can't fight it. And if it's good and certainly it is good, we wouldn't be on the planet at all if it weren't for the sun. Then why don't we use it to our advantage? Is it necessary always to fight the sun? So comes solar heating, passive solar heating, in competition with manufactured and expensive and limited energy. But it makes money so that makes it all right. I don't think so. Learning from nature, you take advantage of it where you need it and find ways to avoid it where you don't. You know, we don't feel like going underground, so why not live with the sun and

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try to use it to your own advantage, which we do. There is passive solar, and if it doesn't work down here in the desert, where's that going to work? They have successful examples in Maine of solar passive. So we tried to incorporate that when we built this addition onto the house by coming up with solar panels allowing the—the sun to come through and get on this black wall behind me here as a heat sink, so that when the sun is low in the sky, it's coming in and heating this black mesic rock. When the sun is up overhead in the summertime, nothing gets past the windows there. It doesn't come in at all. In the shop I have twenty-seven gallon jugs painted black on the back half of the bottle, filled with water and again, the cutoff so that summer that's not touched, but when

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the sun comes down and comes in and heats it in the winter, I got heat when I need it. And I can go out there at night and feel and things are still warm. I consistently get twenty to twenty-five degrees higher than the outside, just with the solar heat. And just in case, I deal with a lot of wood. I got wood scrapes out there to put in the furnace or the little stove, if we need it. Also we built with natural materials, this soil roof. I cheated a little. I got R-19 insulation above it and a metal roof which would be hotter than the devil but at least it doesn't leak when it hails. So, it's the best of combinations that we

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can think to put together. We've—when it comes to the planting on the outside, we started out trying to make it just as barren and remote and beautiful as the desert is. Miscalculated a little. Got a honey—honey locust tree in the front yard. And every fall the leaves fall down, so it's mulching up my garden and seeds fall on it and other plants creep in. But basically what we're after is cacti of several different kinds. Century plants, agaves, oh, I saw an interesting thing this morning. I have a Thompson Eye Yucca out in the front yard, big tall thing. And I saw a desert wren, cactus wren, swoop up into there. He's nesting there this year. In past years, the agaves, Century plants,

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they're called, because when the people first met them, the—the plant grew and grew and grew and got big and massive and no—no—no fruiting. Just leaves get bigger and fatter and stuff. Finally one day they mature and this year they sent up a stock and go into their reproduction cycle. But it's not a century; it's maybe seventeen to thirty-five years, somewhere in that area depending on the amount of moisture. You got to be big and

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strong before you can put up that stock. And you see behind me here one of the stocks that's sitting up on the shelf and that was the first one that came up for us in the front yard, right in the middle of the front yard. And it went up about twenty feet and five feet off the ground, a little ladder-back woodpecker came along and pecked a hole and moved out what he could from the outside and got a big hole and nested and successfully brought up young.



Ask me later and I'll show you a picture that's made by a man—a friend of mine who was taking pictures at the speed of—well, his exposures run sixty

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millionths of a second. That's fast. And he has stopped the woodpecker in the air about an inch away from getting into the hole and his wings are fluttering terribly at that point. But he stops it so cold that you see every line of the feather. You never have seen birds like that in your life because your eyes aren't good enough. But he did it and that was the woodpecker that built the hole at eye level right in the front yard next to the sidewalk. And he never nested there but one year because the house sparrows beat him to it the rest of the time. But there's so many interesting things about the desert. I have a piece of resurrection fern out there leaning up against a rock, and it looks like straw. It's nothing

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until it rains. And on camping trips, going down to the river, I'd get a piece of that and the night before we'd leave, I'd send everybody to bed, we'd get a wet washcloth and put the resurrection fern on it. And when they got up in the morning, just as livid green as you can get. And that's out there. Several different kinds of—one of the trees is the juniper. And the juniper—Texas is odd. They have juniper trees, which they hate and

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cut down and make posts out of them. And they come out of cedars, cedar posts, I don't know how they do this, but they do it. And it—it lasts well. That's what you have to do if you're going to be—exist out here at all. We get very little rain, we're just about ending up a eight-year drought or so. But right now, we're up against global warming, and everything in global warming says it's going—going to be more rigorous, hotter, colder, whatever characteristics of nature are going to be emphasized as a result of that. And we're seeing it here. And it's laced with mustard now. And mustard seeds are plentiful. And so it's kind of getting covered up. I got to get somebody to come in and clear out that landscape. But it is an attempt to simulate what I consider to be beautiful,

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just as it is out there in the desert. Why so—why are we so stuck with grass? I was interviewed once down on the river by a young man who asked me the question, what do you think about this golf course that they got down here right on the river? And I said, golf, I'm sure is a wonderful game and if people like to play that then what they should do is go to Boston, because Boston has lots of rain and you can do very well with the golf course back there. But not out here. Senseless. Why do we do it? So we can attract

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easterners out here? They—they go away again and take most of their money with them, so, what do we need with them? Nature should dictate what we do pretty much, and I think

when we successfully emulate the lessons we learn from nature, we'll do fine. We're never going to out—out escalate nature. We—we can improve by wrecking something in nature, but nature will get around that. I've enjoyed going into the desert

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plants, but I'm amazed at the amount of business that is carried on by stealing plants even out of the national park and taking them to the big cities where they're sold and someplace—and the people who get them water them to death. Ridiculous.

DT: Speaking of desert plants, can you maybe talk about how the landscape in the Chihuahuan Desert has changed over the recent times since people began settling this area?

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HF: Well, from what I can gather, even talking to some of the old ranchers, they described to me how the grass here used to be belly high to cattle. There's certainly no evidence of that sort of thing now. But what happened over the years to change that? In the old days the buffalo came down here and stomped all over the place for up to a half a year, maybe a little less, and then they went north again. And the rest of the year everything out there recovered and the soil was broken up so that seeds could get a possibility for growing and so forth. And there was plenty of food the next year because of that. But now came the cattle and the cattle are in the place. And if you're making

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money on selling cattle, you're breeding more and they stomp the hell out of the whole desert and that doesn't—it's all year, it's continuous. Nothing gets a chance to grow. And only the hardiest plants, which the native and folks coming down here at that time hate mesquite. Mesquite's a remarkable tree. The root system has been measured in one

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instance, a hundred and ninety-five feet. Got to have water down. That's tough—tough—tough—tough battle. But they make it and they don't like juniper because, I guess because it's there. I would think they'd want to leave some for cattle to sleep under, but I don't know. And I think it's pretty ridiculous. We could have—we have the makings for everything down here to have a really lush place if the sun weren't so hot. We could have lush in a more limited style. You don't have to be overflowing. The Saguaro is one of the most beautiful and well-known plants in the whole United States

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about deserts, but it's only found in the Sonoran Desert, not here. There are indicator plants here, which are interesting. Blind Prickly Pear is on. There are no prickles, no—no spines. Cattle love it. And if you notice on the way out in my front yard there's a whole

bunch of cactus and it's badly chewed up. Well here I am in the city, but the deer are down here at night chewing up the—and if down low you notice there's just as many bite marks down there. Javelina. They know how to get along.

DT: I was wondering if you would might tell of some of your interests in astronomy, because I understand that you've been a member of Big Bend Astronomical Society and I guess you've enjoyed looking at the stars just as they do over at McDonald. I was curious if you might tell a little bit about your experiences there and how that might, maybe that sense of scale, the astronomical scale, time and space, affects your attitude about life here on the planet. A big question

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HF: It is a big question, and why getting interested in that in the first place, was to learn something and now that I've begun barely appreciating what I'm seeing a little bit, I'm beginning to wonder. I go over there and I—I love to look at Saturn. It's—that's—that's really a showpiece. And there are double stars and there are all sorts of things you can't see with your naked eye, but with telescopes that we've got, you can. And I asked someone the question, well, how far away is that? And they tell me millions of light years. Uh huh. You think it'll change? Don't know. Do you think it's still there? No. What are you studying it for? They've got good answers and they do do a lot of

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remarkable research and I'm sure that's a juvenile way of looking at things, but I've lost a lot of interest in Orion with his sword and his sword belt and so forth. The double star in the middle of his sword is fourteen hundred and fifty light years away. And the double star, may come closer and develop more—or may fall apart and spin away. Don't know. But we won't know for fourteen hundred and fifty years yet. What is the value in being amazed? It sure gives you the respect for nature and what it's done, no question, and it raises some eternal questions, but right now, when we're literally fighting for our lives and we don't know it, I wonder if that's the most valuable thing we could look to as a lesson. The talent that's behind that is vast. These people are very intelligent. But what are they going to do with it? Canadian geese on my clock. 5:00.

DT: You say we are fighting for our lives, perhaps you could tell us what you think the most serious environmental challenges are that are making life's prognosis not so good?

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HF: Well, the biggest problem we got is the one that's least talked about and most often hidden and tremendous battles are being fought over it. Too many people. We have overpopulated. And now much of what we do is being shopped. China's might and size are great, that's all true, but boy there's a lot of people over there. They are however, doing more about population control than anybody else. And here we are, the richest country,

and we're doing our best to populate just as much as we can. In—in the past, creatures have disappeared because there were too many. If—sustainability is the

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answer. How many wolves should we have? Well, that depends on how many deer there are. How many deer will we have? Well, that's going to depend on how many wolves there are. The wolf is built so that he can just barely catch the weakest ones. He's pruning out the bad ones. Is that what we're doing? We could end up paying for that. So I think that's the biggest environmental problem that we face is how to cope with too many people and we don't talk about it largely because of religions. And everybody is mad at everybody else for what they think about it. I come in for my share, I'm sure. But we're not listening to nature. Nature prunes the weak ones and the smart ones are just good enough to catch the fleeter prey. So that's what I think and you'll probably get comments about that because that's—that's not blessed by the pope and a lot of other people. And somewhere along the line, we can't become an overpopulated, over regulated, undermined health race. It's—you got the seeds of its own destruction right there. I think it's—I don't know.

DT: Considering what a challenge it is, do you have any advice for the next generation that's going to have to confront, maybe this current generation that's feeding these environmental problems?

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HF: Well, the people who think about things like that seem to be working toward space travel in the hope that we can move to another location. But I don't want to go fourteen hundred and fifty years back to get on Orion. That could be a tough colonization. But space travel is being looked at as a possible, and it probably is. These people are a lot smarter than I am at what they can do. There again, that age-old question that Einstein asked, yes, but should we? Should we? We need to consider the consequences. And we're not considering the consequences, we're coping with the results that we're producing.

DT: Well, it sounds like Orion is not one of your favorite places, but maybe you could tell us about one here on earth that is a favorite spot that you like to visit? Gives you some comfort?

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HF: Oh, yes, that's easy one to answer. But I can get just as ecstatic about a whole lot of places. I think the favorite of them all is the Four Corners country up in Colorado, Utah, Arizona, New Mexico. The Hopis and the Navajos live up in that country and it is magic. See that picture over there on the wall? Arches National Monument right near four corners country. And the mittens and—it's a pretty starchy place. It's—not many organisms live in there that you can see. You really have to dwell there a little while and get the feel for it. But I guess I'm not a religious person, but I am very struck with beauty

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that nature produces on its own. And that's a place where your thoughts become uplifted a good deal. Whatever brings that about is whatever people call it, but I sure think that four corners country is great. And interestingly, I read a lot of mystery stories and the ones by Tony Hillerman are some of my favorites because when he talks about making his way from Cayenta to Dennehotso, I know what he's talking about, I've been there. In 1949, before they discovered uranium down in that country, I had to do some acceptance work for the telephone count—company, on four central offices in that area. And we came back through there in a little old Chevy two-door and two kids and the most worthless cocker spaniel I ever saw. He didn't have any sense at all. But we had a fine

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journey through that country when it was really pristine. Now it's chopped up with fortune hunters, of course, but the parts that are the most austere are away from everything else. Very few people up there yet, but the Indians. And it's interesting to note that now what commerce does go on up there, an Indian is behind the cash register, which I find very nice. Instead of working for the white man, for nothing, he's coming into his own a little bit. The trouble is he may not have sense enough not to follow our lead. I'm—I'm—I'm pleased with the continuation of their ways. Is anybody listening?

DT: Well, those are listening to this tape, do you have anything else that you'd like to add that we may not have covered so far in your conservation interests?

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HF: Well, I remember stopping in the redwoods country on the side of the road and walking about a quarter of a mile back in and it's silent back there. All the sounds that distract us constantly, not there. Sit down in the middle and listen. When the sun comes slanting through the trees and so forth and a little dust is in that, I've been in a lot of cathedrals but I've never been anything like that. Look to nature for guidance. It's there. I think that's it.

DT: Good advice. Thank you.

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HF: You bet.

[End of Reel #2154]

[End of Interview with Hal Flanders]